



Population Aging and Economic Progress in Asia: A Bumpy Road Ahead?

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I S S U E S

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SUMMARY Over the next 40 years, the most important demographic trend for the economies of the Asia Pacific region will be population aging. Caused primarily by declining birth rates, the shift in age structure will eventually result in populations with few children, not many workers, and many elderly people. So far, populations are growing older primarily in the region's high-income countries, but by 2050 a larger group of countries in the region will have aged dramatically. The rapid growth of elderly populations may bring two important national goals into conflict. The first is to develop socio-economic systems that will provide economic security to the growing number of old people. The second is to sustain strong economic growth. Achieving these two goals will require new policies, most importantly policies that encourage saving, investment in health and education to improve productivity, and well-functioning financial and labor markets.

Many countries in Asia still have substantial working-age populations, but fewer and fewer children to succeed them

Population aging presents two pressing challenges to national and regional leaders everywhere in the world. The first is to develop a socioeconomic system that will provide economic security to the growing number of old people. The second is to encourage and sustain economic growth despite a dwindling workforce, strains on public budgets, and other problems associated with large elderly populations.

With population aging, the relative size of the working-age population, after decades of expansion, begins to decline. This can lead to a decline of the tax base, coupled with growing numbers of elderly who may depend—at least in part—on public support, threatening the fiscal health of many governments. Adding to the problem are retirement and tax policies that may discourage workers from delaying retirement, even though they are healthier and living longer than in the past. Saving rates may not keep up with the retirement needs of the elderly or the capital needs of domestic and regional economies.

Meeting these challenges will require considerable foresight because population aging occurs over decades and involves long-term commitments. Pension and health-care programs are often established when there are few elderly. But once established, costs may escalate, and existing programs are often difficult to reform.

Designing and implementing effective programs and policies is particularly urgent in many Asian countries because their populations are aging very rapidly. Some countries in Asia are also likely to find themselves with a relatively old population while they are still at a fairly low level of economic development—when important political and economic institutions are still relatively underdeveloped.

Planners in many Asian countries have one distinct advantage, however. Social-security systems in the region tend to be modest compared with systems in European and many Latin American countries. This means that policymakers in Asia will be relatively unencumbered by past commitments when considering how best to respond to the challenges of population aging.

Why Are Populations Aging?

Populations throughout Asia are aging primarily because of a decline in birth rates. The fertility decline has been particularly rapid in East Asia and in some Southeast Asian countries. Today, many countries in the region still have substantial working-age populations, but fewer and fewer children to succeed them. In the future, as these children enter the workforce, large numbers of workers will be reaching retirement age. The result will be populations with very few children, not many workers, and many old people.

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

Population aging is a natural 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 is a welcome development, but it is unprecedented, and in much of Asia it is also worrisome because the process has been so rapid. In 2000, Japan was the only country in the world with more than 15 percent of the population 65 and older. According to current United Nations projections, by 2050 most countries in East and Southeast Asia will have reached this level of population aging, including China and lower-income countries such as Indonesia, Burma (Myanmar), and Vietnam. Even India will not be far behind.¹

Population aging is also occurring in the United States, but at a slower rate. Three factors account for this slower rate of aging: a relatively high birth rate, somewhat lower life expectancy, and immigration.

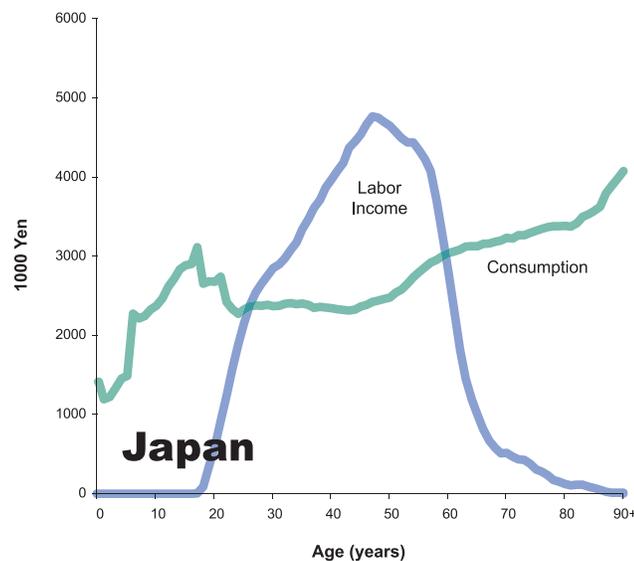
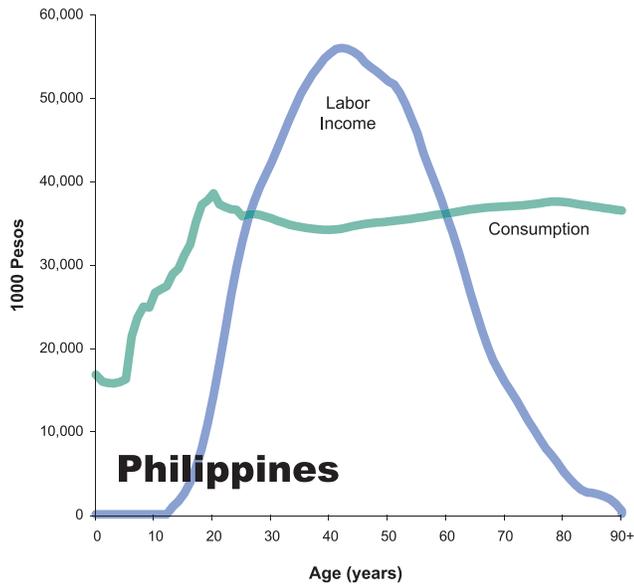
Why Is Population Aging Important?

In all modern societies, there are extended periods of dependency at the beginning and the end of life—children and the elderly consume more resources than they produce through their own labor. So changes in the size of these dependent groups, compared with the population of working-age adults, have important implications for well-being and economic growth.

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

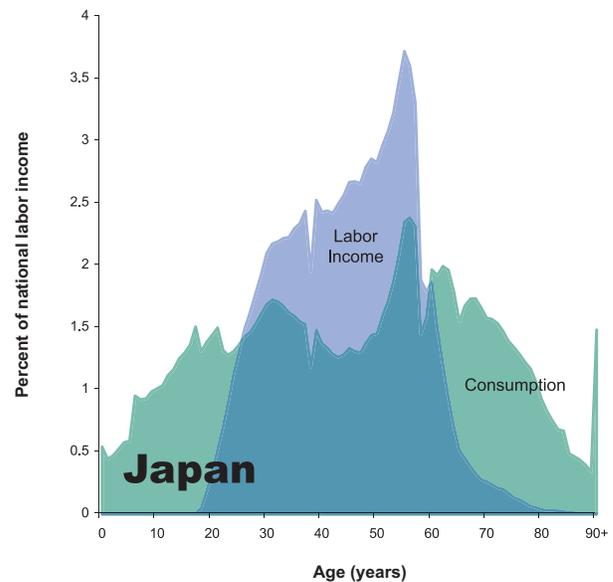
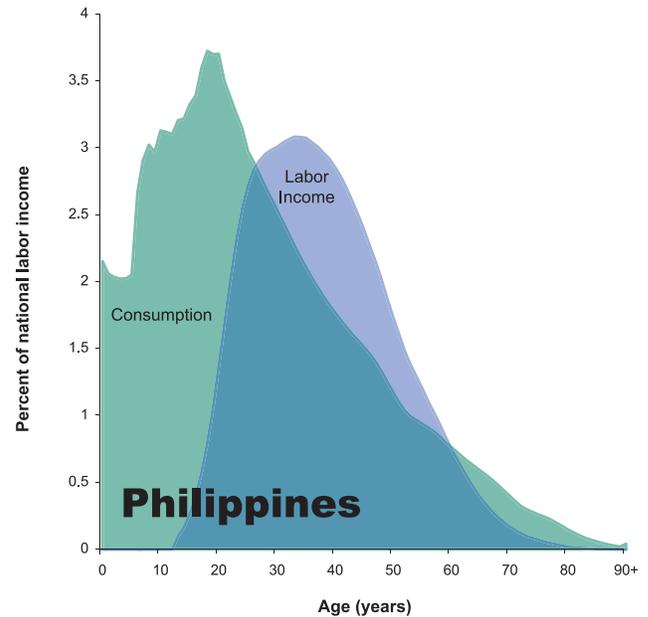
This figure shows both individual-level (per capita) and aggregate values at each age. These estimates draw upon a newly developed system for measuring economic flows by age called National Transfer Accounts.

Individual level (per capita)



At the individual (per capita) level (above), labor income increases for young adults as they enter the labor market and benefit from human-capital investments in health and education. Eventually, labor income declines as old age approaches. Consumption also changes over the life cycle. In Japan, consumption goes up in old age because of health-care costs, while in the Philippines, consumption in old age remains flat. In both Japan and the Philippines, as in all contemporary societies, consumption exceeds labor income for two long periods of life, bracketing a surprisingly short age range during which more is being produced than consumed.

Aggregate level



The challenge of population aging comes into sharper focus when we consider the aggregate economic life cycle for the populations of Japan and the Philippines (above). The Philippines has a large share of young people in its population, so the individual-level deficit at young ages becomes very important at the aggregate level. In Japan, with its old population, the aggregate deficit among the elderly is larger than the deficit among children because the number of children is relatively small.

Old-age support systems vary widely across countries, but there are important regional patterns

For at least three decades, many Asian countries have experienced a favorable period in terms of population age structure—somewhere between the current situation in the Philippines and that of Japan (see previous page for figure). Their working-age populations have grown more rapidly than their populations of children or old people. This has contributed to outstanding economic growth, particularly in East Asia, producing what has been called the first demographic dividend.²

The surplus income generated from this demographic dividend can be used in three ways. The relatively large number of workers with few dependents to support can simply increase their own consumption and that of their dependents. Alternatively, they might opt for more leisure by reducing their work effort or retiring at an earlier age. A third response would be to increase their saving and investment. This last response could lead to a second demographic dividend, characterized by a long-term rise in living standards and sustainable economic growth.³

How Are Dependent Populations Supported?

A complex system of institutions and economic mechanisms makes possible the extended periods of dependency that are characteristic of modern life. Governments at the local, regional, and national level play an important role by imposing taxes, usually most heavily on working-age adults, and providing benefits to the young and the old. Education, public pensions, and health care are important examples of public programs that transfer resources across age groups. Families also provide support for their members in the dependent-age groups. Families are generally the primary institution supporting children. The role of families in old-age support is more varied.

In addition to the transfer of resources through governments and families, consumption in excess of labor income may be funded by relying on assets. People accumulate real assets, such as farms, businesses, and homes, during their working years and rely on these assets during retirement. Stocks, bonds, mutual funds, and similar financial assets allow workers to accumulate pension funds and personal wealth

on which they can rely when they retire.⁴ Student loans, consumer credit, and home mortgages allow young adults to use assets when their earnings are still relatively low, but in most countries this use of assets is rare.

Old-age support systems vary widely across countries, but there are important regional patterns (see figure at right). Net family transfers tend to be a more important source of support for the elderly in Asian countries than in Latin America or the United States. Family transfers fund nearly one-half of support for the elderly in Taiwan, about one-third in Thailand, and about one-fifth in South Korea. At older ages, net transfers to the elderly are even more important.

By contrast, the elderly in Indonesia provide significantly more resources to their families than they receive. And in Japan, net family transfers to people 65 and older are essentially zero. This is because the Japanese, until they reach their late 70s, tend to provide more resources to their descendants than they receive, but after this age they receive more than they provide. Recent estimates suggest that net family transfers to the elderly are declining in Taiwan and South Korea. Looking beyond Asia, in Mexico and the United States, the elderly provide more support to their families than they receive throughout old age.

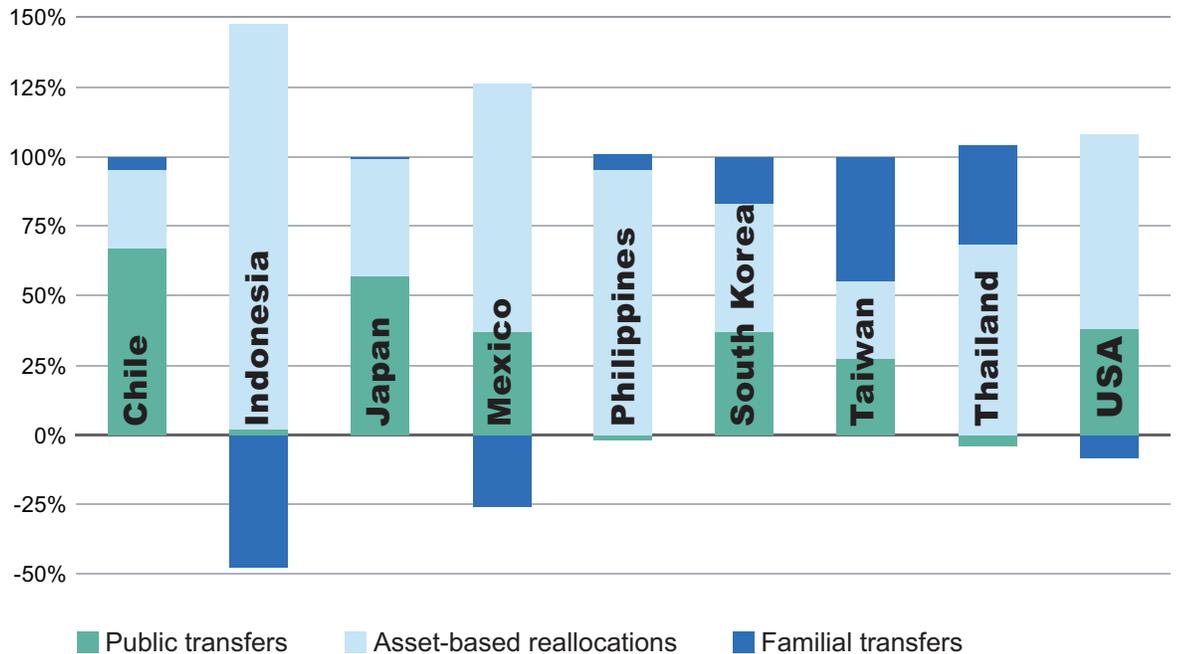
In many Asian countries, the role of the public sector in providing old-age support is small. In Thailand and the Philippines, the elderly actually pay slightly more in taxes than they receive in benefits. In South Korea and Taiwan, governments provide more than one-quarter of the support for the elderly. Japan is distinctive among Asian countries, with government programs providing more than one-half of elderly support. Public-sector support for the elderly also tends to be important in Latin America and Europe.

The extent to which the elderly rely on assets varies widely. They rely heavily on assets in Indonesia, the Philippines, Thailand, Mexico, and the United States. In Europe and many other Latin American countries, the elderly hardly rely on assets at all.

Countries in Asia appear to be in the midst of a transition. The elderly are relying less on support from their families than they did in the past. The question is,

Support systems for persons 65 and older in nine Pacific countries.

Measured as percentage of the total old-age life cycle deficit, using the most recent data (1997–2005) available.



Negative values represent net outflows, i.e., the elderly provide more support to their families than they receive. Components of the three support systems must total 100 percent.

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

In Asia, the elderly are relying less on support from their families than in the past—how should this support be replaced?

how should this support be replaced? By developing large social-welfare systems, as in Europe and parts of Latin America? Or by relying more on the accumulation of personal assets, as in the Philippines, Mexico, Thailand, and the United States? Whatever strategy is chosen must meet both challenges of population aging—supporting the elderly and sustaining economic growth.

How Can We Support the Elderly While Sustaining Economic Growth?

One strategy for responding to population aging emphasizes capital accumulation. With longer life expectancy and a fixed retirement age, workers need to accumulate more during their working years to fund a longer period of retirement. And because fertility is lower, fewer resources are required to support children, so more should be available to save for retirement.

If countries rely to a significant degree on assets to fund retirement, population aging will lead to greater wealth, greater asset income, more capital investment, and thus higher wages for workers. It should be possible to meet the economic needs of the elderly and to sustain economic growth, leading to permanently higher standards of living.

The evidence suggests that East Asian countries are following this track, with rapid population aging but low reliance on public transfer systems.⁵ Singaporeans, for example, are required to save a high fraction of their earnings through mandatory contributions to a Central Provident Fund (CPF). Apart from providing pension benefits, the fund has led to high rates of saving, investment, and economic growth. Other East Asian countries have achieved high rates of personal saving without government mandates. This is certainly true in China today. By contrast, the public pension systems in Europe, and to a lesser extent in Japan and the United States, tend to provide for

Effective investment in child health and education can offset the effects of low fertility

retirees out of current taxes and, therefore, have no positive impact on economic growth. Pension systems in Latin America vary.

The second approach for successfully dealing with population aging emphasizes human-capital investment. Effective investment in the health and education of each child can offset the effects of low fertility, resulting in a smaller but more productive workforce.⁶

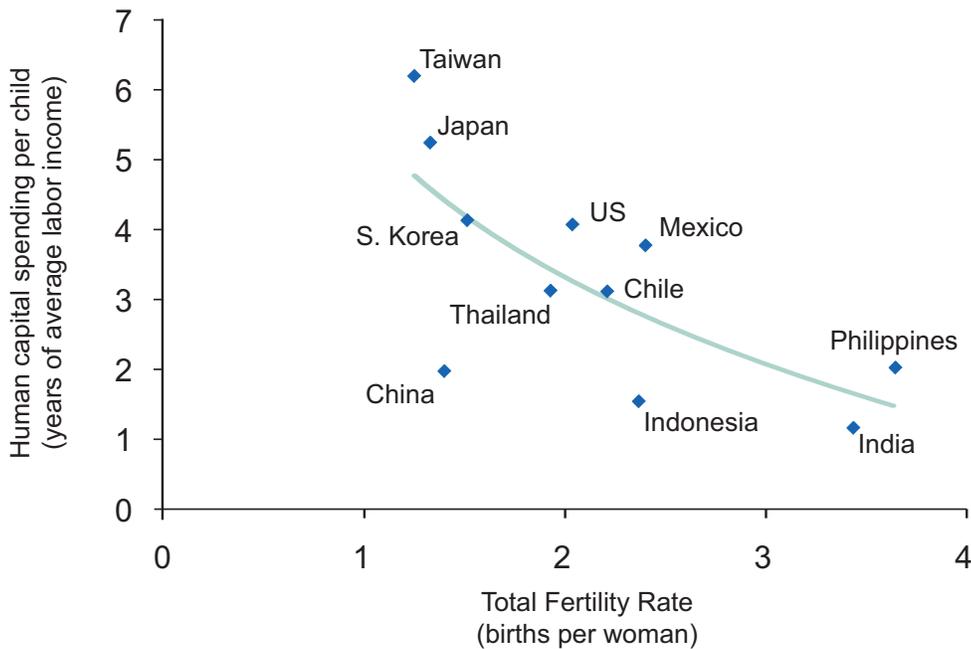
In fact, there tends to be a strong trade-off between the number of children people have and the amount that is invested in each child,⁷ as shown by a comparison of fertility in 11 countries with public and private spending on the health and education of children (see figure below). The highest level of human-capital investment—6.2 for Taiwan—means that average spending on the health and education of one child is equal to about six years of pre-tax labor income for a person in the prime working years.

Improvements in human capital can offset the adverse effects of population aging, but this outcome depends on the effectiveness of human-capital investment.⁸ The large expenditures on education in Taiwan, Japan, and South Korea, for example, may or may not result in comparable increases in worker productivity. And in many other Asian countries, human-capital spending lags behind. India, Indonesia, and China fall well below the typical level for countries with similar fertility rates. The case of China is particularly striking, with very low levels of fertility but relatively low investment in children's health and education.

A sound strategy for sustaining economic growth and achieving financial security for the elderly would be a balance between programs that encourage asset accumulation and strong investment in human capital. High rates of saving and investment contribute

Human-capital spending per child in relation to total fertility rates.

Measured in terms of years of average labor income for a worker ages 30–49, calculated for 11 countries, using the most recent data (1997–2005) available.



Human-capital spending is cumulated per capita values (public and private combined) for ages 0–26 for education and 0–18 for health care. The curved line is the average relation between fertility and human-capital spending, showing that as the number of births declines, investment per child increases.

Source: Recalculated from R. Lee and A. Mason, "Fertility, Human Capital, and Economic Growth Over the Demographic Transition," *European Journal on Population* 26, no. 2 (2010): 159–82.

directly to old-age support and economic growth, while the role of human-capital investment is more indirect. Given current trends in family transfers, it seems uncertain whether parents who invest in their children's health and education will be compensated directly in the form of family-based old-age support. Rather, healthy, well-educated workers should be able to earn more and thus pay higher taxes to support the elderly through government programs, compensating for the high levels of human-capital investment they received.

A Bumpy Road Ahead?

Over the coming decades, countries in Asia will experience substantial and rapid population aging. At the same time, family-transfer systems to support the elderly are eroding. In this context, how will support systems for the elderly evolve? Will publicly funded social-welfare systems play a more important role? Or will the private accumulation of assets dominate?

In guiding the region's response to population aging, policymakers will face several potential stumbling blocks. Many developing nations lack the well-functioning financial markets that make asset accumulation possible for the average citizen. Labor markets are rigid in many countries, discouraging continued employment among older workers, or prohibiting it by setting a mandatory retirement age. In some countries, political instability is another hurdle.

But there are also opportunities. Many Asian countries are only midway through their demographic transitions, and they are now enjoying the economic benefits of a relatively large workforce. They need policies that will encourage greater work effort, higher rates of saving and investment, and greater investment

National Transfer Accounts

The National Transfer Accounts (NTA) project is developing a system to measure economic flows across age groups in a manner consistent with National Income and Product Accounts. NTA measures how each age group produces, consumes, shares, and saves resources. The accounts provide comprehensive estimates of the economic life cycle and the mechanisms used to shift economic resources across age groups. These mechanisms are either transfers or asset-based flows, and they occur through government programs and through families and other private institutions.

The lead NTA research groups are the Center for the Economics and Demography of Aging, University of California at Berkeley, and the Population and Health Studies Program, East-West Center. Nihon University Population Research Institute serves as the Asia Regional Center. National research teams consist of researchers in more than 30 countries around the world. For more information, see the project website at www.ntaccounts.org.

in human capital. Regional cooperation can help by promoting financial markets, saving, and labor-market flexibility.

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. Policies implemented by governments now will determine whether today's workers can enjoy a comfortable old age without excessively burdening their descendants.

Notes

¹ United Nations, *World Population Prospects: The 2008 Revision* (New York: Population Division, United Nations, 2009).

² D.E. Bloom, D. Canning, J. Sevilla. (2002). *The Demographic Dividend: A New Perspective on the Economic Consequences of Population Change*. Santa Monica, CA, RAND; A.C. Kelley and R.M. Schmidt, "Economic and Demographic Change: A Synthesis of Models, Findings, and Perspectives," in *Population Matters:*

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A sound strategy would be a balance between programs that encourage asset accumulation and investment in human capital

³ A. Mason and R. Lee, "Transfers, Capital and Consumption Over the Demographic Transition," in *Population Aging, Intergenerational Transfers and the Macroeconomy*, ed. R. Clark, N. Ogawa, and A. Mason (Cheltenham, UK, and Northampton, MA: Edward Elgar, 2007).

⁴ A. Mason, R. Lee, A.C. Tung, M. Lai, and T. Miller, "Population Aging and Intergenerational Transfers: Introducing Age into National Income Accounts," in *Developments in the Economics of Aging*, ed. D. Wise (Chicago: National Bureau of Economic Research and University of Chicago Press, 2009).

⁵ M. Feldstein, "Social Security, Induced Retirement, and Aggregate Capital Accumulation," *Journal of Political Economy* 82, no. 5 (1974): 905–26; W.G. Gale, "The Effects of Pensions on Household Wealth: A Reevaluation of Theory and Evidence," *Journal of Political Economy* 106, no. 4 (1998): 706–23; R. Lee, A. Mason, and T. Miller, "From Transfers to Individual Responsibility: Implications for Savings and Capital Accumulation in

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⁶ G.S. Becker and R.J. Barro, "A Reformulation of the Economic Theory of Fertility," *Quarterly Journal of Economics* 103, no. 1 (1988): 1–25; Lee and Mason, "Fertility, Human Capital, and Economic Growth Over the Demographic Transition."

⁷ Lee and Mason, "Fertility, Human Capital, and Economic Growth Over the Demographic Transition"; N. Ogawa, A. Mason, A. Chawla, R. Matsukura, and A.C. Tung, "Declining Fertility and the Rising Cost of Children: What Can NTA Say About Low Fertility in Japan and Other Asian Countries?" *Asian Population Studies* 5, no. 3 (2009): 289–307.

⁸ Lee and Mason, "Fertility, Human Capital, and Economic Growth Over the Demographic Transition."

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