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No. 121, June 2010

Population Aging and Economic Progress: A Bumpy Road Ahead?

Andrew Mason and Sang-Hyop Lee

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Population Aging and Economic Progress: A Bumpy Road Ahead?

Andrew Mason and Sang-Hyop Lee

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This publication is a product of research on National Transfer Accounts, developed as an international project led by professors Ronald Lee of the University of California at Berkeley and Andrew Mason of the East-West Center.

Population Aging and Economic Progress: A Bumpy Road Ahead?

Andrew Mason and Sang Hyop Lee

Abstract

Over the next forty years, the most important demographic trend in Asia and the Pacific will be population aging. This has primarily been an industrialized country phenomenon to this point, but by 2050 many other countries in the region will have aged dramatically. Rapid increase in elderly populations may bring two important goals of countries in the region into sharp conflict. The first is to develop socioeconomic systems that will provide economic security to a growing number of elderly people. The second is to sustain strong economic growth over the next forty years. The ultimate economic success of these two goals will rely on policies yet to be implemented, and the most important ones will be policies that encourage savings, investment in human capital, and well-functioning financial and labor markets.

Rapid aging of the populations of Asia and the Pacific presents two important challenges to national and regional leaders. The first is to develop a socioeconomic system that provides economic security to the elderly. The second is to sustain rapid economic growth over the next forty years.

Meeting these two objectives faces many obstacles. The relative size of the working-age population, after decades of increases, will begin to decline. The size of the tax base may decline relative to the growing numbers who depend on public support, which in turn will threaten the fiscal health of many governments. Retirement and tax policies may discourage workers from delaying retirement, even though they are healthier and living longer. Saving rates may decline, thereby reducing growth in the domestic and regional supply of capital.

These challenges are real. Dealing with them requires great foresight and a thorough understanding of many complex social and economic issues. Unusual foresight is required because population aging occurs over a period of decades and involves long-term commitments on which people rely. Pension and health care programs are often established when the number of beneficiaries is relatively small. Once established, however, such programs often acquire a momentum of their own and, when costs begin to escalate rapidly, they become difficult to reform.

In many Asian countries framing an appropriate response to aging is urgent because the populations are aging very rapidly—much more rapidly than in the West and most Latin American countries in the recent past. This reduces the time to prepare for the consequences. It also means that some Asian countries are likely to find themselves with relatively old populations at a time when standards of living are still low and while important political and economic institutions are still relatively underdeveloped.

Another unique feature of many Asian countries is that they have been slow to adopt large social security systems. Compared with Europe and many Latin American countries, public

pension systems in Asia are relatively modest. This gives planners in Asia a distinct advantage, as they will be relatively unencumbered by past commitments when considering how best to respond to population aging.

The Demography

Populations are aging primarily because of the decline in birth rates throughout the region. Growth in the number of children has not only slowed substantially but has turned negative in many countries. Such fertility decline has led to populations with many people still of working age but fewer and fewer children to succeed them. In the future when these smaller cohorts of children are entering the work force, larger cohorts of workers will be reaching retirement age. The result will be populations with very few children, not many workers, and many elderly people.

Aging has been especially rapid in East Asia and in some Southeast Asian countries, because birth rates have declined more rapidly than elsewhere. Moreover, fertility rates have reached very low levels found only in some Southern and Eastern European countries.

Populations are also aging because of improvements in life expectancy. Life expectancy in Japan is among the highest in the world, and other Asian countries have experienced significant improvements in recent decades.

Population aging is a natural and final outcome of the demographic transition that has led to low birth and death rates, slower population growth, and, in a growing list of countries, population decline. To many this a welcome development, but it is also worrisome because it is so rapid and unprecedented. By 2000, the year for which estimates of life expectancy are most reliable, the share of population ages 65 and older had exceeded 15 percent only in Japan. But the current U.N. projections anticipate that by 2050 a majority of countries in the region will surpass this level, including a number of low income countries in the Association of Southeast Asian Nations (ASEAN), such as Indonesia, Myanmar, and Vietnam. India's old-age share is also expected to rise close to 15 percent by 2050 (Figure 1).

<Figure 1 about here>

The proportion of the old-age population will more than triple between 2000 and 2050 throughout the region, except in Japan and the United States. Even more rapid aging (a quadrupling) will occur in Mexico, Singapore, and South Korea. By 2050, about one-third of the populations of Hong Kong, Singapore, and South Korea will be 65 or older. Only Japan will have an older population at that point.

A striking feature of aging in the region is the relatively slow pace of aging in the United States. Three factors account for this: a relatively high birth rate, somewhat lower life expectancy, and a high rate of immigration.

The Economic Lifecycle and the Transition in Dependency

Why is population aging so important? Age structure matters because of a fundamental feature of human society: the economic life cycle. In all modern societies, there are extended periods of dependency at the beginning and at the end of life; children and the elderly consume more resources than they produce through their own labor. The economic lifecycle is represented by

labor income and consumption by age for the Philippines and Japan in Figure 2. The estimates presented here draw upon a system of accounts, called National Transfer Accounts. Labor income is a broad measure that approximates the average value of the labor productivity of individuals at each age. It is based on the earnings and benefits received by employees and the estimated value of the labor of the self-employed, including unpaid family workers. Consumption is also a broad measure that includes the value of all goods and services consumed by individuals and by governments on their behalf.

<Figure 2 about here>

National Transfer Accounts

The purpose of the National Transfer Accounts (NTA) is to measure, at the aggregate level, how people at each age in the lifecycle acquire and use economic resources. The NTA is broadly consistent with and complementary to the System of National Accounts. The NTA measures the two economic mechanisms used for age reallocations: transfers and asset-based reallocations. The accounts also consider the public and the private sectors, both of which mediate economic flows across age. The NTA has been developed as an international project led by professors Ronald Lee of the University of California at Berkeley and Andrew Mason of the East-West Center. For more information, see the project website at www.ntaccounts.org.

The per capita economic lifecycle varies by age because of individual characteristics and behavior, institutions, and market forces. Productivity increases as children mature and benefit from human capital investment. Then it declines as health deteriorates and disability rises. Labor force participation, hours worked, and unemployment all vary with age, thus influencing the labor income profile. Consumption is influenced by preferences, prices, interest rates, income, and public institutions. Both profiles depend on many other historical, cultural, political, social, and economic factors. There are interesting and important differences between Japan, the Philippines, and other countries in the region, but there are also very important commonalities. Consumption exceeds labor income for two long periods of life, bracketing a surprisingly short age range in between them, during which more is being produced than consumed.

The challenge of population aging comes into sharper focus when we consider the aggregate lifecycles for the Philippines and Japan. The Philippines has a very young population and a very large deficit at young ages. In Japan, with its old population the lifecycle deficit is much larger compared with the child deficit. But population aging is in its early stages, and the old-age deficits will grow substantially unless consumption and labor income patterns change radically. Essentially we are trading a youth deficit for a large old-age deficit of similar size over the demographic transition. If we delve no further, we seem to be right where we started—a high and unfavorable level of dependency.

There are several important opportunities for changing course. Between these two points of high dependency, Asia has experienced a very favorable age structure. For at least three decades, the populations have shifted from the young ages into the working ages, thereby producing what has been called the first demographic dividend. The shift in age structure leads to a smaller child deficit and a larger surplus in the working ages. This has had the general effect, particularly in East Asia, of contributing to rapid economic growth (Bloom et al. 2002; Kelley and Schmidt 1995; Kelley and Schmidt 2001; Mason, 2001).

There are four possible ways that the surplus generated from the demographic dividend can be used. The first is that some countries could reduce their reliance on foreign transfers. Thus, more nationals could choose to remain at home instead of working abroad and remitting part of their earnings to their families back home. The second possibility is that those in the working ages could opt for more leisure by reducing their work effort or retiring at an earlier age. The third possibility is that consumption could increase. All of these responses would enhance current welfare, but none raises productivity or yields a sustainable ability to achieve higher standards of living.

The fourth response is to increase saving and investment. This response is distinctive in that it allows the first demographic dividend to be used to convert temporarily favorable conditions into sustainably higher standards of living or a second demographic dividend (Mason and Lee 2007). Population aging presents two challenges, however, and the question is whether there are approaches that can raise productivity while also providing economic security to the elderly. There are two important and compatible ways that this can be accomplished. To fully understand these options, however, it is important to understand first how the economic needs of the elderly are being met in the region's countries.

Support System

A complex system of institutions and economic mechanisms enables the extended periods of dependency that are characteristic of modern life. Governments at the local, regional, and national level play an important role. Relying on social mandates embodied in law and regulation, governments tax those in the working ages and provide benefits to the young and to the old. Education, public pensions, and health care programs are important examples of public programs that serve this purpose. Long before governments became important social institutions, families provided the institutional means for supporting dependent age groups. Except in rare circumstances, families in the past and at present have been the dominant system of support for children. The role of families in old age support is more varied.

Societies rely on assets to fund consumption in excess of labor income. Real assets (e.g., farms, businesses, and homes) can be accumulated and relied on during retirement. The development of financial markets has made a wide array of financial instruments available for dealing with lifecycle issues. Student loans, consumer credit, and home mortgages have allowed young adults to shift resources to young ages when earnings are relatively low. Stocks, bonds, mutual funds, and similar financial instruments have allowed workers to accumulate pension funds and personal wealth on which they can rely in old age (Mason et al. 2009).

Old age support systems vary widely across countries, but there are important regional patterns that warrant attention. The shares of the three basic systems are illustrated in the triangle graph of Figure 3. Any of the three vertices of the triangle represents exclusive reliance on one of the three sources of support, with the other two being zero. Along any side of the triangle, one source (the one at the opposite vertex) is zero while the other two vary. Movement along one of the gridlines inside the triangle implies that one source is constant at one-third or two-thirds of the lifecycle deficit, while the other two sources vary. Values charted outside the triangle indicate that one or more of the components (again, the one at the opposite vertex) are negative. The figure includes Asian and Pacific countries for which estimates are currently available, along with Sweden for comparison as a social welfare state.

<Figure 3 about here>

Net family transfers are a much more important source of support for the elderly in Asia than in Latin America or the West. Family transfers fund about one-third of the lifecycle deficit in South Korea, Taiwan and Thailand, and two-thirds in China. In the Philippines and Thailand, the elderly are providing as much support to their families as they are receiving. But at older ages, net transfers to the elderly are important in all four.

Japan is distinctive among Asian countries in that net family transfers to the elderly are essentially zero. According to recent data, the elderly in Japan receive more from their descendants than they provide only after age 78. It is not clear, however, whether Japan is different from the rest of Asia or merely further along a path that others will follow. Time series estimates for Taiwan and South Korea indicate a strong and steady decline in the importance of family transfers, and preliminary estimates for more recent data suggest that they are now essentially zero in South Korea.

Asia is also distinctive because the role of the public sector is so small. In Thailand and the Philippines, the elderly are paying as much in taxes as they are receiving in benefits—net public transfers are zero. In China, South Korea, and Taiwan, net public transfers are funding just about or under one-third of the lifecycle deficits of the elderly. Social programs for the elderly are also relatively small, when compared with Latin American and European countries. In Sweden, the public sector funds almost all of the lifecycle deficit of the elderly.

The extent to which the elderly rely on assets varies widely around the region. The elderly are heavily reliant on their personal wealth in the Philippines, Thailand, Mexico, and the United States. In Europe and many Latin American countries, the elderly barely rely at all on assets to support themselves in old age.

The most important message here is that countries in the region are in the midst of a transition. Family transfers are declining in importance and will surely continue to do so in the future. The question is how they should be replaced. By developing large social welfare systems, like those that have played such an important role in Europe and Latin America? Or by relying less on public programs and more on asset-based systems, which has been the case in the United States? The approach must deal with both of the challenges of population aging: sustaining economic growth and meeting the economic needs of the elderly.

Two Options for Sustaining Growth and Providing Economic Security for the Elderly

One strategy for responding to population aging emphasizes capital accumulation. If the elderly depend on assets in old age, population aging will lead to an increase in the demand for assets for three reasons. First, in the absence of offsetting increases in retirement age, workers need to accumulate more during their working years to fund a longer period of retirement. Second, because fertility is lower, fewer resources may be devoted to childrearing and more to saving for retirement. Third, older populations are wealthier because older people are generally wealthier than young ones—a simple consequence of older people having longer to accumulate wealth. If countries rely to a significant to degree on assets to fund retirement, population aging will lead to greater wealth and capital, greater asset income, and higher wages. The economic needs of the elderly can be met and permanently higher standards of living can be maintained.

The evidence suggests that East Asian countries have actively followed the high investment track. Singapore is an interesting example because it has institutionalized this

approach to aging through its Central Provident Fund (CPF). Singaporeans are required to save a high fraction of their earnings through mandatory contributions to the CPF. The fund provides pension benefits and has led to high rates of saving, investment, and economic growth. This is quite different from the pension systems in Japan, the United States, Europe, and Latin America which provide for retirees out of current taxes and therefore have no positive growth effects.

The experience in other East Asian countries indicates that mandates may not be required. In many East Asian countries very high rates of saving have accompanied the age transition. This is a phenomenon that is certainly true of China today. East Asian countries share two important features: rapid population aging and low reliance on public transfer systems. The incentives to save more, generated by population aging, are not undermined by large public transfers to the elderly (Feldstein 1974; Kinugasa and Mason 2007; Lee et al. 2003; Lee and Mason 2010; Gale 1998; Munnell 1974).

The second track for successful dealing with population aging emphasizes human capital investment. When fertility declines to low levels, societies are producing small cohorts of future workers. But the total productivity of those workers depends not just on their numbers but also on their skills and abilities. Effective investment in human capital can offset the generational effects of low fertility by generating a smaller but more productive workforce (Becker and Barro 1988; Lee and Mason 2010).

There is a very strong tradeoff between the number of children and the amount invested in them. The particularly strong trend in Asia is shown in Figure 4, which compares human capital spending per child and the total fertility rate for the Asia-Pacific cases for which estimates are available (Lee and Mason 2010; Ogawa et al. 2009). The total fertility rate is the average number of births per woman over the reproductive span given current age-specific birth rates. Human capital spending is measured in a similar way, as the average expenditure on health and education during childhood given current age-specific spending. To facilitate comparisons across cases with very different levels of development, the human spending is expressed as a fraction of the average labor income of a prime age adult ages 30 to 49. Thus, the highest level of human capital investment in the figure (6.2 for Taiwan) means that human capital spending over the years of childhood would be equal to about six years worth of the pre-tax labor income of a person in the prime working years. Note that this value includes both public and private spending on education.

<Figure 4 about here>

Recent analysis by Lee and Mason (2010) shows that the tradeoff between human capital and spending on education is sufficiently strong, so that the adverse effects of population aging can be offset, but this conclusion depends on the effectiveness of the human capital investment. Important issues remain to be addressed about the productiveness of some of the high-level spending on education found in Taiwan, Japan, and South Korea. In addition, human capital spending lags in many Asian countries. India, Indonesia, and China fall well below the typical level for countries with similar fertility rates. The case of China is particularly striking, where very low levels of fertility have not been accompanied by high rates of investment in human capital.

The investment response to population aging naturally integrates sustaining economic growth and providing economic security to the elderly, because the higher rate of investment is a consequence of workers saving more (and making their own investments). With human capital

the situation is very different. Retirees do not own the human capital in which they have invested: it is owned by the children who received it through investments made by parents or taxpayers or both. The only way the investment in human capital can be recouped is through expanded transfers.

Given current trends in private transfers, it seems unlikely that parents who invest more in their children are likely to be compensated in the form of old-age support directly from their children. The reverse flows are more likely to flow through the public transfer system. Under such an arrangement, smaller cohorts of workers would pay higher taxes to support the elderly, to compensate them for the high levels of human capital investment the workers have received.

An important point of emphasis is that these two paths to successful aging are not mutually exclusive. A sound approach to sustaining economic growth and achieving economic security for the elderly would be a support system that emphasizes a balance between reliance on assets and reliance on public transfers combined with high rates of human capital investment.

A Bumpy Road Ahead?

Over the coming decades, countries in Asia and the Pacific will experience substantial and rapid population aging. Family transfers have already eroded substantially in some countries. Inevitably they will erode in others. How then will support systems in the region evolve? Will social welfare systems play a more important role? Or will asset-based systems dominate in the future?

The key message here is that policies will guide the direction of the evolution, and policies related to intergenerational transfers will play an extremely important role. There are, however, several potential stumbling blocks. The most important concern is that some countries in the region may lack the political and economic institutions that could prove to be very important in aging societies. Many developing nations lack the well-functioning financial markets that precondition asset accumulation. Labor markets are rigid in many countries, often discouraging continued employment by older workers, or prohibiting it by setting a mandatory retirement age. Political instability in some countries is another hurdle.

These factors should not be treated with too much pessimism. There are ample opportunities, too, in the region. The region's demographic situation is unique. It is characterized by remarkable diversity and rapid change. Many countries are only midway through their demographic transitions. Thus, to counter these stumbling blocks, policies are required that will encourage greater work effort, higher rates of saving and investment, and greater investment in human capital. Regional cooperation is critical. Regional cooperation promoting financial markets, savings, and labor market flexibility can take advantage of present opportunities that will not be repeated in the future.

It is important to seize opportunities early on. The demographic characteristics of 2050 may appear remote in relation to immediate economic concerns. Yet the elderly population of 2050 is the working population of today. The prospects of old age and retirement will influence current behavior and the ways in which people prepare for both. Policies implemented by governments today will determine the success of today's working population in preparing adequately for an extended period of old age.

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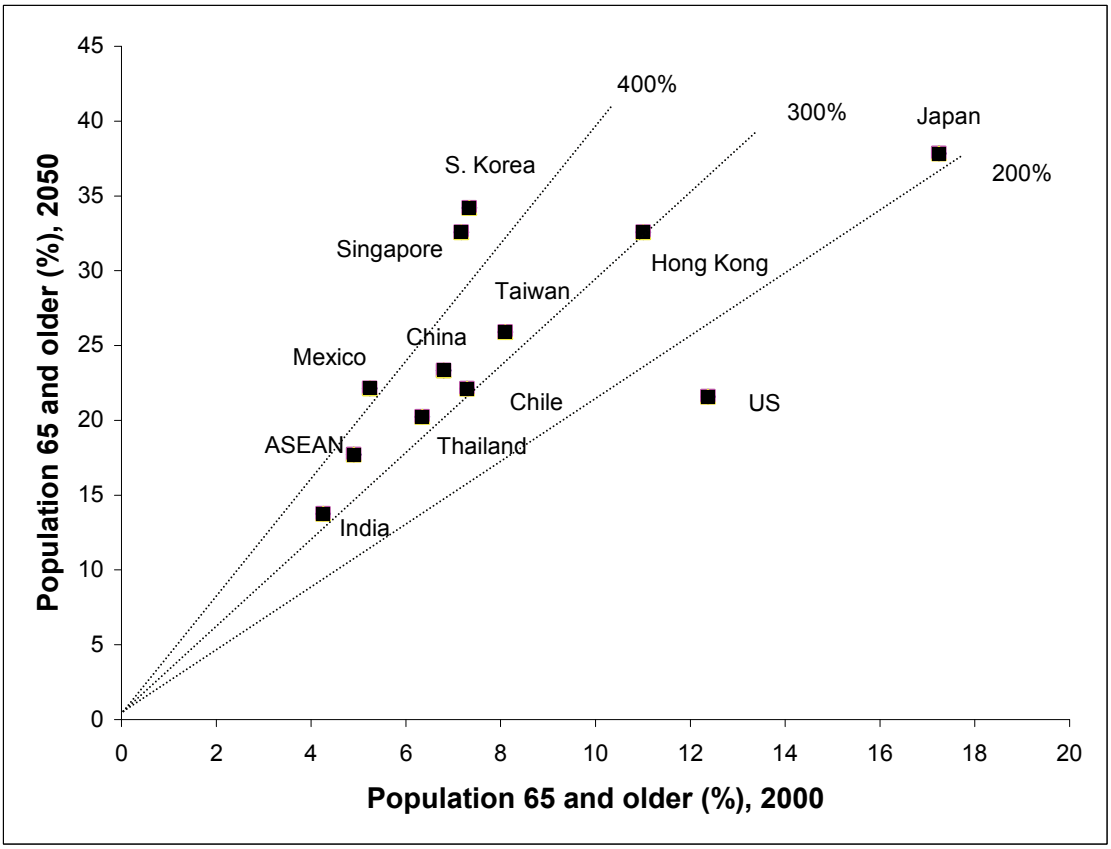

Figure 1. Population shares of people ages 65 and older in Asia and the Pacific in 2000 and 2050

Sources: United Nations (2009) and projections by the Department of Manpower Planning, Taiwan.

Notes: The member states of the Association of Southeast Asian Nations (ASEAN) are Brunei, Cambodia, Indonesia, Laos, Malaysia, Myanmar, the Philippines, Singapore, Thailand, and Viet Nam. Singapore and Thailand are also plotted individually.

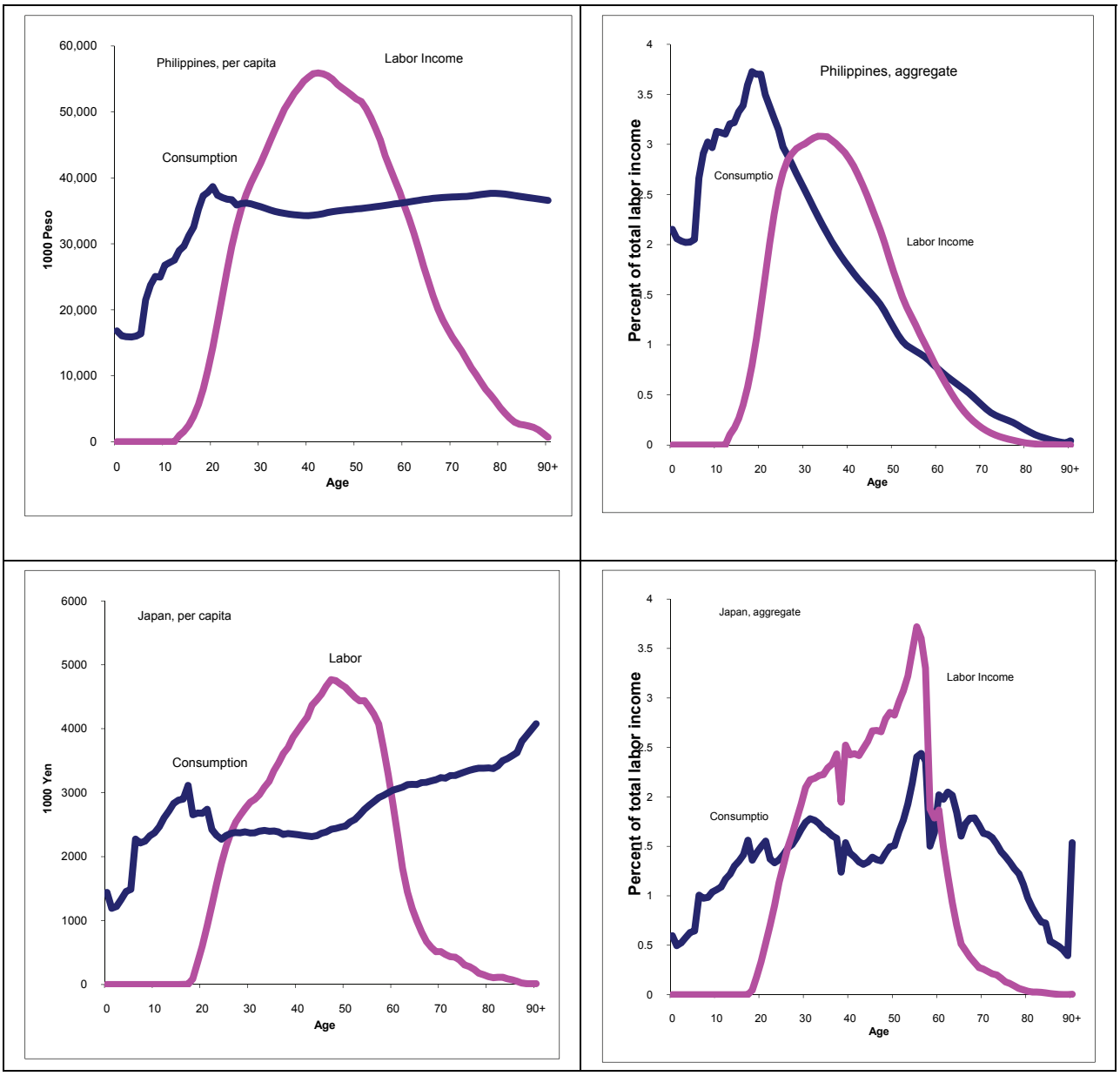

Figure 2. Comparison of labor income and consumption by age in the Philippines and Japan

Source: National Transfer Accounts database, available at www.ntaccounts.org.

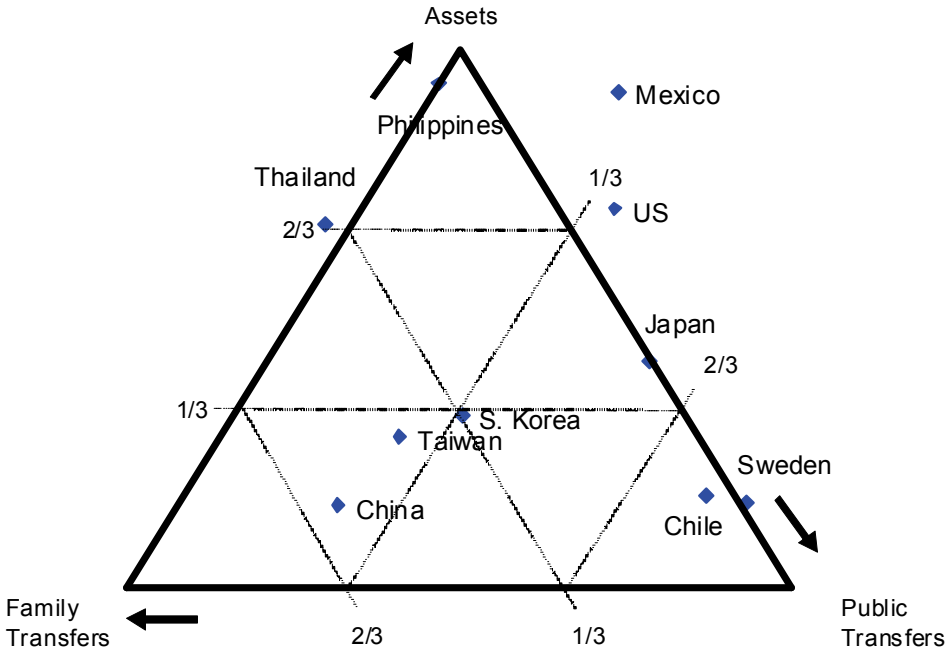

Figure 3. Support systems for persons 65 and older, measured as shares of the lifecycle deficit, ten countries for the most recent year (1997 to 2005) available.

Source: National Transfer Accounts database, available at www.ntaccounts.org.

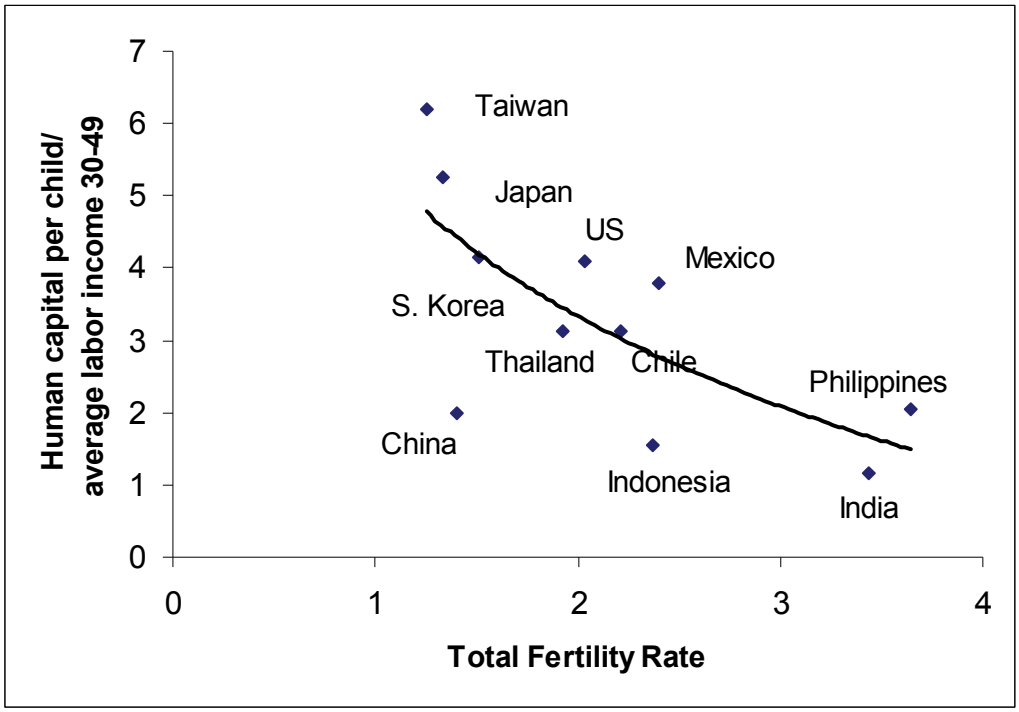

Figure 4. Human capital spending per child in relation to total fertility rates in selected countries

Source: Recalculated from Lee and Mason (2010).

Note: Human capital spending is cumulated per capita values (public and private combined) for ages 0-26 for education and 0-18 for health care, for the most recent year (1997 to 2005) available.