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Aging in the Asian "Tigers": Challenges for Fiscal Policy [1]

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Abstract

The paper assesses the government expenditure effects from changing demographics in the Asian "Tiger" economies through 2050. With some exceptions, their limited social insurance commitments initially suggest that aging populations may not adversely affect fiscal balances. Yet for all the Tigers, changing illness patterns and medical modernization may combine with demographics to intensify budgetary pressures. The paper notes the implications of the Tigers' reliance on private sector pension and medical insurance systems; the need for an active public role; and the complications for fiscal analysis when private sector instruments are used, in a mandatory way, as public policy instruments.

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SUMMARY

The paper assesses the timing and magnitude of the government expenditure effects arising from the changing demographics and evolving medical demands of the Asian "Tiger" economies. With some exceptions, and unlike the industrial countries, the limited social insurance commitments in most of these countries initially suggests that aging populations may not adversely affect fiscal balances. Yet for all the Tigers, factors such as changing illness patterns, modernization of the medical sector, upgrading of the labor force, and income distributional concerns will combine with demography to intensify budgetary pressures. How the Tigers address these developments and their ultimate fiscal cost is thus uncertain. The paper examines some of the broader challenges of policy reform in the pension and medical care sectors, noting that the social management tasks challenging the Tigers will become more complicated and costly.

The paper comments on the implications of the Tigers' approach of relying on private sector insurance systems in the pensions and medical sphere. While there is much that is innovative, the Tigers are also grappling with the insufficiency of these private sector initiatives in correcting for market failure, suggesting the need for complementary public sector policies to ensure competitive markets and reflect distributional concerns. An important consequence of increased reliance on private sector approaches is the increasing difficulty posed for fiscal analyses. Private sector financing instruments, often mandatory, are no longer captured as fiscal instruments, thus complicating the analysis of their allocative and distributional implications. The database on "quasi-public" sector issues is also weaker. This suggests the problems that arise for assessing fiscal developments in those countries seeking to emulate the approaches of the Tigers.

I. INTRODUCTION

Much attention has been paid to the aging of the populations of Western Europe, North America, and Japan. Only recently remarked upon outside the region, but equally consequential over the next several decades—both for their own economies and the global economy—is the significant aging that faces the populations of the "Tigers" of East and Southeast Asia (defined in this paper to include China, Indonesia, Korea, Malaysia, the Philippines, Singapore, Thailand, Taiwan Province of China, Vietnam, and Hong Kong, China). These decades will also witness a significant change in the types of medical problems which will be the principal health concerns of the Tigers' populations. These two transitions—demographic and epidemiological—will force many important adjustments in their societies. Important challenges will be posed for Government policy makers, particularly in the social sectors.[2] This paper will examine some of these challenges for fiscal and social policy.

The paper will first assess the timing and magnitude of the potential government expenditure effects arising from the changing demographics and evolving medical demands. Will the Asian Tigers be subject to the fiscal pressures that are currently feared in the major industrial economies? If so, when are such pressures likely to occur? The projections will show that the narrow demographic effects of aging are likely to have only a modest impact on government expenditure. However, other important factors will combine with demographic developments to intensify pressures on the budget. The changing nature of illness patterns, the transformation of the medical sector, the pressures to upgrade the skills of the labor force, and the need to begin addressing income distributional concerns are all factors which could influence the fiscal burden—broadly defined—of demographic change. How the Tigers choose to address these developments and their ultimate fiscal cost is still very much to be determined. What is certain is that the evolving social management tasks that will challenge the Tigers will become more complicated and will ultimately place significant pressure on the fiscal balance.

The second concern of the paper examines some of the broader policy issues faced by the Tigers as they address the challenges of policy reform in the pension and medical care sectors. It may, thus, prove more of interest for the general reader. With many of the Tigers relying on policy strategies increasingly emphasizing private sector initiatives, the role of the State is changing in these economies. Normative questions are raised as to whether it is desirable for the governments of the Tigers to play a less significant role in the social sectors. Has "privatization" of social sector responsibilities truly diminished the need for an active role by the State? The departure from the normal role of the government in the social sector also

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[2]The macroeconomic implications of aging of the Tigers' populations is the subject of a separate paper,"Implications for Savings of Aging in the Asian 'Tigers'," by P. S. Heller and S. A. Symansky (1997).

provokes questions as to whether the traditional analysis of the fiscal sector in these economies has increasingly been compromised. Has the adoption of such strategies weakened the capacity of authorities to monitor fiscal and quasi fiscal activities? Have the roles of the public and private sectors been blurred, thereby making it more difficult to analyze the macroeconomic and microeconomic impact of fiscal policies?

Section II briefly describes the key demographic and epidemiological trends confronting the Tigers, noting that the countries differ among themselves in the timing of the aging of their population. Section III examines the nature of the prevailing pension, medical, and education systems in the Tigers, and builds on that to make an estimate of the impact of demographic trends and other factors on government expenditures over the period 1995-2050. Section IV combines these projections to assess the timing and magnitude of impact on overall government social expenditures. Section V touches on some of the broader policy issues noted above. Section VI offers a summary and concluding thoughts.

II. Demographic and Epidemiological Trends

A. Population aging

How and when the aging of these populations manifests itself will have important implications for the structure of the social and fiscal policy choices confronting each of the Tigers in the coming years. In terms of timing, the countries fall into three principal groups: (i) the East Asian countries—the most demographically mature and developed in economic terms—and which are defined to include Korea, Taiwan Province of China, Singapore, and Hong Kong, China; (ii) China, the largest of the Tigers, where the aging process is occurring somewhat later and which is far less economically developed; and (iii) Southeast Asia—defined to include Indonesia, Malaysia, Philippines, Thailand, and Vietnam—which has recently experienced significant declines in fertility and increased life expectancy, but where a further maturing of these indicators can be expected and where per capita income levels are still relatively low compared to East Asia.

A few key demographic indicators suggest the macroeconomic and microeconomic pressures that will affect these economies in the coming decades.[3] The growth in the **working**

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[3]The study relies on the most recent World Bank demographic projections. It uses their central tendency assumptions on birth and death rates as well as likely immigration levels. Appendix Table 1 illustrates the assumed decline in fertility rates and the gradual growth in life expectancy, with the former moving closer to replacement levels (about 2.1) and the latter rising to the mid-70s. While the direction of these trends is clear, the speed and timing of the potential developments are subject to more uncertainty. Immigration is, of course, a more difficult variable to predict.

age population (15-64) will influence the potential growth of the economy.[4] The **overall dependency rate** (viz., the ratio of the population under age 15 or over 64 to the working age population) is an important factor influencing aggregate consumption and savings rates, as well as pressures on, and likely policies in, the different social sectors. The **youth and elderly dependency rates** allow a more focused analysis on these relationships.

What emerges from current demographic projections is a **pattern of successive periods of aging in the three groups,** each marked by increasingly **steep contractions in the youth and overall dependency rates, followed by subsequent increasing growth over time in the elderly and overall dependency rates** (see Chart 1 and Table 1). What East Asia has already begun to experience, in terms of a reduced size of the youth population, and will experience with an increased share of the elderly, will subsequently become the pattern, first in China, and then in Southeast Asia.

- **The East Asian countries are furthest advanced in terms of population aging.** Their **working age population,** which has grown at rates of 0.8-1.5 percent in recent years, will increase far more slowly during the period 2000-2030. After 2030, the labor force will shrink. This slowdown will put a brake on real economic growth rates (in the absence of large scale immigration).[5] **Through 2010**, **overall dependency rates** will be either stable or will increase modestly, and will fall below those of the other Tigers, reflecting primarily a significantly lower (and declining) youth dependency rate. Indeed, the absolute size of the 0-14 and 15-19 population groups will contract by 15-30 percent in almost all these countries. This period will also see the beginning of an acceleration in the elderly dependency rate. **After 2010**, the overall dependency rate begins to rise sharply, wholly reflecting the increasing share of the elderly population, relative to a slowly growing, if not declining, potential work force. The young population will remain roughly static in size. By 2020, the elderly dependency rate will double, relative to now, to about 20-30 percent, only slightly below the rates then observed in the United States. These trends will be reinforced thereafter.

- The annual growth of **China**'s population and its work force has already slowed to about 1 percent, and further deceleration can be projected. The aging of China's population will become most evident about 10 years later than in East Asia. **Through**

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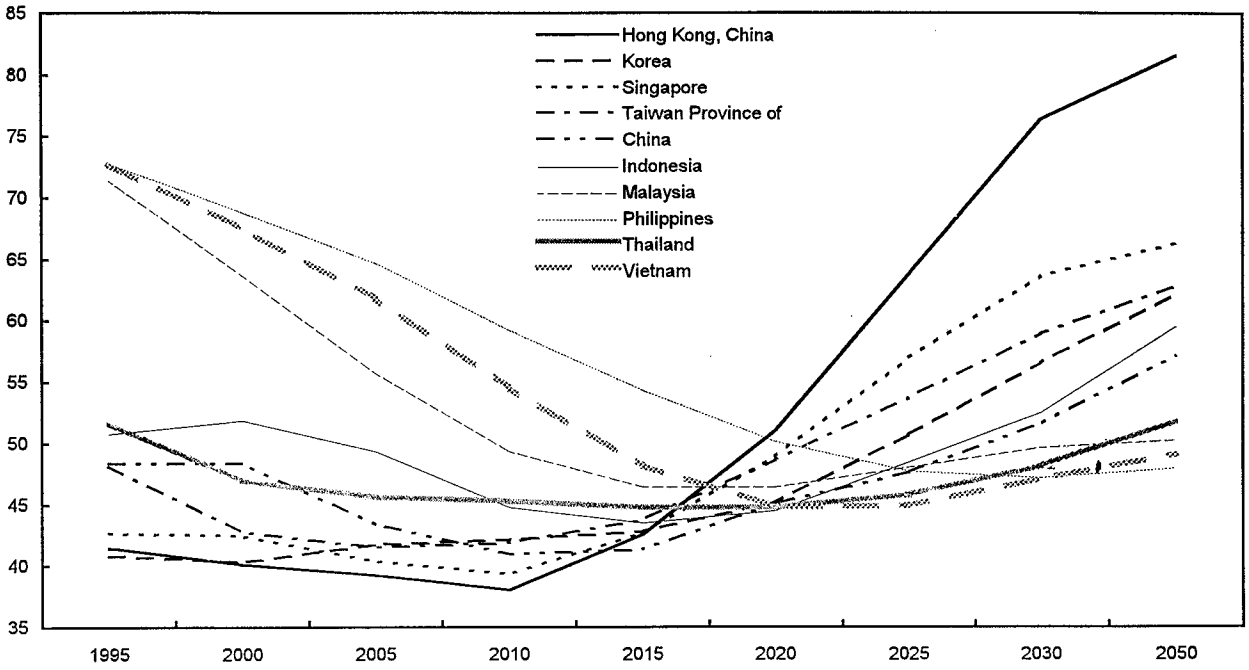
[4]A better measure would be the labor force growth rate. However, a number of factors make this difficult to project. Within the young age group, the work force participation ratio may fall as young people move to U.S.-type education profiles. Female participation ratios could rise (as has been recently the case in Japan). Immigration trends could also be a factor.

[5]Immigration or temporary worker flows have already proven important in Malaysia and Thailand (e.g., foreign workers account for 25 percent of Malaysia's labor force). Immigration could also become relevant for Singapore, Taiwan Province of China, and Hong Kong, China.

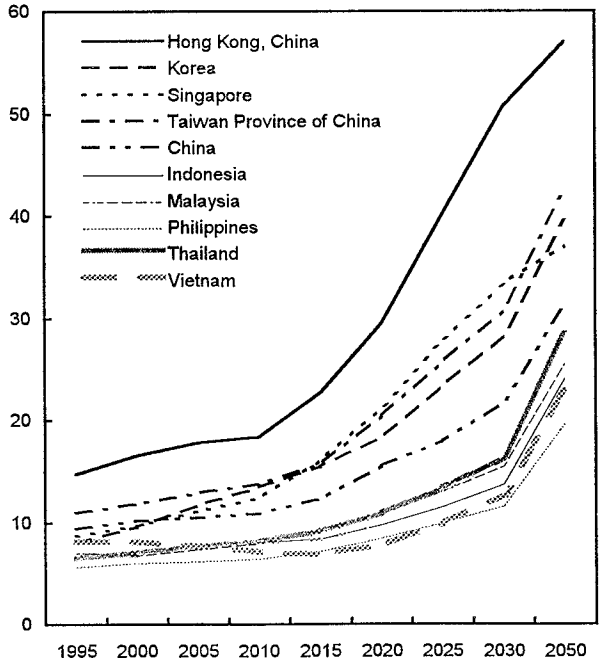
Chart 1. Demographic Indicators

(1995-2050)

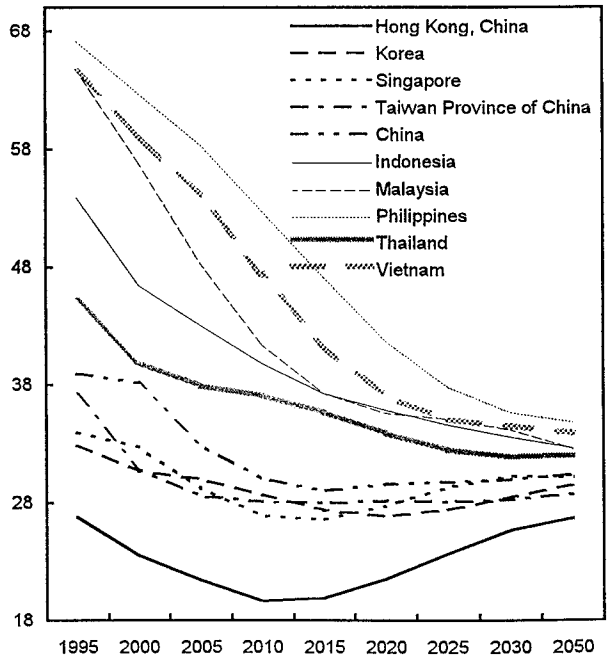
Total Dependency Ratio



Elderly Dependency Ratio



Youth Dependency Ratio



Sources:

Table 1. Rates of Change of Population and Population Size, 1950-2050

	Rates of change (total population)				Population size (in millions)					Rates of change (Age 15-64 of the working age population)		
	1950-90	1990-2000	2000-30	2030-50	1950	1990	2010	2030	2050	1990-00	2000-30	2030-50
East Asia												
Hong Kong, China	1.6	0.7	0.1	-0.5	3.0	6	6	6	6	0.8	-0.7	-0.8
Korea	1.9	0.9	0.5	0.0	20.0	43	50	54	54	1.1	1.0	-0.4
Singapore	1.0	1.6	0.8	0.0	2.0	3	3.5	4	4	1.5	0.3	-0.1
Taiwan Province of China	1.3	0.8	0.5	0.1	12	20	24	26	26	1.5	0.2	-0.3
China	1.8	1.0	0.6	0.2	555.0	1,133	1,347	1,501	1,556	1.0	0.5	-0.1
Southeast Asia												
Indonesia	2.0	1.5	1.0	0.5	80	178	231	275	304	2.4	1.1	0.2
Malaysia	2.7	2.1	1.3	0.7	6	18	25	32	36	2.6	1.6	0.5
Philippines	2.7	2.3	1.5	0.8	21	62	94	121	143	2.7	2.0	0.7
Thailand	2.6	1.4	0.8	0.4	20	56	72	83	91	2.1	0.8	0.1
Viet nam	2.0	2.2	1.4	0.7	30	66	97	123	142	2.7	1.8	0.5
Total	1.9	1.2	0.7	0.3	749.0	1,585	1,950	2,225	2,363	1.8	0.9	0.0
United States of America	0.6	1.0	0.6	0.1	200	250	297	328	335	0.9	0.2	0.1
Japan	0.8	0.3	-0.1	-0.3	90	124	128	122	115	0	-0.6	-0.7

Sources: World Bank statistical sources

- **2010**, its overall dependency rate will fall sharply—from almost 50 percent to 41 percent, reflecting an absolute decline in the 0-14 population. **After 2010**, its elderly and overall dependency rates will gradually increase (with a doubling of the former by 2030 relative to current levels, and a tripling by the year 2050), although these rates will still be below those in East Asia.

- The aging of the populations of the **Southeast Asian** Tigers is marked by a **first phase**—through about 2020—of a gradual, but quite significant contraction in both the youth and overall dependency rates and a somewhat higher relative growth in the labor force than in the other Tigers. During this initial phase, the overall dependency rate is relatively high, primarily because of the relatively high youth dependency rate—ranging from 38 percent in Thailand to 54-58 percent in Philippines and Vietnam, and mirroring the higher fertility rates in most of these countries (in the range of 3-4 through 2012). The decline in the youth dependency rate becomes fairly steep, falling to levels of 33-36 percent by 2020, and the size of the 0-19 population will stabilize in a few countries (viz., Indonesia, Malaysia, and Thailand). In contrast, in others, (i.e., Vietnam and the Philippines), the size of the 0-19 population will grow through 2020.

  The **second phase,** beginning **after 2020,** is marked by a rising share of the elderly and overall dependency rates. The former will reach 22-28 percent by the middle of the century, still below the elderly dependency rates that will be observed in East Asia (at about 40 percent) and China (31 percent). As elsewhere, the youth dependency rate and the number of young will stabilize.

B. The epidemiological transition

The demographic transition, which will be increasingly reflected in the aging of the populations of the Tigers, can be said to have resulted, inter alia, 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 Tiger populations towards those now observed in the industrial economies.

A recent important collaborative study on the global burden of diseases by Harvard's School of Public Health, World Health Organization (WHO), and the World Bank provides strong evidence that the epidemiological profile of the Tigers' populations will change significantly in the coming decades. This should have a relatively dramatic effect on the demand for medical care (Murray and Lopez (1996)). The Harvard study provides detailed projections, not only of mortality patterns through 2020 in the major regions of the world, but

also of the "burden" imposed by different diseases.[6] In particular, the study projects the epidemiological profile of China and of a group of countries called "Other Asia and Islands" (OAI). The latter group, though broader in coverage than the definition of the Tigers in this paper, is nevertheless indicative of the changes the latter countries are likely to experience.[7] Two trends are particularly relevant:

- **Causes of death**: Noncommunicable diseases presently account for 50 percent and 72 percent of deaths in China and OAI, respectively, relative to 87 percent in the Established Market Economies (EME) of Japan, Western Europe, the United States, and Canada.[8] By 2020, the shares in China and OAI will rise to 75 percent and 85 percent respectively. In contrast, the share of deaths from communicable diseases will drop from 16 percent in China to 4 percent; in OAI, the corresponding decline will be from 39 percent to 14 percent. Equally important, medically complex disease problems (in terms of treatment requirements) will account for a relatively larger share of the illness pattern. (e.g., deaths from cancer and cardiovascular diseases will rise, in per capita terms, by about 80 percent and 40 percent, respectively).

- Although these societies will be much healthier (in terms of the gains from greater longevity and lower rates of disability), the pattern of morbidity, (i.e., the nature of the illnesses that may afflict the populations), is likely to shift over the next twenty five years toward a heavier burden derived from chronic, noncommunicable diseases. For example, in China, the share of the burden attributable to noncommunicable diseases will rise from 58 percent to 79 percent by 2020; in OAI, the increase will be from 41 percent to 66 percent. This contrasts with 80 percent today in the EMEs.

The nature of the medical demands that are likely to arise from these epidemiological trends will create pressures for increased spending on medical care in the coming decades. Thus, in effect, the epidemiological trends will enhance the impact of the already discussed

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[6]In effect, for each of the major disease categories, estimates are made of the "losses" or "disability-adjusted life years lost as a result of premature death or years lived with disability." The methodology is conceptually simple: premature death at a given age engenders the largest loss. The relative loss from disability at the same age is calibrated according to the "severity" of the illness (e.g., a much higher weight is attached to blindness than to the loss of a limb). See Murray and Lopez (1996).

[7]OAI also includes Sri Lanka, Bangladesh, Burma, Mongolia, Cambodia, and North Korea.

[8] Noncommunicable diseases include, *inter alia,* cancers, cardiovascular diseases, respiratory diseases, and neuropsychiatric disorders. Communicable diseases include tuberculosis, tropical cluster diseases (e.g., schistosomiasis, filariasis, trypanosomiasis), diarrhea, childhood cluster diseases, sexually transmitted diseases (including HIV), respiratory infections, perinatal conditions, and nutritional deficiencies.

demographic trends. Taken together, the demographic and epidemiological projections suggest that their societies will face increasing financial pressures—after 2010 in East Asia, somewhat later in China, and after 2020 in Southeast Asia. As their populations age, there will be fewer members of the working age group to support the elderly, unless there is a significant deferral of retirement to later years. Moreover, the cost of supporting the elderly can be expected to rise due to the potentially larger burden of medical care costs associated with the more complex disease problems faced by aging and modernizing population.

III. Sources of Fiscal Pressure from Demographic and Epidemiological Change

A. Relevance of the projection models used for industrial countries

In the last decade, both the IMF and OECD have carried out a number of studies of the fiscal impact of aging of the major industrial countries.[9] 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.[10]

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's social insurance commitments appear inadequately funded. Financial sustainability will be achieved only by a combination of cutbacks in benefits or an increase in contribution rates.

What has made these analytic exercises relatively straightforward is the dominant role of industrial country governments in the financing of the social sector. Excepting the United Kingdom, the replacement rate of the public pension tier—the ratio of the initial pension to the final wage—is substantial (although relatively less in the United States, Japan, and Canada than in the European economies) and the coverage of the labor force comprehensive. With the exception of the United States, public medical insurance programs cover most of the

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[9]Heller et. al. (1986); Chand et. al. (1996); OECD (1985, 1988 and 1996).

[10] Thus, projections of pension outlays take account of eligibility ages for retirement, legislated formulae for replacement rates, expected improvement in life expectancy, and the size of the retired cohort. For medical care outlays, data on the difference in public spending per capita by age group are used to assess the impact of a changing age structure. The impact of technological change and medical care inflation are also often included in models that otherwise assume no general price inflation. In the education sector, the variable principally changing in the projections is the size and composition of the younger age cohorts, with enrollment rates assumed constant. Typically, real wage and benefit levels are assumed to track the growth of real productivity in the economy.

population, providing for both inpatient and outpatient care and, in some countries, the purchase of pharmaceuticals. The government's share of co-payments for hospital care is also substantial. In the United States, virtually all elderly are covered by the Medicare or Medicaid systems, which finance a substantial share of their medical costs. In the education sector, enrollment rates are largely universal for primary schools and are very high at the secondary level, with the public sector financing the bulk of outlays. The public sector is also heavily engaged at the pre-primary and post secondary or tertiary levels, with a dominant private sector role only in the United States and Japan.

In contrast, among the Tigers, the government's commitment in the social sectors is far less comprehensive, with major segments of the population uncovered and many areas of social sector activity still in the private sector domain. This will be described below, but broadly the following characteristics apply. Public pension systems exhibit considerable variety among the Tigers, but a principal characteristic is the absence (with the exception of Korea and Taiwan Province of China) of the kind of comprehensive coverage, defined benefit, pay-as-you-go public pension system observed in Western Europe and the United States. Some countries have introduced provident funds, but these are largely focussed 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 rationalize 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 (using the traditional medical referral systems) or from private sector practitioners (without insurance intermediation). In the education sector, the government'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 Tiger populations may prove to be more a question of whether government policies evolve in the direction of expanded coverage and enhanced social insurance policy commitments. The remainder of this section will estimate, for each sector, the magnitude and timing of pressures for enhanced government outlays in the social sectors through 2050 that would arise from strictly demographic change, taking account of the extent of *current* involvement of the government in these areas. It will then examine the *additional* implications of policy choices and other key factors (e.g., epidemiological developments) that are also likely to affect social expenditures. In the process, it will highlight some policy challenges being faced by governments trying to rationalize and modernize their social policy approaches and institutions.

B. Providing income support for the elderly

Current systems and the nature of government involvement

Public pension systems exhibit considerable variety among the Tigers. Only Korea and Taiwan Province of China have defined benefit, pay-as-you-go, public pension systems with largely universal coverage of the workforce (see Tables 2 and 3). Taiwan Province of China'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.[11] Coverage is relatively comprehensive for the mandatory provident funds of Malaysia and Singapore (much more so for the latter), as well as that soon to be established in Hong Kong, China. These are defined contribution schemes which result largely in lump-sum withdrawal benefits upon retirement, but which allow earlier withdrawals for specified purposes (e.g., 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 contributor populations.

In the other Tigers, 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 (e.g., 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.[12] Where such schemes exist, they may be 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, Philippines, Thailand, and Hong Kong, China), and most of these are in the form of provident funds. [13]

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[11]The first eligible cohort in Korea will begin receiving pensions in 2003, having satisfied the 15-year minimum contribution requirement.

[12]Tiyabji's (1993) estimates suggest effective coverage rates of about 12 percent of the labor force in Indonesia, and one-third in Malaysia and the Philippines; Thailand's new system should increase its rate substantially from its current low rate of 10 percent of the labor force.

[13]One measure of the limited coverage is the share of contributors in the labor force. Other than in Malaysia and Singapore (whose shares are roughly 45 percent and 67 percent, respectively), available data suggest shares of around 20 percent in China, Indonesia, and the Philippines.

Table 2. Characteristics of the Public and Private Pension Systems of Asian Tigers

	Types of Formal Prevailing Old Age Pension Systems	Role of Government in system	Coverage of Formal Systems
China	Separate mandatory employer provided programs or city-country based social insurance systems; no pooling; Defined benefit type schemes, with minimum pension for members; largely pay-as-you-go; some movement toward greater pooling in urban areas among enterprises.	General supervision at central govt. level provincial or city/country agency may administer retirement pension pools for participating enterprises.	Largely civil service and state-owned enterprise systems; presently cover 28 percent of working age population; almost wholly in urban sector; nonstate sector (50 percent of employees)--spotty coverage, ranges from 20-90 percent.
Hong Kong, China	No national social security system; Civil servants, judiciary, and teachers--Pay-as-you-go pension scheme; quasi-govt agency employees have provident funds; about 15,000 voluntary private pension schemes (largely provident fund types); Also, there is a noncontributory social welfare schemes to raise incomes to a minimum level for eligible persons among elderly, disabled, children, and indigent in labor force. A privately managed, Mandatory Provident Fund scheme is envisaged to be introduced in 1998, which would include existing private pension schemes.	Government budget finances welfare scheme; Social Welfare Department administers its program.	Government pension schemes for its employees cover about 7.5 percent of employed; private provident fund schemes presently cover about 29 percent of employed. New mandatory pension fund would more than double latter coverage rate
Indonesia	Defined benefit pension systems for civil servants and military (managed by PT. TASPEN and PT. ASABRI, respectively), partly funded from employee contributions; the rest from budget; For "defined employers", mandatory private sector Defined Contribution scheme (under overall employee benefit package called JAMSOSTEK) and managed by ASTEK (provident fund providing lump sum payments): weak compliance with law and poorly enforced; limited coverage; minimal government regulation. Also, there is a voluntary employer-sponsored pension program.	Budget pays 77.5% of civil service pensions on pay-as-you go basis (but none of lump sum benefits); Government has ultimate responsibilities if assets of civil service scheme are inadequate. Favorable tax treatment of lump sum benefits and contributions (e.g., effectively tax exempt) for public pensions; for private sector plans, contributions deductible but benefits taxable as regular income. ASTEK, PT. ASABRI, and PT. TASPEN are state-owned enterprises (limited liability companies subject to corporate tax). Extensive government monitoring and regulation over investment policies through the Departments of Manpower, Finance, and Defense Department.	"Defined employers" include state-owned enterprises and companies with more than 10 employees; Including the civil service and military, less than 20 percent of labor force are covered by public or private systems (including voluntary system)

Table 2 (Cont'd). Characteristics of the Public and PrivatePension Systems of Asian Tigers

Korea	Social insurance system: National Pension Corporation; Defined Benefit type scheme; Also civil service and military pension schemes of Defined Benefit type. Private sector teachers scheme (tripartite contributions structure); National Pension Fund (NPF) intended to be fully funded; System is still immature (with 15 year minimum period and lack of retroactivity, pension payments will not be made before 2003); benefits adjusted to price changes.	Government budget contributes both as employer of personnel and to cover any operating deficits of schemes for Government employees. Government also pays part of contribution for private teachers pension scheme; Government finances administration costs of NPF for voluntary component. Government regulation of NPF investment policies (half being deposited in Government special account; in 1995, 60 percent deposited in public sector); all pensions nontaxable.	Mandatory for private enterprises with more than 5 employees; recently mandatory coverage also for rural self-employed, farmers, and fishermen; urban self-employed and workers in firms with fewer than 5 employees are voluntarily covered.
Malaysia	Mandatory participation in Employee Provident Fund (EPF); individual accounts; fully funded; payment of lump sum upon retirement; longevity and inflation risk borne by retiree; no redistributional character; some government employees, armed forces, and teachers covered under separate provident fund schemes; no safety net public pensions. EPF is a trust fund and has statutory body character (under Ministry of Finance).	Contributions are tax deductible; pensions taxable but lump sum withdrawals from EPF are nontax-able; government regulation of investment policies of the EPF (requiring investments only in Malaysia with significant share in risk free government debt)	EPF covers all wage earners; self employed contribute voluntarily; In principle, universal coverage of EPF in formal sector (86 percent of labor force). In fact, less than half of the labor force were "active" members in the sense of contributing one month in previous year.
Philippines	Two tier formal Social security system. First tier: largely mandatory old age pension systems of Defined Benefit - type (provided by Social Security System (SSS) for private sector; Government Service Insurance System (GSIS) for Government sector). Second tier: some private enterprises offer occupational pension schemes on Defined Benefit basis.	Government covers any deficit in SSS and GSIS systems.	SSS and GSIS: 19 percent of employed persons (100 percent coverage of public sector in GSIS, 15 percent of private sector in SSS); other statistics suggest 36 percent coverage. Limited coverage of self-employed, rural sector.
Singapore	Mandatory participation in Central Provident Fund (CPF); payment of lump sum or annuity benefits upon retirement; inflation risk borne by retiree; no redistributional character.	Significant tax subsidization: contributions are untaxed both at entry and exit from scheme (cost about 1 percent of GDP). Government benefits from regulatory requirement on investment in Government securities.[1]	Two thirds of labor force is effective coverage.

[1] The Singapore Government pays an administered rate of interest on bonds which is lower than what it presumably earns on funds invested by it (thus representing an implied tax on CPF members' balances or CPF wealth)

Table 2 (Concl'd). Characteristics of the Public and Private Pension Systems of Asian Tigers

Taiwan Province of China	A contributory social insurance scheme instituted in 1950's; lump-sum benefits only of Defined Benefit-type. Since 1985, employers required to set up a retirement fund, constituting 2-15 percent of monthly wages, which must be deposited in a special account with a designated financial institution. Thus, a move to increased funding. These accounts pooled into a pension fund managed by the Central Trust Bureau of China under Government supervision and with investments largely in Government bills and bonds.	Government contribute small percentage of wages (0.65% of employees, 2.6 percent self-employed) and cost of administration; bulk contributed by employer and employee.	Covers employees of industrial firms, mines and plantations with >5 employees; public utility employees; and some self employed in services sector; special systems for farmers, salaried public employees and staff of private schools.
Thailand	Public pension scheme. Civil servants now in mandatory provident fund scheme (previously had been Defined Benefit scheme). Very limited schemes in private sector and these are largely of provident fund character; new system recently established makes it compulsory for enterprises of more than 20 employees to provide provident funds. However, participation of employee is not mandatory.	Only limited tax incentives for private sector schemes; Government contributes one third of financing for new private sector pension scheme; may contribute more than a third for civil servants. Investment guidelines on provident funds stipulate that minimum of 60 percent of investments must either be in government securities or bank deposits.	Expect that roughly two thirds of labor force will be covered under previous and new systems; as of now, coverage far more limited (i.e., 10 percent).
Vietnam	New Defined Benefit-type social security system established in 1995; partially implemented pilot schemes in 5 selected provinces; special programs cover employees in Government services and armed forces.	Government. covers any deficit in scheme; whole cost of benefit expenditures for employees in covered employment until implementation of program by employer.	Vietnam Social Security Organization (VSIF) in process of being established; VSIF has presently around 4 million. In pilot schemes, covers employees in firms with 10 or more employees, foreign-invested enterprises or foreign organizations and employees in nonmarket sectors or special economic zones. Self employed are excluded. Special schemes for civil servants and armed forces.

Table 3 . Coverage of Public Pension Systems in the Asian Tiger Countries

	Share of Population over age 65	Ratio of Population over age 65 to Population, 15-64	Labor Force Coverage of formal pension schemes (as a percent of labor force)	Public pension outlays/ GDP	Contributions / GDP	Surplus	Assets / GDP (in percent)
China	5.8	8.7	28	2.2 - 2.6 (1995)	4.0 - 4.4		Urban State owned enterprises: 3.5 (1995)
Hong Kong, China	8.9	12.7	0	Social Security: 1.0	1.6		private schemes: 7.5 (1995)
Indonesia	3.9	6.5	20	1.0 : (Government pension outlays)	0.3 (Civil service scheme)	0.9	10.7 (1990)
Korea (NPF: National Pension Fund)	4.9	7.1	80	Government Social Security and Welfare: 1.8; NPF: 0.2	NPF: 1.1	NPF:1.7	NPF: 4.0 (1995)
Malaysia (EPF: Employees Provident Fund)	3.6	6.3	45 effective coverage	EPF outlays: 1.1 (for retirements); Government outlays: 1.7	EPF contributions: 8.0	6.4 (1995)	EPF: 50.0
Philippines (SSS: Social Security Scheme; GSIS: Government Service Insurance Scheme	3.4	5.9	20-30 (1990)	SSS and GSIS: 1.6 (1995)	SSS, GSIS: 1.6	0.9	Public & private schemes: 11
Singapore (CPF: Central Provident Fund)	5.6	7.8	67 percent of labor force	CPF withdrawals for retirement: 1.1	CPF contributions: 10	4.5	CPF: 55.0 (1995)
Taiwan Province of China	6.1	9.3	largely universal				
Thailand	3.8	6.0	10	Central Govt pension outlays 0.6			3.4
Vietnam	4.5	8.1	10	Pensions: 1.7			

Projections, 1995-2050

Estimates from existing studies

There are few estimates of the impact of demographic trends on the pension outlays of the Tiger governments. 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 subject. For example, in Korea, actuarial projections show the emergence of operating deficits in the National Pension Fund (NPF) at least as early as the 2020s and possibly sooner. This will require a drawdown on NPF assets and ultimately some budgetary support in the absence of an increase in contribution rates. For the provident fund-type schemes of Singapore and Malaysia (and perhaps those ultimately adopted in Hong Kong, China), projections suggest that the aging of the populations will also result in a net drawdown on fund reserves. To the extent that these funds are classified in the private sector, these drawdowns would have no impact on measured government fiscal balances.[14]

For the other 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 forces associated with particular pension schemes, and on the terms of eligibility for benefits in these schemes. The few available financial projections (whether for government employees or schemes directed at private or state enterprises) suggest the exhaustion of built-up reserves within the next decade or so, and mounting operating deficits.[15] 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

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[14] The tax treatment of these various pension schemes varies, but tends to be quite generous. However, in general, the observed increase in private savings arising from the schemes comes at the expense of some reduction in public saving via the tax collections foregone on incomes diverted to the pension fund. In other words, the increase in national savings is less than that for private savings. As the fund balances are finally drawn down, the reduction in private savings will similarly be partly offset by a smaller reductions in public savings.

[15] 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 (see 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 the Philippines, SSS and GSIS reserves will be depleted by 2014-2016. In Thailand, civil service pension deficits begin to emerge in 2020 and reserves have been projected to be depleted by about 2027.

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.[16]

Projections of fiscal cost

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. Our underlying model is admittedly crude and is meant only to provide indicative measures of magnitude. Absolute gross outlays (in a world of zero inflation) are assumed to rise proportionately with the increased number of elderly. The impact as a share of GDP is assumed to be determined by the pace of growth of the labor force, with real pensions assumed to rise in line with real labor productivity in the economy. The coverage and effective replacement rates underlying the government's involvement are assumed to essentially remain unchanged.[17]

Table 4 presents the basic results. 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 Province of China, and with far more limited effects in Singapore and Hong Kong, China.. Outlays in Taiwan Province of China and Korea could also rise

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[16]Indeed, one could imagine that introduction of broadened coverage of social insurance schemes could readily provide for a significant increase in the size of the contributory population group, and thus allow for a financial bailout of these schemes.

[17] Government outlays covered in the analysis are current gross outlays by the government on behalf of or in relation to old age pensioners. For countries with public provident fund schemes (particularly Malaysia and Singapore), gross withdrawals have been adjusted downwards to exclude withdrawals for purposes *not* related to retirement *per se*. For example, in Singapore, withdrawals from the Central Provident Fund, which are primarily of a lump-sum character, occur either at retirement or in association with an "allowable" purpose (which can include investments in properties, shares, and commodities, home ownership, health care savings; various types of insurance including medical care insurance, loans for tertiary education, and subsidies to purchase shares of partially divested government enterprises). For Malaysia's Employee Provident Fund, in addition to lump sum withdrawals at retirement, withdrawals can be for approved medical expenses and for investments in mutual funds institutions. As a result, the number of individuals withdrawing funds from either scheme may bear little correspondence to either the number of newly retired, or a fortiori, the number of elderly in the population. Indeed, Asher (1997) has argued that less than 20 percent of total withdrawals from the Singapore scheme are associated with retirement. It is thus difficult to utilize total withdrawals in these two systems as a means of assessing the significance of replacement rates. Independent statistics suggest that the actual replacement rate (as percent of law drawn salary) in Singapore is between 20 and 40 percent of a workers' last year's earnings).

Table 4. Projecting the Impact of Demographic Factors on the Growth of Public Pension Outlays, under Status Quo and Enhanced Coverage Pension Policy Alternative, 1995-2050

	Government outlays in 1995 (as percent of GDP)	Implied Average replacement rate 1995 (in percent)	Under existing public pension schemes coverage between 1995 & 2010	2025	2035	2050	Assuming uncovered elderly population receive pensions, with a replacement rate of 30 percent of per capita income 2010	2025	2035	2050
			(change in outlays from 1995, as percent of GDP)							
East Asia										
Hong Kong, China	1.0	10	0.3	1.7	2.7	2.9	4.2	9.1	11.4	12.0
Korea	2.0	39	1.4	3.8	6.2	7.9	1.9	4.7	7.2	9.0
Singapore	1.1	0	0.5	2.4	3.4	3.6	1.3	4.1	5.6	5.8
Taiwan Province of China	3.8	51	1.0	5.1	8.0	10.8	1.0	5.1	8.0	10.8
Average	2.0	25	0.8	3.3	5.1	6.3	2.1	5.7	8.0	9.4
China	2.6	41	0.4	2.4	4.8	6.0	2.1	5.0	8.5	10.2
Southeast Asia										
Indonesia	1.0	23	0.2	0.6	1.2	2.4	1.6	2.8	4.0	6.6
Malaysia	2.9	74	0.6	2.8	4.9	8.3	1.5	4.4	7.0	11.2
Philippines	1.6	48	0.2	1.2	2.1	3.9	1.1	2.7	4.0	6.7
Thailand	0.6	14	0.2	0.6	1.2	2.0	1.7	3.1	4.8	6.8
Vietnam	1.7	36	-0.2	0.4	1.5	3.1	0.9	2.0	4.0	6.6
Average	1.6	39	0.2	1.1	2.2	4.0	1.4	3.0	4.8	7.6

substantially, by about upwards 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; even Hong Kong, China with its modest means-tested program, could observe almost a quadrupling of the expenditure share by 2035 on strictly demographic grounds.

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 now and 2025. Thereafter, however, demographic factors alone could increase government pension outlays by 5 percent of GDP by 2035, relative to current levels.

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, relative to now), with the significant exception in 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 obvious differences in the scale of the government's budgetary involvement in the pension sector. However, the statistics also implicitly suggest the significant differences across economic groups within a country in terms of their claim on formal pension incomes during retirement. To get a sense of this, it is interesting to calculate the implied replacement rate of pensions (relative to per capita income) that would arise if current total government pension outlays in each of the Tigers were distributed equally among all the elderly.

This can be compared with the rates observed in some of the industrial countries with largely *universal* public pension system coverage. In the early 1980s, average retirement benefits were roughly 25-30 percent of per capita income in Canada, Japan, the United States, and the United Kingdom; they reached 45-80 percent in France, Germany, and Italy (Heller 1986). In 1995, for those East Asian Tigers with relatively comprehensive coverage rates for their pension systems (notably in Korea, Singapore, and Taiwan Province of China), the implied replacement rates would appear not too dissimilar from these levels (see column 2 of Table 4).

More striking, however, is the level of the implied replacement rates for China and the Southeast Asian Tigers, where much of the labor force is *not* covered under formal government pension schemes. In these countries, the implied replacement rates appear surprisingly high—41 percent in China (with only about a fifth of workers covered in pension schemes), 48 percent in the Philippines, 36 percent in Vietnam, and as high as 0.74 percent in Malaysia. The obvious implication of these results, if in fact valid, would be that the pensions received by those workers and dependents actually covered under the formal government

pension schemes are relatively high (100-200 percent of per capita incomes).[18] In contrast, the population *not* covered under such schemes—typically those in the informal and rural sectors—is 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 (as illustrated in the last four columns of Table 4). 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 above the levels earlier projected (i.e., requiring outlays in addition to those on current covered pension participants). The increase in Hong Kong, China would be particularly large, even in the near term (given its modest public pillar at present). 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 increases thereafter.

Two broad sets of issues are clearly on the public policy agenda. First, where existing schemes for public enterprise employees and civil servants (e.g., in China, Indonesia, the Philippines, 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 are 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. [19]

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[18]It is likely that the aggregate published expenditure statistics include government outlays for other kinds of benefits (disability allowances, death benefits, etc.) that may result in an overstatement of the actual replacement rate received by such covered workers. This appears to be the case for Malaysia, but also probably so for some of the other cases as well.

[19]The issues associated with pension system reform have been recently well explored in the

(continued...)

C. Health and medical care sector

Current systems and nature of government involvement

The role of the government in the **medical sector** of the Tigers is quite varied (Table 5). Most of the East Asian Tigers have boldly introduced health insurance reforms that seek to rationalize the financing of medical care, cope with the changing pattern of medical demand and use market principles to contain costs. The medical insurance programs in Korea and Taiwan Province of China have nearly universal coverage and coverage in Singapore is substantial. Funding is largely derived from a combination of employer and employee contributions, budgetary transfers, and direct copayments by patients, with care provided in both the public and private sectors. Although most schemes are formally in the private sector (e.g., in Korea, through private insurance societies) most also involve some degree of public regulation or management. However, their financial operations are typically not included in the government's budgetary accounts.

In contrast, in **China**, medical insurance coverage effectively applies to no more than 20 percent of the population. In the urban areas, the evolution toward a market-based economy has resulted in largely autonomous medical "insurance" systems that are either municipality- or enterprise-based, and which principally cover workers in the civil service and in the larger state-owned enterprises, respectively. However, no more than half of the urban population (which is only about a quarter of China's total population) is under a formal medical insurance scheme. In rural areas, the former commune-based health systems have largely broken down. For the three quarters of China's population that live in rural areas, only 5.4 percent of rural communities maintain collectively financed cooperative medical care systems (Hsaio (1995)).

Among the **Southeast Asian Tigers**, governments have sought to provide medical services through government hospitals and health centers (using the traditional medical referral systems). Outlays have been financed directly from the budget and, to a lesser degree, from user fees. Fiscal restraint has, over the years, led to underfinanced public facilities, with tertiary hospitals in the major urban centers and more limited curative and primary care facilities in the smaller cities and rural areas. Over time, the private sector has grown in significance, both in the prevalence of private practitioners and hospitals and in the extent of private financing.

Only in the Philippines and Indonesia is a more extensive medical insurance system (in terms of coverage) being gradually developed. In the Philippines, this began principally in the private sector in urban areas, based on a health maintenance organization (HMO) framework;

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[19](...continued)
literature (see for example, The World Bank (1995)). They involve difficult, not easily resolved, allocational and distributional issues.

Table 5. Characteristics of the Medical Insurance System in the Asian Tiger Countries

	Types of Formal Medical Insurance Schemes: Public and/or Private	Role of Government in system	Role of Private Sector in System	Coverage of Formal Medical Insurance Schemes
China	**Urban areas**: enterprise-specific insurance schemes, largely for state-owned enterprises (SOEs); (Labor Insurance Scheme (LIS)); Government employees covered by Government Insurance Scheme (GIS); No risk pooling. **Rural areas:** cooperative medical schemes in some areas.	In urban areas: some Government hospitals; Government budget finances personnel wages and new capital investment of government hospitals.	Emerging system of private practitioners and private hospitals in addition to hospitals run by SOEs	**Urban areas:** 50 percent of urban population; typically, employees, retirees and their dependents; working family dependents not covered. **Rural** areas: less than 10 percent
Hong Kong, China	No significant medical insurance scheme.	Government hospitals and clinics (80 percent of hospital beds); public hospitals heavily subsidized.	Private hospitals and practitioners and clinics operated by charitable organizations. Many employers provide free medical care to employees.	
Indonesia	As of 1993, a compulsory medical benefits social insurance scheme is being gradually introduced in the private sector. Complements civil servants health insurance scheme.	Government budget provides for government-run hospitals and health centers.	System of private practitioners and privately run hospitals, largely in urban areas.	The new private sector scheme (run by PT ASTEK) is a public corporation. Coverage gradually being extended to different industries and districts. Employers with more comprehensive benefits exempted from scheme. Civil servants (dependents and civil service retirees) also covered. Effective coverage however remains fairly narrow as percent of total population.
Korea	Mandatory National Health Insurance Scheme (NHIF); 413 private, administratively and financially independent insurance societies or sickness funds; civil servants, private teachers and dependents; military personnel dependents covered under separate scheme (Korea Medical Insurance Corporation). No pooling of funds across societies.	Government hospital system; Government means-tested subsidies to poor; Government makes contributions of 50 percent of NHIF costs with respect to self-employed and pensioners in urban and rural areas.	Private clinics and hospitals account for 95 percent of all medical facilities (80 percent of beds; 72 percent of physicians).	Universal coverage (roughly 90 percent of population covered); retirees covered by plan in which they were covered when employed.
Malaysia	No significant medical insurance system.	Government system of hospitals and health centers provides most health services.	Private clinics and hospitals; 57 percent of licensed doctors in 1990 (mostly in urban areas); 14 percent of hospital beds.	None

Table 5 (Concl'd). Characteristics of the Medical Insurance System in the Asian Tiger Countries

Philippines	New national health insurance system introduced as of 1995; a single health organization is intended to bring together various public and private institutions, replacing the Medicare programme. To cover all outpatient and hospital care. Financed from contributions from employers and self-employed and other residents.	Government systems of hospitals and health centers dominant outside of urban areas; some Government subsidization of HMOs via tax treatment; Government subsidy to supplement contributions of other residents.	Private clinics and hospitals; HMOs largely in urban areas and subject to some Government regulation.	In principle, universal coverage of new scheme introduced in 1995. Employed persons, including Government employees, self-employed above a threshold income level, and pensioners with their dependents.
Singapore	Mandatory Medical Savings Scheme (not insurance since no pooling other than within family); also, Medishield--a medical insurance scheme to cover catastrophic care. Premium is based Solely on age, with little social risk pooling. System also provides for deductibles, coinsurance, and lifetime limits); Medifund (to assist persons in poverty). The schemes largely cover inpatient care; outpatient care is out-of-pocket; schemes are Government regulated and managed; financed from payroll contributions.	Government. hospitals--costs deducted from balance in MEDISAVE Account; Government budget finances the MEDIFUND scheme and subsidizes, to some extent, the Medishield scheme.	Private clinics and hospitals.	About two thirds of labor force effectively covered by scheme.
Taiwan Province of China	Mandatory National Health Insurance Program introduced in 1995; (tripartite funding of Government, employers, and employees); Government administered, but operated as trust fund separate from Government budget. Medical care provided by public and private clinics and hospitals under contract with, and paid directly by, the National Health Insurance Bureau. Include preventive, inpatient, & outpatient care. with copayments.	Government hospital system (37 percent of beds); Government financing of some portion of costs, and subsidizes premium for farmers, self employed, unemployed. Tripartite contribution formula, with Government paying approximately 10 percent of premium.	Private hospital system (45 percent in private practice).	Universal coverage.
Thailand	Government organizes several **limited** insurance schemes (i.e., health cards, drug revolving funds, insurance for civil servants).	Government. hospital and health center system. Government also provides annual grant equal to 1.5% of covered wages.	Private hospital system and clinics.	Government insurance schemes cover roughly 50 percent of population, but limited in benefits; private insurance covers 1 percent of population; elderly largely treated in Government hospitals
Vietnam	Viet Nam Health Insurance Agency established in 1992 (statutory body under Ministry of Health); payroll tax payments largely from civil service and employees of large farms with cross-subsidization of a number of groups that do not contribute but are eligible for benefits.	Government hospitals and. clinics	Private clinics, fewer hospitals.	Insurance system covers only 9 percent of population; compulsory coverage only for salaried workers and retirees of civil servants; salaried workers for large enterprises; school children; those with meritorious service to revolution, invalids, veterans and heroes' mothers.

in 1995, a new national health insurance programme was introduced, which is intended to cover the entire population, bringing together the various public and private institutions that are currently providers of health care. In Indonesia, since 1993, a compulsory health insurance scheme is being introduced gradually in different industries and districts for all workers, with contributions paid entirely by employers. Effective coverage is still quite limited, principally to civil servants and formal sector workers in relatively larger enterprises.

Projections of fiscal cost, 1995-2050

In principle, the financial effects of aging populations should also be significant in the medical care sector. Industrial country data suggest that the elderly consume almost three times more medical services than those aged 0-14.[20] Recent Korean data shows that although the elderly are only about 5 percent of the population, they accounted for 9 percent of all hospital admissions and 17 percent of all admissions for chronic diseases.

Assuming such relative differences across age groups, it is possible to estimate how the "demand" for medical care could be affected by the change in the size and age distribution of the population.[21] Focusing initially on the East Asian countries, which are the most mature in terms of both age distribution and health insurance system development, and assuming that demand is indeed reflected in higher medical outlays in the economy as a whole, *strictly demographic factors* would suggest modest gradual increases in the ratio of medical expenditures to GDP in each of the next four decades (a roughly 10 percent increase each decade). Thus, for countries where total medical expenditure in the economy—public and private—today is 6-7 percent of GDP (as in Korea, Taiwan Province of China, and Hong Kong, China), the share could rise to about 9 percent of GDP by 2025, as a consequence of the change in the size and age composition of the population. For China and Southeast Asia, the narrow demographic effect would not have a significant impact until at least 2020, beginning with China and occurring later in the other countries (e.g., after 2025 in Indonesia and Thailand, and as late as 2050 in the Philippines and Vietnam) (Franco and Munzi (1997)).

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[20] The European Commission and OECD have collected data from national studies on relative medical outlays by age group for a number of the industrial countries. These suggest that the 0-14 age group would consume about three quarters of the medical services of that of an individual in the 15-44 age group; those aged 45-64, and 65 and over would consume 1.7 and 2.2 times, respectively, of the outlays of an individual aged 15-44 (see Franco (1997; OECD (1996)).

[21] Weighing the different population groups by these factors, one can calculate an index measuring the change in the weighed population size, relative to the growth of the working age population. With the growth of wages in the medical sector assumed to equal productivity growth in the economy, zero relative price effects in the sector, and an assumed constancy in coverage of the current medical care systems, such an index can be used to evaluate how demographic factors alone would affect the GDP share of medical care outlays.

For the government budget, the increases implied by demographic factors would be more modest (see Table 6), assuming that the government's involvement in the sector (as measured by its relative share of total health spending) remains unchanged, and assuming that such higher demands were accommodated in the budget. In East Asia, 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 only emerge after 2020, and 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 half century.

Yet such results would appear highly implausible because of what we know about epidemiological developments. The projections hold constant many of the other factors which are already changing and which will certainly affect the demand for medical care. Indeed, recent developments in the medical sector in some of the Tigers illustrate well the types of demand and supply pressures which are emerging and which parallel developments in the industrial countries. *Inter alia*, these include:

- rising public expectations as to the quality of medical care that is feasible and desirable. This has been matched by the increasing availability of these more costly technologies, reflecting the increasing dissemination of knowledge among medical care providers.[22] Thus, technologically advanced standards of care are increasingly being provided, not only to middle and upper income groups in the private sector, but also to wage earners in the urban formal sector; or

- a supplier-driven expansion in the quality and degree of sophistication of the medical services and pharmaceuticals which are provided. Competitive market failure in the medical sector has made it difficult to prevent medical practitioners and profit-seeking

[22] Inevitably, as the prices of many of these technologies (as embedded in the capital equipment and pharmaceutical supplies developed in industrial countries) are high relative to the standards of the prevailing medical technologies in most of these countries, there will be pressures for the medical cost deflator to rise more rapidly than the general CPI.

Table 6. Projecting the Relative Impact of Demographic and Other Factors on Government and National Health Outlays, 1995-2050

	National health outlays 1995	Govt. health outlays 1995	Government health outlays: Narrow demographic effect 2010	2025	2035	2050	Government health outlays: Combined effect of demographic and other factors [1/] 2010	2025	2035	2050
	(as percent of GDP)		(change in outlays from 1995, as percent of GDP)							
East Asia										
Hong Kong, China	6.0	3.6	0.3	1.4	2.1	2.2	0.7	2.5	3.4	3.8
Korea	7.3	3.0	0.3	0.8	1.2	1.4	0.9	2.3	3.1	3.9
Singapore	3.2	1.9	0.1	0.5	0.8	0.8	0.5	1.3	1.7	1.9
Taiwan Province of China	7.0	1.8	0.1	0.4	0.6	0.8	0.4	1.2	1.6	2.0
Average	5.9	2.5	0.2	0.8	1.2	1.3	0.6	1.8	2.5	2.9
China	4.0	2.4	0.0	0.3	0.6	0.8	0.8	2.4	3.2	4.0
Southeast Asia										
Indonesia	2.0	0.7	0.0	0.1	0.1	0.1	0.2	0.6	0.6	0.9
Malaysia	3.2	1.4	-0.1	0.0	0.1	0.2	0.2	0.7	1.0	1.4
Philippines	2.0	1.0	0.0	0.0	0.0	0.1	0.3	0.7	0.9	1.3
Thailand	6.0	1.3	0.0	0.1	0.2	0.4	0.3	0.8	1.1	1.5
Vietnam	5.5	2.8	-0.2	-0.2	0.1	0.3	0.8	2.1	2.8	4.1
Average	3.7	1.4	-0.1	0.0	0.1	0.2	0.4	1.0	1.3	1.8

1/ Assumes underlying trend with nominal GDP elasticity of medical care to GDP of 1.3 through 2025, and 1.1 thereafter. A weighted demographic adjustment factor is applied to take account of the impact of the changing age structure of the population.

health institutions from prescribing care and drugs as a means of raising their income levels of;[23] and

- with the shift in demand for addressing more chronic disease problems, the increasing marginalization of the low cost technologies applicable for the treatment of infectious diseases; in effect, the relatively rapid pace at which the epidemiological transition is occurring has magnified the extent of the required changes in the medical sector.

These developments would not be reflected in the above projections, since they effectively assumed no change in the quality or composition of medical care. Were these pressures to be accommodated or reflected in actual demand, the potential increase in government (and national) outlays would be much larger, *even* if the government only maintained its current share of total spending in the sector. This is illustrated in the last four columns of Table 6, where an elasticity of medical care spending to nominal GDP of 1.3 is assumed through 2025 (the values presently observed in Japan and the US, but *lower* than the elasticity of 1.6 observed in Korea in the last decade) in order to project the growth of health outlays in the economy arising from essentially nondemographic factors.[24] Beyond 2025, it is assumed that cost containment pressures are brought to bear, such that the elasticity is assumed to fall to 1.1 (the current OECD average). The demographic impact is assumed to have a further additive effect beyond the impact of the nondemographic factors.

The projections in Table 6 focus only on government outlays, with the government's *relative* role in the total health sector remaining unchanged. Government expenditure on medical care could rise by 0.4-0.8 percent of GDP by 2010 in East Asia and China, and by a further 1.2-1.6 percent of GDP by 2025. Further steady increases of 1.0-1.5 percent of GDP could be observed in the next decade or so, assuming that medical cost inflation can be curtailed (consistent with the lowered elasticity assumption). In Southeast Asia, the increase in

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[23] This can be illustrated for Korea, where the "health care system is dominated by private providers pursuing both economic profit and professional autonomy....[Government policies], influenced by providers, are often ineffective and usually end up protecting providers at the expense of consumers." (Yang, 1995, p. 77). Hsaio (1994) notes that Korea had six CAT scanners per 1 million people—triple the rate of Canada. Similarly, in a recent White Paper produced by a Ministerial Committee on Health Policy in Singapore, it was concluded that "market forces alone will not suffice to hold down medical costs to the minimum. The health care system is an example of market failure. The government has to intervene directly to structure and regulate the health system." (Hsaio, 1995).

[24] See DeGeyndt (1991) for elasticity estimates. Real growth rates of GDP per capita are assumed to be at the rates recently projected in a study by the Asian Development Bank (1997). Real GDP growth rates then are estimated using the population growth rate assumed in the demographic projections. No inflation is assumed in the example.

the government expenditure share would initially be lower—0.4 percent of GDP by 2010—with somewhat more rapid growth thereafter.

Obviously, increases in medical care outlays for the economy as a whole would be even larger, averaging 1.4 percent of GDP through 2010 and a further 2.6-2.9 percent of GDP between 2010 and 2025 in East Asia and China; in Southeast Asia, the increase would begin more modestly—at 1 percent of GDP through 2010, and rising by a further 1.6 percent of GDP between 2010 and 2025.

The complexity of the health sector choices faced by the Tigers

Of course, the Tigers differ in the extent to which independent "medical demand" pressures are likely to be relevant. Rural China and Vietnam have not yet begun to witness the pressures observed in modern Manila, Shanghai, or Korea. Moreover, the manifestation of need does not necessarily translate itself into higher economic demand. Thus, the issue of public policy choice again becomes highly relevant in the medical sector. It will affect the extent to which population aging will actually influence medical care outlays, and the extent to which this is reflected in budgetary outlays. Two factors will be important: the extent of reliance on more traditional, budget-financed systems of public hospitals and health centers, relative to medical insurance systems; and the characteristics of the medical insurance systems put in place (e.g., concerning copayments and deductibles, global budget constraints, diagnostic rate guidelines (DRGs), permissible reimbursement formulae, etc).

Where insurance systems function, there is an institutional framework for pressures to be manifested in higher effective demand and, most likely, higher "compulsory" contribution rates, although this may not be immediately reflected in higher budgetary outlays (depending on the nature of public sector involvement).[25] In the absence of formal insurance systems, demand pressures will still arise at public hospitals and clinics, but the response in terms of budgetary outlays is likely to be more a function of the aggregate budgetary constraints imposed. One may see significantly greater government expenditures, but it is also possible that higher demand may simply result in a reduced standard and longer queues for care. The contrast in the potential pressures faced by the two types of systems in the Tigers, and their implications for the nature of the medical care provided, highlights the policy choices that will influence the fiscal impact from population aging.

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[25]Even where the government's contribution requirements are presently limited, the dynamics of how it would become involved were contribution rates to rise substantially are not yet clear. Most likely, one might choose the Korean approach, whereby the government effectively subsidizes the uncovered or poorer groups; alternatively, there might be a rationing of resources (say, through HMOs).

In **East Asia,** most countries (notably, Korea, Singapore, and Taiwan Province of China), have introduced medical insurance systems that have sought to provide for comprehensive coverage of medical care services. By requiring adequate copayments by patients, they have sought to harness demand to contain supply pressures for expanded services and the use of high cost technologies. Singapore is notable for establishing a mandatory savings scheme cum medical insurance plan which allows individuals to effectively *prefund* the outlays that will arise from debilitating or severe illness episodes. Most schemes have allowed for services to be supplied by both public and private sector providers. Indeed, in the urban areas of the Philippines, insurance schemes have encouraged participation in HMOs. This is seen as a way to contain costs through competition and to avoid the adverse excess demand incentive effects that often arise from third-party insurance schemes. Safety net schemes have been embedded to some extent in some systems.

Yet recent studies suggest that it has proven extremely difficult to restrain medical costs within these types of insurance systems, often for many of the same reasons that are observed in the industrial countries. Without constraints imposed on both the supply as well as the demand side, medical care providers have been able to play an independent role in expanding the effective demand for services (whether in the form of outpatient visits, length of inpatient stays, or drug prescriptions). [26]

China offers another illustration of the way in which competitive market pressures and poorly designed insurance systems can cause significant medical cost pressures, again in advance of the impact of demographic factors. (Hsaio (1995)). The insurance system in the urban areas lacks the pooled character of the systems described above, with state-owned enterprises and municipalities self-insuring workers. Poorly designed government price regulations in the medical sector have led medical practitioners and hospitals to over prescribe drugs and technologically sophisticated diagnostic tests. More important, the cost of medical care has been rising dramatically, with medical cost inflation averaging 14-17 percent, between 1986 and 1993.

Yet coverage of the system remains highly limited, with large segments of the population still unable to purchase or obtain modern medical care. By 1993, while these two programs covered only 14 percent of the population, they accounted for 36 percent of total

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[26] To illustrate, one recent study suggests that total medical care spending in GDP in Korea, which appears the highest in Asia, at about 7.3 percent of GDP, will rise to over 11.5 percent of GDP by 2000; other projections suggest that the financial reserves of the system will be exhausted by 2003, with annual deficits emerging of about W 10 trillion by 2005 (see Gertler (1995) and de Geyndt (1991)). In Taiwan Province of China, with the introduction of the National Health Insurance Program in 1994 (which involves global sectoral budgeting), outlays, which were about 4.5 percent of GDP in 1989, were projected to rise to over 7 percent of GDP by the mid-1990s, and to 9 percent by 2010 "even if ... successful cost control measure[s] such as a global budget" could be developed (Hsaio, 1990).

health expenditures nationally and *almost three quarters of public spending* for medical care. Although the government's budgetary involvement has been contained in a formal sense, indirect fiscal effects have been felt, in that the rising cost of the modern health care system has meant that state-owned enterprises have had to use operating profits to absorb losses arising from their medical insurance plans.

In contrast to insurance-based systems, budget-financed government medical institutions are still the norm for most of the **Southeast Asian Tigers.** Long before the issue of aging becomes relevant, a key policy issue will be whether budgets expand to accommodate the changing magnitude and quality of popular medical demand.[27] Issues of quality of service and the extent of queuing required before receiving medical services will become particularly important. In effect, what is already effectively an unequal two-tier system, in terms of the quality of medical care that is available in subsidized public institutions, relative to the private sector, would become further exacerbated.[28] Maintenance of a two-tier approach would limit the fiscal pressures that will emerge as a consequence of the epidemiological transition. However, once aging becomes important, there would be significant income distributional consequences from such an approach.

D. The education sector

Current systems and nature of government involvement

The government's involvement in the education sector has been most extensive in terms of primary schooling, where enrollment rates are virtually universal (see Table 7). 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 the Philippines). Secondary enrollment rates—which typically range from 40-75 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, the Philippines, and Hong Kong, China). Private sector involvement,

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[27] One obviously important task that will confront policy makers will simply be the process of reorienting the staffing and equipment of public medical institutions to take account of the changing character of demand.

[28] Complicating the government's policy choices in this regard is the extent to which public institutions are presently the source of care associated with prevailing medical insurance schemes available to civil servants. To the extent that civil servants demand higher standards of care in public hospital units in the context of such insurance schemes, this can be a driving force in pressuring for higher general standards of care in public medical units. Equally important in influencing the pressure on the budget is the behavioral response of medical practitioners in public hospitals, who may seek to supplement their incomes or respond to budgetary constraints by expanding services for which user charges can be required.

Table 7. Characteristics of the Education Systems of the Asian Tigers

	Public Spending on Education (as % of GDP)	Enrollment rate: Primary (1993)	Enrollment rate: secondary (1993)	Enrollment rate: tertiary (1993)	Percentage of private primary enrollment (1985)	Percentage of private secondary enrollment (1985)	Percentage of private tertiary enrollment (1985)	Percent of Government outlays: primary	Percent of Government outlays: secondary	Percent of Government oulays: tertiary
China	1.7	118	55	4	--	--	--	33.3	34.7	19.1
Hong Kong, China	2.6	108	64	20	...	...	...	26.3	39.3	30
Indonesia	2.2	114	44	10	8	50	58	61.8	27.1	9.2
Korea	4.4	101	92	48	2	40	65	42.2	39.4	6.9
Malaysia	5.5	93	58	7	--	2	8	38.5	37.4	16.1
Philippines	2.9	109	74	26	6	42	83	---- 73--	----------	15.1
Singapore	3.4 (1988)	107	59	8 (1980)	...	...	...	28.7	36.5	30.7
Thailand	3.6 (1991)	97	33	19	9	20	6	53.9	21/2	5.5
Taiwan Province of China	5.5	...	...	...	...	...	...	...	...	...
Vietnam	0.9 (1995)	108	37	2	...	...	...	...	...	...

Sources: Tan and Mingat (1992); World Bank (1995); UNESCO (1993/94)

either through private universities, open universities (so-called long distance training), or the acquisition of education at oversees universities, is far more common at this level.

Projections, 1995-2050

We have noted that the absolute size of the school age population will, at most, grow by a limited amount in Southeast Asia. In China and East Asia, this group will fall in size, particularly among those age groups where public sector involvement is the heaviest (e.g., the primary and secondary sectors). The fact of a shrinking client population would suggest the possibility of some fiscal savings. Since public spending on education is typically 2-4 percent of GDP (excepting Malaysia, at 5.5 percent, and Vietnam, at 0.9 percent), one could envisage nontrivial reductions in government expenditure shares.

The demographic-based projections in Table 8 again hold the government's role in the educational sector constant; expenditure shares are simply adjusted to reflect the change in the size of the cohorts to be educated (again, assuming that teachers' wages rise with productivity in the economy). With the exception of China and Vietnam, the projections suggest that government outlays on education could fall by about 1 percent of GDP by 2010 (and as much as 1.3 percent of GDP in Taiwan Province of China and 2 percent in Malaysia), with more modest reductions thereafter (up to 0-0.5 percent of GDP) by 2025. In China and Vietnam, only a modest reduction in government educational spending—less than 0.4 percent of GDP—will be observed through 2010, and only a slight further decline observed through 2025. After 2025, further modest declines (most on the order of 0.5 percent of GDP) could, in principle, occur in the following decade.

Yet the budgetary consequences of the declining youth population are difficult to assess, because of the relatively low secondary and tertiary enrollment rates observed in some of the countries and the limited present role of the public sector in the provision of tertiary education. With increasing incomes and competitive pressures for an upgrading of labor force skills, one is likely to see a significant increase in enrollment rates in higher education in these countries, and commensurately higher national spending on education. Much of this could be manifested in government outlays, but that would obviously depend on the strategy chosen for public sector involvement.[29]

Table 8 also illustrates the implications for government outlays if enrollment rates in higher education were to rise to 20 percent in the four Tigers where they are presently modest (China, Indonesia, Malaysia, and Singapore). Again, the government's role in the tertiary sector (relative to the private sector) is assumed to remain unchanged, though the number of

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[29] In a recent study on education systems in Asia, Tan and Mingat (1992) specifically note that, with slowing population growth, the macroeconomic constraints on financing education is likely to ease. They also note the pressure that an aging teaching force will have in terms of increasing personnel costs.

Table 8. Projecting the Relative Impact of Demographic and Other Factors on Government Education Outlays, 1995-2050

	Government outlays on education	Narrow demographic effect				Effects of demographic factors and of an increase in the tertiary enrollment rate (to 20 percent)			
	1995	2010	2025	2035	2050	2010	2025	2035	2050
	(as percent of GDP)	(change in outlays from 1995, as percent of GDP)							
East Asia									
Hong Kong, China	2.6	-0.7	-0.3	-0.2	0.5	-0.7	-0.3	-0.2	0.5
Korea	4.4	-0.6	-0.7	-0.8	-0.7	-0.6	-0.7	-0.8	-0.7
Singapore	3.4	-0.7	-0.5	-0.9	-0.9	1.4	1.8	1.0	1.0
Taiwan Province of China	5.5	-1.3	-1.4	-1.8	-1.6	-1.3	-1.4	-1.8	-1.6
Average (unweighted)	4.0	-0.8	-0.7	-0.9	-0.7	-0.3	-0.2	-0.5	-0.2
China	1.7	-0.4	-0.4	-0.6	-0.6	2.0	0.8	0.5	0.4
Southeast Asia									
Indonesia	2.2	-0.6	-0.8	-1.2	-1.3	-0.3	-0.5	-1.0	-1.2
Malaysia	5.5	-2.0	-2.5	-3.6	-4.0	-0.3	-1.1	-2.7	-3.3
Philippines	2.9	-0.6	-1.3	-1.9	-2.2	-0.6	-1.3	-1.9	-2.2
Thailand	3.6	-0.6	-1.0	-1.5	-1.8	-0.6	-1.0	-1.5	-1.8
Vietnam	0.9	-0.2	-0.4	-0.6	-0.7	-0.2	-0.4	-0.6	-0.7
Average (unweighted)	3.0	-0.8	-1.2	-1.8	-2.0	-0.4	-0.9	-1.5	-1.8

its tertiary enrollees would obviously rise. With such a policy, one would now observe either an increase in overall government outlays on education, or a far smaller decline (a swing on the order of 1.2 - 2.4 percent of GDP relative to the earlier projections for China, Singapore, and Malaysia).

IV. Social Expenditure Implications of Demographic Change

What are the *aggregate* potential budgetary implications of aging? Table 9 combines the sectoral projections to suggest the overall pressure for increased social spending. Focusing initially only on the narrow demographic-based projections in **East Asia**, where both the aging of the population is more imminent and the elaboration of social insurance systems more significant, the net pressures on the budget primarily become significant only after 2010 (although this masks the fact that one would need to see a reduction in education outlays, offsetting an equivalent growth in pension outlays).[30] By 2025, the increased elderly dependency rate exerts pressure on pension budgets. Demands for increased health outlays will also be manifest, although there would be a further offsetting reduction in the need for educational outlays. In the case of Korea, these simple projections are also confirmed by independent pension system projections, which suggest losses beginning in 2010 that would need to be addressed. A net increase in social outlays of about 3 percent of GDP by the governments of the East Asian Tigers can be envisaged by 2025, with a further intensification of expenditure pressures thereafter.

In **China** and **Southeast Asia**, the budgetary implications of demographic trends are initially far more limited, but primarily due to the more restricted scale and nature of present social policy commitments. For **China**, the net fiscal impact would be negligible through 2010 (as long as increased pension outlays are counterbalanced by reduced educational outlays). Increased outlays of only about 2 percent of GDP would then be required between 2010 and 2025 (again, arising almost wholly from increased pension system expenditures). Only after 2025 would one observe a substantial increase in social outlays (particularly during the period 2025-2035). Demographic factors alone would lead to a *decline* in fiscal outlays in **Southeast Asia** by amounts that could reach 1.4 percent of GDP (almost wholly due to a reduced need for educational outlays, assuming enrollment rates were to remain unchanged), with only a modest growth thereafter until at least 2035 (reflecting increased pension outlays).

Yet as discussed, these narrow demographic scenarios would appear too conservative in the face of both the changing character and rising pressures of medical demand and the need for these economies to upgrade the quality of their labor forces further. A scenario that simply took account of these latter two factors while maintaining the present balance between the public and private sectors (see Table 9) would suggest that budgetary outlays could increase by a further 1 percent of GDP, on average (relative to the previous scenario), for the

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[30]Absent a reallocation from education, the pressure for increased spending would emerge earlier.

Table 9. Summary Table on Overall Fiscal Implications of Aging and Other Related Factors, 1995-2050

	Government Social expenditure share in 1995	Narrow demographic effect				With increased tertiary enrollments and enhanced medical demand				Increased tertiary enrollments, enhanced medical demand, and expanded pension coverage			
		2010	2025	2035	2050	2010	2025	2035	2050	2010	2025	2035	2050
	(in % GDP)	(indicates changes as percent of GDP between 1995 and specified years)											
East Asia													
Hong Kong, China	7.2	-0.1	2.8	4.6	5.6	0.3	3.9	6.0	7.2	4.3	11.2	14.6	16.3
Korea	9.4	1.1	3.9	6.5	8.6	1.7	5.4	8.5	11.0	2.2	6.3	9.5	12.2
Singapore	6.4	--	2.5	3.2	3.5	2.3	5.5	6.1	6.5	3.1	7.2	8.3	8.7
Taiwan Province of China	11.0	-0.3	4.1	6.7	10.0	0.0	4.9	7.7	11.2	0.0	4.9	7.7	11.2
Average	8.5	0.2	3.3	5.3	6.9	1.1	4.9	7.1	9.0	2.4	7.4	10.0	12.1
China	6.7	0.1	2.3	4.9	6.2	3.3	5.6	8.5	10.5	4.9	8.2	12.2	14.6
Southeast Asia													
Indonesia	3.9	-0.4	-0.1	0.1	1.2	0.1	0.7	0.8	2.2	1.5	2.8	3.7	6.3
Malaysia	9.8	-1.4	0.5	1.8	5.3	0.6	2.5	3.2	6.4	1.4	4.1	5.3	9.3
Philippines	5.5	-0.4	-0.1	0.3	1.8	-0.1	0.7	1.2	3.1	0.8	2.1	3.1	5.8
Thailand	5.5	-0.5	-0.3	-0.1	0.6	-0.2	0.4	0.8	1.8	1.3	2.9	4.3	6.5
Vietnam	5.4	-0.6	-0.2	1.0	2.7	0.3	2.0	3.8	6.5	1.4	3.7	6.2	10.0
Average	6.0	-0.7	0.0	0.6	2.4	0.1	1.3	2.0	4.0	1.3	3.1	4.5	7.6

East Asian and Southeast Asian Tigers through 2010, and by a further 1.6 percent of GDP by 2025 for the East Asian Tigers (with less of an increase after 2010 in Southeast Asia).

For China, assuming an increase in the tertiary enrollment rate to 20 percent as well as the higher GDP elasticity of spending on medical care, one would observe a much sharper and sustained increase in fiscal pressures relative to the previous scenario. Relative to 1995 levels, budgetary outlays in China could rise by 3 percent of GDP in this scenario by 2010, by a further 2 percent of GDP by 2025. Pressures for medical outlays would further propel the social expenditure share in China up by a further 3 percent of GDP by 2035, reaching over 15 percent of GDP by 2035 (from a starting point of 6.7 percent of GDP in 1995).

The effect of an enhancement of the pension or social safety net systems to provide minimal coverage of noncovered elderly groups (with moderate replacement rates of 30 percent of per capita income) for those Tigers without universal coverage systems (viz., China, Southeast Asia, and Hong Kong, China) would result in a *further* significant augmentation of budgetary pressures with increased spending on the order of 2-3 percent of GDP for these countries. Given that Hong Kong, China's current public pension scheme primarily serves as a safety net role, the implied expansion in government outlays could be very large—by about 9 percent of GDP in 2050.

The above scenarios indicate the extent to which policy choices that are not implausible can result in quite significant additional budgetary pressures, relative to those that would arise from strictly demographic factors. Between 1995 and 2010, these policy choices would add budgetary outlays of about 2 percent of GDP in East and Southeast Asia, and almost 5 percent of GDP in China. The magnitude of the pressures can be illustrated by comparing the change in outlays (as a percent of GDP) with the baseline level of government expenditure (shown in column (1) of Table 9). Even excluding the expanded pension coverage scenario, this would imply that the government's share of social spending in GDP would almost double by 2025 in China, and increase by about half in the East Asian Tigers, relative to 1995. In Southeast Asia, through 2025, the principal impact on budgetary outlays would come only if there were expanded pension coverage. After that, medical care pressures would independently be an important source of fiscal pressure.

Finally, one should again underscore that these projections have focussed only on government outlays, with no change assumed in the present role of government in the social sector. Thus, the significant differences in the extent of the government's involvement across countries is maintained. Thus, the overall "societal" implications of aging populations, in terms of the financial requirements on the working population for supporting the young and elderly, are only captured to the extent that the public sector plays a comprehensive role in providing services and transfers.

For those countries where the private sector plays an important role—certainly in Southeast Asia and China, and to some extent in East Asia, the above analysis thus offers a biased picture. This emerges clearly in Table 10, where the impact of demographic and other

Table 10. Comparing Projections of Public and Private Medical Outlays, 1995-2050

	Private medical outlays 1995	Private Medical Outlays: Demographic Effect, Change in outlays from 1995				Private Medical Outlays: Including elasticity effects, Change in outlays from 1995				National medical outlays 1995	National Medical Outlays (including elasticity effects)				Public Medical Outlays (including elasticity effects)			
	2010	2025	2035	2050	2010	2025	2035	2050		2010	2025	2035	2050	2010	2025	2035	2050	
	(as percent of GDP)	(change in outlays from 1995, as percent of GDP)								(as percent of GDP)	(change in outlays from 1995, as percent of GDP)							
East Asia																		
Hong Kong, China	2.4	0.2	0.9	1.4	1.4	0.5	1.6	2.3	2.5	6.0	1.2	4.1	5.7	6.3	0.7	2.5	3.4	3.8
Korea	4.3	0.4	1.1	1.7	2.1	1.3	3.4	4.5	5.6	7.3	2.3	5.7	7.6	9.4	0.9	2.3	3.1	3.9
Singapore	1.3	0.1	0.4	0.5	0.6	0.3	1.0	1.3	1.4	3.2	0.8	2.3	3.0	3.4	0.5	1.3	1.7	1.9
Taiwan Province of China	5.3	0.3	1.2	1.8	2.3	1.2	3.5	4.7	5.9	7.0	1.6	4.7	6.2	7.9	0.4	1.2	1.6	2.0
Average (unweighted)	3.3	0.3	0.9	1.3	1.6	0.8	2.4	3.2	3.9	5.9	1.5	4.2	5.6	6.8	0.6	1.8	2.5	2.9
China	1.6	0.0	0.2	0.4	0.5	0.5	1.6	2.1	2.7	4.0	1.4	4.0	5.3	6.7	0.8	2.4	3.2	4.0
Southeast Asia																		
Indonesia	1.3	0.0	0.1	0.1	0.2	0.3	1.0	1.2	1.7	2.0	0.5	1.6	1.8	2.5	0.2	0.6	0.6	0.9
Malaysia	1.8	-0.1	0.0	0.1	0.3	0.3	1.0	1.3	1.9	3.2	0.5	1.7	2.3	3.3	0.2	0.7	1.0	1.4
Philippines	1.0	0.0	0.0	0.0	0.1	0.3	0.7	0.9	1.3	2.0	0.6	1.5	1.9	2.6	0.3	0.7	0.9	1.3
Thailand	4.7	0.1	0.5	0.9	1.4	1.1	2.9	3.9	5.3	6.0	1.4	3.8	5.0	6.8	0.3	0.8	1.1	1.5
Vietnam	2.7	-0.2	-0.2	0.1	0.3	0.7	2.0	2.7	3.9	5.5	1.5	4.1	5.6	8.0	0.8	2.1	2.8	4.1
Average (unweighted)	2.3	-0.1	0.1	0.2	0.5	0.6	1.5	2.0	2.8	3.7	0.9	2.5	3.3	4.7	0.4	1.0	1.3	1.8

factors on aggregate national health outlays is, on average, more than *twice* that of the narrow budgetary effect. For example, in Korea, by 2025, aggregate health outlays would rise by 5.7 percent of GDP (relative to 2.3 percent of GDP by the budget); in Southeast Asia, aggregate health outlays could rise by 4 percent of GDP, relative to 2 percent in the budget. Even in Southeast Asia, by 2010, aggregate health outlays could rise by 0.9 percent of GDP, twice that in the budget.

Equally compelling are the results from those simulations that "extend" pension coverage in some countries to the uncovered elderly, providing for replacement incomes of 30 percent of per capita income. While this may be an implausible public policy scenario for some of these countries, such levels of financial support would certainly appear a plausible assumption for the level of consumption that will need to be realized by this group. Financing may derive from a drawdown of private savings, intra-familial transfers, or a longer working life. The earlier simulations suggest that by 2010, additional expenditure associated with this group of elderly will amount to roughly 1.5 percent of GDP in each of the regions, rising further by up to 1 percent of GDP between 2010 and 2025, and then again between 2025 and 2035.

V. Policy Lessons

A. The importance of policy choices

This paper started out with the simple question of what would be the fiscal implications for the Asian Tigers of aging populations. In seeking a quantitative answer, one is quickly confronted by the 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 to longer term demographic pressures, but for which these latter pressures will eventually play an important role in determining longer-term financial effects. In reflecting on the options faced by the Tigers, it is useful to look to the debate within the industrialized economies, where the focus has largely been on three broad sets of options:

- Measures for fiscal consolidation in the period before the full impact of aging commences, thus improving the starting 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;

- 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

- 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 Tigers in the face of these policy design choices in the key social sectors 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 Tigers are still in a formative stage. Nowhere is this more true than 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, a number of the Tigers have an opportunity to avoid the problems which have bedeviled countries in the industrial world. On the other hand, it is getting late for some countries. There will be a need to ensure that stable systems are in place by early in the next century to enable citizens in the region to plan with some confidence for the provision of financing for their old age. At the same time, policy design will need to ensure that the systems introduced are sufficiently flexible and moderate in their ultimate commitments to avoid the emergence of significant unfunded budget liabilities as the aging of the population proceeds.

Second, while some of the current policy initiatives of the Tigers in the social spheres are being formulated with an eye to longer run demographic developments, others are focussed on resolving more pressing contemporaneous allocational and distributional issues. In these social policy debates, longer term demographic developments do not appear a key consideration in policy design. Yet the size of the ultimate fiscal effects from aging will inevitably be affected by these policy choices, given that the more embedded institutions, expectations, and practices become within the fabric of a society, the greater the vested interests that will attach to particular approaches and as is obvious from the industrial countries, the harder they are to change.

Another important dimension of the Tigers' situation is that the swing from a relatively young to a relatively aged population is happening at a much more rapid pace than in their industrial counterparts. This places an extra demand on policy makers to speed the adjustment process. In the area of health care, for example, this rapid change has required policy makers to address not only the normal policy and institutional changes associated with aging, but also, as noted above, those associated with the dramatic change in the character of the illness and medical problems faced by the population.

Finally, most of the Tigers have already begun to proceed with policy strategies that are heavily reliant on private sector initiatives to address many of the concerns that have been the focus of public social insurance schemes in the industrial countries. As we shall note below, such a strategy implies the need to evaluate the role that the public sector should play in addressing the deficiencies of private markets (viz., source of market failure) and broader distributional concerns.

Distributional issues

Many of the issues that will confront public policy makers in the context of an aging population are essentially distributional in character. Specifically, should the government intervene to ensure a minimal income for the elderly, and who would finance such transfers? Should the government intermediate the process of saving for retirement and provide minimal guarantees to retirees against certain types of risks (unexpectedly higher longevity, higher than anticipated inflation), at the possible expense of workers or the general taxpayer? Should public policy instruments be used to further what will be an inevitable need for a lengthening of the productive work period of individual workers, perhaps through policies that both limit the drawing of early retirement benefits, that push back the point at which traditional full benefits can be obtained, and that promote a longer working life?

Also of a distributional nature, the earlier results suggested that some segments of the formal sector receive relatively high replacement rates. Should there be a reassessment of the generosity of some existing public pension schemes? Should there not be a revisiting of the excessively generous tax treatment for pensions provided to covered workers in most schemes? Given the dualistic nature of the social security provisions in these countries, these tax provisions can only accentuate regressivity. Also, are pension systems fairly designed in terms of gender differences? Women live longer then men, but have lower labor force participation rates as well as lower average wages. Under provident fund approaches, they are likely to receive less adequate pensions.

In the area of medical care, should the public sector ensure minimal access to medical care, rather than to allow such care to be largely rationed by financial ability? What standard of care, broadly defined, is minimally acceptable? How much of a differential can there be in the standard of care available to those who can pay, relative to those who, by default, are dependent on subsidized public care? How to extend such medical and income support provisions to hard-to-tax population groups?

The role of foreign workers is also likely to pose distributional questions. What provision will be made for health, education, and other services to these workers and how will they be dealt with in the context of social security systems?

In sum, the question of whether to broaden coverage beyond the easily covered formal sector to those in the informal urban economy, the rural sector, and the foreign worker communities, will be a significant policy issue for most of the Southeast Asian countries and China during the next few decades.

Allocational issues

Many of the key public policy issues are allocational. Simply within the public sector, the challenges in terms of restructuring the allocation of expenditure within the social sectors to take account of the changing structure and level of demand in the education and medical

care sectors will be fundamental. Some levels of education will need to see expansion; others will need downsizing. Similarly, for those countries that seek to maintain reliance on publicly provided medical care through budget-financed hospitals and clinics, there will need to be a wholesale rethinking of the approaches for the delivery of medical care at the different levels of the typical "referral pyramid" of medical institutions. With the change in the illness burden and the rapid pace of technological change that has already occurred, major changes will be needed in the level and quality of the services provided.

More likely, these systems will need to grapple with the complex issues of medical insurance that have already been faced in most of the industrial countries and are beginning to be addressed in some of the East Asian Tigers. How to address the problems of market failure in a sector where there is a critical asymmetry in the information and decision making capacity on the demand and supply sides of the market? How to address the problems of moral hazard and adverse selection in the context of framing a medical insurance policy stance? How to introduce economic incentives to limit the discretion of patients and providers in their choice from the range of costly medical alternatives faced in addressing illness episodes? How to contain costs in a system where the number of players in the sector is large (e.g., patients, other family members, physicians, nurses, hospitals, insurance companies, pharmaceutical companies, medical equipment suppliers) and where market power, information, and incentives are very different? Most of the industrial countries have begun to take actions to impose global limits on medical care outlays, but this may prove a harder challenge for the Tigers, given the heavier reliance on private sector initiatives.

In the pensions sphere, should the government seek to correct for "myopia" among citizens in their savings for the future (and what are the modalities by which such corrections should take place, e.g., transfers, tax subsidies, etc.)? How involved should the government be in regulating private sector pension funds established under mandatory government pension contribution schemes? What is the government's ultimate financial liability in the event of private pension funds' becoming bankrupt due to fraud, mismanagement, or excessive risk bearing? Should governments attempt to broaden the coverage of existing pension systems as a means of shoring up the short run financial sustainability of existing weak pension schemes (in effect, using new insurees to finance the benefits of older members of the work force and existing retirees)? Is it appropriate for governments to be applying tax/subsidy measures on accumulated pension fund balances through their interest rate policy on the government securities invested by these funds?[31]

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[31] Asher (1997) has noted that in Singapore, the Finance Minister recently noted that government securities earn a much lower return that the rate of return earned by the government on its reserves; this implies a tax on provident fund wealth. In Malaysia, in contrast, the return on government securities has been rather generous, implying a subsidy from the general taxpayers to the provident fund members.

Revenue considerations in social insurance design

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 in the rural and urban informal sectors of the economy. This does not appear a problem in the East Asian Tigers. But for China and the Southeast Asian Tigers, this may still take considerable time. 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 (individual pension or medical insurance accounts) and more toward the provision of publicly financed (from general tax revenues) 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 China and Southeast 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.

Aggregate fiscal policy issues

Another obvious question is whether the Asian Tigers should alter their macro fiscal policy stance in the light of the prospect of the other demographic and other fiscal trends that can now be projected. In the pension sphere, this often is posed as the question of whether it would be desirable to prefund, as in the Singapore and Malaysia approaches, the expected higher outlays associated with pensions, or as with Medisave in Singapore, for medical care as well. Ultimately, the question relates to whether a higher national savings rate is desirable, and the extent to this should be an explicit goal of the public sector. This is a particularly intriguing question for those East Asian Tigers where the aggregate and public sector savings rates are already quite high, and where even higher investment rates have fueled rapid economic growth and rising per capita incomes (see Heller and Symansky (1997) for a fuller discussion of this issue).

Many other difficult issues arise once this issue is broached, such as the large infrastructure requirements for many countries, the evidence of significant environmental damage and costs associated with the growth spurt of the last few decades, and the likely needs for increased outlays to facilitate the upgrading of human capital skills. Perhaps the most that can be said is that the fiscal constraints and challenges facing the **East Asian** Tiger will become more difficult in the years ahead, since the pressures for consumption will become greater as the elderly population rises, and the leeway for maintaining high savings rates will

become increasing less. For **China**, although its national savings rate is also quite high, the public sector savings rate is negligible. This imbalance will need to be addressed, as the pressures on the budget will begin to rise. An earlier strengthening of the government's fiscal position would be desirable.

For the **Southeast Asian Tigers**, the results suggest that the financial implications of aging populations are less daunting for the foreseeable future. For these countries, achieving high rates of savings would appear an important policy objective, but more in order to achieve the rapid growth necessary for raising per capita income levels. In effect, achieving rapid growth is one form of "prefunding" (particularly when combined with other system design adjustments that could ensure actuarial soundness of pension or medical insurance schemes).

Addressing structural weaknesses in the public sector that have limited the capacity for revenue mobilization or which have led to significant unproductive expenditures would appear to be of fundamental importance. This would serve to strengthen the underlying fiscal position. It may also allow the government to address the minimal social service and income support needs for those in the population excluded from present formal pension and medical insurance schemes. Such a task extends to addressing the problems faced in the state enterprise sector (e.g., in China and Vietnam), which have contributed to a significant indirect fiscal drain.

B. The blurring of the public and private sectors: consequences for fiscal analysis

One common issue that often arises in public policy analysis is how to assess the indirect budgetary implications of public policies. Tax expenditures and quasi-fiscal outlays are two obvious manifestations of this problem, and are particularly germane for the Asian Tigers, given the types of policies pursued in the social sectors. The tax treatment of pension schemes is one obvious example. Some of the provident funds schemes allow for the tax deductibility of pension contributions, but also exempt pension income from taxation. Forcing provident funds to hold a large share of their portfolio in government securities imposes an effective interest tax on such funds (though it may reflect the public interest in assuring the solvency of the funds). More indirect effects arise in the context of inefficient social insurance schemes run by state owned enterprises, which result in reduced property income to the government or which result in excessive commercial bank borrowing by such enterprises (e.g., in China). These difficulties further complicate the task of assessing the overall budgetary implications of the Tiger governments' involvement in social insurance schemes.

The Tigers' experience also demonstrates the significant blurring that has occurred in the definition of the public and private sectors, raising questions as to the *definition* of "fiscal" transactions. Whether relating to pension systems or medical insurance systems, one observes among the Tigers a significant government regulatory role in terms of tax status, management and investment decisions, pricing behavior, contribution rates, savings

withdrawal terms and conditions, selection criteria for insurees, and copayment and coinsurance terms.[32] Yet despite this, many of the agencies, statutory bodies, or funds that have been established are normally classified in the national income or public accounts as falling *outside* the Central Government or even the public sector broadly defined. Moreover, the financing instruments appear to be of a strongly fiscal character, with an economic impact largely the same or comparable in their microeconomic or macroeconomic effects to that of their public sector counterparts.

For example, there is an obvious "payroll tax character" to the mandatory contributions out of wages and salaries that are used to finance such medical insurance, provident funds, or pension schemes (whether normally levied on employers or employees). Such contributions thus may either crowd out government taxes or may contribute to adverse disincentive effects when combined with formal payroll taxes. Whether classified as a payroll tax or as a mandatory contribution, the disincentive effects associated with increasing such charges in the context of increasing dependency ratios will be virtually the same. From the perspective of analyses of competitiveness, the formal classification of such charges is largely irrelevant, although one could argue that for employees, their defined pension contributions may be perceived as a form of savings. Similarly, the distributional implications of such schemes for the financing of medical care and pension benefits, and of the terms of benefit payouts, are equally masked, though they may have as much fiscal content as taxes and transfers more directly captured and analyzable within the budgetary accounts.

The macroeconomic impact of such schemes may also be very similar, whether or not they are included in the public sector. The net depletion of financial reserves of a provident fund associated with an aging retiree population (as payouts exceed contributions) will have comparable macroeconomic effects to the higher fiscal deficit that would arise were the scheme to be operated as a public sector pension scheme, *independent of whether the scheme is fully funded or pay-as-you-go* (the latter at unchanged contribution rates). Yet the arbitrariness of how these different schemes are classified in the public accounts results in a situation where important decisions affecting fiscal policy are often not captured in the normal presentation of the budgetary accounts. For example, Korea's National Health Insurance system, which accounted for contributions and outlays of about 7 percent of GDP in the mid 1990s, is not in any fiscal measure of government activity; yet its functioning is heavily influenced by public sector policy.

In sum, the principal distinction between many private schemes subject to significant public regulation, and those schemes operated in the public sector more formally, may simply

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[32]Such schemes often require a heavy portion of investments in government paper, and both provident fund contributions and dividend/interest earnings are often nontaxable. For those schemes involving large mandatory contribution rates, these provisions involve offsetting forms of implicit taxation (through lower potential yields on such securities) and public transfers (in the form of tax expenditures).

be whether there is a clear obligation by the government to financially absorb the burden of financing operating deficits. Otherwise, the allocational, distributional, and stabilization impact of the operations of such entities may be the same, whether in the private or public sector.

While this may not be a "new" situation in the public finance context, what makes it important is the *increasing weight* of such pension and medical insurance schemes in the Asian Tiger economies, particularly in the context of aging populations and the epidemiological transition.

C. Will privatization and reliance on market forces limit the fiscal burden?

The above discussion has also highlighted the extent to which the Tigers have increasingly relied on the private sector and market forces to address the burden of pension and medical care. One can expect further such pressures in this direction in the context of the prospective aging of the population. Reliance on the competitive pressures of the private sector in the pension sphere is expected to yield higher rates of return to pension savings. Requiring copayments and the use of coinsurance mechanisms are said to limit the ability of medical care suppliers to increase costs.

These market-oriented responses appear to fit well with the competitive ethos and individualism which has marked the rapid economic growth of the Tigers. The emphasis on individual provision and avoidance of government guarantees may have important implications for the continued flexibility and motivation of the labor forces in these countries which, in turn, may continue to sustain the engines of market capitalism which have driven the Tigers forward. In that context, the approaches used stand in contrast with the social insurance schemes in the advanced industrial countries, which have often acted to retard labor market reform and competitiveness. That said, such arrangements are not without potential problems.

As Hsaio (1995) has so forcefully illustrated in recent studies on the health sector of the Tigers, counting on market forces in the private sector to ensure desirable outcomes in terms of equity and efficiency in the context of market failure may prove to be a source of disillusionment. As he notes, whether the scheme has sought to rely on demand restraint (Korea, China, and Singapore) or competition among suppliers (China, Philippines), market failure has led to surging costs in the medical care sector in Asia, well in advance of the demographic shift. In the pension sphere, the evidence increasingly suggests that privately run pension schemes can be costly in terms of administration; that governance issues can place such funds at excessive risk; and that inadequate regulation of investment managers can result in portfolio mismanagement.

In the same way as shifting these schemes to the private sector does not diminish their heavily public sector character, the shift also does not eliminate the need for public sector policy involvement in order to secure the clean functioning of competitive markets and to compensate and address sources of market failure. In short, managing social security objectives within the private sector does not eliminate the need for public policy. Rather, it

just takes a different form, with more emphasis on regulations and guidance from the public sector and less direct involvement.

D. Addressing inadequacies in the data base for public policy analysis

As an outside observer to the debate on future fiscal policy in the Tigers, one is struck by the difficulty of obtaining public information and data on social policy issues in these countries. Indeed, there appears to be a critical need for policy makers and researchers within the region to encourage a more transparent debate of the issues raised in this paper. This need is twofold. First, there is a need for better public documentation and data on the operation of social sector arrangements, whether in the public or the private sector. Second, there is a need to look ahead to analyze and publicize policy options. These are not technical matters to be resolved behind closed doors by the policy makers in major capitals. The magnitude of the issues at stake demands a transparent and open dialogue on these issues that can only benefit the final outcomes.

To illustrate, one startling finding in carrying out this study was to observe how little hard data is readily available on the nature and financial magnitude of activities in the social sectors. Where the central government budget is the principal financing and spending agent, some data may be available, but often the use of extrabudgetary accounts (e.g., for social security institutions) results in significant omissions in important areas of outlay. When the private or state enterprise sectors play an important role—through privately financed medical insurance or pension systems (even with public mandates on contribution rates), the data base becomes far weaker if not absent entirely. Government outlays then capture at best the government's own contributions on behalf of its civil servants or subsidies to particular groups, and even these may be deficient when tax expenditures are an important policy instrument used for financing.

The chasm between the data available from budgetary sources and that on the state enterprise and private sector may have been acceptable when agents in these sectors operated without significant public sector regulation or intermediation. Yet the blurring of the boundaries discussed above and the extent to which private market initiatives in the social sector become both more prevalent and more subject to government regulation, make these data weaknesses unacceptable for policy analysis.

In effect, what in the past would have been conceptually treated as public sector expenditures and revenues, and which relate to a significant level of economic activity, are now slipping outside the traditional data net. Indeed, assessing the change in the fiscal stance becomes a chimerical exercise. One of the challenges that must be addressed in taking account of the "blurring of the public sector" is the need to rethink the way in which we collect data on activities in the economy which have this "quasi-fiscal" character. Greater transparency must thus be a necessary companion of policies that increase the private sector's role in the social sector, particularly when there is a significant government role in regulating such schemes or in mandating contributions.

VI. Concluding Thoughts

The Asian Tigers are in the midst of an extraordinary period. Their growth has been remarkably rapid and this has had profound consequences for their societies. Among these, has been the unusually rapid demographic transition to low fertility and mortality rates, which is in the process of rapidly transforming their demographic structure to one more akin to that being witnessed in the industrial world, albeit with a lag. These demographic trends are being accompanied by the swift transformation of their health situation (in terms of the balance between chronic and infectious diseases), reflecting the impact of rising standards of living, changing fertility patterns, the penetration of Western public health and medical technologies, and the availability of inexpensive pharmaceuticals. Patterns of illness observed in the Western industrial countries are increasingly being mirrored in the Tigers.

This study has shown that, unlike the industrial countries, the relatively low level of the social insurance commitments of the governments of the Tigers, particularly those in China and Southeast Asia, suggest that the narrow demographic impact of aging populations may not have profound effects on their fiscal balances. Demographic effects would be more pronounced in the East Asian Tigers (Taiwan Province of China, Korea, Singapore, and Hong Kong, China), both because of the greater imminence of the aging process and their more developed social insurance compact.

Yet the paper also shows that concentrating narrowly on demographic effects "may miss the forest for the trees" in most of the Tigers. The concomitant impact of epidemiological developments, the effects of the penetration of Western medical care standards and technologies, the pressures for upgrading the skill levels of their labor force, and the social pressures for providing some social safety net coverage of the elderly outside the formal urban sector are all likely to result in important social sector policy changes in the coming years, long before the "aging" problem becomes significant. Moreover, distributional concerns and the recognition that a significant share of the elderly will remain outside formal insurance system structures may prove additional factors stimulating the design of social sector policies to address these issues. Such policy choices, interacting with the aging of the populations, may create significant fiscal pressures that would erode current high public savings rates among the Tigers.

Thus, this study has emphasized how important policy choices in the social sectors will be in determining the ultimate fiscal impact, in achieving efficient outcomes in meeting the higher costs associated with an aging population, and in addressing the inevitable distributional problems that will emerge for those elderly that fall in the bottom part of the income distribution.

What is also striking about the approach of the Tigers has been the extent of reliance on the private sector in the design of schemes for saving for retirement and in the financing of medical care, particularly through insurance systems. Much innovative thought can be observed in some of the schemes that have been introduced. Yet it is also apparent that the

Tigers are grappling with the insufficiency of these private sector initiatives. Escalating costs in the medical sector highlight the importance of a public sector role in regulating the sector and in compensating for market failure. Private sector pension schemes have not successfully covered fully a number of the risks associated with increased longevity, particularly in inflation-prone economic environments. Moreover, while such solutions may work for those in the system, those not covered—in the urban informal and rural sectors of the economy—will be largely reliant on their own savings or intra familial transfers in their elderly years, and access to medical care may be significantly more limited. The implication is to recognize that private sector initiatives will need to be complemented by public sector policies, both to ensure adequate competitive markets and to take account of distributional concerns.

Finally, the study also suggests that one important consequence of the increased reliance on private sector approaches to addressing important social sector needs is the extent to which our ability to analyze the fiscal sector has become blurred. Private sector financing instruments, often of a mandatory nature, are no longer captured as fiscal instruments, rendering more complicated the analysis of their allocative and distributional implications. Moreover, the far weaker data base on what has become an important "quasi-public" sector makes the traditional analysis of fiscal developments far more questionable. These policy initiatives, which the Tigers have energized with such force, have important analytical and methodological implications for the quality and relevance of traditional fiscal analysis. These developments could thus have equally significant consequences for our ability to assess fiscal developments in the many other regions of the world seeking to emulate the success of the Asian Tigers.

APPENDIX TABLE 1
SUMMARY OF WORLD BANK DEMOGRAPHIC ASSUMPTIONS, 1997 - 2034
(mid year projections)

	1997	2012	2022	2032
Crude birth rate per 1000, 5-yr				
China	17	15	14	13
Hong Kong, China	10	10	10	10
Indonesia	23	19	17	15
Korea, Rep. of	16	13	13	12
Malaysia	24	18	17	15
Philippines	29	21	18	17
Singapore	15	13	13	12
Taiwan Province of China	14	13	12	12
Thailand	20	17	15	15
Vietnam	27	19	18	16
Crude death rate per 1000, 5-yr				
China	8	8	9	10
Hong Kong, China	6	8	10	13
Indonesia	9	8	9	9
Korea, Rep. of	6	8	9	11
Malaysia	5	5	6	7
Philippines	6	6	6	7
Singapore	6	7	8	11
Taiwan Province of China	6	7	8	10
Thailand	6	8	8	9
Vietnam	7	6	6	7
Net migration rate per 1000, 5-yr				
China	0	0	0	0
Hong Kong, China	1	0	0	0
Indonesia	0	0	0	0
Korea, Rep. of	-1	0	0	0
Malaysia	0	0	0	0
Philippines	-1	0	0	0
Singapore	5	2	1	0
Taiwan Province of China	-1	0	0	0
Thailand	0	0	0	0
Vietnam	0	0	0	0

	1997	2012	2022	2032
Total fertility rate per woman, 5-yr				
China	2	2	2	2
Hong Kong, China	1	2	2	2
Indonesia	3	2	2	2
Korea, Rep. of	2	2	2	2
Malaysia	3	2	2	2
Philippines	4	3	2	2
Singapore	2	2	2	2
Taiwan Province of China	2	2	2	2
Thailand	2	2	2	2
Vietnam	3	2	2	2
Life expectancy at birth in years, 5-yr				
China	70	72	74	76
Hong Kong, Province of China	79	81	81	82
Indonesia	62	66	69	71
Korea, Rep. of	72	76	77	78
Malaysia	72	75	76	78
Philippines	66	71	72	74
Singapore	76	78	79	80
Taiwan Province of China	76	79	80	81
Thailand	69	69	71	74
Vietnam	68	72	73	75
Infant mortality rate per 1000 births, 5-yr				
China	28	18	15	12
Hong Kong, China	5	4	4	3
Indonesia	57	36	30	23
Korea, Rep. of	10	7	6	5
Malaysia	12	8	7	6
Philippines	34	21	17	14
Singapore	5	4	4	3
Taiwan Province of China	5	4	4	3
Thailand	24	15	12	10
Vietnam	31	20	16	13

Source: World Bank.

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