

# China's Economic Reforms

## Pointers for Other Economies in Transition?

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China's approach to economic reform was gradual and incremental. China's experience may provide useful pointers for other capital-scarce economies in transition from strategies geared to heavy industry to a more balanced profile of development.



## Summary findings

China's two main economic problems before reform were low incentives to workers and the misallocation of resources among sectors. These problems were the result of a development strategy oriented toward heavy industry.

By improving material incentives, China's reforms created a flow of new resources and allowed them to be allocated to sectors suppressed under pre-reform strategies.

The onset of reform in China was not allowed to disrupt production from existing resources. Instead, the newly created resources were permitted to accrue and to flow into the more productive, often light industrial sectors, thus stimulating continuous growth of the national economy during reform.

Low incentives and the suppression of nonpriority sectors are common features of the legacy of economies

in transition from central planning that based their development on the rapid growth of heavy industry. China's approach may be of interest to them. Among lessons China learned are that:

- Autonomy must be granted to micromanagement units and preserved to improve the incentive structure and create a new flow of resources.
- While maintaining essential minimum levels of production in the pre-reform priority sectors, autonomous enterprises must be permitted and encouraged to allocate new incremental resource flows to the previously suppressed sectors.
- In parallel, the distorted policy environment and planned-allocation system must be progressively reformed to bring them into line with the new system of incentives and modus operandi of autonomous enterprises.

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This paper — a product of the Agricultural Policies Division, Agriculture and Natural Resources Department — was presented to a Bankwide seminar in March 1994. Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Cicely Spooner, room N8-037, extension 30464 (41 pages). June 1994.

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**CHINA'S ECONOMIC REFORMS:  
POINTERS FOR OTHER ECONOMIES IN TRANSITION?**

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**Paper presented to Bankwide seminar on March 3, 1994**

## INTRODUCTION

There are two distinct approaches recommended for the transition from a centrally-planned to a decentralized, market economy. The first approach is known as the "big bang" or "shock therapy" (Lipton and Sachs, 1990). It advocates economic stabilization, liberalization and privatization as necessary components of economic reform. As in divine creation which lasted only seven days, this approach encourages completing all these measures within a relatively short period of time. The reforms recently undertaken in Eastern Europe and the former Soviet Union are prime examples of this strategy.

The contrasting alternative is called the "gradual", "organic" or "evolutionary" approach (Kornai 1990), and it characterizes the reform process that China has undergone. This approach is partial, incremental, sequential and often experimental. It does not pursue large-scale privatization. As a method of decentralization, it is widely regarded as self-defeating by at least part of the economic profession. In contrast, the first approach has been judged to be theoretically rigorous and feasible in practice (Murphy, Shleifer, and Vishny, 1992).

During the transition, economic "shock therapy" is expected to generate a J-curve effect on growth. GNP may decline initially but should soon be followed by a strong recovery. When administered in Eastern Europe and the former Soviet Union, however, this combination of radical and abrupt change has resulted in an unexpectedly sharp and prolonged decline in GNP. This has been accompanied by extraordinarily high inflation rates (see Table 1).<sup>1</sup>

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<sup>1</sup> The collapse of international trade due to the demise of CMEA has also contributed to the decline of GNP in these countries. Nonetheless, the "shock therapy" was undoubtedly a major cause of their spiral downward (Brada and King, 1991).

Table 1: Growth and Inflation in Eastern Europe and the former Soviet Union

Country	Real GDP (Percentage Change)						Retail Price (Percentage Change)					
	88	89	90	91	92	93 (est.)	88	89	90	91	92	93 (est.)
Albania				-30	-8	3				36	200	130
Armenia				-12	-50	-10				100	1350	na
Azerbaijan				-2	-30	-10				138	1350	na
Belarus				-3	-11	-3				80	1076	1300
Bulgaria	3	-2	-9	-12	-8	-5	2	6	26	334	83	90
Croatia				-29	-11	-5				123	664	790
Czechoslovakia	3	1	-1	-14	-7	na	0	2	11	57	11	20
Estonia				-13	-26	-10				212	1050	200
Georgia				-25	-30	-10				81	1800	na
Hungary	0	0	-4	-12	-5	-2	16	17	29	35	23	23
Kazakhstan				-8	-13	-15				91	1381	1000
Kyrgyzstan				-5	-25	-16				85	855	600
Latvia				-8	-44	-10				172	951	250
Lithuania				-13	-35	-10				225	1021	690
Macedonia				-11	-15	-7				115	1691	580
Moldova				-12	-21	-15				98	1460	1000
Poland	4	0	-11	-7	1	2	60	251	586	70	43	39
Romania	1	-7	-7	-14	-15	-9	3	1	7	161	210	210
Russia				-11	-19	-15			6	93	1354	1000
Slovak	3	1	0	-16	-6	-8	0	2	11	61	10	25
Slovenia				-9	-7	-1				115	207	47
Tajikistan				-9	-31	-18				103	1450	na
Turkmenistan				-7	-12	-9				90	980	na
Ukraine	2	4	-4	-14	-14	-10	0	2	4	91	1450	1450
Uzbekistan				-1	-14	-10				82	700	na

Source: *The Economics of Transition*, vol. 1, no. 3 (September 1993): pp. 370-378.

The situation could not have been more different in China. Reform there began at the end of 1978. Since then, GNP has grown at phenomenally high rates while prices have remained relatively stable (see Figure 1). Whether China's reforms provide any general implications for other reforming economies is the subject of lively debate. Several economists argue that China's success poses a challenge to the conventional wisdom that stabilization, liberalization and privatization are key to successful reform (McMillan and Naughton, 1992; Singh 1991; Chen et al., 1992; Harrold 1992; Perkins 1992; McKinnon 1993). They maintain that China's recent economic history demonstrates the superiority of evolutionary,

experimental and bottom-up reform over the comprehensive, top-down reforms advocated by the first approach.

A third school argues that it is neither gradualism nor experimentation that has contributed to rapid growth in China. Instead, they cite its initial structure, namely, a labor force largely concentrated in agriculture where productivity is low, as the relevant factor in its economic progress. According to this view, the key to China's success lies in a classical process of economic development -- the transfer of workers from low-productivity agriculture to industry, where productivity is higher. These traditionalists claim that such a process cannot be duplicated in Eastern Europe and the former Soviet Union, due to the much smaller percentage of their respective labor forces which are employed in agriculture.

In this paper we attempt to provide a new perspective. The economic problems in China and other formerly Socialist economies were the low level of incentives to workers and the misallocation of resources among sectors. These resulted from the extraordinary development emphasis given to heavy industry during the pre-reform periods.

"Shock therapy" attempts to provide an institutional framework that will improve incentives and induce the shift of part of the existing stock of resources from sectors of low productivity to more productive areas. However, shifting resources from one use to another is costly, and the establishment of new institutions requires time, energy and other inputs (Murrel and Wang, 1993). Thus, we agree that a J-curve, or worse an L-curve, is unavoidable if this approach is adopted. Nonetheless, China's experience illustrates that prolonged drops in income are not inevitably a consequence of initiating a transition.

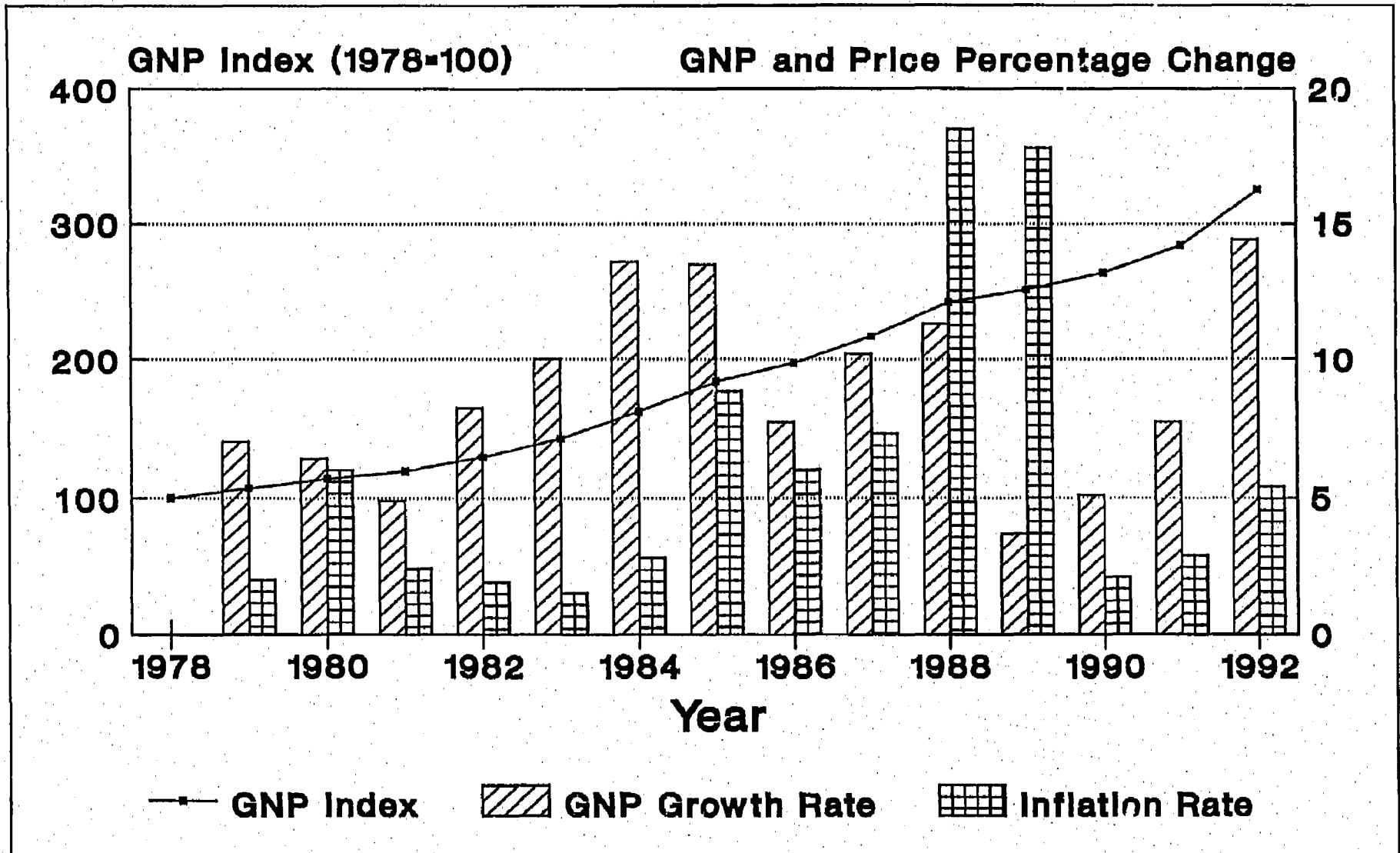


Figure 1: Economic Growth and Inflation in China

Instead of attempting to reallocate the existing stock of resources from a low-productivity sector to more highly productive sectors, China's reforms created a flow of new resources. They did so by improving the material incentives and allowing the newly created flow of resources to be allocated to sectors which had been suppressed under the original emphasis on heavy industry. Because production of the existing stock of resources was not disrupted, and the new flow of resources was allocated to economic sectors demonstrating a comparative advantage, the J-curve effect of the more static approach was avoided. China's national economy has enjoyed continuous growth throughout the reform process. Since low incentives and the suppression of non-priority sectors are common features to all economies adopting a development strategy favoring heavy industry, China's approach may have general implications for other economies with similar strategies.

This paper is organized into four parts. Section I discusses China's economic development strategy prior to reform and presents a simple economic model to analyze the problems associated with the development strategy. Section II provides an analytical review of China's reforms. China's approach to reform is compared with the shock therapy approach in Section III. Concluding remarks follow in the last section.

## **I. MAJOR PRE-REFORM PROBLEMS IN THE CHINESE ECONOMY**

The traditional economic structure in China was shaped by the adoption in the early 1950s of a development strategy oriented towards heavy industry. At the founding of the People's Republic in 1949, the new government inherited a war-torn agrarian economy. Eighty-nine percent of the population resided in rural areas. Industry comprised only 12.6



percent of national income. At that time, a well-developed heavy industry sector was regarded as a symbol of national power and economic achievement. Like the leadership in India and many other newly independent countries, Chinese leaders intended to accelerate its development.

The Soviet Union's outstanding record of economic growth during the 1930s contrasted with the Great Depression, which dominated Western market economies at that time. It provided the Chinese leadership with both inspiration and experience, paving the way for acceptance of a development strategy favoring heavy industry. Thus in 1953, after recovery from wartime destruction, the government identified heavy industry as the priority sector. The objective was to build up as rapidly as possible the country's capacity to produce capital goods and military materials. This development strategy was to be further defined through a series of five-year plans.

The system had three interrelated components: (1) a macro-policy environment which featured artificially low interest rates, an overvalued exchange rate, low wage rates and controlled price levels for basic necessities and raw materials; (2) planned allocation of credit, foreign exchange and other resources; and (3) a micro-management system of state enterprises and collectivized agriculture. These three components were logically dictated by the choice of a development strategy prioritizing heavy industry in an agrarian economy where capital is scarce. The relationship between the development strategy in the period of central planning and the economic structure is summarized in Figure 2.

Heavy industry is a capital intensive sector, characterized by lumpy and slowly gestating investments. Heavy industrial investment projects can take ten years or more to complete. Further, much project equipment, at least in the initial stages, needs to be imported from more advanced economies.

In the early 1950s, the availability of capital in China was limited, and consequently, market interest rates were high.<sup>2</sup> Foreign exchange was scarce since there were few exportable goods (primarily low-priced agricultural products). The economic surplus was small and dispersed due to the agrarian nature of the economy. These features of the Chinese economy were poorly matched to the requirements of projects in heavy industry, and spontaneous development of capital-intensive industry was nearly impossible.<sup>3</sup> To develop it would demand a set of macroeconomic policies that effectively distorted the existing structure and redirected resource flows in accordance with planners' norms rather than the dictates of expected profitability.

Therefore, at the beginning of the first five year plan (1952), the Chinese government imposed low interest rate policies and overvalued exchange rates to reduce the costs of interest payments and the importation of equipment.<sup>4</sup> In order to secure enough funds to accelerate industrial expansion, a policy of low input prices -- including wage rates for workers and prices for raw materials, energy and transportation -- also evolved as the heavy industry strategy deepened.<sup>5</sup> The assumption was that low prices would enable an enterprise to

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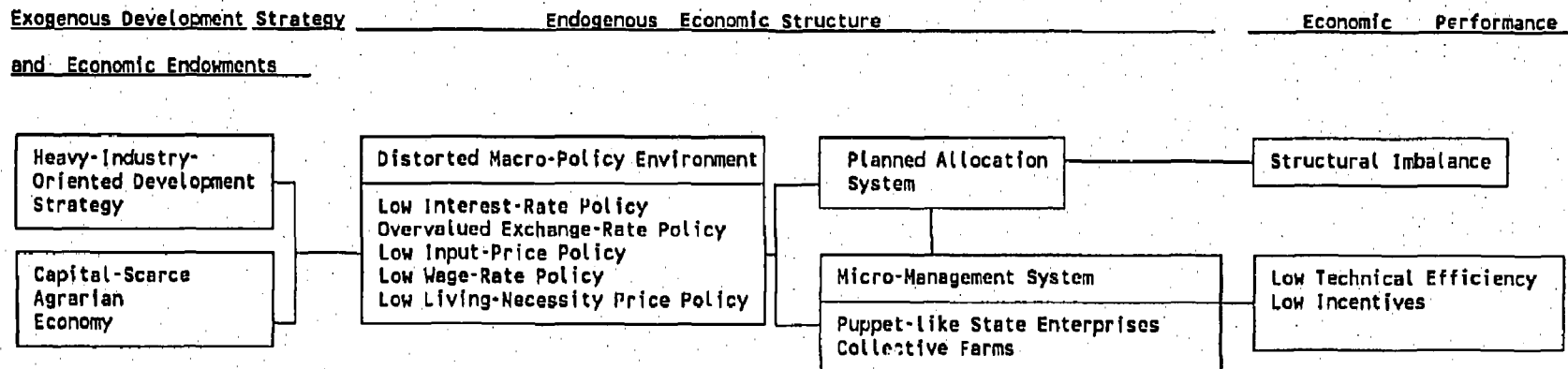
<sup>2</sup> Three percent per month was a normal interest rate at that time in the informal financial markets. This is equivalent to an annual rate of 36 percent.

<sup>3</sup> The prevailing high interest rates eroded the profitability of any long-term investment undertaking. Moreover, since most equipment needed to be imported from advanced countries, the limited supply of foreign exchange made the construction of heavy industry doubly expensive due to the market-determined exchange rate for foreign currency. Lastly, because the agricultural surplus was small and scattered, it was difficult to mobilize sufficient internal savings for major lump-sum investments.

<sup>4</sup> For example, the interest rate on bank loans was officially set at about five percent per year. On an investment of \$1 at the beginning of a 10 year project, the principal and interest payments at the time that the project was completed would be only \$1.6.

<sup>5</sup> The wage rate in the early 1950s most likely was not underpriced because of the competition between the state enterprises and private enterprises. However, the private enterprises were soon nationalized. Once the state became the sole employer, it was able to

Figure 2: The Formation of the Traditional Economic Structure in China



depress wage rates. As a result, although real GNP per capita tripled between 1952 and 1978, the real wage rate was kept almost constant, increasing only 10.3 percent, during the same period (China State Statistical Yearbook 1987, p. 151).

create profits sufficient to repay its loans, and to accumulate enough funds for reinvestment. However, if the enterprise were privately owned, the state could not be sure that the private entrepreneur would invest the subsidized profits in the targeted project. To mitigate this tension, private enterprises were soon nationalized.<sup>6</sup> New key enterprises were entirely state-owned, which secured governmental control over nominal profits in the new industries. To ensure that the low wage policy would be feasible, the government was also obliged to provide urban residents with inexpensive food and other necessities, including housing, medical care and clothing.

This distorted environment created dramatic imbalances in the supply and demand of credits, foreign exchange, raw materials and other basic necessities. Non-priority sectors would have competed with heavy industry to satisfy the excess demand associated with price rationing in fragmented markets. Therefore, markets as a mechanism for allocating scarce resources had to be replaced with plans, targets and administrative controls on the allocation and use of limited resources. Additionally, the state monopolized banks, foreign trade and the material distribution systems in order to suppress competition and inhibit "leakage".<sup>7</sup>

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<sup>6</sup> Under the New Democracy Policy adopted by the Communist party in the late 1940s, private enterprise was supposed to coexist with the state-owned enterprises for an extended period of time after the revolution. However, enterprises were rapidly nationalized in 1952 when the government first attempted to secure profits for projects in heavy industry as the heavy industry oriented development strategy was being adopted.

<sup>7</sup> In the literature, many authors equate the distorted policy environment and the administrative controls with socialism. However, from the above discussion we find that the rationale for the existence of these policies and controls was not "socialism." Rather, the distorted macro-policy environment and planned allocation system arose because of the adoption of a heavy industry oriented strategy in a capital-scarce economy. All the socialist economies had similar policy environments and administrative controls because they all adopted the same development strategy, probably under the influence of Stalin. Even some non-socialist developing economies, such as India, imposed similar policies and controls because they also pursued the same development strategies grounded in accelerated industrialization.

Profits ceased to be a measure of an enterprise's efficiency. Furthermore, because of the lack of market discipline, managerial discretion was potentially a serious problem. It was severely curtailed to eliminate any possibility of undiscipline or disruption.<sup>8</sup> State enterprises were subject to mandatory production plans and were furnished with most of their material inputs. Prices of their products were determined by pricing authorities. Government agencies controlled the circulation of products from producers to users and consumers. Workers' wages and managers' salaries conformed to a national wage scale. Investment and working capital were financed principally through grants from the state budget or loans from the banking system, in accordance with the state plans. The enterprises remitted all profits made to the state budgetary agency. In return, the agency covered all losses incurred by the enterprises.<sup>9</sup> In essence, the state enterprises were puppets of central authorities. They did not have any autonomy over employment, the use of profits, their production plans, material supplies or product marketing.

The development strategy and resulting policy environment and allocation system also shaped the evolution of farming in China. In order to secure cheap supplies of grain and other agricultural products for rationing in urban centers, in 1953 a compulsory procurement policy was imposed in rural areas. The policy obliged peasant farmers to sell certain quantities of their produce, including grain, cotton and edible oil, to the state at prices which it had set.

In addition to providing cheap food for industrialization, agriculture was the main earner of foreign exchange. In the 1950s, agricultural products alone comprised over 40 percent of

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<sup>8</sup> China's state enterprises were granted some autonomy after the reforms of the late 1970s. As expected, one of the results of this move was a rapid increase in wages, bonuses and fringe benefits, which came at the expense of enterprise profits.

<sup>9</sup> Before the reforms, there were some collective enterprises in the urban areas. They were managed no differently than the state-owned enterprises, other than being treated as less experienced partners.

all exports. If processed agricultural products are also counted, agriculture contributed more than 60 percent of China's foreign exchange earnings up until the 1970s. Foreign exchange was a constraint as important as capital to the strategy to develop heavy industry. Thus, in the early stages of development, the country's capacity to import capital goods for industrialization clearly depended on agriculture's performance.

Agricultural development requires resources and investment just as industrial development does. The government, however, was reluctant to divert scarce resources and funds from industry to agriculture. Its strategy to develop agriculture would not compete for resources with industrial expansion. The core of this strategy involved plans for mass mobilization of the rural population to work on labor-intensive investment projects such as irrigation, flood control and land reclamation. The government also attempted to raise unit yields through traditional methods such as closer planting, more careful weeding and the use of greater quantities of organic fertilizer.

Collectivization was the institution that the government believed would develop agriculture. It was viewed as a convenient vehicle for implementing the state's program to procure grain and other agricultural products at low prices. (Luo 1985). In the collectives income distribution was based on each member's contribution. However, monitoring effort is extremely difficult in agricultural production, due to its spatial and temporal dimensions. The remuneration system in the collectives was, by default, basically egalitarian (Lin 1988).

In the Chinese economy where capital was scarce, this combination of a rigid macro-policy environment, a planned allocation system and micro-management of agriculture made possible the maximum mobilization of resources for the development of heavy industry. Since most private initiative in economic activities was prohibited, the pattern of government investment is the best indicator of the bias in the official development strategy. Table 2 shows

the sector shares in state capital construction investment from the first five year plan (1953-1957) to the sixth five year plan (1981-85). Despite the fact that more than three quarters of China's population derived their living from agriculture, it received less than 10 percent of state investment in the period 1953-1985. Meanwhile, forty-five percent of the investment budget went into heavy industry. Moreover, heavy industry received the lion's share of investment falling under the heading "other", including workers' housing and infrastructure. As a result, the value of the share represented by heavy industry in the combined total of agriculture and industry grew from 15 percent in 1952 to about 40 percent by the mid-1970s (see Table 3).

Table 2:

## 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	54.0	28.3
1963-1965	17.6	3.9	45.9	32.6
Third	10.7	4.4	51.1	33.8
Fourth	9.8	5.8	49.6	34.8
Fifth	10.5	6.7	45.9	36.9
Sixth	5.1	6.9	38.5	49.5
1953-1985	8.9	6.2	45.0	39.9

Source: State Statistical Bureau, Zhongguo qudingzichantouzi tongqiziliao (China Capital Construction Statistical Data 1950-1985), p.97.

Table 3:

**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, Guominshouru tongji ziliao huibian, p. 11.

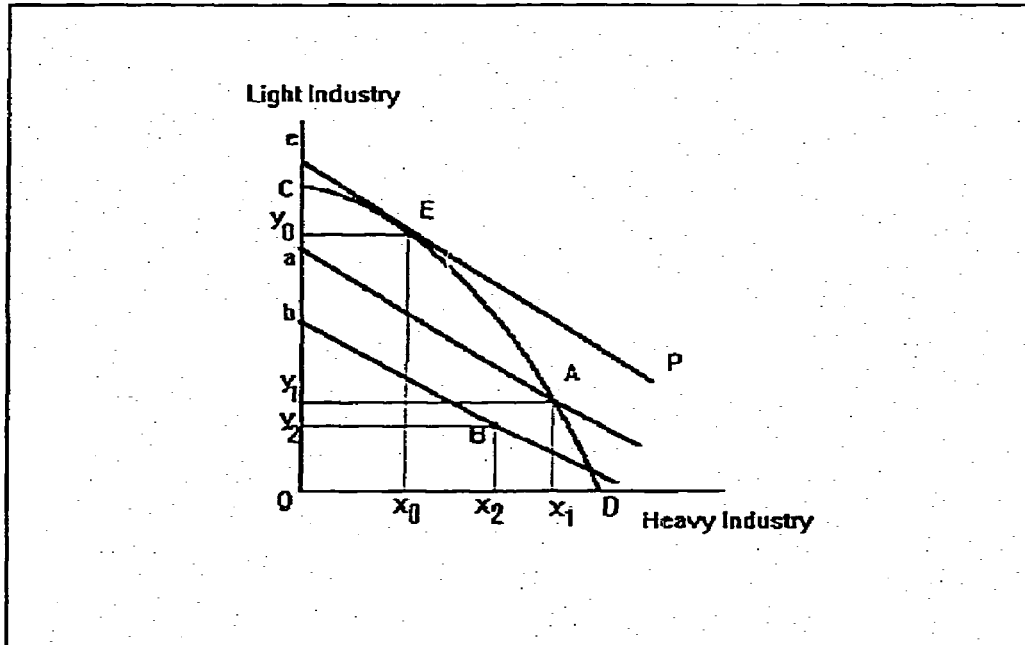
Judging from China's sector composition, the program of reforms has reached its intended goal of accelerating the development of heavy industry. Nonetheless, China has paid a high price for its achievement. The economy is highly inefficient due to two major problems: (1) low allocative efficiency arising from the deviation of the industrial structure from the pattern dictated by the comparative advantages in the economy; and (2) low technical efficiency linked to the meager incentives for workers and managers to apply themselves and excel.

Low allocative efficiency At the current stage of China's economic development, capital is still relatively scarce and labor relatively abundant. If prices were determined by market competition, capital would be relatively expensive and labor relatively inexpensive. Thus, the comparative advantages of the Chinese economy lie in its labor-intensive sectors. If investments were guided by market forces, profit incentives would have induced entrepreneurs to adopt technologies which demand labor but not capital, and to allocate more resources to labor-intensive industries.



The effects on industrial structure of China's focus on developing heavy industry are illustrated in Figure 3.

Figure 3: The Development Strategy and Truncated Production Frontier



Assume there are only two sectors in the economy, namely, labor-intensive light industry and capital-intensive heavy industry. Given the endowments, the production possibility frontier is  $OCD$ .  $EP$  represents the line of market-determined relative prices that exist before the imposition of the development strategy oriented towards heavy industry. Under the non-distorted relative prices, the economy will produce  $OY_0$  of light industry products and  $OX_0$  of heavy industry products. However, in order to develop heavy industry, the state monopolized the allocation system and used administrative measures to direct the flow of resources. Suppose light industry is limited to  $OY_1$ , so as to shift resources from light industry to heavy industry. The production possibility frontier is truncated to  $Y_1AD$ . If there is no technical inefficiency, the production mix of the economy will locate on  $A$  corresponding to a quantity of  $OY_1$  light industry products and  $OX_1$  heavy industry products.<sup>10</sup>

<sup>10</sup> Similarly, the development of the service sector was suppressed in order to facilitate the development of heavy industry. Except for grain and cotton, agriculture was also suppressed. The government pursued a grain self-sufficiency policy and cotton was the basic raw material.

As we can see from Figure 3, the static consequence of a development strategy oriented towards heavy industry 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>11</sup> The income loss due to allocative inefficiency implies the reduction of surplus available for investment. Assuming that a fixed portion of national income is used for investment, then the decline in investment will further diminish gross investment. Yet, assuming that the government's plan is to develop light and heavy industry in a fixed ratio of  $OX_1/OY_1$ , each production cycle will then repeatedly generate an income loss of 'ea/eO' in relative measure. All these will significantly dampen the growth of the whole economy. To maintain the growth rate, it is necessary to raise the accumulation rate. This will occur at the expense of consumption and lower living standards over an extended period of time.<sup>12</sup>

Low technical efficiency Because profits ceased to be a measure of efficiency and the planned allocation system often failed to distribute materials on time, managers were forced to keep large reserves and had no incentive for utilizing resources economically. Over-staffing, under-utilization and overstocking of inventories are all characteristics of puppet-like state

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<sup>11</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>12</sup> The average annual rate of accumulation was raised from 24.2 percent of national income in the first five year plan up to 33.0 percent and 33.2 percent in the fourth and fifth five year plans. The average annual growth rate for national income dropped from 8.9 percent in the first five-year plan down to 5.5 percent and 6.1 percent in the fourth and fifth five-year plans. As a result, wages for state employees were held almost constant between the years 1952-1978.

enterprises.<sup>13</sup> Moreover, managers had no authority over workers' wage rates and bonuses. A worker's payment was not related to his or her effort in the enterprise nor to the enterprise's profits. The system of remuneration did little to encourage motivation. Similarly, in the agricultural collectives, the farmworker's incentive to work was low because the link between effort and reward was weak.<sup>14</sup> Losses due to this technical inefficiency mean that actual production will locate on some point inside the production possibility frontier, such as point B in Figure 3.

## II. ANALYTICAL REVIEW OF CHINA'S ECONOMIC REFORMS

As Perkins (1988 p. 601) has pointed out, "It is unlikely that China's leaders had a worked-out blueprint in mind when they set out to reform the economic structure." Yet, in retrospect, it is evident that China's reforms followed a logical process which can be predicted from our theoretical model. The tripartite economic structure — the distorted macro-policy environment, the planned allocation system, and the puppet-like micro-management institutions — was a consequence of the adoption of a heavy industry oriented development strategy in a capital-scarce economy. The main problems with this economic structure were its low level of efficiency arising from structural imbalances and incentive problems. The government had become aware of these problems well before the late 1970s. It had made

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<sup>13</sup> Brada (1989) estimates that over-staffing in Czechoslovakian industry was as high as 15 percent.

<sup>14</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).

several attempts to address the structural aspect by decentralizing the allocative mechanism from the central to the local government. However, neither the administrative nature of the allocative mechanism nor the policy environment nor the managerial system were in any way altered. Thus, these attempts failed to rectify the imbalance and did not improve economic incentives.

The goal of the 1978 reforms was also to rectify the structural imbalances and improve incentives. What set these reforms apart from previous attempts were the new policies which granted a degree of autonomy to management in the state enterprises. The purpose of these changes was to improve work incentives by allowing the managers to provide a closer link between workers' efforts and their rewards. This shift represented only a small fissure in the total structure. Nonetheless, once a crack was opened, it was pried further and further apart and led to the eventual dismantlement of the traditional system.

#### Reforms in the System of Micro-Management

The initial motivation for managerial reform was simply to improve the unresponsive quality of the micro-management system of the state enterprises. Subsequently, it has proceeded through four stages. The first stage (1979-1983) emphasized several important experimental initiatives that were intended to enlarge enterprise autonomy and to expand the role of financial incentives within the traditional economic structure. These measures included introduction of profit retention for enterprises and performance-related bonuses for workers. They also permitted state enterprises to produce more than what the state plan mandated. Furthermore, the enterprises involved in exportation were allowed to retain part of their foreign exchange earnings for use at their own discretion.

In the second stage (1984-1986), the emphasis shifted to formalizing the financial

obligations of the state enterprises to the government and exposing these enterprises to market influences. In 1983, a tax on profits replaced profit remittances to the government. A year later, the government allowed state enterprises to sell output in excess of plan quotas at negotiated prices and to plan their production accordingly, thereby establishing a dual-track price system.

During the third stage (1987-1992), a contractual system was formalized and widely adopted. It clarified the authority and responsibilities of enterprise managers. The last stage (1993-present) attempted to introduce the modern corporate system to the state enterprises. At each stage of reform, government intervention has been reduced further, and the state enterprises have gained increasing autonomy.

The most important change in the micro-management system was the replacement of collective farming by a household-based system, now known as the 'household responsibility system'. Unlike the enterprise reforms, at the outset the government was not seeking to change farming institutions. Although it had been recognized in 1978 that solving managerial problems within the collective system was the key to improving farmer incentives, the official position at that time was still that the collective was to remain the basic unit of agricultural production.

A small number of collectives began to try out the system of leasing a collective's land and dividing the obligatory procurement quotas among individual households in the collective. At first, they did so secretly. Later on, it was to be with the blessing of authorities. After the first year, these collectives were already producing yields far larger than those of other teams. The central authorities conceded the existence of this new form of farming, but officially restricted it to poor agricultural regions (mainly hilly or mountainous areas) and to the poorer collectives whose members no longer supported them. This restriction was ignored in most

regions. Production performance improved rapidly after a collective adopted the new system, regardless if it was a wealthier team or a poorer one.

Full official recognition of the household responsibility system as a universally acceptable mode of farming 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 replaced by more decentralized units. By the end of 1983, 98 percent of the agricultural collectives in China had adopted the new system.

When the household system first appeared, the duration of the standard land lease was from one to three years. Because short leases reduced farmer incentive to invest in land improvement, in 1984 leasing contracts were lengthened and allowed to extend up to 15 years.

The reform of the micro-management system has achieved its intended goal of improving technical efficiency. Lin (1992) estimates that almost half of the 42.2 percent growth of output in the cropping sector in the period from 1978 to 1984 was driven by productivity changes directly linked to reform. Further, almost all of the growth in productivity was attributable to the changes resulting from the introduction of the household system.

Production function estimates in several studies have found that the increase in enterprise autonomy has also spawned productivity increases in the state enterprises (Chen et al. 1988; Gordon and Li 1989; Dollar 1990; Jefferson et al. 1992; Groves et al. 1992). However, the increase in enterprise autonomy in the context of a distorted policy environment invited discretionary behavior from managers and workers. As expected, the profits of the state enterprises declined. The government's subsidies had increased along with the improvement in productivity, due to more rapid increases in wages and fringe benefits (Fan and Schaffer 1991). Yet, once fuller autonomy had been extended to the enterprises, it was

politically costly to revoke it. Since the profits of state enterprises were declining, the government's hand was forced. The authorities finally further increased the autonomy of the enterprises in the hope that they would become financially independent.

### Resource Allocation System Reform

The increase in enterprise autonomy created pressures to relax the system of planned distribution. Once the state enterprises were allowed to produce outside the parameters of the mandatory plans, they needed both to obtain additional inputs and to sell their extra outputs. Under pressure from them, material supplies were progressively de-linked from the plan, and retail commerce was gradually deregulated. At the beginning, certain key inputs remained under state control. Little by little, the number of regulated items was reduced. Then, at the end of 1984, centralized credit rationing was delegated to local banks.

An unexpected effect of the relaxation of the resource allocation system was the rapid growth of non-state enterprises, especially the township and village enterprises (TVE). Rural industry had existed since 1971 as a direct result of the government's decision to mechanize agriculture and to develop rural processing industries in order to finance the mechanization. In 1978 the output of TVEs consisted of 7.2 percent of the total value of industrial output in China. However, prior to the reforms, the growth of TVEs was severely constrained by limited access to credit, raw materials and markets.

The reforms created two favorable conditions for the rapid expansion of TVEs. The new stream of surplus created by the household system reform provided a resource base for new activities. The relaxation of the rigidly planned allocation system opened up access to key raw materials and markets. During the period 1981-1991, the number of TVEs, employment, and the value of total output grew at average annual rates of 26.6 percent, 11.2 percent and

29.6 percent, respectively. The value of total output for TVEs grew annually at a rate triple that for state firms during the same period. In 1992 TVEs' output accounted for 32.3 percent of the total output in China. By then, the share of industrial output by non-state enterprises had increased from 22 percent in 1978 to 52 percent.

The rapid entry into the economy of non-state enterprises produced effects on the reform process that were not anticipated. First of all, non-state enterprises were closely connected to markets. Existing outside the controlled system of production, they had to obtain raw materials and energy from competitive markets. Their products could be sold only in markets. Budget constraints were severe, which meant that they could not survive without efficient management. Their employees did not enjoy an "iron rice bowl" or guaranteed lifetime position: in a non-state enterprise, it was possible to be fired. As a result, the non-state enterprises were more productive than the state enterprises. The comparison of growth rates in output and total factor productivity between the state and collective sectors in Table 4 demonstrates this. The dynamism of non-state enterprises exerted pressure on the state enterprises and triggered the state's decision to delegate more autonomy to the latter. The replacement of profit remittances by a profit tax, the establishment of the contract responsibility system, and the introduction of the modern corporate system were all responses to competitive pressures.

Secondly, the development of non-state enterprises significantly rectified the misallocation of resources. In most cases, non-state enterprises had to pay market prices for their inputs, and their products were sold at market prices. Price signals induced them to adopt more labor-intensive technologies and to concentrate on small industries which are more



labor-intensive.<sup>15</sup> In this way, the industrial structure of non-state enterprises aligned itself more closely with China's regional and even international comparative advantages. The entry of TVEs alleviated the structural imbalances that had been caused by a development strategy focussed on heavy industry.

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**Table 4: Growth Rate of Output and Total Factor Productivity**

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

Source: World Bank (1992), Reform and Role of the Plan in the 1990s, Washington, D.C.

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### Macro-Policy Environmental Reform

In the traditional economic structure, the distorted macro-policy environment was linked most closely to the development strategy. It had only indirect effects on allocative and technical efficiency. Reform of macro-policies was the most sluggish element in the system. Later, we will argue that most economic problems that appeared during the reforms – for example, the boom-and-bust cycle and the rampant rent seeking – could be attributed to the inconsistency between the distorted policy environment and the liberalized allocation and

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<sup>15</sup> For example, in 1986 the average industrial enterprise in China had 179.9 workers, and the fixed investment per worker was 7510 yuan (China Industrial Economy Statistical Material 1987, p. 3). Whereas the average TVE in the same year had 28.9 workers, and the fixed investment per worker was 1709 yuan (Statistical yearbook of China 1987, p. 205).

enterprise system. The Chinese government now faces a dilemma: should it make the macro-policy environment consistent with the liberalized micro-management and resource allocation systems? Or should it re-centralize its systems of production and distribution in order to maintain the internal consistency of the traditional economic structure?

Depriving employees in state enterprises of autonomy that they have relished will arouse resistance. A return to the traditional economic structure would also mean the reappearance of economic stagnation. Thus, no matter how reluctant the government has been to acknowledge the diminution of the all-powerful state, the only sustainable choice remaining has been to reform the macro-policy environment in order to align it with the new, reformed systems of allocation and micro-management.

The changes in the macro-policy environment started in the commodity price system. After the introduction of profit retention, state enterprises were allowed to produce outside the mandatory plan. The enterprises first used an informal barter system to obtain the inputs necessary for their 'surplus' production and to sell the extra products at premium prices. In 1984 the government introduced a dual-track price system, which allowed state enterprises to sell output in excess of plan quotas at market prices and to plan their output accordingly. The dual-track price system was designed to permit market pressures to make marginal decisions, while retaining a measure of state control over material allocation. By 1988 only 30 percent of retail sales were still made at plan prices. 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 macro-environment occurred in foreign exchange rate policy. In the years 1979-80, the official exchange rate was roughly 1.5 yuan per US dollar. This rate could not cover the costs of exports, since the average cost of earning one US 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 non-commodity transactions. After 1985, the yuan was gradually devalued.

Additionally, the proportion of retained foreign exchange, which was introduced in 1979, was gradually raised. Enterprises were allowed to swap their foreign exchange entitlements with each other through the Bank of China at rates above the official exchange rate. Restrictions on trading foreign exchange were further relaxed with the establishment of a "foreign exchange adjustment center" in Shenzhen in 1985 where enterprises could trade foreign exchange at negotiated rates. By the late 1980s, similar centers had been established in most provinces of China, and more than 80 percent of the foreign exchange earnings was traded in them (Sung 1993). The climax of foreign exchange rate policy reform was the establishment of a managed floating system and unification of the dual rate system as of January 1, 1994.

Interest rate policy is the least affected area of the traditional macro-policy environment. Under the heavy industry oriented development strategy, the interest rate was kept artificially low to facilitate the expansion of capital-intensive industries. After the reforms started in 1979, the government was forced several times to raise both the loan rates and the savings rates.<sup>16</sup> Still, throughout the reform process, both active and passive interest rates were maintained at levels far below the opportunity cost of capital.

In late 1993 the government announced a plan to establish a development bank with the function of financing long-term projects at subsidized rates and to turn the existing banks

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<sup>16</sup> To stop runs on banks, savings rates were indexed to inflation rates in October 1988. The policy was revoked three years later. In May 1993, the interest rate for a one-year time deposit was 9.18 percent. For a one-to-three-year basic investment loan, it was 10.80 percent (China Statistics Yearbook 1993, pp. 670-71). However, the market rate for a commercial loan was between 15 and 25 percent.

into commercial banks. This reform is expected to take at least three to five years. It is unclear whether afterwards, the interest rate will be regulated or whether it will be determined by the market. The biases of the heavy industry oriented development strategy are deeply rooted in the minds of China's political leaders. To accelerate the development of capital-intensive industry in a capital-scarce economy, a distorted macro-policy environment -- at the very least, in the form of a low interest-rate policy -- is essential. It is likely that administrative interventions in the financial market will linger for an extended period of time.

There have been several economic consequences of the lag between the changes in the allocation system and in micro-management institutions, and macro-policy reform, especially regarding the interest rate. The first one was the recurrence of a boom-and-bust cycle. Because the interest rate was maintained at an artificially low level, enterprises had incentive to obtain more credits than the supply permitted, creating unmet demand. Before the reforms, the excess demand for credit was suppressed by restrictive central rationing. The delegation of credit approval authority to local banks in autumn of 1984 resulted in a rapid expansion of credits and corresponding rise in investment. As a result, the money supply increased 49.7 percent in 1984 from its 1983 level. This caused the inflation rate to more than double, from less than 3 percent in previous years to 8.8 percent in 1985 (see Figure 1).

The government's attempt to liberalize price controls in 1988 further aroused expectations of high inflation. Because the interest rate on savings was not adjusted, panic buying and a small-scale run on banks occurred. Loans were maintained at the pre-determined level. As a consequence, the money supply increased 47 percent in 1988 and the inflation rate reached 18 percent (see Figure 1).

During these periods of high inflation, the economy overheated. Bottlenecks 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 resorted to centralized rationing of credits and raw materials and direct control of investment projects. In other words, it returned to a more disciplined system of planned allocation. Rationing and controls gave priority position to the state sectors. Inflationary pressure was reduced, but a bust followed.

As we saw earlier, although the reforms in the micro-management system improved the productivity of the state sector, its deficits also rose on account of greater discretionary behavior of the part of managers and workers in state enterprises. Fiscal income increasingly depended on the non state sectors. During the bust period, the growth rates of these sectors declined because their access to credits and raw materials was restricted by the austerity program. Such a slowdown in the growth rate became unbearable fiscally. The state was forced to loosen the controls on credits and the supply of materials, which permitted the non-state sectors to expand. Another boom followed. So did more conflict between the policy environment and the liberalized allocation and micro-management systems.

A second consequence of the internal inconsistency in the economic structure was rampant rent-seeking. After the reforms, a market price existed, legally or illegally, along side the set price for almost every kind of input and commodity that the state controlled. The difference between the market price and the planned price was economic rent. Estimates of rent-seeking from the controlled commodity prices, interest and exchange rates started at 200 billion yuan, about 21.5 percent of the national income. In 1992, the economic rent from bank loans alone reached 220 billion yuan (Hu 1994).<sup>17</sup>

Non-state enterprises as well as the autonomous state enterprises certainly had

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<sup>17</sup> The total credit of the state banks was 2,161.6 billion yuan (US\$ 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.

incentives to seek rents through bribes and other measures to the state allocation agencies. It has been reported that under "competition", the state enterprises in the heavy industries-- which had priority in obtaining low-priced resources -- also needed to pay premiums to banks and other allocation agencies in order to secure loans and materials earmarked for them, or to obtain them promptly.

Because of rent-seeking, state enterprises were often unable to obtain the credits and materials promised in the plans. Rent-seeking also caused widespread public resentment and became a source of social instability. To guarantee the survival of the state enterprises and to curb social resentment, the government attempted to re-institute tight controls on the allocation system in the austerity programs of 1986 and 1988. These controls were relaxed later on to permit the growth of the non-state sectors. Except for the interest rate, administrative controls on the prices of most materials and commodities have now been removed.

### III. COMPARISON OF APPROACHES TO REFORM

There has been much discussion of the reasons why China's reforms have been more successful than those 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 1993). Other than the desirability of gradualism, studies have emphasized China's initial structure (its large agricultural sector) and the fact that its economy is decentralized by region. If China's success was mainly the result of initial conditions which are unique to China, then it holds no general implications for other economies where initial conditions may be different

(Sachs and Woo, 1993).

Our investigation points to a different conclusion. The economic problems in pre-reform China should be common to all socialist economies since they all adopted a similar economic development strategy and because they all have similar macro-policy environments, planned allocation systems and puppet-like state enterprises. Empirical evidence shows that, as in pre-reform China, Eastern European and Soviet economies were over-industrialized with gigantic state enterprises; their service sectors and light industries were underdeveloped and employee incentives were low (Newbery 1993; Brada and King, 1991; Sachs and Woo, 1993).

For an economy with a given stock of resources, the point of greatest efficiency in the production plan is point E. However, under a heavy industry oriented development strategy, the actual production point is B, as illustrated in Figure 3. "Shock therapy" attempts to reform the economic structure so that the given stock of resources can be utilized more efficiently. Diagrammatically, the reforms attempt to move production from point B to point E. Stabilization, liberalization and privatization are necessary conditions for achieving this goal. This is because to induce economic agents to move from point B to point E voluntarily, the agents: (1) must expect that the economy will remain stable; (2) need to have correct relative-price signals; and (3) should have the incentives to respond to the price signals. The prescription of stabilization, price liberalization and privatization is internally consistent. This scheme is equivalent to the replacement of the whole traditional economic structure as shown in Figure 2.

If the reforms were free of transaction costs, "shock therapy" would enable the economy to jump from point B directly to point E. This movement is traced by the dotted line in Figure 4A. 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 (Murrell and Wang, 1993; Lin 1989b). Therefore, during the initial stage of reforms, an increase in light industry cannot compensate for the decline in heavy industry. Thus, instead of moving directly from point B to point E, the economy moves first from B to F before reaching E. The resulting path of growth in GNP is a J-curve, as shown in Figure 4B.

How large the decline in GNP will be and how long it will take before the arrival of recovery can only be determined empirically. The experiences of Eastern Europe and the former Soviet Union (quantified in Table 1) suggest that the decline can consume more than 50 percent of GNP and that it will take several years before the arrival of a turning point. A government is certain to confront a legitimacy crisis when the short-term results of reform are simultaneously so dramatic and so negative (Dewatripont and Roland, 1992). The leadership may not be able to hold onto a consensus concerning the course of further reforms, and political instability is likely to follow. Instead of a J-curve, the result of "shock therapy" may form a huge L-curve.

When China started its reforms in the late 1970s, the political leadership did not question the feasibility or desirability of the traditional economic structure. Its intention was simply to improve incentives in the state enterprises and collective farms by giving agents a degree of autonomy so that a closer link between individual effort and personal reward could be established. The attempt was to move from point B to point A in Figure 5A.

More autonomy on the micro-level represented only a modest alteration in the traditional economic structure, yet it had far-reaching consequences. The unanticipated results of the micro-management reforms are that the autonomous entrepreneurs, who are driven by profit motivation, allocated the new flow of resources under their control to the



Figure 4: The Big Bang Reform

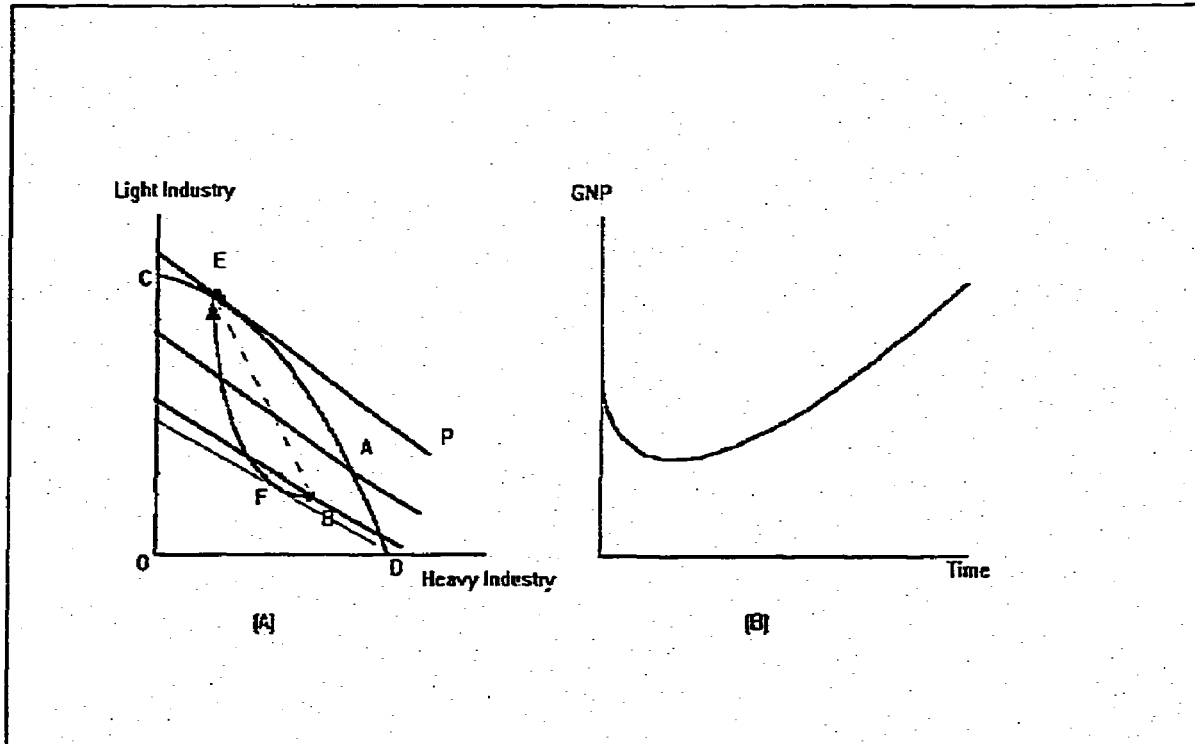
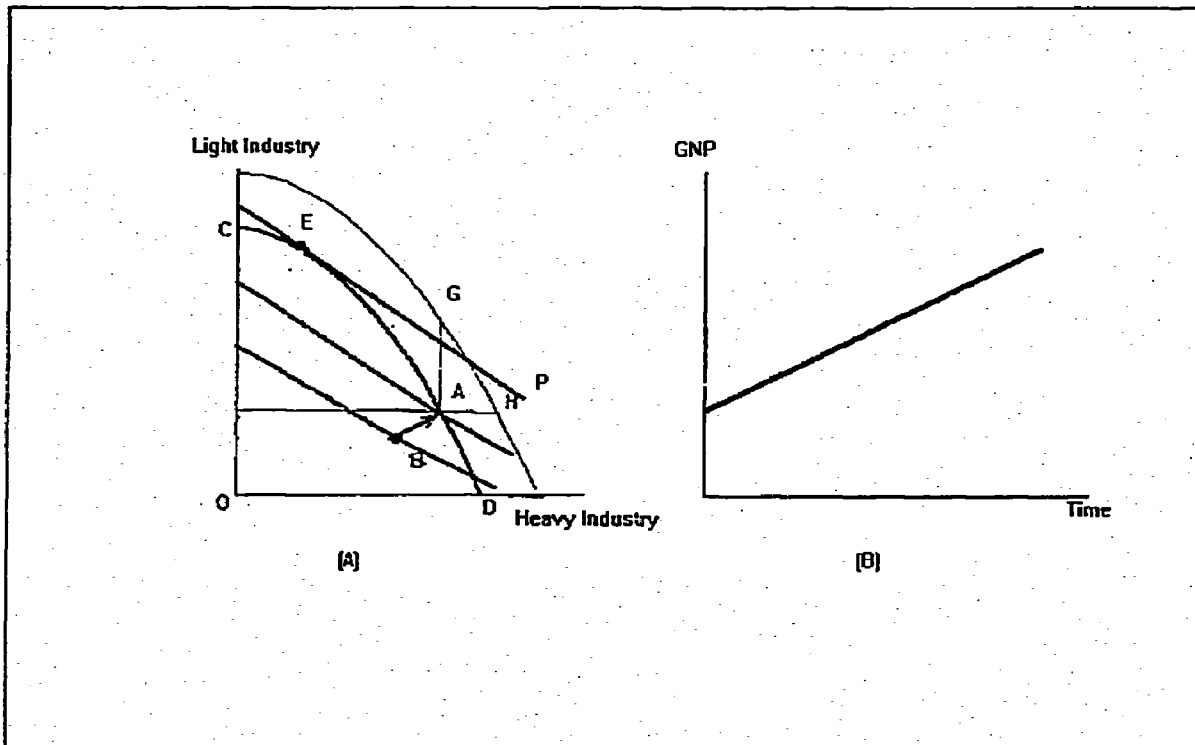


Figure 5: The Gradual Reform



more profitable suppressed sectors.

Since the planned allocation system and distorted macro-policy environment were preserved, the state retained control over the earlier flow of resources and guaranteed that these would be allocated to the priority sectors. In our diagram, the economy follows a dynamic path from point A to a point close to G, instead of to H (see Figure 5A). Throughout the reform process, the economy enjoyed 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 smaller. 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>18</sup>

If the above description is a reasonable analysis of the reason 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 does not result in a decline in the priority sectors because it is supported by a new flow of resources. Second, the economy should reach a higher rate of economic growth than the pre-reform rate because the new flow of resources has been allocated to the more efficient sectors.

Both assertions are confirmed by the empirical evidence. Table 5 shows the number of workers in each sector of the economy from 1978 to 1992. These numbers increased throughout the whole period except for agricultural labor in 1984 and in 1992. Even in those two years, the agricultural labor force declined less than one percent. The increase in employment in the agricultural and non-agricultural sectors was supported by the new

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<sup>18</sup> The official exchange rate was 5.7 yuan for 1 US dollar. The swap market rate was 8.7 yuan for 1 US dollar when the exchange rate in China was unified with the market swap rate at the beginning of 1994. However, the shock of unification was not large since beforehand about 80 percent of foreign exchange had already been traded in the swap markets.

additional labor force.

Thus, the rapid growth of rural industries and other sectors of the economy was not because of the transfer of workers from the state sectors to the non state sectors. Nor was the rapid economic growth due to the transfer of labor from the low productivity agriculture to higher productivity industries, as claimed by Sachs and Woo (1993). Table 6 reports the growth rates in national income in selected sectors. As expected, the annual growth rate in each sector accelerated. In addition, the state industrial sector had a positive growth rate, though below that which it enjoyed prior to reform. This is also anticipated by our model.

Table 5: Labor Force in Selective Sectors  
(unit=million)

Year	Agriculture	Industry		Construction	Transportation	Commerce
		State	Non-state			
1978	283.73	31.39	29.52	8.79	7.35	11.55
1979	286.92	32.08	30.90	9.43	7.65	12.48
1980	291.81	33.34	33.80	10.22	7.87	13.81
1981	298.36	34.88	34.87	10.58	8.23	15.11
1982	309.17	35.82	36.22	11.73	8.50	16.04
1983	312.09	36.32	37.65	13.14	9.07	17.62
1984	309.27	36.69	42.67	16.92	10.81	20.36
1985	311.87	38.15	45.34	20.69	12.22	23.63
1986	313.11	39.55	50.25	22.71	13.05	24.85
1987	317.20	40.86	52.57	24.19	13.73	26.55
1988	323.08	42.29	54.32	25.27	14.34	28.29
1989	332.84	42.73	52.95	24.44	14.32	28.60
1990	341.77	43.64	53.33	24.61	14.69	29.37
1991	350.16	44.72	54.75	25.21	15.15	31.00
1992	348.55	45.21	56.98	27.02	15.73	33.12

Source: China Statistical Yearbook, 1993, p. 98. and p.107

Table 6: Index and Growth Rate of National Income in Selective Sectors

Year	Total	Agriculture	Industry		Construction	Transportation	Commerce
			Total	State			
Index (1952=100)							
1952	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1978	453.4	161.2	1438.9	3345.3	573.5	546.9	296.4
1992	1473.2	332.9	7011.2	9825.7	2455.0	1888.5	749.2
Average Annual Growth Rate (percent)							
1952-78	6.0	1.9	10.8	14.5	6.9	6.8	4.3
1978-92	8.8	5.3	13.2	8.0	10.9	9.2	6.9

Source: China Statistical Yearbook, 1993, p. 34 and p. 413.

Note: \*Gross value of industrial output measured at constant prices.

#### IV. CONCLUDING REMARKS

Although Chinese leaders did not have a detailed blueprint in mind when they initiated the process of reform, the discussion in this paper suggests that China's reforms have followed a path which can be explained by the theory of induced institutional innovation (Lin 1989b, North 1990). The traditional economic structure was itself a product of institutional innovation linked to a development strategy emphasizing heavy industry. This earlier structure was a vehicle for mobilizing resources to build up priority sectors. However, its economic efficiency was low.

Once the integrity of the traditional economic structure was compromised by the introduction of enterprise autonomy, results playing out over a number of years forced the replacement of the traditional structure with a more efficient market structure. In the process, the efficiency of state enterprises was improved as they became more autonomous and started to confront competition from the non-state sectors. The dynamism of the economy originated in the swift entry of new, small non-state enterprises. The older planned allocation system and distorted macro-policy environment gradually became unsustainable and were discarded in the face of challenges from non-state enterprises as well as from the autonomous state enterprises.

During the reform process, the state, the enterprises and the population have had sufficient time to make adjustments to the new market structure. The majority benefits from the reforms because 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 structure with a more efficient market structure. Privately-owned

small firms emerged immediately after the lifting of the ban on private enterprise. The privatization of medium and large-scale state enterprises has been prolonged and is proceeding slowly (Murrel and Wang, 1993; Wang 1993). This mix of private and state-owned enterprise is in fact similar to what happened in China after gradual reform. However, China's approach did not disrupt production in the state sectors. Thus, its gradualism achieved the same positive effects as the "big bang" approach, but was able to avoid its costs. If transaction costs and the path-dependence of institutional changes are taken into account, it can be argued that China's gradual approach is both theoretically and empirically superior to the "big bang" approach.

Until now, most of the elements in China's reform process were not explicitly designed in advance of their implementation. Rather, they were induced. However, the experience of China's reforms may provide a useful lesson for designing reform policies in other economies in which a heavy industry oriented strategy has been adopted under capital-scarce conditions.<sup>19</sup> Certainly, because the stage of development, the endowment structure, the political system, and the cultural heritage are different from one country to another, the specific design and sequence of reforms in an economy should be "induced" rather than "imposed." With this caveat in mind, in addition to the general advice of maintaining economic and political stability, the following lessons may be useful for a government with an economy having an economic structure similar to that of pre-reform China:

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<sup>19</sup> In essence, a strategy emphasizing heavy industry is one that attempts rapid development. The government allows the distortion of the macro-policy environment in order to facilitate the advance of some industries that exceed the stage of development dictated by the comparative advantages of the economy's resource structure. The import-substitution strategy widely adopted in Latin America is another example of this same rapid development strategy.

1. Grant autonomy to the micro-management units which will improve the incentive structure and create a new flow of resources.
2. Allow autonomous enterprises to allocate this new flow of resources to the suppressed sectors while maintaining priority sectors.
3. Reform gradually a distorted policy environment and planned allocation system in order to make them consistent with newly-autonomous enterprises<sup>20</sup>.

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<sup>20</sup> The opportunity cost for workers to move from the state-sectors to the non-state sectors may be higher in Eastern Europe and the former Soviet Union (EE/FSU) than in China. The reason for this is that the subsidies to 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) have correctly emphasized. However, higher opportunity cost is not a sufficient condition for nullifying the applicability of the Chinese approach. In China the differences between the state-regulated prices and those of the market were generally less than 30 percent (and at most 100 percent) before the reforms. The differences for many commodities in EE/FSU often reached as much as 10 times. Therefore, the expected costs for a worker to move from the state-sector to the non state sector will be 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 quickly flown into the suppressed sectors if the activities had been legalized.

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