THE PAST, PRESENT, AND FUTURE OF ECONOMIC GROWTH*

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I. Introduction

The last decade has been an extraordinarily good one for developing nations and their mostly poor citizens, so good in fact that it has become commonplace to look upon them as potential saviors of the world economy. Their economies have expanded at unprecedented rates, resulting both in a large reduction in extreme poverty and a significant expansion of the middle class. The differential between the growth rates of developing and advanced nations expanded to more than 5 percentage points, assisted in part by the decline in the economic performance of the rich countries (Figure I.1). China, India and a small number of other Asian countries were responsible for the bulk of this superlative performance. But Latin America and Africa resumed growth as well, catching up with (and often surpassing) the growth rates they had experienced during the 1950s and 1960s.

Economic growth is a precondition for the improvement of living standards and lifetime possibilities for the “average” citizen of the developing world. Can this recent performance be sustained into the future, decisively reversing the “great divergence” that split the world into rich and poor nations since the 19th century?

In answering this question, the optimists would point to the improvements in governance and macroeconomic policy in developing nations and to the still not-fully exploited potential of economic globalization to foster new industries in the poor regions of the world through outsourcing and technology transfer. Pessimists would fret about the drag that rich countries exert on the world economy, the threats to globalization, and the obstacles that late-industrializers have to surmount given competition from China and other established export champions. The weights that one places on these diverse considerations – and many others – would depend on one’s views as to the ultimate drivers of economic growth in lagging nations. Extrapolation is tempting, but not necessarily a good guide to where we are headed.
We can also turn the question about the sustainability of growth around, and pose it in a different form: what kind of changes in the institutional framework within nations and globally would most facilitate rapid growth and convergence? This is a normative, rather than positive, question about the needed policies. But answering it requires yet again a view on what drives growth. The more clearly articulated that view, the more transparent the policy implications.

My objective in this paper is to provide a longer-term perspective on economic growth so we can better understand the key drivers of economic growth, as well as the constraints that act on it. I will develop an analytical framework that is motivated by the empirical evidence and embeds the conventional approaches to economic growth. While orthodox in many ways, the framework also highlights a somewhat different strategic emphasis that provides a better account of the heterogeneity with respect to growth performance around the developing world.

I emphasize two key dynamics behind growth. First, there is the development of fundamental capabilities in the form of human capital and institutions. Long-term growth ultimately depends on the accumulation of these capabilities – everything from education and health to improved regulatory frameworks and better governance (Behrman and Kohler 2013; Acemoglu and Robinson 2012; Allen et al. 2013). But fundamental capabilities are multi-dimensional, have high set-up costs, and exhibit complementarities. Therefore, investments in them tend to yield paltry growth payoffs until a sufficiently broad-range of capabilities have already been accumulated – i.e., until relatively late in the development process. Growth based on the accumulation of fundamental capabilities is a slow, drawn-out affair.

Second, there is the dynamic of structural transformation. By “structural transformation” I refer to the birth and expansion of new (higher-productivity) industries and the transfer of labor from traditional or lower-productivity activities to modern ones. With the exception of natural-resource bonanzas, extraordinarily high growth rates are almost always the result of rapid structural
transformation, industrialization in particular. Growth miracles are enabled by the fact that 
industrialization can take place in the presence of a low level of fundamental capabilities: poor 
economies can experience structural transformation even when skills are low and institutions weak. 
This helps explains the rapid take-off of East Asian countries in the post-war period, from Taiwan in the 
late 1950s to China in the late 1970s.

The policies needed to accumulate fundamental capabilities and those required to foster 
structural change naturally overlap, but they are distinct. The first entail a much broader range of 
investments in skills, education, administrative capacity, and governance, while the second can take the 
form of narrower, targeted remedies. Without some semblance of macroeconomic stability and 
property rights protection, new industries cannot emerge. But one does not need to attain Sweden’s 
level in institutional quality in order to be able to compete with Swedish producers on world markets in 
many manufactures. Furthermore, as I will discuss below, fostering new industries often requires 
second-best, unconventional policies that are in tension with fundamentals. When successful, heterodox 
policies work precisely because they compensate for weakness in those fundamentals.

As an economy develops, the dualism between modern and traditional sectors disappears and 
economic activities become more complex across the board. Correspondingly, these two drivers merge, 
along with the sets of policies that underpin them. Fundamentals become the dominant force over 
structural transformation. Put differently, if strong fundamentals do not eventually come into play, 
structural-transformation driven growth runs out of steam and falters.

I begin the paper by describing the consequences of recent growth performance on the global 
income distribution. The salient facts that emerge from the analysis are that growth in developing 
nations (and especially China) has been a boon to the “average citizen” of the world and has created a 
new global middle class. Next, I turn to economic history and highlight the role of differential patterns 
of industrialization in shaping the world economy’s great divergence between a rich core and a poor
periphery. This is followed by a section which summarizes the growth record to date in the form of six empirical regularities, or “stylized facts.” Key among these is the presence of unconditional labor-productivity convergence in manufacturing industries. The next section interprets the policy experience of successful economies in light of this empirical background.

I then sketch out an explicit analytical framework that makes a three-fold distinction among economic activities: a traditional sector with stagnant technology, a modern service sector where productivity depends on (slow-moving) fundamental capabilities, and an industrial sector which benefits in addition from an unconventional-convergence dynamic. I use the framework to present a 2x2 typology of growth outcomes based on the evolution of capabilities and speed of structural transformation. This yields four cases: (i) no growth; (ii) slow growth; (iii) episodic growth; and (iv) rapid, sustained growth. Extensions of the framework to global supply chains and natural resource exporters are followed by a prognosis and discussion of policy implications.

II. How is the “average” person doing? Growth and the global income distribution

   Let’s define the word’s “average individual” as the person in the middle of the global income distribution – that is, the individual who receives the median level of income in the global economy. One way of gauging the extent of global inequality is to compare the income of the average individual to average global income (i.e., global GDP per capita). Were income distributed evenly, median and average incomes would coincide. The more unequal is the world economy, the larger the gap between the two. As the figures in Table II.1 show, the average-median income ratio is huge for the world as a whole, roughly twice what we observe in the world’s most unequal societies (such as Brazil). Global inequality is much higher than within-country inequality.¹

¹ These numbers have been calculated from data put together by Branko Milanovic of the World Bank (Milanovic 2011). Since they derive from national household surveys, they do not match (and in general are lower than) income levels reflected in GDP per capita statistics.
The good news is that this ratio has come down significantly since the 1980s, driven by the much more rapid increase in median income than in average income. In 1988, the world’s median income stood at $846 (in 2005 PPP-adjusted dollars). By 2005, this figure had risen to $1209, an increase of 43 percent over the course of less than two decades. The rise in average world incomes over the same period was only 12 percent (from $3523 to $3946). Correspondingly, global inequality fell substantially, at least when measured by this indicator. As table II.1 shows, this happened even though within-country inequality rose in most large economies such as the U.S. and China (but not Brazil).

Figure II.1 shows the change in the interpersonal distribution of income globally between 1988 and 2005. There is a rightward-shift in the distribution, indicating a rise in average incomes. But much more noticeable is the change in the shape of the distribution. In 1988, global distribution exhibited two clear humps at the ends of the distribution, one for poor countries and another one for rich countries (the latter with a much smaller mass). By 2005, the two humps had virtually disappeared, merging in the middle of the distribution. What happened in between those dates is that China, which housed a substantial proportion of the world’s poor in the 1980s, has filled out the middle of the distribution. Since the 1980s China has turned itself from a poor country, where the bulk of its population stood below the global median, into a middle-income country where median income has caught up with the global median (Table II.1). Today, China’s income distribution is centered at the middle of the global income distribution. The result is that the global economy now has a much larger middle class, with Chinese households making up a large part of it.

The impact that Chinese economic growth has had on the global distribution of income reflects an important feature of global inequality. The bulk of global inequality is accounted for by differences in

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2 As shown in Table II.2, global inequality has risen by some measures.

3 The distribution is generated by fitting a kernel smoothing on the ventile or decile data (depending on availability) for incomes within countries. Source data come from Milanovic/World Bank as before.
average incomes across countries, with inequality within countries contributing only a modest amount. The relevant numbers are shown in Table II.2, where global inequality is decomposed into within- and between-country components. The table shows three measures of inequality that use more information than the average-median ratio: the Gini coefficient, the log mean deviation, and the Theil index. Of these, only the latter two are decomposable. Depending on the measure used and time period, between three-quarters and 80 percent of global income inequality is accounted for by inequality across countries – that is, differences in per-capita incomes between countries. Inequality within countries is responsible for a quarter or less of global inequality. That is why rapid growth in China has greatly expanded the world’s middle class despite the fact that China’s income distribution has deteriorated noticeably.

A longer-term perspective can be obtained by combining these data with the historical evidence on global distribution provided by Bourguignon and Morrisson (2002), which goes back to the early part of the 19th century. As Figure II.2 shows, the within-country component of global inequality has remained relatively stable over the long term. But the between-country component has risen sharply, from 5 log points in 1820 to 33 log-points in 1929 to 76 log-points in 2005. The share of global inequality that is accounted for by between-country inequality has risen from 12 percent in 1820 to 73 percent in 2005. Thanks to differential patterns of economic growth in different parts of the world, it is increasingly the country in which one is born that determines one’s economic fortunes (Milanovic 2011).

To drive the point home, I often ask my audience to consider whether it is better to be rich in a poor country or poor in a rich country. To clarify the question, I spell out what I mean by “rich” and “poor.” I tell them that they should think of a rich person as someone in the top 10% of a country’s income distribution while a poor person is in the bottom 10%. Similarly, a rich country is in the top

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4 The next couple of paragraphs draw on Rodrik (2011), chap. 7.
decile of all countries ranked by average income per person while a poor country is in the bottom decile of that list. Which would they rather choose?

Most have little hesitation in responding that they’d rather be rich in a poor country – which is the wrong answer. The correct answer is “poor in a rich country” — and it’s not even close. The average poor person in a rich country, defined along the lines above, in fact earns three times more than the average rich person in the poor country (as always adjusted for differences in purchasing power across countries; see Rodrik 2011, chap. 7). Disparities in other aspects of well-being, such as infant mortality, go the same way too. The poor in a rich country have it much, much better than the rich in the poor country.

Poor countries of course have their own super-rich, people who drive Mercedes luxury cars and live in mansions with large household staffs. But what my audience typically overlooks is that these super-rich families represent a minute share of the population in a poor country — no larger perhaps than one-hundredths of one percent of the total population. When we travel down the income distribution scale to include the full top ten percent of a typical poor country we reach income levels that are a fraction of what most poor people in rich countries make. Disparities in income (as well as health and other indicators of well-being) are much larger across nations than they are within nations. The country you are born in largely determines your life possibilities.

Another way to observe the powerful impact of aggregate growth at the country level is to compare over time income levels at different points in the distribution. This is done in Figures II.3 and II.4. The figures depict the income levels of each decile or ventile (depending on data availability) in China, India, Brazil, the U.S., for 1988 and 2005 respectively. The India-China comparison is especially telling. In 1988, each Indian decile was slightly richer than the corresponding decile in China. By 2005, Chinese incomes had vastly overtaken India’s at all points of the income distribution. Similarly, in 1988
each Chinese ventile was poorer than the corresponding global ventile. By 2005, the poorer half of the Chinese economy had become richer than the world’s bottom half.

Hence recent evidence on the global distribution of income allows us to reach the following three conclusions. First, the middle of the global income distribution has filled out in recent decades, largely thanks to China’s rise. Second, differences across average incomes of countries remain the dominant force behind global inequality. Third, aggregate economic growth in the poorest countries is the most powerful vehicle for reducing global inequality. The more rapid growth of poor nations since the 1990s is the key behind the recent decline in global inequality.

III. Growth over the long term: industrialization and the great divergence

At the dawn of the Industrial Revolution, the gap between the richest and poorest parts of the world economy stood at a ratio of roughly 2:1. Hence the between-country component of global inequality was tiny. Today the income gap between the richest and poorest economies of the world has risen to more than 80:1. What happened in between is that parts of the world economy—Western Europe, America, Japan, and a few others—took off while the rest grew very slowly, when at all, and often lost ground after temporary spurts (Figure III.1). This is the process that Lant Pritchett (1997) has labeled “divergence, big time.”

There is no better prism to view this divergence than through the experience with industrialization in different parts of the world. Table III.1 provides some interesting data from Paul Bairoch’s seminal work (Bairoch 1982). In the table the level of industrial output per capita in Britain in the year 1900 is fixed at 100 so we can easily make comparisons across regions and over time. At the onset of the Industrial Revolution in 1750, this number stood at 10 in Britain, and at 8 for today’s developed countries. There was virtually no difference between them and what later came to be called
developing countries. In fact, China’s level of industrialization was quite comparable to that of Western Europe.

From the 19th century on, the numbers began to diverge in a striking fashion. Britain’s industrial output per capita went from 10 in 1750 to 64 in 1860, and 115 on the eve of the First World War. Developed countries as a whole followed a similar, if less steep trajectory. But what is really striking is not just that the gap between them and the countries in Latin America and Asia (save for Japan) opened wide. It’s also that today’s developing typically experienced de-industrialization. China’s industry shrunk from 8 in 1750 to 3 in 1913. India’s went from 7 to 2 over the same period. Industrial output failed to keep up with population growth.

The culprit was the global division of labor that the first era of globalization fostered during the 19th century. Cheap manufactures from Europe and later the United States, particularly cotton textiles, flooded the markets of peripheral regions. The latter in turn specialized in commodities and natural resources. In the Ottoman Empire for example, textile imports shot up to capture nearly 75 percent of the home market by the 1870s, up from a mere 3 percent in the 1820s (Pamuk and Williamson 2009). This global division of labor was imposed not just by markets, but also by the forces of informal and formal empire: European powers, and later the Americans, prevailed on India, China, Japan, and the Ottoman Empire to open their markets, while their navies ensured security for merchant and financiers.

Those parts of the world which proved receptive to the forces of the Industrial Revolution shared two advantages. They had a large enough stock of relatively educated and skilled workers that could fill up and run the new factories. They also had sufficiently good institutions—well-functioning legal systems, stable politics, and restraints on expropriations by the state—to generate incentives for private investment and market expansion. With these pre-conditions, much of continental Europe was ready to absorb the new production techniques developed and applied in Britain.

The rest of this section draws heavily on Rodrik (2011, chap. 7).
Elsewhere, industrialization depended on “importing” skills and institutions. Inter-continental labor mobility was a tremendous advantage here. Where Europeans settled in large numbers, they brought with them both the skills and the drive for more representative, market-friendly institutions that would promote economic activity alongside their interests. The consequences were disastrous for the native populations, who perished in large numbers courtesy of European aggression and germs. But the regions of the world that the economic historian Angus Maddison (2001) has called “Western offshoots”—the United States, Canada, Australia, and New Zealand—were able to acquire the necessary prerequisites thanks to large immigration. Supported also by sizable capital flows from Europe, these economies would eventually become part of the industrial “core.”

Colonization’s impact on other parts of the world was quite different. When Europeans encountered inhospitable conditions that precluded their settlement in large numbers or began to exploit natural resources that required armies of manual workers, they set up institutions that were quite different than those in the Western offshoots. These purely “extractive” institutions were designed to get the raw materials to the core as cheaply as possible. They entailed vast inequalities in wealth and power with a narrow elite, typically white and European, ruling over a vast number of natives or slaves. Colonies built on the extractive model did little to protect general property rights, support market development, or stimulate other kinds of economic activity. The plantation-based economies in the Caribbean and the mineral economies of Africa were typical examples. Studies by economists and economic historians have established that this early experience with institutional development—or lack thereof—produced a debilitating effect on economies in Africa and Latin America that is still felt today (Engerman and Sokoloff 1997; Acemoglu, Johnson and Robinson 2001).

Once the lines were clearly drawn between industrializing and commodity producing countries, there were strong economic dynamics that reinforced the demarcation. Commodity-based economies faced little incentive or opportunity to diversify. As transport costs fell during the 19th century and
growth in the industrial core fed demand, these economies experienced commodity booms. This was very good for the small number of people who reaped the windfall from the mines and plantations that produced these commodities, but not very good for manufacturing industries that were squeezed as a result. International trade worked just as in textbook models: profits rose in economic activities in which countries had comparative advantage, but fell elsewhere.

International trade induced industrial countries to keep investing in skills, technology and other drivers of economic growth. It also encouraged families to have fewer, better educated children, in light of the high returns to skills that modern manufacturing industries brought. These effects were reversed in the developing countries of the periphery. Specialization in primary commodities did not encourage skill accumulation and delayed the reduction in fertility and population growth. Birth rates remained high in the developing world well into the 20th century, unlike in the industrialized countries which experienced sharp declines in fertility towards the end of the 19th century. In the words of economists Oded Galor and Andrew Mountford (2008), commodity-exporting countries gave up productivity in exchange for population.

The long-term consequences of this division of labor are what developing nations are still trying to break free of. That escape is possible was shown by the experience of the first non-Western nation to industrialize before 1914: Japan.

In the middle of the 19th century, Japan looked no different than other economies of the periphery. It exported primarily raw materials—raw silk, yarn, tea, fish—in exchange for manufactures. This commerce had boomed in the aftermath of the opening to free trade imposed by Commodore Perry in 1854. Left to its own devices the economy would have likely followed the same path as so many others in the periphery. But Japan had an indigenous group of well-educated and patriotic businessmen and merchants, and even more important, a government, following the Meiji Restoration of 1868, that was single-mindedly focused on economic (and political) modernization. The government
was little moved with the *laissez-faire* ideas prevailing among Western policy elites at the time. Japanese officials made clear that the state had a significant role to play in developing the economy.

The reforms introduced by the Meiji bureaucrats were aimed at creating the infrastructure of a modern national economy: a unified currency, railroads, public education, banking laws and other legislation. Considerable effort also went into what today would be called industrial policy—state initiatives targeted at promoting new industries. The Japanese government built and ran state-owned plants in a wide range of industries including cotton textiles and shipbuilding. Even though many of these enterprises ended as failures, they produced important demonstration effects and trained many skilled artisans and managers who would subsequently ply their trade in private establishments. State enterprises were eventually privatized, enabling the private sector to build on the foundations established by the state. The government also paid to employ foreign technicians and technology in manufacturing industries and financed training abroad for Japanese students. In addition, as Japan regained tariff autonomy from international treaties, the government raised import tariffs on many industrial products to encourage domestic production. These efforts paid off most remarkably in cotton textiles, where Japan established by 1914 a world-class industry that was able to displace British exports not just from the Japanese markets, but from neighboring Asian market as well.

Japan’s militarist and expansionist policies in the run-up to the Second World War tarred these accomplishments, but its achievements on the economic front demonstrated that an alternative path was available. It was possible to steer an economy away from its natural specialization in raw materials. Economic growth was achievable, even if a country started at the wrong end of the international division of labor, if you combined the efforts of a determined government with the energies of a vibrant private sector.

The Japanese experience would become a model for other countries in East and Southeast Asia. While specific policies differed, these emulators would rely on the same model of export-oriented
industrialization, achieved through a combination of private-sector entrepreneurship with government inducements and cajoling. (The sole exception, where government intervention in industry remained minimal, was Hong Kong.) I will have more to say on these growth strategies below.

IV. Six stylized facts of economic growth

The success of Japan and other Asian growth miracles has produced a seemingly unending debate. Are these countries examples of successful state-directed industrialization, or are they examples of what reliance on markets and globalization can produce? Framed this way, the question generates more heat than light. What works in practice is a judicious combination of markets and government encouragement, rather than a choice of one at the expense of the other.

But why is such a combination needed, what exactly does “judicious” mean, and how do we operationalize it? To answer these questions, it is helpful to start with some basic stylized facts associated with economic growth. In this section, I will document six stylized facts that are particularly relevant to the policy context.

Stylized fact 1: Growth has increased over time.

When the Industrial Revolution took hold of Britain and other early industrializers, the pickup in the growth rate of economic activity and overall productivity was so gradual as to be virtually imperceptible. To this day, we are unable to establish the timing of the Industrial Revolution or the onset of modern economic growth with any precision. A clear break in the time series simply does not exist. Economic historians estimate that total factor productivity expanded at an annual rate of 0.5 percent in the century after 1780. This is clearly better than the near-zero rate of technological progress in earlier centuries, but it is a fraction of what industrial economies would experience later in the second half of the 20th century.
Figure IV.1 provides a visual illustration of the increase in growth rates over time, both for the world as a whole and for those countries who were exceptionally successful. For each period, the figure shows the average growth rate of the world economy and the growth rate registered by that period’s growth champion – the country or region that experienced the fastest growth. Prior to World War II, the most successful period was 1870-1913, the Gold Standard period, during which the world economy expanded at an annual average rate of more than 1 percent per capita. This rate is dwarfed by the post-1950 expansion, which registered global growth at nearly 3 percent per annum until the mid-1970s. Even though growth slowed down somewhat after the oil shock of the 1970s, it was still far superior to anything experienced before World War II.

What stands out particularly sharply in Figure IV.1 is the stupendous and historically unprecedented growth rate experienced by the growth champions of the postwar period. These were Japan in 1950-1973, South Korea in 1973-1990, and China since 1990. These East Asian tigers, along with a few more of their neighbors, grew at 7-8 percent per annum in per capita terms, experiencing more rapid convergence with the living standards of the West than anything seen to date. These growth miracles were based on rapid industrialization and exports of manufactures. Clearly, the postwar global economy presented huge rewards to those lagging countries that got their policies right.

Stylized fact 2: Convergence has been the exception rather than the rule

As economic historians and contemporary growth theorists have both argued, there are advantages to economic backwardness. Technologies that advanced countries have already developed can be imported and adapted; the wheel does not have to be reinvented. Global markets allow small economies to specialize in what they are good at, and are a source of cheap intermediate inputs and of capital goods. Global financial markets can relax domestic saving constraints and finance investments
that would otherwise not take place. Yet most developing countries have not been able to exploit such advantages. The experience of East Asian growth champions is very much the exception to the rule.

Contrary to theoretical expectations, there is no tendency for poor economies to grow more rapidly than richer economies. The experience of the last decade, reviewed previously, is not at all representative of the historical record. Over any sufficiently long time horizon, the growth rate of economies is basically uncorrelated with their initial level of productivity, or distance to the technological frontier (Figure IV.2). This means that a middle-income or rich economy is as likely to experience rapid growth as a poor economy.

In the literature on growth empirics, this result is known as the absence of “unconditional” convergence. It stands in contrast to “conditional” convergence, which is a well-established regularity in cross-country data. That is, when growth rates are conditioned on a small set of variables such as human capital, investment, institutional quality, exposure to trade, and macroeconomic stability, the growth residuals are systematically and negatively correlated with initial levels of GDP per capita. Barro (2012) provides a recent empirical analysis, and places the conditional convergence rate at around 2 percent per year. Put differently, economic convergence is a reality only among the subset of countries that attain similar levels of these conditioning variables.

The conditional convergence result would appear at first sight to be quite a useful one, potentially unlocking the secrets of economic growth. Unfortunately, the conditioning variables that are typically included in growth regressions are outcome or endogenous variables themselves, and they have few operational implications about the specific policies that need to be pursued. For example, it may be helpful to know that greater levels of investment and human capital or better institutions are growth enhancing. But the result leaves unclear how these ends are to be achieved. Is human capital increased by building more schools, reducing teacher absenteeism, or providing better information to parents? Is private investment boosted by reducing red tape or providing tax incentives? Is governance
enhanced by adopting legal and institutional blueprints from abroad or by engineering local solutions? From a policy standpoint, it is these questions that must be ultimately answered. Unfortunately, econometric analyses using direct policy variables have yielded less encouraging results. Policy reforms are highly contextual and do not lend themselves to easy generalization (Rodrik 2007, Commission on Growth and Development, 2008). I will elaborate on this point further below.

Stylized fact 3: Economic development goes hand-in-hand with productive diversification

Poor economies are not shrunk versions of rich economies; they are structurally different. This key insight of old-fashioned development economics is often forgotten when modern growth theory is applied to developing economies. Developing countries are characterized by large structural gaps in productivity between traditional and new economic activities. Hence the essence of development is structural change: it entails moving workers from traditional, low-productivity activities to modern, high-productivity activities that are quite different in terms of location, organization, and technological characteristics. Rapidly growing countries are those are better at removing the bottlenecks that impede this transformation.

One can document this structural transformation in a number of different ways. Figure IV.3 displays a particularly important result due to Imbs and Wacziarg (2003): it shows how economies progressively become less specialized and more diversified as they get richer. Poor economies produce a relatively narrow range of commodities and services; as they grow, the range of economic activities expands. Note also that past a certain point diversification ceases, and there are hints of greater specialization at high levels of income. But the turning point comes quite late in the development process, roughly at the income level of a country such as Ireland.

From the standpoint of structuralist development thinking, the Imbs-Warcziag result is not surprising. However, it does stand in some tension with approaches that emphasize the role of trade
and comparative advantage in spurring economic development. After all, the central insight of classical
trade theory is that countries gain from trade by specializing in product lines they are comparatively
good at. Comparative-advantage based specialization may therefore seem to be a potent avenue for
growth – and is often presented as such in policy discussions that emphasize the benefits of
globalization. Figure IV.3 suggests a very different story. Whatever the benefits of trade, specialization
is not the route to riches; quite to the contrary.

**Stylized fact 4: Historically, industrialization and manufactured exports have been the most reliable**
**levers for rapid and sustained growth.**

I noted previously that the growth miracles of Japan, South Korea, and China were all based on
rapid industrialization. The point generalizes to other successful cases of catch-up too. With the
exception of a few small countries that have benefited from natural resource windfalls (and have
managed not to squander them), virtually all countries that have sustained high growth rates over
decades have done so on the back of manufacturing. Industrialization is how Britain and other early
emulators entered modern economic growth. It is also what has enabled successful latecomers to catch
up.

Table IV.1 lists all cases of sustained, very high growth in history. I define “very high growth” as
per-capita growth of 4.5 percent per annum or higher. Growth is said be “sustained” if such a rate has
been maintained for at least three decades. Naturally there are not many such instances, less than
thirty in fact. But the composition of such “growth miracles” is telling.

First, virtually all growth miracles took place in more recent times, since 1950. There were only
three instances before 1950: Australia and New Zealand, two Western offshoots that benefited from
extensive resource-boom led immigration waves during the 19th century, and Venezuela which
experienced an oil boom in the first half of the 20th century. Since 1950, by contrast, there have been
twenty-four distinct instances of growth miracles. This is consistent with the increase in growth rates over time noted previously as stylized fact #1.

Second, most of the post-1950 growth miracles were rapid industrializers. As Table IV.1 indicates, these came in two clusters. The first were a set of countries like Italy, Spain, Portugal and Greece that were in the periphery of Western Europe and benefited first from European reconstruction in the immediate aftermath of World War II and subsequently from the European integration process. For the most part, these growth episodes ran their course by the late 1970s. The only exception is Ireland, which was a late bloomer and experienced its boom after the 1970s.

The second cluster comprises the well-known East and Southeast Asian tigers, countries such as Japan, South Korea, Taiwan, Singapore, Hong Kong, Malaysia, and China. Unlike the first cluster, these didn’t share (at least initially) a geographic advantage. But the example of prewar Japanese industrialization, as well as its resumption during the 1950 provided an important demonstration effect in the region. South Korea’s strategy was directly influenced by Japan’s, and China’s by the precedents of Hong Kong and Taiwan. Southeast Asian countries such as Malaysia and Indonesia explicitly targeted industrialization after observing the successes of the so-called gang of four (South Korea, Taiwan, Hong Kong and Singapore). Almost all of these economies built highly competitive manufacturing industries and experienced very rapid penetration of export markets in manufactures.

The third set of post-1950 growth miracles in Table IV.1 are countries such as Saudi Arabia, Iraq, and Botswana which benefited from sustained booms in natural resources (e.g. oil and diamonds). These are reminiscent of the few pre-1950 cases. I will discuss these successful instances of resource booms later in the paper.

Stylized fact 5: Manufacturing industries are “special” in that they tend to exhibit unconditional convergence.
I noted previously in stylized fact #2 that there is no tendency for developing economies to converge towards the productivity levels that prevail in rich economies. The modern, industrial parts of those economies seem to be quite different, however. When one looks at formal manufacturing industries, as is done in Figure IV.4, one uncovers a surprisingly strong convergence relationship (Rodrik, 2013). Each dot in the chart represents the experience over a recent decade of a 2-digit manufacturing industry in a specific country. As the negative slope of the scatter plot makes clear, industries that start further away from the frontier in terms of labor productivity have experienced significantly faster productivity growth. This is true even without conditioning on the usual variables such as human capital or institutional quality.

The convergence rate is around 2 percent per annum, similar to the conditional convergence rate for aggregate GDP per worker, and seems to get higher the more we disaggregate. This is a result that appears to be robust to a wide variety of specifications, time periods, and samples. (The benchmark sample in Rodrik [2013] covers 118 countries and more than 2,000 observations for 2-digit industries.) The main shortcoming of the data (which come from UNIDO) is that they exclude for most of the poorer economies the smallest or informal enterprises in manufacturing. So properly stated, this convergence result applies to the organized, formal parts of manufacturing only.

Nevertheless this is a remarkable finding. It doesn’t denigrate the role of good policies or favorable external circumstances: as documented in Rodrik (2013), the rate of conditional convergence is even more rapid, meaning that countries with better institutions and policies will experience faster rates of productivity growth in manufacturing. In particular, countries with better trade links and at higher levels of financial development likely provide a better context for manufacturing convergence. But it does suggest that formal manufacturing industries are natural “escalator” industries that tend to propel an economy forward, even in the presence of bad governance, lousy policies, and a disadvantageous context. (The countries included in Rodrik [2013] range from Ethiopia, Malawi, and
Madagascar at the low end to Japan and the U.S. at the high end.) Productivity convergence seems to be considerably easier to achieve in this part of the economy than in others such as traditional agriculture or most services. Presumably, at least some of the reason has to do with the tradable nature of manufacturing industries and the relative ease of technology transfer across borders. At the same time, manufacturing convergence does not seem to have picked up speed in more recent decades, under greater globalization and wider use of outsourcing. The data indicate that rates of convergence in the late 1960s and 1970s are statistically indistinguishable from those we have seen more recently since the 1990s. I will return to these issues in the context of the analytical framework below.

This finding raises a puzzle. If manufacturing exhibits unconditional convergence, why is this not enough to generate aggregate convergence? The formal manufacturing sector tends to be quite small in low-income countries, employing less than 5 percent of the labor force in the poorest among them. Still, one would expect convergence to aggregate up to the national level, as labor and other resources move from technologically stagnant parts of the economy to the escalator industries.

The difficulty is that the requisite structural transformation is not automatic. It is a process that is fraught with both government failures and market failures (Rodrik 2008). The expansion of formal manufacturing is blocked in practice both by government policies (such as entry barriers or high taxes on formal enterprises) and by market imperfections (such as coordination problems and learning externalities), both of which push the return to investment in modern industries below the social return. The relative weights of these factors depend on the country and the context.

So even though manufacturing productivity tends to converge almost everywhere, what distinguishes successful countries from others is their ability to expand manufacturing employment and output rapidly. Successful developing economies undergo both manufacturing convergence and rapid industrialization. Under-performing economies make do with the former.
Stylized fact 6: The most successful economies have not been the ones with the least state intervention.

Consider Figure IV.5 which summarizes the economic policies of four key developing countries: China, India, Brazil, and Mexico. Among these, the Asian ones have performed significantly better than the Latin American ones over the last couple of decades. As the Heritage Index ratings make clear, the Asian ones are also characterized by significantly greater degrees of government intervention—whether in international trade, international finance, or domestic markets. The point generalizes to other countries too. It is difficult to find a strong correlation, in either direction, between standard measures of government activism (such as tax rates or indices of market restrictions) and rates of economic growth. It is easy to conclude that extreme controls of the central planning type that suffocate the private sector are bad for growth. But for the virtually entire universe of countries that lie in between central planning and laissez-faire, less intervention is not necessarily good for performance.

I will now provide an interpretation that is informed by these stylized facts, and try to make sense of success and failure around the world against this empirical background.

V. The strategy of reform

Let us go back to the obstacles that confront structural transformation. As mentioned above, these take the form of both government and market failures. The relevant government failures are well known: excessive regulation and red tape, high taxes, corruption, restrictive labor laws, financial repression, insecure property rights, poor contract enforcement, and macroeconomic instability. All these stifle entrepreneurship, especially in modern economic activities that tend to rely heavily on the institutional environment. Efforts to fix these problems lie at the core of the “orthodox” development agenda, as in the Washington Consensus and its successors.
A reform agenda that focuses on eliminating these government failures would seem to be the most obvious and direct way of unleashing desirable structural change. In practice, however, it suffers from three problems.

First, it contains a blind spot with respect to market failures. New industries can fail to get off the ground not just because they face high taxes or excessive red tape, but also because markets work too poorly in low-income environments to reward entrepreneurs with the full social value of their investments. The two most important constraints typically are coordination failures and demonstration effects (Rodrik 2008b). Coordination failures occur when scale economies precludes complementary investments that would be otherwise profitable. Building, say, a successful processed food business requires significant investments both upstream (to assure a steady, high quality supply of raw materials that satisfy health and sanitary standards) and downstream (to ensure an efficient, timely transport and logistics network that links the operation to foreign markets). Any part of the chain will lack profitability in the absence of the other parts. Demonstration effects in turn refer to unremunerated learning spillovers. For example, any potential investor in an entirely new line of economic activity has to consider the risks of failure. If he goes bankrupt, he bears the full cost. But if he succeeds, he sets a model for other entrepreneurs to follow. In other words, much of the gains from new industries are socialized, while the losses remain private. This acts just like a tax on new industries. Standard welfare economics justifies the use of subsidies and other government interventions in such instances.

Second, the standard approach presumes too much from reformist governments. As Washington Consensus enthusiasts discovered following the disappointing results in Latin America over the 1990s, the list of government failures that need to be fixed is neither short nor well-defined. It turned out not to be enough to reduce subsidies, formal trade barriers, and state ownership. Many economists and policy makers rationalized the failures by calling for a second and eventually third generation of reforms in institutions—everything from more “flexible” labor markets to less corruption,
from better courts to better governance. Apparently, standard policy reforms did not produce lasting effects if the background institutional conditions were poor. Sound policies needed to be embedded in solid institutions.

So the orthodox reform agenda became increasingly open-ended. At times it seemed as if the to-do list was designed to ensure the policy advisors would never be proved wrong: if performance lagged despite extensive reforms, the government could always be faulted for having fallen short and not having undertake even more reforms. Paradigmatic of this approach is Anne Krueger’s aptly titled 2004 speech: “Meant Well, Tried Little, Failed Much.” Taken to its logical conclusion, this formulation of the reform agenda was utterly unhelpful. Essentially it said, “if you want to become rich, you need to look like rich countries.”

That many analysts were led down this path is the result of the inherently complementary nature of most of the orthodox reforms. In order to succeed in one, you need to have undertaken many of the others at the same time. For example, trade liberalization would not work if fiscal institutions were not in place to make up for lost trade revenue, capital markets did not allocate finance to expanding sectors, customs officials were not competent and honest enough, labor-market institutions did not work properly to reduce transitional unemployment, and so on.

To see this in its starkest form, consider what a conventional reform agenda would have looked like in China in 1978 – an economy that was highly distorted as a result of central planning. An analyst would have easily figured that the right place to start reform was in the countryside, where the vast majority of the people lived. The analyst, if thoughtful enough, would also realize that each reform, when applied in the conventional form, would require the support others to become effective. Low agricultural productivity required price reform, which in turn required property reform to become effective. Price reform in agriculture would necessitate tax reform, since controlled prices were an important source of government revenue. It would also require higher wages in urban areas, as food
prices rose. State enterprises would have to be allowed some autonomy to respond to price and wage changes. But since state enterprises were monopolies, any price autonomy would have to be matched by competition-enhancing policies such as trade liberalization. A rise in imports, in turn, would force enterprise restructuring, necessitating better finance and social safety nets for displaced workers. The causal chain of these inter-linked reforms is illustrated in Figure V.1.

Which brings us to the third, and most subtle, point. The standard approach overlooks the contribution of unorthodox short-cuts. In reality, few if any countries have grown fast because of across-the-board institutional reforms of the type just discussed. Successful economic transitions are marked by the sequential relaxation of one “binding constraint” after another, using policy tools that are tailored to local circumstances (Rodrik 2007). This means not only that high growth is feasible in institutional environments that look quite distorted, but also that policy remedies can look quite unorthodox by the standards of the conventional rule book. China provides the most telling illustration of both of these principles, but East Asian countries have all followed similar approaches. Two-track reform, the household responsibility system, and township and village enterprises were some of the innovations that the Chinese used to short-circuit institutional complementarities noted above (Rodrik 2007, chap. 1).

Return now to the challenge of stimulating new industries. The list of potential culprits is likely to be quite long, running the full gamut of government and market failures. The advantage of operating significantly below potential, however, is that one doesn’t need to get everything right in order to have a big impact. A remedy that is sufficiently well targeted at a binding constraint can produce a large investment response. On the other hand, a scatter-shot approach that tries to fix as many problems as possible may not be effective if it ends up missing the real targets. If high cost of credit is the greatest obstacle to investment, for example, reducing the regulatory burden in product markets is unlikely to
help much. Conversely, if investment is held back mainly by poor contract enforcement, reducing the cost of credit will be like pushing on a string.

Next consider how a particular constraint should be relaxed. Suppose entrepreneurship is hampered by low private returns, which may be the result in turn of a high-risk or poor institutional environment. The most direct remedy would be to target the relevant distortions and remove them at source. But this may be impractical for both economic and political reasons. Economically, we may not be able to identify the relevant distortions sufficiently closely. Politically, we may not want to step on some powerful toes. An alternative strategy that is often more feasible is to raise entrepreneurs profits in other ways, through subsidies or other instruments, so as to compensate them for the costs they incur on account of the irremovable distortions.

Most successful outward-oriented industrialization efforts have in fact been the product of such second-best strategies. South Korea and Taiwan directly subsidized exports. Singapore subsidized foreign investors. China created special economic zones and subsidized its exporters both directly and indirectly through an undervalued exchange rate. Mauritius relied on an export processing zone. In none of these cases did import liberalization and across-the-board institutional reform play a significant causal role in setting off the transition to high growth.

When successful, such heterodox second-best strategies have the virtue that they can cut a path around important economic or political-economy obstacles (Rodrik 2008c). For example, China’s special economic zones created new enterprises and export opportunities at the margin, without pulling the rug from underneath the highly protected and less efficient state enterprises. The conventional remedy of across-the-board import liberalization would have exposed these enterprises to a quite severe shock, resulting in employment losses and social and political problems in urban areas. Similarly, two-track price reform in agriculture insulated government revenues from the adverse effects of incentive reform, by providing price incentives at the margin.
The bottom line is that successful growth-promoting reforms are pragmatic and opportunistic. Industrialization in particular is often stimulated by unconventional policies that compensate entrepreneurs and investors for the high taxes imposed on them by the poor market and institutional environment. In these second-best environments, more intervention can be sometime better than less. The most effective way to counter market or government failures can be to compensate for such failures indirectly, rather than attempt to eliminate them.

VI. An analytical framework

I will now sketch an analytical framework that captures the salient elements of the empirical background discussed above. The framework focuses on structural differences across economic activities as a key characteristic of developing societies and structural change as the key dynamic that drives growth. My objectives are threefold: to be explicit about the set of assumptions that lie behind the “growth model” I have in mind, to provide a consistency check for these ideas, and to provide a framework within which the future growth agenda can be discussed.

I divide the economy into three sectors according to their dynamic characteristics. First, we have a traditional sector (mainly subsistence agriculture and informal economic activities) which houses the bulk of the workforce during the early part of the development process and where labor productivity is stagnant. For convenience, we fix labor productivity in the traditional sector at unity along with the economy’s fixed labor supply: \( y_T = l = 1 \).

Next, we have two types of modern sectors, one of which we associate with “manufactures” and the other with “services.” (This distinction does justice neither to the variety of activities under these headings nor to the overlap between them in terms of the characteristics highlighted below, but we will use it for now to fix some ideas.) Labor productivity in services depends on the economy’s broad
capabilities, denoted by $\theta$. Specifically, $\theta$ determines the economy’s potential (or steady-state) labor productivity $y^*(\theta)$, to which labor productivity in services, $y_s$, converges at the rate $\gamma$:

$$y_s = \gamma(\ln y^*(\theta) - \ln y),$$

where $y$ is the economy’s aggregate labor productivity and a “^” over a variable denotes proportional changes ($\bar{x} = dx/x$). As expressed, productivity in services exhibits conditional convergence, with each economy’s long-run level of productivity fixed by its capabilities.

We use the term “capabilities” to denote both human capital and institutional quality. Models of endogenous growth and financial development partially endogenize such capabilities, although policy choices ultimately remain a key determinant even in such models. So we will treat fundamental capabilities as one of the exogenous drivers of development. We posit that the relationship between $\theta$ and $y^*$ takes the logistics form depicted in Figure V.1. Potential output increases initially quite slowly as skills and institutional capabilities are accumulated, and picks up speed only after $\theta$ reaches sufficiently high levels. What I have in mind here is the multi-dimensional nature of the capabilities captured by $\theta$ and the complementarity among many of those dimensions. As discussed in the previous section, effective reform in one area of the economy often requires complementary action in others. For example, a well-functioning health system relies on appropriate incentives, effective delivery mechanisms, and an adequate supply of medical professionals. (See Behrman and Kohler [2013] on the complex web of interactions involved in enhancing human capital.) Building an effective regulatory regime requires not just higher levels of human capital, but also more accountable political systems and a meritocratic bureaucratic culture. An industrial supply chain requires a substantial network of input suppliers and a wide array of specialized skills. The specific capabilities needed to push up potential output in each of these domains are difficult to develop independently and incrementally.\footnote{My use of the term capabilities is similar to, and inspired in part, by Hidalgo and Hausmann (2009), but I apply it not just to tradable products, but also to non-traded complex services. Sutton’s interesting work on “competing in capabilities” is another important reference, although Sutton has in mind mainly the capacity of individual firms}
since services are non-traded and rely on domestic demand, their scale of operation is inherently
dependent (unlike manufactures) on productivity enhancements in the rest of the economy. Successful
reform in one service sector requires successful reform in others.

This is the kind of context that produces poverty traps and coordination failures that prevent
modern activities from taking off, and requires a “big push” to escape (Murphy, Shleifer, and Vishny
1989, Rodrik 1996, Sachs 2004). The “big push” is often motivated by returns to scale in economic
activities. But the same idea applies equally well to circumstances where institutional arrangements in
different areas are (a) complementary and (b) require setup costs. Unfortunately, “big bang”
institutional reform is typically infeasible. It has been accomplished in rare cases following wars (as in
Japan) or through significant surrender of sovereignty (as in former socialist countries that joined the
European Union). In other cases, institutional capabilities can be accumulated only incrementally.

Manufactures differ from modern services in that productivity benefits also from an
unconditional component. The empirical justification for this assumption is provided by the results in
Rodrik (2013) noted previously, which document the presence of unconditional convergence in
organized manufacturing industries at a rate of around 2 percent per year. So we write labor
productivity growth in manufacturing as the sum of both a conditional and an unconditional term:

\[ \dot{y}_M = \beta (\ln y_M^* - \ln y_M) + \gamma (\ln y^* - \ln y), \]

where \( y_M^* \) denotes the global productivity frontier in manufacturing. Equation (2) implies low-
productivity countries can experience substantial growth in manufacturing productivity even if they
have low \( \theta \)—that is, even if they suffer from low skills, bad policies, lousy institutions, and poor
geography. Increases in \( \theta \) can boost growth even further. This specification is in line with Rodrik
(2013), where the conditional convergence rate is estimated at roughly twice the unconditional rate.

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and not economies as a whole (Sutton 2012). The capabilities I have in mind are largely social, rather than private,
and can be thought of as public inputs from which all firms benefit (as in Ricardo Hausmann’s work).
Notice that as manufacturing approaches the technological frontier, the automatic convergence effect fades out. Further increases in productivity become dependent on the presence of a complex set of capabilities, just as with modern service industries.

Let the employment shares of the three sectors be $\alpha_M, \alpha_S$, and $(1 - \alpha_M - \alpha_S)$. The economy’s aggregate real GDP per worker is a weighted average of sectoral labor productivities:

$$y = \alpha_M y_M + \alpha_S y_S + (1 - \alpha_M - \alpha_S).$$

(With no loss of generality, we have fixed base-period relative prices at unity.) Next, we use $\pi_i$ to denote the relative productivity of each sector, such that $\pi_i = y_i/y$. Totally differentiating equation (3) and dividing through by $y$, we obtain the following expression for growth in GDP per worker:

$$\begin{align*}
\dot{y} &= (\alpha_M \pi_M + \alpha_S \pi_S) y (\ln y^*(\theta) - \ln y) \\
&\quad + \alpha_M \pi_M \beta (\ln y^*_M - \ln y_M) \\
&\quad + (\pi_M - \pi_T) d\alpha_M \\
&\quad + (\pi_S - \pi_T) d\alpha_S
\end{align*}$$

This equation provides an organizing framework around which the discussion below will revolve.

The equation identifies four distinct channels for growth. First, there is a process of convergence that accompanies the accumulation of fundamental capabilities such as skills and improved governance (A). We may call this the “fundamentals” channel, as it depends on broad-based investments in human capital and institutional arrangements. Second, we have the forces of unconditional convergence operating within manufactures (B). These two dynamic effects are potentially augmented by two reallocation-of-labor effects, from traditional activities to higher-productivity manufacturing (C) and modern services (D).

The power of these channels in driving economic growth varies at different stages of development. Consider a poor economy, at the very early stages of development. Such an economy faces many obstacles. Not only is $\theta$ low, increases in $\theta$ produce only small returns in light of the logistic
relationship between $\theta$ and potential output. The growth that can be generated on account of channel A is therefore modest at best.

Within manufacturing, there are strong convergence forces at play in light of the large difference between $\ln y_M^*$ and $\ln y_M$. But since poor countries have very little of their labor force in organized manufacturing (i.e., since they have low $\alpha_M$), even very rapid manufacturing growth will generate paltry amounts of GDP growth in the aggregate. For example, take a country that is in the bottom decile of the inter-country distribution of manufacturing labor productivity, such that $\ln y_M^* - \ln y_M \approx 2.30 (=\ln(10))$. Suppose $\alpha_M = 5\%$, $\beta = 3\%$, and $\pi_M = 400\%$ – numbers that are plausible for such a country. Then, growth on account of channel (B) will amount to a mere 1.4 percent ($=0.05 \times 4 \times 0.03 \times 2.30$) per annum, even though manufacturing grows at a rate of at least 6.9 percent. The impact of manufacturing convergence is blunted by its tiny share in the economy.

Of the remaining two terms, the one relating to reallocation to manufacturing (C) is potentially by far the most important. Sticking with the parameters used above, $(\pi_M - \pi_T)$ is around 3 (since $y_T = 1$ and the traditional sector employs the bulk of the workforce at very low levels of development). Therefore even if one percent of the labor force can be moved to manufacturing per year – which is the kind of structural transformation East Asian countries have managed – the result would be a 3 percentage point increase in growth. This is twice the bang we got from the pure manufacturing convergence term (B).

By contrast, the reallocation to services (channel D) produces little growth benefits at low levels of income because $\theta$ and $\ln y^*(\theta)$ are quite low, by definition, in poor economies, and therefore $\pi_S$ is not much higher than $\pi_T$. Indeed, service activities are likely to be dominated by petty services and informal activities. We get little growth boost when peasants migrate to urban areas only to end up in informal employment at low productivity.
In sum, the best hope for rapid growth in a low-income setting rests on reallocation of labor to organized manufacturing (C), and, secondarily, on convergence within manufacturing (B). These two channels together can generate increases in GDP per worker of between 4-5 percent per annum. The rest of the economy cannot contribute much because the accumulation of the requisite capabilities is a cumulative process and takes time. Putting it differently, an economy with low skills and poor governance can still manage to compete with Sweden in many manufactures; but it would take probably more than a century for it to bring its institutions up to par with those of Sweden. That is why rapid industrialization has been the common element of all growth miracles.

However, industrialization has its limits. This is because manufacturing productivity growth slows down as the distance from the technological frontier gets smaller (as per (2)), and more fundamentally because there is an upward limit to $\alpha_M$ in practice. Historically, $\alpha_M$ has rarely exceeded around 30 percent. I shall consider later the determinants of this ceiling, which are related to demand, technology, and trade patterns. For now, we note that the limit on $\alpha_M$ implies there is only so much manufacturing can do as a locomotive for the entire economy. As the industrial share of employment reaches its limits, economy-wide growth will slow down unless other channels take over.

In principle, fundamental capabilities, $\theta$, can now act as the new engine of growth. If the country in question has been investing adequately in skills and in institutions, bringing the economy near the inflection point in Figure VI.1, that is exactly what will happen. New forces of convergence will be activated. These are identified by channels A and D in equation (4): the economy will now experience the “conditional” component of productivity growth in services and manufactures (channel A); and any shift of labor towards services, even if it comes at the expense of de-industrialization, will be potentially growth-increasing (channel B). In this, more mature phase of growth, economic performance will increasingly rely on broad-based capabilities rather than on pushing workers into manufacturing.
De-industrialization therefore poses little threat in economies that have built up adequate human capital and institutions. In such economies, the labor that is displaced can be absorbed into high productivity services, at little cost to economic growth or equity. In recent times, Hong Kong provides a particularly remarkable example of this process. One of the original East Asian tigers, Hong Kong grew rapidly in the 1960s and 1970s on the back of rapid industrialization and exports of manufactured products. Since the 1980s, the country has experienced an equally striking process of de-industrialization. As Figure VI.2 shows, manufacturing’s share of employment fell by more than 20 percentage points between 1990 and 2005. By then, Hong Kong’s service industries – in finance, insurance, logistics, IT – had developed so much that on average they were more productive than manufactures. Moreover, the economy’s labor force had acquired the skills and human capital to be re-deployed in these tradable services. The loss on account of term $C$ in equation (4) was more than made up by the gain on account of $D$. Hong Kong’s de-industrialization proved growth-promoting.

This win-win scenario often does not play out, even in more advanced economies where capabilities have built up but are ill-distributed. In both the U.K. and the U.S., for example, advanced service sectors – finance, business services, IT – have not generated enough employment to make up for the shrinkage of industrial jobs. Lower-productivity service industries have expanded alongside advanced ones, creating a bifurcated wage structure and producing growth-reducing structural change. The conundrum only gets worse in middle-income countries such as Argentina, Brazil or Turkey, where much of the labor force remains excluded from the advanced sectors and has little other option than being absorbed into informality as manufacturing jobs get scarcer (McMillan and Rodrik 2011).

**VII. A typology of growth outcomes**

The analytical framework presented above has two key “forcing variables”: the rate of industrialization $d\alpha_M$ and the level of capabilities $\theta$. Our results can be summarized using the following
2x2 table which illustrates four types of growth outcomes, depending on the evolution of these variables.

<table>
<thead>
<tr>
<th></th>
<th>slow</th>
<th>rapid</th>
</tr>
</thead>
<tbody>
<tr>
<td>slow</td>
<td>(1) no growth</td>
<td>(2) episodic growth</td>
</tr>
<tr>
<td>rapid</td>
<td>(3) slow growth</td>
<td>(4) rapid, sustained growth</td>
</tr>
</tbody>
</table>

Box (1) represents countries which succeed neither in stimulating industrial employment, nor in accumulating significant human capital and institutional capabilities. They register no or very little growth. This is the situation in which most of the low-income countries in sub-Saharan have traditionally found themselves in. They occasionally experience some growth on the basis of industrialization spurts (as in the 1960s and early 1970s) or commodity booms (during the 2000s). Many among them have enhanced their “fundamentals” through improved governance since the 1990s. But their industrialization has largely petered out and the improvement in their capabilities has remained limited.

Countries in box (2) experience significant industrialization and hence rapid growth for a while, but eventually run out of steam – once industrialization reaches its limits – because \( \theta \) remains low. This is one version of the “middle-income trap”. Many countries that experienced rapid growth on the back of import-substituting industrialization eventually found themselves in this situation. Latin American countries such as Brazil and Mexico are good examples. These countries’ growth now relies disproportionately on “fundamentals” and hence remains significantly below the rates registered during the phase of rapid industrialization (1950-1980). China is a country that may eventually find itself in this box as well, as its institutional development, particularly with regard to political institutions, lags considerably behind its industrial development.
Countries in box (3) follow the conventional growth recipe: they place considerable emphasis in accumulating human capital and improving institutions. But in the absence of complementary policies that specifically promote industrialization, the result is paltry growth, especially at low levels of income, for reasons we have discussed. This is the typical fate of countries that adhere strictly to the Washington Consensus and its descendants. El Salvador, for example, undertook extensive institutional and political reforms following its civil war of the 1980s. The country adopted a new constitution, strengthened the independence of the judiciary, consolidated its fiscal position, modernized its tax system, liberalized trade and banking, improved the regulation and supervision of its financial system, privatized most state productive assets, reformed its social security system, and expanded and granted local autonomy to the educational system. Yet after an initial period of recovery that lasted until 1997, incomes stagnated and GDP per capita relative to the U.S. remained just over half the level achieved in the late 1970s (Hausmann and Rodrik 2005).

Finally, box (4) represents the long-term successes, based on an industrialization drive, accompanied by the steady accumulation of human capital and institutional capabilities to sustain services-driven growth once industrialization reaches its limits. Today’s advanced industrial countries are in this category, although they too are feeling the strains of de-industrialization as mentioned previously. Among East Asian countries, a few such as South Korea, Hong Kong, and Taiwan can be said to have joined them.

In addition to providing a useful typology, the table helps us understand one of the more puzzling features of the cross-country data. Institutional quality and human capital levels are both highly correlated with levels of income, but improvements in institutions and human capital are not a reliable predictor of economic growth. Our framework suggests this is not a contradiction. Only countries that
steadily enhance their fundamental capabilities $\theta$ eventually become rich. But investments in $\theta$ are not the easiest way of getting there, at least during the early stages of development. Early on, it is rapid industrialization that fuels growth, and this requires policies that may differ considerably from conventional fundamentals. Countries that rely exclusively on building up broad-based capabilities are rewarded with modest growth, and may be easily diverted from those policies as a result.

The table also clarifies why it is important to distinguish between the “fundamentals” and “structural-transformation channels” to account for existing patterns of growth. Countries that experience rapid spurts of growth over a period of a decade or two often -- indeed typically -- do so without the benefit of significant advantages in human capital or institutions. There are short-cuts that can compensate for the absence of fundamentals. A fundamentals-focused perspective would have an easier time accounting for South Korea’s and China’s stagnation than for their spectacular take-offs (in the 1960s and late 1970s, respectively). At the same time, without long-term investment in fundamentals, rapid growth is unlikely to be sustained.

VIII. What sets the limits to industrialization?

The peak level of industrialization $\alpha_M$ plays an important role in our analysis, as it determines the mileage that industrialization delivers. The higher $\alpha_M$ can get, the longer we can sustain rapid growth without having to rely on adequate levels of $\theta$. Alternatively, the longer we can afford to wait for $\theta$ to reach the required levels, without experiencing adverse effects on growth. So a key question is what determines the ceiling on $\alpha_M$.

Let the GDP deflator be the numeraire, $\varphi$ ($<1$) the share of manufactures in domestic expenditures, and $b$ the trade surplus in manufactures (as a share of GDP). Earlier we had fixed base-
period relative prices to 1. Since demand patterns will depend on movements in relative prices, let \( p_M \) stand for the (relative) price of manufacturing. The market-clearing equation for manufactures can then be written as

\[
p_M \alpha_M y_M = \varphi (1 - b) y + b y.
\]

Note that \( \alpha_M y_M \) is the aggregate quantity of manufactures produced domestically. So the left-hand side of the equation (5) is the value of production while the right-hand side is the value of total demand for domestic manufactures. Since \( y_M / y = \pi_M \), this can also be expressed as

\[
\alpha_M = \frac{1}{p_M \pi_M} [\varphi (1 - b) + b].
\]

Note that \( p_M \pi_M \) is the relative productivity of manufacturing in value terms.

To get some insight on this expression, let us first consider a long-run equilibrium where (i) the trade surplus is zero \( (b = 0) \); and (ii) relative productivities across sectors have been equalized in value terms \( (p_M \pi_M = 1) \). In this equilibrium, equation (6) simplifies to \( \alpha_M = \varphi \). Therefore the ceiling on the employment share of manufactures is given by the share of manufactures in total domestic expenditures. This is in all likelihood a declining share, as demand patterns tend to switch towards health, entertainment, and a variety of professional services as incomes rise.

In developing countries, productivity in manufacturing is typically higher than the rest of the economy (in value terms), and this pushes \( \alpha_M \) further down. Data from UNIDO in Rodrik (2013, Table 6) suggests \( p_M \pi_M \) lies between 2 and 3 for a country in the middle deciles of the inter-country income distribution. If \( p_M \pi_M = 2.5 \), \( \alpha_M \) can rise to only 40 percent of \( \varphi \).

Note also that \( \pi_M \) is directly related to the skill- and capital-intensity of manufacturing activities. If global trends in technology increase skill and capital requirements in manufacturing, \( \pi_M \) will rise, and further lower the ceiling on \( \alpha_M \). To be sure, developing countries will generally rely on more labor-intensive techniques, in view of the lower cost of labor. But the extent of factor substitutability may be limited in practice.
The final determinant in equation (6) is the trade surplus in manufactures, $b$. Since \( \frac{da_M}{db} = \frac{1}{P_M \pi_M} (1 - \varphi) > 0 \), the size of the manufacturing sector can be increased at any level of income by reducing the deficit or increasing the surplus in manufactures trade. This is an important policy consideration. It makes mercantilist policies such as undervalued currencies an attractive option in low income countries that stand to gain the most from industrialization (Rodrik 2008).

IX. Global supply chains and changes in manufacturing

One of the significant changes that have taken place in the global economy in recent years is what Richard Baldwin (2011) has called the “second unbundling,” the development of supply chains that facilitate the distribution of production around the globe. Under the traditional model of industrialization, such as that followed by South Korea in the 1960s and 1970s, countries had to build entire industries, from the input stage to the finished product. With declining costs of transportation and communication, countries can now make room for themselves in global supply chains even if they do not have a large industrial base or big domestic markets. China is often presented as the epitome of this approach -- even though, of course, it has both advantages. Koopman et al. (2008) estimate that foreign inputs account for half of China’s export value, which is much larger than in other countries, and that this ratio rises to around 80 percent for technologically sophisticated electronics products. China, where the iPhone 3G is assembled, contributes only $6.50 of the total manufacturing cost of $179 for the final product (Rassweiler 2009, cited in Xing and Detert 2010).

Baldwin (2011) has argued that global production chains facilitate industrialization since entry costs are reduced. Developing nations only need to contribute low-cost labor along the way, while all the technologically demanding, capital-intensive inputs can be produced elsewhere. But, by the same token, industrialization becomes less of a driver for the aggregate economy. Technology adoption and spillovers remain under the control of foreign multinationals that govern the supply chains. The
employment absorption of local industries ($\alpha_M$) remains limited to the slices of outsourced production that managers of the global supply chain allocate to specific countries.

In such a context, the type of policies that countries must follow to maximize the opportunities from industrialization do not look all that dissimilar from strategies that worked in the past. The crux of the matter remains to encourage investments in modern industries – or slices thereof – that the private sector would not undertake under prevailing circumstances. The focus these days may need to be more on segments of industries than on entire industries, and more on foreign investors than locals. But ultimately the principles of cooperative industrial policy based on public-private partnerships discussed in Rodrik (2007, chap. 4) and Rodrik (2008b) still apply.

Indeed, it is impossible to account for China’s own success in taking advantage of global supply chains without understanding the myriad state policies used by Chinese policy makers to crowd in investments that would not have been made otherwise. These include direct subsidies, local-content requirements, and an undervalued exchange rate. For example, when Apple looked for a plant that could quickly gear up to cut a new type of glass prototype for its iPhone screens, it found a Chinese supplier that had built a new wing with help from government subsidies and could offer financial terms and labor flexibility few others could (Duhigg and Bradsher 2012). “The entire supply chain is in China now,” an Apple executive is quoted as saying:

“You need a thousand rubber gaskets? That’s the factory next door. You need a million screws? That factory is a block away. You need that screw made a little bit different? It will take three hours” (Duhigg and Bradsher 2012).

As this quote suggests, global supply chains haven’t done away with the economies of agglomeration. Countries such as China that have built a large domestic manufacturing base, through a combination of low labor costs, flexible labor market practices, and government supports, find themselves much better positioned to attract new investments.
X. How do natural resource exporters fit in?

We can think of the natural resource sector as a special kind of manufacturing: a sector that converges very rapidly to the global frontier as it utilizes off-the-shelf, imported technology, but has very little ability to absorb labor because it is highly capital- and skill-intensive. Furthermore, its upstream and downstream linkages are typically exceptionally weak, so produce little spillovers to the rest of the economy. The income it generates comes in the form of rents and accrues to the state, a small group of (often foreign) investors, and a few privileged workers. Mining and other natural resource activities can produce very rapid growth in the boom stage, but at the cost of a highly skewed distribution of income. When the resource boom ends, either because of a downturn in the terms of trade or depletion, not only does economic growth peter out, but there is often a collapse in economic activity. The collapse is typically magnified by macroeconomic distortions and distributional conflicts that are associated with resource booms (Rodrik 1999). The economic history of Sub-Saharan Africa and Latin America is replete with such boom-and-bust episodes.

In principle, it is possible to manage natural resource wealth to sustain continued investments in human capital and institutions and build up broad-based capabilities. This would allow the transforming of resource booms into long-term economic success. Yet this path is often blocked by unfavorable economic and political dynamics associated with natural resource-driven booms. Resource rents feed a small group of political elites whose power depends on the stifling of political competition and therefore have little interest in either broadening political participation or educating the masses (Sokoloff and Engerman 2000). A comparative advantage based on natural resources reduces returns to human capital and delays its accumulation (Galor et al. 2008). The rise in the real value of the domestic currency that accompanies the boom discourages investments in manufacturing or other non-traditional tradable activities (Rajan and Subramanian 2011). These are all well-known syndromes of the “natural resource
curse.” Their collective effect is to impede the accumulation of capabilities needed to ensure sustained growth once the initial impact of the resource boom wears off.

There are countries that have managed to put their resource wealth to good long term use. Some have benefited from special initial conditions. For example, Australia and New Zealand are lands of recent settlement which, following the Acemoglu et al. (2001) logic, developed reasonably good public institutions early on. Norway and the Netherlands reaped windfall gains from oil and natural gas, respectively, after they had already become rich, developed solid institutions, and accumulated high levels of human capital. Natural resource booms are less likely to turn into a curse when they happen in countries that have good institutions and lots of human capital to begin with, or are already at a relatively advanced stage of development.

The experience of Botswana is telling in this context. This landlocked southern African country grew exceptionally rapidly from the early 1960s to the second half of the 1990s on the back of a diamond boom. Yet it started out with very little human capital and none of the institutions we associate with modern, well-governed democracies. Acemoglu et al. (2003) trace the roots of the success to Botswana’s peculiar tribal practices that “encouraged broad-based participation,” the continued political power of rural, cattle-based interests that reduced the urban bias typical of African polities, and the “farsighted” decision-making of post-independence political leaders. They argue these led to appropriate policies that maintained macroeconomic stability, kept corruption and rent-seeking in check, and fostered bureaucratic efficiency. One area where public policy failed in a major way, though, was public health, as the country was ravaged by the AIDS pandemic. Nonetheless, Acemoglu et al.’s (2003) account provides an optimistic reading, insofar as it suggests “leadership” can make a difference in combination with historical, deeper-seated circumstances.

Leadership also makes a difference in managing the diversification of the economy. Weaning natural-resource-rich economies from their dependence requires especially proactive policies to
stimulate modern industries and to counter the Dutch disease. Once again, Asia has shown the way here. None of the East and Southeast Asian economies started off with a comparative advantage in manufacturing industries. Some, like Malaysia and Thailand, were particularly well endowed with natural resources and would have remained resource-based economies had it not been for their governments’ emphasis on industrialization. Thanks to their industrial policies, and especially managed currencies that prevented overvaluation, these economies industrialized significantly beyond what Latin American countries were able to do, even though they started out with similar specialization patterns.

The experience of many Latin American countries with the commodities boom of the last decade also leaves room for hope. Policy makers in Chile, Colombia, Peru, Mexico, and Brazil have tried to avoid the mistakes of the past and prevent unsustainable consumption and borrowing binges in response to resource windfalls. Some of these countries have passed laws that require the temporary component of export receipts to be saved. Significant investments have been made in education, health, and poverty reduction. There are encouraging indicators that such improvements in fundamentals are helping reduce the inequality and macroeconomic instability that have been the bane of Latin American countries since the 19th century.

Similarly, thanks in no small part to high commodity prices, Africa has experienced an economic renaissance of sorts during the last two decades, raising hopes that the continent may finally be on course for sustained development. Growth rates have been high, human and social indicators have improved, and democratic governance is becoming the norm rather than the exception. There are some encouraging signs of positive structural change, although most of the gains are taking place in urban services rather than manufacturing (McMillan 2013, Martinez and Mlachila 2013).

What remains unclear is the extent to which these countries can continue to experience rapid growth in the absence of high commodity prices. Improvements in human capital and institutional quality promise less volatile and more sustainable growth. On the other hand, manufacturing sectors
have been typically battered by appreciating currencies and import competition from China. It is too early to be sanguine that modern service industries will replace commodity exports as the growth engine either in Latin America or in Sub-Saharan Africa.

**XI. Prognosis**

The framework I have outlined above shows how fundamental improvements in capabilities – defined as both skills and institutional development – and narrower policies targeted at rapid structural change – industrialization in particular – interact to produce sustainable, longer-term growth. In the long-run, convergence with wealthy economies requires the accumulation of human capital and the acquisition of high-quality institutions. But the quickest route of getting there is to deploy policies that help build modern industries which employ an increasing share of the economy’s labor resources. The policies of the latter type overlap with those needed to build up fundamental capabilities; but they are not one and the same, and often they may diverge significantly. An excessive focus on “fundamentals” may be adverse to growth if it detracts policy makers from resorting to the (often unconventional) policies of structural transformation required to get modern industries off the ground. Similarly, an excessive focus on industrialization may set the economy up for an eventual downfall if the requisite skills and institutions are not built up over time.

In principle, this broad recipe can continue to serve developing countries well in the future. In particular, it can allow the world’s poorest nations in Africa to embark on Asian-style structural transformation and rapid growth. But a number of considerations suggest that developing nations will face stronger headwinds in the decades ahead.

First, the global economy is likely to be significantly less buoyant than in recent decades. The world’s richest economies – the United States, Europe, and Japan – are hobbled by high levels of public debt, which typically results in low growth and defensive economic policies. The euro zone, in
particular, faces an existential crisis, and even if it manages to stay together, its problems will continue to dampen the region’s animal spirits. Policy makers in these rich nations will remain preoccupied with domestic challenges and will be unlikely to exhibit much global leadership.

The rules of the game for developing nations have already become stricter. The World Trade Organization prohibits a range of industrial policies (subsidies, local-content requirements, copying of patented products) that Asian countries have deployed to good effect in decades past to foster structural transformation. For example, both China and India used local content requirements to force foreign investors to develop efficient domestic first-tier suppliers (Sutton, 2004) – a strategy that would be illegal today. Luckily, these WTO restrictions do not apply to the poorest developing countries (which are still allowed a free ride).

We can expect further pressures to narrow policy space in developing nations as trade becomes more politicized in the advanced countries as a result of their economic difficulties. Subsidy schemes that have so far operated under the radar screen are more likely to be litigated in the WTO and retaliated against. With the acquiescence of the WTO or not, Europe and the U.S. will exhibit greater willingness to shield their industries from import surges. Developing nations that undervalue their currencies through intervention in foreign-currency markets or controls on capital inflows are likely to be branded “currency manipulators.” Strategies aimed at maintaining competitive currencies – again, an East Asian hallmark – have so far evaded global discipline. But for some years there have been efforts to render IMF oversight over currency values more effective, and there is growing discussion about treating currency undervaluation as an export subsidy in the WTO sense. Even if these multilateral efforts do not bear fruit, domestic politics will push the U.S. government towards unilateral action against governments (such as China) that are perceived to be taking unfair advantage of global trade.
We need to draw a distinction here between the smaller developing nations and the larger ones (such as China, Brazil, and India). The former are likely to enjoy significantly greater policy space than the latter. It is hard to imagine policy makers in Washington, D.C. or Brussels getting worked up over the industrial policies of Ethiopia or El Salvador. This means that the vast majority of the world’s developing countries – and almost all of those in sub-Saharan Africa – will remain relatively free of external encumbrances that restrict the scope of structural transformation policies. That is the good news. The bad news is that large and “systemically important economies” such as India and China continue to house a substantial portion of the world’s poor. In 2008, the latest year for which we have estimates, 62% of the below-$2/day poor lived in China and South Asia, and only 23% in sub-Saharan Africa (Chen and Ravallion 2012). The continued growth of these populous countries remains crucially important to global poverty reduction.

A second important source of headwinds relates to changes that are happening within manufacturing industries. As I mentioned previously, technological changes are rendering manufacturing more capital- and skill-intensive. This reduces the employment-elasticity of industrialization, and lowers the capacity of manufacturing to absorb large amounts of unskilled labor from the countryside and informality. Global supply chains may facilitate entry into manufacturing for low-cost countries that are able to attract foreign investment. But they also reduce linkages with the rest of the economy and the potential for the development of local upstream suppliers. The ease with which global companies sitting at the apex of the production chains can switch suppliers give these industries a fleeting character: here today, gone tomorrow.

In all these ways, many manufacturing industries are in effect becoming more like natural resource enclaves: skill- and capital-intensive, disengaged from the domestic economy, and transitory. A potentially compensating trend is that some service industries may be acquiring manufacturing-like
Certain service sectors such as food and clothing retail services are becoming adept at absorbing technologies from abroad (e.g. hyper-markets), employ relatively unskilled workers, and have significant linkages with the domestic economy. If such service activities are also subject to absolute productivity convergence, as it seems plausible, they too could act as the escalator industries of the future.

There are other factors that will disfavor manufacturing industries. New entrants into standardized manufacturing activities face much greater global competition today than South Korea and Taiwan faced in the 1960s and 1970s or China faced in the 1990s. Even though its production costs have been rising, China itself poses a formidable competitive challenge to any producer attempting to make inroads on global markets. Almost all Asian manufacturing superstars started with protected home markets. This gave them a home base on which to build experience and assured domestic profits to subsidize forays on world markets. Most African manufacturers today face an onslaught of cheap imports from China and other Asian exporters, which make it difficult for them to survive on their home turf, let alone cross-subsidize their international activities. The burdens placed on government policy to incubate and develop domestic manufacturing firms are correspondingly heavier.

Finally, environmental concerns will play a much larger role than they did in the past, and will make it more costly to develop traditional “dirty industries” such as steel, paper, and chemicals. Comparative advantage and economic logic dictates that such industries migrate to poorer nations. But producers everywhere will be under pressure to utilize greener technologies that generate less pollution and greenhouse gas emissions (Steer 2013). To the extent that environmental concerns raise the technological requirements of running these industries, they will diminish the comparative advantage of developing nations. The capital and skill requirements of green technologies are also higher. There will

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8 I am grateful to Kemal Derviş for this suggestion.
be the usual exhortations to the effect that these new technologies be subsidized and made available to poor nations. But whether this will happen in practice is an open question.

XII. Policy implications

These considerations suggest that we are entering a phase of the world economy in which East-Asian style growth rates will be difficult to sustain for the East Asian countries themselves, and hard to attain for the next generation of emulators. The future of growth is quite unlikely to look like its recent past. It may well be that we will look at the six decades after the end of the Second World War as a very special period, an experience not replicated either before or after. The rate of convergence between poor and rich countries is likely to come down considerably from the levels we have seen during the last two decades. Developing countries will probably still grow faster than the advanced economies, but this will be in large part due to the decline of growth in the latter.

Ultimately, growth depends primarily on what happens at home. Even if the world economy provides more head-winds than tail-winds, desirable policies will continue to share features which have served successful countries well in the past. These include: a stable macroeconomic framework; incentives for economic restructuring and diversification (both market-led and government-provided); social policies to address inequality and exclusion; continued investments in human capital and skills; and a strengthening of regulatory, legal, and political institutions over time. Countries that do their home work along these dimensions will do better than those that don’t.

Beyond these generalities, however, the main policy implication is that we will require future growth strategies that differ in their emphasis, even if not their main outlines. In particular, reliance on domestic (or in certain cases, regional) markets and resources will need to substitute at the margin for reliance on foreign markets, foreign finance, and foreign investment. The upgrading of the home market will in turn necessitate greater emphasis on income distribution and the health of the middle class as
part and parcel of a growth strategy. In other words, social policy and growth strategy will become complements to a much greater extent.

Globally, it will not make sense to pursue the extensive harmonization and coordination of policies in finance and trade that are ultimately neither sustainable nor, in view of the heterogeneity of needs and preferences around the world, desirable. International institutions will do better to accommodate the inevitable reduction of the pace of globalization (or, perhaps, some de-globalization) than to shoehorn countries into ill-fitting rules. Industrial nations will need to carve out some policy space to rework their social bargains, just as developing nations need policy space to restructure their economies (Subramanian and Kessler 2013). We will need for a new settlement between advanced countries and large emerging markets in which the latter no longer see themselves as free-riders on the policies of the former.

As Birdsall (2013) underscores, the global economy suffers from a shortfall between the demand and supply of adequate global governance (see also Rodrik 2011). It is possible that some of this shortfall can be addressed by reforms and new forms of representations: by individual citizens and nations acting in ways that are more conscious of the global consequences of their decisions; by the transnational expansion of networks of activists and regulators; and by reforming the governance of multilateral economic institutions themselves. But as I have emphasized here (and the papers by Birdsall and by Subramanian and Kessler both echo), at best these changes will take place in an environment with strong centrifugal forces, characterized by increasing number of actors and greater diversity of interests. If these forces are managed well, they need not endanger economic globalization per se. But if we fail to take them into account, we are more likely to undermine support for an open global economy than to strengthen it.

Ultimately, a healthy world economy needs to rest on healthy national economies and societies. Global rules that restrict domestic policy space too much are counter-productive insofar as they narrow
the scope for growth- and equity-producing policies. They thus undermine the support for and legitimacy of an open global economy. The challenge is to design an architecture which respects the domestic priorities of individual nations, while ensuring that major cross-border spillovers and global public goods are addressed.
REFERENCES


Figure I.1: Growth trends in developed and developing countries, 1950-2011

Source: Updated from Rodrik (2011)
Figure I.2: Developing country growth trends by region, 1950-2011

Source: Updated from Rodrik (2011)
Figure II.1: Global income distribution, 1988 and 2005

Source: See text.
Figure II.2: Accounting for the rise in global income inequality, 1820-2005

Source: See text.
Figure II.3: Income distribution in the world and selected countries in 1988, by decile or ventile
Figure II.4: Income distribution in the world and selected countries in 2005, by ventile
Figure III.1: Growth over the long term

Source: Maddison (2010).
Figure IV.1: Growth has increased over time

Source: Maddison (2010).
Figure IV. 2: Growth is variable with no tendency for convergence
Figure IV.3: Growth is accompanied by productive diversification

Figure IV.4: There is unconditional productivity convergence in (formal) manufacturing
Figure IV.5: The most successful countries are not the least interventionist
<table>
<thead>
<tr>
<th>Problem</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low agricultural productivity</td>
<td>Price liberalization</td>
</tr>
<tr>
<td>Production incentives</td>
<td>Land privatization</td>
</tr>
<tr>
<td>Loss of fiscal revenues</td>
<td>Tax reform</td>
</tr>
<tr>
<td>Urban wages</td>
<td>Corporatization</td>
</tr>
<tr>
<td>Monopoly</td>
<td>Trade liberalization</td>
</tr>
<tr>
<td>Enterprise restructuring</td>
<td>Financial sector reform</td>
</tr>
<tr>
<td>Unemployment</td>
<td>Social safety nets</td>
</tr>
</tbody>
</table>

... and so on

**Figure V.1**: A Chinese counterfactual: what orthodox reform requires
Figure VI.1: Relationship between capabilities and potential output
Figure VI.2: Structural change in Hong Kong

### Table II.1 Median and average incomes

<table>
<thead>
<tr>
<th></th>
<th>median income</th>
<th>average income</th>
<th>ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>World</td>
<td>1988</td>
<td>846</td>
<td>3,523</td>
</tr>
<tr>
<td></td>
<td>2005</td>
<td>1,209</td>
<td>3,946</td>
</tr>
<tr>
<td>increase</td>
<td></td>
<td>42.9%</td>
<td>12.0%</td>
</tr>
<tr>
<td>U.S.</td>
<td>1988</td>
<td>12,327</td>
<td>14,819</td>
</tr>
<tr>
<td></td>
<td>2005</td>
<td>15,664</td>
<td>20,001</td>
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<tr>
<td>increase</td>
<td></td>
<td>27.1%</td>
<td>35.0%</td>
</tr>
<tr>
<td>China</td>
<td>1988</td>
<td>310</td>
<td>361</td>
</tr>
<tr>
<td></td>
<td>2005</td>
<td>1,013</td>
<td>1,303</td>
</tr>
<tr>
<td>increase</td>
<td></td>
<td>226.8%</td>
<td>260.9%</td>
</tr>
<tr>
<td>Brazil</td>
<td>1988</td>
<td>1,901</td>
<td>4,030</td>
</tr>
<tr>
<td></td>
<td>2005</td>
<td>2,107</td>
<td>3,890</td>
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<tr>
<td>increase</td>
<td></td>
<td>10.8%</td>
<td>-3.5%</td>
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Note: See text for source. All dollar amounts in 2005 PPP$. 
### Table II.2: Decomposition of global inequality

<table>
<thead>
<tr>
<th></th>
<th>Gini coefficient</th>
<th>log mean deviation</th>
<th>Theil's index</th>
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<tr>
<td><strong>1988</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>total</td>
<td>0.69</td>
<td>1.07</td>
<td>0.89</td>
</tr>
<tr>
<td>within-countries share</td>
<td>19.4%</td>
<td>22.0%</td>
<td></td>
</tr>
<tr>
<td>between-countries share</td>
<td>80.6%</td>
<td>78.0%</td>
<td></td>
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</tbody>
</table>

<p>| <strong>2005</strong>             |                  |                    |               |
| total                | 0.70             | 1.04               | 0.95          |
| within-country share | 26.5%            | 26.5%              |               |
| between-countries share | 73.5%        | 73.5%              |               |</p>
<table>
<thead>
<tr>
<th></th>
<th>1750</th>
<th>1800</th>
<th>1830</th>
<th>1860</th>
<th>1880</th>
<th>1900</th>
<th>1913</th>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>countries</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>U.K.</td>
<td>8</td>
<td>8</td>
<td>11</td>
<td>16</td>
<td>24</td>
<td>35</td>
<td>55</td>
</tr>
<tr>
<td>U.S.</td>
<td>10</td>
<td>16</td>
<td>25</td>
<td>64</td>
<td>87</td>
<td>100</td>
<td>115</td>
</tr>
<tr>
<td>Germany</td>
<td>4</td>
<td>9</td>
<td>14</td>
<td>21</td>
<td>38</td>
<td>69</td>
<td>126</td>
</tr>
<tr>
<td>Japan</td>
<td>8</td>
<td>8</td>
<td>9</td>
<td>15</td>
<td>25</td>
<td>52</td>
<td>85</td>
</tr>
<tr>
<td>Developing</td>
<td></td>
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<tr>
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<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>China</td>
<td>7</td>
<td>7</td>
<td>7</td>
<td>7</td>
<td>9</td>
<td>12</td>
<td>20</td>
</tr>
<tr>
<td>India</td>
<td>7</td>
<td>6</td>
<td>6</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Brazil</td>
<td>8</td>
<td>6</td>
<td>6</td>
<td>4</td>
<td>4</td>
<td>3</td>
<td>3</td>
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<tr>
<td>Mexico</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>2</td>
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Source: Bairoch (1982)
### Table IV.1: Countries that have grown at 4.5 per annum per capita (or faster) over 30 years or more

<table>
<thead>
<tr>
<th>Country</th>
<th>fastest growth rate achieved over three decades (%)</th>
<th>period</th>
</tr>
</thead>
<tbody>
<tr>
<td>Before 1900</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Australia</td>
<td>5.8</td>
<td>1823-1853</td>
</tr>
<tr>
<td>New Zealand</td>
<td>7.1</td>
<td>1840-1870</td>
</tr>
<tr>
<td>Between 1900 and 1950</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Venezuela</td>
<td>5.5</td>
<td>1907-1939</td>
</tr>
<tr>
<td>After 1950</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Italy</td>
<td>5.9</td>
<td>1945-1975</td>
</tr>
<tr>
<td>Spain</td>
<td>4.9</td>
<td>1949-1980</td>
</tr>
<tr>
<td>Portugal</td>
<td>4.6</td>
<td>1950-1980</td>
</tr>
<tr>
<td>Greece</td>
<td>7.3</td>
<td>1945-1975</td>
</tr>
<tr>
<td>Israel</td>
<td>4.7</td>
<td>1953-1983</td>
</tr>
<tr>
<td>Yugoslavia</td>
<td>4.9</td>
<td>1952-1982</td>
</tr>
<tr>
<td>Ireland</td>
<td>4.6</td>
<td>1976-2006</td>
</tr>
<tr>
<td>Iraq</td>
<td>5.3</td>
<td>1950-1980</td>
</tr>
<tr>
<td>Saudi Arabia</td>
<td>6.1</td>
<td>1950-1980</td>
</tr>
<tr>
<td>Libya</td>
<td>7.4</td>
<td>1950-1980</td>
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**Source:** Rodrik (2011), based on data in Maddison (2010).