PART I

Introduction and perspectives

1 Introduction

1.1 The motivating question: sustaining the catch-up

While the rapid economic growth achieved by the newly industrialized economies in East Asia is widely appreciated, there has been concern recently about why such a "catch-up" is not happening elsewhere.[1] Despite high levels of development aid, policy changes, and reforms along the lines suggested by the "Washington Consensus," poverty prevails in many countries, the gap between rich and poor countries is widening, and many middle-income countries are not living up to expectations.[2] One reason why good policy prescriptions, such as opening up of the economy for international integration, may fail is argued to be poor institutional conditions, including insecure property rights, and an absence of the rule of law.[3] Thus, the recent literature on economic development has debated the relative importance of institutions, policy, and geography as competing determinants of economic growth, or as factors that contribute to a possible reversal of the fortunes of former colonies and other Third World countries. A stream of research has emerged that verifies the importance of institutions, and has become influential to a certain degree.[4] This "institutional supremacy" view has provided a theoretical justification for "second-generation" reforms and led to the so-called augmented Washington Consensus, which replaced the original Washington Consensus that had lost credibility.

The augmented Washington Consensus includes additional elements such as corporate governance, anti-corruption measures, flexible labor markets, compliance with World Trade Organization agreements, financial codes and standards, the prudent opening of capital accounts, non-intermediate exchange-rate regimes, independent central banks, inflation targeting, and social safety nets. These elements remain a part of a "shopping list," rather than a "recipe," for successful development. Rodrik (2006) contends that the augmented Washington

Consensus emphasis on institutions is its fundamental weakness, because even the most ambitious efforts at institutional reform can be faulted *ex post* for leaving something out. He also observes that the cross-national empirical literature has failed to establish a strong causal link between the implementation of any particular feature in an institution and sustained economic growth. Criticism of the relevance of institutions has also emerged in view of the questionable robustness of the proxy variables used to measure the degree of institutional development. Furthermore, Glaeser et al. (2004) propose that human capital is a more robust variable for long-term economic growth. The Commission on Growth and Development, established under the auspices of the World Bank, acknowledges the importance of government activism and industrial policy, while expressing caution over hasty liberalization and privatization.[5]

Two similarly important arguments have arisen from this body of literature. One is by Rodrik (2006), who claims that the Washington Consensus is dead and that we should identify "binding constraints" for growth in each country. The other argument is by Lee and Kim (2009) and Lin (2012a; 2012c), who state that the attempt to determine universal growth factors is absurd, and that development policies should consider the structural differences between developed and developing countries. Lee and Kim (2009) used country-panel analysis to prove that these different factors are important or binding, depending on the stage of development. They found that, although secondary education and political institutions seem important for lower-income countries, technological development and higher education are more effective in generating growth for upper-middle-income and high-income countries. In a sense, Lee and Kim (2009) suggest technological capability as the binding constraint on growth for middle-income countries. We build on these findings in our own study as it contributes fundamentally to the question of how to sustain economic growth in developing countries and avoids the more traditional focus on the state–market dichotomy.

Both the augmented list of the Washington Consensus and the 2008 Growth Commission report by the World Bank view the learning and promotion of technological capabilities by private firms as a matter of some, but not pre-eminent, concern. However, evidence from East Asia (as a success and in contrast to Latin America) indicates that this issue is the real binding constraint on sustained growth. Although

Hausmann, Rodrik, and Velasco (2008: 324) used growth diagnostics to identify specific binding constraints for each country, different bottlenecks or binding constraints can be identified for groups of countries, not just for specific countries. The idea of identifying bottlenecks or binding constraints makes sense because many developing countries are able to show growth spurts over a limited period (usually less than a decade), but are then unable to sustain this growth over a longer period.[6] Rodrik (2008) also cites the greater importance of sustaining rather than initiating growth.

We discuss this question of sustaining growth because many countries are able to grow and attain middle-income status, but subsequently fail to achieve high-income status. Examples from Latin America include Brazil and Argentina, where growth more or less stalled during the 1980s and the 1990s.[7] These countries are caught in the so-called middle-income country trap, a situation in which middle-income countries face a slowdown of growth as they get caught between low-wage manufacturers and high-wage innovators because their wage rates are too high to compete with low-wage exporters and their level of technological capability is too low to allow them to compete with the advanced countries.[8] However, this has not been the case for all developing countries. Several have successfully escaped this trap and moved beyond middle-income status to join the rich-country club. These include Korea and Taiwan, where per capita income trebled in the 1980s and 1990s after they started the decade on par with a number of Latin American countries.

Following this, the first question we ask in the present study is: what sustains such "catch-up" performance. Although the poverty trap and its relevance to low-income countries have been well-studied, few empirical studies have focussed on sustaining economic growth beyond the middle-income level. Neither the World Bank-sponsored Growth Commission report, nor a book by the leader of the commission (Spence 2011), discusses how developing countries can sustain growth beyond the middle-income levels. Nevertheless, the issue of the middle-income trap has attracted increasing attention and fueled a number of recent studies, including one by the World Bank (2010; 2012).[9]

One may question why growth beyond the middle-income status is important, or more important than spurring growth in low-income countries. A simple answer is that without clear prospects for middle-income countries of reaching higher levels of income, the promotion of

growth may make less sense or present limited benefits for low-income countries. A more specific answer, however, is that the growth of low-income countries can be facilitated and sustained only when some middle-income countries can progress beyond producing and exporting low-cost, labor-intensive goods and services. The progress of the middle-income countries attenuates the "adding-up problem" that occurs when all developing countries flood the market with similar goods that they are comparably good at producing, thus reducing the relative price of these goods and making the sector less profitable (Spence 2011: 122–5). Only when middle-income countries become more successful and move away from the sale of these low-end goods to the next stage of making and selling higher-value-added or high-end goods can lower-income countries continue to grow from the sale of low-end goods.

From this viewpoint, China needs to move quickly beyond its specialization in low-cost, labor-intensive goods toward the development of higher-end goods so that latecomer countries can avoid competition with Chinese goods. Such a succession has happened in Asia, with the Koreans and Taiwanese taking over from the Japanese who came before, and the next-tier countries filling the vacuum left by South Korea (hereafter Korea) and Taiwan.

1.2 The middle-income country trap and sustaining the catch-up

Record of catching-up and the existence of the trap

The word "catch-up" has a long history, going back to the famous work of Gerschenkron (1962). In *Economic Backwardness in Historical Perspective*, Gerschenkron describes the economic growth of continental Europe in the late nineteenth century as it caught up with the UK. Following this work, the influential article by Abramowitz (1986), "Catching up, Forging ahead, and Falling behind", popularized the concept of catching up and made it part of the standard vocabulary of development economists.[10] Fagerberg and Godinho (2005: 514) define catch-up as a narrowing of a country's gap in productivity and income *vis-à-vis* a leading country, and convergence as a trend toward a reduction in differences in productivity and income in the world as a whole. This definition is consistent with that presented by Odagiri et al.

(2010: 2), who describe catch-up as the process by which a late-developing country narrows its gap in income ("economic catch-up") and technological capability ("technological catch-up") *vis-à-vis* a leading country. These studies suggest that catch-up can be measured by several indicators such as income, productivity, and technological capability. The measurement method selected should depend on the purpose of the research, and whether a nation, sector, or firm is involved.

Table 1.1 compares the gross domestic product (GDP) per capita of Korea and Taiwan with that of other countries between 1960 and 2010. In 1960, the per capita income in both Korea and Taiwan was about $150, which was substantially lower than that of most other comparable countries such as the Philippines ($257), Malaysia ($299), Chile ($550), Brazil ($208), and South Africa ($422), and closer to the level of Ghana ($180). However, by the early 1980s, Korea and Taiwan had reached the level of middle-income countries such as Brazil and Chile, and had even surpassed other previously richer countries in Asia, such as the Philippines and Malaysia. Regardless of whether the measure used is GDP per capita as measured in constant dollars or the more internationally comparable purchasing power parity (PPP), the fact remains that Korea and Taiwan were able to make the jump in two short decades, achieving per capita incomes upward of $10,000.

By the year 2000, the per capita incomes in PPP terms of comparable countries, such as Brazil, Argentina, Malaysia, and South Africa, was only one-half or one-third that of Korea or Taiwan. As shown in Table 1.1, between 1980 and 2000, most Latin American middle-income countries increased their GDP per capita only in nominal terms. In constant dollar terms (either PPP or ordinary constant dollars), the income levels of several Latin American economies, except Chile, made very little progress. For instance, Brazil's GDP per capita in constant dollars according to 2000 prices was $3,536 in 1980, and only $3,696 in 2000. Brazil, like many Latin American countries, had been caught in the middle-income trap.

The more recent decade of the 2000s seems to have been better for most Latin American economies (Table 1.1). In terms of per capita GDP (based on PPP), the increases in this decade tended to be larger than those of the 1980s and 1990s. Figure 1.1 displays per capita income trends for various middle-income countries. Brazil, Argentina,

Table 1.1 *Growth indicators in selected countries: GDP per capita*

	GDP per capita (current US$)				GDP per capita (2000 US$)				GDP per capita (2005 international PPP$)		
	1960	1980	2000	2010	1960	1980	2000	2010	1980	2000	2010
Korea	155.2	1,674.4	11,346.7	20,540.2	1,153.7	3,358.2	11,346.7	16,219.4	5,543.6	18,730.4	26,774.0
Taiwan	164.0	2,385.0	14,704.0	18,588.0	1,107.0	4,188.7	14,704.0	20,294.1	7,426.5	23,022.8	32,117.7
Asia											
Philippines	257.0	689.5	1,048.1	2,140.1	691.7	1,098.4	1,048.1	1,383.4	2,827.0	2,697.4	3,560.5
Thailand	101.1	681.4	1,943.2	4,613.7	320.9	785.0	1,943.2	2,712.5	2,220.6	5,496.8	7,672.9
Malaysia	299.1	1,802.8	4,005.6	8,372.8	812.6	1,909.6	4,005.6	5,184.7	4,866.9	10,208.7	13,213.9
China	92.0	193.0	949.2	4,433.0	105.5	186.4	949.2	2,426.3	524.0	2,667.5	6,818.7
India	83.1	270.8	450.4	1,375.4	181.0	230.0	450.4	794.8	879.4	1,722.1	3,038.8
Latin America											
Brazil	208.4	1,931.0	3,696.1	10,992.9	1,447.8	3,536.0	3,696.1	4,716.6	7,566.5	7,909.1	10,092.7
Argentina		2,735.8	7,695.6	9,123.7	5,251.9	7,540.7	7,695.6	10,749.3	10,075.4	10,282.4	14,362.6
Chile	550.4	2,466.5	4,877.5	12,639.5	1,841.1	2,500.3	4,877.5	6,430.1	5,653.8	11,029.4	14,540.2
Mexico	339.8	2,825.9	5,816.6	9,132.8	2,456.0	5,024.4	5,816.6	6,105.3	10,238.5	11,852.7	12,440.9
Africa											
Ghana	180.5	407.0	259.7	1,319.1	281.8	241.7	259.7	359.9	992.8	1,066.8	1,478.5
Nigeria	91.4	849.9	371.8	1,242.5	279.5	416.3	371.8	540.2	1,645.4	1,469.3	2,134.9
South Africa	422.1	2,926.8	3,019.9	7,271.7	2,203.7	3,463.2	3,019.9	3,753.4	8,762.6	7,641.0	9,496.9

Source: National Statistics of Republic of China (http://eng.stat.gov.tw) for Taiwanese data. All other data are from the world development indicators (WDI) compiled by the World Bank.

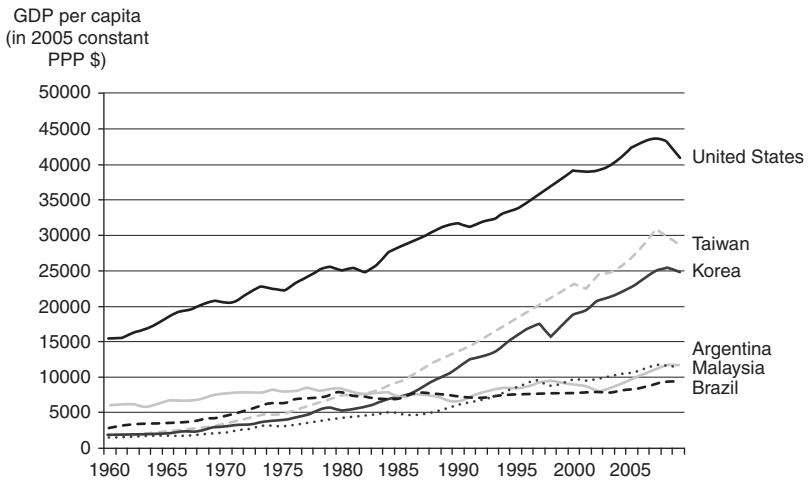
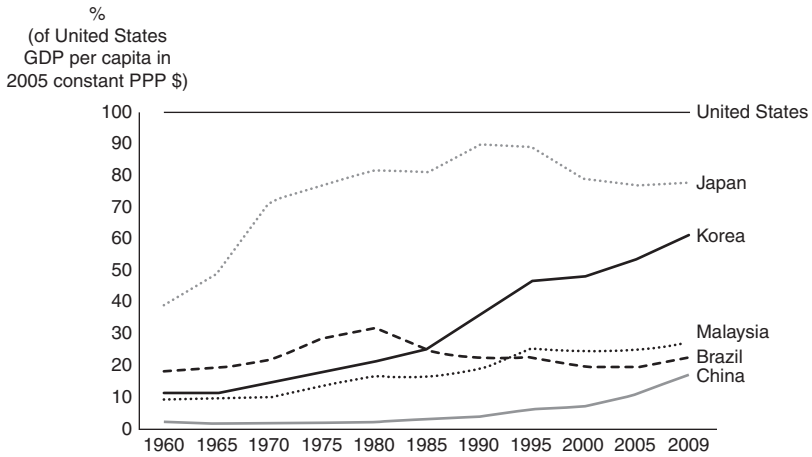


Figure 1.1 Trend of income levels in Taiwan, Korea, Argentina, Malaysia, Brazil, and the USA.
Source: Prepared by the author using data from Penn World Table 7.0.

and Malaysia recorded positive growth, albeit slower than Korea or Taiwan. However, even this decade cannot be considered one of significant catch-up if we compare the per capita income of the two middle-income countries in Figure 1.2 (Malaysia and Brazil) to that of the USA. For instance, the income level of Brazil in 2009 relative to the USA was 22.7 percent, and the figure had remained almost unchanged in the twenty years since 1990. In fact, its relative income had gone down slightly in 2000 when it reached 19.9 percent. The best year for Brazil was 1980, when its income level relative to the USA was 32 percent, a level to which Brazil has never recovered since.

Turning next to Malaysia, we see that although the country grew very fast in the 1980s and 1990s, income levels stalled more or less in the mid-1990s. In 1980, its income level relative to the USA was 17 percent (Figure 1.2). This figure reached a peak of 25.7 percent in 1995 before declining to 24.8 percent in 2000 and recovering to 25.2 percent in 2005. Malaysia per capita income has made minimal progress from 1995 levels and reached only 27.5 percent in 2009, leading the World Bank to place Malaysia firmly among the countries which had fallen into the middle-income trap (Yusuf and Nabeshima 2009).

These cases imply that positive growth does not guarantee catch-up, and that faster growth is necessary if a developing economy is to catch



United States	100	100	100	100	100	100	100	100	100	100	100
Japan	39.5	49.2	72.1	77.3	81.6	81.0	89.8	88.9	79.0	77.0	77.7
Korea	11.7	11.3	14.9	18.2	21.4	25.6	36.1	46.8	48.3	53.6	60.9
Malaysia	9.6	9.7	10.3	13.9	17.0	17.0	19.2	25.7	24.8	25.2	27.5
Brazil	18.5	19.4	21.8	28.7	32.0	25.0	22.7	22.7	19.9	19.6	22.7
China	2.3	1.9	1.9	2.1	2.5	3.5	4.0	6.3	7.4	11.1	17.0

Figure 1.2 Trend of income levels in Japan, Korea, Malaysia, Brazil, and China as percentages of US income levels.
Source: Penn World Table 7.0.

up with its forerunners. Based on these cases, we infer that countries are most likely to fall into the middle-income trap when their income levels rise to about 20–30 percent of the US level. Only a few countries, including Korea and Taiwan, have served as notable exceptions to that rule by continuing to catch up beyond that range. Although the per capita income of Korea was only 21 percent of the US level in 1980, it tripled to 61 percent in the subsequent thirty years (Figure 1.2). When we draw a similar graph with Japan as the benchmark, we find the income levels of Korea and Taiwan 30 percent that of Japan in 1960, over 60 percent in 2000, and approaching 80 percent in 2009.

The risk of the middle-income trap is not limited to only a small number of countries, but is also relevant to many countries in the world. The recent report on China by the World Bank (2012:12) compares the relative income levels of a number of countries (compared with the USA) in 1960 to the levels in 2008. According to this analysis, as many as thirty countries fell into the trap. Specifically and more interestingly, the table indicates that the phenomenon of