

The Middle-Income Trap Turns Ten

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Abstract

Since we introduced the term “middle-income trap” in 2006, it has become popular among policy makers and researchers. In May 2015, a search of Google Scholar returned more than 3,000 articles including the term and about 300 articles with the term in the title. This paper provides a (non-exhaustive) survey of this literature. The paper then discusses what, in retrospect, we missed when we coined the term. Today, based on developments in East Asia, Latin America, and Central Europe during the past decade, we would have paid more attention to demographic factors, entrepreneurship, and external institutional anchors.

We would also make it clearer that to us, the term was as much the absence of a satisfactory theory that could inform development policy in middle-income economies as the articulation of a development phenomenon. Three-quarters of the people in the world now live in middle-income economies, but economists have yet to provide a reliable theory of growth to help policy makers navigate the transition from middle- to high-income status. Hybrids of the Solow-Swan and Lucas-Romer models are not unhelpful, but they are poor substitutes for a well-constructed growth framework.

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The Origins of the Middle-Income Trap

About a decade ago, in 2005, while researching economic development in East Asia, we observed that there was no easily communicable growth strategy that we could recommend to policy makers in the middle-income economies in the region. The prevailing economic development literature had its intellectual foundation in an augmented Solow growth model that emphasized efficient physical and human capital accumulation as the main drivers of growth. At the World Bank, this was operationalized by prescribing a focus on export-led manufacturing to take advantage of comparatively cheap labor, coupled with health and education programs to improve skills. The outward orientation would ensure investment was allocated based on internationally-set market prices, and improved skills would create growth with equity.

This basic model worked well for low-income countries. But in the early 2000s, we did not find that it was generating a productive policy dialogue in East Asia. The difficulty, of course, was that the China export juggernaut was accelerating, and other middle-income countries in East Asia, particularly those in ASEAN, were concerned that they could not sustain exports in the face of Chinese competition. With wage levels that had already risen as a result of a successful transition from low-income to middle-income status, countries like the Philippines, Malaysia and Thailand were simply uncompetitive with China in labor-intensive manufacturing. By 2005, the three-year phase-out period for restrictions on foreign investors contained in China's WTO accession agreement was ending and foreign direct investment (FDI) was being diverted from South-East Asia to China.

The Agreement on Textiles and Clothing also terminated all restrictions on the global garment trade that had been subject to quotas since the MultiFibre Agreement of 1974. East Asian economies had used these quotas to build up their export industries. But by 2005 they had realized that this strategy would need a drastic overhaul. They were right. From 2006 to 2013, the value of

garment exports of Malaysia, the Philippines and Thailand decreased by 2, 8 and 4 percent annually, respectively, on average.¹

In this environment, recommending a growth strategy based on labor-intensive exports was neither credible nor useful to the middle-income countries of the region.

At around the same time, theories of endogenous growth had entered the mainstream of policy debates. After the pioneering work by Romer (1986), Lucas (1988) and—a decade later—by Aghion and Howitt (1996), economists had started to unpack the technological black box of the Solow growth model. Competition, science and scalable technologies entered the mainstream of growth theory. These models seemed to better explain the phenomenon of “club convergence” (Baumol, 1986) where a select group of advanced countries appeared to converge, at least in terms of economic growth rates if not in terms of per capita income levels, while low- and middle-income countries, with only a few exceptions, got left ever further behind (Pritchett, 1997). And of course, technological breakthroughs and soaring valuations of technology companies suggested a new economics with important scale economies was at play in the 21st century.

There was considerable interest in ASEAN about transitioning to “knowledge economies”. The Republic of Korea had done this successfully after the Asian financial crisis in 1997/98. But we concluded that this would be premature for most of the middle-income ASEAN countries, given the mediocre quality of the higher education systems and low enrollment rates, the lack of domestic patents, low levels of innovation and technological diffusion, an absent venture capital eco-system, and assembly-type firms that were not moving rapidly up the value chain.

The Annual Meetings of the World Bank and International Monetary Fund being held in Singapore in 2006 provided an opportunity to reassess the issues faced by middle-income countries in the region, primarily those in ASEAN. So in early 2005, we started work that would be published in 2007 as *An East Asian Renaissance*. *Renaissance* introduced the concept of the “middle-income trap” into the development literature.

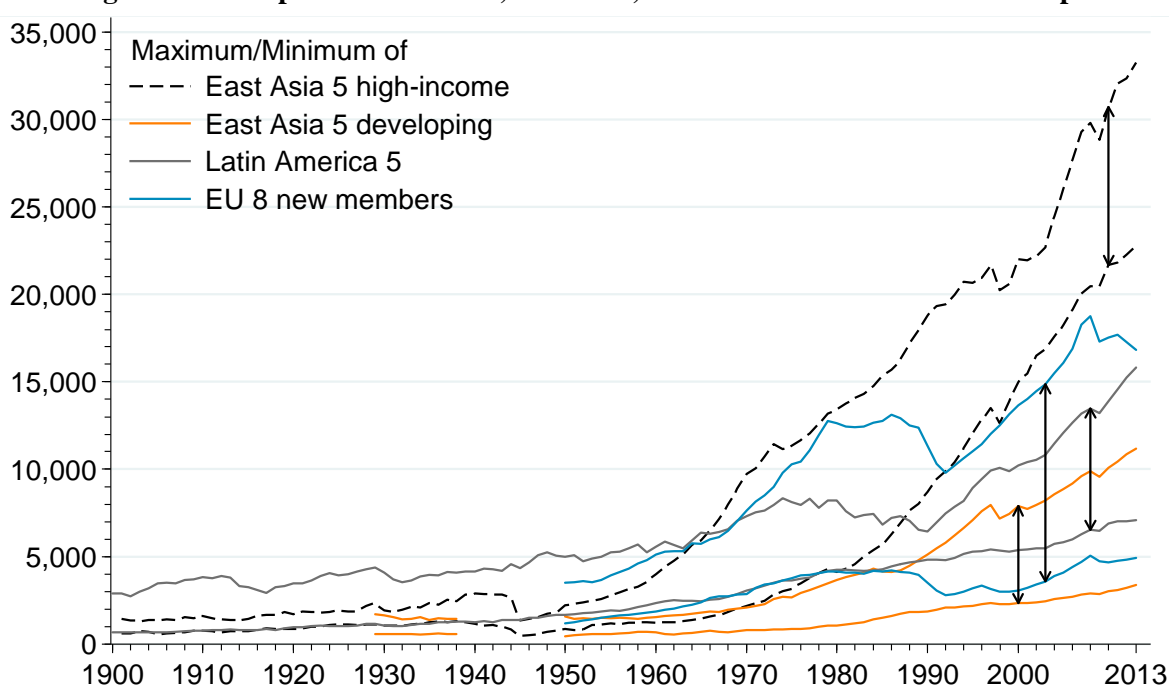
The concept was influenced by our experience working in Latin America where, although in different contexts and social and economic environments, rapidly growing economies like Brazil had suddenly stagnated. Empirical work by Easterly, Kremer, Pritchett and Summers (1993) had suggested mean reversion of growth rates was common, so East Asia’s past successful growth could not be projected forward in a mechanical fashion. Figure 1, which is an updated version of a graph in Gill and Kharas (2007), shows how five economies in Latin America—Argentina, Brazil, Chile, Colombia and Mexico—that had grown reasonably rapidly from 1950 to the mid-1970s, then stagnated. We contrasted this experience with the growth pattern of the four East Asian NIEs and Japan, which showed continuous steady growth, and asked which path the five middle-income South-East Asian countries would follow.

¹ UN Comtrade, retrieved 06-17-2015. <http://comtrade.un.org/data/>

In Figure 1, we have also added, for reasons that will become obvious, the seven largest new member states of the European Union, the latest set of countries to sustain rapid growth at middle-income levels and—in the case of many of them—attain high-income status.

The key point is that unlike the EA5 high growth economies, the middle-income countries in all three other groups—developing East Asia, Central Europe and Latin America—have shown divergent experiences. The best performers have continued to grow rapidly, with several Eastern European and Latin American countries graduating to become high-income economies in the 2000s, while the worst performers have grown slowly or stagnated, appearing to be trapped in middle-income.

Figure 1: Per capita income levels, East Asia, Latin America and Central Europe



Source: Maddison (2003), Bolt and van Zanden (2014) and Conference Board Total Economy Database.

Note: The figure shows the development in the range of per capita incomes within four groups of economies: the high-income East Asia Five (Hong Kong, China; Japan; Korea, Republic; Singapore; and Taiwan, China: maximum and minimum), middle-income East Asia Five (China; Indonesia; Malaysia; Philippines; and Thailand: maximum and minimum), the large, middle-income Latin America Five (Argentina; Brazil; Chile; Colombia; and Mexico: maximum and minimum), and EU Eight New Members (Bulgaria; Croatia; Czech Republic, Hungary; Poland; Romania; Slovak Republic; and Slovenia: maximum and minimum). In the last group, prior to 1985, data for Czechoslovakia are shown, instead of Czech and Slovak Republics.

It was against this theoretical and empirical background that we came up with the term “the middle-income trap” to describe economies that were being “squeezed between the low-wage poor-country competitors that dominate in mature industries and the rich-country innovators that

dominate in industries undergoing rapid technological change” (Gill and Kharas, 2007).² Our advice at the time: “For middle-income countries, it seems the trick is to straddle both strategies.”

Ten years on, we are again writing about the middle-income trap in Asia. While there has been progress in many countries, growth has been slower than before the Asian financial crisis. China has continued to grow rapidly, providing both an opportunity for its neighbors and a threat to their export industries. The jury is still out as to whether middle-income ASEAN countries like Indonesia, Malaysia, the Philippines, Thailand or Vietnam can expect to replicate the growth experience of the Asian Tigers, or whether they will follow the trajectories of Latin America.

In this brief retrospective of the developments since 2005, we would like to emphasize three things:

- First, to us, the middle-income trap was more the absence of a satisfactory growth theory that could inform development policy in middle-income economies than the articulation of a generalized development phenomenon. It was a trap of ignorance about the nature of economic growth in middle-income countries: endogenous growth theories addressed the problem in high-income economies (where about 1 billion people live today), and the Solow growth model was still the work-horse for understanding the growth problem in low-income countries (where another 1 billion live), but neither are satisfactory for understanding what to do in countries where the remaining 5 billion people in the world live—those in middle-income countries.
- Second, the trap was meant to convey an empirical regularity that past success was no guarantee of future success. In the wake of daily articles on “the Asian century”, there was a real risk that countries in the region could become trapped by complacency. The trap was meant to warn policy makers that lack of vigilance could trigger a long period of below-potential growth. [We leave until later the meaning of a “long” period, but Yegor Gaidar, the eminent Russian reformer, allegedly asserted that his country had been trapped in middle-income for two centuries. The same could be said of Belarus and the Ukraine.]
- Third, the trap was a device to spark a discussion of policy choices in middle-income countries. It was not intended to be a statement of determinism that low growth rates were a matter of destiny for middle-income countries. As we will see below, this is more than a matter of semantics. For us, the “middle-income trap” was short-hand for “a trap that can catch middle-income countries”. It was not a statement that middle-income countries are more likely to be trapped than other countries. In fact, we were silent on low-income countries and high-income countries because the focus of our attention was on policy making in middle-income countries. In retrospect, it would have been helpful to clarify this.

² While our contribution has always been recognized within the World Bank, it was only the publication of an article in *The Economist* that established for the rest of the world that our work was the first to propose the idea of the middle-income trap.

The Middle-Income Trap Since 2005

We were not the first to comment on the slow growth in middle-income countries. Garrett (2004) had talked about “globalization’s missing middle” and warned that middle-income countries might stagnate. In his words, “the challenge for the middle-income world is to find ways to “tech up” and enter the global knowledge economy, so as to escape the trap of having to dumb down to compete in standardized manufacturing and, increasingly, standardized services...the countries of Latin America and eastern Europe are not likely to be able to achieve [the transformation] on their own. The transition to democracy has not itself proved the necessary catalyst. Instead, it has raised popular expectations that politicians find increasingly difficult to satisfy.”³

Garrett’s focus was on the distribution of the benefits of globalization and what rich countries could do to help middle-income countries, by moderating free trade and capital account liberalization. He too was disappointed that theoretical political economy constructs—that democracy would lead to stronger economic performance—did not seem to be supported by the evidence. But unlike our analysis, he did not venture into the policy debate of what middle-income countries themselves could do—other than warn about the perils of trade liberalization, a warning that in retrospect has been alarmist.

We introduced the term “middle-income trap” while writing a report to assess economic developments in East Asia since the crisis of the 1990s. We did so with modesty, because we had not rigorously established its prevalence.

To our surprise, the phrase “middle-income trap” immediately became popular among policy makers and development specialists. In East Asia, the Great Recession of 2008 rocked the confidence of economic policy makers and triggered a big debate on what to do next. By mid-2009, Malaysian policy makers, including Prime Minister Najib, had started to use the phrase in speeches⁴ and even launched a National Economic Advisory Council to elaborate a plan on how to escape the trap. In Vietnam, the Deputy Prime Minister Nguyen Thien Nhan had used the concept in 2009, also influenced by Kenichi Ohno (2009) who was writing about his own version of the trap, referring to the lack of industrial upgrading in the economy. In China, from 2010 onwards, officials in charge of the preparation of the 12th Five Year Plan 2011-2016, including Liu He, started to actively debate whether China was becoming vulnerable to the middle-income trap.⁵

As government leaders repeatedly referred to the term, first academics and then the mainstream media started to adopt the term (Figure 2). By mid-2011, there were enough newspaper headlines per month using the term for “middle-income trap” to register in Google trends. Following the launch of the World Bank’s *China 2030* report in February 2012, which also referred to the middle-

³ <http://yaleglobal.yale.edu/content/globalizations-missing-middle>.

⁴ <http://in.reuters.com/article/2009/06/30/idINIndia-40688420090630> See also <http://www.themalaysianinsider.com/sideviews/article/malaysia-struggles-to-escape-the-middle-income-trap-greg-lopez>

⁵ <http://english.caixin.com/2010-11-08/100196829.html>

income trap, the level of media interest increased further. Since 2012, there has been a steady stream of monthly headlines using the term, as reflected in Google searches below.

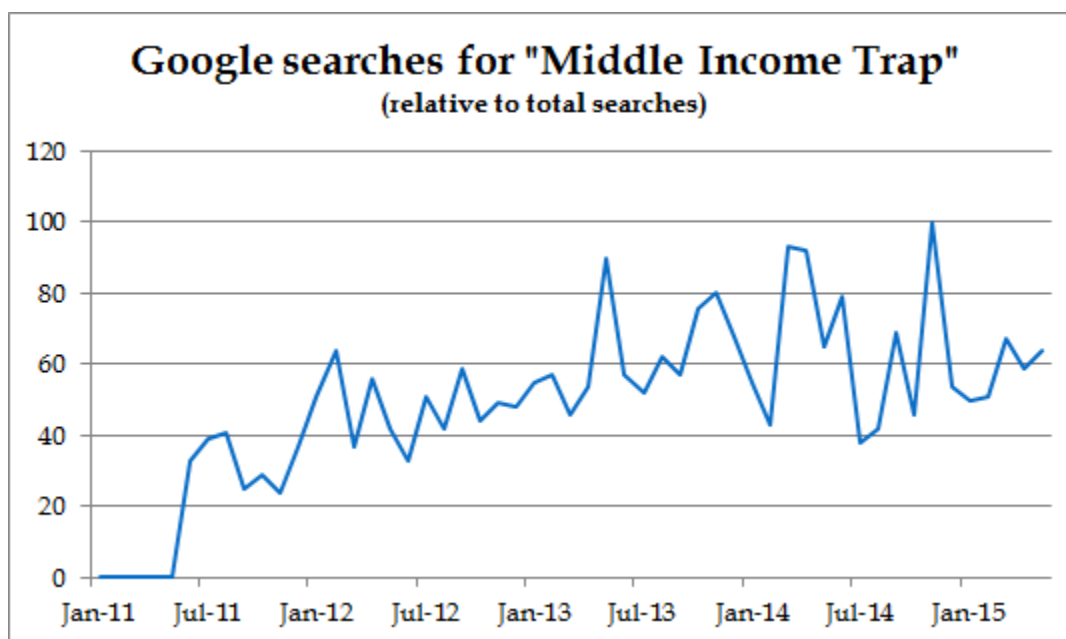


Figure 2: Google trends graph of middle-income trap, news headlines.⁶

Academics also became interested in the subject. By May 2015, a search of Google Scholar returned over 3,000 articles including the term “middle-income trap” and close to 300 articles with the term in the title.⁷ However, these papers do not use a common definition. Instead, the term has been loosely used to describe situations where a growth slow-down results from bad policies in middle-income countries that prove difficult to change in the short-run (hence, “trap”).

A small selection of academic papers on the middle-income trap are: Eichengreen et al. (2013), Spence (2011), Kharas and Kohli (2011), Zhang et al. (2012), Liu et al. (2012), Eichengreen et al. (2013), Egawa (2013), Islam (2014), Kumagai (2014), Wu (2014), Vivarelli (2014), Yilmaz (2014), and Huang et al. (2014).

The majority of international institutions have also conducted their own research on the topic. Not surprisingly, the organization that uses the term the most is the World Bank: for example, Gill and Kharas, 2007; Ohno, 2009; Agenor and Canuto, 2012; Agenor et al., 2012; Jimenez et al., 2012; Lin and Treichel, 2012; Gill and Raiser (2012); Agenor and Dinh, 2013A; Agenor and Dinh, 2013B; Robertson and Ye, 2013; Agenor and Canuto, 2014; Falaen et al., 2014; Im and Rosenblatt, 2014; Bulman et al, 2014). The institution with the second most frequent usage of the “middle-income trap” concept is the Asian Development Bank (Felipe et al., 2012A; Felipe et al., 2012B;

⁶ Google Trends, retrieved 06-17-2015. From Google Trends: “Numbers represent search interest relative to the highest point on the chart. If at most 10% of searches for the given region and time frame were for [“middle income trap,” it is considered] 100. This doesn't convey absolute search volume.”

⁷ Google Scholar, retrieved 06-17-2015

Felipe et al. 2014). The OECD (Jankowska et al., 2012A; Jankowska et al., 2012B, Gurria, 2013, Koen et al., 2013, Pezzini, 2014; Tanaka, 2014) and the International Monetary Fund (Aiyar et al., 2013) have also analyzed the middle-income trap, and the IMF has used it in numerous country concluding statements and briefs (i.e.: IMF, 2014).

The middle-income trap has also been used by the African Development Bank (Kaberuka, 2013A; Kaberuka, 2013B; Kaberuka, 2013C; Fraser-Moleketi, 2015; Brixiova and Kangoye, 2013), the European Commission (Bogumił and Wielądek, 2014) the European Bank for Reconstruction and Development (Berglof, 2013, Berglof, 2014), the Inter-American Development Bank (Devlin, 2014) and the United Nations (UN, 2013a; UN, 2013b).

In the rest of this paper, we look back on this explosion of literature and the use of the term “the middle-income trap”. We review alternative definitions, the empirical evidence, the criticisms of the concept itself, and the policy implications that have been advanced. We close with personal reflections on what—with the benefit of hindsight—we think we got right and what we missed.

Definitions and Evidence

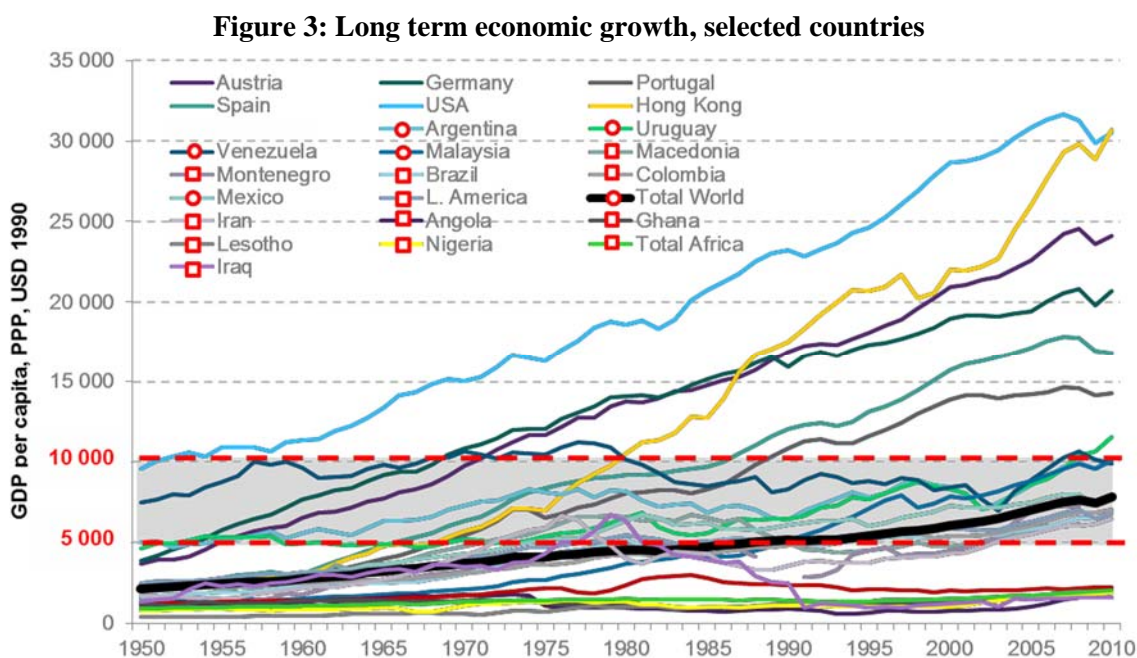
As it has evolved, we can discern three broad definitions of the “middle-income trap” in the literature. First, there are a number of authors who focus on how policy and institutional change must adapt to structural characteristics of middle-income countries. Our own initial definition falls into this category: the middle-income trap that we described was a trap of policy misdiagnosis when countries failed to match their growth strategies with prevailing structural characteristics of their economies. We identified two types of common traps that middle-income countries could fall into. At one end, we observed middle-income countries trying to sustain labor-intensive manufacturing export-led growth, despite the competitive disadvantage caused by higher wages. We came across many cases where policy makers who had observed the growing diversification of the economy as it transitioned from low- to middle-income status sought to continue that process by artificially encouraging new industries (most commonly IT industries) with no economic foundation. The important lesson of Imbs and Wacziarg (2003) that more advanced countries tend to specialize was ignored. These countries became trapped when they failed to identify alternative sources of demand to replace exports.

At the other end, we also saw countries trying to leapfrog prematurely into “knowledge economies”, with none of the institutional infrastructure in place to accomplish this. Poor quality universities, low levels of human capital, limited venture capital, regulatory barriers and incomplete rule of law present significant barriers to becoming an innovation-driven economy. Middle-income countries that invest heavily and prematurely in trying to become “knowledge economies” can find low returns to such investments. The combination of wasted fiscal spending and a faulty growth diagnostic can lead to substandard performance—another example of the middle-income trap.

Ohno (2009) and before him Garrett (2004) are others who have taken a descriptive approach to defining the middle-income trap. Ohno focused on the need for middle-income countries to move up the value chain and describes the trap as being a reliance on growth strategies that have natural limits, such as those based on natural resources or FDI inflows. He advocates for a proactive industrial policy, with technocratic government teams and strategic alliances with business driving progress forward. In this construct, the middle-income trap is about the microeconomic underpinnings of growth. It puts an emphasis on active government industrial policy.

Garrett's focus is somewhat different, although he too puts emphasis on the need for technological progress and the difficulties that could be caused by globalization and trade liberalization for middle-income countries in trying to move up the value chain. What is common in all the descriptive definitions is that they recognize that structural features of economies can be important drivers of total factor productivity growth, and that once initial gains from the structural transformation of the labor force from low-productivity agriculture to higher productivity manufacturing and services has run its course, new sources of growth will be needed.

A second definition of the middle-income trap is empirical. It is based on the observation that many countries remain in a narrow income band over long periods of time. Spence (2011) has the clearest exposition of this. He shows that there are few countries that have managed to achieve per capita income levels above 2005PPP\$10,000 since 1975. As a result, there is a clustering of countries with income levels between \$5,000 and \$10,000 (Figure 3).



Source: own elaboration, World Development Indicators (World Bank, 2015), Maddis Project Database (2015), World Penn Table (2015).

A variant of Spence's analysis has been developed by Felipe et al. (2012a). They identify two middle-income bands: one with a range of \$2,000 to \$7,500, and the other with a range of \$7,500 to \$11,500 [1990 PPPs]. If a country stays in the first range for longer than 28 years or longer than 14 years in the second range, it is classified as stuck in a middle-income trap. Felipe et al. identify 35 middle-income countries that are stuck, out of a sample of 52 countries that they looked at.

The bands of income levels set by Spence and Felipe of where middle-income countries could potentially become trapped are heuristic. Others have taken an econometric approach. Eichengreen et al. (2013) ask whether middle-income countries are more likely than others to experience a growth slowdown, defined as a decline of at least 2 percentage points relative to a 7-year moving average.⁸ They conclude that there appear to be two ranges of growth slowdowns: one between \$10,000 and \$11,000 and the other between \$15,000 and \$16,000. The implication is that countries may find themselves slowing down at lower income levels than previously believed and decelerate in steps, rather than smoothly or at a single point in time. They also emphasize the importance of moving up the technology ladder in order to avoid such a secular slowdown.

Aiyar et al. (2013) take a similar approach, differing from Eichengreen in the counterfactual against which a growth slowdown is measured. Aiyar et al. use the predictions of a Solow growth model. They identify and examine 123 episodes of growth slowdowns since 1960 and find that indeed middle-income countries (defined as those with income levels between \$1,000 and \$12,000) have a greater frequency of slowdowns than either advanced or low-income countries.⁹ They also find that some of the explanatory variables for growth slowdowns differ between middle-income countries and the full sample; middle-income countries with low levels of infrastructure and limited regional integration are more likely to have slowdowns. This evidence is consistent with the authors' prior belief that in practice anxiety over growth slowdowns has been particularly acute in middle-income countries.

A third definition of the middle-income trap is based on the absence of convergence to a benchmark advanced country, typically the United States. Im and Rosenblatt (2013) is a good example. They create a set of thresholds based on a country's GDP per capita relative to that of the United States, and look at the probability of a country transitioning to a higher category. They find that the probability of countries with middle-incomes transitioning to a higher category is quite low; in other words, evidence of a middle-income trap where convergence with the US stops.

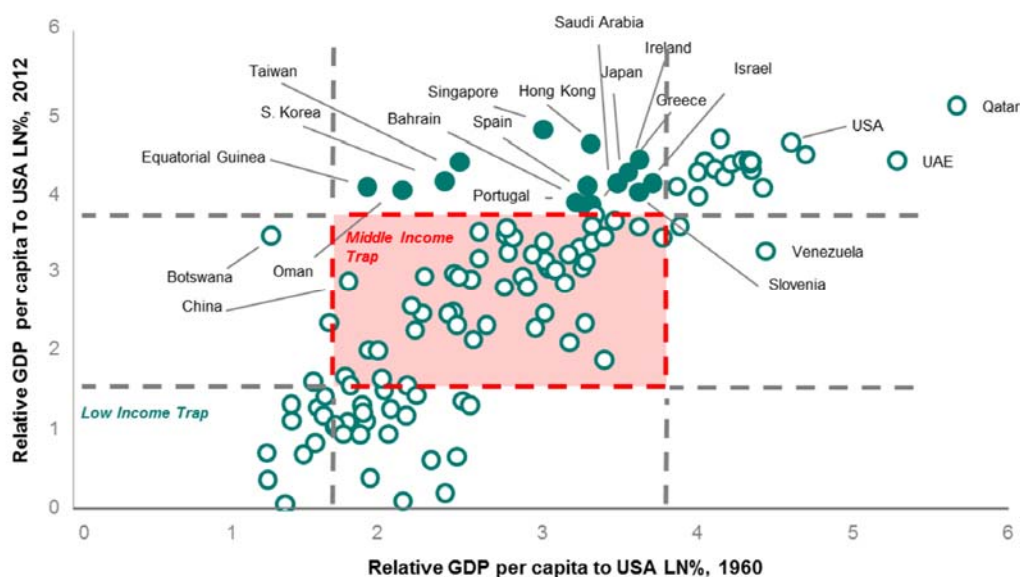
This same conclusion is reached by Agenor and Canuto (2012). They plot GDP per capita relative to the United States in 1960 against the same relative income measure in 2008. Updating this analysis, Figure 4 below shows that most middle-income countries are indeed stuck; they are either

⁸ Eichengreen et al. also limit the sample to those countries that had growth rates higher than 3.5 percent per annum, and whose income levels exceeded \$10,000 in PPP terms.

⁹ A growth slowdown is defined as occurring by looking at the residual of actual growth less predicted growth. When this difference is less than the 20th percentile of the difference in residuals over all countries and all time periods (and continues for two continuous periods), then there is a growth slowdown.

on or below a 45 degree line, meaning there has been no convergence with the US over a 50 year period.

Figure 4: Evidence of a middle-income trap, 1960-2012



Several other studies also focus on convergence. Hawksworth (2014) designed an ESCAPE index by combining 20 different indicators that are taken from cross-country regressions of growth and convergence, including economic, social, political, regulatory infrastructure and environmental sustainability variables. Based on this, he identifies a *fragile five* group of countries that could get stuck because they do not display the policy and structural characteristics to sustain rapid growth. Hawksworth does not, however, attempt any statistical validation of his methodology.

But there are as many skeptics as supporters. *The Economist* newspaper challenged the notion of the middle-income trap by charting decadal growth rates against initial income for 160 countries (except oil exporters) between 1950 and 2010. It found that per capita income growth in middle-income economies was actually higher than in other countries. It further looked at episodes of growth slowdowns, following the Eichengreen et al. methodology, and found that the probability of a growth slowdown did not appear to increase at middle-income levels. It concluded the whole debate was pointless.¹⁰

What can we conclude from these various definitions and what can be generalized? Probably, the most widely-accepted proposition is that a “trap” is characterized by a context where growth is

¹⁰ <http://www.economist.com/news/finance-and-economics/21571863-do-countries-get-trapped-between-poverty-and-prosperity-middle-income-claptrap>

below potential. Such traps can exist at all income levels, from low to upper income, but may well be different in nature at different income levels. If the purpose of defining a middle-income trap is to help policy makers in middle-income countries frame policy choices in the right way, then it is useful to describe those choices that are particularly pertinent to middle-income countries.

If one agrees that in order for growth to reach its potential it is essential to continuously reform and to sustain reforms over time, then the middle-income trap can simply be redefined in terms of middle-income countries growing below potential. Even this, however, is not fully satisfactory. It leaves open the question of how to define potential growth. Some analysts have used comparisons with other countries at similar income levels, but it is not clear that countries at different periods of time would have the same potential growth rate. In fact, academics like Rodrik (2015) have suggested that as a result of “premature deindustrialization” it is now harder for developing countries to grow fast.

Other questions about growth potential relate to the risk involved in different growth strategies. If observed growth in one country is high, it could be related to a high risk strategy. Other countries may voluntarily choose to pursue slower, but steadier, growth. Or countries might trade off slower growth for higher quality growth, for example if it entails lower environmental and health-related costs, or if it involves less inequality.

Potential growth would also have to be defined in a historical context. Some periods may be conducive to high growth, others (like today) may reflect a global context of sluggish growth, greater risk of external shocks and a complicated political environment for policy implementation.

In other words, defining the middle-income trap as growing below potential does not resolve the difficult question of identifying which countries are trapped. Instead, we are left with a loose sense that governments must play an active role in middle-income countries if undesirably low growth is to be avoided, and this means identifying appropriate reforms to maintain growth momentum in the long-run.

Middle-Income Transitions

What is new about the middle-income trap is the framing of the key transitions that middle-income economies (and not countries at other income levels) pass through, that must be managed by public policy. If there is a generalization to be made, it is that all middle-income countries need to pass through these transitions. Those that adapt policies and institutions successfully given their circumstance avoid a “middle-income trap”; those that do not risk becoming trapped.

To understand these transitions, we can revert back to theory. The original Solow model suggests that differences in observed growth across countries stem from factor accumulation, especially capital investment. Efficient capital investment requires that an economy be relatively open to international trade and that market forces drive the sectoral allocation of capital. Empirical

evidence continues to confirm these basic findings. Open economies, at all levels, grow faster and achieve higher income levels than closed economies.¹¹

One transition that middle-income countries face is a Lewis turning point, when unskilled labor released from agriculture is exhausted, and agricultural and urban unskilled wages start to rise rapidly. During this transition, economies must move away from labor-intensive technologies. At the same time, the productivity gains due to inter-sectoral factor reallocations start to slow. For many countries, the Lewis turning point occurs at middle-income levels.

In our original formulation of the middle-income trap, we focused on the financial sector and trade openness as key determinants of the efficiency of investment that policy makers should pay close attention to in managing this transition. The financial sector needs to both support the emergence of new sectors, particularly services, and push firms to exit from sectors where comparative advantage has been lost.

A second transition has to do with technological upgrading. At middle-income levels, the intra-industry reallocation of resources becomes more significant than inter-industry reallocations. Rajan and Zingales (1998) show that sectors that are more in need of external finance grow disproportionately faster in countries with better developed financial markets. They argue that the initial phase of relationship banking must give rise to more formalized capital markets in order to spur growth in finance-reliant sectors.

There is some support for the notion that industrial policy becomes more important in middle-income countries in managing the transition to greater technological sophistication. This should not be interpreted as “picking winners”. It can mean understanding how different policy choices can have different impacts depending on a country’s initial conditions. For example, entrepreneurship and high rates of entry and exit are required to boost productivity in any sector. As Acemoglu, Aghion and Zilibotti (2006) show, catch-up adoption of technologies (a middle-income country priority) tends to favor incumbents and demands a natural selection of firms and managers, while the need for innovation (high-income country priority) would favor new entrants.

Technological upgrading is also associated with a transition to higher levels of skilled labor. Skilled labor has been incorporated into “augmented” Solow growth models, but those continue to treat the technology frontier as given, the same for all countries. In practice, however, there may be a close relationship between a country’s endowment of skilled labor and new technologies. Managing this endogeneity is not straightforward. Is the appropriate strategy to increase the supply of higher education with the prior belief that better jobs will follow, or to create jobs and hope that supply adapts to labor market conditions?

This issue is particularly acute in middle-income countries. In low-income countries, the focus should be on basic education. In high-income countries, there has often been sufficient learning and experience to get skilled labor markets into balance. But for middle-income countries, the

¹¹ Bruce Riedel’s comments at 37th PAFTAD workshop, Singapore, June 2015.

workings of the market for skilled labor are less clear. In some countries, governments have taken a strong position. For example, Singapore invested heavily in polytechnics, while limiting the number of university students. Emphasis was given to technical degrees and on-the-job learning. But this is no panacea. Cross-country evidence on the impact of government training programs, for example, is quite negative. Nevertheless, it seems clear that getting the transition wrong can create a trap where skilled labor markets exhibit a significant skills mismatch that can take years to unravel.

We noted that much catch-up technology was embodied in trade policy, specifically through the import of capital goods and intermediates to permit firms to participate in regional supply chains. Beyond this, however, we also noted the importance of cities and livability to create spaces where skilled talent would choose to live and where agglomeration economies could accrue. We documented the close links between a skilled workforce and the creation of a science and technology establishment that could help in the adaptation and diffusion of modern technology throughout the economy.

A third transition concerns the move from authoritarian to democratic regimes. David Dollar argues that the “optimal” transition point is around \$8,000 per capita, squarely in the middle-income country range. The argument is that at low income levels, authoritarianism can be better for growth as leadership can be decisive (of course, it can also be worse for growth with the wrong kind of leadership), but that as an economy becomes more complex it requires greater institutional stability than can be provided by an authoritarian government and a move to democracy can prove to be beneficial.

One of the institutional problems we highlighted in our original work was the need to have a “fair” distribution of national income. In the early stages of growth based on export of labor-intensive manufacturing, it is possible to generate “growth with equity”. But recent experience suggests that globalization and technology are moving to reduce wages and raise the return to entrepreneurs and managers of large corporations. Most governments today in middle- and high-income economies are faced with the task of managing the distribution of the benefits of national growth through an appropriate mix of taxes, safety-nets and subsidized public delivery of social services (health, education, low-cost housing). The policy choices to be made in this area are often better done through democratic and decentralized governments, rather than by authoritarian governments. As the Arab Spring has shown, popular satisfaction with the economy does not always track economic growth. The extent to which growth is inclusive is also important.

Another institutional transition is about ensuring effective and responsive government bureaucracies. In middle-income economies, the government sector, broadly defined, starts to become a very sizeable share of the whole economy, and so government effectiveness is of paramount importance in determining economic growth. This is true for traditional government sectors (including justice, administration, health and education) as well as for state-owned enterprises. Government also regulates the extent of “economic rents” in the economy. As an economy develops, the scale of rents can increase, but as markets mature, the scope for rents can

decline. As total rents are a combination of scale and scope, they are potentially at their maximum level for middle-income countries.¹²

What We Got Right, and What We Missed

With the benefit of ten years of hindsight, we are even more convinced today that there is a “practice gap” between the Solow and the endogenous growth models. The former appears suitable for describing the growth problem and guiding policy making in low-income countries, but one of its central features—the exogeneity of technology—is a clear defect in any discussion about middle-income country prospects. Endogenous growth models seek to unpack the technological discussion, but relate more to creating new technology for frontier economies than to the process of adapting and diffusing technology in a way that allows firms in middle-income countries to catch-up to the frontier. So policy makers in middle-income countries must straddle both models. They must ensure that capital investments remain efficient even after an economy transitions through the Lewis turning point. They must focus on the transition from productivity growth stemming from inter-sectoral resource reallocations to intra-sectoral catch-up technological growth (moving up the value chain). And they must manage a transition to more mature institutions.

What does this mean in practice? We think that the six propositions we elaborated ten years ago are still reasonable. They are:

1. *Trade and technology.* We argued that middle-income countries were likely to retain export competitiveness in a few sectors where they could reap scale economies. Scale economies are to be found in selected products, such as scientific instruments, electrical machinery, nonelectrical machinery, iron and steel, and pharmaceuticals. They can also be created through services such as efficient logistics that are needed for firms to be competitive in global value chains, often benefiting even more from agglomeration effects in cities. These principles still seem valid. Global trade is increasingly within-firm; parts and components have been the most rapidly rising components of global trade. Firms participating in global value chains also see substantial productivity gains as a result.

The evidence on the importance of the link between trade and growth is stronger than ever, but globally, the elasticity of trade with respect to growth appears to have slowed in recent years. Partly this is cyclical, but structural factors are also at play.¹³ There has been greater protectionism in major economies, although the WTO estimates that only about 4 percent of merchandise exports have been affected. There has also been a consolidation of regional supply chains in East Asia, with China substituting more domestic parts for foreign

¹² Riedel, comments at 37th PAFTAD conference, Singapore, June 2015

¹³ World Bank, Global Economic Prospects, January 2015

components in its exports; the domestic value added in China's exports has risen by about 30 percent since 2000.

As the case study on Indonesia shows, ambivalence toward trade is one reason why Indonesia has not grown faster. Continued problems with customs bureaucracy as well as poor infrastructure have led to Indonesia slipping steadily down from 43rd to 53rd in the World Bank's Logistics Performance Index. Malaysia, meanwhile, has improved its ranking, now standing at 25th globally.

2. *Ideas and innovation.* We highlighted the role of competition, especially through openness to foreign markets and investments in creating an environment for innovation, following Aghion and Howitt (1996). The empirical literature since then seems to bear out the importance of this. We also highlighted the role played by new capital investments, and R&D as a means of diffusing technology domestically. Comin (2013) has recently documented the links between R&D intensity and technological adoption. And if the focus on science and technology in the negotiations for the new Sustainable Development Goals is any guide, there has been a steady increase in the interest from middle-income countries on access to and diffusion of new technologies.

Indonesia is an example of a country that perhaps underinvests in R&D. It spends only 0.1% of GDP on R&D and only 0.3 percent of GDP on higher education. Meanwhile, Korea, a country that has escaped a middle-income trap, spends about 4.4% of its GDP on R&D, ranking first among OECD countries in R&D intensity. Of course, spending is no guarantee that innovation will follow: Japan also has a comparatively high share of R&D spending (over 3%), but with little innovation to show for it. Japan has low entry and exit of firms, as well as low levels of entrepreneurship.

3. *Finance and risk.* Many middle-income country governments had based policy on the belief that deep involvement in global supply chains required fixed exchange rates. But they discovered that international finance followed supply chains, creating two sources of vulnerability: currency risk and balance sheet risk associated with plentiful external liquidity being made available for investments throughout the economy, including non-tradeable activities such as real estate. Our recommendation was to move toward more flexible exchange rates, while developing local financial markets to permit firms more opportunities to hedge the forex risk. Indeed, middle-income countries have been moving steadily in this direction, recovering monetary policy as an instrument of macroeconomic management.

According to the IMF,¹⁴ many countries have revised prudential requirements to improve the liquidity, solvency and risk management of the financial sector. At the same time, despite bouts of capital flow volatility stemming from the tapering of quantitative easing

¹⁴ IMF, Annual Report on Exchange Arrangements, 2014

by the Federal Reserve, there has been a trend toward the overall liberalization of capital transactions, notably on capital and money market instruments. Globally, the world is roughly evenly split between countries relying on an exchange rate anchor for monetary policy (mostly small islands and members of currency unions in Africa, for example), and those with more independent monetary policy (including most high-income countries).

4. *Cities and livability.* Apart from the economic arguments suggesting that agglomeration economies can be significant, “smart cities” have become a dominant theme in the recent economic development literature. Fuller and Romer (2014) argue that “Nothing else [other than the urbanization project] will create as many opportunities for social and economic progress.” The New Climate Economy Report 2014 argues that cities are crucial for sustainable development and that “the stakes for growth, quality of life and carbon emissions could not be higher.”

Glaeser (2010)¹⁵ shows a strong link between area density and per capita gross metropolitan product at all income levels. Density is strongly correlated with wages and productivity, as well as with future housing price growth. This seems to reflect the benefits accruing from labor market pooling and the exchange of ideas, rather than from the benefit of reduced transport costs of goods between, for example, suppliers, manufacturers and customers. Skilled labor pooling seems to be particularly important. Unfortunately, East Asian countries have paid scant attention to cities. Among developing East Asia, Bangkok is ranked at 117, Beijing at 118, Manila at 136, Ho Chi Minh and Hanoi at 152 and 153 in the Mercer 2015 City Rankings. Only Kuala Lumpur, at 84, among all cities in developing Asia, breaks into the top 100 global cities.

5. *Cohesion and inequality.* We had argued that middle-income countries would need to pay special attention to inequality because the shifting growth and urbanization strategies would likely worsen the distribution of labor income, and suggested that fiscal transfers to reduce unequal access to social services would be a good instrument. The last few years have been marked by an escalation of concerns about inequality. Even the IMF has begun to emphasize the links between inequality and growth (Ostry et al. 2014).

Over the last decade, there has been a rapid rise in most indices of country inequality across the world, including in, but not restricted to, middle-income countries. The exception has been in Latin America, where already very high levels of inequality have slowly started to decline. In high-income countries, the concern has been with the slow wage growth of blue-collar workers. In many middle-income countries there is concern with graduate unemployment and the difficulties faced by young people in finding their first job. In some Arab middle-income economies, unemployment rates for graduates are even higher than the national average.

¹⁵ Glaeser (2010) Agglomeration Economics...

6. *Corruption and accountability.* Middle-income countries face a particular challenge in tackling corruption because many of them are moving toward democracy and decentralization, but have not developed the institutional structures to make these transitions effective. For example, the move toward decentralization (in small and large countries) has promised closer attention to local demands, but can also lead to capture by local elites and more rather than less corruption. Control of corruption, of course, has become a central pillar of President Xi Jinping's reforms. But it has also exposed the contradictions inherent in the attempts to end corruption without disciplining government by making political power contestable.

Case studies on China, India and Indonesia all highlight the challenges of government effectiveness and institutional development. But they also show that it is necessary to break down general country-wide indices into more granular components to understand better the needs for institutional reform. For example, Indonesia's good performance on institutionalizing sound macroeconomic performance and tackling corruption stand in contrast to far less success in enhancing local level governance. Both Indonesia and India suffer from entrenched bureaucratic inefficiencies. Legal reform is an issue in all three cases. The glimmer of hope is that many small changes in institutions appear to be taking place and these could, over time, have a large cumulative impact.

The experience in Asia and Latin America has validated this list of concerns. But there are areas that we missed. In retrospect, we would give more attention to these three:

7. *Demography and aging.* Many middle countries, like Nigeria or India, are hoping that a generation of young people entering the labor force will provide them a demographic dividend; others worry that the dividend has now run its course. The danger for all middle-income countries is that of growing old before they get rich—it would give a demographic dimension to the middle-income trap. Each case requires specific policies and, as the saying goes, demography is not destiny. The problem is particularly acute for middle-income countries because it is there that the demographic transition is happening most rapidly. Some studies suggest that fully one-quarter of China's growth over the past three decades has been the result of its demography. We did not give any prominence to demography in our research, missing the clues from the developments in countries such as Japan, Korea and Bulgaria. In hindsight, we missed an important driver of economic performance. We think it is far more important to the policy discourse than we had imagined.

The case study of India provides an illustration of the power of demographic forces. India is set to reap a demographic dividend with a rising share of the working age population in total population. This dividend could be even larger if female labor force participation, which is very low in India, picks up. But there is an open discussion as to whether enough jobs will be created and how to adapt policies to ensure the demographic dividend is as large as possible. Indeed, some recent research [Bloom et al. 2010] even suggests that aging

populations do not necessarily have to experience increasing dependency ratios or lower productivity.

8. *Entrepreneurship and startups.* In our discussion of innovation, we did not look at the supply of entrepreneurs and the environment in which they were operating, something that Baumol had been emphasizing for more than a decade when we began our work. Lazear and others (2014) have looked at the links between entrepreneurship and demographics, noting that younger workers may have more creativity, but that experience in management is required to get the business acumen necessary for entrepreneurs. Separately, Lazear (2005) has also shown that entrepreneurs tend to have varied educational backgrounds with a balanced set of skills. By contrast, many middle-income countries have been obsessed with science and technology, often focusing narrowly on producing STEM students. We underestimated the importance of start-ups to the process of growth and innovation, and ignored the needed entrepreneurial climate. We had almost no discussion of intellectual property rights, something that has come to dominate today's trade negotiations involving middle-income countries.

Metrics like the Global Entrepreneurial Index provide a body of useful empirical benchmarks that could now make this a fruitful avenue to explore. It makes for somber reading for many Asian countries. Indonesia (120), India (104), the Philippines (95), and Thailand (68), all rank below levels that would inspire optimism. Malaysia (53) has also slipped in the rankings in recent years.

9. *External commitment and regionalism.* We were conscious of neighborhood effects and the impact of China on East Asian economies, but we mainly saw this operating through the channels identified in the literature on economic geography—on “regionalization” rather than “regionalism”. As a result, we neglected the value of regional institutions and organizations in pre-committing middle-income countries to a long-term reform trajectory and the impact this could have on economic development. In a world where the WTO and other global rules have stalled, these external commitments are likely to be regional in nature. The added advantage of that is that it could be easier for groups of countries within a region to escape the middle-income trap together than for individual countries to do so on their own.

The economic success of countries integrating into the European Union has persuaded us that external commitments have a far more significant role to play than we thought. In fact, convergence within Europe has been one of the extraordinary stories of growth in this century. A recent assessment of the European economic model (Gill and Raiser, 2012) provides clues about how this might have happened: “If you can be a part of the formidable European convergence machine, you do not need to be extraordinarily

fortunate [in terms of finding natural resources] to become prosperous nor—like the East Asian Tigers—do you have to be ferocious. You just have to be disciplined.”

Of the countries that have grown quickly from middle-income to high-income, half—Croatia, Cyprus, the Czech Republic, Estonia, Greece, Hungary, Latvia, Malta, Poland, Portugal, the Slovak Republic, and Slovenia—are in Europe. Joining the European Union has allowed countries to take a systematic approach to convergence, dealing with all the issues above, except for livable cities. This is why we are optimistic about the prospects of countries such as Bulgaria and Romania who are already part of the European Union, and even those of middle-income Albania, Georgia, Macedonia, and Serbia who might one day belong to an expanded EU.

Even though there have been set-backs recently in several European countries, the lesson is still that a deep and wide institutional anchor provides the best way for middle-income countries to converge with high-income countries at a rapid pace. But external institutional anchors cannot be created by one or two countries. They are the product of international collaboration, globally or regionally. In Asia, both ASEAN and APEC provide some anchoring, but it does not seem that the agreements being reached under these auspices are strong enough or go deep enough to bind countries to reform faster than they otherwise would.

Returning to its origins, the idea of the middle-income trap was to serve as an entry point for a policy dialogue that was not being well-served by growth theory. By combining a commitment to trade and globalization with a focus on finding areas of comparative advantage that derive from scale economies rather than factor endowments, we believe that a discussion around the six old themes and the three proposed new themes would be useful in any middle-income country.

Concluding Remarks

We believe that there are predictable economic transitions that middle-income countries must manage. Forewarned, policy makers can make adjustments so that passage through transitions becomes an opportunity for continued rapid growth. Several countries have demonstrated an ability to do this and to converge rapidly with high-income countries. Some have found their own way; others have used the external environment, or integration with their neighborhood, to bind themselves to policy and institutional reforms that support higher income levels.

Unfortunately, this has been the exception rather than the rule. The need for constant reform and adaptation to new challenges posed by changing economic structures as development proceeds, and by globalization, demographic and technological change, has often not been satisfied.

And of course, the reform that is needed is not just about passing new legislation, but also about implementation of regulations, something that requires bureaucratic and institutional capacity

building that cannot be achieved through “stroke-of-the-pen” actions, but that take time and effort to become effective.

In middle-income countries the incentives for inaction can be strong. These incentives can be political (the short-termism of politicians in a democratic system), technical (the concentration of costs and the diffusion of reform benefits), or social (rent-seeking by elites). The result is policy drift and sub-par economic performance. Countries can all too easily become trapped in such states.

Our review of East Asian countries suggests reasons for optimism. Outward orientation, financial deepening and a focus on technology and innovation are becoming policy norms. These have been helped by a historical focus on infrastructure investments to connect East Asian economies to the rest of the world. But there are also reasons to be pessimistic. The development of efficient cities, of social safety nets, and of institutional reforms to establish the rule of law is mostly sub-par in the region. Demography is now working against most economies. Entrepreneurship is weak (a sign: bankruptcy is still stigmatized in the region). External commitments, now largely regional rather than global, are only potentially effective in some areas, and even there they now carry a risk of trade diversion, distortionary patents, and other inefficiencies. Asian governments seeking to avoid a middle-income trap will need to look to their own domestic political and institutional reform processes, however hard that may be, rather than relying on external commitments as much as they could in the past.

As a final observation, we are somewhat disappointed that the economics profession has yet to provide a reliable theory of growth to help policy makers in middle-income economies navigate the transition from low to high income status. A crudely constructed hybrid of Solow-Swan and Lucas-Romer models is not unhelpful, but it is a poor substitute for a well-constructed analytical framework. Since close to three-quarters of the people in the world now live in middle-income economies, a better growth framework to inform policy making is sorely needed.

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