# THE LESSONS OF CHINA'S TRANSITION TO A MARKET ECONOMY

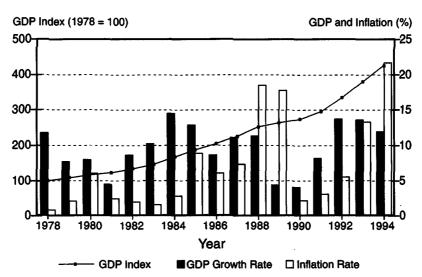
Justin Yifu Lin, Fang Cai, and Zhou Li

China's transition from a planned economy to a market economy began at the end of 1978. When China started the process, the government did not have a well-designed blueprint. The approach to reform can be characterized as piecemeal, partial, incremental, and often experimental. Some economists regard this approach as self-defeating (Murphy, Schleifer, and Vishny 1992). China's average annual rate of GDP growth has been miraculous since the beginning of the transition (Lin et al. 1996) and is the most successful of the transition economies. Nevertheless, the Chinese economy has been troubled by an increasingly serious "boom and bust" cycle (see Figure 1).

Whether China's experience provides useful lessons for other transition economies is hotly debated. Some economists argue that China's success demonstrates the superiority of an evolutionary, experimental, and bottom-up approach over the comprehensive and top-down "shock therapy" approach that characterizes the transition in Eastern Europe and the former Soviet Union (Jefferson and Rawski 1995; McKinnon 1994; McMillan and Naughton 1992; Singh 1991; Chen et al. 1992; Harrold 1992; Perkins 1992). Other economists argue that it is neither gradualism nor experimentation but rather China's unique initial conditions—namely, a large agricultural labor force, low subsidies to the population, and a rather decentralized economic system—that have contributed to China's success (Woo 1993; Sachs and Woo 1993; Qian and Xu 1993). According to these economists, China's

Cato Journal, Vol. 16, No. 2 (Fall 1996). Copyright © Cato Institute. All rights reserved. Justin Yifu Lin is a Professor of Economics at Peking University and the Hong Kong University of Science and Technology. Fang Cai and Zhou Li are economists at the Chinese Academy of Social Sciences. The authors gratefully acknowledge valuable comments by workshop participants at the Asian Development Bank, Australian National University, Duke University, Hong Kong University of Science and Technology, Michigan State University, North Carolina State University, Stanford University, the University of California-San Diego, the University of Minnesota, the University of Wisconsin, and the World Bank.

FIGURE 1
ECONOMIC GROWTH AND INFLATION IN CHINA



SOURCE: State Statistical Bureau (1995: 4, 8, 45).

experience has no general implications because China's initial conditions are unique.

In this paper, we offer a new perspective on the debate. Whether or not China's experience provides useful lessons depends on whether the nature and cause of the problems that China and other transition economies attempt to solve are similar. We argue that the system of central economic planning and its related problems in the transition economies have the same root—namely, the attempt to pursue a capital-intensive heavy-industry-oriented development strategy when the economy is constrained by capital scarcity. Therefore, China's approach to reform provides useful lessons for other transition economies. Moreover, we show that the "boom and bust" cycle in the Chinese economy is the result of institutional incompatibility arising from the piecemeal and partial approach to reform. To obtain a sustained, smooth growth, it is imperative for China to complete the transition from the planned economy to a market economy. China must shift from a traditional anti-comparative-advantage, heavy-industryoriented development strategy to a strategy that relies on the economy's comparative advantages.

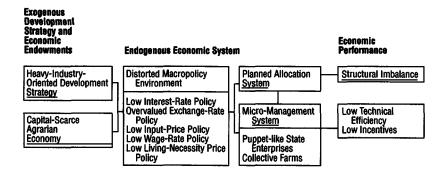
The paper is organized as follows: first, we discuss China's economic development strategy before the reforms and present a simple economic model to analyze the problems associated with that strategy.

Second, we provide an analytical review of China's reforms. Third, we compare China's approach to reform with the "big bang" approach. In the final section, we present some concluding remarks.

## The Major Prereform Problems in the Chinese Economy

The traditional planned economic system in China was shaped by the adoption of a heavy-industry-oriented development strategy (HIODS) in the early 1950s. The system had three integrated components: (1) a distorted macropolicy environment that featured artificially low interest rates, overvalued exchange rates, low nominal wage rates, and low prices for living necessities and raw materials; (2) a planned allocation mechanism for credit, foreign exchange, and other materials; and (3) a traditional micromanagement institution of state enterprises and collective agriculture. These three components were endogenous to the choice of a capital-intensive HIODS in a capital-scarce agrarian economy, although the specific institutional arrangements adopted in China were also shaped by socialist ideology, the Chinese Communist Party's experience during the revolution, and the Chinese government's political capacity of pursuing its intended goals. The relation between the development strategy and the economic system is summarized in Figure 2.

FIGURE 2
FORMATION OF THE TRADITIONAL ECONOMIC SYSTEM
IN CHINA



Perkins and Yusuf (1984: 4) noted that a unique feature of China's economic development under socialism was the government's capacity to implement village-level programs nationwide through bureaucratic and Party channels. Therefore, the Chinese government was able to impose certain institutional arrangements in the economy, deemed important by ideology or by economic rationality, which may not be feasible in other economies (Perkins 1966).

At the founding of the People's Republic in 1949, the Chinese government inherited a war-torn agrarian economy in which 89.4 percent of the population resided in rural areas and industry consisted of only 12.6 percent of the national income. At that time, a developed heavy-industry sector was the symbol of the nation's power and economic achievement. Like government leaders in India and in many other newly independent developing countries, Chinese leaders had the motivation of accelerating the development of heavy industries. After China's involvement in the Korean War in 1950, with its resulting embargo and isolation from Western nations, catching up to the industrialized powers also became a necessity for national security. In addition, the Soviet Union's outstanding record of nation building in the 1930s, in contrast to that of the Great Depression in Western market economies, provided the Chinese leadership with both inspiration and experience for adopting a HIODS. Therefore, after recovering from wartime destruction in 1952, the Chinese government set heavy industry as the priority sector of economic development. The goal was to build, as rapidly as possible, the country's capacity to produce capital goods and military materials. This development strategy was implemented through a series of Five-Year Plans.<sup>2</sup>

Heavy industry is a capital-intensive sector. The construction of a heavy-industry project has three characteristics: (1) it requires long gestation;<sup>3</sup> (2) most equipment for a project, at least in the initial stage, needs to be imported from more advanced economies; and (3) each project requires a large lump-sum investment. When the Chinese government initiated that strategy in the early 1950s, the Chinese economy had three characteristics: (1) capital was limited and the market interest rate was high;<sup>4</sup> (2) foreign exchange was scarce and expensive because exportable goods were limited and primarily consisted of low-priced agricultural products; and (3) the economic surplus was small and scattered due to the nature of a poor agrarian economy. Because these characteristics of the Chinese economy were mismatched with the three characteristics of heavy industry projects,

<sup>&</sup>lt;sup>2</sup>The Five-Year Plan was disrupted from 1963–65, the period immediately after the agricultural crisis of 1959–62. The First to the Seventh Five-Year Plans covered, respectively, the periods from 1952–57, 1958–62, 1966–70, 1971–75, 1975–80, 1981–85, and 1986–90.

The construction of a light-industry project, such as a small textile factory, takes one or two years to complete. The construction of a large heavy-industry project, in general, takes a much longer time. For example, in China the average construction time for a metallurgy plant is seven years, for a chemical plant is five to six years, and for a machine-building plant is three to four years (Li and Zheng 1989: 170).

<sup>&</sup>lt;sup>4</sup>A real interest rate of 3 percent per month (36 percent per year) was normal in the informal financial markets that existed before the adoption of the development strategy.

spontaneous development of capital-intensive industry in the economy was impossible.<sup>5</sup> Therefore, a set of distorted macropolicies was required for the development of heavy industry.

At the beginning of the First Five-Year Plan, the government instituted a policy of low interest rates and overvalued exchange rates to reduce the costs both of interest payments and of importing equipment.<sup>6</sup> Meanwhile, to secure enough funds for industrial expansion, a policy of low input prices—including nominal wage rates for workers<sup>7</sup> and prices for raw materials, energy, and transportation—evolved alongside the adoption of this development strategy. The assumption was that the low prices would enable the enterprises to create profits large enough to repay the loans or to accumulate enough funds for reinvestment. If the enterprises were privately owned, the state could not be sure that the private entrepreneurs would reinvest the policycreated profits on the intended projects.<sup>8</sup> Therefore, private enterprises were soon nationalized<sup>9</sup> and new key enterprises were owned

Spontaneous development of heavy industry was impossible for several reasons. First, high interest rates would make any project that requires a long gestation unfeasible. For example, it takes on average seven years in China to complete the construction of a metallurgy plant. The market interest rate in the early 1950s in China was about 30 percent per year (2.5 percent per month). Suppose the funds for the project were borrowed at the market interest rate and repayment was made after the completion of the project. The principal and interest payment, calculated at a compound rate, for each dollar borrowed during the first year of the project would be \$6.27. It is obvious that no project would be profitable enough to shoulder such a high interest burden. Second, because most equipment had to be imported from advanced countries, the limited supply of foreign exchange made the construction of heavy industry expensive under the market-determined exchange rate. Third, because the agricultural surplus was small and scattered, it was difficult to mobilize enough funds for any lump-sum project.

<sup>6</sup>For example, the interest rate on bank loans was officially reduced from 30 percent per year to about 5 percent per year. For \$1 borrowed at the beginning of a seven-year project, the principal and interest payment at the time the project was completed would be reduced from \$6.27 to \$1.41.

<sup>7</sup>Although the real GNP per capita tripled between 1952 and 1978, the nominal wage was kept almost constant, increasing only 10.3 percent, during the same period (State Statistical Bureau 1987c: 151). For a more detailed discussion of the formation of low nominal-wage policy, see Cheng (1982: chap. 8) and Wu (1965: chap. 4). However, it is worth mentioning that, because of in-kind subsidies, the real wages to urban workers were not as low as the nominal wages suggested. Urban wage rates might have declined sharply if the restriction on the rural-urban migration had been removed (Rawski 1979: 67).

<sup>8</sup>Even with all the above price distortions that facilitated heavy-industry development in China, the time required by a heavy-industry project to earn back the capital investment was, on average, about four to five times longer than the period required by a light-industry project (Li 1983: 37). Therefore, a profit-maximizing private owner would have a stronger incentive to invest in a light-industry project.

<sup>9</sup>Under the New Democracy Policy, adopted by the Communist Party in the late 1940s, private enterprises were supposed to coexist with state-owned enterprises for an extended period after the revolution. However, the enterprises were nationalized soon after 1952 when the government adopted the HIODS. The attempt to secure profits for the heavy-

by the state to secure the state's control over profits for heavy-industry projects. Meanwhile, to make the low nominal-wage policy feasible, the government had to provide urban residents with inexpensive food and other necessities, including housing, medical care, and clothing. The low interest rates, overvalued exchange rates, low nominal wage rates, and low prices for raw materials and living necessities constituted the basic macropolicy environment of the HIODS.<sup>10</sup>

The macropolicies described induced a total imbalance in the supply and demand for credit, foreign exchange, raw materials, and other living necessities. Because nonpriority sectors were competing with the priority sectors for the low-priced resources, plans and administrative controls replaced markets as the mechanism for allocating scarce credit, foreign reserves, raw materials, and living necessities, ensuring that limited resources would be used for the targeted projects. Moreover, the state monopolized banks, foreign trade, and material distribution systems. <sup>11</sup>

In that way competition was suppressed and profits ceased to be the measure of an enterprise's efficiency.<sup>12</sup> Because of the lack of market discipline, managerial discretion was potentially a serious problem. Managers of state enterprises were deprived of autonomy to

industry projects was the motivation for the government's change in position toward private enterprises.

<sup>&</sup>lt;sup>10</sup>Theoretically, the Chinese government could use direct subsidies, rather than macropolicy distortion, to facilitate the development of capital-intensive heavy industry in a capital-scarce economy. It can be shown that the subsidy policy is more efficient economically than the policy of price control. However, with the subsidy policy, heavy industry would incur a huge explicit loss and the government would have to impose high taxes on other sectors to subsidize the loss. Under such a situation, the government would find it difficult to defend its position of accelerating the development of heavy industry. Moreover, in an underdeveloped economy, government may not have the ability to collect huge taxes. This may explain why governments, not only in socialist economies but also in capitalist economies, use price controls instead of direct subsidies to facilitate the development of priority sectors.

<sup>&</sup>quot;In the literature in China and other socialist countries, many authors presumed that the distorted policy environment and the administrative controls were shaped by socialist doctrines. The socialist ideology might play a role in the formation of these policies; however, the existence of the policies and controls also have an economic rationale. They facilitate the implementation of a HIODS in a capital-scarce economy. This explains why nonsocialist developing economies such as India had a similar policy environment and administrative controls when they adopted the same development strategy under similar economic conditions.

<sup>&</sup>lt;sup>12</sup>An enterprise is bound to be loss-making if its outputs happen to be inputs to the other sectors, for example energy and transportation, because the prices of its outputs are suppressed. On the contrary, an enterprise is bound to be profit-making if its outputs are at the low end of the industrial chain, because the enterprise can enjoy low input prices and high output prices at the same time.

mitigate this problem.<sup>13</sup> The production of state enterprises was dictated by mandatory plans and furnished with most of their material inputs through an administrative allocation system. The prices of their products were determined by pricing authorities. Government agencies controlled the circulation of their products. The wages and salaries of workers and managers were determined not by their performance but by their education, age, position, and other criteria according to a national wage scale. Investment and working capital were financed mostly by appropriations from the state budget or loans from the banking system according to state plans. The state enterprises remitted all their profits, if any, to the state and the state budget also would cover all losses incurred by the enterprises. In short, the state enterprises were like puppets. They had no autonomy in the employment of workers, the use of profits, the plan of production, the supplies of inputs, or the marketing of their products.

The development strategy and the resulting policy environment and allocation system also shaped the evolution of farming institutions in China. To secure cheap supplies of grain and other agricultural products for urban low-price rationing, a compulsory procurement policy was imposed in the rural areas in 1953. This policy obliged peasants to sell fixed quantities of their produce, including grain, cotton, and edible oils, to the state at government-determined prices (Perkins 1966: chap. 4).

In addition to providing cheap food for industrialization, agriculture was also the main foreign-exchange earner. In the 1950s, agricultural products accounted for over 40 percent of all exports. If processed agricultural products are included, agriculture contributed more than 60 percent of China's foreign-exchange earnings until the 1970s. Because foreign exchange was as important as capital for the heavy-industry-oriented strategy, the country's capacity to import capital goods for industrialization in the early stage of development clearly depended on agriculture's performance.

Agricultural development required resources and investment as much as industrial development. The government, however, was reluctant to divert scarce resources and funds from industry to agriculture. Therefore, alongside the HIODS, the government adopted a new agricultural development strategy that did not compete for resources with industrial expansion. The core of this strategy involved the mass mobilization of rural labor to work on labor-intensive investment

<sup>&</sup>lt;sup>13</sup>The state enterprises were granted some autonomy after the reforms in the late 1970s. As expected, one of the results of the reform was a rapid increase in wages, bonuses, and fringe benefits at the expense of the enterprise's profits.

projects, such as irrigation, flood control, and land reclamation, and to raise unit yields in agriculture through traditional methods and inputs, such as closer planting, more careful weeding, and the use of more organic fertilizers. The government believed that collectivization of agriculture would ensure these functions.

The government also viewed collectivization as a convenient vehicle for effecting the state's low-priced procurement program of grain and other agricultural products (Luo 1985). Income distribution in the collectives was based on each collective member's contribution to agricultural production. However, monitoring a member's effort is extremely difficult in agricultural production due to dimensions of time and space. The remuneration system in the collectives was basically egalitarian (Lin 1988).

The distorted macropolicy environment, planned allocation system, and micro-management institutions all made the maximum mobilization of resources for the development of heavy industry possible in a capital-scarce economy. Since most private initiative in economic activities was prohibited, the pattern of the government's investment was the best indicator of the bias in the official development strategy. Table 1 shows the sector shares in state capital construction investment from the First Five-Year Plan (1953–57) to the Sixth Five-Year Plan (1981–85). Despite the fact that more than three-quarters of China's population was agricultural, agriculture received less than 10 percent of state investment in the period 1953–85, while 45 percent of investment went into heavy industry. Moreover, heavy industry received a lion's share of the investments that fell under the heading "other,"

TABLE 1
SECTOR SHARES OF STATE CAPITAL CONSTRUCTION INVESTMENT

Five-Year Plan	Agriculture (%)	Light Industry (%)	Heavy Industry (%)	Other (%)
First	7.1	6.4	36.2	50.3
Second	11.3	6.4	<b>54</b> .0	28.3
1963-65	17.6	3.9	<b>45</b> .9	32.6
Third	10.7	4.4	51.1	33.8
Fourth	9.8	<b>5</b> .8	49.6	34.8
Fifth	10.5	6.7	45.9	36.9
Sixth	5.1	6.9	38.5	49.5
1953-85	8.9	6.2	45.0	39.9

Source: State Statistical Bureau (1987b: 97).

including workers' housing and infrastructure. As a result, the value of heavy industry in the combined total value of agriculture and industry grew from 15 percent in 1952 to about 40 percent in the 1970s (see Table 2).<sup>14</sup>

Judging from China's sector composition, the trinity of the traditional economic system—a distorted macropolicy environment, a planned allocation mechanism, and a puppet-like micro-management institution—reached its intended goal of accelerating the development of heavy industry in China. However, China paid a high price for such an achievement. The economy is very inefficient because of (1) low allocative efficiency, due to the deviation of the industrial structure from the pattern dictated by the comparative advantages of the economy, and (2) low technical efficiency, resulting from managers' and workers' low incentives to work.

TABLE 2
SECTOR COMPOSITION
(Current Prices)

Year	Agriculture %	Light Industry %	Heavy Industry %
1952	56.9	27.8	15.3
1957	43.3	31.2	25.5
1962	38.8	28.9	32.3
1965	37.3	32.3	30.4
1970	33.7	30.6	35.7
1975	30.1	30.8	39.1
1980	30.8	32.6	36.6
1985	34.3	30.7	35.0

SOURCE: State Statistical Bureau (1989: 11).

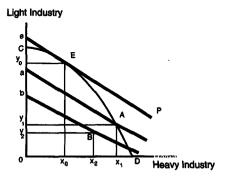
'When the reforms began in 1979, the government initially planned to increase agriculture's share in the state's fixed capital investment from 11 percent in 1978 to 18 percent in the following three to five years. Because of the rapid agricultural growth brought about by the rural reforms, agriculture's share in the state fixed capital investment actually declined sharply to only about 3 percent in the late 1980s and early 1990s. However, the share of total fixed capital investment in agriculture in the nation as a whole did not decline as much as the figures suggest, because part of the decline in the state investment was compensated for by an increase in farmers' investment (Feder et al. 1992). Similarly, the share of heavy industry in the state's fixed capital investment did not decline after the reforms in 1979. However, the state's share in the total investment declined from 82 percent in 1980 to 66 percent in 1990. The nonstate sectors' investments are mostly in projects that are less capital-intensive. Therefore, the share of heavy industry in the nation's fixed capital investment is less than the share in the state investment.

1. Low allocative efficiency. In the current stage of China's economic development, capital is relatively scarce and labor is relatively abundant. If prices were determined by market competition, capital would be relatively expensive and labor relatively inexpensive. Therefore, the comparative advantages of the Chinese economy lie in laborintensive sectors. If investments had been guided by market forces. profit incentives would have induced entrepreneurs to adopt capitalsaving and labor-using technologies and to allocate more resources to labor-intensive industries. The effects of the HIODS on the industrial structure can be illustrated by Figure 3. Let us assume there are only two sectors in the economy, namely, labor-intensive light industry and capital-intensive heavy industry. Given the endowments, OCD is the production possibility frontier. EP represents the market-determined relative prices line, which existed before the imposition of the HIODS. Under the undistorted relative prices, the economy will produce OY<sub>0</sub> of light-industry products and OX<sub>0</sub> of heavy-industry products. However, for the development of heavy industry, the state monopolized the allocation system and used administrative measures to direct the allocation of resources. If we suppose the target of the development strategy is to expand heavy industry from OX<sub>0</sub> to OX<sub>1</sub>, then the state would need to reduce the production of light industry from OY<sub>0</sub> to OY<sub>1</sub> to shift resources from light industry to heavy industry. The production possibility frontier is truncated to Y<sub>1</sub>AD. If there is no technical inefficiency, the production mix of the economy would locate on A, corresponding to a quantity of OY<sub>1</sub> light-industry products and OX<sub>1</sub> heavy-industry products.<sup>15</sup>

FIGURE 3

DEVELOPMENT STRATEGY AND THE TRUNCATED

PRODUCTION FRONTIER



<sup>15</sup>Similarly, the development of a service sector was suppressed to facilitate the development of heavy industry. Agriculture, except for grain and cotton, was also suppressed. The reason As we can see from Figure 3, the static consequence of the strategy is that the economy, based on the prices before distortion, suffers a loss of 'ea' in absolute magnitude or 'ea/eO' in relative measure. <sup>16</sup> The income loss due to allocative inefficiency implies the reduction of surplus available for investment. If we assume that a fixed portion of the national income is used for investment, the decline in investment would further diminish gross investment. However, if we assume that the government's plan is to develop light and heavy industry in a fixed ratio of OX<sub>1</sub>/OY<sub>1</sub>, then each production cycle would repeatedly generate an income loss of 'ea/eO' in relative measure. All these factors significantly dampen the growth of the whole economy. To maintain the growth rate, it is necessary to raise the accumulation rate, resulting in insufficient consumption and long-lasting low living standards for people. <sup>17</sup>

2. Low technical efficiency. Because profits ceased to be a measure of efficiency and the planned allocation system often failed to distribute materials in time, managers were forced to keep large reserves and had no incentive for using resources economically. Overstaffing, underutilization of capital resources, and overstocking of inventories characterized China's puppet-like state enterprises. <sup>18</sup> Moveover, man-

that grain and cotton were treated differently was because the government also pursued a grain self-sufficiency policy, and cotton was the basic raw material for industry.

<sup>&</sup>lt;sup>16</sup>The studies by Desai and Martin (1983) and by Whitesell and Barreto (1988) estimate the misallocation of capital and labor among the sectors of the Soviet economy, which also adopted the heavy-industry-oriented development strategy. Desai and Martin find losses from misallocation in the range of 3 to 10 percent—possibly up to 15 to 17 percent of the inputs employed in industry. Whitesell and Barreto find that in the early 1980s output gains equivalent to 4 to 6 percent could have been achieved by a reallocation of capital and labor among the sectors of Soviet industry.

<sup>&</sup>lt;sup>17</sup>The average annual rate of accumulation was raised from 24.2 percent of national income in the First Five-Year Plan to 33.0 percent and 33.2 percent in the Fourth and Fifth Five-Year Plans, respectively, whereas the average annual growth rate of national income dropped from 8.9 percent to 5.5 percent and 6.1 percent. As a result, wages for state employees were held almost constant between the years 1952 and 1978. As Deng Xiaoping admitted to visiting overseas Chinese in October 1974, wages were low, the living standard was not high, and workers in China only had enough clothing and a full stomach (Cheng 1982: 248). <sup>18</sup>Brada (1991) estimates that overstaffing in Czechoslovak industry was as high as 15 percent. The State Economic System Reform Commission in a recent report estimated that the total number of overstaffing in China's state enterprises was more than 30 million, about 30 percent of the total labor force in the state sectors (Zhonghua Zhoumo Bao 1995). A study by the World Bank (1985a) shows that, for the production of per unit gross domestic product, the consumption of energy, steel, and transportation in China were, respectively, 63.8 percent to 229.5 percent, 11.9 percent to 122.9 percent, and 85.6 percent to 559.6 percent greater than those of other developing countries. In the structure of total capital, the working capital accounted for the largest share in China and was 4.8 to 25.7 percentage points higher than that of other countries. This implied that inventories of inputs and outputs were larger and inventory were kept longer in China than in other countries.

agers had no authority over workers' wage rates and bonuses. Wages were not related to effort in the enterprise nor to the enterprise's profits; hence, workers had little incentive to work efficiently. Similarly, in the agricultural collectives, farm workers had a low incentive to work because the link between reward and effort was weak. Losses resulting from these technical inefficiencies mean that production will end up at some point inside the production possibility frontier, such as point B in Figure 3.

Because of low allocative and technical efficiency, the Chinese economy experienced an extremely low rate of total factor productivity growth in China. Even with the most favorable assumptions, the World Bank (1985a) found that total factor productivity grew by only 0.5 percent between 1952–81, a quarter of the average growth rate of 19 developing countries included in the study. Moreover, the total factor productivity of China's state enterprises stagnated or fell between 1957–82 (World Bank 1985b).

### An Analytical Review of China's Economic Transition

It is unlikely that China's leaders had worked out a blueprint when they set out to reform the economic system (Perkins 1988: 601). However, retrospectively, China's transition followed a logical process that is predictable from the theoretical model described. The trinity of the traditional economic system is endogenous to the adoption of a HIODS in a capital-scarce economy. The main fault in the economic system was low economic efficiency arising from structural imbalance and incentive problems. Before the late 1970s, the government had made several attempts to address the structural problems by decentralizing the allocative mechanism.<sup>20</sup> However, the administrative nature of the allocative mechanism was not changed and the policy environment and managerial system were not altered; thus, the attempts to rectify the structural imbalance and improve economic incentives failed. The goals of the reform in late 1978 were to rectify the structural imbalance and improve incentives. However, what set the reforms apart from previous attempts were the micro-management system reforms that made farmers and managers and workers in state enterprises partial residual claimants. That small crack in the trinity of the

<sup>&</sup>lt;sup>19</sup>Lin (1992) estimates that losses due to low incentives in the agricultural collectives were as much as 20 percent of total factor productivity. For a theoretical model of the monitoring problems regarding incentives in a collective farm, see Lin (1989a).

<sup>&</sup>lt;sup>20</sup>The first attempt was made in 1958–60, the second in 1961–65, and the third in 1966–76 (Wu and Zhang 1993: 65–7).

traditional economic system was eventually pried open, leading to the gradual dismantlement of the traditional system.

#### The Micro-Management Institution Reforms

The most important change in the micro-management institution was the replacement of collective farming with a household-based system, now known as the household responsibility system. In the beginning, the government had not intended to change the farming institutions. Although it had been recognized in 1978 that solving managerial problems within the collective system was the key to improving farmers' incentives, the official position at that time was still that the collective was to remain the basic unit of agricultural production. Nevertheless, a small number of collectives, first secretly and later with the blessing of local authorities, began to try out a system of leasing a collective's land and dividing the obligatory procurement quotas to individual households in the collective. A year later those collectives brought out yields far larger than those of other teams. The central authorities later conceded the existence of the new form of farming, but required that it be restricted to poor agricultural regions, mainly to hilly or mountainous areas, and to poor collectives in which people had lost confidence in the collective system. However, this restriction was ignored in most regions. Production improved after a collective adopted the new system, regardless of its relative wealth or poverty.

Full official recognition of the household responsibility system as a nationally acceptable farming institution was eventually given in late 1981, exactly two years after the initial price increases. By that time, 45 percent of the collectives in China had already been dismantled and had instituted the household responsibility system. By the end of 1983, 98 percent of agricultural collectives in China had adopted the new system. When the household responsibility system first appeared, the land lease was only one to three years. However, the short lease reduced farmers' incentives for land-improvement investment. The lease contract was allowed to be extended up to 15 years in 1984. In 1993, the government allowed the lease contract to be extended for another 30 years after the expiration of the first contract.

Unlike the spontaneous nature of farming institution reform, the reform in the micro-management institution of the state enterprises was initiated by the government. Those reforms have undergone four stages. The first stage (1979–83) emphasized several important experimental initiatives that were intended to enlarge enterprise autonomy and expand the role of financial incentives within the traditional economic system. The measures included the introduction of profit reten-

tion and performance-related bonuses and permitted the state enterprises to produce outside the mandatory state plan. The enterprises involved in exports also were allowed to retain part of their foreign exchange earnings for use at their own discretion. In the second stage (1984–86) the emphasis shifted to a formalization of the financial obligations of the state enterprises to the government and exposed enterprises to market influences. From 1983, profit remittances to the government were replaced by a profit tax. In 1984, the government allowed state enterprises to sell output in excess of quotas at negotiated prices and to plan their output accordingly, thus establishing the dualtrack price system. During the third stage (1987-92), the contract responsibility system, which attempted to clarify the authority and responsibilities of enterprise managers, was formalized and widely adopted. The last stage (1993-present) attempted to introduce the modern corporate system to the state enterprises. In each stage of the reform, the government's intervention was reduced further and the state enterprises gained more autonomy.

The reform of the micro-management system has achieved its intended goal of improving technical efficiency. Empirical estimates show that almost half of the 42.2 percent growth of output in the cropping sector in the years 1978–84 was driven by productivity change brought about by the reforms. Furthermore, almost all of the productivity growth discussed was attributable to the changes resulting from the introduction of the household responsibility system (Fan 1991; Lin 1992; McMillan et al. 1989; Wen 1993). Estimates of the production function in several studies find that for industry the increase in enterprise autonomy increased productivity in the state enterprises (Chen et al. 1988; Gordon and Li 1991; Dollar 1990; Jefferson et al. 1992; Groves et al. 1994, 1995). Therefore, the reforms in the system of micro-management in both agriculture and industry have created a flow of new resources, an important feature of China's reforms.

The increase in enterprise autonomy under a distorted macropolicy environment, however, also invited managers' and workers' discretionary behavior. Despite an improvement in productivity, the profitability of the state enterprises declined and the government's subsidies increased due to both a faster increase in wages, fringe benefits, and other unauthorized expenditures (Fan and Schaffer 1991) and the competition from the autonomous township and village enterprises (TVEs) (Jefferson and Rawski 1995). However, once the enterprises had tasted autonomy, it would have been politically too costly to revoke it. The decline in the profits of state enterprises and the competition from TVEs forced the government to try other measures that further increased the autonomy of state enterprises in the hope

that the new measures would make the enterprises financially independent.

#### Resource Allocation Mechanism Reform

The increase in enterprise autonomy put pressure on the planned distribution system. Because the state enterprises were allowed to produce outside the mandatory plans, the enterprises needed to obtain additional inputs and to sell the extra outputs outside the planned distribution system. Under pressure from the enterprises, material supplies were progressively delinked from the plan, and retail commerce was gradually deregulated. At the beginning, certain key inputs remained controlled. However, the controlled items were increasingly reduced. Centralized credit rationing was also delegated to local banks at the end of 1984.

An unexpected effect of the relaxation of the resources allocation system was the rapid growth of the nonstate enterprises, especially the TVEs.<sup>21</sup> Rural industry already existed under the traditional system as a result of the government's decision to mechanize agriculture and to develop rural processing industries to finance the mechanization in 1971. In 1978 the output of TVEs consisted of 7.2 percent of the total value of industrial output in China. Before the reforms, the growth of TVEs was severely constrained by access to credits, raw materials, and markets. The reforms created two favorable conditions for the rapid expansion of TVEs: (1) a new stream of surpluses brought out by the household responsibility reform provided a resource base for new investment activities, and (2) the relaxation of rigidity in the traditional planned allocation system provided access to key raw materials and markets. In the period 1981–91, the number of TVEs, employment, and the total output value grew at an average annual rate of 26.6 percent, 11.2 percent, and 29.6 percent, respectively. The annual growth of total output value for TVEs was three times that of the state firms in the same period. In 1993, TVEs accounted for 38.1 percent of the total industrial output in China. The share of industrial output from nonstate enterprises increased from 22 percent in 1978 to 56.9 percent in 1993 (State Statistical Bureau 1995: 73).

The rapid entry of TVEs and other types of nonstate enterprises produced two unexpected effects on the reforms. First, nonstate enterprises were the product of markets. Being outsiders to the traditional

<sup>21</sup>The nonstate enterprises include the TVEs, the private enterprises, joint-venture enterprises, overseas Chinese enterprises, and foreign enterprises. Among them, the TVEs are the most important in terms of output share and number of enterprises. It is noteworthy that TVEs, although different in many aspects from state enterprises, are public enterprises that are funded, owned, and supervised by the township or village governments.

economic system, nonstate enterprises had to obtain energy and raw materials from competitive markets, and their products could be sold only to markets. They had budget constraints and would not survive if their management was poor. Their employees did not have an "iron rice bowl" and could be fired. As a result, the nonstate enterprises were more productive than the state enterprises, as the comparisons of output growth and total factor productivity growth between the state and collective sectors in Table 3 show. The dynamism of nonstate enterprises exerted pressure on the state enterprises and triggered the state's policy of transplanting the micro-management of the nonstate enterprises to the state enterprises and of delegating more autonomy to the state enterprises. Reform measures for improving the micromanagement institution of state enterprises—such as replacement of profit remittance by a profit tax, the establishment of the contract responsibility system, and the introduction of the modern corporate system to state enterprises—were responses to competitive pressure from TVEs and other nonstate enterprises (Jefferson and Rawski 1995).

Second, the development of nonstate enterprises significantly rectified the misallocation of resources. In most cases, nonstate enterprises had to pay market prices for their inputs, and their products were sold at market prices. The use of market prices induced most nonstate enterprises to adopt labor-intensive technology to concentrate on labor-intensive small industries.<sup>22</sup> Therefore, the technological struc-

TABLE 3
GROWTH RATE OF OUTPUT AND TOTAL FACTOR PRODUCTIVITY
(Average Annual Percentage Change)

	1980-88	1980-84	1984-88
State Sector			
Output	8.49	6.77	10.22
Output TFP	2.40	1.80	3.01
Collective Sector			
Output	16.94	14.03	19.86
TFP	4.63	3.45	5.86

Source: World Bank (1992).

<sup>&</sup>lt;sup>22</sup>For example, in 1986 an average industrial enterprise in China had 179.9 workers, and the fixed investment per worker was 7,510 yuan (State Statistical Bureau 1987a: 3); whereas an average TVE in the same year had 28.9 workers, and the fixed investment per worker was 1,709 yuan (State Statistical Bureau 1987c: 205).

ture of nonstate enterprises was more consistent with the comparative advantages of China's endowments. The entry of TVEs mitigated the structural imbalance caused by the HIODS.

#### Macropolicy Environmental Reform

Among the trinity of the traditional economic system, the distorted macropolicy environment was linked most closely to the development strategy, and its effects on allocative and technical efficiency were indirect. The reforms of the macropolicies were thus the most sluggish. We will argue later that most economic problems that appeared during the reforms—for example, the cyclic pattern of growth and the rampant rent seeking-can be attributed to the inconsistency between the distorted policy environment and the liberalized allocation and enterprise system. Therefore, the Chinese government constantly faced a dilemma: to make the macropolicy environment consistent with the liberalized micro-management institution and resource allocation mechanism or to redeprive the micro-management institution's autonomy and to recentralize resource allocation mechanism for maintaining the internal consistency of the traditional economic system. The deprivation of enterprise autonomy would definitely incur the resistance of employees of state enterprises. A return to the traditional economic system would also mean return to economic stagnation. Therefore, no matter how reluctant the government was, the only sustainable choice was to reform the macropolicy environment and make macropolicies consistent with the liberalized allocation and micro-management system.

Changes in the macropolicy environment started in the commodity price system. After the introduction of profit retention, the enterprises were allowed to produce outside the mandatory plan. The enterprises first used an informal barter system to obtain the outside-plan inputs and to sell the outside-plan products at premium prices. In 1984, the government introduced the dual-track price system, which allowed the state enterprises to sell their output in excess of quotas at market prices and to plan their output accordingly. The aim of the dual-track price system was to reduce the marginal price distortion in the state enterprises' production decisions while leaving the state a measure of control over material allocation. By 1988 only 30 percent of retail sales were made at plan prices, and the state enterprises obtained 60 percent of their inputs and sold 60 percent of their outputs at market prices (Zou 1992).

The second major change in the macroenvironment occurred in the foreign exchange rate policy. In the years 1979-80, the official exchange rate was roughly 1.5 yuan per U.S. dollar. The rate could not cover the costs of exports, as the average cost of earning one U.S. dollar was around 2.5 yuan. A dual rate system was adopted at the beginning of 1981. Commodity trade was settled at the internal rate of 2.8 yuan per dollar; the official rate of 1.53 yuan per dollar continued to apply to noncommodity transactions. After 1985, the yuan was gradually devalued. Moreover, the proportion of retained foreign exchange, which was introduced in 1979, was gradually raised, and enterprises were allowed to swap their foreign exchange entitlement with other enterprises through the Bank of China at rates higher than the official exchange rate. Restrictions on trading foreign exchanges were further relaxed with the establishment of a "foreign exchange adjustment center" in Shenzhen in 1985, in which enterprises could trade foreign exchanges at negotiated rates. By the late 1980s, such centers were established in most provinces in China and more than 80 percent of the foreign exchange earnings was swapped in such centers (Sung 1994). The climax of foreign exchange-rate policy reform was the establishment of a managed floating system and unification of the dual rate system on January 1, 1994.

Interest-rate policy is the least affected area of the traditional macropolicy environment. Under the HIODS, the interest rate was kept artificially low to facilitate the expansion of capital-intensive industries. After the reforms began in 1979, the government was forced to raise both the loan rates and the savings rates several times.<sup>23</sup> However, the rates were maintained at levels far below the market-clearing rates throughout the reform process. In late 1993, the government announced a plan to establish three development banks with the function of financing long-term projects, import/export, and agricultural infrastructure at subsidized rates and to turn the existing banks into commercial banks. The three development banks were established in 1994. The commercialization of the existing banks is expected to take at least another three to five years. Moreover, it is unclear whether after the reform the interest rate will be regulated or will be determined by markets. The mentality of the HIODS is deeply rooted in the mind of China's political leaders. To accelerate the development of capital-intensive industry in a capital-scarce economy, a distorted macropolicy environment—in the form of a low interest-rate policy—

<sup>&</sup>lt;sup>27</sup>To stop bank runs, the savings rates were indexed to inflation rates in October 1988. But the policy was revoked in 1991. In May 1993, the interest rate for a one-year time deposit was 9.18 percent, and for a one-to-three-year basic investment loan it was 10.80 percent (State Statistical Burcau 1993: 670–71). However, the market rate for a commercial loan was between 15 and 25 percent.

is essential. It is likely that administrative interventions in the financial market will linger for an extended period.

Because reforms in macropolicies, especially those regarding the interest rate, lagged behind the reforms in the allocation system and micro-management institutions, there were several economic consequences. The first one was the recurrence of a growth cycle. Maintaining the interest rate at an artificially low level gave enterprises an incentive to obtain more credits than the supply permitted. Before the reforms, the excess demands for credit were suppressed by restrictive central rationing. The delegation of credit approval authority to local banks in the autumn of 1984 resulted in a rapid expansion of credits and an investment thrust. As a result, the money supply increased 49.7 percent in 1984 compared with its level in 1983. The inflation rate jumped from less than 3 percent in the previous years to 8.8 percent in 1985 (see Figure 1). In 1988 the government's attempt to liberalize price controls caused a high inflation expectation. The interest rate for savings was not adjusted. Therefore, panic buying and a mini-bank run occurred. Loans, however, were maintained at the previously set level. As a consequence, the money supply increased by 47 percent in 1988. The inflation rate in 1988 reached 18 percent (see Figure 1). During the periods of high inflation, the economy overheated. A bottleneck in transportation, energy, and the supply of construction materials appeared. Because the government was reluctant to increase the interest rate as a way of checking the investment thrust, it had to resort to centralized rationing of credits and direct control of investment projects—a return to the planned system. The rationing and controls gave the state sectors a priority position. The pressure of inflation was reduced, but slower growth followed.

As mentioned earlier, although the reforms in the micro-management institution improved the productivity of the state sector, deficits increased due to a faster increase of wages and welfare as a result of the discretionary behavior of the managers and workers in the state enterprises. Therefore, fiscal income increasingly depended on the nonstate sectors. During the period of tightening state control, the growth rates of the nonstate sectors declined because access to credits and raw materials were restricted. Such a slowdown in the growth rate became fiscally unbearable. Therefore, the state was forced to liberalize the administrative controls to make room for the growth of the nonstate sectors. A period of faster growth followed. Nevertheless, conflicts arose again between the distorted macropolicy environment and the liberalized allocation mechanism and micro-management institution.

A second consequence of the inconsistency between the distorted policy environment and the liberalized allocation mechanism and micro-management institutions was rampant rent seeking. After the reforms, market prices existed, legally or illegally, along with planned prices for almost every kind of input and commodity that the state controlled. The difference between the market price and the planned price was an economic rent. It is estimated that the economic rent from the controlled commodity price, the interest rate, and the exchange rate was at least 200 billion yuan, about 21.5 percent of the national income in 1988. In 1992, the economic rent from bank loans alone reached 220 billion yuan (Hu 1994).24 The nonstate enterprises as well as the autonomous state enterprises certainly had incentives to engage in rent-seeking activities through bribes and other measures to obtain the underpriced resources from the state allocation agencies. It is reported that under competitive pressure, the state enterprises in the heavy industries, which were given priorities in obtaining the state-controlled resources, also needed to give certain side payments to the banks and other allocation agencies to secure the earmarked loan and materials or to obtain them promptly.

Because of the rent-seeking activities of other types of enterprises, state enterprises often were unable to obtain the credits and materials indicated in the plans. The rent-seeking activities also caused wide-spread public resentment and became a source of social instability. To guarantee the survival of the state enterprises and to check social resentment, the government attempted to reinstitute tight controls on the allocation system in the austerity programs of 1986 and 1988. However, the controls were relaxed later to allow the growth of the nonstate sectors. Except for the interest rate, administrative controls on the prices of most materials and commodities have been removed.

### The Reform Approaches: A Comparison

There has been much discussion as to why China's reforms have been more successful than the reforms in Eastern Europe and the former Soviet Union (Chen et al. 1992; Qian and Xu 1993; Harrold 1992; McMillan and Naughton 1992; Gelb et al. 1993; McKinnon 1994). Except for the desirability of gradualism, the studies emphasized China's initial industrial structure (China has a large agricultural sector) or China's decentralized regional economic structure. If Chi-

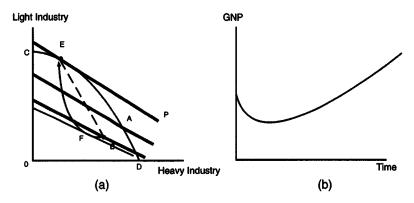
<sup>&</sup>lt;sup>2</sup>The total credit of the state banks was 2,161.6 billion yuan (U.S. \$248.5 billion at the swap market exchange rate). The difference between the official interest rate and the market rate was about 10 percent. The rents from bank loans alone were as high as 216 billion yuan.

na's success was mainly the result of her unique initial conditions, then that success does not have any implications for other economies, where the initial conditions may be different. Nevertheless, the economic problems in prereform China—namely, the structural imbalance and the low incentives—are common to all socialist economies because they all adopted a similar economic development strategy and because they all have a similar macropolicy environment, planned allocation mechanism, and puppet-like state enterprises. Empirical evidence shows that, as in prereform China, Eastern European and Soviet economies were all overindustrialized with oversized state enterprises; their service sectors and light industries were underdeveloped; and employees' incentives were low (Newbery 1993; Brada and King 1991; Sachs and Woo 1993).

For an economy with a given stock of resources, the efficient point in the production plan is point E; however, under the HIODS, the actual production point is B, as illustrated in Figure 3. "Shock therapy" attempts to reform the economic system so that the existing stock of resources can be used more efficiently. Diagrammatically, the reforms attempt to move production from point B to point E. Stabilization, marketization, and privatization are necessary conditions for achieving this goal. This is because, to induce economic agents to move from B to E voluntarily, the agents should have a stable expectation about the economy, correct relative-price signals, and the incentives to respond to the price signals. The prescription of stabilization, price liberalization, and privatization is internally consistent. The scheme is equivalent to a replacement in a short sequence of the whole traditional economic system, shown in Figure 2, which is endogenous to the HIODS.

If the transitional costs of reform were free, "shock therapy" would enable the economy to jump from point B directly to point E, as the dotted line in Figure 4a shows. However, some fixed equipment in heavy industries cannot be used for production in light industries; for other equipment, modifications are required for new uses (Brada and King 1991). Workers in heavy industry also need retraining before they can be assigned to new jobs. Moreover, the establishment of new market institutions takes time and resources (Murrel and Wang 1993, Lin 1989). During the initial stage of reforms, an increase in light industry would not be able to compensate for the decline in heavy industry. Therefore, instead of moving directly from point B to point E in Figure 4a, the economy moves first from B to F before reaching E. The resulting GNP path of growth is a "J-curve," as shown in Figure 4b. How large the decline in GNP would be and how long it would take before recovery would depend on how severe the initial

FIGURE 4
"BIG BANG" REFORM

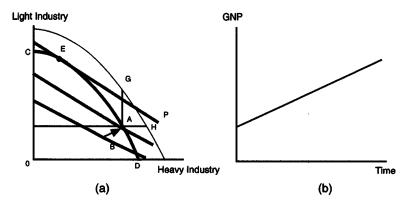


distortion is and how quickly the necessary institutions can be established, something that can only be determined empirically. The experiences of Eastern Europe and the former Soviet Union suggest that a decline can be more than 50 percent of the GNP and that it may take several years before a turning point is reached. The government is certain to encounter a legitimacy crisis when the results of reforms are so dreadful (Dewatripont and Roland 1992). The leadership may not be able to hold a consensus on the course of further reforms, and political instability is likely to follow. Instead of a "J-curve," the result of "shock therapy" may be a big "L-curve."

When China began its reforms in the late 1970s, the political leadership did not question the feasibility or desirability of the traditional economic system. Its attempt was simply to improve incentives in the state enterprises and collective farms by giving agents in state enterprises and collective farms a degree of autonomy so that a closer link between personal rewards and individual efforts could be established. That is, the attempt was to move from point B to point A in Figure 5a. The empirical studies cited earlier show that the attempt was successful and a new stream of resources was created by the micro-management system reform.

The granting of partial microautonomy represented a small crack in the traditional economic system. However, partial autonomy also implies that entrepreneurs gain partial control over the allocation of the newly created stream of resources. The suppressed sectors in the traditional economy are the sectors that are consistent with the comparative advantages of the economy. The unexpected results of the micro-management reform are that, driven by profit motivation,

FIGURE 5
GRADUAL REFORM



the autonomous entrepreneurs allocated the new stream of resources under their control to the more profitable suppressed sectors. Because the planned allocation mechanism and distorted macropolicy environment were preserved, the state still had control over the old stream of resources and guaranteed that those resources would be allocated to the priority sectors. That is, the economy follows a dynamic path from point A to a point close to G, instead of to H, in Figure 5a. Therefore, throughout the reform process, the economy enjoys continuous growth as shown in Figure 5b. Moreover, as the economy grew, the proportion of resources that was allocated according to the planned prices became increasingly small. Therefore, by the time the price for a commodity was liberalized, the shock was much smaller than the gap between the market price and plan price would have suggested. <sup>25</sup>

If the above descriptions are a reasonable explanation of why China was able to enjoy continuous economic growth during the reform process, we can expect the following: first, the expansion of the suppressed sectors would not result in a decline in the priority sectors because the expansion of the suppressed sectors was supported by a new stream of resources; and, second, the economy should reach a higher rate of economic growth than the rate before the reforms because the new stream of resources was allocated to the more efficient sectors. Both assertions are confirmed by the empirical evidence. Table 4 shows the indexes and the growth rates of the major sectors

<sup>26</sup>The official exchange rate was 5.7 yuan for one U.S. dollar and the swap market rate was 8.7 yuan for one U.S. dollar when the exchange rate in China was unified to the swap market rate at the beginning of 1994. However, the shock was very small because before the unification about 80 percent of the foreign exchanges had already been traded in the swap markets.

TABLE 4
INDEX AND GROWTH RATE OF NATIONAL INCOME IN SELECTED SECTORS

Industry							
Year	Total	Agriculture	Total	State	Construction	Transportation	Commerce
1952	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1978	453.4	161.2	1,438.9	3,345.3	573.5	<b>546.9</b>	296.4
1993	1,695.7	346.2	8,546.7	10,385.8	2,764.3	2,037.7	783.6
Average Aı	nnual Growtl	h Rate (percent)					
1952-78	6.0	1.9	10.8	14.5	6.9	6.8	4.3
1978–92	8.6	4.9	11.8	7.3	10.3	8.6	6.3

Source: State Statistical Bureau (1993: 34, 413; 1994: 34, 375).

in the national economy. It can be seen that no sector has declined since the reforms started and, except for the state enterprises, each sector's growth has accelerated.

#### Conclusion

Even though China's leaders did not have a blueprint in mind when reforms started. China's reforms have followed a path that can be explained by the theory of induced institutional innovation (Lin 1989, North 1990). The traditional economic system was itself a product of institutional innovation induced by the government's attempt to pursue a HIODS in a capital-scarce economy. The traditional system made the mobilization of resources for building up the strategy-determined priority sectors possible. However, its economic efficiency was low. Therefore, once the integrity of the traditional economic system was cracked by the introduction of microautonomy, institutional changes occurred in a way that was self-propelling toward the replacement of the traditional system with a more efficient market system. In the process, the efficiency of the state enterprises was improved through greater autonomy and by meeting competition from the nonstate sectors. However, the dynamism of the economy came mainly from the swift entry of new, small, nonstate enterprises. The old planned allocation mechanism and distorted macropolicy environment gradually became unsustainable and were discarded. During the reform process, the state, the enterprises, and the people have had sufficient time to make adjustments to the new market system. The reforms benefit the majority of people as the economy has maintained strong growth throughout the whole process.

The "big bang" approach in Eastern Europe and the former Soviet Union also attempts to replace an inefficient economic system with a more efficient market system. The privately owned small firms emerged immediately after the lifting of the ban on private enterprises. However, the privatization of medium- and large-scale state enterprises was prolonged and proceeded slowly (Murrel and Wang 1993, Wang 1992). This resulting enterprise mix is in fact similar to what emerged in China. However, China's approach did not disrupt production in the state sectors. Therefore, China's gradual approach to reform achieved the same positive effects of the "big bang" approach but avoided its costs. <sup>26</sup> If transitional costs and the path-dependence of

<sup>&</sup>lt;sup>26</sup>The opportunity cost for the workers to move from the state sectors to the nonstate sectors might be higher in Eastern Europe and the former Soviet Union (EE/FSU) than in China because the subsidies to the workers were higher and the economies were more decentralized in EE/FSU than in China, as Sachs and Woo (1993) and Qian and Xu (1993) correctly emphasized. However, the higher opportunity cost is not a sufficient condition for nullifying the applicability of the Chinese approach. In China the differences between the state-

institutional changes are taken into account, China's gradual approach may be both theoretically and empirically preferable to the "big bang"

approach (Wei 1993).

The overall performance of China's gradual approach to transition is remarkable, but China has paid a price. Because the reform of the macropolicy environment, especially interest-rate policy, has lagged behind reforms of the micro-management institution and resource allocation mechanism, institutional arrangements in the economic system have become internally inconsistent. As a result of the institutional incompatibility, rent-seeking, investment rush, and inflation have become internalized in the transition process. To mitigate those problems, the government often resorts to traditional administrative measures that cause the economy's dynamic growth to come to a halt and retard institutional development.

From the preceding analysis we find that it is imperative for China to complete the reform of the macropolicy environment so as to remove the institutional incompatibility and ensure a sustained, smooth growth path. Since the macropolicy environment is endogenous to the state's development strategy, the government must give up the anti-comparative advantage HIODS—or, in a modern version, the capital-intensive high-tech industry-oriented development strategy—and shift to a strategy based on China's comparative advantages. In addition, as the Chinese economy becomes a more mature market economy and is more integrated with the world economy, it is essential for the continous growth of the Chinese economy to establish a transparent legal system that protects property rights so as to encourage innovations, technological progress, and domestic as well as foreign investments in China.

Thus far, most elements in China's reforms were induced rather than designed. However, the experience of China's transition may provide a useful lesson for designing reform policies in other economies where the heavy-industry-oriented strategy or other similar development strategies have been adopted under capital-scarce conditions.<sup>27</sup>

regulated prices and the market prices in general were less than 30 percent and at most 100 percent before the reforms. However, the differences for many commodities in EE/FSU often reached factors of 10. Therefore, the expected returns for a worker to move from the state sectors to the nonstate sectors were much higher in EE/FSU than in China. The existence of a large secondary economy in EE/FSU before the reforms suggests that resources would have flowed quickly into the suppressed sectors if the activities had been legalized. The rapid emergence of small private firms after lifting the ban on private enterprises confirms this proposition.

<sup>&</sup>lt;sup>27</sup>In essence, the HIODS is a forging-ahead strategy in which the government distorts the macropolicy environment to facilitate the development of some industries that exceed the stage of development dictated by the comparative advantages of the economy's endowment structure. The import-substitution strategy widely adopted in Latin America is another

Certainly, stages of development, endowment structures, political systems, and cultural heritage differ from one economy to another. To be effective, actual reform measures should take the economy's initial conditions into consideration and exploit all favorable internal and external factors.<sup>28</sup> Therefore, the specific design and sequence of reforms in an economy should be "induced" rather than "imposed." However, in addition to the general advice of maintaining economic and political stability and moving the reforms in a path-dependent manner, the following lessons may be useful for a government attempting reforms in an economic system similar to that of prereform China:

- Grant autonomy to the micro-management unit to improve the incentive structure and to create a new stream of resources by improving productivity.
- Allow the new stream of resources to be allocated by the autonomous enterprises outside the plan and at market prices to the suppressed sectors while maintaining the survival of the old priority sectors with the resources still under the state's plan control.
- Liberalize the distorted policy environment and planned allocation system to make them consistent with the autonomous micromanagement system when the new stream of resources allocated under the market outweighs the stream of resources allocated under the plan.

#### References

Brada, J.C. (1991) "The Economic Transition of Czechoslovakia from Plan to Market." *Journal of Economic Perspectives* 5 (Fall): 171–77.

Brada, J.C., and King, A.E. (1991) "Sequencing Measures for the Transformation of Socialist Economies to Capitalism: Is There a J-Curve for Economic Reform?" Research Paper Series No. 13, Washington, D.C.: Socialist Economies Reform Unit, The World Bank.

Chen, K.; Wang, H.; Zheng, Y.; Jefferson, G.; and Rawski, T. (1988) "Productivity Change in Chinese Industry: 1953–1985." Journal of Comparative Economics 12(4) (December): 570–91.

Chen, K.; Jefferson, G.; and Singh, I.J. (1992) "Lessons from China's Economic Reform." Journal of Comparative Economics 16(2) (June): 201-25. Cheng, C.Y. (1982) China's Economic Development: Growth and Structural Change. Boulder, Colo.: Westview Press.

example of the forging-ahead development strategy.

<sup>&</sup>lt;sup>20</sup>The presence of overseas Chinese, the existence of a large stock of industrial resources in the rural sector before the start of reform, and the continuation of substantial marketing activity throughout the agricultural sector during the entire socialist period are among the important initial conditions that have contributed unequivocally to the success of China's reforms.

- Desai, P., and Martin, R. (1983) "Efficiency Loss from Resource Misallocation in Soviet Industry." Quarterly Journal of Economics 98(3) (August): 117-29.
- Dewatripont, M., and Roland, G. (1992) "The Virtues of Gradualism and Legitimacy in the Transition to a Market Economy." *Economic Journal* 102(4) (March): 291–300.
- Dollar, D. (1990) "Economic Reform and Allocative Efficiency in China's State-Owned Industry." Economic Development and Cultural Change 39(1) (October): 89–105.
- Fan, Q.M., and Schaffer, M.E. (1991) "Enterprise Reforms in Chinese and Polish State-Owned Industries." Research Paper Series No. 11. Washington, D.C.: Socialist Economies Reform Unit, The World Bank.
- Fan, S.G (1991) "Effects of Technological Change and Institutional Reform on Production Growth in Chinese Agriculture." American Journal of Agricultural Economics 73(2) (May): 265-75.
- Fcder, G.: Lau, L.J.: Lin, J.Y.; and Luo, X.P. (1992) "The Determinants of Farm Investment and Residential Construction in Post-Reform China." *Economic Development and Cultural Change* 41(1) (October): 1–26.
- Gelb, A.; Jefferson, G.; and Singh, I. (1993) "Can Communist Economies Transform Incrementally?" In O.J. Blanchard and S. Fischer (eds.) NBER Macroeconomics Annual 1993. Cambridge, Mass.: MIT Press.
- Gordon, R., and Li, W. (1991) "Chinese Enterprise Behavior under the Reforms." American Economic Review 81(2) (May): 202-6.
- Groves, T.; Hong, Y.; McMillan, J.; and Naughton, B. (1994) "Autonomy and Incentives in Chinese State Enterprises." *Quarterly Journal of Economics* 109(1) (February): 183–209.
- Groves, T.; Hong, Y.; McMillan, J.; and Naughton, B. (1995) "China's Evolving Managerial Labor Market." Journal of Political Economy 103(4) (May): 873-92.
- Harrold, P. (1992) "China's Reform Experience to Date." World Bank Discussion Paper No. 180. Washington, D.C.: The World Bank.
- Hu, S.L. (1994) "1994: Reforms Have No Romantic Melody." Gaige (Reform) 1 (January).
- Jefferson, G., and Rawski, T. (1995) "How Industrial Reform Worked in China: The Role of Innovation, Competition, and Property Rights." Proceedings of the World Bank Annual Conference on Development Economics 1994 (Washington, D.C.: The World Bank): 129–56.
- Jefferson, G.; Rawski, T.; and Zheng, Y. (1992) "Growth, Efficiency and Convergence in China's State and Collective Industry." Economic Development and Cultural Change 40(2) (January): 239-66.
- Li, J.W., and Zheng, Y.J., eds. (1989) Jishujinbu yu Chanye Jiegou Xuanze (Technological Progress and the Choice of Industrial Structure). Beijing: Kexue Chubanshe.
- Li, Y. (1983) Zhongguo Gongye Bumen Jiegou (The Structure of Chinese Industry). Beijing: China People's University Press.
- Lin, J.Y. (1988) "The Household Responsibility System Reform in China's Agricultural Reform: A Theoretical and Empirical Study." *Economic Development and Cultural Change* 36(3, supplement) (April): S199–S224.

- Lin, J.Y. (1989) "An Economic Theory of Institutional Change: Induced and Imposed Change." Cato Journal 9(1) (Spring/Summer 1989): 1–33.
- Lin, J.Y. (1992) "Rural Reforms and Agricultural Growth in China." American Economic Review 82(1) (March): 34–51.
- Lin, J.Y.; Cai, F.; and Li, Z. (1994) The China Miracle: Development Strategy and Economic Development. Chinese ed., Shanghai: People's Publishing House and Shanghai Sanlian Sudian. (English ed., Hong Kong: Chinese University Press, 1996).
- Lipton, D., and Sachs, J. (1990) "Privatization in Eastern Europe: The Case of Poland." *Brookings Papers on Economic Activities*, No. 2: 293-341.
- Luo, H.X. (1985) Economic Changes in Rural China. Beijing: New World Press.
- McKinnon, R.I. (1994) "Gradual versus Rapid Liberalization in Socialist Economies: Financial Policies and Macroeconomic Stability in China and Russia Compared." In *Proceedings of the World Bank Annual Conference on Development Economics* 1993: 63–94. Washington, D.C.: The World Bank
- McMillan, J., and Naughton, B. (1992) "How to Reform a Planned Economy: Lessons from China." Oxford Review of Economic Policy 8(1) (Spring): 130-143.
- McMillan, J.; Whalley, J.; and Zhu, L.J. (1989) "The Impact of China's Economic Reforms on Agricultural Productivity Growth." *Journal of Political Economy* 97(4) (August): 781–807.
- Murphy, K.; Schleifer, A.; and Vishny, R. (1992) "The Transition to a Market Economy: Pitfall of Partial Reform." *Quarterly Journal of Economics* 107(3) (August): 889–906.
- Murrel, P., and Wang, Y.J. (1993) "When Privatization Should Be Delayed: The Effect of Communist Legacies on Organizational and Institutional Reforms." *Journal of Comparative Economics* 17(2) (June): 385–406.
- Newbery, D.M. (1993) "Transformation in Mature versus Emerging Economies: Why Has Hungary Been Less Successful than China?" Paper presented to the International Symposium on the Theoretical and Practical Issues of the Transition towards the Market Economy in China. Hainan, China: China Institute of Economic Reform and Development, 1–3 July.
- North, D.C. (1990) Institutions, Institutional Change, and Economic Performance. Cambridge, Mass.: Cambridge University Press.
- Perkins, D.H. (1966) Market Control and Planning in Communist China. Cambridge, Mass.: Harvard University Press.
- Perkins, D.H. (1988) "Reforming China's Economic System." Journal of Economic Literature 26(2) (June): 601-45.
- Perkins, D.H. (1992) "China's Gradual' Approach to Market Reforms." Paper presented at a conference on Comparative Experiences of Economic Reform and Post-Socialist Transformation. El Escorial, Spain, 6–8 July.
- Perkins, D.H., and Yusuf, S. (1984) Rural Development in China. Baltimore: The Johns Hopkins Press.
- Qian, Y.Y., and Xu, C.G. (1993) "Why China's Economic Reforms Differ: The M-Form Hierarchy and Entry/Expansion of the Nonstate Sector." The Economics of Transition 1(2) (June): 135-70.

- Rawski, T.G. (1979) Economic Growth and Employment in China. Oxford: Oxford University Press.
- Sachs, J.D., and Woo, W.T. (1993) "Structural Factors in the Economic Reforms of China, Eastern Europe and the Former Soviet Union." Paper presented at the Economic Policy Panel Meeting, Brussels, Belgium, 22-23 October.
- Singh, I.J. (1991) "China and Central and Eastern Europe: Is There a Professional Schizophrenia on Socialist Reform?" Research Paper Series, No. 17, Washington, D.C.: Socialist Economies Reform Unit, The World Bank.
- State Statistical Bureau (1987a) Zhongguo Gongye Jingyi 1987 (China Industrial Economy Statistical Material 1987). Beijing: Zhongguo Tongji Chubanshe.
- State Statistical Bureau (1987b) Zhongguo Gudingzichantouzi Tonggiziliao 1950–1985 (China Capital Construction Statistical Data 1950–1985). Beijing: Zhongguo Tongji Chubanshe.
- State Statistical Bureau (1987c) Zhongguo Tongji Nianjian 1987 (China Statistical Yearbook 1987). Beijing: Zhongguo Tongji Chubanshe.
- State Statistical Bureau (1989) Guanguo Geshenshi Zizhiqu Guominshouru Tongji Ziliao Huibian 1949–1989 (A Compilation of Provincial National Income Data 1949–1989). Beijing: Zhongguo Tongji Chubanshe.
- State Statistical Bureau (1993) Zhongguo Tongji Nianjian 1993 (China Statistical Yearbook 1993). Beijing: Zhongguo Tongji Chubanshe.
- State Statistical Bureau (1994) Zhongguo Tongji Nianjian 1994 (China Statistical Yearbook 1994). Beijing: Zhongguo Tongji Chubanshe.
- State Statistical Bureau (1995) Zhongguo Tongji Zaiyao 1995 (A Statistical Survey of China 1995). Beijing: Zhongguo Tongji Chubanshe.
- Sung, Y.W. (1994) "An Appraisal of China's Foreign Trade Policy, 1950-1992." In T.N. Srinivasan (ed.) The Comparative Experience of Agricultural and Trade Reforms in China and India: 109-53. San Francisco: International ICS Press.
- Wang, Y.J. (1992) "Communist Legacy, Pattern of Post Communism Organization, and the Problem of Transition." Mimeo. St. Paul, Minn.: Industrial Relations Center, University of Minnesota.
- Wei, S.J. (1993) "Gradualism Versus Big Bang: Speed and Sustainability of Reforms." Working Paper Series R93-2. Cambridge, Mass.: John F. Kennedy School of Government, Harvard University.
- Wen, G.J. (1993) "Total Factor Productivity Change in China's Farming Sector: 1952–1989." *Economic Development and Cultural Change* 42(1) (October): 1–41.
- Whitesell, R., and Barreto, H. (1988) "Estimation of Output Loss from Allocative Inefficiency: Comparisons of the Soviet Union and the U.S." Research Memorandum RM-109. Williamstown, Mass.: Center for Development Economics, Williams College.
- Woo, W.T. (1993) "The Art of Reforming Centrally-Planned Economies: Comparing China, Poland and Russia." Paper presented at the Conference on the Tradition of Central Planned Economies in Pacific Asia. San Francisco: Asia Foundation in San Francisco, 7–8 May.

- World Bank (1985a) China: Economic Structure in International Perspective, Annex to China: Long Term Issues and Options. Washington, D.C.: The World Bank.
- World Bank (1985b) China: Long-term Issues and Options. Oxford: Oxford University Press.
- World Bank (1992) Reform and Role of the Plan in the 1990s. Washington, D.C: The World Bank.
- Wu, J.L., and Zhang, Z.Y., eds. (1993) Zhongguo Jingii Jianshe Baikequanshu (The Encyclopedia of China's Economic Construction). Beijing: Beijing Gongye Daxue Chubanshe.
- Wu, Y.L. (1965) The Economy of Communist China: An Introduction. New York: Praeger.
- Yusuf, S. (1993) "The Rise of China's Nonstate Sector." Mimeo. Washington, D.C.: Department of China and Mongolia, The World Bank.
- Zhonghua Zhoumo Bao (China Weekend Newspaper) (1995), "The Over-Staffing in the State Enterprises Is over 30 Million." 21 January.
- Zou, G. (1992) "Enterprise Behavior under the Two-Tier Plan/Market System." Mimeo. Los Angeles: IBEAR/SBA, University of Southern California.