Can China's Growth be Sustained?

A Productivity Perspective

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Abstract

China's unorthodox approach to economic transition has implied sustained high growth, rapid structural change, established markets for most commodities, a huge influx of foreign direct investment, and an extraordinary expansion of foreign trade. However, in recent years, Chinese economists have increasingly referred to China's pattern of growth as being of the "extensive" type, generating growth mainly through the expansion of inputs and only marginally through rises in productivity. In our investigation of the accumulation and utilization of productive factors in the Chinese economy during the reform period, we note that China's reform measures have often resulted in one-time level effect on TFP. China now needs to adjust its reform program in order to sustain its productivity performance. Market reform, foreign direct investment, and trade will improve the situation under which Chinese firms operate to a certain extent, but innovative institutional arrangements may be required to complete China's move to a viable market economy that promotes sustained productivity growth.

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1. Introduction

Since the economic reform process started in 1978 Chinese per capita incomes have increased eightfold. The reform strategy pursued by China has been characterized by piecemeal and gradual reforms, which has meant that the market economy still does not permeate the whole economy. Property rights and institutions are far from the ideal textbook model. Key ingredients of the strategy have throughout been, like in the East Asian NICs, high saving, export orientation, and education. A controversial aspect of the present strategy is also the attempt to preserve an undervalued currency as an export promotion measure.

While the unorthodox approach to economic transition has been broadly considered as successful, in recent years, China's high growth performance at the macro level and low productive efficiency at the firm level have presented a paradox to economic analysts. Between 1995 and 2004, China enjoyed a remarkable period of growth in GDP that exceeded 8 percent a year. On the other hand, profits in industry deteriorated sharply during the 1990s. Profits fell to nearly zero in 1998, with more than one-third of enterprises making losses, and despite noticeable improvement during 1999-2001, financial performance remained weak in many sectors (OECD, 2002). There is an extensive literature trying to explain this pattern of development, whether the existing pattern of growth is sustainable, and what China's future development strategy should be. We will review part of that literature in this paper.

As a starting point for a discussion of China's growth one may decompose the growth into its components, that is the accumulation of factors of production and total factor productivity growth. So in this discussion we first attempt to characterize the Chinese growth pattern and how that has changed from 1978 to the present. What the information suggests is that the growth of TFP has come to play a declining role, while factor accumulation has become even more important. A recent study (Zheng and Hu, 2004) found that productivity growth fell dramatically during 1995-2001, explaining only around 8 percent of total GDP growth in this period. While productivity was rising by 3.16 percent a year before 1995, it rose only 0.64 percent a year from then until 2001. Although China's capital stock grew at a record speed of 11.8 percent annually 1995-2001, employment growth dropped to only 1.2 percent

from 2.4 percent before 1995. These findings seem to confirm that the Chinese economy has been growing along an "extensive" path since around the middle of the 1990s. It is generating growth mostly through the expansion of inputs and only marginally through rises in productivity (Ofer, 1987). The recent Chinese experience is thus completely counter to the findings of Easterly and Levine (2001), who find in a cross-section of countries that the residual or TFP growth rather than factor accumulation account for most of the growth differences across nations.

To understand how the extensive pattern of growth in China has emerged, we need to analyze on the one hand factor accumulation, on the other hand the allocation of factors. There is a heated debate right now about both these aspects of Chinese growth. Blanchard and Giavazzi (2005) argue that China over-saves and has gone too far into manufacturing for export markets, which has meant that capital has become misallocated. At the same time, they argue, there is an undersupply of services, particularly health services. The imperfections in the capital markets and the undervalued currency mean that China is not adjusting optimally to its short-term comparative advantages. Rodrik (2006) notes that China's export is more technology intensive than one would assume given its factor endowments. He argues, however, that the country has via its industrial policy managed to shift it export structure in this direction. The government has been willing to support investments that are more sophisticated than what its comparative advantages would typically support and what the market left to itself would generate. And he argues that once one successful firm can be established in a new type of production it tends to be followed by others. Once investors in a country "discover" a number of high-productivity exportable, this has a powerful demonstration effect. Such an investment strategy may have static inefficiency costs, but he argues that it is an essential force behind the rapid Chinese growth. This proposition has not been properly investigated yet, but this is something that needs to be looked into in greater detail.

Given the rate of factor accumulation and allocation, the rate of growth depends on the rate of total factor productivity growth. In the long term this is certainly a key component of growth. As noted the pattern of growth in China in recent decades has been characterized by high saving and investment, and a rapid export (and import) expansion. Blanchard and Giavazzi (2005) point out that about half of the export is

related to the processing of imported intermediate goods, and they argue that this is a type of trade that is important for learning-by-doing and thus TFP growth. We may also note that between 1990 and 2002 labor productivity growth in industry was 12.5% per year, although this was largely driven by high investments. Still, for most of the reform period TFP growth contributed significantly to overall growth, but recently it seems to have slowed down. Blanchard and Giavazzi (2005) hypothesize that the decline in TFP growth identified by Zheng and Hu (2004) is not due to a decline in technological progress, but rather a reflection of capital misallocation leading to low or maybe even negative marginal productivity of capital in manufacturing. So they believe that probably is a substantial technological progress, but that this is countered by capital misallocation.[2]

A special concern about the recent growth pattern has been increased inter-provincial income differences and led to a divergence between urban and rural households. It has also increased the gaps between skill levels. At the same time social safety needs have been weakened and generated a need for self-insurance and thus high saving. The glut of saving combined with a bank-centered financial system favoring state firms has lead to a misallocation of investment. So social and income distribution policies are important not only in their own right but also for growth and macro-economic balance. To rectify the macroeconomic imbalances in China Blanchard and Giavazzi (2005) recommend a three-handed strategy. This entails a decrease in saving (particularly private saving), an increase in the supply of services (particularly health services), and an appreciation of the RMB.

The order of our discussion is as follows. We first characterize China's growth pattern by decomposing growth into factor accumulation and TFP growth and review the literature on Chinese TFP growth and show that the estimates of TFP can be useful in understanding the paradox of high growth and low efficiency in China. We then examine the process in which productive factors are accumulated, analyze the determinants behind China's high rate of factor formation, and assess if productive

[2] Green (2004), in reporting Zheng and Hu's findings, commented that it could trigger a reevaluation of reforms in the late 1990s. That period saw provincial protectionism being dismantled, increased levels of foreign investment, rising education standards, falling trade barriers and, probably most importantly, an explosion in private sector activity. All these things should have improved economic efficiency.

factors are allocated and utilized efficiently. Finally, we conclude with a few comments on policy options that may improve the allocation of productive recourses and the efficiency of factor utilization

2. The Change in China's Growth Pattern and the Productivity Slowdown

China has experienced three major waves of reform since 1978. The first was the reform of collective farming with the household responsibility system, which resulted in a rapid increase of agricultural output as well as in productivity growth for several years (Wen, 1993)[3]. The second wave came in the middle of 1980s and continued into the early 1990s during which management reforms were gradually introduced into the state owned enterprises to provide managers and workers greater incentives to improve efficiency, while at the same time township-village enterprises flourished and transferred a large number of rural labor force to industries (Goodhart and Xu, 1994). The third wave started in 1992 when Deng Xiaoping made his tour to Southern China, many state and collective firms were privatized, foreign direct investment poured in and export growth accelerated.

According to the World Bank (1997), a noteworthy feature of China's growth during 1978-1995 was its reliance on productivity growth. Relative to other rapidly growing Asian economies at a comparable stage of development, China's growth during that period was less dependent on volume increases in inputs of capital and labor. In most East Asian countries growth in capital inputs exceeds GDP growth, often by a substantial margin. In China the reverse occurred, suggesting that factors other than capital accumulation were important determinants of GDP growth during the early reform years.

Empirical estimates of China's total factor productivity growth differ, but most studies suggest that improvements in TFP accounted for 30 to 58% of the growth during the period of 1978-1995 (e.g., World Bank, 1997; Madisson, 1998). It means

[3] New results at both regional and national levels suggest that factor productivity showed a sharp increase in the early 1980s, entered a period of stagnation or flux in the late 1980s followed by another period of productivity growth and slowdown in the 1990s (Mead, 2003). Fan (2002) found that the official data overstated the impact of rural reforms on both production and productivity, but both production and productivity still grew at respectable rates during the reform period (See also Xu, 1999).

that productivity improvements accounted for a significant proportion of the dramatic increase in the standard of living in China during this period. Hu and Khan (1997) concluded that their finding of a productivity growth rate of 3.9% explained more than 40% of China's aggregate economic growth during the early reform period.

Some researchers have provided less favorable picture of the growth process. Krugman (1994) pointed out that accounting for China's boom is difficult because the quality of the numbers is extremely poor. In addition, if one measures growth from before the Cultural Revolution from 1964, the picture looks more like the East Asian "tigers": only modest growth in efficiency, with most of the growth driven by inputs. Recently Young (2003) has questioned the Chinese growth performance during the economic reform by focusing on the productivity performance of the nonagricultural sector. After making adjustments of Chinese official data, he shows that one can reduce the growth rate during the reform period to levels previously experienced by other rapidly growing economies, so that once one takes account of the rising labor force participation, the transfer of labor out of agriculture, and improvements in educational attainment, labor and total factor productivity growth in the nonagricultural economy are found to be 2.6% and 1.4% per year, respectively; a respectable performance, but by no means extraordinary.

Although economists' estimates of China's productivity growth differ, several factors behind China's productivity growth during the reform period can be identified.[4] First, the success of the rural reform from the late 1970s to the early 1980s resulted in a surge in agricultural productivity thanks to the introduction of the household responsibility system and the upward price adjustment for some agricultural products. Second, industrial reforms provided individual firms, managers, and workers with greater incentives to improve efficiency, and especially township-village enterprises (TVEs) achieved higher TFP growth than state firms. Third, the usual suspects, i.e., rising participation rates, improvement in educational attainment, the transfer of labor out of agriculture, and later the narrowing technology gaps between China and

[4] We do not have any clear indications about their relative importance, but Easterly and Levine (2001) noted that different theories have very different conceptions of TFP. Some model TFP growth as changes in technology, others focus on the role of externalities, changes in sectoral composition, or the adaptation of lower cost production methods. The conclude that "economists need to provide much more shape and substance to the amorphous term TFP, distinguishing empirically among these different theories" (p. 178).

developed economies accounted for a significant part of the TFP growth. However, some of these factors have only a one-time level effect on productivity, so future productivity growth may not be able to match the levels witnessed in the past (e.g., Madisson 1998, Liu 2000, and Heytens and Zebregs 2003).

While the overall conclusion about Chinese productivity performance up to the early 1990s has been positive, reports of productivity slowdown started to emerge around the year 2000. Jefferson et al. (2000) investigated Chinese industrial productivity from 1980 to 1996. They found long-term productivity increase, but with growth rates declining during the 1990s. Time series estimates of TFP growth by Zhang (2002) for the aggregate economy also show a downward trend from 1993 to 1998. Japanese researchers also reported significant slowdown for 1996-2002 (Chugoku Electric Power 2003). A very recent estimate by OECD (2005) indicates that over the 25 years to 2003 the annual growth in TFP averaged 3.7%, it slowed to 2.8% by the end of that period (Economist, 2005). This was due to a declining growth rate in total factor productivity from 1993 to 2003, a prolonged period of 10 years.

Usually the interpretations of TFP estimates are controversial, but the slowdown in recent years coincides with worrying signs of sluggish income growth in rural area, widespread inefficiencies in industries, and a growth pattern that increasingly relies on capital accumulation. Still, the economy does not show any signs of slowing down. Instead the government has had to use a combination of economic and administrative measures to cool off the investment boom in 2004 and 2005. [5]

In spite of its rapid growth, the Chinese economy suffers from a whole range of efficiency problems. Human capital, land, and other resources are under-employed, misallocated among economic sectors, and inefficiently used (OECD, 2002). To understand these phenomena further, we need to examine the process in which productive factors are mobilized by the Chinese government.

[5] In 2004, the Chinese authorities took a number of steps intended to moderate the pace of growth and achieve the soft-landing: these largely took the form of administrative controls, including on bank lending, but in late October they also announced a modest rise in interest rates (Krueger, 2005).

3. Capital Accumulation

In spite of a rapid growth of the capital stock, China still has a low capital-labor ratio relative to Western economies. Labor is abundant, but human capital measured as the average level of education is still low. Thus, investment in both physical and human capital is important for growth. While the rate of accumulation is very high, the new capital has not been allocated and used efficiently, especially in recent years. In this section, we investigate how China's capital accumulation was financed, what characterizes the process, and discuss the way capital was utilized and its impact on total factor productivity in the next section.

Recovering from a recession in 1989-90 (Cheng 1993), investment accelerated in the early 1990s when China's leadership signaled its long-term commitment to market-based reforms. Gross capital formation (GCF) reached a record 43.5 percent of GDP in 1993. Investment was slowed by the bursting of a real estate bubble and retrenchment policies aimed at controlling surging inflation in 1995-96. Consumption and exports played an increasingly important role until the late 1990s, when the effects of the Asian financial crisis of 1997-99 slowed China's growth somewhat (Shane and Gale, 2004).

Beginning in 2000, investment surged again through a combination of massive government infrastructure spending and investment in manufacturing facilities by both foreign and domestic investors. Preparations to host the 2008 Olympic Games contributed further to the frenzy of construction projects. China's 2002 accession to the World Trade Organization spurred many companies, both domestic and multinational, to invest in China in anticipation of greater market opportunities. Gross capital formation rose from 36.4 percent in 2000 to 43 percent in 2003 — nearly equal to the historical high of 1993 and about 5 percentage points above China's average over 1978-2003 — as investments in factories, real estate, roads, and other infrastructure reached unprecedented levels (Shane and Gale, 2004).

The end result of this investment strategy is that it has enabled GDP to grow by over 9% a year since 1995. As mentioned in the introduction, many Chinese firms had been losing money during the 1990s, so how was the high investment rate financed?

There were two elements that allowed this extraordinary growth to take place (Hunt, 2006). First, key input prices, such as land, electricity and utilities, including water, were kept low through subsidies and controlled pricing. Anecdotal evidence shows that in many cases land was allocated for development at zero cost, and electricity for FDIs was sold at half price. Second, cheap finance was channeled into industry, particularly to large companies and SOEs, often effectively at zero cost of capital. The cheap finance was possible thanks to the high savings rate, which has grown over the past couple of years to close to 50% after averaging 40% or so of GDP for most of the 1990s (IMF, 2005). Household savings rates in China, while high, do not explain the nations' high savings rate as a whole. High savings rates among enterprises,[6] in the form of retained earnings, and a high public savings rate have been driving Chinese savings and investment (IMF, 2005).

Local governments, over which Beijing had limited control following a fiscal decentralization in 1994 (Lin and Liu 2000, and OECD 2002 p. 57), vied with each other to construct plant and infrastructure even if it made little or no economic sense. What followed was the world's largest ever fixed asset investment binge. Not only did these policies, which have been in place since the mid-to-late 1990s, create a gross surplus of capacity in so many industry sectors and throughout the manufacturing chain.[7] They also led to a degradation of the environment and a misuse of the country's natural resources, including energy (Hunt, 2006).

Besides the high growth rate, China's investment strategy produced three side effects. First, the buildup of excess capacity led to deflation (Lin, 2004). At the macroeconomic level, investment in inventories has been negative since the second half of 1999, signaling an excessive storage of finished products and production capacities (Zhang, 2006). In 2004, nine-tenths of manufactured goods were in oversupply, and yet investment in fixed assets a year before grew by 30% and contributed 47% of GDP (Economist, May 13, 2004). In some sectors such as autos

[6] As companies have improved their performance, corporate saving has risen and now accounts for almost half of national saving. Corporations have an incentive to retain their earnings in order to self-finance their investment (Dunaway and Prasad, 2006).

[7] For detailed statistics of the manufacturing sector in 1995, see Lin (2004).

and steel, there is already some evidence that rising competition and excess capacity are beginning to drive prices down (China Business Review, 2005). This could result in an accumulation of new non-performing loans in the banking system, setting back some of the progress that has been achieved in recent years (Prasad, 2005). [8]

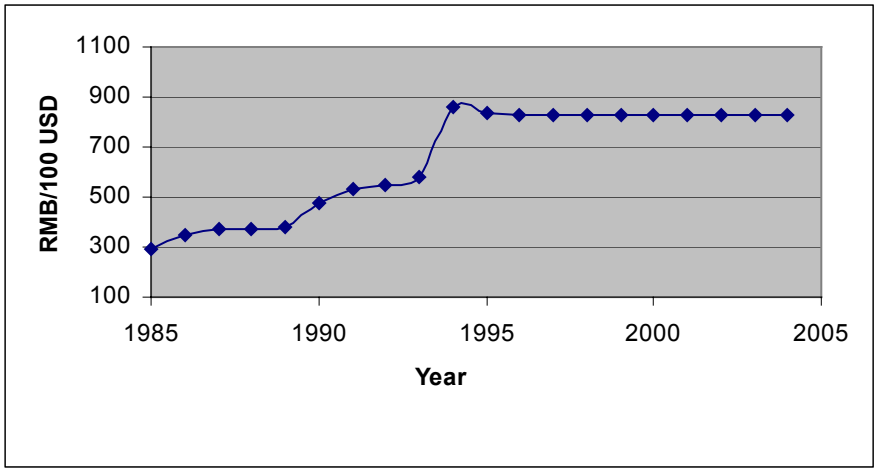


Figure 1 China's exchange rate to the dollar, 1985-2004 (authors' calculation)

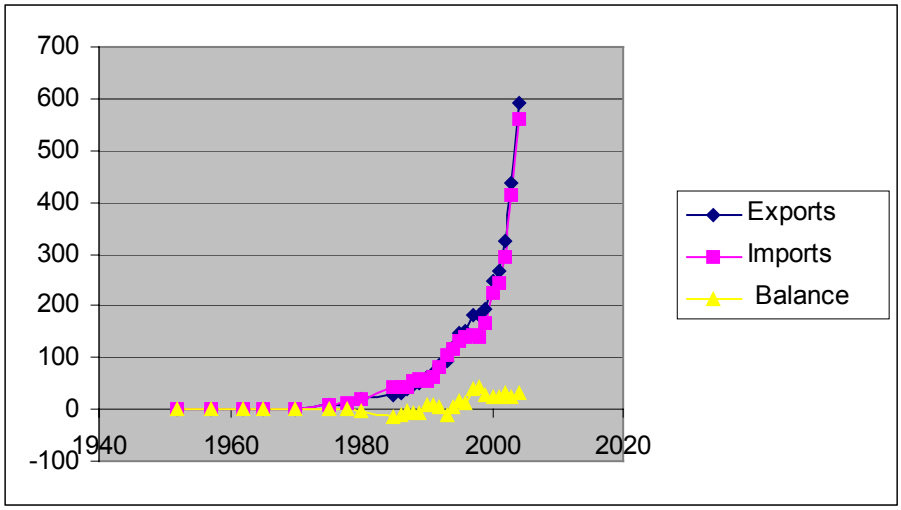


Figure 2 China's Export Performance (authors' calculation)

Second, unwilling to deal with structural adjustment problems accumulated due to reckless investment in the past, the government policy turned to export markets. This explains the growing efforts of Chinese businesses in recent years to go global. Globalization is increasingly viewed as an alternative to domestic structural

[8] The Standard & Poor's rating agency currently estimates that China's banks have issued about $650 billion in bad loans, or about 40 percent of outstanding loans (Wolf, 2005).

complexity (Project Syndicate, 2005). China's export in part relies on what may be an unsustainably low fixed exchange rate. China depreciated its currency against US dollar to 8.62 in 1994 from 5.76 and has maintained its currency at a fixed rate of approximately 8.28 yuan per U.S. dollar since 1997, a rate that some economists suggest is undervalued by as much as 40 percent (Figure 1). As a result, exports increased 5-fold between 1993 and 2004 and so did imports (Figure 2).

Third, building up a huge trade surplus with particularly the US (China Business Review, 2004), China's stock of foreign exchange reserves has risen sharply since 2001. By June 2005, China's foreign exchange reserve reached over 700 billion dollars (Prasad, 2005). Maintaining a (more or less) fixed exchange rate regime, China is facing an excessive growth of money supply and credit (China Business Review, 2005), which are fueling real estate bubble in the major cities. According to official statistics, investment in real estate reached $99.82 billion in the first 11 months of 2003, an increase by 32.5 percent. The irrationality of the property boom is demonstrated by the fact that at the end of November, vacant commercial building space exceeded 100 million square meters, an increase of 6.5 percent (Chan, 2004).

By now, a vicious circle seems to have evolved. High investment rate has built up excess capacity, which has caused deflationary pressure on manufactured goods, cut profit margin, and created ever increasing bad loans in the banking sector. On the other hand, the export market was chosen as an alternative for the absorption of that excess capacity and this resulted in the large buildup of foreign reserves and a rapid increase in money supply. The cheap money in turn fueled another round of reckless lending and investment, generating more excess capacity.

While the half-reformed production system with financial reform lagging far behind other reforms generated excess capacity on the supply side, some radical reform measures in public health, housing, and education created problems on the demand side. A very high domestic savings rate — around 40% of household income — and the uncontrolled exploitation of its natural resources make it possible for China to invest on such a large scale. The main reason for the high savings is that the transition from planned to market economy has involved a massive shift of financial risk from state-owned enterprises to households, thereby creating a large perceived need for

precautionary saving by households to fund anticipated retirement, medical and educational expenses (Kroeber, 2005).

The export oriented growth strategy requires easy access to international sea-lanes and concentration on low value-added, low technology, non-branded goods. The benefit of the growth was thus not shared evenly across regions, skill levels, and among industrial sectors, creating an increasing gap between the rich and the poor. The new rich and powerful now live in walled, guarded villas and modern apartment complexes, enjoying vast differences in wealth, power, and rights from the swelling ranks of the rural poor and urban dispossessed (Gilboy and Heginbotham, 2004). The growth pattern is probably not sustainable and policy changes are already underway. Chinese policy makers are at present pushing the notion of "harmonious development", which means that there will be attempts to spread the benefits of growth more equitably.

4. Allocation and Utilization of Capital

China's industrial structure has changed a lot since the reforms started (China Business Review, 2004). The majority of investments go to the manufacturing sector; agriculture represents about 15 percent of GDP, but only 2 percent of investment. About two-thirds of China's gross capital formation (GCF) is construction of infrastructure such as roads, dams, public buildings, and other facilities. Most of the remainder is spent on machinery and equipment (Shane and Gale, 2004). The state sector, although contributing to only one third of China's GDP, consumes two thirds of the country's capital resources (Wu, 2000). Between 1993 and 2000, more than 60 percent of all loans went to state-owned enterprises (Wolf, 2005). Most "private" investments are made by state-owned or collectively owned enterprises, funded by internally generated funds or loans from state-owned banks. Foreign investment accounts for about 5 percent of investment in fixed assets (Shane and Gale, 2004). There are increasing signs that the economy has proceeded too far into manufacturing for export markets, to the point that the country's capital stock is misallocated with too much in manufacturing and too little in the domestic service industry (Blanchard and Giavazzi, 2005).

Many of China's investments are inefficient. At the macro level, where as in the 1980s and 90s it took $2-3 of new investment to produce $1 of additional growth, now it needs more than $4 (Zhang 2006). None of those high performing East Asia countries such as South Korea, Taiwan, and Japan, had such high incremental capital to output ratio at comparable stages in their development as China does today (Kwan, 2004). Even India, often compared unfavorably with China, is now more efficient on that measure (Economist, March 18, 2004). Looking at China's capital allocation and utilization from a productivity perspective, there are several elements concerning technical efficiency, economies of scale, and technical progress that are worth mentioning.

Perhaps, the number one source of inefficiency is the state enterprise sector (OECD 2005). The state business sector remains large and some parts waste resources. The poor industry performance can be traced in part to the accumulation of policy burdens arising from the long-standing use of enterprises to accomplish social policy goals. Policy burdens are heaviest on SOEs, but they are also borne by rural enterprises. Government interference leads to poor SOE management and inefficient operations, which foster low profits and high debt; this in turn makes it more difficult to restructure to improve efficiency and prompts government interventions that spread the problem by extracting resources from stronger enterprises to prop up those that are failing. Large SOEs remaining under government control receive preferential treatment from the government and are often sheltered from competition, but their performance is often lackluster and their flexibility is constrained by government intervention in their management and by various policy burdens (OECD, 2002).

The major imbalance in the state industrial sector lies is the spread between the minority of companies that earn respectable returns and the majority that barely breakeven. The median company in the state-controlled industrial sector was still earning a rate of return of only 1½ per cent in 2003, hardly registering any change since 1998. Indeed, almost two-thirds of all firms in this sector failed to earn a return of 5% on capital (OECD, 2005).

A second source of inefficiency is the government intervention with economic activities and along with it rampant corruption. There has emerged what Hunt (2006)

has termed China's trilogy of local company, local government and local bank. Each had a vested interest in building whatever plant was in vogue, whether a steel mill, a power station, an air conditioner factory or a copper tube plant and so on. Very often these plants were financed with zero cost capital. Corrupted officials were often benefited financially in the process. The growth promoting policy initiated by the central government was virtually interpreted at the local level as growth at any and all costs. Achievement projects and image projects ran rampant as local governments competed for a nominal share of the increase of gross domestic product numbers, leading directly to administrative intervention in economic activities (China Daily, 2004).

A third source of the inefficiency is that Chinese markets are fragmented due to local protectionism. In contrast to formerly centrally planned economies in Eastern Europe, China’s industry is characterized by widespread sub-optimal scale in production facilities, fragmentation and duplication. There are 200 separate producers of automobiles, most of which complete only a few thousand units per year. Economies of scope are also poorly exploited, as illustrated by the nearly 8 000 independent cement firms in China compared to 110 in the United States, 51 in Russia, 58 in Brazil, and 106 in India (OECD, 2002).

Given the political perils of challenging competitors and their local patrons, few Chinese firms develop alliances with or invest in companies in other provinces. One recent survey of 800 companies that have conducted domestic mergers and acquisitions found that 86 percent of them invested in firms within their own city and 91 percent invested in firms within their own province. Strong local political ties tend to isolate a region from the rest of the economy, which helps explain why Chinese firms are often small and the country's industries fragmented. For example, a recent study performed for the State Council (China's cabinet) revealed that Chinese managers regard the country's two most politically powerful technology and industrial hubs, Beijing and Shanghai, as leading centers of local protectionism in China. Among the industries most affected by such protectionism were pharmaceuticals, electrical machinery, electronics goods, and transport equipment. SOEs and private firms suffered the most, FFEs the least -- which suggests that the burden of particularism falls most heavily on Chinese firms (Gilboy, 2005).

A fourth element is the misuse of foreign direct investment. Within the private sector of the economy, foreign investment has played a major role in transforming the Chinese economy. However, the role of foreign-controlled companies in raising productivity should not be overstated. Econometric estimates suggest that their overall productivity is slightly lower than that of privately controlled domestic companies (OECD, 2005).

The scale of the inflow of FDI has been large, amounting to a 6% of GDP in the early 1990s, falling back to 3½ per cent of GDP since 2000 – though the absolute amount increased in that period (China Business Review, 2005). Slightly more than one-quarter of this inflow represents retained earnings and this part has been declining in aggregate. It is difficult to be precise about the geographic origin of FDI flows. Official figures show almost half as coming from Hong Kong, China or tax havens (OECD, 2005). A significant part of such flows presumably comes from third, unidentified, countries, including even Chinese capital that has been recycled through these areas in order to benefit from the advantageous tax treatment offered to foreign-based companies. Of the remaining identified inflows, two-thirds comes from other Asian countries (OECD, 2005).

Although the reason for China's high levels of FDI are popularly described as abundant opportunities, not least low-cost labor. Huang (2005) asks whether FDI is the most natural way to take advantage of these opportunities. Indeed, why is FDI so high even in traditional Chinese industries, where foreigners have little expertise? And why are even China's backward inland provinces receiving high levels of FDI? Most sources of China's FDI are small and medium-sized foreign companies, not the Motorolas of the world. This is true even of investors from the non-Chinese world. We may assume that investors of this size bring little technology, organizational know-how (see a book review by Mihalca, 2005).

Tax benefits are often said to provide a bias in favor of foreign investors, and may account for domestic investors engaging in FDI round-tripping schemes. But Huang shows that any favoritism shown towards foreign investors at the expense of domestic investors pales in the face of favoritism shown towards state companies. The real

issue is not domestic vs. foreign investment, he argues, but a reluctance to support the growth of the domestic private sector. Better to welcome FDI than allow the growth of an indigenous entrepreneurial class that might challenge the political status quo. FDI has continued to pour into China even as the country is not short of capital. This, Huang argues, is a most strange phenomenon. China's FDI/capital formation ratio increased in the 1990s even as its savings rate increased, as well. China has liquidity but it is not channeled to the right places. The failing is therefore an institutional one. In effect, FDI has acted as a reason for the delay in reform. India, with about half of China's savings rate and a fraction of its FDI levels, has achieved almost the same levels of economic growth. This, Huang argues, points to serious internal distortions in the use of capital in China (Mihalca, 2005).

A last thing worth mentioning and the current government policy concerns is that China has not invested in the type of long-term technological capabilities that their Japanese, South Korean, and Taiwanese predecessors built during the 1970s and 1980s. Chinese firms tend to import technology by purchasing foreign manufacturing equipment, often in complete sets such as assembly lines. Throughout the 1980s and 1990s, hardware accounted for more than 80 percent of China’s technology imports, whereas licensing, "know-how" services, and consulting accounted for about 9 percent, 5 percent, and 3 percent, respectively. Over the last decade, large and medium sized Chinese industrial firms have spent less than 10 percent of the total cost of imported equipment on indigenizing technology. Indigenization spending at state firms in the sectors in which China is most often cited as a rising power (telecom equipment, electronics, and industrial machinery) is also low (at 8 percent, 6 percent, and 2 percent of the cost of imported equipment, respectively). This is far lower than the average for industrial firms in OECD countries, which amounts to about one-third of total technology import spending. The practice of Chinese firms also stands in contrast to spending patterns in Asian countries such as South Korea and Japan in the 1970s and 1980s, when they were trying to catch up with the West. Industrial firms in those countries spent between two and three times the purchase price of foreign equipment on absorbing and indigenizing the technology embodied in the hardware (Gilboy, 2004b).

5. Lessons and Policy Options

The unorthodox reform policies followed by China have been characterized by one wave of measures after another to balance demand and supply, and they have often resulted in short-term gains in productivity but not long run effects. Structural reforms, which could have avoided the major drawbacks of the short-run measures, were delayed in the process.[9] China's growth strategy since the middle of 1990s has emphasized the expansion of output at the expense of efficient allocation and utilization of factors of production, which has led to a slowdown in total factor productivity growth. The growth pattern is not only inefficient but also unsustainable.

According to the Standard & Poor's rating agency, it currently estimates that China's banks have issued about $650 billion in bad loans, or about 40 percent of outstanding loans. If an economy growing at close to 10 percent a year generates bad loans on this scale, the misallocation of capital has to be gigantic (Wolf, 2005). The process of industrialization was by keeping prices of energy, electricity, utilities, including water and land, low via subsidies, and by not being able to enforce strict environmental regulations. China's environment has already been under tremendous pressure. 70% of the country's rivers and lakes are seriously polluted. WHO reports that two-thirds of Chinese cities have air quality below standard, of which nine are in the world's top ten of the most polluted having the highest rates of carbon monoxide. Chinese government estimates that around 400,000 people die each year of diseases related to air pollution (Hunt 2006).

Economists often point out that the most important component of China's growth is the immense productivity gain arising from the shift of labor from low-productivity agriculture to higher-productivity services and industry (e.g., Kroeber, 2005). While this type of policies has been successful in promoting growth and productivity for a sustained period, the limitations of such policies were not properly understood among policy analysts. Some policies that aimed at alleviating past distortions of the

[9] The consensus among economists is that China's productivity growth is currently running at around 2% a year, thanks to technology imports, lots of 'learning by doing', better education, more efficient financial institutions, more rule of law, and better infrastructure. Such things need to keep improving if productivity growth is to be maintained. This means serious structural reforms such as privatization, liberalization of the financial sector, investment in education and supporting the indigenous private sector, are required (Green, 2005).

planning period would only have one time level effect. For example, when the TVEs development, which transferred more than 120 million people out of agriculture, had been exhausted in the early 1990s, a policy substitute often heard from Chinese officials as well as policy analysts was urbanization. However, a recent reversal in the policy of promoting urbanization was signaled by the government's call for the construction of the new socialist countryside.[10]

Besides excess capacity, China's industrial performance needs to be improved on several grounds. Taking account of the more than 60% of industrial exports from foreign-invested enterprise, a substantial fraction of the remainder of the country's exports consists of industrial products that are either OEM (original equipment manufacturer) manufactures, or low value-added, low technology, non-branded goods for global giant firms (e.g. garments, footwear, furniture, toys). Chinese firms spend negligible amounts on research and development. While the world's giant firms are rapidly building their research and development bases in China, employing relatively cheap, highly skilled Chinese researchers, indigenous is not a single Chinese firm in the world's top 700 firms by research and development expenditure. China does not have a single one of the world's top 100 brands. Its leading firms are almost unknown outside the country. Among the 14 Chinese firms in the Fortune 500, none has become a truly globally competitive company that could compete without government protection. All of these firms are state-owned and subject to systematic state interference in their operation (Nolan, 2005).

There have been many discussions about what policy adjustments are needed. Blanchard and Giavazzi (2005) recommend a three-handed strategy. This entails a decrease in saving (particularly private saving), an increase in the supply of services (particularly health services), and an appreciation of the RMB. Dunaway and Prasad (2006) point out that this discussion runs the risk, however, of prompting a string of ad hoc policy actions that could provide temporary relief, but no lasting solution to

[10] Hunt (2006) interpreted the new policy as follows. The corollary of slowing down urbanization is to bring industry to the countryside, though no longer industry that is energy intensive; that trend has finished. This means also that the migration of rural workers will come to an end. China's surplus rural workers, which are probably, anyway, mostly in the age bracket of over 40 years, will stay at home as jobs will come to them.

fundamental imbalances in the Chinese economy. They argue instead that the real issue in China is how to rebalance the economy away from heavy dependence on exports to lead growth towards domestic demand, including a substantial improvement in the efficiency of investment. They note that, as companies have improved their performance, corporate saving has risen and now accounts for almost half of national saving. Corporations have an incentive to retain their earnings in order to self-finance their investment. This is particularly true for private sector companies, which have limited access to bank financing and few domestic alternatives for raising money. State-owned enterprises that do make profits are generally not required to pay dividends to the government, and these companies naturally prefer to retain their earnings and plow them back into new investments. By some measures, Chinese households have in recent years saved almost a third of their disposable income. The precautionary motive for saving is very strong among Chinese households. Demographic factors add to this saving motive.

The slow development of financial markets in China has meant limited availability of credit, so that households generally have to save in order to purchase big-ticket items. It also has meant that there are low returns on households' financial assets and limited opportunities for portfolio diversification, since there are few alternatives to depositing savings in state-owned banks. All of this suggests that financial market reform and development is a key priority, which the Chinese authorities recognize.

6. Concluding Remarks

China's economic growth in the early reform period depended a lot on total factor productivity growth, but China's recent capital-intensive growth pattern resembles to that of the Soviet Union, which China had every intention of avoiding during its more than twenty years of economic reform and opening up to the outside world. Still, the Soviet Union only managed to achieve a GNP growth rate of 4-5 percent per year, while China's growth has been 8-9 and its economy is much more open to the outside world.[11]

[11] Our survey shows that productivity growth has slowed down since the middle of the 1990s, but over the whole period of reform total factor productivity has been rising at an rate of 2-3% a year. That may not sound much, but it is faster than in the East Asian tigers at the same stage of their development. During 1960-84 their total factor productivity growth averaged only 1%

Moreover, the contribution Chinese growth has made to the global economic recovery thus far is clear and positive. But few think the current pace of growth is sustainable; and the challenge for China's policymakers is to ensure a smooth adjustment to growth rates that can be sustained over the medium term without fuelling inflationary pressures, attaining a soft landing but avoiding a sharp slowdown (Krueger, 2005).

To achieve a continued high rate of growth it seems likely that the country will have to rely more on TFP growth and less on capital deepening than in recent years. The current concern for the income distribution aspects of development also seem to be very important for economic stability to be maintained. According to the recently released 11th Five Year Plan, the government recognizes that future economic growth depends on its ability to innovate in science and technology, which, in turn, depends on government policies towards entrepreneurial activity, research and development, and on the establishment of market-based institutions.

China's reform measures have often resulted in one-time level effect on TFP. China should have taken a more efficient approach in generating economic growth, while at the same time paid more attention to dealing with political and social problems stemming from the reform. Market reform, foreign direct investment, and trade will improve the situation under which Chinese firms operate to a certain extent, but innovative institutional arrangements may be required to complete China's move to a viable market economy that promotes sustained productivity growth.

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