



# Declining Birthrate and Aging Population in Asia — Educational Support to Low-Income Households Improves Quality of Labor Force and Productivity

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(GRIPS)

## < Keypoints >

- Birthrates and average life expectancy in Asia now on a par with developed countries
- Estimates suggest that consumption tax needs to rise by 8% or more in Thailand
- Policies providing subsidy on child-rearing such as child allowances is not recommended.
- Policies providing subsidy on children's educational cost, which can sustain the long-term development, should be the priority in developing countries.

Population aging has become a global concern. With a rapidly increasing proportion of old people in the population, governments are forced to increase expenditure on social security, thus causing pressure on public finances. The shrinking of working-age population indicates less labor force and fewer taxpayers to share the fiscal burden. Add to that the low birthrate, which has been lower than the replacement rate required to maintain the size of the population as it is now in developed countries, further increases the old-age dependency ratio (proportion of old people relative to proportion of young people of working age), thus making the issue of population aging even more problematic.



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The economic impacts of the high birthrate and rapid population growth had been troubling developing countries over the past several decades. Population policy in many of the developing countries was designed to increase the fruits of economic development by

putting a brake on population increase. One well-known example is China's one-child policy. International organizations and research institutes also encouraged family planning as a means of lowering the birthrate in developing countries. A lower birthrate would mean less impact on the environment, relieve the pressure on public services, and simultaneously contribute to improvement in infant health and education standards, better quality of life for women and economic growth. It was thought that population aging and fertility declining were issues faced only by developed countries, but these same issues have in fact been widely noticed in the developing countries of Asia also.

Based on trends in birthrates and average life expectancy in Asian countries such as South Korea, China, Thailand and Vietnam compared with developed countries such as the United States and Germany, the total fertility rate (number of children born to a woman during her lifetime) in 1960 was roughly more than six in those developing countries of Asia and average life expectancy at the time of birth was less than 60 years (some even below 50 years). In contrast, the birthrate in developed countries was fairly low and average life expectancy was more than 65 years.

**Table 1: Total Fertility Rate, Life Expectancy and Income Level**

	Total Fertility Rate		Life Expectancy		GDP per capita* (in 2010 USD)
	1960	2014	1960	2014	
U.S.	3.7	1.9	69.8	78.9	50,728
Japan	2.0	1.4	67.7	83.6	46,519
Germany	2.4	1.4	66.8	78.6	44,878
France	2.9	2.0	66.6	79.3	41,204
S. Korea	6.2	1.2	53.0	82.2	26,901
Taiwan	5.6	1.2	62.3	79.8	21,782
Malaysia	6.2	1.9	59.5	74.7	10,512
China	5.8	1.6	43.4	75.8	6,108
Thailand	6.1	1.5	54.7	74.4	5,636
Vietnam	6.3	2.0	59.1	75.6	1,596
Myanmar	6.1	2.2	42.7	65.9	1,230

**Source:** World Bank. \*GDP per capita in 2014

In 2014, however, the birthrate was low in both developed countries and most developing countries in Asia at around two births per woman, and average life expectancy was generally above 70 years. Birthrates in Asian countries which used to be around six per woman had fallen to around two within 30 to 50 years. A sharp drop in the birthrate causes a drop in the workforce and also causes a rapid increase in the proportion of old people in

the population in the near future.

The challenge of population aging in the developing countries of Asia is likely to be different from that of developed countries. In the case of developed countries, the issue of aging directly connects to a substantial increase in the financial burden of providing social security such as pensions and medical care, and the fact that it lowers the proportion of working-age population means that there are fewer taxpayers in the population as a whole. In contrast, social security systems in developing countries are generally under-established. Developing countries in Asia, even though average life expectancy and birthrates are similar to those in Europe and the United States, have much lower levels of income and development. One example is Vietnam, where average life expectancy and birthrates are similar to that of the United States, but where the income level is barely 1/30.

The question, therefore, is what kind of population policy would suit developing countries in Asia? Collaborative research undertaken by the author, the Bank of Thailand and Academia Sinica attempted to find an answer. As part of the study, an economic model called, a so-called “overlapping-generations model”, was developed to characterize population dynamics and major economic characteristics of a typical developing country. Following that, we carried out a simulation of a model economy with multiple aging scenarios and policy reforms and studied the effect on household behavior, financial burden, economic growth and social welfare (satisfaction level of society as a whole) across generations. A scenario of population aging, targeting the forecasted population structure of Thailand in 2055, was first studied. Based on the aging scenario, average life expectancy had increased from the present 74 years to 80 years, assuming there was a fully-funded pension system in which members were not dependent on support from the government. It was then discovered that the rate of consumption tax had to be increased by at least 8% in order to balance the government budget in such an aging economy. An additional tax burden arises because the expenditure on social security for older people increases at the same time as the number of younger people in their productive working years decreases.

Two types of reform of population policy are evaluated under this aging scenario. The first is to increase the birthrate and reduce the cost of raising children by means of child allowances or tax refunds. This policy has been widely implemented in developed countries. Our analysis suggests that it is costly although it contributes somewhat to the balancing of the age structure of a population.

**Table 2: Human capital in developed and developing countries**

	Ratio of persons who completed high-school education among people 25 years of age or over (2010)	Ratio of persons in tertiary education (2011 to 2013)
United States	87.1%	93.3%
Japan	80.6	61.3
Germany	81.1	61.1
France	61.9	60.1
Malaysia	50.9	35.9
China	22.3	27.4
Thailand	27.3	51.9
Vietnam	25.7	24.9
Myanmar	-	13.9

**Source:** World Bank

To study the policy effects across generations, a simulation on how the economy would change over the long term was carried out. The simulation found that members of the current generation are highly satisfied as they can direct the saved expenditure on child care towards other purposes, but that any gain they had made would be cancelled out by the negative effect on the economy, and that future generations would be the eventual losers. The effect of this policy for raising the birthrate in high-income, high-education households is insignificant. Even if the birthrate among low-income, low-education households indeed increases, the children born in such households are unlikely to progress to higher education. As a consequence, unless additional policies to ensure extensive educational investment in children from low-income households is introduced, the proportion of skilled workers relative to all workers will decrease, causing an obstacle to long-term economic growth. Although human capital is one of the deciding factors for growth in today's economy, there has generally been no adequate investment in education in developing countries.

The table shows two indexes of human capital by country. The proportion of people who have completed a high-school education among people 25 years of age or over represents the current stock of human capital, and the rate of tertiary education being undertaken, for example, at universities can be interpreted as the flow of accumulation of human capital. In both cases, there is a significant gap between developed and developing countries.

An additional challenge is from the "informal sector," in which economic activities are not monitored/regulated by governmental authorities. This is not a concern in developed

countries but an important issue in developing economies because their informal sectors are large (with more than 50% of total employment), and less capital/skilled-labor intensive and less productive than the formal sectors. A decrease in the proportion of skilled workers will cause a shrinkage of the formal sector and lead to a reduction in aggregate productivity. As a result, in the long term this type of policies of child allowance will reduce the efficiency of resource allocation and worsen the fiscal burden caused by population aging although its short-term effect is positive. The author and others, therefore, considered an alternative policy in which the educational costs for children would be subsidized, including exemption from tuition fees for low-income households, or government-sponsored student loans. The simulation result suggested that, in the short term (first few decades after implementation of the policy), in contrast to child-allowance-type policies, the number of skilled workers increased. It was also found that skilled workers had a welfare loss because of higher competition but the welfare of unskilled workers was found to have increased due to the educational subsidy and less competition. With the positive changes seen in social welfare overall, a redistribution would make up for the disadvantages that the skilled workers experience to raise their welfare level.

In the long term, skilled and unskilled labor alike will benefit from an improvement of economic development. By encouraging investment in children's education and improving the level of human capital, the formal sector will expand and aggregate productivity will be improved. Expansion of production, reduction of the tax burden and improvement of social welfare will be the result. Although the age structure of the population will not significantly change, the gain in social welfare can be maintained on a long-term basis through economic development.

The main message delivered from the analysis is that, given the large informal sector, under-establishment of human capital and inequality in individual education levels, the design of population policy for population aging in developing countries should also take into account factors of economic development. Population control measures indeed are no longer necessary in most of the countries in Asia. However, rather than the type of policies providing general child allowance, as adopted in developed countries, the priority should be given to the type of policies subsidizing children's educational cost and encouraging educational investment for the developing countries in Asia.

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