Will Population Change Sustain the 'Asian Economic Miracle'?

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SUMMARY For more than three decades the economic performance of eight East Asian economies has been the envy of the world. Though some of these "miracle economies" are now experiencing currency devaluations, stock market retrenchment, and slower growth, it would be premature to proclaim the end of the Asian economic miracle. A new analysis of these economies' growth shows that one of the key causes of success—favorable demographics—will persist for another two decades or more. Asian populations which were once dominated by children are now bulging with working-age adults. Their efforts have generated higher earnings, their tax dollars have funded enviable education systems, and their savings have financed spectacular rates of investment and economic growth. The favorable change in Asian populations is the result of an unusually rapid transition from high to low birth and death rates. The resulting population changes have created an unprecedented opportunity for economic growth. If governments continue to implement innovative and effective economic policies, another quarter-century of economic growth is well within the reach of most East Asian economies.

New evidence shows that reducing rapid population growth can spur economic development

From 1960 to 1990, eight East Asian economies achieved extraordinary economic success. Per capita income grew more rapidly in South Korea, Singapore, Hong Kong, Taiwan, and Japan than anywhere else in the world. Thailand, Malaysia, and Indonesia were not far behind. In South Korea, real per capita income increased from $900 to $6,700. Economic growth was matched by improvements in life expectancy, gains in educational attainment, and reductions in poverty. East Asian economic success affected not only the lives of people in the region, it helped transform the global economy. During this period Japan's economy became the world's second largest (with a gross domestic product twice that of Germany), trailing only the United States. Because East Asian economies focused on manufacturing products for export and made substantial investments abroad, their international impact increased even more rapidly than their size.

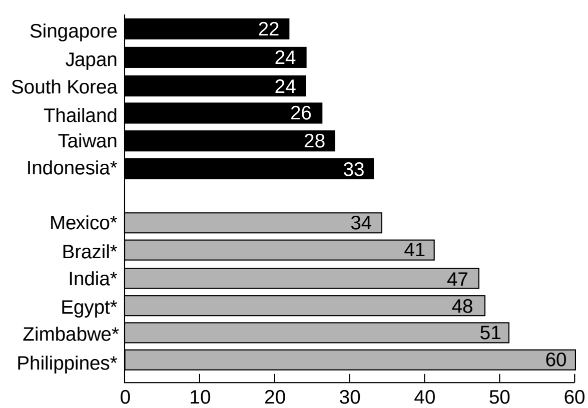
The success of these economies has been attributed to a number of factors: a fiscally conservative, export-oriented economic policy; a well-educated, disciplined, hard-working labor force; a favorable global economy; an innovative, dynamic business sector; industrial policies that supported development of key sectors; and high rates of saving and investment that led to a rapid increase in capital (such as plants and equipment; physical infrastructure including roads, ports, railways; and communications infrastructure). A recently completed East-West Center–sponsored study of six of these economies—Japan, South Korea, Taiwan, Singapore, Thailand, and Indonesia—shows that one additional factor has played a fundamental role in East Asia's economic success: population change.

This finding is significant for two reasons. First, it places East Asia's recent economic problems in perspective. Observers of the region are widely divided over whether current difficulties (including recessions, currency devaluations, and deflating stock prices) are short term in nature or reflect longer-term, structural problems. Our evidence shows that population changes in East Asia will favor strong economic growth for at least two more decades, except in Japan. Second, the finding demonstrates that for countries experiencing rapid population growth, family planning programs can be an important part of the arsenal used to achieve higher standards of living. In East Asia, rapid fertility decline and lower mortality rates created a window of opportunity which, when combined with effective economic policy, produced an era of remarkable economic progress.

East Asia's Changing Population

Following World War II, East Asia began to experience unprecedented rates of population growth. Health conditions and mortality rates had begun to improve in most Asian countries even before the war. As a consequence, population growth rates accelerated. In the 1960s, East Asian governments committed themselves to stabilizing population growth through national family planning programs. Over the following decades, childbearing among East Asian women declined at an unparalleled speed (Fig. 1), responding in part to population programs and in part to declining child mortality, urbanization, industrialization, higher educational attainment (especially for women), and rising childrearing costs. Within a single generation, the number of children born to the average woman dropped from six births or more to two or fewer.

This rapid fertility decline did not immediately produce substantially slower population growth. Historically high fertility produces a population with a large concentration of women at the childbearing ages who add large numbers to the population even if their childbearing rates are low. Thus, growing



*Projected

Fig. 1. Years to complete transition from high to low birth and death rates

Japan's experience shows how changes in the population affect the economy

populations are said to have a built-in "momentum" and grow for decades even after rates of childbearing are low. Between 1950 and 1995, for example, South Korea's population increased from 20 million to 45 million; Thailand's from 20 million to 59 million; and, Indonesia's from 80 million to 198 million. The populations of South Korea, Taiwan, and Singapore are now growing at about 1 percent per year, about one-third the 1960s rates. Japan's population is growing at only 0.2 percent per year and will soon begin to decline.

Rapid fertility decline did produce immediate and important changes in age structure: a decline in the relative number of children, a rise in the relative number of working-age adults, and later, an increase in the relative number of elderly. These changes are key to understanding the link between population change and economic growth in the miracle economies.

Children, Workers, and the Elderly

Changes in age structure in East Asia are best illustrated by Japan because it is further along in its demographic transition (the shift from high to low birth and death rates). Three broad age groups are identified in Fig. 2, selected because of their significance for the economy: those of working age (20-64), young dependents (under 20), and old dependents (65 or older). Until about 1950, the percentage of working-age adults was relatively constant at about 50 percent. At that time, however, the percentage began to rise. By 1975, it had reached over 60 percent, where it stayed until 1995. The growth of the working-age population in Japan has resulted in an increase in the proportion of the population earning incomes and income per capita. The change in age structure between 1950 and 1975 produced an increase in per capita income of 22 percent (in the absence of any changes in wages or unemployment rates). The other countries of East Asia have experienced similar increases in the proportion of working-age adults, although Japan preceded them by two decades or more.

The rise of the working-age population is a one-time event that creates an unusual economic growth opportunity. It is inherently a temporary phenomenon and eventually declines as the percentage of the elderly increases. In the case of Japan, the entire process will play out over a century. By 2050, only about half of the population will be of working age.

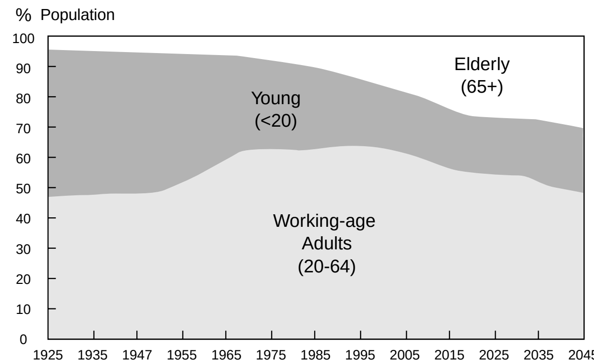


Fig. 2. Japan's changing age structure

A second change in age structure is also apparent in the Japanese experience. In the past, nearly all economically dependent people were children—nine out of 10 in 1925. Only one in 10 was 65 or older. As childbearing declines and life expectancy increases, the balance between children and elderly inevitably shifts. In Japan, the number of children and the number of elderly soon will be equal, and then, elderly will outnumber children. This change is permanent. It is a phenomenon shared by the West, but otherwise without historical precedent.

How Population Changes Influence Economic Development

Perhaps East Asia's experience should be described as a series of miracles rather than just one. If so, one was producing more than enough food, through innovation, to feed its rapidly growing populations. A second was maintaining a high rate of growth in the labor force even as population growth began to slow in more recent years. A third was achieving rapid improvements in the educational attainment of workers. Fourth, and possibly most remarkable, was raising the region's very low rate of saving and investment to a rate higher than that of any other region in the world.

Innovation. Relative to its population, Asia is poorly endowed with land. Per capita land is one-seventh of that available in Africa or Latin America. Despite the land shortage and substantial population growth, food production per capita increased by 47 percent in East Asia between 1963 and 1992. During the same period, Latin America managed an increase of only 13 percent and Africa only 7 percent.

What accounts for East Asia's success at feeding its population under such severe land constraints? The answer is agricultural innovation, prompted in part by increased population pressure on land and a substantial decline in the price of fertilizer. The success, however, was not automatic. Even before the mid-1960s, population growth was substantial and the price of fertilizer had declined significantly. High-yielding plant varieties were available for temperate zones and major advances were possible with a relatively modest effort. Yet, gains in yield per hectare were unimpressive.

It was government support for research that launched the "Green Revolution," the dramatic development and diffusion of modern rice and wheat varieties in tropical Asia starting in the 1960s. This innovative process involved the development of grains that were more responsive to fertilizer; agricultural research institutions that adapted modern grain varieties to local conditions; and new agricultural infrastructure, irrigation in particular.[1]

Explaining the dramatic rise in saving is central to understanding rapid economic growth

Increased proportion of the population in the labor force. Population growth has slowed in the miracle economies of East Asia. But labor force growth has continued unabated. The result, an increase in the proportion of the population that is employed, has been driven primarily by two demographic factors. First is the changes in age structure which concentrate a larger percentage of the population at the working ages. Second is the dramatic increase in the number of women entering the work force, their adult lives no longer dominated by bearing and rearing children. Indonesia, South Korea, Singapore, and Taiwan experienced the largest shifts of women from home to the workplace.

A better educated work force. Education has been described as an "engine of economic growth" in East Asia. The work force was better educated than in many other poor countries at the end of World War II and educational attainment grew rapidly over the ensuing decades, particularly among women. Continued growth in the work force and rapidly increasing income per worker translated into rapid growth in the tax base. Fewer births meant fewer children entering school. Had governments merely maintained education's share of the budget, expenditures per school-age child would have grown two to three times as rapidly as national income. In most high-performing economies, the share of national income devoted to education actually increased, reinforcing the favorable impact of changing demographics.

Many of the changes that operated at the national level also influenced the family environment in ways that contributed to child health and development. Rising standards of living greatly increased the capacity of families to "invest" in their children. Demographic conditions also changed in favorable ways. Fewer children meant more family resources per child. As women married later and had their first child later, far fewer children were born to young mothers (births that are riskier for both mother and child). Low rates of divorce and out-of-wedlock childbearing insured that more children were raised in intact and economically viable families.

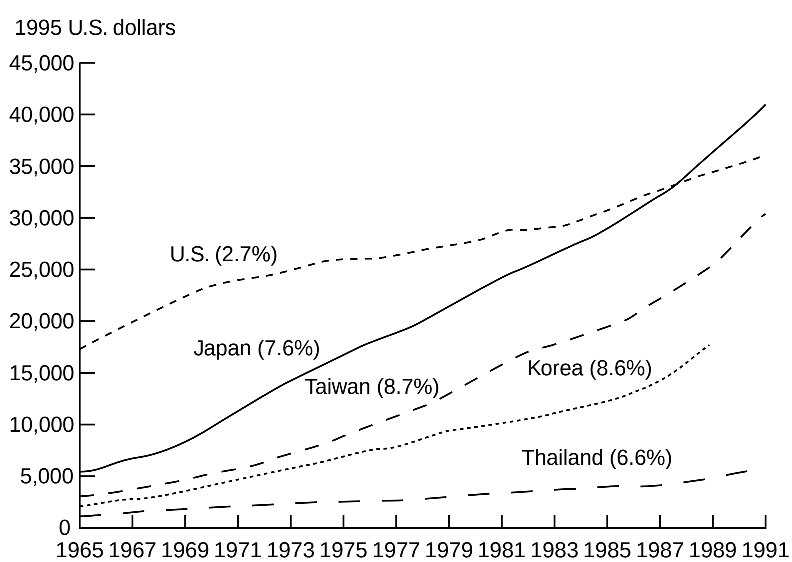
High rates of saving and investment. An increase in the amount of capital relative to the number of workers—known as capital deepening—is consistently identified as a primary source of economic growth in studies of East Asian success. Since 1965 (the year for which data are first available), capital per worker has grown more than three times as rapidly in Taiwan and South Korea as in the United States. Capital deepening in other miracle economies has been nearly as rapid (Fig. 3).

The extraordinary pace of capital deepening can be traced to high and increasing rates of saving and investment. In 1995, for example, gross domestic saving varied in the high-performing economies of East Asia from 29 percent of gross domestic product (GDP) in Taiwan to 47 percent of GDP in Singapore. Countries in other regions of the developing world had much lower saving rates: 16 percent in sub-Saharan Africa, 20 percent in South Asia, and 19 percent in Latin America.[2]

Saving rates were not always high in East Asia. In 1960, the saving rate was negative in Singapore, 1 percent in South Korea, and under 10 percent in Indonesia and Hong Kong. Explaining the dramatic rise in saving rates is central to understanding rapid economic growth in East Asia. Demographic change has been identified in several recent studies as a key factor and one recent analysis[3] quantifies the impact of demographic change: an increase in the saving rate of 12 to 13 percentage points between 1970 and 1992.

Why should demographic factors play such an important role? Poor, high-fertility societies throughout the world have low rates of saving. Parents can neither afford to save nor do they need to save. Their children, and other members of the extended family, are their "savings" and provide whatever protection is possible from the vagaries of life—drought, illness, old age.

In East Asia, a series of demographic and economic changes is leading to an entirely different system of economic security, one that is based on tangible wealth rather than family support. As parents opt for smaller families, their ability to save is enhanced because of the reduced financial burden of childrearing. Moreover, the impetus for saving increases because parents have fewer children upon whom they can rely later in life. The changes in the economic support system appear to be occurring very rapidly. In Japan, for example, the proportion of non-working elderly women who depended on their children as their primary source of income dropped from 52 percent in 1980 to 24 percent only eight years later.



Note: Values in parentheses are average growth rates
Source: Penn World Tables

Fig. 3. Rising capital per worker is key to economic growth

With demographic change and economic growth, the resources required to finance retirement are substantially greater than in the past. People are living longer and they are retiring earlier. In Japan, the time a person typically spends in retirement doubled, increasing from 4.4 years to 8.7 years between 1975 and 1990. A detailed assessment of demographic change in Taiwan provides a useful guide to the importance of these changes. Between 1970 and 1995, saving required to finance retirement needs increased from 10 percent to 20 percent of national income because of demographic change.[4] This further buttresses other studies which trace the high rates of saving in East Asian miracle economies to demographic factors.

The Future: Is the Miracle Over?

The 1990s have not been uniformly miraculous for the high-performing economies of East Asia. Economic growth has slowed considerably in Japan. South Korea is amassing foreign debt at a record pace. Thailand is confronted by a financial crisis that threatens not only its own economic health but that of its neighbors. Does recent experience mark the end of the East Asian miracle? Or is it merely a blip on its economic report card?

Among the miracle economies of East Asia, Japan now faces demographic conditions that are less favorable to high rates of economic growth. The educational attainment of the work force continues to improve, but the proportion of the population of working age is declining and labor force growth has ceased. Saving rates have dropped well below their peak levels as the relative size of the elderly population, which saves at lower rates, has increased. A rate of growth closer to those of Western economies, 1 to 2 percent per year, may be a realistic goal for Japan in the coming decades. If this seems pessimistic, it is so only in comparison to unrealistic expectations. Japan, facilitated by demographic change, has already achieved standards of living far higher than 40 years ago and comparable to the most successful economies of the West.

Demographic conditions will continue to favor economic growth in the other miracle economies of

East Asia for several decades. The percentage of the population of working age is either rising or on a high plateau, each generation of young workers is more educated than the previous generation, and demographic conditions continue to support high rates of saving. Does this guarantee a resumption of high growth rates? Of course not. Ill-advised economic policy can easily result in a failure to exploit the opportunities presented by the demographic transition.

Lessons For Elsewhere: Population Change as a Window of Opportunity

Many developing countries are at the same critical juncture faced by the high-performing economies of East Asia in the early 1960s. These countries have low standards of living, high rates of childbearing, rapid population growth, and exceedingly young populations. To what extent does East Asia's experience offer guidelines for achieving economic success? Can their success be replicated? Answering such questions with assurance is a difficult task. Each time and place has unique features that are irreproducible. Nonetheless, East Asia's success at achieving a rapid demographic transition and extraordinary economic growth offers some important lessons.

The unusually fast demographic transition was a product of rapid economic development and social change combined with effective population policy. Achieving a slower rate of population growth was an explicit development objective in Indonesia, Singapore, South Korea, Taiwan, and Thailand dating from the 1960s. A national commitment to slower population growth combined with support for voluntary family planning programs were policies that proved to be remarkably effective.

Many developing countries are at the same critical juncture faced by East Asia in the 1960s

An accelerated demographic transition, by itself, could not have produced East Asia's economic miracle. Rather, favorable demographic conditions created opportunities for economic growth; by and large, these opportunities were fully exploited. The impact of rapid growth in the female labor force was greatly enhanced because of efforts to reduce the gender gap in education. In response to the decline in the relative number of school age children, the miracle economies could have shifted resources away from education. Instead, they increased their commitment to education. Lower rates of childbearing and longer life expectancy substantially increased incentives for saving. The favorable environment was reinforced by prudent fiscal policy. Moreover, governments did not undermine incentives by implementing pension programs that tax workers to support current retirees (as in the United States' Social Security system). In some cases, as in Singapore, for example, public pension programs require workers to accumulate their own pension funds. In other cases, for example Taiwan, national programs were avoided altogether, encouraging workers to be self-reliant and to save for their own retirement. The result in all cases was a high rate of saving, creating national wealth and a high rate of economic growth.

The remarkable success of the miracle economies during the last 35 years has raised millions of people from abject poverty and transformed some of the poorest economies in the world into some of the richest. No single distinguishing feature explains their success. Rather, rapid economic growth was achieved through a combination of factors: a vibrant private sector, an educated and hard-working labor force, and effective government policies including population policy. Demographic changes have had a pervasive and complementary impact on development—supporting rapid growth of the work force, substantial improvements in educational attainment, and higher rates of saving and investment. Demographic conditions are unlikely to support rapid economic growth in Japan, but in the other countries of East Asia another quarter-century of economic growth is well within reach.

Notes

[1] Hayami, Yujiro. 1997. *Induced Innovation and Agricultural Development in East Asia*, East-West Center Working Papers, Population Series, No. 88-4. Honolulu: East-West Center.

[2] World Bank. *World Development Report 1997*. New York: Oxford University Press.

[3] Williamson, Jeffrey G. and Matthew Higgins. 1997. *The Accumulation and Demography Connection in East Asia*, East-West Center Working Papers, Population Series, No. 88-6. Honolulu: East-West Center.

[4] Lee, Ronald D., Andrew Mason, and Tim Miller. 1997. *Saving, Wealth, and the Demographic Transition in East Asia*, East-West Center Working Papers, Population Series, No. 88-7. Honolulu: East-West Center.

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About the Study

The long-term course of economic development and its relationship to population in the miracle economies of East Asia has been the primary focus of a major study recently undertaken by the East-West Center in cooperation with Nihon University and the University of Hawaii at Manoa. Support comes from the U.S. Agency for International Development (USAID), the Ministry of Foreign Affairs (MOFA) of Japan, the Rockefeller Foundation, and the William and Flora Hewlett Foundation. Support from USAID and MOFA is being provided as part of the Common Agenda for Cooperation in Global Perspectives.

Scholars from Asia and the United States have examined the connection between population change and saving and investment, innovation and technological developments, human resource issues (health, education, and employment), international labor migration and capital flows, the distribution of income and poverty, social security issues, the changing economic role of the family, and the economic status of women.

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