

**Why China's Economic Reforms Differ:  
The M-Form Hierarchy and Entry/Expansion of the Non-State Sector**

by

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*China's thirteen years of economic reforms (1979-1991) have achieved an average GNP annual growth rate of 8.6%. What makes China's reforms differ from those of Eastern Europe and the Soviet Union is the sustained entry and expansion of the non-state sector. We argue that the organization structure of the economy matters. Unlike their unitary hierarchical structure based on functional or specialization principles (the U-form), China's hierarchical economy has been the multi-layer-multi-regional one mainly based on territorial principle (the deep M-form, or briefly, the M-form). Reforms have further decentralized the M-form economy along regional lines, which provided flexibility and opportunities for carrying out regional experiments, for the rise of non-state enterprises, and for the emergence of markets. This is why China's non-state sector share of industrial output increased from 22% in 1978 to 47% in 1991 and its private sector's share from zero to about 10%, both being achieved without mass privatization and changes in the political system.*

## **1. Introduction**

Recently, there has been a revived interest among economists in China's economic reforms. Since 1979, economic reforms in China have generated a significant growth across the board: the overall performance of the Chinese economy has been better than its own past record, better than most developing countries at similar development levels, and also better than Eastern Europe and the former Soviet Union,

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both before and after their radical transformations in 1989. It appears that China had no coherent reform programs, no commitment to private ownership, and no changes in the political system, and China's economy was still not fully liberalized. From both the theoretical and policy perspectives, China's different reform strategies and outstanding reform performances are particularly interesting and puzzling.

The economic reforms in China formally started in 1979 following the Third Plenum of the Eleventh Congress of the Chinese Communist Party in December 1978. The starting time was later than that of Yugoslavia (1950) and Hungary (1968) and was about the same as for Poland (1980), and earlier than the Soviet Union (1986). Between 1979 and 1991, China's GNP grew at an average annual rate of 8.6%, or at 7.2% on the per capita basis.<sup>2</sup> In 1992, the growth of GNP reached 12.8%.<sup>3</sup> Exports grew at a faster pace, so that China's export-GNP ratio increased from below 5% in 1978 to nearly 20% in 1991.<sup>4</sup> Also in this period, inflation was kept within a single-digit range except for three years (11.9% in 1985, 20.7% in 1988 and 16.3% in 1989); the household bank deposits to GNP ratio increased from 6% in 1978 to 46% in 1991; and the government budget deficit accounted for about 2-3% of GNP, about half of which was financed from bond issues (Table 1.1).

Even more convincing evidence of the success of the reform is the increase in consumption and consumer durable goods by an average Chinese consumer in physical terms. For example, between 1978 and 1991, an average Chinese consumer increased his/her consumption about three times for edible vegetable oil, pork, and eggs (Table 1.2). In the rural areas, which account for about 75% of total population, the living space per person increased about 130% between 1978 and 1991 (Table 1.3). The

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<sup>2</sup> Data sources in this paper are from *Statistical Yearbook of China* (various issues from 1985 to 1992), otherwise noted.

<sup>3</sup> Statistical Communique of the State Statistical Bureau on the 1992 National Economic and Social Development, February 18, 1992.

<sup>4</sup> The export-GNP ratios are calculated based on the official exchange rate and are upward biased. But the dramatic increase of export share in GNP during the reform is unmistakable.

average per household consumer durable goods, such as television sets, refrigerators and washing machines, also increased dramatically. For instance, in 1991, on average, every two rural households had one television set, and every urban household had more than one (Tables 1.4 and 1.5). There is no doubt that China is still a low-income developing country, but the evidence reveals clearly a substantial improvement in living standards due to economic reforms.

The Chinese economic performance is in contrast to that of Eastern Europe and the former Soviet Union. Even if the two-digit annual decline of GNP in 1990 and 1991 in these countries was largely transitory, the magnitude was still too large to be ignored. What is more important, but tends to be neglected, is the economic stagnation in Eastern Europe and the Soviet Union in the decade of 1980s before the radical changes. According to official statistics, the average growth rate of GDP in Hungary was 1.8% between 1981 and 1985 and almost zero in 1988 and 1989. In Poland, the average GDP growth rate was less than 2% between 1981 and 1989.<sup>5</sup> The situation in the Soviet Union was no better.

Political considerations aside, two arguments often come into discussions on the differences between China and Eastern Europe. The first argument is about different levels of economic development: Eastern Europe and the Soviet Union were at a much higher development stage than China -- China had a very low per capita income with a dominant agriculture sector while the Eastern European and Soviet economies were "over-industrialized."<sup>6</sup> The second argument is about different reform strategies: China has followed a gradual and piecemeal approach as opposed to the "big bang" strategy in most of after 1989 Eastern Europe and the former Soviet Union, like the shock therapy for stabilization in Poland and Russia,

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<sup>5</sup> Data source for Hungary and Poland is from Table 9.1 of Kornai (1992).

<sup>6</sup> For example, Summers (1992) expressed this view when he highly praised China's reform performance. Sachs (1992) also expressed similar ideas during his interview with the Chinese *Journal of Comparative Economic and Social Systems*.

and fast and mass privatization in Czechoslovakia.<sup>7</sup>

We feel that both views are relevant but unsatisfactory, or at least, are incomplete. China's level of industrialization was perhaps higher than most people would think. In 1978, China's gross industrial output value accounted for 62% of the total output value of society (35% in heavy industry and 27% in light industry), despite the fact that only 29% of the total labor force was employed in the non-agriculture sector. In terms of GNP, China's industry accounted for about half in 1978, as compared to 60% to 65% in Eastern Europe. Furthermore, in China, reforms have been more successful in the more industrialized regions with a weak central government control (like provinces of Guangdong, Jiangsu, and Zhejiang). Reforms have not been very successful in both the less industrialized regions (like the Northwest provinces) and the more industrialized regions with a strong central government control (like Shanghai and provinces of Liaoning and Jilin), the latter share similar problems of the earlier Hungarian reform. This fact suggests that one cannot explain the success of the reforms by low level of development alone.

The argument for gradualism also raises more questions than answers. First, the agricultural reform in China proceeded very fast in the early 1980s. The abolishment of the commune system and the nationwide execution of the household responsibility system (an ownership reform) was implemented almost at one stroke, thus can be viewed as a big bang. More importantly, Eastern Europe's radical transition should not be examined in isolation: it came after deep troubles or failures of many years of gradual reform. In fact, the Hungarian reform started in 1968 with some initial success, but then ran into difficulties in the 1980s. Ironically, in several aspects China followed Eastern Europe's gradual reform measures. If China's gradualism is a success, why has it worked in China but not in Eastern Europe? On the other hand, why was China's success not a temporary one, and will China soon encounter problems similar to Hungary's?

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<sup>7</sup> This view is reflected in Singh (1991), McMillan and Naughton (1992), and Chen, Jefferson and Singh (1992).

In this paper, we propose a theory to explain the differences between China's reforms and those of Eastern Europe and the Soviet Union. We first make an observation and provide extended evidence showing that, unlike the case of Eastern Europe and the Soviet Union, sustained entry and expansion of the non-state sector in China during the reforms were forceful and fast enough to become an important engine of growth by the end of the 1980s.<sup>8</sup> We then theorize an institutional reason which is responsible for this phenomenal expansion and for the concurrent emergence of the market. We argue that the difference in the initial institutional conditions concerning the organizational structure of the planning hierarchy plays important roles in different transition paths of China and Eastern Europe and the former Soviet Union. The organization structures of both Eastern Europe and the Soviet Union were of a unitary form based on the functional or specialization principles (the "U-form" economy), and in contrast, the Chinese hierarchy has been of a multi-layer-multi-regional form mainly based on a territorial principle since 1958 (the "deep M-form" economy, or in short, the "M-form" economy). The M-form structure has been further decentralized along regional lines during reform with both increased authority and incentives for regional governments, which provided flexibility and opportunities for carrying out regional experiments, for the rise of non-state enterprises, and for the emergence of markets. Our institutional approach is able not only to incorporate and link together aspects of the arguments concerning the level of development and gradualism, but also to explain richer phenomena such as the successful use of experiments in China but not elsewhere.

Under the M-form organization in China, interdependence between regional economies is not as strong as that of the U-form organization in Eastern Europe and the Soviet Union, because each region is relatively "self-contained." Unlike in Eastern Europe and the Soviet Union, regional governments in China (be it province, county, or township, village) have had considerable responsibility of coordination within the region. In particular, a large number of state-owned enterprises, including many in heavy industries, were

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<sup>8</sup> We deliberately avoid the issue of the state sector. Evaluation of the reform in the state-sector has been controversial among China experts and Chinese economists.

subordinated under the regional governments even before the economic reforms. Hence, each region was relatively self-sufficient, the scale of an enterprise was small, and industries were less concentrated. In this environment, regional experiments can be carried out in a less costly way because the disruptive effect to the rest of the economy is minimal. A successful experiment in one region also has greater relevancy to other regions since adjacent regions are similar.

When the M-form economy was further decentralized along regional lines in reform and the constraints on local government were gradually removed, the bottom level regional governments (i.e., townships and villages in the rural areas, and districts and neighborhoods in the urban areas) gained substantial autonomy in developing their own regions. They establish enterprises outside the state sector and outside the plan. From their inception, those non-state enterprises (most of them are not private though) have been market oriented. Furthermore, competition between regions for getting rich fast puts pressure on the local governments to concentrate on growth and their limited access to bank credits maintains discipline on their behavior. This explains how the rise of the non-state sector occurred by gradually weakening the existing hierarchical control without destroying the existing structure at one stroke.

Of course, administrative decentralization induces, at the initial stage, costs of regional conflict, market protection, wasteful duplication, inefficient small scales of production and increased administrative intervention by local governments. We do not argue against these opinions but we would like to focus on a neglected but important aspect of benefits of a multi-layer-multi-regional form of organization, that is, the flexibility of the system for experiments and hence for institutional changes, and the opportunity provided to facilitate entry and expansion of the non-state sector outside the plan. The unexpected, and perhaps unintentional, growth of the non-state sector is critical for the success of China's economic reforms.

Based on Chandler's seminal work (1966), Williamson (1975) first used the terms "U-form" and "M-form" in his study of business firms in the U.S. The U-form referred to the unitary organizational form

of the firm along functional lines in the second half of 1800s and early 1900s, while the M-form referred to the multi-divisional form of the firm organized by product, by technology, or by geography, which emerged since the 1920s. Compared with departments in the U-form firms, divisions in the multi-divisional firms are more self-contained, their responsibility for coordination and profit inside the division is high. The regional governments in our multi-layer-multi-regional structure economy share these features. However, our concept is not simply an application or an extension of the Chandler-Williamson's concept from firms to economies. There are important differences between the two concepts. In a multi-divisional firm, decentralization occurs exactly at the level of general office and the divisions, and each division is often organized by functions. In contrast, in our concept of the M-form economy, decentralization occurs at all levels of the hierarchy, that is, the M-form is *deep*. This is critically important: it is exactly because of the autonomy and incentives provided to the *bottom* levels of the regional governments in China, could the non-state sector grow so fast.

The remaining part of the paper is organized as follows. Section 2 clarifies the definition of China's non-state sector and private sector. Section 3 provides empirical evidence on the sustained entry and expansion of the non-state sector between 1979 and 1991. Section 4 first characterizes institutions of the U-form hierarchies of Eastern Europe and the Soviet Union and the M-form hierarchy of China before the reform, and then describes several Chinese reform policies that are responsible for further decentralization along regional lines. Section 5 makes a general and preliminary analysis on the costs and benefits of the M-form organization vis-a-vis the U-form and the implications for transition. Section 6 explains specifically how the phenomenal expansion of the non-state sector in China is made possible under its M-form hierarchical organization. The final concluding section discusses implications of the non-state sector for further reforms in China and lessons from the Chinese experience for other economies in transition.

## 2. What Is the Non-State Sector in China?<sup>9</sup>

### 2.1. The Non-State Sector

Before defining the non-state sector, we should first define the state sector. In China, by the constitution, the state-owned enterprises are owned by the "whole people." In practice, every state-owned enterprise is affiliated with one of the following four levels of government: (1) central; (2) provincial (with a population size of dozens of millions); (3) prefecture (with a population size of several millions); and (4) county (with a population size of several hundreds of thousands). A municipality is treated as one of the levels of province, prefecture or county, with a majority being at the level of a prefecture. Typically, the responsible government delegates the supervision of "its" state-owned enterprises to the industrial ministries/bureaus. Therefore, even for the state-owned enterprises, they are not homogeneous in terms of control.

The non-state sector consists of all enterprises not in the state-sector, and it includes the private sector as a sub-sector. According to the location of its supervising government (if it has one), a non-state enterprise is designated as either an urban enterprise or a rural enterprise.<sup>10</sup> By 1991, there were three categories of non-state ownership in China's official statistics: "collective ownership," "individual ownership," and "other types of ownership." Table 2.1 below provides a detailed picture with both official and alternative classifications:

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<sup>9</sup> We only focus on the non-agriculture sector in this paper.

<sup>10</sup> An interesting and confusing fact is that many rural enterprises are located in urban areas. They are called "rural enterprises" simply because they are supervised by rural community governments (e.g. township or village governments) and the majority of their employees are not registered urban residents.

Table 2.1 China: Classification of the Non-State Sector

<b>OFFICIAL CLASSIFICATION</b>	<b>Collectives</b>			<b>Individual</b>	<b>Others</b>
Urban	District Enterprises	Neighborhood Enterprises	Urban Cooperatives	Urban Individual	Private; Foreign joint ventures; Other joint ventures
Rural	Township Enterprises	Village Enterprises (TVEs)	Rural Cooperatives	Rural Individual	
<b>ALTERNATIVE CLASSIFICATION</b>	<b>Community</b>			<b>Private</b>	

(A) Collectives (*jiti*). Urban collectives include (i) enterprises that are affiliated with a district government under a municipality or a county ("large" collectives, *dajiti*); (ii) enterprises that are affiliated with a neighborhood under a district ("small" collectives, *xiaojiti*); and (iii) urban cooperatives (*chengzhen hezuo*). Many urban collectives are subsidiaries of state-owned enterprises which receive some transferred assets from the parent firms and hire their surplus employees or the employees' spouses and children. The advantages of subsidiaries being registered as collectives under the supervision of lower level government is less government control and more business flexibility.<sup>11</sup>

Rural collectives include (i) enterprises that are affiliated with a township (*xiang* or *zhen*) government; (ii) enterprises that are affiliated with a village (*cun*) government; and (iii) rural cooperatives (*nongcun hezuo*). The predecessors of township and village enterprises (TVEs) were commune and brigade enterprises (CBEs) emerging during the Great Leap Forward in 1958. The ownership form of

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<sup>11</sup> This is known as "one factory, two systems" (*yichang liangzhi*) in China, referring to the planned system for the state-owned part, and the market system for the collective part.

township and village enterprises is truly a Chinese invention that has not been found elsewhere.

(B) Individual Business (*geti*). These are household/individual businesses hiring no more than 7 employees. An individual business has been allowed to operate since 1978.

(C) Other Types of Ownership (*qita leixing*). This category includes mainly (i) private enterprises hiring more than 7 employees (*siying*); (ii) foreign enterprises and joint ventures with foreigners (*sanzi qiye*); and (iii) other types of joint ventures (e.g., a joint venture between state and private enterprises) and joint-stock companies. These types of ownership did not emerge until the early 1980s.<sup>12</sup>

## 2.2. The Private Sector

Defining the non-state sector in China is easy, but defining the private sector is not. As seen above, a "private enterprise" is defined in China as a private business establishment hiring more than 7 employees. This narrow definition is on purpose, in order to circumvent ideological difficulties. For example, an individual/household hiring no more than 7 employees is classified as an "individual business," not as a "private enterprise," although it is certainly part of the private sector. So are sole foreign business establishments. As for joint ventures and joint-stock companies, strictly speaking, only those shares that are owned by foreigners and domestic private parties can be regarded as in the private sector.<sup>13</sup> Some "cooperatives" are more like partnerships hiring many employees. This is especially true in Southern China, and in some areas they are called "joint stock cooperatives" (*gufen hezuo*). In addition, some township and village enterprises and urban district and neighborhood enterprises are *de facto* private

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<sup>12</sup> If a state-owned enterprise is converted to a joint-stock company or limited liability company ("corporatization") or becomes a joint venture, it will be reclassified into the category of "others." As a result, it will not be regarded as "state-owned" anymore, despite the fact that the state may still own the majority interests. This may cause interpretation problems of the non-state sector in the future as more and more such a conversion occur starting in 1992.

<sup>13</sup> About one-half of "others" can be counted as truly private.

enterprises with vaguely defined ownership under the name of collectives.<sup>14</sup>

Lacking further information and taking approximations, our definition of the private sector in China in this paper will include individual ownership, cooperative ownership, and other types of ownership under the official classification, and will exclude all of the township and village enterprises. We speculate that this should not give too much bias in either direction for data prior to 1992. The remaining part of the collectives, that is, enterprises affiliated with an urban district or neighborhood and with a rural township or village (TVEs), can be regarded as the community sector.

### **3. Sustained Entry and Expansion of the Non-State Sector in China: Evidence**

#### **3.1. General Features**

From 1978 to 1991, the share of the non-state sector in national non-agriculture employment increased from about 40% to 57%. However, this happened not because of privatization or conversion of state enterprises to non-state enterprises. It is mainly due to entry and expansion of new non-state enterprises. In fact, employment by the state sector increased from 75 million in 1978 to 107 million in 1991. Its share declined because employment in the non-state sector grew even faster: from 21 million to 44 million in the urban area and from 28 million to 96 million in the rural during the same period.

China's non-state sector is engaged in all kinds of activities: construction, transportation, commerce, service, and in particular, industry. This is perhaps a crucial difference between China's non-state sector and the private sector in Eastern Europe, particularly before 1989.<sup>15</sup> During the period from

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<sup>14</sup> For example, the famous computer company Stone Group is officially a "large collective" under Haidian district in the Beijing municipality, but actually run by a group of private businessmen. In Wenzhou municipality of the Zhejiang province, any business establishment with more than three co-owners is classified as a "collective," and is often called a "township" or "village" enterprise.

<sup>15</sup> See Kornai (1986) for the private sector development in Hungary before 1989.

1981 to 1990, the national average annual growth rate of gross industrial output was 12.6%, in which the state sector grew at 7.7%, collectives at 18.7%, individual business at 92.2% and other types of ownership at 42.7%. As a result, the share of the non-state industry in the national total has expanded gradually from 22% in 1978 to 47% in 1991, and accordingly, the share of the state sector in industrial output shrunk from 78% to 53%. To put this into a historical perspective, the share of the state sector in 1991 is already below the level in 1957, which was 54% (Table 3.1).<sup>16</sup>

The change of ownership composition of Chinese industry toward the non-state sector did not happen overnight. In fact, the process started before 1979. Although the true private industry in China did not appear until the early 1980s, the collectives had grown from 11% out of the national total in 1969 to 22% in 1978, or about one percent increase in output share every year (Table 3.1). However, the dramatic shift of weight toward the non-state sector has been apparent since 1979: The non-state sector in industry has on average experienced an increase in industrial share two percentage points every year for 13 years.<sup>17</sup>

Accompanied by the high growth rate, the non-state sector is also more efficient than the state sector. The annual growth rate of the total factor productivity of the non-state enterprises was much higher than that of the state enterprises.<sup>18</sup> If one ranks all China's provinces according to their shares of the non-

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<sup>16</sup> In 1957 the first five year plan was finished. At that time, there were still many state-private jointly-owned enterprises (*gongsi heyings*). One year later, during the Great Leap Forward in 1958, the share of the state sector jumped to 90%.

<sup>17</sup> The Information Center of the State Planning Commission in China has already predicted that by the year 2000 only about one-quarter of industrial production will be produced by the state-sector in China. However, see footnote 11 for qualification to this statement.

<sup>18</sup> From 1982 to 1987, the annual growth rate of the total factor productivity of the TVEs is 12.5% at the national level, and 15% in the coastal areas (Xu, 1991). In contrast, from 1978 to 1985, the annual growth rate of the total factor productivity of the state-owned enterprises is 1.3% at the national level (Chen, et. al., 1988). Another piece of evidence comes from Xiao (1991). Using the provincial data from 1985 to 1987, Xiao shows a significant positive correlation between the total factor productivity of the provincial economies and the non-state sector share of the industrial output (with an exception of Shanghai).

state sector in industrial output, the top five, Zhejiang, Jiangsu, Guangdong, Shandong and Fujian, are precisely those provinces that have much higher growth than the national average.<sup>19</sup> An interesting counter example of the coastal region is Shanghai. Shanghai was one of the most important financial and industrial centers in the Far East before 1949 and was also the industrial base after 1949. Shanghai has a low share of the non-state sector in industry as compared to the national average: 22% in 1985 and 32% in 1990. For the period from 1984 to 1989, Shanghai's industry grew only 7.9%, well below the national average. Shanghai's share of industrial output dropped from 10% in 1985 to only 6.8% in 1989, below that of Jiangsu, Shandong or Guangdong.

Three additional characteristics about the entry and expansion of the non-state sector in China should be especially emphasized. First, the substantial entry and expansion occurred not because of an intentional design of a reform program from the central government, to the contrary, it came largely from the local initiatives. The central government's tolerance is mainly because it solves unemployment problems without much financial support from the state. Second, and related to the first, there has been a large variance in terms of organizational and developmental patterns of non-state-owned enterprises across regions. For example, while export and foreign investment have played important roles in some parts of Guangdong and Fujian, they are not so vital in many other high-growth provinces. On the other hand, township and village enterprises are a dominant force of the non-state sector in Jiangsu and Shandong, but individual, partnership and private enterprises are much more important in Zhejiang.

Third, by 1991, the collectives and joint-ventures are the dominant majority of the non-state sector, and privately-owned enterprises played a minor role on the national scale. The collectives and joint-ventures have larger scale of operation, employ better technology, and absorb more human capital. This is because in China, there is still a lack of legal protection of private property rights, let alone commitment to

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<sup>19</sup> These five provinces are all the coastal provinces. Because of the rapid growth, the share of industrial output of these five provinces in the national total rose from 30% in 1985 to 37% in 1990.

private ownership. Private firms often face discrimination in obtaining credit, labor and material supplies (Nee, 1992). Local government ownerships like a township or a village enterprise can be viewed as an institutional response to such an environment, in which they have comparative advantages over both private and state ownerships. They are "politically correct," protected by at least some level of government, and they also enjoy the flexibility of business operation that the state-owned enterprises are lacking.<sup>20</sup>

### **3.2. The Non-State Sector in the Rural Areas -- Township, Village and Private Enterprises**

Within the non-state sector, the largest and the most dynamic part is the segment of rural enterprises, also known as Township, Village and Private Enterprises (TVPs). Between 1978 and 1991, the number of rural enterprises increased from 1.5 million to 19.1 million and employment increased from 28.3 million to 96.1 million. Between 1981 and 1990, the total output by rural enterprises grew at an annual rate of 29%, in which the industrial output grew at 28%, much higher than the national average of 13%. Exports by township and village enterprises (excluding private enterprises) increased at an average annual rate of 65.6% from 1986 to 1990 (Table 3.2).

About three-quarters of the total output of the rural enterprises came from industry in 1990, light industry accounting for 55% and heavy industry for 45%.<sup>21</sup> For example, in 1990, rural enterprises produced about one third of coal, 40% of canned food and one half of electric fans in China (Table 3.3). With the rapid growth of rural enterprises, their status in the national economy has changed from a subsidiary sector of agriculture to an important engine of growth. Between 1979 and 1990, as a percent of the national total, employment increased from 23% to 39%, total output increased from 7% to 22%, and

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<sup>20</sup> The fast entry and expansion of the non-state sector has considerable impact on the state sector through increased competition, which forces state-owned enterprises either to ask for more subsidies from the government or to change in order to survive. Given the shrinking government budget revenue, reforms of the state-owned sector become more urgent than ever.

<sup>21</sup> *A Statistical Survey of Chinese Rural Enterprises, 1991.*

industrial output increased from 9% to 25%. Export from township and village enterprises (excluding private enterprises) accounted for 24% of the national total in 1990 (Table 3.4). By all measures, the Chinese rural enterprises had already expanded to more than half of the non-state sector and to about one-quarter to one-third of the national total by 1991.

The rapid growth of the rural enterprises has changed the industrial structure of the Chinese rural areas as well. In 1980, the share of agriculture in gross output value in rural areas was 69% and the share of non-agriculture was 31%, of which industry accounted for only 20%. Ten years later, in 1990 the share of agriculture output dropped to 46% and the share of non-agriculture output increased to 54%, of which industry accounted for 40%.<sup>22</sup>

### **3.3. Emergence of the Private Sector**

The private sector in China did not appear until the late 1970s and private industry only started in the early 1980s. There was a tremendous increase in the number of private industrial enterprises in the 1980s. In terms of share of industrial output, a significant decline in urban collectives (from 45% to 29%) was accompanied by a surge in individual rural business (from 4% to 11%) and other types of ownership (from 3% to 10%), as shown in Table 3.5. According to our definition, the private sector's share of industrial output inside the non-state sector increased from 13% in 1985 to 27% in 1990, doubling in five years. Using a more conservative estimate (only one half of the "others" counted as private), about 10% of the total national industrial output was produced by privately owned enterprises in 1990, up from 5% in 1985. The expansion of the private sector was remarkably faster in rural areas. Employment by the rural private sector was about 24% and total output about 14% of the rural total in 1984, the corresponding numbers increased to 49% and 33%, respectively, in 1988 (Table 3.6).

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<sup>22</sup> Byrd and Lin (1990) contains a detailed study of rural industry in four counties in China: Wuxi of Jiangsu, Nanhai of Guangdong, Shangrao of Jiangxi and Jieshou of Anhui.

An important part of the private sector in China is "individual business." China restored individually or household operated business in 1978 and since then, this segment of the private sector has registered rapid growth in both urban and rural areas, largely in industrial and commercial enterprises. Between 1981 and 1988, the number of individually-run enterprises increased seven-fold, from 1.8 million to 14.5 million, and employment increased nine-fold, from 2.3 million to 23.0 million (Table 3.7).

#### **4. The M-Form and U-Form Hierarchical Structures**

The phenomenal entry and expansion of the non-state sector distinguishes China's reform from the Eastern European reforms. Among many reasons which may explain these phenomena are the institutional differences between the (deep) M-form organization in China and the U-form organization in Eastern Europe and the Soviet Union, and the subsequent Chinese reform policies of further decentralization along regional lines which had a major influence on both the transition path and performance.

##### **4.1. The U-Form Hierarchy of Eastern Europe and the Soviet Union**

In Eastern Europe and the Soviet Union the economies were organized in the U-form in which hierarchical information flow and control were organized into a unitary form by functional or specialization principle.<sup>23</sup> Most enterprises were grouped by industry and under the direct supervision of ministries, and regional governments were primarily subordinates of the center and their roles were limited to collecting information from below and implementing plans from above without much autonomy.<sup>24</sup>

In order to fully utilize the scale economy and to avoid conflicting operations, there was little overlapping of functions among ministries in a U-form hierarchical economy. Enterprises were highly

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<sup>23</sup> It is also known as the organization by "branches."

<sup>24</sup> In the case of the Soviet Union, ministries of the central government had controlled all enterprises in heavy industry while the regional governments had controlled some light industrial enterprises.

specialized and their sizes were extremely large. This led to extraordinary industrial concentration. Because of the strong interdependence between enterprises across different regions, comprehensive planning and administrative coordination between ministries at the top level of the government were crucial for the normal operation of the U-form economy in the absence of the market. To show the complexity, for example, in the late 1970's there were 62 ministries under the Gosplan in the Soviet Union. There were about 48,000 plan "positions" for about 12 million products planned and coordinated by the Gosplan (Nove, 1983).

There are several reasons why the Soviet economy was organized in the U-form. First, from the very beginning, the Soviets had an ideological obsession on the scale economy and gigantic factories.<sup>25</sup> The U-form organization takes advantage fully of the scale economy and specialization. We saw often in the Soviet Union that one or a few gigantic firms produced one product for the whole economy. Particularly when the economy was at a lower stage of development and the objective was clear and the decision-making was relatively simple, the U-form organization was effective in mobilizing scarce resources to catch up quickly (Gerschenkron, 1962). Second, when the Soviet Union began to establish a centralized economy in the 1920s, the U-form was the only way of organizing industrial activities within large corporations in the West, as the multi-divisional firms in capitalist economies had not yet emerged. The claims of Lenin and Kautsky about establishing a socialist economy as a gigantic factory also reflected the prevailing knowledge about economic organization at that time. Third, there were political reasons for the U-form organization, particularly under Stalin, to achieve better control by Moscow over the Soviet Republics and the Eastern European countries. Because each region of Eastern Europe and the Soviet Republic was made a branch of the grand hierarchy, all regions became strongly interdependent, and ultimately, were dependent on Moscow.

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<sup>25</sup> Lenin had this famous remark in his book *The State and Revolution* (1917): "The whole of [socialist] society will become a single office and a single factory." This ideology can be attributed to Marx.

When the economy becomes more complex, defects in the U-form organization become serious. In order to change the organization structure, Nikita Khrushchev in 1957 abolished the ministries all together and introduced 105 Regional Economic Councils (*Sovnarkhozy*), to which all the state enterprises were subordinated. However, this reform didn't go very far and soon failed. Given the already very concentrated industrial structure, a change from a unitary form to a multi-regional form required both political changes and economic changes. The power of ministries would be weakened, large enterprises would be broken up or new duplicating enterprises would be established, all of them were very costly. In 1965, blaming of the growing "localism" of the *Sovnarkhozy* and the difficulties of coordinating a regionally operated planning apparatus, the regional coordination system was replaced by the former ministerial system (Gregory and Stuart, 1981).

#### **4.2. The M-Form Hierarchy of China**

In China there are six administrative levels: central, provincial, prefecture, county, township (previously, commune) and village (previously, brigade). In urban areas, there are three levels: municipality, district and neighborhood. In China's official language, regions at each level are called "blocks" (*kuai*), as opposed to "branches" (*tiao*), the bureaucratic supervision along the lines of function and specialization.<sup>26</sup> Instead of mainly following functional or specialization principles like those in Eastern Europe and the Soviet Union, the Chinese economy is organized into a multi-layer-multi-regional form mainly according to territorial principle, in which each region at each layer can be regarded as an operating unit. Each unit is further divided along geographic lines and at the same time the unit controls its own enterprises along functional and specialization lines. Regions are relatively self-contained; that is, they

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<sup>26</sup> Strictly speaking, each functional or industrial bureau in a region is subject to "dual leadership" (*shuanchong lingdao*) of the regional government (by block) and of the upper-level functional or industrial department (by branch). But the former is more important than the latter.

are self-sufficient in terms of functions and supplies in production.

Directly under the control of the central government are 30 province-level regions (blocks) and a few dozen functional and industrial ministries (branches). Before the economic reform which began in 1979, industries in China were much less concentrated than those in Eastern Europe and the former Soviet Union and there was a large number of state-owned industrial enterprises not controlled by the central government. This is true for light industries, as well as for heavy industries. In 1978, the share of industrial output of state-owned enterprises controlled by the central government was less than one-half of the national total (Wong, 1987). In the automobile industry, almost all enterprises in Eastern Europe and the Soviet Union were directly controlled by the central government and the number of the enterprises was rather small. In China, there were 58 enterprises making automobiles before the reform, and most of them were controlled by the local governments (Wang and Chen, 1991). Consistent with this, the number of products directly under the central plan in China was much smaller, only 791 in 1979 (Zhu, 1985), as compared to more than twelve million in the former Soviet Union in the late 1970s (Nove, 1980). With a much reduced work load, the desired number of ministries in the center is much smaller than in the Soviet Union (less than 30 vs. more than 60).

The hierarchical structure of each region at each level is a copy of that of the central government. For example, a county has about ten to twenty townships. The county government controls the enterprises affiliated to the county government by functional line and specialization principal (e.g., finance, textile, food processing, electronics, etc.), and it also oversees township governments within its territory. Similarly, a township controls its own enterprises in addition to the oversight of its villages.

The commune system in the rural area between 1958 and 1984 provides a good example of showing some of the features of the bottom level of the M-form hierarchy. A commune (now township) government was a bottom level government in China (only the level of village is below it). Far from having specialization and division of labor, a commune encompassed all kinds of activities of industry, agriculture,

commerce, education, entertainment and even military ("people's militia"). The counterpart of the commune in urban areas is the neighborhood committee, which similarly has many of its own collective enterprises.

It should be clear that the difference between China's M-form hierarchy and the Soviet Union and Eastern Europe U-form hierarchy is more than the relationship at the top level between the central government and the provincial government. On the one hand, the CMEA as a whole should not be regarded as a large M-form hierarchy in our sense, since within each CMEA country, the economy is organized according to the functional lines exclusively. On the other hand, the internal structure of a province in China is different from that of an Eastern European country, even though the size may be similar. For example, Hungary with a U-form hierarchy has a different organizational structure from Guangdong province of China. As a province, Guangdong is a part of the large hierarchy of China. But Guangdong itself is also organized in an M-form, with multiple-regions consisting of prefectures, counties, townships and villages, and all of them are self-contained economic units.

There are several reasons for China's economic organization to evolve to the M-form. First, historically, before the Chinese Communist Party fully took power of China in 1949, both the economy and the military force in regions under Communist control were organized in an M-form. The organizational heritages and skills accumulated in history have a deep influence on the evolution of organization structure of the Chinese economy. Second, technologically, poor communication and transportation facilities in a large country makes the M-form organization an easier choice for the Chinese. Third, politically, nationalism was less a problem in China than in the Soviet Union and Mao had many other means (for example, political movements) to hold the country together. Fourth, militarily, as Mao was worried about the Soviet and American air-raid invasion and the Third World War, industries were dispersed into inland areas and turned into the supervision of the regional governments. Finally, culturally, there is vast classical literature in China on the arts of managing multi-regional organization because for more than two thousand

years the Chinese empires were basically organized along regional lines.

China's M-form hierarchical structure has evolved since 1958. Because of ideological and political reasons, China's first five year plan (1953-57) was formulated with the help of the Soviet experts, which was a process of copying the Soviet model -- the U-form organization -- into the Chinese economy. Toward the end of the first five year plan, Mao increasingly dissatisfied with the over-centralization and bureaucratization in the Soviet model. In his famous 1956 speech on the ten major relationships, Mao discussed the relationship between the central and the local governments and advocated the ideas of "mobilizing two initiatives of both central and local governments" (*diaodong zhongyang he difang liangge jijixing*) and "walking on two feet" (*liangtiaotui zoulu*), the latter referring to development of both central and local industries.<sup>27</sup> These ideas later became official government policies and were implemented subsequently.

Under Mao's initiative, China started to deviate from the Soviet model and moved toward the direction known as "administrative decentralization" within the hierarchy. Two major waves of administrative decentralization occurred in 1958 (the Great Leap Forward) and in 1970 (the Cultural Revolution): the central government's bureaucracy was trimmed; supervision authority of many state-owned enterprises were delegated from the ministries to provinces and cities or even counties; and local governments' initiatives for developing their regions were encouraged. The legacy of Mao had great impact on the organizational structure of the Chinese economy. As far as the initial institutional conditions for economic reforms are concerned, China's multi-layer-multi-regional hierarchical structure prior to 1979

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<sup>27</sup> "Our territory is so vast, our population is so large and the conditions are so complex that it is far better to have the initiatives come from both the central and the local authorities than from one source alone. We must not follow the example of the Soviet Union in concentrating everything in the hands of the central authorities, shackling the local authorities and denying them the right to independent action." "The central authorities want to develop industry, and so do the local authorities." "The central authorities should take care to give scope to the initiative of provinces and municipalities, and the latter in their turn should do the same for the prefectures, counties, districts and townships; in neither case should the lower levels be put in a strait-jacket." (Mao, 1977)

was already substantially different from that of the unitary hierarchical form inherited in Eastern Europe and the Soviet Union before their economic reforms.

#### **4.3. Reform Policies of Further Decentralization Along Regional Lines in China**

However, the role of local governments before the economic reform was still limited compared to that after the economic reform. Before 1979, as the fiscal system remained very centralized, the local government had little financial resources for regional development. Autonomy of the local governments was also limited given the constraint of central planning and the use of markets not being officially sanctioned. Furthermore, the Chinese economy was a closed one without informational and technological exchanges with the rest of the world.

The subsequent reforms since 1979 opened up the Chinese economy to the outside world. The scope of planning was gradually reduced and the use of the market was encouraged. More importantly, several reform policies were carried out that have made authorities, information and incentives being decentralized to the regional governments. It is only after these complementary reform policies that initiatives of the regional governments were mobilized and the market emerged beyond the boundary of each region. The reform policies of decentralization were mainly reflected in the following aspects:

First, a fiscal revenue sharing system between any two adjacent levels of governments was implemented starting from 1980.<sup>28</sup> Although schemes vary both across regions and in time, the basic idea is that a lower-level regional government contracts with the upper-level regional government on the total amount (or share) of taxes/profits revenue (negative means subsidies) to be remitted for the next several years, and the lower-level government keeps the rest.

Consider, for example, the fiscal sharing schemes between the central and provincial (local)

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<sup>28</sup> The nick-name for this fiscal decentralization is "eating in separate kitchens" (*fenzao chifan*).

government. There are two categories of revenue incomes in any province: central revenues and local revenues. Division between the central and local revenues is by source (for example customs duties are central revenue and turnover taxes are local revenue) and by *affiliation of enterprises* (for example, profit taxes from centrally-control enterprises are central revenue and that from provincially-controlled enterprises are local revenue). Only local revenue is subject to revenue sharing, and there have been four major types of sharing schemes (Wong, 1992): (A) To remit a lump sum (possibly with an annual increment) and retain the rest. (This applied to only two experimental southern provinces of Guangdong and Fujian first); (B) To remit a portion which is fixed for four to five years. (This is for the majority of provinces); (C) To remit a portion which is set annually. (This applied to the three cash cows of industrial cities (which have provincial ranks) of Beijing, Shanghai and Tianjin); (D) To receive a fixed amount of subsidies. (This applied first to four poor provinces in the Northwest, and later to a total of nine provinces). Starting from 1988, most provinces shifted to schemes (A) and (D), which have the strongest incentive effects. For example, Shanghai contracted with the central government for remitting a fixed 10.5 billion yuan since 1988.

Second, the so-called "extra-budgetary" revenues (i.e., the second budget) by the local governments and ministries were expanded. Eighty percent of these funds belongs to state-owned enterprises as retained profits over which the local governments and ministries have substantial control. Before the reform, the extra-budgetary revenue was relatively small, 9% of GNP in 1978 compared to the budgetary revenue of 35% of GNP. In 1991, the extra-budgetary revenue was up to 15% of GNP while the budgetary revenue was down to only 18% of GNP (Sicular, 1992).

Third, the banking system in China was also decentralized with the separation of the central bank and the specialized banks in 1983. Although banks were still owned by the state, each regional branch of the specialized banks was required to link their total credit extension to deposits collected within the region (*cundai guagou*). In case deposits fall short in a specialized bank, it is the regional branch of the central

bank (not the general office of that specialized bank) which is responsible for reallocating funds within the region or asking for refinancing loans from the central bank. This regional based banking institution was also "deep," as the central bank in China has branches even at the county level. Although the banking system was somewhat re-centralized in terms of personnel appointment starting in the fourth quarter of 1988, the influence of the regional government (through regional branches of the central bank and specialized banks) on credit remained rather strong.

Fourth, more autonomy was granted and more responsibilities were assigned to the regional governments. These include reduced planning scope of the central government, increased authority of local governments for determining prices, for setting up new firms, for making investment with "self raised funds," that is, funds drawn from the "extra-budget" or borrowed from banks.<sup>29</sup> At the same time, burdens of fiscal expenditure were also decentralized, local government assumed greater responsibility for providing education, health, housing, local infrastructure, etc.

With these reforms, local governments have become almost residual claimants and they have incentives to maximize local revenues.<sup>30</sup> Because the local government's budgets are highly dependent on local enterprises, they have incentives to set up more enterprises using their newly gained authority. More firms mean more revenue, more revenue means more resources for regional development. With such an decentralization, local governments do not receive a great deal of financial support from the above and consequently, their responsibilities to the above are also small.

Decentralization along regional lines in the M-form hierarchy during the reform had great impact on China's industrial structure. First, more state-owned enterprises were delegated to local governments. In 1985, the state-owned industrial enterprises controlled by the central government accounted for only

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<sup>29</sup> Although in some cases getting project approved by the upper level government is still needed, which is known as "project registration" (*lixiang*).

<sup>30</sup> To some extent, the local government holds "local government or regional property rights."

20% of the total industrial output from enterprises at or above township level, while the provincial and city government controlled 45% and county government 9% (Table 4.1). In 1987, the share of the eight largest steel firms controlled by local governments was 12.3% as compared to 47.1% for the eight largest steel firms controlled by the central government (Wang and Chen, 1991). In contrast, almost all firms in the steel industry in Eastern Europe and the Soviet Union were directly controlled by the central governments. Second, the Chinese industry has become even less concentrated. For instance, there are more than 100 color television assembly lines, and every province has at least one. The number of enterprises making automobiles increased from 58 before the reform to 116 in 1987 (Wang and Chen, 1991).

Third, the average size of state enterprises in China is much smaller than that in Eastern Europe and the Soviet Union, and is quite close to that in the West. For example, in 1988, employment per enterprise in manufacturing was 806 in the Soviet Union and 460 in Hungary, as compared to 145 in China and 96 in Italy. In wearing apparel, the corresponding figures were 6,600 in Czechoslovakia, 307 in Hungary, 80 in China, and 71 in Italy (Table 4.2). In spite of twenty years of reform, the average size of Hungarian enterprises remained substantially larger than that in the West.<sup>31</sup>

## **5. The Costs and Benefits of the U-Form and M-Form Hierarchies And the Implications for Transition: A Preliminary Analysis**

The costs and benefits of different organizations are determined by the essential features of the organizational structures.<sup>32</sup> The important organizational features of the unitary form of hierarchies of

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<sup>31</sup> Many economists criticized these reform policies on the basis of their adverse macroeconomic consequences, for example, declining fiscal revenue, pro-cyclical effect of the fiscal sharing schemes (contract is not indexed to inflation), and loss of control over fiscal instruments and credit. All of these tend to undermine the macroeconomic stability of the economy (Lou, 1991).

<sup>32</sup> In order to make our points clearer and sharper, we need to make some abstractions which may make the descriptions not identical to the reality. But the essential features of the reality is preserved in our abstraction.

Eastern Europe and the Soviet Union (the U-Form) are: (i) organization mainly by functional or specialization principles; (ii) regional governments' roles are limited and supplementary; (iii) interdependence between regions is strong and coordination at the top is critical; and (iv) the size of enterprises is generally large and industries are very concentrated. In contrast, the organizational features of the multi-layer-multi-regional form of hierarchy in China are: (i) organization mainly by territorial principle in addition to by functional or specialization principles; (ii) each region is relatively self-contained and interdependence between regions is relatively weak; (iii) coordination at all levels is important but at the top it is not particularly critical; (iv) the size of enterprises generally is small and industries are less concentrated; and (v) the above features extend to many levels down to the very bottom.

This characterization helps to clarify the relationship and differences between our concepts of U-form and (deep) M-form economies and the U-form and M-form firms in the literature. It looks as if that, because divisions in a multi-divisional firm are also organized by product, the organization of the Soviet economy is similar to a multi-divisional form rather than unitary form. However, that similarity is superficial. From an organizational point of view, relationships between different ministries and the role of the center in Eastern Europe and the Soviet Union resemble the relationships between different functional departments in the U-form firms: interdependence between departments is strong, coordination role of the center is critical, etc. On the other hand, China's multi-regional form shares several essential properties of multi-division firms: each operating unit (division in a firm and region in an economy) is self-contained, much of the coordination is delegated to the operating unit, performance evaluation of each unit is based on comparisons of performance between units. One of the differences between M-form economy and M-form firm is property (v) above, that is, the M-form economy in China is a multi-layer one, or it is deep.

Based on the above theoretical abstraction, we provide a general and preliminary analysis of the costs and benefits of the M-form and the U-form hierarchies and of their implications for transition to a market economy. The U-form and M-form organizations affect static and dynamic efficiencies as well as

evolutionary processes of the system.<sup>33</sup>

### *Economy of Scale, Specialization, and Industrial Concentration*

The U-form economy was designed to explore scale economy through technology engineering and through specialization and division of labor.<sup>34</sup> The U-form organization is effective in mobilizing scarce resources and concentrating on a few high priority objectives. Enterprises in the U-form economy consistently have the following three features: a large scale of operation, a narrow scope of products, and a high degree of vertical integration. This leads to two significant features of the U-form economy: a high degree of industrial concentration and a high level of regional specialization.

Compared to the U-form hierarchy, the M-form hierarchy is less efficient in utilizing scale economies. The automobile industry in China provides an extreme example: there are more than a hundred small-scale state-owned auto makers in China, each producing on average about ten thousand automobiles annually. It is typical that regional governments in China control both heavy and light industries, and therefore regions are less specialized in products and industries are less concentrated. This leads to criticism of China's "local industrialization" for inefficient scale and wasteful duplications, and for associated regional protectionism and segmented markets, in particular in the presence of distorted prices and taxes (Wong, 1992).

On the beneficial side, duplication may reduce vulnerability and increase reliability of supplies

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<sup>33</sup> Chandler (1966) and Williamson (1975, 1985) first analyzed the unitary form and multi-divisional form of large organizations in the U.S. The problems with the traditional Soviet-type planning system are also well described (for example, Kornai, 1992, and Ericson, 1991). In addition, many experts on China have studied its problems from administrative decentralization, such as wasteful duplications, not exploiting scale economies, local protectionism, and market fragmentation (for example, Wong, 1987, and Wu and Reynolds, 1988).

<sup>34</sup> In all centrally planned economies the curricula of universities were designed by the center to train the labor force for utilizing specialization and division of labor. The design of the fields of concentration has been narrowly focused and students were more specialized than their counterparts in market economies.

under uncertainty. It may also induce competition and facilitate technology diffusion into inland areas. Furthermore, less specialization may also be more beneficial: less specialization may reduce coordination costs (Becker and Murphy, 1992), and less specialization may also make workers more efficient in learning and in operation, as shown by the Japanese experience (Aoki, 1986).

### *Coordination*

In the M-form economy of China, coordination is distributed at all levels of the hierarchy: regional governments have substantial responsibility for coordination in addition to the important (though not critical) coordinating role of the central government.<sup>35</sup> There are two reasons which favor a more decentralized coordination vis-a-vis a more centralized one: First, to the extent that information is initially dispersed, local governments have better information than the central government simply because they are closer to sites. Hence the local information is better used by local governments than by the central government for regional development. Second, decentralized coordination has lower requirements for capability in communication and information processing. The burden of communication and information processing is reduced since fewer messages need to be transmitted and fewer tasks need to be coordinated. Therefore, the M-form hierarchy has advantages when there is a high degree of complexity in an economy and the communication and information processing technologies are backward.

However, decentralized coordination may also result in inefficiency when a market is incomplete (Weitzman, 1974, Bolton and Farrell, 1990, and Milgrom and Roberts, 1992). In the case of China, interdependence between economic activities in different regions is not strong, and a more decentralized

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<sup>35</sup> In a multi-divisional firm, day-to-day coordination is delegated to divisions, which enables the general office to concentrate on long-term and strategic decisions (Chandler, 1966, and Williamson, 1985).

coordination is likely preferred to a more centralized one as in the U-form, other things being equal.<sup>36</sup> In the U-form organization, industries are highly concentrated, the regions are highly specialized, and operating units of ministries and enterprises alike are strongly interdependent. Hence, a rigorous coordination at the center is crucial for maintaining the normal operation of the economy, and a decentralized coordination at the regional level may not be efficient.

### *Responses to External Shocks*

With little or no duplication and with strong interdependence between different units in the U-form economy, once a shock hits one unit, which may be the only one in the economy in producing the particular type of products, the trouble in that unit may spread to the whole economy. This implies that the U-form economy is more fragile to external shocks. In contrast, with many duplications and a weak interdependence between units of the M-form hierarchy, the adverse effects of an external shock to one or several units on the whole organization will likely spread in a slower and weaker way. That is, the effects of shocks in an M-form hierarchy can be localized.

The effects of region-specific shocks and industry-specific shocks to the U-form and M-form economies are also different. In the U-form economy, regional shocks affect not only the local economy but also affect the whole economy through strong regional interdependence. The adverse effects of the collapse of CMEA is a good example. In the M-form economy, a region-specific shock may not affect the economy as a whole because industries are spread out in many regions. The sustainability of the Chinese economy during the Cultural Revolution illustrates this point. During that period, some regional economies in China collapsed (due to factional conflicts) but the national economy did not: national income dropped

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<sup>36</sup> The logic here is similar to Weitzman's thesis of price versus quantity (Weitzman, 1974). The more decentralized mode of control (price in that case) is better when inputs complementarity is weak so the marginal benefit curve is flatter.

in only two years (-7.2% in 1967 and -6.5% in 1968), and recovered quickly afterwards.

On the other hand, since different regions have similar industrial compositions, an industry-specific shock may affect all regions but in a similar way. This may reduce the aggregate adverse effect for several reasons: each region is better capable of dealing with the shock locally since the magnitude of the shock is smaller; regions may better adjust to new environment by learning from each other since all regions face similar shocks; and the incentive may become less a problem because the shock is transformed into a systematic one in the M-form organization rather than an idiosyncratic one as in the U-form organization (see below).

### *Incentives*

In a U-form hierarchy, incentives of subordinates are designed for implementing commands from the above since coordination at the center has the highest priority. Agents are subject to frequent and arbitrary control by their superiors, and thus they try to avoid any changes or risks (Ericson, 1991). In an M-form organization, coordination at the center is not so critical, thus providing semi-autonomy together with higher powered incentives to local governments may be optimal. Indeed, in China, local governments have not been subject to arbitrary control from above for tasks within their autonomy for more than twenty years. After further decentralization in the reform, local governments have more incentive to build up their regional empires and have less interest in promotion to a higher rank.

Because the regions are self-contained with delegated authority and because different regions engage in similar composition of activities, aggregate indicators like growth in revenue or output reflect more on the true performance of the government than noises. Therefore, tournament or yardstick competition between regions is a powerful tool for providing incentives by filtering out common or systematic uncertainties (Holmstrom, 1982). In China regional governments often take a great pride in being ranked in first place in a competition among neighboring regions. The public and the media also

place great importance on such a ranking. This type of incentive would be less effective and more costly to provide to ministries in the U-form hierarchies because idiosyncratic uncertainty is more significant.

### *Commitment Through Decentralization*

In any economy, incentives cannot be really created unless the government is able to make a credible commitment for not expropriating promised incomes and not subsidizing loss makers. Absence of such a commitment was a legacy of centralized economies that led to the "ratchet effect" ("excess" profits were constantly siphoned away, Berliner, 1957) and "the soft budget constraint" (loss makers were continually bailed out, Kornai, 1980). This lack of credible commitment is a fundamental problem in centralized economies because the state is too powerful to tie its hands. In contrast, credible commitment may be achieved under decentralization.

Dewatripont and Maskin (1991) argue that dispersed banks and decentralized information structures can harden the budget constraint. This is because when a bank is constrained by the funds available, additional financing must come from another bank. In such a case, inefficient *ex post* renegotiation (say, due to asymmetric information between the new and old banks) reduces the returns and thus the incentives of the new bank from refinancing.<sup>37</sup> This in part explains why the budget constraint is harder for township and village enterprises in China, since most of them borrow from small rural credit cooperatives.

During China's decentralization, many upper level government departments and bureaus were removed or merged, and the number of bureaucrats was cut down. According to Milgrom and Roberts (1990), this reduces information channels between the superior and the subordinates, which in turn reduces

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<sup>37</sup> Alternatively, Qian and Xu (1993) suggest that even if banks are large, as long as the projects not being financed exclusively by one bank, then achieving agreements among many banks is more difficult at the time of renegotiation, which makes the budget constraint harder.

influence costs. Thus a better commitment may be achieved as less information reaches the top.

The central government in the former Soviet Union retained strong discretionary power during its reforms. In contrast, China's reform policy of decentralization of authority to local governments makes it difficult for the central government to use its discretion.<sup>38</sup> In his study of the history of economic development, Weingast (1993) emphasizes the role of decentralized political institutions in achieving credible commitment to thriving markets by the state. The crucial aspect of what he called "market-preserving federalism" is that the central government's authority to make economic policy must be limited and this authority must be placed in the hands of the local governments. This is viewed as the key to solving the "fundamental political dilemma of an economic system:" a government strong enough to protect property rights is also strong enough to confiscate the wealth of its citizens. One of the key differences between China's and Russia's reforms, as seen by Weingast, is that China proceeded in this direction but Russia did not.

#### *Experimental Approach, Learning, and Institutional Changes*

In Eastern Europe and the Soviet Union, some experiments had been introduced in their reforms before 1989. However, the experiments were often unsuccessful; even when they were successful in the local area, they were rarely promoted nationwide. Economists tend to believe that regional experiment is not the right approach to reform a planned economy. However, one major feature of the Chinese reform is its success in using local experiments and in adopting the "bottom-up" approach (Chen, Jefferson and Singh, 1992, and McMillan and Naughton, 1992). Then a question arises: why is China so special in using experimental approaches?

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<sup>38</sup> During the 1990 retrenchment, the central government tried to revoke fiscal revenue sharing schemes and to re-centralize investment decisions, but encountered strong opposition from the governors of provinces led by the Guangdong Governor and gave it up.

In a U-form organization, with a high degree of interdependence between operating units, allowing one or a few regions to do experiments may be very costly or perhaps not feasible. This is because experiments generate shocks and may disturb normal operations of the economy regardless of the success or failure of the experiments evaluated locally. This makes the scope of regional experiments more limited and chances of success smaller. Even when an experiment was a success in a particular industry or region, its relevancy to other industries and other regions is less significant because of heterogeneity across operating units. Given these features of the U-form hierarchy, economic reforms will more likely be carried out in an "up-down" fashion, in which decisions for changes have to be more centralized to minimize transition costs. In this sense, the U-form organization makes the institution more rigid and more difficult to change through local experiments.

In the M-form organization, however, the regional interdependence is relatively weak, so even a failure in the experiment will not considerably disturb the whole economy. In this case, the regional experimental strategy of reform in an M-form organization is less costly and more feasible. Under the M-form structure, large scale regional experiments can be carried out, many regions have a chance to develop a large variety of "mutants," and the central government may be able to compare and select among various alternatives.<sup>39</sup> Furthermore, because adjacent regions are similar in terms of economic structure, a successful experiment in one region can be relatively easily promoted to other regions. Hence, under the M-form organization, reforms may proceed more efficiently with the "bottom-up" approach,<sup>40</sup> which provides a less costly way of learning to establish and to use market institutions in a unprecedented

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<sup>39</sup> An important component of China's reform is the establishment of special economic zones with the explicit purpose for experimentation.

<sup>40</sup> However, the bottom-up approach has its own limitations, for example, in the reforms of the tax system and the financial system.

environment. This makes the M-form organization more flexible in the institutional evolutionary process.<sup>41</sup>

## **6. The M-Form Hierarchy and the Non-State Sector in China**

### **6.1. Direct Effects of the M-form Hierarchy on the Non-State Sector**

The M-form organization is directly responsible for fast entry and expansion of the non-state sector under the condition that the existing hierarchy is not destroyed in one stroke. The most relevant aspects of the M-form organization are those associated with the two bottom levels of government, that is, township and village governments in the rural area, and district and neighborhood governments in the urban area. In what follows, local governments refer to the two bottom levels of government.

#### *Incentives and Authority of Setting Up Non-State Enterprises*

The major responsibility of a local government in the M-form is regional development and welfare. Compared to their counterparts in the U-form economy, regional governments in China pay less attention to bargaining with the higher authorities because they have less to gain from bargaining within the hierarchy. The local government has to raise revenue on its own without much help from above, and so it has strong incentives to set up and to support local enterprises for revenue generating and employment purposes.<sup>42</sup> Some scholars even view a township or village as a "corporation," and the government of the township as the board of directors and the management team of the corporation (Oi, 1992).

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<sup>41</sup> Experimentation under the decentralized market system is important for the growth of the West, as economic historian Rosenberg and Birdzell (1986) explain: "This diffusion of authority was interwoven with the widespread use of experiment to answer questions of technology, marketing, and organization for which answers could be found in no other way; and with the emergence of great diversity in the West's modes of organizing economic activity."

<sup>42</sup> The rapid growth of the commune-brigade enterprises in Jiangsu province in the mid-1970s had already shown the potential of the M-form structure in the development of non-state enterprises.

A field research found that a significant portion of the net profit of township and village enterprises was used for the administrative budget of township and village governments (Rural Policy Research Division of the Central Committee Secretariat, 1986). In another sampling survey, researchers found that 77.5 percent of the village administrative budget came from the village enterprises and that most village government officials responded that one of the major motivations for setting up village enterprises was to expand their administrative budget (Li, 1987).

#### *A Harder Budget Constraint for Non-State Enterprises*

One pervasive problem with state-owned enterprises is soft budget constraints (Kornai, 1980). This problem is particularly serious for enterprises affiliated with central and provincial governments. However, at bottom levels of the hierarchy, financial resources available to local branches of the state banks and rural credit cooperatives and to local governments are very limited, and non-state enterprises do not have easy access to subsidies and credits as do state-owned enterprises (but still better than private enterprises). This limited power of community governments disables them from bailing out loss-making community enterprises, thus enabling them to commit to terminating troubled enterprises (Dewatripont and Maskin, 1990). Hence, the budget constraints for non-state enterprises are much harder than the state-owned enterprises. With hard (or harder) budget constraints, community governments are more conscious about risks and profitability and, in the final analysis, the efficiency of their enterprises.

The number of township-village enterprises that went bankrupt during the 1989-91 retrenchment could be used as evidence for the harder budget constraints in the non-state sector. In 1989, about three million township-village enterprises went bankrupt, or were taken over by other township and village enterprises nationwide, while in the same year almost all loss-making state-owned enterprises were bailed

out by the state.<sup>43</sup> In 1990, the loss-making township and village enterprises accounted for 7.5% of all township and village enterprises and the figure dropped to 4.6% in 1991. In contrast, the loss-making state enterprises accounted for 31% of all the state enterprises in 1990.<sup>44</sup>

### *Horizontal Relationship Between Regions and Emergence of Markets*

An important feature, which distinguishes the M-form hierarchy from the U-form hierarchy, is the horizontal, and potentially market-oriented, relationship between regions and between regional governments, despite the fact relationship between a local government and its superior or its subordinate is still vertical. Thus horizontal relationships between regions have developed, first, to create a condition for market-oriented transactions and trade among enterprises across the regions and outside the planning scope, and second, to generate competition between regions for getting rich first and fast, and third, to facilitate learning by one region through imitating another region for successful reform policies or development strategies. This is how the market mechanism in China emerged at such a fast pace within the existing hierarchical system.

In contrast, in the U-form hierarchy, transactions between two enterprises must advance through their common superior. The high degree of specialization requires rigorous administrative coordination and thus development of the horizontal relationship inside a U-form hierarchy may become damaging. It is then difficult for the market mechanism to emerge and evolve within the existing hierarchical system.<sup>45</sup>

Regional competition will not be efficient unless factors can move freely. During the reform period, constraints on capital and labor movement have been gradually relaxed, especially in the southern

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<sup>43</sup> People's Daily, Overseas Edition, March 23, 1990.

<sup>44</sup> *Zhongguo Xiangzhen Qiye*, No.8, 1991.

<sup>45</sup> Kornai (1992) is right that the horizontal market coordination is incompatible to the vertical bureaucratic system (of the U-form organization).

coastal areas. In fast growing areas like Guangdong and Jiangsu, many non-state enterprises hire more than half of their labor from inland provinces like Sichuan and Hunan.<sup>46</sup> Capital poured into these areas as well, as shown by the substantial increase in bank deposits in the last few years.<sup>47</sup>

### *Development of Entrepreneurship and Use of Local Knowledge*

With the weak bargaining position in the hierarchy, low-ranking government bureaucrats' temptation for promotion within the hierarchy have been greatly reduced. Rather, many bureaucrats turned to entrepreneurs, by either quitting their jobs to join a business company or running the government like a corporation. Instead of implementing commands from the above, their major job is to use their autonomous power in making profits. Entrepreneurship is developed among many local government bureaucrats or Party cadres, a hard-to-believe phenomenon in the U-form hierarchical economy or in the hierarchical government in the market economy.<sup>48</sup>

Government bureaucrats' knowledge and information about local economies and government policies, their connections with the local community, and their past experience in coordination, are all valuable assets. In China, the existing organization is not destroyed at one stroke and government bureaucrats are transformed into entrepreneurs in the reform. Hence, the valuable organizational capital and human capital accumulated and embodied in the M-form hierarchy are better utilized in developing

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<sup>46</sup> It is estimated that there are about 70 million "floating migrants" every year in recent years in China looking for temporary jobs (People's Daily, Overseas Edition, p.8, March 10, 1993).

<sup>47</sup> For example, specialized banks in Zhongshan municipality of Guangdong province borrowed about 2.1 billion yuan through inter-bank loans from other regions (Qian and Stiglitz, 1993). In 1992, total bank deposits in Hainan province (now a special economic zone) was 20 billion yuan, increased by 142.6% over the previous year and most of the increase were deposits from other provinces (People's Daily, Overseas Edition, p.2, March 3, 1993).

<sup>48</sup> It is not uncommon to see a person has several titles on the name card: Party secretary, Chairman of the Board of Directors and CEO of a township or village corporation.

non-state enterprises (Qian and Stiglitz, 1993). This is particularly important for China because of the scarcity in its human resources.

### *The Roles of the Central and Higher Regional Governments*

Partly due to the unpopular political movements in the Culture Revolution, the central government in China has committed to economic development as the "central task" since the beginning of economic reform. The government officially encouraged people to get rich, thereby allowing some people and some regions to become rich earlier or quicker than others. The reform policies of decentralization, which can be regarded as utilizing the features of an M-form organization, strongly encouraged local governments and entrepreneurs to experiment with various alternatives and hence opened up the way for the "bottom-up" reform.

In other aspects, the roles of the central government in the Chinese reform are limited. The fast growth of the non-state sector is not in the plan of the government, but rather almost a spontaneous process under a relaxed political and economic environment. The central government acknowledged openly that the fast growth of the non-state sector was an unexpected surprise.<sup>49</sup> China's case demonstrates that with commitment to economic development and commitment to decentralization, which may not be done consciously, reforms can go very far even with the limited roles of the central government, given the M-form structure and incentives to lower-level government in expanding non-state enterprises.

Compared to the central government's role in Eastern Europe and the former Soviet Union, China's central government is relatively passive in guiding reforms. It has not provided any coherent plan for the reform. It gives a green light for local experimentation, and it approves and promotes successful reform

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<sup>49</sup> Deng Xiaoping admitted in 1988 that the amazing growth of the township and village enterprises was completely unexpected and was the greatest achievement of the reform (*Zhongguo xiangzhen qiye*, 1989).

measures discovered in regional experiments.<sup>50</sup> At the same time, it also imposes limits on reforms or institutional changes, for instance, it continues to restrict activities of state-owned enterprises and it is against mass privatization. The observed gradualism in China is, to a large extent, a reflection of these binding limits. However, the central government is pragmatic and it accommodates its policies to the new situation. The attitude of the central government toward township and village enterprises is a good example: it discriminated against township and village enterprises in the early 1980s, then turned to support them several years later after discovering their vitality.

Most provincial governments are authorized to experiment with different reform measures in their provinces within the limits set by the central government. This helps to explain why there are large variations in the reforms from province to province. In many cases, a higher level of regional government protected their lower level governments and the non-state enterprises in time political atmosphere at the center turned against them.

## **6.2. Interactions Between the M-Form Organization and Other Reform Policies**

Although we primarily emphasize the importance of the M-form hierarchy and decentralization policies for the entry and expansion of the non-state sector in China, we also regard many other reform measures, such as the open-door policy, the dual price system and the success of agricultural reforms, as important. We argue, however, that the achievements of these measures are better understood within our analytical framework of the M-form organization.

### *The Open-Door Policy*

Thanks to the open-door policy, foreign technology and investments come to China, and non-state

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<sup>50</sup> This strategy is known in China as the one of "groping for stones to cross the river" (*mozhe shitou guohe*).

enterprises have a chance to access international markets and resources. For the enterprises which use input supply from abroad and sell their products in the international market, the existing planning system holds little constraint on them and they are completely market oriented. More generally, the open-door policy affects all non-state enterprises. Imports of ideas, concepts, technologies, and especially, international market competition, helped to create a market environment that gradually eroded the old planning mechanism.

Linkages between the open-door policy and the features of the M-form organization are close, and its influence for expansion of the non-state sector is significant. A crucial component of the open-door policy is the establishment of special economic zones, which are experimental regions for not just attracting foreign investments, but also learning to establish and to use market institutions. In fact, all of those special zones are located outside the old industrial bases and in remote areas where the central government control is weak. This ensures a maximum autonomy of the special zones and an isolation of potential adverse effects of experiments from the rest of the economy. A dominant majority of enterprises in the special economic zones are in the non-state sector. It is these special zones that pull up the neighboring non-state enterprises as seen most strikingly in the Pearl River Delta of Guangdong.

### *The Dual Price System*

The dual price system is by no means a brand new practice. It was in fact originated before 1979. China has had two prices for grain (the official price and negotiated price) since the 1950s. During the administrative decentralization in 1958 and 1970, a large number of small non-state enterprises emerged under local governments' support. Because those enterprises were outside the planning scope, the market price on top of the planned price has to be tolerated for these enterprises' survival. In the Cultural Revolution, central planning system was crippled, and input allocations to many state-owned enterprises were not guaranteed by the plan. Thus, horizontal cooperation (*hengxiang xiezu*) between regions and

between enterprises, including semi-legal black markets and barter trading, started to develop within the state sector. The dual price system of the 1980s is merely an official legalization and an increase of its scope of the existing practice.<sup>51</sup>

The dual price system has been controversial among economists. Critics emphasize its effects of corruption, inefficient bargaining (that is, rent-seeking), and supply diversion from the state to the non-state sector, etc. (e.g., Wu and Zhao, 1987, and Murphy, Shleifer, and Vishny, 1992). Advocates argue that facing a market price at the margin, the managers in the state sector will make the right decisions because the planned quotas becomes lump-sum taxes/subsidies in effect (e.g., Byrd, 1987, and McMillan and Naughton, 1992). We focus on a different effect of the dual price system. If for some reason the price cannot be liberalized at one stroke, introducing legalized markets for *all* goods (an important distinction between Chinese reforms and Eastern Europe reforms before 1989) has a critical benefit for facilitating entry and expansion of the non-state sector, although it is at the margin and is in an imperfect way. This is because a necessary condition of fast growth of the non-state sector is the existence of markets for intermediate goods which include capital goods and materials. Although the state sector faces two prices for one product, the non-state sector faces only one price, the market price. In a more or less competitive environment with market price signals, the non-state enterprises are likely to be more efficient than the state sector, which is essential for fast expansion of the non-state sector.

### *The Success of Agriculture Reforms*

The development of the non-state sector has benefitted from agriculture reforms in at least three aspects: (i) capital accumulation; (ii) release of labor force; and (iii) creation of demands. However, surplus labor, financial savings and potential of markets by themselves cannot be transformed into growth

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<sup>51</sup> Although there were similar phenomena in the Soviet Union (Berliner, 1957), the influence there was far less important than that in China.

automatically. Institutions are required to facilitate trade, and entrepreneurs are needed to organize production and distribution. It is the M-form organization that provides the flexibility within the system for efficient utilization of those favorable conditions. For example, many entrepreneurs in the non-state sector were in fact Party cadres or former commune leaders, and their organizational experience and connections in the local government have been turned into assets for the non-state enterprises.

The success of the agricultural reform itself is helped by the M-form structure. The household responsibility system was based on experiments initiated from regional governments (villages, township, county and province) before it was promoted nationwide by the central government. Strong motivation and initiatives by local governments, tolerance of the central government, and rapid promotion of this system, are all made possible by the M-form organization structure. In addition, with a more decentralized system, industrial supplies to agriculture like agriculture machinery and spare parts, chemical fertilizers, transportation service, are more reliable and less vulnerable to external shocks, and individual households are likely to deal with competitive suppliers, not a monopoly. These seem to be different from the situation in the former Soviet Union.

## **7. Concluding Remarks**

We have provided a comparative analysis of transition from institutional perspectives, and have addressed issues of how initial institutional environments differ between China and Eastern Europe and the former Soviet Union, how reform and transition strategies in China depend on institutional conditions; and how institutional changes of decentralization affect China's transition path and outcomes. In particular, the decentralized M-form organization has provided room for the fast entry and expansion of the non-state sector which made the economic transition relatively smooth compared to those in Eastern Europe and the former Soviet Union. In this final section, we briefly discuss implications of the non-state sector for further reforms in China and lessons from the Chinese experience for other economies in transition.

### *Denationalization of the State Sector in China*

The recent Eastern European experiences have shown that massive and fast privatization of the state sector is rather costly. Given the initial condition of the M-form organization, it may be easier and less costly for China to follow the evolutionary approach of developing the non-state sector rather than the revolutionary approach of massive and fast privatization. Eventually, the state sector will be forced to share a minor role in the national economy.<sup>52</sup>

This has important implications for the possibility of *denationalization*, instead of *privatization*, of state-owned enterprises in China in the future. Denationalization is a transformation process which includes successful non-state enterprises taking over or merging with state enterprises; state enterprises are converted into joint ventures with either domestic or foreign non-state enterprises; state enterprises are reorganized into joint stock companies, etc. In either case, the transformation may include the sale of small-sized state enterprises or sale of parts of large- and medium-sized state enterprises.<sup>53</sup> In fact, recently takeovers and mergers by the non-state enterprises have already emerged in China and reorganization to joint stock companies has also become a fashion. With the crowding out effects of takeover, mergers and transformation of ownership, the economy will eventually rely more on the non-state sector. This is perhaps an alternative way to privatization and a less painful path of transition for China.

To the extent that the majority of the non-state sector has community or local government ownership rather than private ownership at the present time, China can be better described as "*decentralized market socialism*" according to its ownership structure (Qian and Xu, 1993). It is decentralized because non-state properties are not owned by the central government; it remains socialism

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<sup>52</sup> Lau (1992) studied the experience of Taiwan and South Korea where the reduction of the public enterprise sector has been achieved mainly through the growth of the private sector, rather than privatization of the state enterprises.

<sup>53</sup> The denationalization process also likely incorporates spontaneous privatization.

because properties are owned by organized communities like townships or villages (von Mises, 1981).<sup>54</sup>

What is less clear at this point is whether this type of decentralized socialist ownership is a mere transition phenomenon, or whether it is sustainable for a long time. In any event, decentralized market socialism is clearly a unique outcome of China's gradual transition process.

### *Lessons for Other Economies in Transition*

We believe that the lessons which other transition economies can learn from China rely on the correct understanding of China's reforms in the first place. Our analyses have demonstrated that the success of China's particular gradual reform strategies depends on its initial institutional conditions (as well as other micro- and macro-economic environment which are not discussed here), that is, the transition is a *path dependent* evolutionary process. For this reason, China's experience can not, and should not, be simply copied to other economies in transition. One of the important implications of our analyses is that the difference in the initial institutional conditions concerning the organizational structure of the planning hierarchy should be taken into account when making policy suggestions for other countries based on China's reform experience.

The central idea underlying our theory is that, in addition to ownership, organization structure of the economy matters. We have discovered several important linkages between the reform process and the organization structure of centralized economies, which have policy implications, though tentative, for other economies in transition. First, decentralization and deconcentration of the state sector are desirable in their own right, and for facilitating entry and growth of private business (Aghion, Burgess, and Xu, 1993). There are several reasons: (i) Although privatization, understood as a process of simply transferring ownership from the state to citizens, might be achieved relatively quickly, privatization as a mechanism to

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<sup>54</sup> Some economists further argue that even in the state-sector, many of the Chinese state-owned enterprises have become *de facto* local governments' or regional properties (see Granick, 1990).

achieve efficient organizational structure and competitiveness is bound to be a long historical process. Typically, privatization process per se does not automatically change industrial structure of the economy (the Czech Republic is an example). If the U-form structure is not changed, the fundamental problems related to the high degree of concentration may still remain after privatization. (ii) If for some reason privatization will be delayed, then there is a need for explicit policies to maintain and restructure the existing state-owned enterprises. The policies of decentralization and deconcentration of state enterprises are beneficial in generating competition and improving performance (perhaps with an exception of the natural monopoly industries). And (iii) decentralization and deconcentration of the state sector will facilitate and speed up entry and growth of new private businesses, which is a vital part of privatization both in long run and in short run. The growth of the private sector in Eastern Europe and the former Soviet Union has so far remained limited to trade, services, and construction, while other sectors such as manufacturing industries have not yet been much affected. The monopoly and monopsony power of the concentrated state enterprises or newly-privatized firms are one of the major barriers to entry and growth. Decentralization and deconcentration will reduce these barriers. In addition, decentralization of financial institutions also helps private firms to access credit, which is again critical for the fast growth of the private sector.

Second, a competent and limited central government combined with many vigorous and competitive regional governments is the right balance of power for the state in transition. This amounts to reducing and restricting discretionary power of the central government and strengthening the local governments' authority in regional reforms and development at the same time. The scope of the central government's authority should be restricted, and the central government should be competent in executing only those reform programs that regional governments couldn't or are unwilling to do, for instance, reforms that are related to maintaining macroeconomic stability and preventing regional protectionism. The balance of power between the central and regional governments has several benefits: (i) Decentralization helps to create competition

among regions. (ii) With less discretionary power by the central government, regional transition and development will be less affected by the fluctuations of the central government policies. This will reduce uncertainties from the political opportunistic behavior or power struggles between different factions of the central government. And (iii) a better commitment can be achieved with the limited discretion of the central government, so the problems of the ratchet effect and the soft budget constraints can be mitigated.

Third, given the unprecedented and complicated nature of the transition from centralized to market economies, an experimental approach may be a less costly way of learning to establish and to use market institutions in transition. Economic theory does not provide sufficient guidance for the transition. Other countries' experience may be relevant, but must be adapted to the own country's situation. By the decentralized nature of market economy and by the very nature of the transition, a large amount of bottom initiated institutional experimentation is needed to acquire knowledge in transition. Although the U-form structure is not suitable for large scale experiments as we analyzed in the paper, it is still possible to establish some special areas for the purpose of experimentation. To avoid interfering with the normal operation of the economy, these regions should be located outside the old industrial bases and far away from the central control, as was done in China. Alternatively, after decentralization and deconcentration of the state sector, the economy will be more suitable for local experiments.

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## Appendix

Table 1.1 China: Selected Macroeconomic Indicators  
1978-1991

	Growth of GNP	National Retail Price Index	Urban Cost of Living Index	Household Bank Deposits/GNP	Export/GNP	Budget Deficit/GNP
1978	11.7%	0.7%	0.7%	5.87%	4.67%	surplus
1979	7.6%	2.0%	1.9%	7.05%	5.31%	5.16%
1980	7.9%	6.0%	7.5%	8.94%	6.07%	2.85%
1981	4.4%	2.4%	2.5%	10.97%	7.70%	2.07%
1982	8.8%	1.9%	2.0%	13.01%	7.97%	2.18%
1983	10.4%	1.5%	2.0%	15.36%	7.55%	2.12%
1984	14.7%	2.8%	2.7%	17.45%	8.34%	1.75%
1985	12.8%	8.8%	11.9%	18.96%	9.45%	0.80%
1986	8.1%	6.0%	7.0%	23.08%	11.16%	2.15%
1987	10.9%	7.3%	8.8%	27.19%	13.01%	2.21%
1988	11.0%	18.5%	20.7%	27.12%	12.60%	2.49%
1989	4.0%	17.8%	16.3%	32.34%	12.29%	2.36%
1990	5.2%	2.1%	1.3%	39.77%	16.88%	2.91%
1991	7.7%	2.9%	5.1%	45.88%	19.30%	3.34%

Table 1.2 China: Annual Consumption Per Capita (kilogram)

	Grain	Edible Vegetable Oil	Pork	Poultry	Eggs	Seafood
1978	195.46	1.60	7.67	0.44	1.97	3.50
1991	234.50	5.89	17.44	1.98	7.10	6.79

Table 1.3 China: Living Space Per Person (square-meter)

	Urban	Rural
1978	3.6	8.1
1991	6.9	18.5

Table 1.4 China: Consumer Durable Per 100 Urban Households (sets)

	Color Television	Black/White Television	Washing Machine	Refrigerator
1981	0.59	57.06	6.34	0.22
1991	68.41	43.93	80.58	48.70

Table 1.5 China: Consumer Durable Per 100 Rural Households (sets)

	Color Television	Black/White Television	Washing Machine	Refrigerator	Tape Recorder
1985	0.80	10.94	1.90	0.06	4.33
1991	6.44	47.53	10.99	1.64	19.64

Table 3.1 China: Share of Gross Industrial Output Value by Ownership

		State-Owned	Non-State-Owned	
Revolution	1949	26.25%	73.75%	
	1957	53.77%	46.23%	
Great Leap Forward	1958	89.17%	10.83%	
Cultural Revolution	1966	90.18%	9.82%	
	1969	88.71%	11.29%	
	1970	87.61%	12.39%	
	1971	85.91%	14.09%	
	1972	84.88%	15.12%	
	1973	84.02%	15.98%	
	1974	82.41%	17.59%	
	1975	81.09%	18.91%	
	1976	78.33%	21.67%	
	1977	77.03%	22.97%	
	1978	77.63%	22.37%	
	Economic Reform	1979	78.47%	21.53%
		1980	75.97%	24.03%
		1981	74.76%	25.24%
1982		74.44%	25.56%	
1983		73.36%	26.64%	
1984		69.06%	30.94%	
1985		64.86%	35.14%	
1986		62.27%	37.73%	
1987		59.73%	40.27%	
1988		56.80%	43.20%	
1989		56.06%	43.94%	
1990		54.60%	45.40%	
1991		52.84%	47.16%	



Table 3.2 China: Average Annual Growth Rate of Rural Enterprises 1981-1990

	Number of Enterprises	Employment	Total Output	Industrial Output	Export
1981-90	29.2%	11.9%	29.1%	28.1%	
1986-90	8.6%	5.8%	25.4%	27.1%	65.6%

Table 3.3 China: Share of Selected Industrial Products Produced By Rural Enterprises 1990

Coal	Cement	Cotton Cloth	Paper	Electric Fan	Canned Food
33.1%	27.5%	21.4%	38.2%	46.5%	39.1%

Table 3.4 China: Share of Rural Enterprises in the National Economy 1979-1990

	Employment	Total Output	Industrial Output	Exports
1979	22.54%	7.18%	9.05%	
1985	35.27%	16.45%	18.81%	4.80%
1990	38.61%	22.27%	25.29%	23.7%

Table 3.5 China: Share of Industrial Output As Percent of the Non-State Sector 1985-1990

	Collectives		Individual	Others
Urban	District and Neighborhood		0.98%	3.44%
	Cooperatives			
1985	45.17%		0%	9.65%
1990	28.99%		0.50%	
Rural	Township	Village	4.29%	10.89%
	Cooperatives			
1985	22.28%	19.41%	4.44%	10.89%
1990	22.48%	22.04%	4.45%	

Table 3.6 China: Composition of Rural Enterprises 1984-1990

	Number of Enterprises		Employment		Total Output	
	Township and Villages	Cooperatives and Individuals	Township and Villages	Cooperatives and Individuals	Township and Villages	Cooperatives and Individuals
1984	30.72%	69.28%	76.46%	23.54%	85.63%	14.37%
1985	15.13%	84.87%	62.00%	38.00%	75.27%	24.73%
1986	11.40%	88.60%	57.21%	42.79%	71.34%	28.66%
1987	9.04%	90.96%	53.59%	46.41%	67.89%	32.11%
1988	8.42%	91.58%	51.27%	48.73%	67.47%	32.53%
1989	8.22%	91.78%	50.40%	49.60%	66.44%	33.56%
1990	7.86%	92.14%	49.57%	50.43%	65.28%	34.72%

Source: *A Statistical Survey of Chinese Rural Enterprises, 1991*.

Table 3.7 China: Expansion of Individual Business (million) 1981-1988

	Number of Enterprises			Employment		
	Total	of which: Urban	Rural	Total	of which: Urban	Rural
1981	1.83	0.87	0.96	2.28	1.06	1.22
1982	2.63	1.13	1.50	3.20	1.36	1.84
1983	5.91	1.71	4.20	7.47	2.09	5.38
1984	9.30	2.22	7.08	13.03	2.91	10.12
1985	11.71	2.80	8.91	17.66	3.85	13.81
1986	12.11	2.91	9.20	18.46	4.08	14.38
1987	13.72	3.38	10.34	21.58	4.92	16.66
1988	14.53			23.05		

Source: *Beijing Review*, February 27-March 5, 1989, and *People's Daily*, overseas edition, March 11, 1989.

Table 4.1 China: Distribution of State-Owned Industrial Enterprises by Administrative Levels (1985)

	Central Government	Provincial and City Governments	County Government
Number of Enterprises	3,825	31,254	35,263
Share in Total Industrial Output	19.57%	44.57%	8.98%

Source: *1985 Industrial Census of China*.

Table 4.2 Comparison of Size of Enterprises in China, Eastern Europe, the Soviet Union and the West, 1988 (Employment/Enterprise)

	Manufacturing	Food Products	Wearing Apparel
Czechoslovakia	2,930	1,609	6,600
The Soviet Union	806	290	402
Hungary	460	925	307
Yugoslavia	311	243	402
China	145	75	80
Italy	96	71	71
United Kingdom	35	67	25

Sources: (1) *Industrial Statistics Yearbook 1988 Volume I*, United Nations, Geneva, 1989;  
 (2) *Business Monitor PA1002 Report on Census of Production, 1989*, Central Statistical Office, UK; and  
 (3) *Statistical Yearbook of China, 1989* (pp.255-291), State Statistic Bureau, Beijing.