The China Miracle Demystified

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When China began its transition from a planned to a market-oriented economy in 1979, it was a poor, inward-looking country with a per capita income of US$182 and a trade dependence (trade to GDP) ratio of 11.2 percent.[1] China's economic performance since then has been miraculous. Annual GDP growth averaged 9.9 percent over the 30-year period, and annual growth in international trade, 16.3 percent China is now a middle-income country, with a per capita GDP of US$3,688 in 2009, and more than 600 million people have escaped poverty. Its trade dependence ratio has reached 65 percent, the highest among the world's large economies. In 2009 China overtook Japan as the world's second largest economy and replaced Germany as the world's largest exporter of merchandise. China's car market is now the world's largest, and Shanghai has been the world's busiest seaport by cargo tonnage since 2005. The spectacular growth over the past three decades far exceeded the expectations of anyone at the outset of the transition, including Deng Xiaoping, the architect of China's reform and opening-up strategy.[2]

Interest among academics in China's transition and development experience has

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[1] Unless indicated otherwise, the statistics on the Chinese economy reported in the paper are from *China Statistical Abstract 2010, China Compendium of Statistics 1949–2008*, and various editions of *China Statistical Yearbook*, published by China Statistics Press.

[2] Deng's goal at that time was to quadruple the size of China's economy in 20 years, which would have meant average annual growth of 7.2 percent. Most people in the 1980s, and even as late as the early 1990s, thought that achieving that goal was a mission impossible.

increased exponentially in the past three decades.[3] In this paper I try to provide answers to five related questions: Why was it possible for China to achieve such extraordinary performance during its transition? Why was China unable to attain similar success before its transition started? Why did most other transition economies, both socialist and nonsocialist, fail to achieve a similar performance? And can other developing countries achieve a similar economic performance?

I. The Reason for China's Extraordinary Performance in Transition

Rapid, sustained increase in per capita income is a modern phenomenon. Studies by economic historians, such as Angus Maddison (2001), show that average annual per capita income growth in the West was only 0.05 percent before the 18th century, jumping to about 1 percent in the 19th century and reaching about 2 percent in the 20th century. That means that per capita income in Europe took 1,400 years to double before the 18th century, about 70 years in the 19th century, and 35 years thereafter.

A continuous stream of technological innovation is the basis for sustained growth in any economy. The dramatic surge in growth in modern times is a result of a paradigm shift in technological innovation. Before the industrial revolution in the 18th century, technological innovations were generated mostly by the experiences of craftsmen and farmers in their daily production. After the industrial revolution, experience-based innovation was increasingly replaced by field experimentation and, later, by science-based experiments conducted in scientific laboratories (Lin 1995; Landes 1998). This shift speeded the rate of technological innovation, marking the

[3] The EconLit database includes 27 peer-reviewed scholarly journal articles with *China* or *Chinese* in their title published in 1979, a number that jumps to 70 for 1989 and 1,016 for 2009.

coming of modern economic growth and contributing to the dramatic acceleration of income growth in the 19th and 20th centuries (Kuznets 1966).

The industrial revolution not only accelerated the rate of technological innovation but also transformed industrial, economic, and social structures. Before the 18th century every economy was agrarian; 85 percent or more of the labor force worked in agriculture, mostly in self-sufficient production for the family. The acceleration of growth was accompanied by a move of labor from agriculture to manufacturing and services. The manufacturing sector gradually moved from very labor-intensive industries at the beginning to more capital-intensive heavy and high-tech industries. Finally, the service sector came to dominate the economy. Accompanying the change in industrial structure was an increase in the scale of production, the required capital and skill, the market scope, and the risks. To exploit the potential unleashed by new technology and industry, and to reduce the transaction costs and share risks requires innovations as well as improvements in an economy's hard infrastructure, such as power and road networks, and its soft infrastructure. Soft infrastructure consists of such elements as belief, the legal framework, financial institutions, and the education system (Lewis 1954; Kuznets 1966; North 1981; Lin 2010).

A developing country such as China, which started its modernization drive in 1949, potentially has the advantage of backwardness in its pursuit of technological innovation and structural transformation (Gerschenkron 1962). In advanced high-income countries technological innovation and industrial upgrading require costly and risky investments in research and development, because their technologies

and industries are located on the global frontier. Moreover, the institutional innovation, which is required for realizing the potential of new technology and industry, often proceeds in a costly trial-and-error, path-dependent, evolutionary process (Fei and Ranis 1997). By contrast, a latecomer country in the catching up process can borrow technology, industry, and institutions from the advanced countries at low risk and costs. So if a developing country knows how to tap the advantage of backwardness in technology, industry, and social and economic institutions, it can grow at an annual rate several times that of high-income countries for decades before closing its income gap with those countries.

In the post–World War II period, 13 of the world's economies achieved average annual growth of 7 percent or above for 25 years or more. The Commission on Growth and Development, headed by Nobel Laureate Michael Spence, finds that the first of 5 common features of these 13 economies is their ability to tap the potential of the advantage of backwardness. In the Commission's language, the 13 economies, "they imported what the rest of the world knew and exported what it wanted" (World Bank 2008, p. 22).[4]

After the transition was initiated by Deng Xiaoping in 1979, China adopted the opening-up strategy and started to tap the potential of importing what the rest of the world knows and exporting what the world wants. This is demonstrated by the rapid

[4] The 2nd to fifth features are, respectively, macroeconomic stability, high rates of saving and investment, market system, and committed, credible, and capable governments. Lin and Monga (2010a) show that the first three features are the results of following the economy's comparative advantages in developing industries at each stage of its development, and the last two features are the preconditions for the economy to follow its comparative advantages in developing industries.

growth in its international trade, the dramatic increase in its trade dependence ratio, and the large inflows of foreign direct investment. While in 1979 primary and processed primary goods accounted for more than 75 percent of China's exports, by 2009 the share of manufactured goods had increased to more than 95 percent. Moreover, China's manufactured exports upgraded from simple toys, textiles, and other cheap products in the 1980s and 1990s to high-value and technologically sophisticated machinery and information and communication technology products in the 2000s. China's exploitation of the advantage of backwardness has allowed the country to emerge as the world's workshop and to achieve extraordinary economic growth by reducing the costs of innovation, industrial upgrading, and social and economic transformation.

II. Why Did China Fail to Achieve Rapid Growth before 1979?

China possessed the advantage of backwardness long before the transition began in 1979. The socialist government won the revolution in 1949 and started modernizing in earnest in 1953. Why had China failed to tap the potential of the advantage of backwardness and achieve dynamic growth before 1979? This failure came about because China adopted a wrong development strategy at that time.

China was the largest economy and among the most advanced, powerful countries in the world before pre-modern times (Maddison 2007). Mao Zedong, Zhou Enlai, and other first-generation revolutionary leaders in China, like many other Chinese social and political elites, were inspired by the dream of bringing about China's modernization as fast as possible.

Lack of industrialization—especially lack of the large heavy industries that were the basis of military strength and economic power—was perceived as the root cause of the country's backwardness. Thus it was natural for the social and political elites in China to prioritize the development of large, heavy, advanced industries after they won the revolution and started building the nation.[5] In the 19th century the political leaders of France, Germany, the United States, and other Western countries pursued effectively the same strategy, motivated by the contrast between Britain's rising industrial power and the backwardness of their own industry (Gerschenkron 1962; Chang 2003).

Starting in 1953, China adopted a series of ambitious Five-Year Plans to accelerate the building of modern advanced industries with the goal of overtaking Britain in 10 years and catching up to the USA in 15 years. But China was a lower-income agrarian economy at that time. In 1953, 83.5 percent of its labor force was employed in the primary sector, and its per capita income (measured in purchasing power parity terms) was only 4.8 percent of that of the United States (Maddison 2001). Given China's employment structure and income level, the country did not possess comparative advantage in modern advanced industries of high-income countries, whether latent or overt, and Chinese firms in those industries were not viable in an open competitive market.[6]

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[5] The desire to develop heavy industries existed before the socialist elites obtained political power. Dr. Sun Yat-sen, the father of modern China, proposed the development of "key and basic industries" as a priority in his plan for China's industrialization in 1919 (Sun 1929).

[6] While the policy goal of France, Germany, and the United States in the late 19th century was similar to that of China in the mid-1950s, the per capita incomes of the three countries were about 60–75

To achieve its strategic goal, the Chinese government needed to protect the priority industries by giving firms in those industries a monopoly and subsidizing them through various price distortions, including suppressed interest rates, an overvalued exchange rate, and lower prices for inputs. The price distortions created shortages, and the government was obliged to use administrative measures to mobilize and allocate resources directly to nonviable firms (Lin 2009; Lin and Li 2009).

Thanks to these interventions, China was able to quickly establish modern advanced industries, test nuclear bombs in the 1960s, and launch satellites in the 1970s. But the resources were misallocated, the incentives were distorted, and the labor-intensive sectors in which China held a comparative advantage were repressed. As a result, economic efficiency was low, and the growth before 1979 was driven mainly by an increase in inputs.[7] Despite a very respectable average annual GDP growth rate of 6.1 percent in 1952–78 and the possession of large modern industries, China was almost a closed economy, with 71.3 percent of its labor force still in traditional agriculture. In 1952–78 household consumption grew by only 2.3 percent a year, in sharp contrast to the 7.1 percent average growth after 1979.

III. Why Didn't Other Transition Economies Perform Equally Well?

All other socialist countries and most developing countries after World War II adopted a development strategy similar to that of China. Most colonies gained political independence after the 1950s. Compared with developed countries, these newly

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percent of Britain's at the time. The small gap in per capita incomes indicated that the industries on the governments' priority lists were the latent comparative advantages of the three countries (Lin and Monga 2010b).

[7] Estimates by Perkins and Rawski (2008) suggest that the average annual growth of total factor productivity was 0.5 percent in 1952–78 and 3.8 percent in 1978–2005.

independent developing countries had extremely low per capita income, high birth and death rates, low average educational attainment, and very little infrastructure—and were heavily specialized in the production and export of primary commodities while importing most manufactured goods. The development of modern advanced industries was perceived as the only way to achieve rapid economic takeoff, avoid dependence on the Western industrial powers, and eliminate poverty (Prebisch 1950).

It became a fad after the 1950s for developing countries in both the socialist and the nonsocialist camps to adopt a development strategy oriented toward heavy industry and import substitution (Lal and Mynt 1996). But the capital-intensive industries on their priority lists defied the comparative advantages determined by the endowment structure of their low-income agrarian economies. To implement their development strategy, developing countries introduced distortions and government interventions like those in China.[8] This strategy made it possible to establish some modern industries and achieve investment-led growth for one or two decades in the 1950s to the 1970s. Nevertheless, the distortions led to pervasive soft budget constraints, rent-seeking, and misallocation of resources. Economic efficiency was unavoidably low. Stagnation and frequent social and economic crises began to beset most socialist and nonsocialist developing countries by the 1970s and 1980s. Liberalization from excessive state intervention became a trend in the 1980s and 1990s.

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[8] There are different explanations for the pervasive distortions in developing countries. Acemoglu, Johnson, and Robinson (2005); Engerman and Sokoloff (1997); and Grossman and Helpman (1996) propose that these distortions were caused by the capture of government by powerful vested interests. Lin (2009, 2003) and Lin and Li (2009) propose that the distortions were a result of conflicts between the comparative advantages of the economies and the priority industries that political elites, influenced by the dominant social thinking of the time, targeted for the modernization of their nations.

The symptoms of poor economic performance and social and economic crises, and their root cause in distortions and government interventions, were common to China and other socialist transition economies as well as other developing countries. But the academic and policy communities in the 1980s did not realize that those distortions were second-best institutional arrangements, endogenous to the needs of protecting nonviable firms in the priority sectors. As a result, they recommended that socialist and other developing countries immediately remove all distortions by implementing simultaneous programs of liberalization, privatization, and marketization with the aim of quickly achieving efficient, first-best outcomes.

But if those distortions were eliminated immediately, many nonviable firms in the priority sectors would collapse, causing a contraction of GDP, a surge in unemployment, and acute social disorders. To avoid those dreadful consequences, many governments continued to subsidize the nonviable firms through other, disguised, less efficient subsidies and protections (Lin and Tan 1999). Transition and developing countries thus had even poorer growth performance and stability in the 1980s and 1990s than in the 1960s and 1970s (Easterly 2001).

During the transition process China adopted a pragmatic, gradual, dual-track approach. The government continued to provide necessary protections to nonviable firms in the priority sectors. At the same time it liberalized the entry of private enterprises, joint ventures, and foreign direct investment in labor-intensive sectors in which China had a comparative advantage but that were repressed before the transition. This transition strategy allowed China both to maintain stability by avoiding the collapse of old priority industries and to achieve dynamic growth by simultaneously pursuing its comparative advantage and tapping the advantage of

backwardness in the industrial upgrading process. In addition, the dynamic growth in the newly liberalized sectors created the conditions for reforming the old priority sectors. Through this gradual, dual-track approach China achieved "reform without losers" (Lau, Qian, and Roland 2000; Lin, Cai, and Li 2003; Naughton 1995) and moved gradually but steadily to a well-functioning market economy.

A few other socialist economies—such as Poland[9], Slovenia, and Vietnam, which achieved outstanding performance during their transitions—adopted a similar gradual, dual-track approach (Lin 2009). Similarly, Mauritius adopted such an approach in the 1970s to reform distortions caused by the import-substitution strategy, becoming an extraordinary success story in Africa (Subramanian and Roy 2003).

IV. Lessons of China's Development for Other Developing Countries

Can other developing countries achieve a performance similar to that achieved by China over the past three decades? The answer is clearly yes. Every developing country has a similar opportunity if at each stage of its development the country knows how to develop its industries according to its comparative advantages so as to tap the potential of the advantage of backwardness in its technological innovation and structural transformation. A well-functioning market is a precondition for developing an economy's industries according to its comparative advantages, because only with such a market can relative prices reflect the relative scarcities of factors of production in the economy. Such a clear functioning market naturally propels firms to enter industries consistent with those country's comparative advantages. If a developing

[9] In spite of its attempt to implement a shock therapy at the beginning, Poland did not privatize its large state-own enterprises until very late in the transition.

country follows its comparative advantages in technological and industrial development, it will be competitive in domestic and international markets. In other words, it will grow fast, accumulate capital rapidly, and upgrade its endowment structure quickly. When the endowment structure is upgraded, the economy's comparative advantages change and its industrial structure as well as hard and soft infrastructure need to be upgraded accordingly. In the process it is desirable for the state to play a proactive, facilitating role in compensating for externalities created by pioneer firms in the industrial upgrading and coordinating the desirable investments and improvements in soft and hard infrastructure, for which individual firms cannot internalize in their decisions. Through the appropriate functions of competitive markets and a proactive, facilitating state, a developing country can tap the potential of the advantage of backwardness and achieve dynamic growth (Lin 2010).

Most developing countries, as a result of their governments' previous development strategies, have various kinds of distortions and many existing firms are nonviable in an open competitive market. In this respect too, China's experience in the past 30 years provides useful lessons. In the reform process it is desirable for a developing country to adopt a dual-track approach, providing some transitory protections to nonviable firms to maintain stability but liberalizing entry into sectors in which the country has comparative advantages to tap the advantage of backwardness. If they can do this, other developing countries can also achieve stability and dynamic growth in their economic liberalization process.

Thirty years ago no one would have imagined that China would be among the 13

economies that tapped the potential of the advantage of backwardness and realized average annual growth of 7 percent or above for 25 or more years. For developing countries now fighting to eradicate poverty and close the gap with high-income countries, I hope that lessons from China's transition and development will help them join the list of those realizing growth of 7 percent or more for 25 or more years in the coming decades.

China too can still benefit from the potential of the advantage of backwardness. After 30 years of transition China's per capita income is only about 7.4 percent of the average for high-income countries when measured by market exchange rates and 16 percent when measured in purchasing power parity terms. I hope that China also will learn from the lessons of its past and maintain a dynamic, sustainable, and inclusive growth in the coming 30 years.

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