

“Globalization and Chinese Growth: Ends of Trends?”

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Abstract

Two big questions look somewhat different than they did 10 or 20 years ago. First: would the long-term trend of globalization continue? Contrary to all predictions, trade growth has slowed markedly since the Global Financial Crisis of 2008-09. But the feared increase in protectionism did not materialize, so one must look elsewhere for explanations. Two likely factors behind the slowdown in trade are a maturing of global supply chains and a slowdown in trade-intensive physical investment.

Second, would the rapid growth of emerging market economies (EMEs) continue, and which ones? Most EMEs recovered strongly in 2010-11, but now seem to be slowing down in a more long-lasting way.

For both these issues the role of China is crucial, since it now carries so much weight in the global economy. Breathless reports in 2014 that the Chinese economy had overtaken the US economy as the world’s largest (measured by Purchasing Power Parity) were followed rapidly in 2015 by breathless reports that its economy was failing. That China has slowed down from past growth rates of 10% to a more moderate rate of 7% or lower should not have come as a surprise. It is part of a natural process of long-term convergence and involves a “rebalancing” of the economy from manufacturing into services that is desirable, even if it means a loss of export markets for some others. The open question is whether the Chinese transition to a more moderate and sustainable growth path will take the form of a hard landing or a soft landing.

Globalization and Chinese Growth: Ends of Trends?

At the invitation of Prometeia in 1995, I came to Bologna to address the topic: "The World Over the Next 25 Years: Global Trade Liberalization and the Relative Growth of Different Regions." We all lack 2020 foresight, of course. But twenty-five years into the future seemed so far off; I thought nobody would be checking up on my predictions!

Some of what I said turned out right. For example Japan's saving rate would fall, as the population aged. I also said that countries that still had high unrealized growth potential included Chile, China and (less obviously) the Philippines. But other predictions were less accurate: "A 1999 start date for EMU is too optimistic."

I tried in 1995 to address two major questions. First, would globalization continue, with respect to international trade in particular? Second, which economies would perform the best, and in particular, would China surpass the United States in economic size?

It is fair to say that most long-range forecasters tend to extrapolate recent trends. But history is more interesting than that. Cycles and regression-to-the-mean are as important as long-term trends. The hard part is knowing what is a permanent trend and what is not.

This paper considers how such questions look now, 20 years later. More specifically:

(I) The rate of growth in global trade has slowed sharply since 2008, rather than continuing its past trend. Why?

(II) China's economic growth appears to be slowing as well, rather than continuing its past 10% per annum trend. Why?

(I) The slowdown in global trade

Growth in trade was rapid during most of the post-war period and particularly during 1980-2007. Trade expanded roughly twice as fast as GDP, so that most countries experienced an increase in exports and imports as shares of their economies. A continuation of the trend seemed inevitable, in part because of continued technological progress in transport and communication.

But, as I said 20 years ago, the trend of economic integration across national borders is not inevitable or irreversible, even if technological progress is one-directional. In the period 1914-1945, political forces worked to turn the clock back on globalization. These political forces included the two world wars, tariff protection (such as the US Smoot-Hawley tariff of 1930 and

emulation and retaliation by other countries), and discriminatory economic blocs (such as the Sterling bloc before the war or the Soviet bloc after it). As a result, trade fell as a share of GDP between 1914 and 1945 and even fell absolutely during the great Depression, 1929-1938.¹ It is always good to remember that what happened then could happen again.

When the Global Financial Crisis and recession hit in 2008 there was a fear that countries might revert to protectionism, as in the 1930s, and with similar results. The first two meetings of the new G-20 Leaders Summit pledged to refrain from imposing new protection, December 2008 in Washington and April 2009 in London. But many were skeptical of the rhetoric. As it turned out, there was in fact no great return to protectionism.² And yet both the economic downturn and the fall in trade turned out to be as bad as feared, or even worse!

The rate of growth of world trade has slowed sharply since 2008.³ To begin with, total trade fell even in absolute terms in 2009, which is highly unusual. To be sure, total global GDP fell sharply as well that year, which is also highly unusual. But the decline in trade was more than would normally be expected given output.⁴ Initially it seemed that the pause in globalization must certainly be a temporary phenomenon related to the financial crisis and recession. But the bounce-back of trade during the subsequent economic recovery was only partial. As of 2015, trade still lags GDP. This is the case, in particular, among Emerging Market and developing economies⁵ which are now a large enough share of the global economy to dominate the total.

Why has trade slowed so much? Three explanations that were originally suggested in 2009 now seem wrong. First, protectionism. As noted, for the most part it hasn't happened.⁶ Second,

¹ E.g., Irwin (2002, 2015).

² In the United States, for example, President Barack Obama initiated no significant protectionist initiatives, in contrast to the Voluntary Export Restraints on autos that Ronald Reagan induced Japan to accept during the 1981-82 recession or the steel tariffs imposed by George W. Bush after the 2001 recession, let alone the Smoot-Hawley bill signed by President Herbert Hoover as the Great Depression hit.

³ E.g., Boz, Bussiere, and Marsilli (2014), Constantinescu, Mattoo and Ruta (2015), Evenett (2014), Lawrence (2015), and Escaith and Miroudot (2015).

⁴ Abiad, Mishra and Topalova (2014), Baldwin (2009), Bussière, Callegari, Ghironi, Sestieri & Yamano (2013), Evenett (2014), Freund (2009).

⁵ Obstfeld (2015).

⁶ E.g., Constantinescu, Mattoo, and Ruta (2015), Figure 13. But a half-century of steady progress toward global trade liberalization in multilateral negotiations (Subramanian and Wei, 2007) appears to have come to an end with the failure of the Doha Round, launched in 2001 and declared dead in 2015. So this might

high prices for oil in 2008 and therefore for transport. Oil prices fell by half subsequently and yet trade did not recover. Third, trade credit froze up when financial markets did. True, but credit availability was subsequently restored.⁷

Another three hypotheses remain. Each is likely to be part of the explanation. Indeed they are interrelated.

1. Global supply chains have matured.
2. Trade-intensive physical investment spending has slowed.
3. The structure of China's economy is shifting.

1. Global supply chains have matured.

Some available evidence suggests that the expansion of global supply chains has slowed, supporting the hypothesis that vertical specialization may have largely run its course.⁸ The ratio of foreign value added to domestic value added in world gross exports rose by 8 ½ percentage points during 1995-2005, but only by 2 ½ percentage points during 2005-2012. In China in particular, where parts and components are imported and assembled into final goods which are then exported to the US and elsewhere,⁹ the share of imports of parts and components in China's exports peaked at a high level in 1993. The subsequent diminishing importance of such trade is reflected as a declining share in the two decades since then. Because China by now constitutes a significant share of world trade,¹⁰ its patterns affect the total. Consistent with these numbers, figures for parts and components as a share of US imports have reversed as well.

2. Investment spending has slowed.

Investment spending has fallen as a share of GDP. Investment is trade-intensive: Of the components of demand, the "marginal propensity to import" out of investment by firms is bigger than the marginal propensity to import out of consumption by households. (It is also bigger than the marginal propensity to import out of the other component in the standard decomposition of domestic demand: government purchases of goods and services.) Investment fell much more than consumption in 2008-09. Combine that with the import-intensity of investment and, say Bussière, et al (2013), the 2009 fall in trade is explained. Investment has continued to slump in the 2009-15

help explain the failure of the trade/GDP ratio to rise as rapidly in recent years as it did in the preceding decades.

⁷ Boz, Bussiere, and Marsilli (2015).

⁸ Constantinescu, Mattoo, and Ruta (2015).

⁹ Koopman, Wang, and Wei (2008).

¹⁰ Feenstra and Wei (2010).

recovery among advanced economies: business fixed investment, equipment, and residential construction are all continuing to run below their 1990-2004 trend rates of growth. Among developing countries as well, investment growth lags behind other sectors.¹¹

3. China's economy is "rebalancing."

Trade's relative importance in China peaked ten years ago. Exports and imports have both been declining as shares of GDP, in part because services are less trade-intensive than manufacturing or basic commodities.

China has long had great success with its heavy emphasis on manufacturing as a development strategy. Growth was led by exports and investment up until 2008.¹² But the structure of the economy is changing in two ways: away from manufacturing, toward services; away from export demand, toward domestic demand. The leaders announced the goal of moving toward services, with growth led by consumer demand, at the Third Plenum in 2013 for example. The "rebalancing" of the economy is appropriate. But services are less trade-intensive than manufacturing.

The available data are imperfect. But as of 2015 they support the proposition that China is shifting into services, as pointed out by Lardy (2015). The national statistics show a rising share of tertiary industries in GDP. It is good also to look at other data as well. China's output of industrial products such as coal, steel, and cement declined over the period 2010-2015. Railway data show that freight traffic has been declining, especially relative to passenger traffic. These are components of the so-called Keqiang Index.¹³

(II) China's GDP

This leads us to the question of recent Chinese growth rates. Even according to official Chinese economic statistics, GDP has slowed down. Many observers suspect that the slowdown may have been greater than is reflected in the official statistics.¹⁴

¹¹ Lawrence (2015).

¹² From 1997 to 2008, China's exports and imports had risen especially fast, even relative to GDP. Trade/GDP had also been rising somewhat in the US and had been flat in the European Union.

¹³ Lardy even points out that China's movie box office revenue has been rising faster than 40% a year [as of the first half of 2015].

¹⁴ They point to tangible statistics, such as energy usage or output of industrial materials like cement. But as we have seen, these same statistics are also consistent with the interpretation that the Chinese economy is shifting away from heavy manufacturing and toward services.

China's recent slow-down -- and the question whether it is temporary or long-term -- is now the big question. But first let us consider something that seemed the big question of 2014: Did the Chinese economy catch up with the United States that year?

1) Did China catch up with US GDP in 2014?

China was the world's largest economy two centuries ago. It is estimated that its GDP was larger than that of all of Western Europe for many centuries, up to and including the 18th century.¹⁵ Then, from 1820 to 1950, China's share of the global economy plummeted, as Western Europe and the United States took off and it did not. In 1950 the Western European and US economies were each more than five times as large as China's economy, notwithstanding the latter's larger population.

Then, after around 1973, China's growth accelerated sharply and its share of the world economy began to recover. As a consequence, looking forward from 1995, simple extrapolation of the trend would have had China's GDP surpassing the United States before now (on a PPP basis) and surpassing the US by some 40% in the year 2020.

Sure enough, news media in late 2014 trumpeted "China surpasses U.S. to become largest world economy."¹⁶ They were reporting the latest 6-year update from the International Comparison Program of the United Nations and World Bank, and the use of these statistics by the International Monetary Fund.

China's economic miracle is genuine. Growth averaged almost 10% per annum for three decades. This was an historic accomplishment. After its Industrial Revolution, it took the United Kingdom about 58 years to double income, starting from 1780. It took the United States approximately 47 years to double in size, counting from 1839. (Of course immigration helped a lot.) Japan accomplished the feat in about 35 years, from 1885. Korea continued the pattern of acceleration, doubling in about 11 years, starting in 1966. But it took China only around 8 years, from 1987.

Nevertheless, the claim that China has passed the United States is basically wrong, in my view. The US remains the world's largest economic power by a substantial margin. The reports are based on the release of the latest report from the U.N. International Comparison Program (ICP) project (World Bank, 2014). The work of the ICP is extremely valuable. I await eagerly their latest estimates every six years or so and I use them, including to look at China. (Before 2005, the data

¹⁵ The figures, which are in PPP terms, are from Maddison (2007).

¹⁶ That headline is from *Fox News*.

collection exercise used to appear in the Penn World Tables.) The ICP numbers compare countries' incomes using PPP rates, rather than actual exchange rates. This is the right thing to do if one is interested in individual living standards. It is not the best approach if one is interested in measuring a country's weight in the global economy, I would argue. When thinking about a country's size in the world economy, it is how much the yuan can buy on world markets that is of interest. PPP tells how many haircuts and other local goods it can buy in China.

The bottom line for China is that it has a ways to go before it surpasses the US by either criterion—income of the average Chinese (measured with PPP rates), or aggregate size of the Chinese economy (GDP correctly measured at actual exchange rates). This in no respect detracts from the country's impressive growth record, which at about 10% per annum for three decades constitutes a historical miracle (Prasad, 2009).

At current exchange rates, the American economy is still almost double China's. But the day when China's GDP catches up with the US even in terms of current exchange rates may not be far off. If one were to extrapolate the recent past trends, which would have the Chinese real growth rate continuing to exceed US growth by 5% per annum and the yuan appreciating at 3% a year in real terms, then China would pass the US by 2021. But this is unlikely. A more likely guess would be a real growth differential of 4% and no real appreciation, in which case the cross-over would be estimated to occur around the year 2029.

The PPP-versus-exchange rate issue is familiar to international economists. This annoying but unavoidable technical problem arises because China's output is measured in its currency, the yuan, while US income is measured in dollars. How should one translate the numbers so that they are comparable? The obvious solution is to use the contemporaneous exchange rate (multiply China's yuan-measured GDP by the dollar-per-yuan exchange rate, so that is expressed in dollars).

Someone then points out, however, that if one wants to measure the standard of living of Chinese citizens, one has to take into account that many goods and services are cheaper there. A yuan goes further if it is spent in China than if it is spent abroad. Some internationally traded goods have similar prices. T-shirts are virtually as cheap in the US as in China, in part because Americans can buy them from there. Oil is almost as cheap in China as abroad, because it can import it. But haircuts—a service that cannot readily be traded internationally—are much cheaper in China than in the US. For this reason, if one wants to compare income per capita across countries, one needs to measure local purchasing power, as the ICP does.

The PPP measure is useful for many purposes. One such purpose is knowing which governments have been successful at raising their citizens' standard of living. A second application

is estimating whether the country's currency is "undervalued," controlling for its productivity.¹⁷ A third is judging whether it is reasonable to expect that it has the means to start cutting pollution (to be considered further below).

Looking at income per capita, China is still a relatively poor country even by the PPP measure and even though it has come very far in a short time (Pethokoukis, 2014). Its per capita income ranks only midway among 190 countries: 85th, just above Peru. Why are we more interested in China than Peru? Partly because it is such a dynamic economy, but not just that. China still has the world's largest population. When one multiplies a medium income per capita by 1.3 billion "capita," one gets a large number. The combination of a very large population and a medium income gives it economic power and also political power.

Why do we consider the US the incumbent number 1 power? Partly because it is rich, but not just that. If income per capita were the criterion, then Monaco, Qatar, Luxembourg, Brunei, Liechtenstein, Kuwait, Norway, and Singapore would all rank ahead of the US.

For the purposes of that comparison, it does not much matter whether one uses actual exchange rates to make the comparison or PPP rates. Relative rankings for income per capita do not depend on this technical choice as much as rankings of size do. The reason is that the PPP rates are highly correlated with income per capita, the phenomenon known as the Balassa-Samuelson relationship (Balassa, 1964; Samuelson, 1964).

If you are choosing which country to be a citizen of, you might want to consider one of these richest countries. But we do not consider Monaco, Brunei and Liechtenstein to be among the world's "leading economic powers," because they are so small. What makes the US the number one economic power is the combination of having one of the highest populations together with having one of the higher levels of income per capita.

So there is a widespread fascination with the question how China's aggregate economic size or power compares to America's and especially whether the challenger has now displaced the reigning champ as number one (Subramanian, 2011). It seems to me that PPP rates are not the best ones for making this comparison. Why?

When we talk about size or power we are talking about such questions as the following:

- From the viewpoint of multinational corporations, how big is the Chinese market?
- From the standpoint of global financial markets, will the RMB challenge the dollar as an international currency?¹⁸

¹⁷ E.g., Frankel (2006), Cheung, et al. (2010), Subramanian (2010).

¹⁸ Subramanian (2011); Frankel (2012); Eichengreen and Kawai (2014).

- From the viewpoint of the IMF and other multilateral agencies, how much money can China contribute and how much voting power should it get in return?¹⁹
- From the viewpoint of countries with rival claims in the South China Sea, how many ships can its military buy?

For these questions, and most others where the issue is total economic heft, one wants to use GDP evaluated at current exchange rates.

It is sometimes objected that using the current exchange rate subjects the comparison to the substantial fluctuations that exchange rates often exhibit. This is true. But the large measurement errors in the PPP adjustment are considerably worse. There is a good case for using a five-year average of the exchange rate instead of the exchange rate in one particular year. It does not make much difference for the US-China comparison during this period. But even when exchange-rate fluctuations seem large, the difference is relatively small compared to the other statistical issues at stake here.

2) Is China's recent slow-down long-term?

Breathless reports in 2014 that the Chinese economy had overtaken the US economy as the world's largest were followed in 2015 by breathless reports that its economy was failing. Such concerns grew intense when the Shanghai stock market peaked sharply in June 2015 and fell sharply thereafter. But the rise and fall of the stock market that occurred within one year shed little light on the economies' true economic prospects. (The market in fact finished 2015 above where it had been in 2014.)²⁰

¹⁹ Frankel (2014).

²⁰ Wei (2015). The Chinese stock market began to take off in November 2014, in reaction to the first of several reductions in interest rates by the People's Bank in China (which in turn seemed a reasonable response to the beginning of the slowdown in the economy). By the spring of 2015, the acceleration in the Shanghai Stock Market Index had all the markings of a credit-fueled bubble, especially a big increase in investors buying on margin. The regulatory authority, the China Securities Regulatory Commission, responded by tightening margin requirements in January, April and June. The third of these steps, on June 12, coincides with the sharp peaking of the index, at a level double what it had been in April of 2014. Subsequent efforts by the government to prop up stock prices were widely criticized by outsiders.

Official statistics show real GDP in China growing at about 7% in 2014 and 2015, substantially below the average rate of the three decades 1980-2010 when it exceeded 10%.²¹ (For our purposes we are rounding to the nearest digit.)

Four questions are of particular importance:

1. Are the official statistics to be believed?
2. Is the recent slowdown likely to be permanent?
3. What are the possible reasons for it?
4. Will the economy fall substantially below its new long-term growth trend, i.e., will the transition to the slower path be a hard landing or soft landing?

1. Are the official statistics to be believed?

GDP statistics are subject to measurement errors in any country, but are particularly to be taken with the proverbial “grain of salt” for China. Often the GDP numbers reported at the end of a year come strikingly close to the growth goals that the government had set earlier, leading to suspicions that officials somewhere along the line are tailoring reports to what the leaders want to hear. During earlier periods of overheating, the suspicion was sometimes that official statistics may have understated growth. But the theory in recent years has been that they are overstating growth.

Cited in support of the suspicion that the decline in overall growth has been worse than the 7 percent rates announced in 2014 and 2015 is the fact that more tangible statistics show rates of growth that have declined much more sharply: energy consumption, freight railway traffic, and output of such industrial products as coal, steel, and cement. But we already saw [in section I.3] that those statistics are also consistent with the interpretation that the composition of China’s economy has been shifting away from heavy manufacturing and toward services. (Lardy, 2015.)

Regardless whether China has lost 3 percentage points in growth rates or more, the change is substantial, leading to the other three questions.

2. Is the current slowdown permanent?

Yes, the slowdown is likely to be permanent. Notwithstanding that many observers in 1995 or 2013 forecast future Chinese growth rates by extrapolating the past trend, it was never very

²¹ From 1980 to 2010, China’s real growth averaged 10.046 percent per annum, according to World Bank numbers. In 2012-2014, it ran between 7% and 8% each year.

likely that double-digit growth rates would be sustained for a fourth decade.²² It is not known ever to have happened before in history. We turn next to the long list of possible reasons why rapidly growing countries in general, and China in particular, can be expected to slow down.

3) Possible reasons for the long-term slowdown

There is no automatic tendency for countries to catch up with the leaders just because they start out poor. If they are poor because of such factors as bad institutions (e.g., lack of property rights or rule of law) or adverse geography (e.g., landlockedness or remoteness), they may well remain poor.²³ But conditionally on having good institutions and economic integration with the rest of the world, there is a tendency for lower-income countries to grow faster and gradually close the gap with the rich countries. The phenomenon is called conditional convergence.²⁴

– Middle-income trap?

Some economists in recent years have identified a “middle-income trap.” According to this view, countries that have achieved economic development, that is, have escaped poverty for most of their citizens (typically via success in labor-intensive manufactured goods), are nevertheless likely to find it difficult to ascend to the next level and achieve rich-country status. Rather they remain stuck at middle income levels. One interpretation might be that countries can move up the ladder of development, progressing to more sophisticated products, only until all the rungs on the ladders are filled by others.

Eichengreen, Park and Shin (2012), for example, estimate that the slowdown typically sets in at mean GDP per capita of \$16,540 in 2005 constant U.S. dollars at purchasing power parity (or a median of \$15,085), whereupon the growth of per capita income slows on average from 5.6 to 2.1 per cent per annum. If those estimates were right, it would imply that China had not yet reached the level at which it would be expected to slow down. Its per capita GDP in constant 2005 purchasing-power-parity dollars was still only about \$10,000 in the ICP statistics for 2011.²⁵ But a follow-up paper, Eichengreen, Park and

²² Pritchett and Summers (2013). A surprisingly little-noted precursor was Easterly, Kremer, Pritchett, and Summers (1993). That paper, like Krugman (1994), provided a contrarian take on the conventional wisdom that extrapolated East Asian countries’ growth rates indefinitely into the future. One might view these two papers as 20 years premature. Or one might credit them for having sounded a rare note of caution in the period preceding the East Asia crisis of 1997-98, a period during which most observers thought that these countries had found the elixir of eternal growth.

²³ E.g., Pritchett (1997), Acemoglu, Johnson, and Robinson (2002, 2005), and Collier (2008).

²⁴ Lucas (1990), Sala-i-Martin (1996), Quah (1996), Pritchett (1997), and Alfaro, Kalemli-Ozcan and Volosovych (2008).

²⁵ And had been less than \$8,000 in 2007, the last year for which Eichengreen et al (2012, 2013) had statistics.

Shin (2013), found a second “node” in the \$10,000-\$11,000 range, in addition to the one they had earlier found at \$15,000-\$16,000. This is important because it suggests that China may now be in the middle-income trap.

On the other hand, there are certainly cases of middle-income economies continuing to grow and eventually achieving levels of income comparable with advanced countries. Singapore and Korea are outstanding examples.

The growth experience of East Asian countries has long been characterized by the “flying geese” pattern. Japan is the lead goose, followed by Singapore, Korea, etc. At each stage of development, the country produces the products that had previously been produced by the country that preceded it, with the corresponding capital/labor ratio and appropriate technology. In this view, there is nothing to stop China now from continuing up the ladder following the path of the others.

– **Regression to the mean**

Pritchett and Summers (2014) made a simple but important point. Statistically, countries that grow faster than average in one period tend on average to regress to the mean, that is, to slow down somewhat in the subsequent period. According to their results, once one allows for this effect in the data, there is nothing special about middle income levels, no evidence of a middle-income trap per se. The implication for China’s economic prospects is the same, an expectation that its growth is likely to slow down, but the reasoning is different.

- **Natural mechanisms of convergence**

The hypotheses of a middle-income trap and regression to the mean are purely statistical statements about patterns in GDP, without much economic content. But there are a number of economic reasons to expect that the rate of growth of a rapidly developing country will begin to slow down when the gap between its income and that of the most advanced countries becomes narrower. They are all relevant to China, some more so and some less.

– Technical convergence

Ever since Solow (1957), the conventional wisdom has been that variation in growth performance, across countries or across time, is attributable less to the inputs (capital and labor) and more to how much output the economy can produce out of given inputs, that is, technical change as measured by the rate of growth of Total Factor Productivity. Technical change is not limited to pure technology, but includes innovations such as new products, adoption of state-of-the-art production techniques, and improvements in managerial efficiency. It stands to reason that it is easier for a developing country to emulate these techniques than it is for a country at the frontier to develop them in the first place. It may follow, then, that the more products,

technologies and management practices that have already been adopted from the front runners in the past, the fewer remain to be adopted in the future.

– Rising capital/labor ratio

Young (1994, 1995) -- popularized by Krugman (1994) -- challenged the conventional wisdom that the East Asian economic miracle must take the form of growth in Total Factor Productivity by calculating increases in the capital stock and the effective labor force and finding that they accounted for most of the growth in GDP, especially in Singapore and China. High rates of national saving led to high rates of investment in both physical capital and human capital. An important implication was that these countries might soon run into diminishing returns to capital. It had already happened in Japan, where the real interest rate had been driven down by years of high saving and investment (including public infrastructure investment: every body of water had been either bridged, tunneled, or paved over).

When financial crisis hit Southeast Asia and Korea in 1997, these writings appeared to have been clairvoyant. Contrary to what had been the instincts of many non-economists, there really is such a thing as too much investment. Korea had too many steel mills and too many auto factories. Thailand had too much beach-front condominium construction.

Available data suggests that over a few decades of super-high rates of saving²⁶ and investment, China has raised its capital/labor ratio rapidly – more rapidly than is normal for its stage of development. Capital per capita doubled from 2000 to 2010 (though still well below the levels of advanced countries). The investment was a source of growth for a long time. But the most tangible manifestation is the miles of empty apartment buildings left by excessive residential construction.

– Rural-urban migration

A major source of growth in China has been rural-urban migration, corresponding to long-standing two-sector models of economic development in which there is surplus labor in the countryside together with higher-productivity jobs in the manufacturing sector. Peasants leave rural districts and move to the cities, in search of the better jobs. The elastic supply of labor from the countryside keeps wages from rising in the urban sector. But eventually the process runs its course, as the surplus of labor is used up. The manufacturing sector runs into labor shortages and has to start paying higher wages. This is called the Lewis turning point.²⁷

²⁶ Kray (2000); Ma and Yi (2011); Wei and Zhang (2011). China's national saving rate reached a remarkable 52 per cent of GDP in 2013.

²⁷ Lewis (1954).

It seems to fit well the experience of China. For a long time, the supply of unskilled labor was said by some to be limitless. But labor shortages eventually arose in the coastal provinces and workers started receiving greater wage increases. The process was delayed by the hukou system, which creates an impediment to migration. That workers finally receive higher wages was a natural sign of successful development. But it did suggest that export growth would have to slow down, as China was no longer the world's low-cost producer. (Hourly wages passed Mexico's in 2011, for example.)

- Adjustment to rising costs of labor & land.

As the prices of labor and land are bid up, industry has had to find ways to adjust. Five adjustments:

- 1st, some manufacturing is migrating to inland provinces, where wages and land prices are still relatively low.
- 2nd, operations are shifting to Vietnam or Bangladesh, where wages are lower still.
- 3rd, Chinese companies are beginning to automate, substituting capital for labor.
- 4th, they are moving into more sophisticated products, following the path blazed earlier by Japan, Korea, and other Asian tigers in the "flying geese" formation.
- 5th, some multinational companies that had in the past moved labor-intensive stages of their production process to China, out of the US or other high-wage countries, are now moving back.

-- Aging

Economic growth slows when the proportion of retired people rises relative to those of working age. Japan over the two decades has been a strong example. Often this aging is considered a natural demographic transition that arrives with high levels of income. In the case of China, the phenomenon was artificially and excessively speeded up by the so-called "one-child policy."

- Services have a lower rate of productivity growth

Another natural evolution in any country is a shift in the structure of the economy from manufacturing to services, already noted in section (1.3). This natural structural evolution is similar to the shift from agriculture to manufacturing that most countries experience at the first stage of development. But services tend generally to have a lower rate of productivity growth than either primary commodities or manufacturing. So that is another explanation for the slowdown in overall Chinese economic growth.

- Limitations of the environment.

Besides the availability of labor and land, China's fast-growing economy has run into another sort of limit: natural resources and the "carrying capacity" of the environment. At lower levels of income, the priority is on food, clothing and shelter. As incomes rise and the environment gets worse, people start to worry more about the safety of their food and workplaces and the quality of their air and water, and they are willing and able to pay a price in conventional market-measured terms for a higher quality environment. The Environmental Kuznets Curve is a general pattern whereby pollution worsens at early stages of economic growth, reaches a peak, and then starts to improve with further growth. Standard estimates in international data show a turning point for sulphur dioxide at roughly \$10,000 per capita.²⁸ China is now there. But there is also evidence that democracies are more likely to translate the public's desire to improve the environment into reality than are autocracies.

3. Hard landing or soft landing?

Thus there are plenty of reasons to think that China's slowdown to a more sustainable rate of growth is natural and not necessarily cause for concern. The important question is whether the transition takes the form of a soft landing or a hard landing.

If the economy during the high-growth phase was highly dependent on investment or too highly leveraged, a slowdown in the rate of growth of potential output can lead to a hard landing featuring distressed debt and excess productive capacity. The precedent of post-1980s Japan is a bit worrisome. Korea had such a hard landing too, in 1997-98.

China certainly has had excessive residential construction and bad loans in the banking and shadow-banking systems. But nothing that has happened recently makes a hard landing inevitable, in particular not the 2015 stock market bubble and its reversal.

4. The ends of the trends?

²⁸ E.g., Grossman and Krueger (1995) and Frankel and Rose (2005). This is an application where one wants to measure income per capita in PPP terms. The Environmental Kuznets Curve does not work for all measures of environmental quality. There is no sign of a natural turning point for carbon dioxide, the main gas responsible for global climate change, for example. The obvious explanation is that regulation at the national level can address domestic pollutants like SO₂, given effective institutions of governance, but not global pollutants like CO₂ because of the global free rider problem, absent an effective international treaty.

Forecasting is largely a matter of choosing between trends and mean-reversion. Telling the difference between cycles and trends in growth rates is particularly difficult for emerging market countries.²⁹

Until recently, continued globalization of trade and continued rapid growth of China were two trends that would have appeared easy to extrapolate into the future. But, as we have seen, simple extrapolation is likely to go astray. After decades of an ever-rising ratio of world trade to GDP, this measure of globalization has slowed sharply since 2008. After decades of 10 per cent GDP growth in China, this measure of Chinese economic performance has slowed sharply since 2010. Have these two trends both come to screeching halts?

The two phenomena partially overlap, though only partially. China's economic miracle was to some extent based on the export of manufactures. By 2008, China's economy was a big enough share of the world economy that a slowdown in its trade implied something of a slowdown in world trade. China's trade has slowed down both because its total GDP has slowed down and because the structure of its GDP has begun to switch away from dependence on the export of manufactured goods and more toward the consumption of services.

What seemed to be permanent trends were not. To be sure, they were not purely short-term phenomenon either. Thirty or forty years is a long time. But In retrospect, our perceptions were too heavily influenced by the statistics of 1980-2008. Global trade will continue to grow in the "new normal",³⁰ and perhaps faster than GDP. China will continue to grow, and probably faster than the rest of the world. But the break-neck growth rates of those decades were above the truly long-run trends, and some regression to the mean should not have been as much of a surprise as it was.

²⁹ Aguiar and Gopinath (2007).

³⁰ Escaith and Miroudot (2015).

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