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Bank of Japan

How to Sustain Economic Growth in Asia

Speech at the Amartya Sen Lecture

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Introduction

It is a great honor to give a presentation in front of such a distinguished audience, especially Mr. Anand Panyarachun and Professor Amartya Sen. I have admired Professor Sen ever since I became acquainted with his work when I studied economics at Oxford, about 45 years ago. At that time, I was fascinated to read not only his elegant theoretical papers on social choice but also his research on poverty and inequality, which has had a huge impact on development economics.

Today, I have chosen a topic which is inseparable from the subject of development, and that is economic growth. More specifically, I would like to discuss how we can sustain economic growth in Asia. As Robert Lucas has correctly pointed out, "Once one starts to think about economic growth, it is hard to think about anything else."[1] Therefore, I will take off my central bank governor's cap for a while, and there will be no mention tonight of either "unconventional monetary policy" or "quantitative and qualitative monetary easing."

In recent years, the question of how to sustain economic growth has become an increasing preoccupation both within academia and among policy makers. The debate on the "secular stagnation" of mature economies is one manifestation of this.[2] Given the tendency of regression to the mean, even rapidly growing emerging economies may eventually face similar challenges.[3] In the light of these discussions, whether Asia can sustain its robust economic growth over the coming decades may not be a particularly comfortable question, but it is nonetheless a question worth asking.

In the following presentation, I will first consider a number of stylized facts regarding economic growth in Asia. Then, I will move on to a discussion of how economic growth in Asia might be sustained.

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[1] Robert E. Lucas Jr., "On the Mechanics of Economic Development," *Journal of Monetary Economics*, Vol. 22, No. 1, pp. 3-42, 1988.

[2] Lawrence H. Summers, "U.S. Economic Prospects: Secular Stagnation, Hysteresis, and the Zero Lower Bound," *Business Economics*, Vol. 49, No. 2, 2014; Coen Teulings and Richard Baldwin, *Secular Stagnation: Facts, Causes and Cures*, A VoxEu.org Book, CEPR Press, 2014.

[3] Lant Pritchett and Lawrence H. Summers, "Asiaphoria Meets Regression to the Mean," NBER Working Paper 20573, 2014.

I. Three Stylized Facts

The first stylized fact that I want to consider is that Asia has grown almost constantly at a very rapid pace over a number of decades. Chart 1 shows per capita GDP by region. It is quite impressive that Asia, which was at the lowest level in 1950, has outperformed the other regions in terms of growth. In this long-term context, the Asian crisis of 1997-1998 seems to have been just a slight hiccup. The average growth rate over the last 60 years or so is about 4 percent per year. Thanks to the power of compound interest, this makes Asian per capita GDP now 12 times as large as that in 1950. No wonder Asian economies are often characterized as "dynamic Asia."

The second stylized fact is the large degree of heterogeneity, or diversity in plain English, in the *level* of per capita GDP. As illustrated in Chart 2, the Asian NIEs (Hong Kong SAR, Singapore, Taiwan and Korea) and Japan enjoy very high levels of income, whereas most Asian countries -- and in fact most of the population of Asia -- belong to the middle-income group.[4] Even within the middle-income group, individual countries differ considerably in their levels of per capita GDP.

Economists studying economic growth rely primarily on estimates of GDP, but they sometimes check these statistics against data from other sources. One simple and visually impressive yardstick of economic prosperity is the amount of artificial light that can be seen at night from space.[5] Chart 3 shows such an image for Asia. This not only confirms the aforementioned heterogeneity across Asian countries, but also shows the heterogeneity within a country. For instance, coastal China is as bright as Korea and Japan, but light becomes sparse as you move inland. Likewise, the area around Delhi in India, or Bangkok in this country, is quite bright, but there are plenty of darker areas as well.

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[4] See http://data.worldbank.org/about/country-and-lending-groups for definitions of high/middle/low-income countries. In my presentation, I loosely follow their definitions by using thresholds of 12,000 U.S. dollars and 1,000 U.S. dollars of per capita GDP.

[5] David N. Weil, *Economic Growth*, Third Edition, Pearson Education Limited, 2013. The darkness of North Korea is noteworthy, as is often pointed out in the literature, including Charles I. Jones, "The Facts of Economic Growth," NBER Working Paper 21142, 2015.

The third stylized fact relates to the heterogeneity in *growth rate* of per capita GDP. As I said, Asia as a whole has maintained a growth rate of about 4 percent for more than half a century, as shown in the left-hand-side panel of Chart 4.

However, once we plot the growth rates of individual economies, the diversity in the nature of the region's economic development becomes immediately apparent. The graph also reveals that there were shifts in the region's "rising stars." Japan recorded double digit growth in the 1960s, but its growth rate became subdued thereafter. Instead, the Asian NIEs took over the position of very rapid growth economies, followed by China more recently.

If we redraw the picture, not against time horizons but against income levels, as shown in the right-hand-side panel of Chart 4, there emerges a pattern of development stages. Growth rate tends to become higher once a country makes the transition from the low-income to the middle-income stage. The growth rate reaches its peak when an economy is at the middle-income stage. After that, it tends to become slower, especially once a country enters the high-income stage.

II. Three Traps for Growth

Can Asian countries sustain their rapid economic growth for the foreseeable future? If history is any guide, we could expect another rising star to emerge in Asia. It is by no means guaranteed, however. Even if it is the case, we cannot entirely count on one single rising star. The growth rate of relatively high-income Asian economies needs also to be sustained at a reasonably high level if the prosperity of the regional economy as a whole is to be maintained.

I believe there are three traps which we must avoid falling into if we are to sustain economic growth in Asia. Despite the heterogeneity which we have observed, these three traps are relevant to many countries in the region, albeit to varying degrees, depending on the circumstances.

The first trap is the "middle-income trap."[6] History shows that many economies have faced difficulties in advancing beyond the status of a middle-income economy once they have exploited the growth opportunities provided by imported technology and abundant labor force from rural areas. Such an inflection point is known as the Lewisian Turning Point. Up to that point, growth accounting analysis generally indicates that a country tends to register high economic growth through vast capital accumulation, rapidly rising total factor productivity and continued increases in labor input. Once such a point has been reached, however, growth is likely to decelerate. Nevertheless, it is still possible for a country reaching the Lewisian Turning Point to continue growing, although at a somewhat decelerated pace, through technological advances and cultivation of new markets.

In the region, Japan and the NIEs managed to overcome this trap and join the group of high-income countries in the 1970s and the 1990s, respectively -- as you can see in the right-hand panel of Chart 4 again. China and some ASEAN countries, including Thailand, have already reached the upper middle-income stage, which means that they have great opportunities to advance further toward high-income status. Moreover, there are many other countries in the region that are still at the lower middle-income stage, but with great potential for continued growth for years to come.

The second challenge is the "demographic trap." A number of economies in the region, particularly those at the high-income stage and, to a lesser extent, at the upper middle-income stage, are experiencing, or about to experience, population aging: the result of longer life expectancies combined with lower fertility rates. From the view point of per-capita income growth, which I believe is an appropriate measure of "living standard," what really matters is the proportion of the working-age population to the population as a whole. Population aging implies a continued decline in the proportion of the working-age population, which in turn poses a challenge to sustaining per-capita income growth, as a given income earner has to transfer a larger share of his or her income to the retirees.

[6] The middle-income trap is discussed extensively in Asian Development Bank, *Asia 2050: Realizing the Asian Century*, 2011.

Chart 5 shows how diverse the region is in this context, with some countries already facing serious challenges. In this chart, the horizontal axis is changes in working-age population, and the vertical axis is the proportion of the working-age population to the total population. A rise in this proportion is often called a "demographic bonus," while the opposite is called a "demographic onus." And the size of the bubble is proportional to the absolute number of the working-age population.

As you can see, over such a long period of time, even glacial demographic changes seem dramatic. Japan has already entered deep into the period of demographic onus, with the absolute number of the working-age population declining at a significant pace. The NIEs, China and some ASEAN countries are about to follow Japan in this regard in the not-so-distant future. Meanwhile, India and other Asian countries are expected to enjoy a favorable demographic environment at least until the middle of this century.

The third challenge is what I call the "Malthusian trap." In Malthus' original work, the existence of a limited resource -- land in his case -- constrains growth. Likewise, limitations in the supply of natural resources, such as oil, are thought to threaten global growth in the long-run. A problem arises even with water, seemingly abundant resources at least for Japanese. As a matter of fact, water scarcity is often discussed as an important constraint on industrialization as well as agricultural development in the global economy. From this point of view, the slowdown in commodity-consuming emerging economies in recent years may suggest that an automatic stabilizer -- or an appropriate policy reaction toward this constraint -- is actually affecting the economic growth over the cycles. Environment issues such as global warming can be thought of as a variant of this Malthusian trap.

III. Productivity Growth

It is generally acknowledged that the key to avoiding these three traps is productivity growth, or more precisely "total factor productivity growth." In a recent speech, Janet Yellen, the Chair of the Federal Reserve Board, stated that, "The most important factor determining

continued advances in living standards is productivity growth."[7] I could not agree with her more.

Take an example of the Malthusian trap. Malthus' dismal prophecy did not materialize because dramatically high productivity growth in the agricultural sector in the 18th century enabled countries to feed vastly increasing populations and hence sustain growth. For instance, when the potato, a plant native to the Americas, was introduced into Ireland, a field of potatoes could feed two or three times as many people as a similar field of grain, so the introduction of the potato resulted in a significant rise in Ireland's agricultural productivity.

Likewise, in the modern world, higher productivity enables an economy to grow even with a smaller working-age population, and hence to avoid the demographic trap. If a country can maintain a decent productivity growth even after it has exploited imported technology and an underutilized labor force, that country is likely to succeed in growing its way out of the middle-income trap.

Discussion of the myth of Asian miracles also highlights the importance of total factor productivity. Well before the Asian currency crisis of 1997-1998, Paul Krugman argued that the rapid growth of the NIEs or Asian tigers was not sustainable because their high growth was not sufficiently supported by total factor productivity.[8] History vindicated his assessment: the Asian currency crisis was in part an inevitable transition toward more sustainable and balanced growth.

Let me confirm this point using data, with the usual disclaimer regarding the large uncertainty associated with estimates of total factor productivity. In graph 6, the vertical axis is per capita GDP growth, while the horizontal axis is total factor productivity growth. In the left panel, which describes the period preceding the Asian currency crisis, the dots representing high growth Asian economies are generally located well above the regression line. This means

[7] Janet L. Yellen, "Recent Developments and the Outlook for the Economy," Remarks at the City Club of Cleveland, July 10, 2015.

[8] Paul Krugman, "The Myth of Asia's Miracle," *Foreign Affairs*, Vol. 73, November/December, pp. 62-78, 1994.

that their economic growth could be explained relatively more by expansion of inputs, such as demographic bonus and investment boom, than by total factor productivity growth.

The right hand panel, which describes the situation in recent years, after the Great Financial Crisis, shows that Asian economies are much closer to the regression line than they were in the 1990s. This looks encouraging in terms of balanced growth. One caveat, however, is that Asian dots are located closer to the zero-vertical line as well: total factor productivity growth is generally lower than it was in the 1990s. In other words, economic growth appears to be more balanced, but it may have also lost some strength. This is a bit disturbing because population aging is about to accelerate in some countries, with stronger demographic headwinds therefore to be expected. Remember that once a country falls into demographic onus, it needs to offset negative demographic forces with higher growth in total factor productivity just to maintain per capita growth, and hence living standards. This is exactly why total factor productivity growth is the crucial issue for a number of Asian economies.

The next question then is, how do we raise total factor productivity growth? The answer may be a pessimistic one if we think that productivity growth is only exogenously determined. If this is the case, all we can do is hope that some exogenous shock, or just pure luck, will raise productivity. We would have to admit that there is an element of truth in this explanation if we look at the history of prosperous cities, as highlighted by Enrico Moretti, an expert in urban economics. [9]

For instance, the reason why Seattle, Washington, became a high-tech industry hub depended to a large extent on the fact that the founders of Microsoft had grown up there and wanted to relocate their company to a place familiar to them. Similar stories can be found for other U.S. high-tech cities. If these cases provide a complete explanation of productivity growth, all we can do is wait and hope for a genius like Bill Gates or Steve Jobs to be born by chance in our country.

Fortunately, however, economic literature is much more hopeful in this respect: productivity is largely endogenous.

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[9] Enrico Moretti, *The New Geography of Jobs*, Mariner Books, 2013.

IV. How to Raise Productivity

In the economic literature, there is a long list of factors that are thought to have a positive impact on productivity growth. I do not intend to go through all of them but, instead, I would like to focus on three things that I think are of particular importance.

The first is human capital. Measuring human capital is a difficult task, but one of the simplest indicators often used is the number of school years. In Chart 7, the greater the number of years spent in school, the darker the green in which the country is colored. In Asia, there are a number of dark green areas, such as Japan, Korea, Malaysia and Sri Lanka. As you would expect, Hong Kong and Singapore also belong to this group, although it is not shown clearly on this map. One may get the impression that Asia as a whole is not as green as North America or Europe, and is more or less similar to South America. This would seem to indicate that there remains significant potential for further accumulation of human capital in the region.

At the same time, there are some interesting figures relating to U.S. universities, which are generally acknowledged as providing the highest standard of education, attracting talented people from all over the world. If you look at the data for U.S. university students by their country of origin, you can see that students from Asian countries dominate, as shown in Chart 8. Those students returning to their home countries will no doubt have a profound impact on the human capital there. It is well known that Bangalore, the IT hub of India, benefited from returnees from Silicon Valley. Moretti's study shows that innovative, highly skilled workers contribute not only directly to the higher quality of human capital, but they also have a positive effect on the skills of those around them -- a sort of positive externality. [10]

It is also encouraging to see that an increasing number of Asian universities have become recognized as top-tier at a global level. According to some recent university rankings, more than ten universities in Asia are among the best 100. [11] Remember that the success of Bangalore also lies in the fact that local IT firms were able to recruit many highly skilled graduates from nearby universities.

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[10] Enrico Moretti, *The New Geography of Jobs*, Mariner Books, 2013.

[11] See, for instance, Times Higher Education World University Rankings.

Against these backdrops, Asian has made larger contributions to the development of science. For instance, the share of Asian born Nobel prize winners in scientific fields doubled to more than 10 percent after the turn of the millennium.[12] These truly top academic scholars have influenced the development of human capital in their own countries in various forms as exemplified by Professor Sen himself in front of us.

The second key to higher productivity is a market-friendly business environment. For example, a critical precondition for market functioning such as property rights protection, or the rule of law more generally, is an indispensable ingredient for an innovative environment, which in turn is the basis for productivity growth. I firmly believe, as many economists do, that healthy competition and appropriate incentives are essential for a well-functioning market mechanism, through which sustainable and robust economic growth is made possible. On this score, deregulation is to be strongly encouraged as well. I think that Asian economies are making steady progress in this regard, although I also believe that much more needs to be done.

While the importance of market mechanisms cannot be exaggerated, it does not mean that we can turn a blind eye to income inequality. As a matter of fact, some academics argue that inclusiveness is conducive to economic growth in the long-run.[13] Furthermore, a recent empirical study shows that lower inequality is correlated with faster and longer economic growth.[14] Chart 9 compares inequality in income across countries. According to Thomas Piketty, inequality in the United States is alarmingly high and hence colored in dark red in this Chart.[15] Compared with the United States, inequality in Asia is generally low, albeit with some exceptions.

The third element which plays an important role in raising productivity is a strong financial sector. I am completely convinced by arguments for creative destruction as a source of

[12] Nobel prizes in the areas of physics, chemistry, physiology or medicine, and economic sciences.
[13] Daron Acemoglu and James A. Robinson, *Why Nations Fail: The Origins of Power, Prosperity and Poverty*, Crown Business, 2012.
[14] Jonathan D. Ostry, Andrew Berg and Charalambos G. Tsangarides, "Redistribution, Inequality, and Growth," IMF Staff Discussion Note, SDN/14/02, 2014.
[15] Thomas Piketty, *Capital in the Twenty-First Century*, Belknap Press, 2014.

productivity growth.[16] As pointed out by Joseph Schumpeter, financial intermediation is an important catalyst to support innovative entrepreneurs and value creators generally. A modern example of this can be found in venture capitalists, who provide not only financial resources, but also business advice for growth-oriented companies. Of course, the role of financial intermediation is not limited to supporting start-ups. As a matter of fact, the seamless availability of a wide range of financial functions would best serve innovation-led economic growth.

In the Asian context, channeling the region's abundant savings to the vast demand for infrastructure is also an important challenge in which I myself was deeply involved when I was President of the Asian Development Bank. Developing bond markets has been one of the successful initiatives in terms of intra-regional matching between savings and investment.[17] Bond markets in Asia, especially those denominated in local currencies, have grown significantly since the mid-2000s, thanks to the efforts of the relevant financial authorities and other bodies. At the end of 2013, outstanding bond issuances amounted to 3.5 trillion U.S. dollars, which is about five times the figure for 2005.

Turning to retail financial services, inclusiveness, which I mentioned a little while ago, is again an important issue. We should note that a significant number of people in Asia still do not have their own bank accounts.[18] Less than half the population in India has a bank account. China fares better, with the proportion of account holders being two-thirds of the population, but that is still far from the situation in advanced economies where almost everybody has access to a bank account. I believe that the Asian financial landscape, and therefore the prospects for further strong economic growth, will be completely different once the issue of limited availability of banking services is addressed.

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[16] Joseph A. Schumpeter, *The Theory of Economic Development: An Inquiry into Profits, Capital, Credit, Interest, and the Business Cycle*, Harvard University Press, 1934. See also Philippe Aghion and Peter Howitt, "A Model of Growth Through Creative Destruction," *Econometrica*, Vol. 60, No. 2, pp. 323-351, 1992; Katsuhito Iwai, "Schumpeterian Dynamics: An Evolutionary Model of Innovation and Imitation," *Journal of Economic Behavior and Organization*, Vol. 5, pp. 159-190, 1984.

[17] Hiroshi Nakaso, "Asian Economy: Past, Present, and Future," Speech at Securities Analysts Association of Japan International Seminar, April 24, 2015.

[18] The Wall Street Journal, "Asia Seeks to Reach the 'Unbanked'," March 18, 2015.

Conclusion

In my presentation today, I have emphasized that productivity growth is crucial to sustaining hitherto robust economic growth in Asia. Among many other things, in my view, the continued accumulation of human capital, market-friendly institutional setups and strong financial sectors, all play an important role in productivity growth. We have seen many positive developments in this respect in Asia, but much more needs to be done.

What I have discussed today could be broadly categorized as structural reforms. Generally speaking, structural reforms are always and everywhere difficult to implement in the face of vested interests. Depending partly on where you are in the business cycle, there is often a strong temptation to defer them to a later date. This is because of concerns about short-term negative impacts on the economy. Despite all those downsides, however, I still believe that there is no better time than now to put necessary reforms in motion. Short-term negative impacts are often overstated. They should not be used as an excuse to oppose reforms. If structural reforms are well designed, they will increase rather than decrease current demand, because they improve the prospects of future profits for businesses and hence permanent income for households. [19]

That's all from me tonight. Once I have completed my assignment to talk about growth in Asia, I need to put on my central bank governor's cap again. If I may use Professor Lucas's quote again with a slight modification, "Once one starts to think about *deflation or inflation*, it is hard to think about anything else." Therefore, please give me your comments and questions before I put my central banker's cap back on.

Thank you.

[19] Benoît Cœuré, "Structural Reforms: Learning the Right Lessons from the Crisis," Speech at the Bank of Latvia Economic Conference, October 17, 2014.

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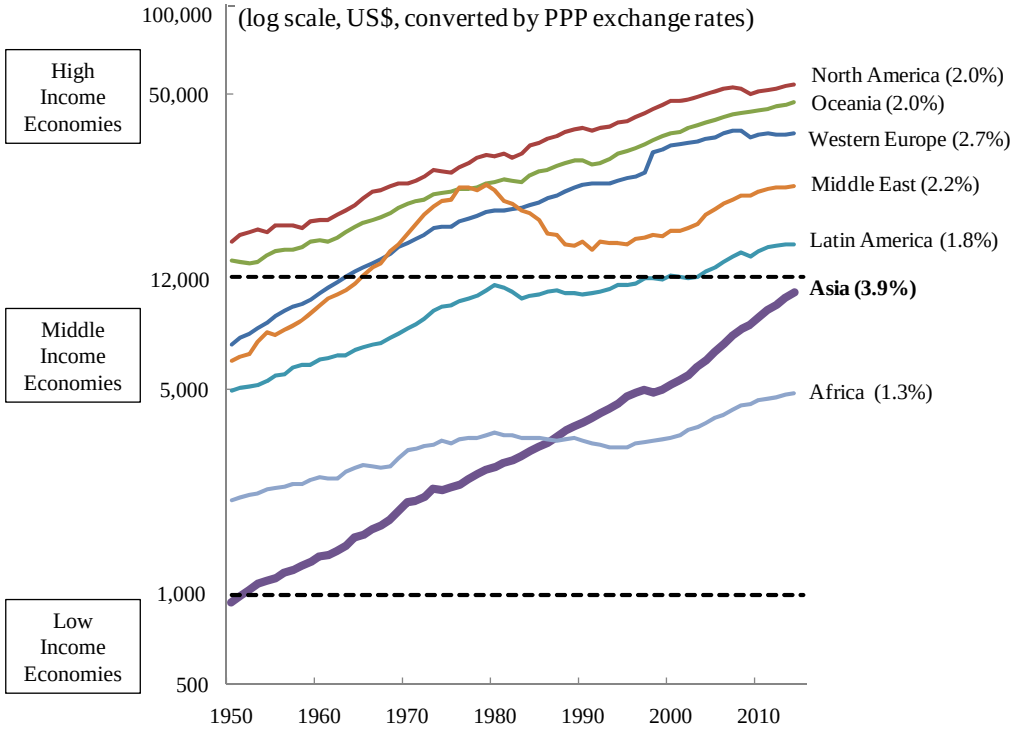
Chart 1

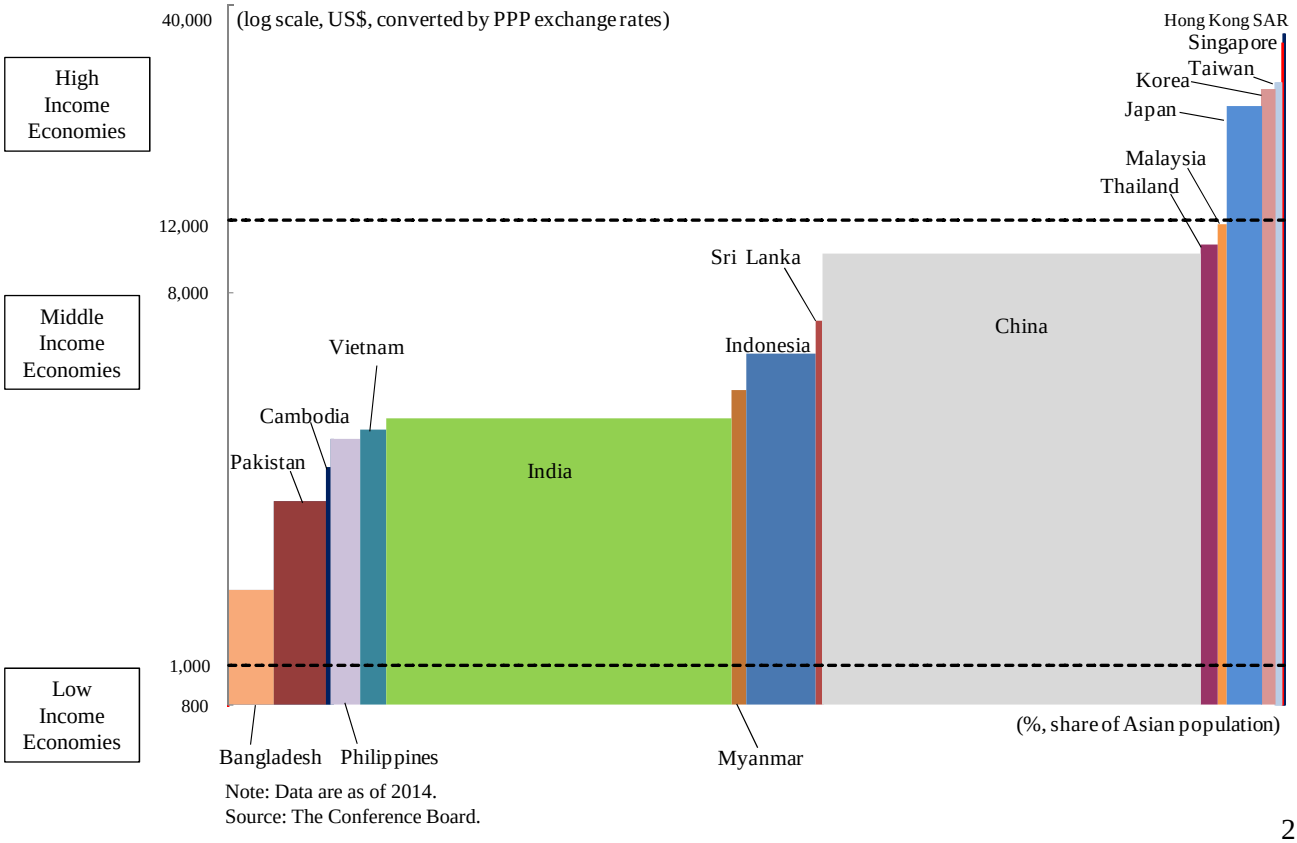
GDP per Capita



Note: Figures in parentheses are annual average growth rates from 1950 to 2014.
Source: The Conference Board.

Chart 2

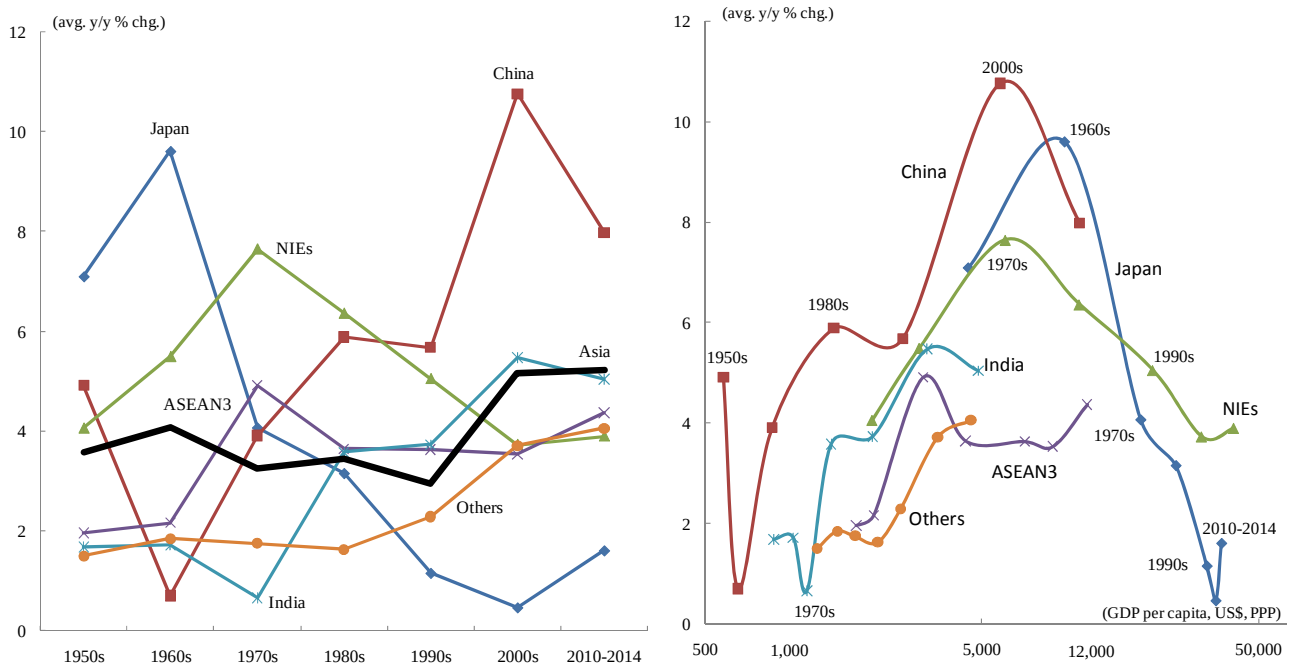
GDP per Capita by Country



Note: Data are as of 2014.
Source: The Conference Board.

Chart 4

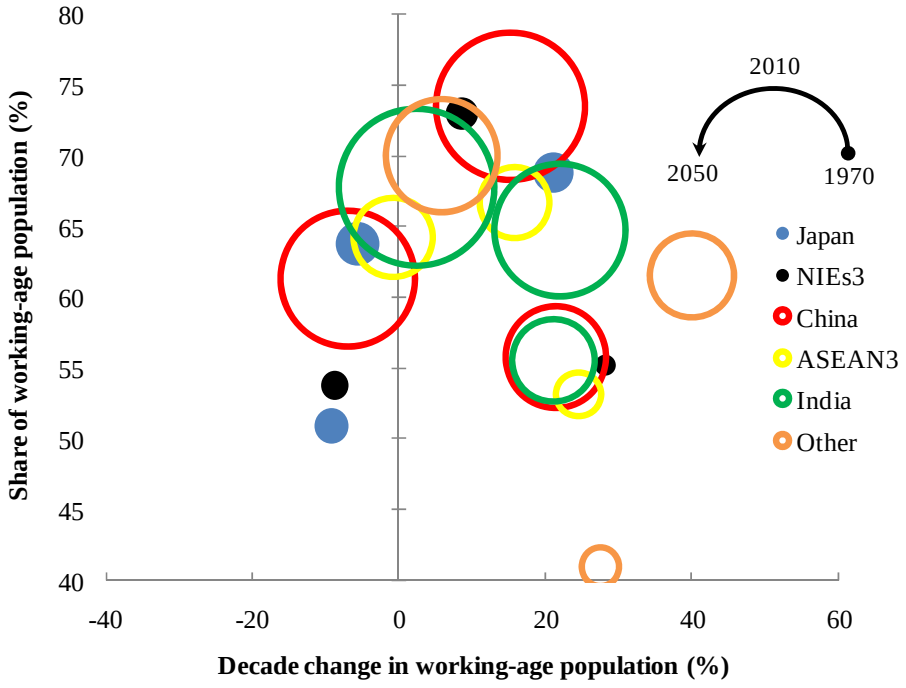
Growth Rate of GDP per Capita



Note: NIEs consists of Hong Kong SAR, Singapore, Korea, and Taiwan. ASEAN3 consists of Indonesia, Malaysia, and Thailand.
Source: The Conference Board.

Chart 5

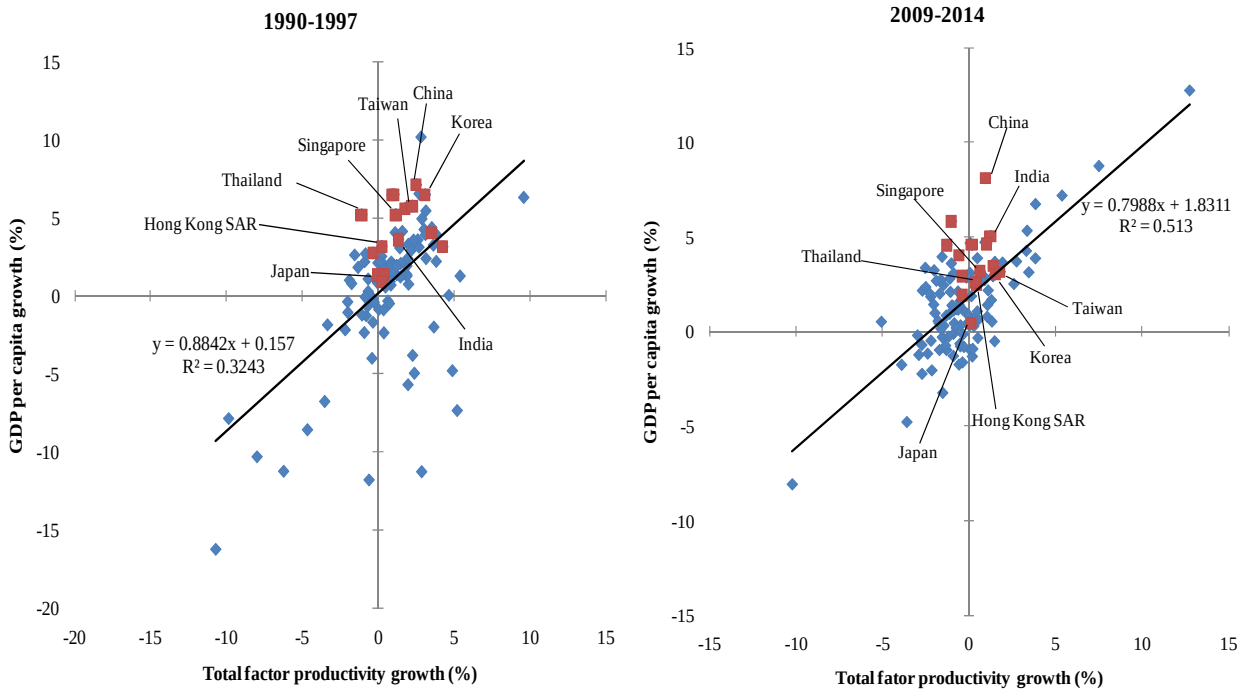
Demographic Changes



Notes: 1. NIEs3 consists of Hong Kong SAR, Singapore, and Korea. ASEAN3 consists of Indonesia, Malaysia, and Thailand.
2. The size of the bubble is proportional to the number of working-age population.
Source: The Conference Board.

Chart 6

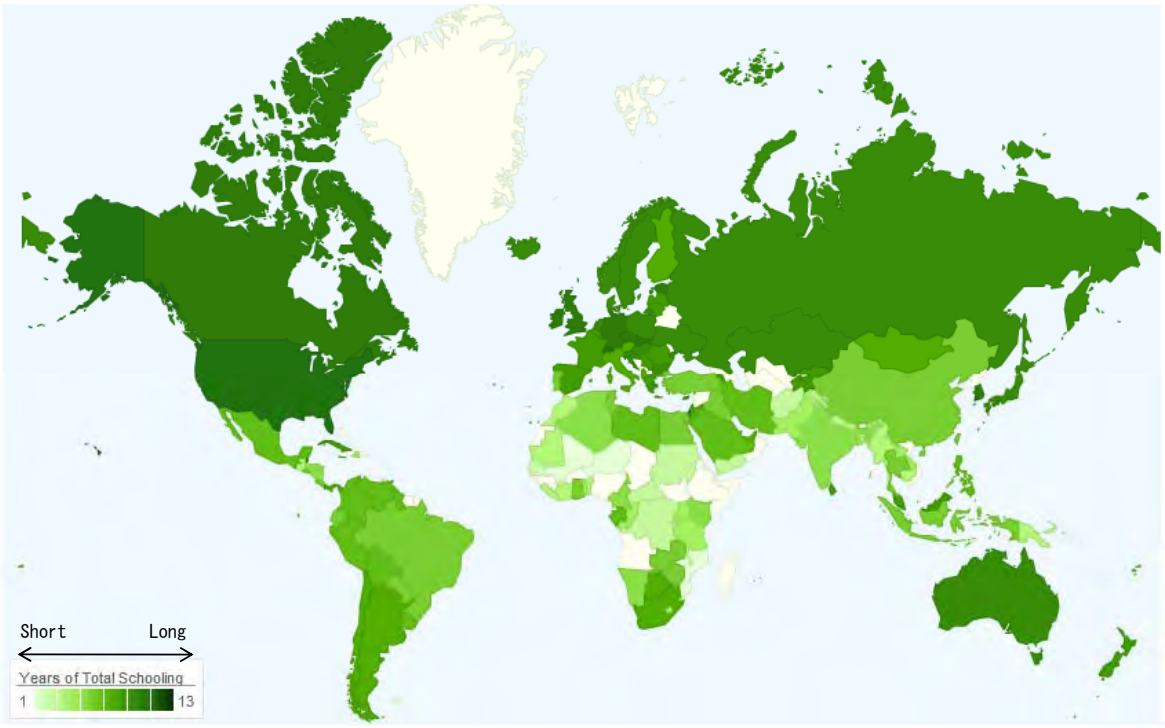
Total Factor Productivity



Note: The red dots represent Asian economies.
Source: The Conference Board.

Chart 7

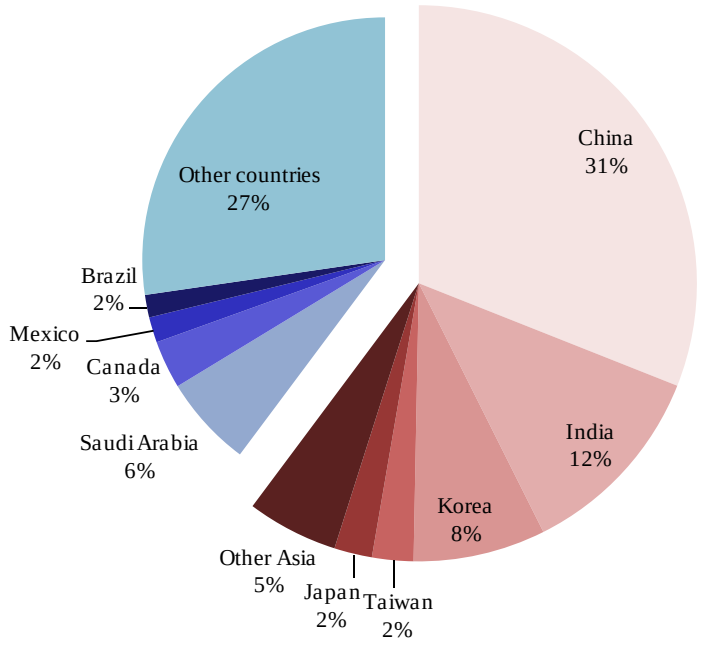
Average Years of Total Schooling



Note: Data are as of 2014.
Source: Robert Barro and Jong-Wha Lee "Educational Attainment Dataset."

Chart 8

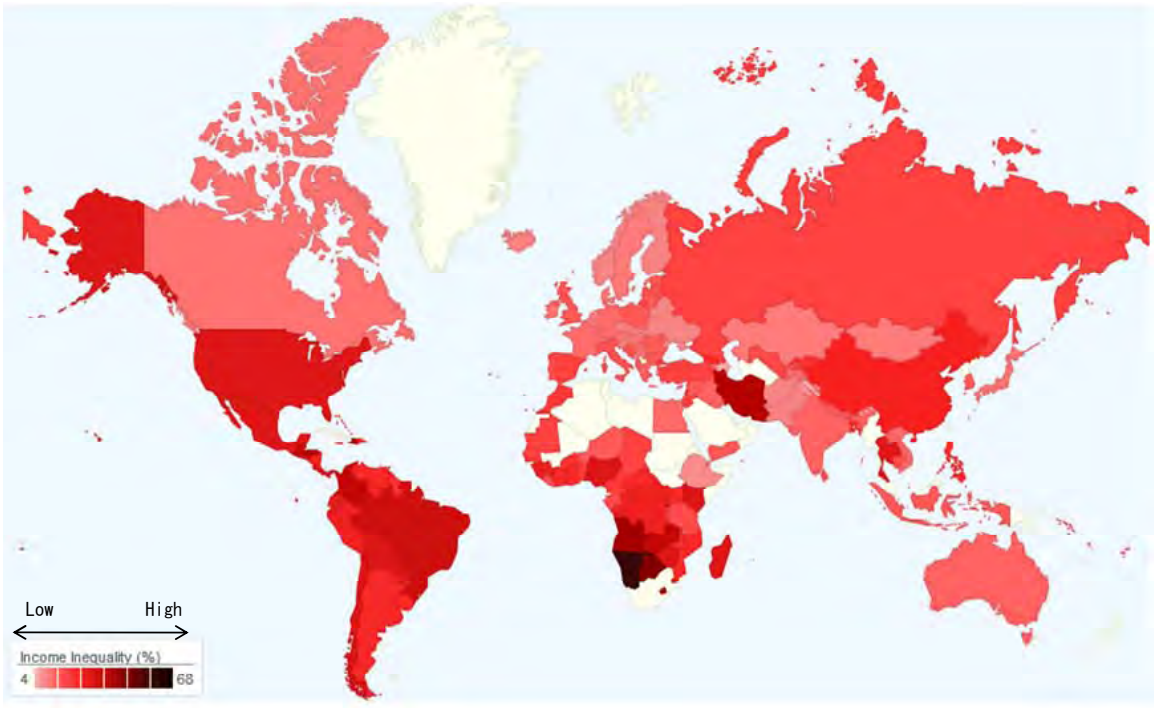
Students' Country-Origins in the U.S. Universities



Note: Data are as of the end of FY2013.
Source: Institute of International Education.

Chart 9

Inequality in Income



Note: Data are as of 2013.
Source: World Bank.