China & World Economy

China & World Economy / 49–61, Vol. 20, No. 1, 2012

Is There a "Middle-income Trap"? Theories, Experiences and Relevance to China

*Fang Cai**

Abstract

Through review of relevant studies and analysis, this article indicates that the "middle-income trap" is in line with the framework of the mainstream economic growth theories, and, therefore, it is a useful concept through which we can analyze economic growth phenomena in specific economic growth phases. The empirical experiences of many countries also indicate that at specific middle-income stages, economies with high rates of growth tend to encounter economic slowdown or even stagnation. The article shows that China is facing the challenge of determining how to move smoothly beyond the middle-income stage of economic development, while taking into account the shifting population structure, changing resource endowment and growth patterns. The article, drawing on international experiences, puts forward several policy suggestions relating to improvement in total factor productivity, expansion of human capital accumulation and deepening of system and government function reforms.

Key words: growth slowdown, middle-income trap, total factor productivity
JEL codes: J11, J24, O57

I. Introduction

Based on the view that East Asia is the most dynamic region in the world, the World Bank conducts a theme study of the East Asian economy every 4 years to summarize its unique development experiences and lessons, and to expose problems and challenges over specific time spans. In its 2007 report, *An East Asian Renaissance: Ideas for Economic Growth*, for the first time, the World Bank raises the issue of a "middle-income trap" (Indermit and Kharas, 2008). The report shows that "middle-income countries have grown less rapidly

* Fang Cai, Professor, Institute of Population and Labor Economics, Chinese Academy of Social Sciences, Beijing, China. Email: caifang@cass.org.cn.

than either rich or poor countries" (p. 5).

Since then, the concept of the middle-income trap has increasingly been discussed among economists. It has been used to illustrate the predicaments of certain Latin American and Asian economies, and is applied as a reference for making judgment on China's economic prospects (Wang *et al.*, 2009; Eichengreen *et al.*, 2011; Kharas, 2011). Its relevance to China's case, meanwhile, has drawn more attention since the Chinese Ministry of Finance, the Development Research Center of the State Council and the World Bank jointly conducted a study on how China can overcome the middle-income trap.

Meanwhile, many researchers disagree on the use of the concept of the middle-income trap. Although systematic research is not yet available, in what follows, we touch on the nature of such disagreements. First, some researchers hold that the word "trap" is improper, because it suggests "conspiracy." How can an economy be framed? Second, some economists think that unlike the poverty trap or the vicious circle of poverty theories, there is no economic theory available that can explain the many phenomena related to the so-called middle-income trap. Third, some suppose that the middle-income trap theory lacks empirical evidence. It is also pointed out that over the past 40 years, growth performance of middle-income countries has not been significantly lower than that of high-income and low-income countries. Last but not least, some researchers doubt the issue's relevance to China: Does the concept of the middle-income trap correctly depict China's challenges and will it help China find the right solutions?

A concept or proposition is worth bringing forward so long as it can be analyzed through theoretical frameworks, and has significant empirical evidence and specific relevance, so that more thorough discussion and studies can be carried out. For that reason, this article supports the concept of the middle-income trap and holds that relevant studies should be deepened. This article starts, in Section II, with a review of economic theories, of economic growth theories in particular, and demonstrates that the middle-income trap can certainly be included in existing economic growth analysis frameworks or has the potential of forming a special framework of its own. Section III, introduces some empirical studies and statistical proofs of the middle-income trap and summarizes relevant characteristics of the concept. Finally, by introducing characteristics of China's economic development phase, Section IV discusses the implications of the concept of the middle-income trap to China's sustainable economic growth.

II. Theoretical Basis of Middle-income Trap

Traditionally, the word "trap" is used to describe an economic state of super-stable equilibrium that is beyond a comparative static equilibrium and cannot be changed by

normal short-term outside forces. In other words, after the effect of a factor that helps improve per capita income is fully brought out, because it is somewhat unsustainable, other restraining factors will begin to work and offset that effect, bringing per capita income back to the original level. For example, the pessimistic views of Thomas Robert Malthus on the relationship between population growth and economic development are reflected in the "Malthusian trap" or the "Malthusian equilibrium." R. R. Nelson combined the Malthusian model with the Harrod–Domar growth model to form the low level equilibrium trap model, trying to capture the characteristics of the less-developed countries (Yujiro and Yoshihisa, 2009). Moreover, not only is absolute poverty an equilibrium state; some economic historians have put forward the hypothesis of "high-level equilibrium trap" as they try to explain China's historical development and fix the Needham Puzzle. Therefore, the use of the term "equilibrium trap" has a long history in development economics.

The concept is conducive to deducing policy implications from theoretical analyses. Based on the low-level equilibrium trap hypothesis, development economics has developed the "critical minimum effort" and the "big-push" theories, among other explanatory theories, as well as their corresponding policy implications. Another example is from Theodore W. Schultz (1999), who sees the traditional agriculture that is normal in developing countries also as a state of equilibrium, based on which he derives policy suggestions for reforming traditional agriculture through introducing new factors of production to break the equilibrium.

However, the aforementioned development economic theories concerning equilibrium state analysis have not been incorporated into mainstream growth theories. In reality, mainstream economists have long separated the neoclassical analysis of economic growth from the development facts observed based on the above hypotheses. Despite this, Hansen and Prescott (2002) attempt to meld Malthusian's equilibrium model and Solow's neoclassical growth model and analyze them using a unified theoretical framework. They also notice that there is a transitional phase from the Malthusian model to the Solow model. Logically, we can certainly define that transitional phase as a unique economic development phase. In reality, the dual economy defined by Arthur Lewis is just a transitional state between the Malthusian poverty trap and the Solow neoclassical growth model and it is prevalent in the developing countries. In this phase, economic growth has gone beyond the vicious poverty cycle in which income growth leads to population increase, which, in turn, drags the income level down to a basic subsistence level, and entered a phase characterized by modern sectors continually absorbing agricultural surplus labor until the economy encounters the Lewis turning point, so that there is no longer an unlimited supply of labor, and becomes more and more neoclassical-like.

Aoki (2011) divides the economic development in East Asia into the Malthusian phase of the poverty trap (M-phase), the government-led development phase (G-phase), the

Fang Cai / 49–61, Vol. 20, No. 1, 2012

Kuznets process in which development is realized through structural shifts (K-phase), the human capital-based development phase (H-phase) and the post-demographic transition phase (PD-phase). He also acknowledges that the Kuznets phase can be called the Lewis development phase, or the Kuznets–Lewis phase. The division of development phases reveals that the shift from one development phase to another means a jump or breach, or, in other words, while shaking off the poverty trap is an important surpassing step, the shift from middle-income to high-income levels (from the K-phase to H-phase and ultimately the PD-phase) is an equally important, thrilling jump. If the latter is so challenging that some economies have long failed to break through the phase, and the phenomenon is so widespread that it has had statistical significance and entails important theoretical and policy implications, then it is logical for us to use the concept of the middle-income trap.

Researchers have noticed some stylized facts that can help economists to form an initial theoretical framework to conceptualize the middle-income trap. Eeckhout and Jovanovic (2007) compare the economic growth of various economies before and after globalization, and find that in the era of globalization, the long-term growth rate track of those economies, if they are ranked using the criterion of per capita income, would be U-shaped. An explanation to the study is that laborers in rich countries possess better technologies and skills, so the number of high-skill positions has grown, particularly with the global shift in economic structures, whereas poor countries do not have the same level of skills, but the number of unskilled jobs has increased; those countries in between, meanwhile, do not have either of these labor resource advantages. Garrett (2004) goes further to explain that when rich countries become increasingly affluent because of their accelerating technological advancement, the poorest countries have achieved faster growth in their manufacturing, but those countries in between fail to make headway.

This, in reality, hints at a general theoretical explanation for the middle-income trap; that is, countries at higher economic development stages obviously gain from globalization due to their comparative advantages in capital-intensive and technology-intensive industries thanks to their technological innovation capabilities. Those at lower economic development stages also gain from globalization given their comparative advantages in labor-intensive industries as a result of their rich labor resources and low labor costs. Those middle-income countries in between, however, gain less from globalization because they do not have comparative advantages in either aspect. We summarize the scenario as a "comparative advantage vacuum," which, although not completely accurate, helps to illustrate the awkward situation the middle-income countries are facing.

In addition, according to the economic growth convergence hypothesis (Barro and Sala-i-Martin, 1995), economic growth depends on multiple factors or determinants, such as investment ratio, human capital accumulation, government function, infrastructure

conditions, and system and policy environments. In other words, at the initial development phase of low per capita income, improvements in these factors push economic growth convergence. However, the accumulation or improvement of those growth-favorable elements is also subject to the law of diminishing marginal effects; when all the "low-hanging fruits" have been harvested, the exogenous forces pushing economic growth will gradually lose their luster, unless the economy successfully shifts to an endogenous growth model driven mainly by total factor productivity. However, such a hypothesis generally suggests that an economy has entered the phase of a high-income country. Therefore, as the 2007 World Bank report points out, development strategies and policies that are starkly different from previous ones must be adopted during a country's transition from the middle-income to the high-income phase (Indermit and Kharas, 2008).

III. Empirical Evidence of the Middle-income Trap

According to the categorization of the World Bank in recent years, calculated by the "atlas method" that is similar to one for market exchange rate, those with per capita gross national income (GNI) of lower than US$975 are in the low income group, whereas those with per capita GNI of US$976 to US$3855 are categorized as belonging to the lower middle income group; those with per capita GNI of US$3856 to US$11 905 belong to the upper-middle income group and those with per capita GNI of more than US$11 906 are high income countries. Of course, the standards of categorization are dynamic. Based on similar dynamic standards, if a country steps into the rank of middle income countries but fails to graduate and become a high-income country after a long period of growth, then it falls into the middle-income trap.

According to such standards, in reality, if countries that have become rich through oil exports are excluded, apart from the developed economies, such as the USA and European countries, so far only Japan, Korea, Singapore, Chinese Taiwan, Hong Kong and Macao have successfully surpassed the middle-income group. Many Latin American countries, which once had similar development levels to European countries, as well as some Asian countries that have long been middle-income countries, have failed to become members of the high-income club. Even some Latin American countries whose per capita incomes once crossed the demarcation line between middle-income and high-income groups have ultimately retrogressed to the middle income levels.

Due to technological advancement, institutional innovation and strengthened resource mobilization capabilities, the world's production frontier has been expanding over time. Therefore, it is more appropriate to use relative, instead of absolute, per capita income to categorize income groups and, in particular, to examine the middle-income trap as a phenomenon of lingering growth. Athukorala and Woo (2011) use the purchasing power

parity method of economic historian Angus Maddison to estimate the per capita GDP of particular economies and to compile the Catch-Up Index (CUI), with values presented as a percentage of the US level of per capita GDP. Using this method, to an extent, the authors prove the existence of the middle-income trap.

To be exact, they define those with a CUI higher than 55 percent as high-income countries, those with a CUI between 20 and 55 percent as middle-income countries, and those with a CUI lower than 20 percent as low-income countries. Among the 132 countries being compared, there were 32 middle-income countries in 1960 and 24 in 2008. Changes in the group show that there is a 50-percent possibility of the middle-income countries remaining in the middle-income trap. Considering cross-group movement, the possibility of moving to the lower level is higher than that of moving upward. Although there are countries from other groups moving into the middle-income group, the number of countries moving upward from the low-income group doubles that of those moving downward from the high-income group.

Some studies reveal the formation of the middle-income trap from a dynamic perspective. For example, they summarize statistics of concerned economies and find that in the middle-income phase, a country's economic growth would not maintain its growth momentum forever. Therefore, the study of phases in which economic growth generally slows down can verify the existence of the middle-income trap. Morgan Stanley Asia/Pacific economists have conducted such a study (Wang *et al.*, 2009). Through studying world economic history, they find that, according to history, the growth of an economy will slow down after some years of high growth. The turning point of the process comes when purchasing power parity-based per capita GDP reaches US$7000. From the study of economic historian Angus Maddison, they find that over the past 100 years, 40 economies have seen their per capita GDP reach the turning point of US$7000, 31 of which saw their growth rates decline by 2.8 percentage points on average after reaching that turning point.

Another study, conducted by Eichengreen *et al.* (2011), digs deeper in an analysis of relevant statistics. The question to be answered by the study is when or at what per capita income level a fast-growing economy would see its growth slow down. From international comparisons they find that based on the purchasing power parity method and the dollar value in 2005, when the per capita income reaches US$17 000, the galloping economy would normally encounter an obvious slowdown, with its average annual economic growth rate generally declining by 2 percentage points.

There are also studies that attempt to prove that the middle-income trap is non-existent. Investment bank economist Jonathan Anderson (2011) chooses 10 "middle-income countries" with a per capita income of US$8000–10 000 and 10 "low-income countries" with a per capita income of US$1000–3000, and compares their long-term economic performance. His findings can be summarized as follows. First, "middle-income countries" performed well in the first

decade of this century, despite the fact that they stagnated during the previous decade. Second, "low-income countries" have failed to show better growth performance compared with their middle-income counterparts. Third, the average growth rates of the countries in the two groups are almost the same. From those findings, Anderson comes to the conclusion that the middle-income trap does not exist. In reality, however, his data and interpretation are not adequate for him to come to such a conclusion. First, his categorization of the two groups of countries differs from the typical income-based categorization. For example, his grouping of "middle-income countries" includes both the former planned-economy countries and those Latin American and Middle East countries heavily dependent on their oil resources for growth as well as Brazil, Russia and South Africa, the rich BRICS countries (others are India and China). Generally speaking, they are the richest countries among the middle-income bloc. The "low-income countries" in his categorization are almost all those that have already fallen into the middle-income trap or risk falling into it.

Second, the middle-income trap is a historical concept and might not necessarily match the economic realities of today. Those middle-income countries that had been in trouble before the start of this century were nothing but examples of falling into the middle-income trap. Although some of them have performed well over the past 10 years, they have not necessarily made a shift that is a prerequisite for them to cross the middle-income trap. We are also not sure that those countries that have benefited from surging demand as a result of China's strong economic growth and are heavily reliant on exports of their resource products and growth of preliminary industries will have sufficient growth sustainability to become high-income countries. There are quite a few such examples in history where a country temporarily becomes a high-income economy but, ultimately, is forced back to a lower income level.[1]

Third, the middle-income trap model does not assume absolute convergence, and, therefore, the fact that the growth performance of lower middle-income countries fails to significantly surpass that of upper middle-income countries does not necessarily mean it is illogical; rather, it is an indication of the middle-income trap. We use the concept of middle-income trap simply and exactly to indicate that countries hoping to become rich economies face the challenge of breaking through the middle-income equilibrium trap, just as those hoping to shake off poverty need to overcome the low-income equilibrium trap.

---

[1] Although it is not very accurate to use the current price, similar methods can still be used to examine the role of the equilibrium force. Take Argentina for example. According to World Bank data, Argentina registered per capita GNI of US$8140 in 1997. However, it subsequently fell below that level for many years. In 2004, its per capita income was only 44 percent of its 1997 level. Since then, its economic growth has been accelerating again and its per capita income reached an historically high level in 2010.

Fang Cai / 49–61, Vol. 20, No. 1, 2012

IV. Implications for China's Economic Growth

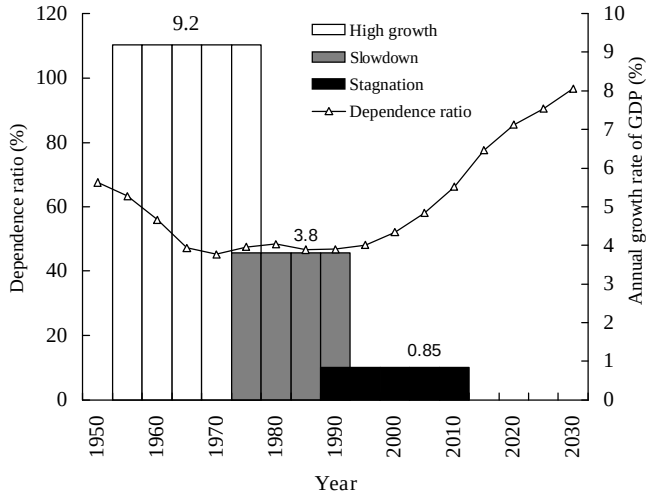
In 2010, China became the world's second largest economy and its per capita GDP reached US$4382, which means that it has just become an upper middle-income country, as categorized by the World Bank. Based on the Maddison standard, or the purchasing power parity method, China has surpassed the US$7000 point of economic slowdown. If it maintains a 9-percent annual average growth rate, by 2015, China will reach a higher turning point for economic slowdown, at US$17 000. Due to many hidden problems and unsustainable factors in its economic growth, Eichengreen *et al.* (2011) warn that there is a 70-percent possibility of China being subject to the law of economic slowdown. According to some investment economists, however, a 70-percent possibility of a 2-percentage point decline in the growth rate (which is actually 1.4 percentage points) is not daunting for an economy that has maintained a growth rate of 9–10 percent for a long time.

Population aging is an important cause of the slowing down of economic growth. The growth rate of the working-age population slows and the absolute quantity decreases, and the ratio of the working-age population to the whole population will stop rising before it declines. Accordingly, the economy will no longer benefit from the demographic dividends as a result of having an ample labor supply and a high savings rate. The Japanese experience is a wake-up call for China in this regard. In 1990, the ratio of people aged 65 years and above to the whole population in Japan was 11.9 percent. Since then, the dependency ratio, or the ratio of the dependent population to the working-age population, has been rising fast. While experiencing such a population structure shift, Japan has seen its economic growth trend suddenly reversed: it first slowed down before stalling (Figure 1). In 2010, the ratio of people aged 65 years and above to the whole population was 8.9 percent in China, which was very close to Japan's level of aging in 1990, when the Japanese economy began to weaken. In the years of the 12th Five-Year Plan period (2011–2015), like Japan, China will see its dependency ratio rise rapidly.

The afore-mentioned forecasts of China's economic growth prospects do not claim that China is set to encounter the most pessimistic scenario, nor do they mean that we will get assured even in the optimistic scenario. To remain cautious to prevent the worst scenario from eventuating, we should draw lessons from history and work out solutions to prevent abnormal economic slowdown. Let us consider Japan again. What we should focus on is not the fact that its growth slowed down from a previous high-rate expansion, but, given the inevitability of the growth slowdown, why it has failed to maintain a growth rate similar to that of Europe and the USA.

Seen from the perspective of economic growth models, China can also be situated in a special development phase. If we use the analysis framework of Hansen and Prescott (2002) and insert the Lewisian dual economy development phase in between the Malthusian growth phase and the Solow growth phase, then it is evident that as the rural surplus labor

Figure 1. Japan's Loss of Population Dividends and Economic Slowdown



Sources: Population data from the UN database; GDP growth rates from the World Bank database and Takeo and Kashyap (2011).

decreases, labor shortage has become normal and the wage level of ordinary workers has been on the rise. As a result, China's economy has passed the Lewis turning point and has started to shift to the Solow neoclassical growth pattern.

The migrant worker shortage has been noticeable since 2004 and remains a focus of public attention. Meanwhile, wages of ordinary workers, most noticeably migrant workers, have risen continually from 2004 until today, which is in stark contrast with the previous decades, when wages growth virtually stalled. Therefore, if we must choose a year for the Lewis turning point, we would like to use 2004 as the watershed. Next, we will discuss another important point: the disappearance of population dividends (Cai, 2010). It is forecast that China's dependency ratio will stop falling in around 2013 and then start to rise rapidly. This means that China would no longer have the same high levels of saving rate and labor supply to support its dual economic development. Against that backdrop, middle-income countries face unsustainable growth.

On the one hand, rising labor costs will gradually weaken China's comparative advantage and international competitiveness in labor-intensive manufacturing sectors. A corporate survey shows that if labor costs rise by 20 percent, enterprises in the competitive industries will see their corporate profit margins decline by 20–65 percent due to the varied labor costs among different industries (Li and Meng, 2010). This will lead to labor-intensive industries moving out of the coastal regions. They might move to neighboring countries with lower labor costs, such as India and Vietnam. They might also move to China's central and western regions. According to the national manufacturing corporate statistics, the share of the labor-intensive

manufacturing output of eastern regions to the national total fell from 88.9 percent in 2004 to 84.7 percent in 2008, with an average annual decline of more than 1 percentage point.

On the other hand, China still has a long way to go to gain a comparative advantage and international competitiveness in technology-intensive and capital-intensive industries. For example, according to statistics by the China Modernization Strategy Task Force and the China Center for Modernization Research at the Chinese Academy of Sciences (2010, p. 420), China's ratio of R&D to GDP is only 56 and 61 percent of the level of developed countries and the global average, respectively. The number of R&D staff for every 10 000 population is only 23 and 77 percent, respectively, of that of the developed world and the global average. The number of patents owned by every 1 million people on average is only 15 and 76 percent of the level of the developed world and the global average, respectively. In terms of educational level, the average length of education for people aged 30 years in China is only 65 and 67 percent of the level of the USA and Japan, respectively.

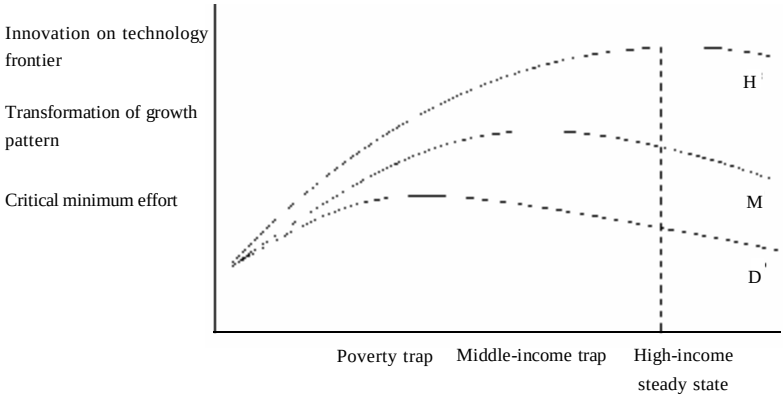
Although it has lost its comparative advantage in labor-intensive industries, China is yet to gain a comparative advantage in technology-intensive and capital-intensive sectors, which means the country is facing a "comparative advantage vacuum." Moreover, through its reform and opening up, China has integrated into the world market. However, it is becoming increasingly challenging for China to further reform and open up to the outside world. These are all typical challenges facing middle-income countries. Therefore, raising the concept of the middle-income trap and thorough study of related phenomena as well as the experiences of other economies are useful for Chinese policy-makers.

V. Conclusion

The concept of the middle-income trap can be explained within an economic analysis framework and can be verified from economic development experiences. It is also relevant in terms of the sustainability of China's economic growth. Therefore, the concept is useful for academics and policy-makers. Figure 2 shows the whole process of the transition to high-income economies, from which we can glean the tasks required to break through the poverty equilibrium trap and the middle-income trap and make a transition to becoming a high-income economy. We can also investigate the position of the middle-income trap theory in the development economics framework and its relevant policy implications.

In the process of economic development, an economy initially faces the vicious cycle of poverty. Its per capita output growth can be soon offset by population increases and its per capita income can be diluted by the growth of the population. The standard of living can be maintained at a subsistence level at best and savings are hard to accumulate. Even if a technological advancement in the traditional sense occurs, the "critical minimum effort"

Figure 2. Turning Point of Economic Growth and Breaking-through Strategy



of the equilibrium trap cannot be overcome until there is a revolutionary technological and institutional breakthrough, such as the application of technologies and market scale expansion resulting from an industrial revolution, which makes new technologies profitable (Hansen and Prescott, 2002). Only then can such an equilibrium state be broken.

Unlike the USA and European countries, most of the late-comer countries' economies grow within a dual economy framework; the unlimited labor supply itself favors accumulation of production factors while population dividends help to improve the savings rate to accelerate capital formation. Economic restructuring, mainly featuring cross-sector labor movement and migration from rural to urban areas, also leads to reallocation of resources and improvement in total factor productivity. Therefore, in the process of globalization, the dual economy is capable of bringing about high-rate economic growth. The growth, however, ends with the advent of the Lewis turning point and the loss of the population dividends, and the economy might fall into the middle-income trap.

An indispensable prerequisite for breaking the bottleneck brought about by the Lewis turning point and loss of population dividends to avoid the middle-income trap is to upgrade the pattern of economic growth from one driven by production factor inputs and resource reallocation effects caused by transition from agriculture to non-agricultural sectors to one driven by improvement in total factor productivity and labor productivity. Once such a shift is made, the long-term economic growth will be built on innovation and it will become sustainable. In this sense, many of the theoretical models and policy suggestions cited in this article are meaningful for helping China cope with the challenges of the middle-income trap.

First, it is urgent to maintain total factor productivity growth. The Solow neoclassical growth model advocated by Hansen and Prescott emphasizes that improvement in total factor productivity is the only source of maintaining sustainable economic growth. Parente and Prescott (2002) prove that the income gap between different countries is in root

attributable to the differential in their total factor productivity as a result of their respective systems that either encourage or block the adoption of new technologies. Barry Eichengreen and other scholars also find that, typically, the stagnation of total factor productivity can explain 85 percent of an economy's slowdown. Hayashi and Prescott (2002) show that Japan's economic stagnation is also the result of poor total factor productivity.

Second, it is meaningful to accumulate human capital through education and training. Aoki (2011) holds that China has surpassed the Kuznets–Lewis phase and is shifting to the H-phase that is centered on human capital accumulation. The success of Japan and Korea in overcoming the middle-income phase is also attributable to their smooth shift from that phase. Human capital is also a source of total factor productivity improvement. Kuijs (2010) shows that in the 1978–2009 period, the annual average growth of total factor productivity was approximately 3.0–3.5 percent, 0.5 percentage points of which was attributable to improvement in human capital. Whalley and Zhao (2010) also show that human capital plays a role in offsetting the poor performance of total factor productivity.

Last but not least, it is challenging to deepen system reforms and transform government functions. Kharas (2011) provides a list of the system reforms that are unavoidable in the transition from the middle-income to the high-income phase, such as development of the capital market, acceleration of innovation, development of higher learning, improvement of urban management and city livability, formation of geographical agglomeration, effective rule of law, checks and balances, and the fight against corruption. Moreover, he points out that the real effect of such reforms will take at least 10 years to surface. Japan's economic stagnation after 1990 shows that government function dislocation, especially the failure to establish a mechanism of creative destruction so that the most efficient enterprises can stand out from free competition, ultimately leads to stalling the total factor productivity of the overall economy.

References

Anderson, Jonathan, 2011, "Chart of the day: Is there really such a thing as a "middle-income trap?" *UBS Investment Research, Emerging Economic Comment*, 21 July.

Aoki, Masahiko, 2011, "The five-phases of economic development and institutional evolution in China and Japan," Presidential Lecture at the World Congress of International Economic Association Held in Beijing [online; cited October 2011]. Available from: http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1893285.

Athukorala, Prema-Chandra and Wing Thye Woo, 2011, "Malaysia in the middle-income trap," Paper Prepared for the Asian Economic Panel Meeting at Columbia University, New York, 24–25 March.

Barro, J. Robert and Xavier Sala-i-Martin, 1995, *Economic Growth*, New York: McGraw-Hill.

Cai, Fang, 2010, "Demographic transition, demographic dividend, and Lewis turning point in China,"

China Economic Journal, Vol. 3, No. 2, pp. 107–19.

China Modernization Strategy Task Force and China Center for Modernization Research of the Chinese Academy of Sciences, 2010, *China Modernization Report 2010 — Summary of World Modernization*, Beijing: Peking University Press (in Chinese).

Eeckhout, Jan and Boyan Jovanovic, 2007, "Occupational choice and development," *NBER Working Paper Series* No. 13686, National Bureau of Economic Research, Cambridge, MA.

Eichengreen, Barry, Donghyun Park and Kwanho Shin, 2011, "When fast growing economies slow down: International evidence and implications for China," *NBER Working Paper* No. 16919, National Bureau of Economic Research, Cambridge, MA.

Garrett, Geoffrey, 2004, "Globalization's missing middle," *Foreign Affairs*, Vol. 83, No. 6, pp. 84–96.

Hansen, D. Gary and Edward C. Prescott, 2002, "Malthus to Solow," *American Economic Review*, Vol. 92, No. 4, pp. 1205–17.

Hayashi, Fumio and Edward C. Prescott, 2002, "The 1990s in Japan: A lost decade," *Review of Economic Dynamics*, Vol. 5, No. 1, pp. 206–35.

Indermit, Gill and Homi Kharas, 2008, *An East Asian Renaissance: Ideas for Economic Growth*, Beijing: CITIC Press Corporation (in Chinese).

Kharas, Homi, 2011, "China's shift to a high-income country–Method to avoid middle-income trap," in Chonggeng Lin and Andrew Michael Spence, eds, *Long-Term Development and Transition of the Chinese Economy*, Beijing: CITIC Publishing House, pp. 470–501 (in Chinese).

Kuijs, Louis, 2010, "China through 2020 – A macroeconomic scenario," *World Bank China Research Working Paper* No. 9, World Bank, Washington, DC.

Li, Huiyong, Xiangjuan Meng, 2010, "Rising labor cost will change corporate profit landscape-A comparative study of labor cost, inflation and corporate profit," *SWS Research*, 1 July (in Chinese).

Parente, Stephen L. and Edward C. Prescott, 2002, *Barriers to Riches*, Cambridge, MA: The MIT Press.

Takeo, Hoshi and Anil Kashyap, 2011, "Why did Japan stop growing?*" National Institute for Research Advancement (NIRA) Working Paper* [online; cited October 2011]. Available from: http://www.nira.or.jp/pdf/1002english_report.pdf, 2011.

Theodore, W. Schultz, 1999, *Transforming Traditional Agriculture*, Beijing: the Commercial Press (in Chinese).

Wang, Qing, Stephen Zhang and Ernest Ho, 2009, "Chinese economy through 2020: It's not whether but how growth will decelerate," *Morgan Stanley China Economy*, Morgan Stanley Research Asia/Pacific, 20 September.

Whalley, John and Xiliang Zhao, 2010, "The contribution of human capital to China's economic growth," *NBER Working Paper* No. 16592, National Bureau of Economic Research, Cambridge, MA.

Yujiro, Hayami and Yoshihisa Godo, 2009, *Development Economics: From the Poverty to the Wealth of Nations*, Beijing: Social Sciences Academic Press (in Chinese).

(Edited by Jing Qiu)