

**CHINA'S INDUSTRIES IN TRANSITION:
ORGANIZATIONAL CHANGE, EFFICIENCY
GAINS, AND GROWTH DYNAMICS**

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Chapter 2

THE CHINESE TELEVISION INDUSTRY: AN EXAMPLE OF GRADUAL TRANSITION

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This case study on Chinese television industry is intended to refute the basic proposition which lay behind the argument for "big-bang" policy: the government must have a comprehensive reform plan, including freeing trade and prices, privatizing the state sector and so on, in order to successfully accomplish the transition to market economy. I will show that there is no need for the government to have such a plan. It may be even unnecessary for the government to be reform-minded either. Transition to market economy can be accomplished even if the government doesn't have a comprehensive picture of market economy in their mind, nor a clear-cut intention to move to such a system, and keeps on implementing 'market-unfriendly' policies. If it is not the government, then what force drives the economic system towards market economy? What actually is a transition to market economy? Is it just freeing trade, prices, and privatization? These questions will be discussed after a description of the transition process of the Chinese television industry.

2.1: THE TRANSITION OF CHINESE TELEVISION INDUSTRY

Performance. The prices, production, investment and distribution of television sets and their components were under strict control of the state until 1970s. Then from 1980, some parts of state control were relaxed, but it was not until 1993 that all of the government controls were abolished. The period between 1980 and 1992, therefore, can be characterized as a period of partial reform. Partial reform has been criticized by the proponents of "big-bang" reform that it will cause a severe loss of welfare (Murphy, Shleifer and Vishny, 1992), but let us see the magnificent performance attained during the period of partial reform (See Figure 2-1): The domestic production volume of television sets increased from 2.49 million units (1980) to 28.68 million units (1992); The

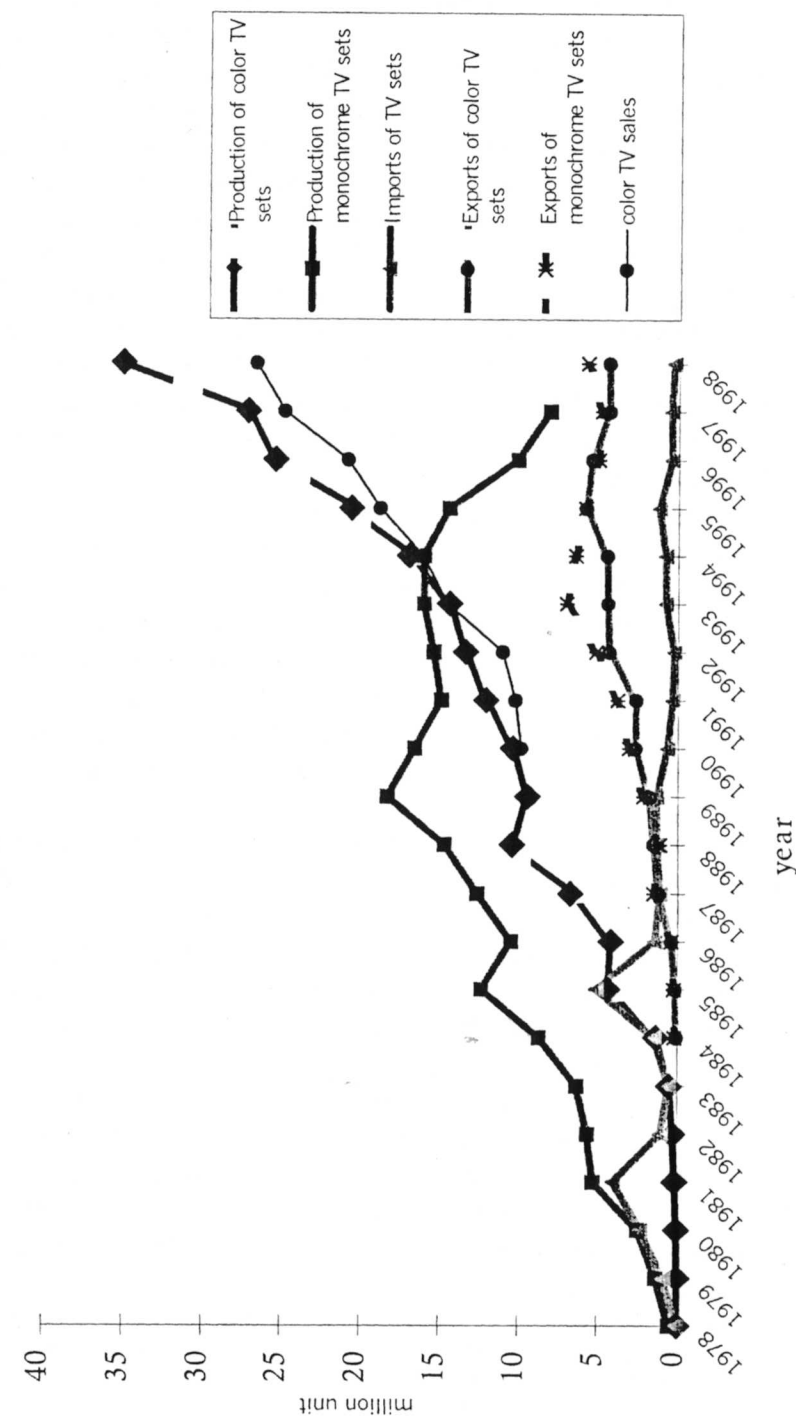
price of a 20 inch color television set was 2,000 yuan in 1980 and 2068 yuan in early 1993, while the general retail price index more than doubled during the same period; In 1980 only a half of urban households had a monochrome television set and only 0.6% of urban households had a color TV set, but in 1992 75% of urban households had color TV sets, which was one of the most prominent indications of the improvement in national welfare. The growth of television production even accelerated after 1993. The domestic television industry not only succeeded in substituting imports but also has become a competitive export industry since the 1990s (Figure 2-1).

Creation of a Dispersed Market Structure. The first TV set was produced in China in 1958, but it was not until the 1970s that the government seriously considered of setting up television manufacturing to provide TV sets for the people. After the split with the Soviet Union in 1960, China focused its investments into the creation of military industry and heavy industry base, while ignoring consumer products industry. When the relationship with the Soviet Union had become even tenser in the late 1960s, Chinese Communist Party transferred the central government's authority over many industrial firms to local governments, and expanded local governments' autonomy in finance, investment and the allocation of industrial materials. This was, on the one hand, an attempt to ameliorate the problems caused by an over-centralized planned economy, and on the other hand it was intended as preparation for the war against the Soviet Union. (Ishihara, 1990; Zhou, 1984). In 1970, Chinese leaders divided the country into ten large districts, and planned to let each of them have a complete set of industries, which would make them capable of waging war independently.

Lin Biao, the vice-chairman of Communist Party at that time, insisted that the preparation for the coming war must be given top priority in national policy. Regarding the electronics technology as the key to modernize Chinese military power, Lin called for a "Warfare for electronics [Dianzi dahuizhan]," demanding firms and local governments to start producing electronic goods. Local governments, with their larger autonomy, reacted to this call and set up many factories. Most of them produced electronic parts. The number of electronic factories rapidly increased from 1600 in 1969 to 5200 in 1970, but since the newly set up factories lacked the preconditions and technology to produce useful electronic goods, most of them were shut down in a year or two. The number of factories decreased to 2600 in 1972.

Nevertheless there still remained the problem of overcapacity. Since 1973 the central government tried to utilize the excess capacity of electronics industry by encouraging the firms to produce consumer electronic end products such as radio receivers and TV sets. These turned out to be the first group of entrants into the television industry. The central government tried to plan and guide the development of television production after 1973 (Hao, 1991), but since local governments controlled the firms, the attempt was not successful.

Figure 1: Production, Import and Export, Sales of Color and Monochrome TV sets



Another group of firms began to enter the television industry from the late 1970s. Those were the firms that produced military electronic goods before then. Most of these firms were under the direct control of the Ministry of Electronics Industry at that time.¹ In order to deal with the diminishing demand for munitions, they started to diversify their production by producing consumer goods. Major television makers of today such as Changhong Electric Ltd., Tianjin Tongguang Corporation, Xionghao Electronics Group Corporation were producers of military radars or military radio equipment formerly.

With the local firms, which entered the industry in the early 1970s, and military electronics firms, which entered the industry in the late 1970s, the market structure of television industry was very dispersed in the late 1970s. There were 63 firms producing television sets in 1978, when annual national production of TVs in China was only 0.51 million units, most of which were monochrome TV sets. McMillan and Naughton[1992] emphasized that rampant entry of non-state firms after the reform created competition among firms, but, while acknowledging the importance of entry, it should be noted at the same time that in many Chinese industries including the television industry 'competitive' market structure was the initial condition of reform rather than the outcome of it.

The government at that time, however, didn't regard this market structure as beneficial to the improvement of efficiency. The central government rather regarded that the structure was an indication of duplicative investment, waste of resources, and lack of division of labor, which should be rectified by the government. They tried to reorganize TV makers into a nationwide division of labor by assigning some TV makers to change themselves into component makers. The government also tried to control the import of technology in order to avoid further duplication of investments and to let the industry take advantage of scale economy (Liu 1984, pp.186-191). However, it was difficult for the central government to reorganize the industrial organization since most of the TV makers were local firms. The attempt turned out little results in the case of monochrome TV sets.

But in the case of color TVs, there were only a few manufacturers with limited production capacity at that time (annual production in 1978 was 3800 units). So the central government was able to plan the division of labor and importation of technology for color TVs from scratch. The government appointed three firms in Beijing, Tianjin and Shanghai as assemblers of color TV sets, and imported production lines with annual capacity of 150 to 200 thousand units to each of them from Japanese electronics companies. Cathode-ray tubes (CRTs) for color TV sets were to be produced and supplied nationwide solely by a state-owned factory in Xianyang (Shaanxi Color CRT Works), which was set up by central government's investment. Dandong Tuner Works, which was renovated from a monochrome TV set factory, was designated as the sole supplier of tuners. Flyback transformers were to be produced by two firms located in Beijing and Suzhou (Aoyagi, 1990, Ministry of Machine Building and Electronics

¹ The ministry was called Fourth Ministry of Machine Building at that time and renamed the Ministry of Electronics Industry in the 1980s. From 1988 to 1993 it was merged with another ministry to become Ministry of Machine and Electronics Industry. After 1993, the latter ministry was split into two and the Ministry of Electronics Industry came to existence again. It will be referred to as the 'Ministry of Electronics Industry' or just 'the central government' in this paper.

Industry, 1991). The government intended to set up a color TV industry that was consisted of large scale, specialized and technologically advanced factories with high local content.

But this plan too was frustrated by rampant entry of local firms and military electronics firms into the color TV set production. Given financial autonomy by the reform of 1980, local television firms imported many color TV production lines with the support of local governments, mostly during the period of 1983 to 1985. Military electronics firms also entered the color TV production in the former half of 1980s. In 1986, the number of firms producing color TVs amounted to 75, while production lines with total capacity of 17 million units a year were under construction. This was far more than the expected domestic demand at that time. There were little prospects of color TV exports either, considering the high production costs in China at that time. Moreover the capacity of color TV assembly far exceeded the domestic production capacity of CRTs for color TVs, which was no more than 2 million in the 1980s. In order to keep the color TV assembly lines in operation China had to import a lot of CRTs, which aggravated the chronic trade deficit problem of China in the late 1980s.

The rapid entry of firms was driven by the motivation of state-owned enterprises to increase profits, and for the local governments to increase fiscal revenue. With highly set prices and rapidly growing demand, color TV production would surely generate a big profit to the investor. The central government stipulated that importation of production lines of color TV needed the approval of Ministry of Electronics Industry, but it was difficult for the Ministry to control small investments like color television assembly lines which cost only 1.5 to 7 million US dollars each, especially when they were funded by local governments. Besides, the central government's plan itself had defects. The capacity of Shaanxi Color CRT Works was 0.96 units annually at the first stage, but the capacity of three color TV assemblers only amounted to 0.5 million, leaving a room for others to assemble nearly 0.5 million units of color television. Moreover, the plan meant that the government estimated the domestic demand for color TVs to be 0.5 to 1 million in 1985 but it turned out that the actual demand was far greater than this estimation. Domestic consumption of color TVs amounted to 2.6 million in 1984.

There appeared a surge of imports of production lines of color TVs and other household electrical appliances lines in 1985. The State Council, recognizing the extraordinary situation, imposed a strict restriction on their import, which finally put an end to the surge.

Liberalizing the prices of monochrome TV sets. Since the beginning of economic reform, the Chinese government promoted the popularization of television in an attempt to raise the standard of living of the people and also to let them serve as a Party's channel of propaganda to the public. Besides this, in 1979, faced with the problem of monetary overhang, which had been created by overheating investment, the government decided to absorb money from the public by selling consumer durables including TV sets. From that year the production of monochrome television sets expanded rapidly while many TV sets were imported from Japan and Eastern Europe (Fig.1). Ministries of central government and local governments found a lucrative market in import trade of television sets and entered the business without the approval of the trade authority of the central

government. Import of monochrome television went out of control. As a result, more than 1 million TVs were piled up in warehouses in 1980.

Before 1980 the supply of monochrome TV set was chronically insufficient, but suddenly it became an oversupplied commodity. This caused a change in the distribution system of monochrome TV sets. Formerly, consumers had to acquire a rationing ticket, which was distributed to consumers through their workplaces or local communities once in a while, before going to the shop. The ticket stipulates the brand of television set it can afford to buy. This marketing system can work as a means to meet supply and demand for each brand of TV set, only when the consumer who is rationed a ticket will go to buy a TV set with a very high probability. But when supply exceeds demand, this rationing system will no longer work. Since consumers who got the ticket will not necessarily go to buy TV sets, TV makers and shops will have difficulty in selling their products if they only sell to those customers who have rationing tickets. In order to lessen the burden of stockpiles, makers and shops will sell TV sets to whoever comes to buy, regardless of tickets. Thus in 1980, the rationing system of monochrome TVs was abolished and the distribution was liberalized.

Because at that time only a few domestic makers were able to produce good quality TV sets, there appeared a big difference in the sales volume between good producers and average producers after the liberalization. Faced with this situation, the government decided in January 1981 to dissolve the unified price of 12 inch monochrome TVs and introduced price discrimination among different brands. The prices of a few famous makers' TV sets remained tightly controlled, while for TV sets produced by other makers, price supervision bureaus of local governments could set their prices below the official price within the limit of 10%. This policy was expanded in the next year to 14 and 16 inch TV sets and the lower limit was further lowered (WWX, 1986, 1987). Only the local governments and neither makers nor retailers were given the right to set prices.

The purpose of this policy was to promote the sales of average makers by diminishing the price competitiveness of good producers. This policy clearly shows that at least until 1981 the Chinese government didn't think that market competition would have beneficial effects.

From 1984 to 1985, the economy overheated and demand for monochrome TV sets increased rapidly, which brought about sellers' market. Faced with lucrative markets some TV makers sold their products to black-market peddlers who bid higher prices than state wholesalers, while selling second-rate TV sets to state wholesalers or not selling at all to them. This led to the deterioration of the relationship between TV makers and wholesalers. In the latter half of 1985 the government launched an austerity policy, which led the demand for monochrome TV sets to shrink sharply. 2.5 million units of monochrome TV sets were piled up in the warehouses of makers and wholesalers in the next year. This time the wholesalers refused to abide by the contracts with makers, and coerced agency contracts to makers, which imposed marketing risk only on the makers' side. In order to get rid of the huge stockpiles, makers sold their products at low prices. The government lowered the official price and allowed the firms to set prices by themselves if they were lower than official price. Thus the price of monochrome TV sets was virtually liberalized (*GDB*, November 27, 1986).

Liberalizing the prices of color television. Demand for color TV sets was weak in the first half of 1980s because their prices were way above the reach of ordinary citizens. The government tried to stimulate demand by lowering the prices in 1981 and 1982 (See Table 2-1). Since the overheating of economy in 1984 and 1985, demand for color TVs started to grow rapidly in the cities. Especially in 1985 the demand exploded, with import striking 4.99 million units and domestic production 4.3 million units (Fig.1). Since the latter half of 1985, the government restricted the import of color TV sets, which led to the aggravation of shortage after 1986.

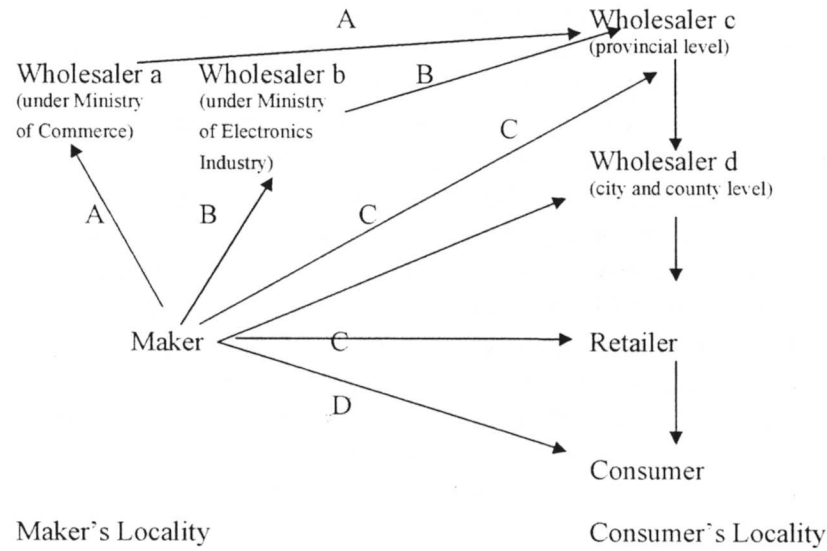
Before describing the market situations after 1986, let us take a look at the process of distribution of TV sets. There were three routes of distribution. In the first route (A of Fig.2), state wholesalers in the makers vicinity (a) buy TV sets from makers, then TV sets are resold to the provincial wholesalers of consuming area (c), and then they are resold to city or county level wholesalers (d) and finally to retailers. This was the orthodox distribution system under planned economy. In the 1980s Ministry of Electronics Industry set up wholesalers (b) and joined the first stage of the above route (B). Besides these, in the post-reform era, makers started to skip the state wholesalers and sell directly to wholesalers or retailers of the consuming place (C), or even directly to consumers (D).² Until 1980 makers had to sell their products only through route A, but since 1980, in theory makers and state wholesalers became equal trading partners and makers were given the right to choose partners. However in practice wholesalers (a) and (b) could exercise their administrative power to force the makers to sell them as many TVs as they wanted (*ZDB*, September 6, 1987). In the retailing of color TV sets, a distribution system using rationing tickets, which I described earlier, was maintained until early 1990s.

Because of the rising income of urban households, severe shortage of color TV sets appeared after 1986. Rationing tickets were sold in black markets at several hundred yuan. Even having rationing tickets, it was difficult to afford a color TV set through normal channels, because state wholesalers sold TV sets which they obtained through official distribution channels to black markets. While in the supply side, official prices of color TV sets remained unchanged since 1982 while the production cost rose sharply because of the rising wages and the rising import prices of CRTs caused by the devaluation of yuan. In 1987 many TV makers ran in the red. The official prices were so low that it discouraged the makers to produce TV sets, while causing excess demand on the other hand. Thus in 1988, the government dissolved the unified prices of color TV sets and introduced 'float pricing,' which allowed local authorities to raise the prices of TV sets sold in their locality within the limit of official price plus 20% (Table 2-1). Prices of nine popular brands were set 30 to 50 yuan higher than other brands (*ZWN*, 1989). Although this policy stimulated the makers to produce more, the gap between supply and demand even widened since rampant inflation in 1988 led the consumers to a buying spree. The black market price of an 18 inch color TV set rose above 3000 yuan while the official price was 1700 yuan. TV sets were delivered out of provinces where price

² According to *GDB*, November 27, 1986, in the former half of 1986, 52.8% of total sales of monochrome and color TV sets were sold through route A, 39.6% through route C, 5.2% through route D and 2.5% were exported. Route B is not mentioned in this source.

supervision was strict into provinces where black markets were overlooked. Makers, wholesalers and retailers of normal channels were not allowed to raise prices by their own, therefore they tried to earn rent by tie-in sales, demanding rebates, or selling to black markets. TV makers were motivated by the rent to expand production, but expansion was constrained by the supply of CRTs, the allocation of which was monopolized by the government. TV makers sought to procure CRTs outside the allocation, and thus black market of CRTs emerged (Wang Bingwu, 1988; *JJCK*, January 21, 1989).

FIGURE 2 THE DISTRIBUTION PROCESS OF TV SETS



Source: By the author. Chen Daisun (ed.) *Zhongguo jingji baikeshu*, [Encyclopedia of Chinese Economy] (Beijing: Zhongguo Jingji Chubanshe, 1991) pp.670-671, pp.679-680; *ZDB*, September 6, 1987; *GDB*, November 27, 1986.

In January 1989, the government, in order to eradicate black market, announced a new policy, which restricted the distribution of color TVs only to state wholesalers and retailers who were given licenses by the government. The prices were fixed to the upper limit of 'float prices,' while the right to set prices was again monopolized by the central government. Besides this, special consumption tax of 600 yuan and 'localization development fund' (a kind of tax) of 300 yuan for each purchase of color TV set (it was altogether 500 yuan for 14 inch TVs) were introduced in order to check the extraordinary surge of demand (Table 2-1).

Table 2-1 Prices of domestic color TV sets

	Before July 1981	July 1981	Dec. 1982	April 1985	May 1988	Jan. 1989	March 1990	July 1992	Jan. 1993
14 inch	1,400	1,200	998	998	998-1,190 (+500)	1,190 (+100)	1,250	1,180	1,150
20 inch	2,000	1,800	1,500	1,500	1,500-1,900 (+900)	1,900 (+100)	2,100	1,830	2,068
22 inch	2,200	2,000	1,700	1,700	1,700-2,100 (+900)	2,100 (+300)	2,300	2,060	2,350
18 inch				1,330	1,330-1,700 (+900)	1,700 (+300)	1,900	1,790	1,800
21 inch with flat-squared CRTs						2,700* (+550)	2,250	2,200	

(Source): Official prices are from WWX [1986]; ZWN [1989, 1990, 1991] Retail prices are from the author's field survey.

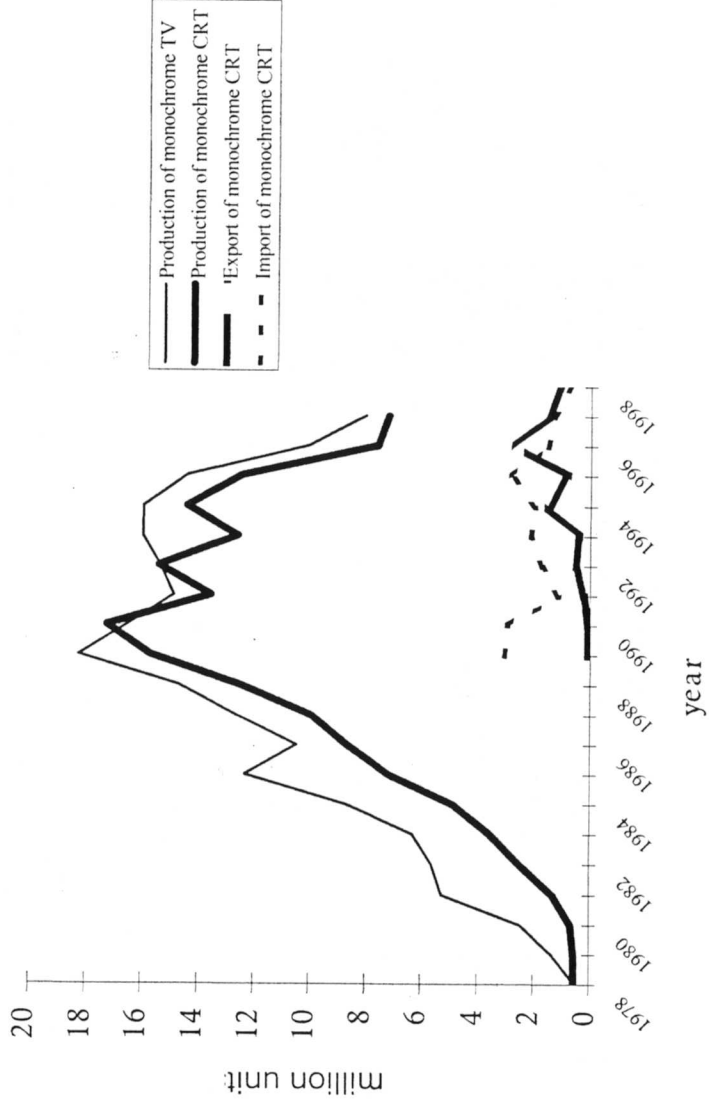
Notes: 1. The prices until March 1990 indicated in the table are 'official retail prices at producer's locality.'

2. TVs with additional functions were priced higher. This table indicates the prices of the most basic model.

3. The figures in the parenthesis indicate special consumption tax plus 'localization development fund.' The 'fund' was abolished before March 1990.

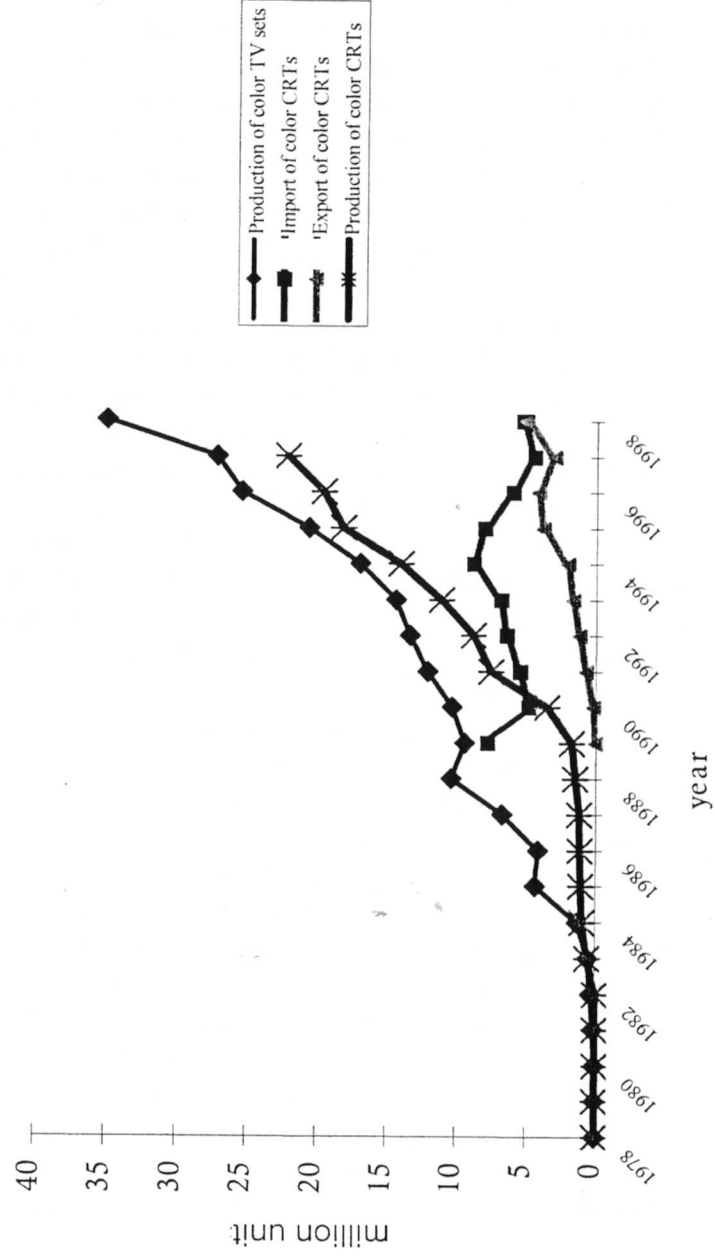
4. * The official price of 21 inch color TVs before March 1990 was 2400 yuan, plus 900 yuan of tax and fund.

Figure 3: Production, Import and Export of Monochrome CRTs



(Source) Same as Figure 1

Figure 4 Production, imports and exports of color CRTs



(Source) Same as Figure 1

These restrictive measures and taxes, together with the austerity policy since the autumn of 1988, which affected the expectations of the people towards inflation, cooled down the buying spree of consumers. Since May 1989, sales of color TVs suddenly stopped and makers were flooded with stockpiles. In August a state-owned TV maker named Changhong Electric Ltd., stranded with 200 thousand units of stockpiles, lowered their selling price by 350 yuan without the permission from the government. Changhong's sales grew, but this act infuriated the other makers. They demanded the government to punish Changhong. However, faced with shrinking demand, it was inevitable to reduce price. Fifty days later the government reduced the official price of color TV sets (*ZDB*, June 2, 1991). Even with this price-cutting, the demand didn't recover and makers began to suffer from low operation and increasing costs. Thus in March 1990, the official retail prices of color TVs were lifted by 5 to 12%, while 'localization development fund' was abolished and special consumption tax reduced. Retail prices including tax were reduced by 50 to 600 yuan (Table 2-1). Local governments were ceded the right to set the price within the limit of 10% plus or minus the official price.

The demand, however, shrank further, because consumers expected that there would be more discounts. In 1991, domestic production of color TVs stood at 12.05 million units, while domestic sales was only 5.42 million and export was 2.6 million. With stockpiles amounting to 4 million units, makers and wholesalers ignored the price regulation and started to discount (*ZWN*, 1991; *CD*, August 30, 1992). In some districts, 18-inch TV sets, the official price of which was 1900 yuan (plus 300 yuan of special consumption tax), were sold at 1200 yuan. Thus in 1991 the prices of color TVs were virtually liberalized. Although the prices were out of control, the government still insisted on controlling them. In April 1992, the government let the 'China Audio-visual Association' set 'standard prices' of color TVs, but this had no effect.¹

As in the case of monochrome TV sets, oversupply of color TV sets led to the abolishment of rationing tickets, and local governments, in order to promote sales of TVs, ceased to levy special consumption tax on them since around 1990, before it was formally abolished in April 1992 (*JRB*, April 8, 1992; *ZDB*, April 15, 1992). Moreover, the distribution route of color TVs changed dramatically. State wholesalers (a) and (b) (See Fig. 2), who forced TV makers to provide TV sets in the 1980s, voluntarily stopped forcing the TV makers, because TV set trade was no more profitable. Makers had to pave their way to the market by themselves. Since wholesalers and retailers in consumers' locality had more information on the market, makers strengthened their approach to them, and thus route C became the main route of distribution. Wholesalers (a) and (b) had no function of transmitting market information or sharing the risk of makers. They were just rent seekers using their administrative power to grab a share of the rent that accrued from the shortage of color TV sets. When the rent disappeared under excess supply, these wholesalers voluntarily threw away their administrative power and left the TV trade. During the period of shortage, makers had no rights to select their trade partners, but that

¹ From interviews with officials of Changhong Electric Ltd., July 2, 1992; *ZDB* April 17, 1992, August 21, 1992; *JRB*, January 15, 1992.

also meant that they didn't have to worry about marketing. Some makers didn't even have a marketing division. But since the market changed into excess supply, makers started to establish marketing divisions and put a large proportion of their resources into marketing.² TV makers started to put stress on consumer relations and advertising, while making efforts to turn up with new products.

Liberalization of production. As we have seen in the former section, prices of color TVs were liberalized in 1991, and those of monochrome TVs in 1986. It was not enough, however, to create real competition, because central planning regulated the production volume of each maker. The regulation was not abolished until 1991 in the case of color TV sets, and until 1990 in the case of monochrome TV sets. The reason why the government could hold control on production while its control on investment had been so weak was because CRTs, the most important component of TVs, were in short supply and the central government monopolized the allocation of them.³ The Ministry of Electronics Industry held meetings twice a year gathering TV makers and CRT makers to determine the allocation plan of CRTs of the following period. Based on each maker's capacity and production plan the Ministry determined who sold how many CRTs to whom. After this meeting, makers directly traded with each other according to the plan. The government also determined the price. Occasionally some TV makers might actually buy less than the plan. In those occasions CRT makers were allowed to sell to other TV makers.

The shortage of CRTs was caused by small domestic production compared to the domestic production of TVs (See Fig. 3, 4), and the restriction on the import of CRTs. If TV makers wanted more CRTs than allocated, they had to resort to black market trade or smuggling, which cost the makers dearly. The government could hold control of TV production as long as there was excess demand for CRTs, which was caused by excess demand for TVs. As duplicated imports of color TV production lines was regarded as a major policy failure, the Ministry of Electronics Industry tried to recover this failure by using their power over TV makers, which accrued from the monopoly of CRTs, as a means to adjust the dispersed structure of color TV industry. In 1985, the Ministry of Electronics Industry nominated 58 firms as "qualified color TV makers (*Dingdian chang*)", to which they gave the rights to receive allocation of CRTs. The unqualified makers were to be eradicated. However, since there were smuggling and black market of CRTs, more than 30 unqualified TV makers survived until the 1990s.⁴ To restrict the number of makers to 58 still seems to be too many, since most of them are now facing difficulty to survive under the current international and domestic competition. But because the Ministry of Electronics Industry had to care for the interests of each province and other ministries, the Ministry didn't have a freehand to qualify makers. In the list of

² From interviews with officials of Fujian-Hitachi Television Ltd., September 18-19, 1992; *ZDB* August 30, 1991.

³ Other important components, such as flyback transformers and tuners, were also centrally allocated until 1989. The allocations of these components, however, were unimportant to the makers, because there were many makers of these components and the supply was no more in shortage in the latter half of 1980s. Setting up these factories needed much less investment than CRTs.

⁴ From interviews with officials at the Ministry of Machine and Electronics Industry, February 25, 1993.

58 qualified makers, we find that almost every province, including poor provinces with only small markets, had at least one qualified maker. The Ministry neither had freehand on the allocation of CRTs. They had to let all qualified makers to have a share of the lucrative color TV market. These facts indicate that the central allocation of CRTs and the nomination of qualified makers worked as a protective policy of inefficient makers rather than being a measure to reorganize the dispersed structure.

The production of CRTs for monochrome TV grew rapidly after 1984, when many plants were imported and set up. In 1986, when the sales of monochrome TV sets sharply declined, production volume of CRTs became very close to that of monochrome TVs (See Fig. 3). In this year, as we have seen before, oversupply of monochrome TV sets had led to the liberalization of their prices. It also weakened the demand for CRTs, and as a result, the prices of CRTs for monochrome TV were also liberalized. Sales of monochrome TV sets, however, recovered in the next year, and so did the demand for CRTs, therefore central allocation of them was maintained.

But during the economic stagnation after 1989, the demand for monochrome TV sets diminished sharply, which led to the drop of the production of monochrome TV sets (See Fig. 1). Thus the demand for CRTs also shrank. On the other hand, production of CRTs grew, which led to the oversupply of CRTs in 1990. Because the TV set market was stagnant, it was difficult for the TV makers to buy CRTs according to the allocation plan. This made CRT makers to lose confidence in the allocation plan, and they started to pay more attention on direct contracts with TV makers. In 1991, the government ceased to make allocation plans, and the 26 monochrome CRT makers were thrown out in the market economy, which resulted in a fierce competition. Under the sellers' market before 1989, CRT makers would take on an opportunistic attitude towards buyers, breaching contracts and schedules of delivery. Now in the buyers' market, it was hard to recover the trust of buyers, so the CRT makers had to resort to discounts in order to promote sales. The price of 17-inch monochrome CRT, which was 350 yuan around 1987 and 1988, declined to 110 yuan in 1991. Under the fierce competition, some makers started to diversify to monitor displays, or expanded exports⁵.

The central allocation of CRTs for color TV also collapsed during the stagnation after 1989. As we have seen before, CRTs for color TV were in severe shortage until 1988, with only one maker in China. But since 1989, Beijing-Matsushita Color CRT Ltd. and other companies started their operations, which boosted the supply. In 1991, domestic production of color CRTs was almost enough to supply for the color TV sets produced for domestic sales (See Fig.4). While in the same year demand for color TV sets plunged, causing oversupply of CRTs. In the summer of 1991, trades of 18-inch color CRTs were in effect liberalized.⁶

Nevertheless, the Ministry of Electronics Industry tried to hold control on color TV production. The Ministry regarded that, in order to eliminate the oversupply of color TV sets, the number of makers had to be reduced. In the summer of 1991, the Ministry

⁵ From interviews with officials at Wuxi Electric Tube Works, September 10, 1993.

⁶ From interviews with officials at Beijing-Matsushita Color CRT Ltd., September 16, 1992; interviews at Fujian Hitachi Color Television Ltd., September 18-19, 1992.

ranked the 58 qualified makers into three groups. Five makers were ranked A, and another 7 or so were ranked B, which would enjoy preferential treatment in the allocation of CRTs and finance. The rest of the qualified makers were ranked C, which were encouraged to change business, and among them 16 makers would not receive allocations of CRTs any more.⁷ This policy shows the government's intention to select the 'proper' firms to be left by means of the allocation of CRTs, a policy measure of planned economy, rather than leaving it to the market to decide who should survive.

But it is impossible to use the allocation as a means to adjust the market structure when supply exceeds demand: the preferential firm who receives a large amount of CRTs may not be able to use them all because the firm faces fierce competition in TV set market. In that case, CRT makers will sell those CRTs which the preferential makers failed to buy to other 'unpreferential' TV makers. It is also impossible to adjust the allocation plan, which is made every half year, to fit to the ever-fluctuating market structure. Thus, even though the government may manage to make allocation plan, it will be unreliable to the CRT makers and TV makers.

In 1992, Changhong Electric Ltd. and Shaanxi Color CRT Works, who were the most influential state-owned TV and CRT makers, signed a contract of CRT trade, without waiting for the government to make the allocation plan. Other makers followed this practice, and eventually the government gave up making allocation plan in that year. No allocation plans were made after this, with the exception of 29-inch color CRTs, which were in short supply for some more years.

Competition among TV makers. The abolishment of allocation plan opened up a free competition among TV set makers, which led to a major change in the market structure. There were 57 qualified makers and more than 30 unqualified makers in the early 1990s, each of which having a small market share with their own brand. After seven to eight years of competition, only 15 out of 57 qualified makers keep on producing with their original brand names today, and the rest either became subsidiaries of other makers or just stopped producing TV sets. At the same time, many new makers were established after 1992, and some have become top makers. Besides this, major household electrical appliance makers of Japan, Korea and Europe have entered the market by establishing joint ventures with some declining domestic makers. And to make the competition even fiercer, imported color TV sets have become cheaper. The Chinese government restricts imports of TV sets by quota and high tariff, but smuggling became rampant in the 1990s. The amount of smuggled color TV sets is estimated to be 3.5 million sets in 1995, 2 million sets in 1996, one million sets in 1997, five to six times more than official import figures (*ZDB*, March 10, 1998).

Because of entry of many new TV makers and imports, color TV set industry as a whole has a huge amount of over-capacity. According to the national industrial census in 1995, the capacity of color TV production was 44.7 million units annually, while the actual production of the same year was 20.6 million. Production volume reached 32.7 million in 1998, but there still remains unutilized capacity of more than 12 million units.

⁷ From interviews with officials at Ministry of Machine and Electronics Industry, February 25, 1993; *CD*, July 11, 1991.

Through competition, some makers expanded their share to such level which had been unimaginable during the days when CRTs were allocated. Table 2-2 shows the concentration indexes of top TV makers. The first row indicates Herfindahl's coefficients⁸ calculated from the market shares of top 20 makers, and the second row shows the coefficients calculated from top 48 makers. From 1986 to 1989, as many color TV makers started operation, the concentration index declines, but since 1989, the index shows a tendency to rise. From Table 2-3, we can see that the market share of top ten makers has increased to 80% since 1996.

Table 2-2 Market Concentration Indexes to the top makers (Herfindahl's coefficient)

Year	1986	1989	1990	1991	1992	1993	1994	1995	1996	1997
Among top 20 makers	0.060	0.056	0.057	0.059	0.085	0.073	0.086	0.089	0.096	0.103
Among top 48 makers		0.030	0.032	0.035	0.055	0.051				

(Source): Calculated by the author from the data of ZDGN and ZDB.

There have been many changes in the TV market since free competition began in 1992. In 1993 and 94, as we can see from Table 2-3, Japanese brands, such as Matsushita (Panasonic) and Sony, had large shares. Then in 1996, Changhong Electric Ltd. cut the prices of its products by 8 to 18%, triggering a price war among domestic TV makers (ZDB, April 16, 1996; May 16, 1997). This helped Changhong to expand its market share from around 10% in 1995 to 20.5% in 1996, and 25% in 1997, and to expand its production from 2.9 million color TV sets in 1995 to 4.8 million in 1996, 6.7 million in 1997 and 9.3 million in 1998. The share of domestic brands as a whole also expanded from 73.6% in 1995 to 81.5% in 1998, while Japanese brands' share diminished (ZDB, April 30, 1999).

New entrants. Even with severe over-capacity and competition still there are many new entrants in color TV market. There emerged several new TV makers in Guangdong since 1993. Among them the most successful must be TCL Group of Huizhou city. TCL was first established as a telephone equipment maker and entered the color TV production in 1993. In the beginning TCL relied on a factory located in Huizhou city that was owned by Hong Kong's Changcheng Electronic International Ltd. for the production of color TV sets, and TCL didn't produce TV sets by itself. TCL just put their brands on the color TV sets bought from this factory and sold them to the domestic market.

⁸ We calculated Herfindahl's coefficient by $HI_n = \sum(S_i / \Sigma S_i)^2$, $n=20, 48$. S_i denotes the sales volume of firm i . The increase of this coefficient means market concentration to small number of firms.

Table 2-3 Market shares of top color TV brands

Brand	Maker	1993	1994	1996	1997	1998
Changhong	Changhong Electric	4.2	5.0	20.5	25.0	33.7
Konka	Kangjia Electronic	13.4	11.0	12.2	15.1	13.7
Haier	Haier Group	-	-	-	-	7.9
TCL	TCL Group	-	-	6.2	9.5	7.8
Panda	Panda Group	11.2	11.0	4.6	3.9	5.6
Hisense	Haixin Electronic	1.9	-	-	3.1	5.6
Gaoshida	Guangdong Gaoshida	-	-	-	-	3.6
RGB	Chuangwei-RGB	-	-	-	4.4	2.6
Philips	Suzhou Philips, imports	-	-	-	4.5	2.4
Matsushita	Shandong Matsushita, imports	10.7	14.7	13.3	6.7	2.3
Sony	Shanghai Suoguang, imports	-	3.5	5.5	-	2.3
Toshiba	Dalian Toshiba, imports	2.1	-	4.2	-	2.1
Jinxing	Shanghai Guangdian	4.2	3.7	2.7	4.5	2.0
Xodeco	Xiahua Electronic	3.3	-	2.7	3.8	2.0
Beijing	Tianjin Tongguang Company	5.4	4.0	7.1	-	-
Share of top ten brands		56.5	52.8	79.0	80.5	85.2

(Source): The data for 1993 and 94 are from ZSTN for 96, 97, 98 from ZDB.

This factory owned by Changcheng was a factory to assemble TV sets for export. This type of operation, which falls into the category of "export processing and assembling," may enjoy a privilege to import the parts and components without paying customs duty, if all of its products are exported. Because of this tax exemption, the factory of Changcheng must be able to produce color TV sets much cheaper than other domestic companies. TCL, in order to sell domestically the TV sets assembled by the factory, set up a nominal joint venture with Shaanxi Color CRT Works, which had a license to sell color TV sets to the domestic market, and sold the color TV sets through this joint venture (Institute of Industrial Economics, 1998, pp.394-395). It was not until 1996 that TCL acquired its own factory by buying another factory in Shenzhen. TCL, utilizing its price competitiveness, initiated a price war in 1998 along with Kangjia⁹ of Shenzhen, and became the third largest color TV producer in China next to Changhong and Kangjia in 1998, producing 2.8 million units of color TV sets that year (ZDB, April 30, 1999).

Shenzhen's Chuanwei(Skyworth)-RGB Electronic Ltd. is also a new maker that was established in 1994. Chuanwei also made use of its price competitiveness and entered the top ten makers in 1998. Besides these companies of Guangdong, major makers of other household electrical appliances entered the market. Haier Group, a major maker in

⁹ Kangjia was a Sino-Hong Kong joint venture established in 1979. It became a listed company in 1992, and the Hong Kong partner that established Kangjia sold most its shares to mainland-related companies in Hong Kong.

refrigerators, washing machines and air-conditioners in China, entered color TV market in 1997 by relying on Hefei Huangshan Electronics Ltd., a state-owned color TV maker in Anhui province, for producing color TV sets (*ZDB*, December 11, 1998). Haier, taking advantage of its brand image and its retailer network, expanded its market share in a short period (See Table 2-3). Chunlan Refrigerating Equipment Co. Ltd., a major air-conditioner and vacuum cleaner maker in China, also entered color TV market in 1998 by putting production out to two state-owned color TV makers in Wuxi and Tianjin (*ZDB*, August 20, 1999).

While these new entrants expanded their shares, most of the qualified makers in the 1980s disappeared from the scene. Let us look at the fate of the aforementioned top five makers in early 1990s that were ranked A by the Ministry of Electronics industry in 1991. Shanghai No.1 Television Works was merged with two other large state-owned TV makers of Shanghai, and they formed Shanghai Guangdian Group. The three firms ranked No. 1, No.2, and No.3 in 1986 in the sales ranking of the whole electronics industry, but during the 1990s, Shanghai Guangdian Group gradually lost its share in the color TV market. Shanghai Guangdian still occupies No.3 in the sales ranking of electronics industry, but a substantial share of their sales comes from their joint ventures with Sony, Sharp and JVC. Beijing Mudan Group is a company formed by the merger of two state-owned TV makers of Beijing, both of which having the longest experience in producing TV sets in China, which dates back to the early 1970s. Beijing Mudan was always in the top ten before 1994, but it disappeared from the list since then. Tianjin Tongguang Corporation, which is also the oldest TV maker in China, turned itself into a joint venture with Samsung of Korea in 1994. Xiongmao Electronics Group Corporation, or Panda Group, is running in the red since 1997. The only enterprise among the five that received preferential treatment in the early 1990s that still shows vitality is Changhong.

Among the 57 qualified makers in the early 1990s, 19 enterprises became subsidiaries or subcontractors of domestic companies. Qingdao's Haixin acquired 3 of them, while both Kangjia and Changhong acquired two (*ZDB*, various issues). Six former qualified makers turned themselves into a joint venture with foreign companies in order to elicit financial and managerial assistance from the foreign partners. There is no record of production on another 19 former qualified makers. It is very likely that they stopped producing color TV sets.

It has always been the government's wish to reorganize the electronics industry into a small number of competitive firms since the late 1970s. As we have seen in this section, the government, in an attempt to let the industry concentrate, used policy measures such as appointing color TV production bases, allocation of CRTs, and ranking the TV makers. Ironically enough, it was only after the government lost control on the industry and gave up these measures that concentration started. It also turned out that most of the enterprises that the government selected as preferential ones were uncompetitive when they faced real competition.

Price wars. Since Changhong opened up a price war in 1996, price wars happened almost every year. The war in 1997 was initiated by Guangdong's Korowa, which started selling cheap color TV sets. In 1998, Kangjia and TCL started selling a series of cheap

color TV sets, triggering another round of price war (*ZDB*, April 30, 1999). In November 1998, Changhong suddenly declared that they already bought 70% of domestically produced color CRTs, which they secretly started buying from summer, in order to monopolize more than 50% of domestic color TV market. This action, coinciding with the government's crackdown on smuggling of color CRTs, led to the shortage of color CRTs and rises of their prices (*ZDB*, December 1, 4, 1998). Changhong's challenge to dominate the domestic market failed, however. From April 1999, Changhong, in order to get rid of huge stockpiles, started to reduce the prices of its color TV sets by 15% in average, which led to another price war. The government issued The decree on banning unfair price competition in color TV sets and color CRTs," in order to stop the dumping and monopolistic behaviors of Changhong and other makers (*ZDB*, April 15, 1998). It is noteworthy, however, that Changhong and other companies entered into a price war just a week after this decree took effect.

The price war in color TV market led to the collapse of CRT prices. A 21-inch color CRT cost 980 yuan in 1996, but it fell below 500 yuan after price war broke out in April 1999. With two million units of stockpiles, color CRT makers ran in the red. In June 1999, eight major color CRT makers, including sino-foreign joint ventures, made a joint declaration to stop operation for a month to cease the collapse of CRT prices (*ZDB*, May 4, 1999). At the moment (February 2000), the price war in color TV market is still continuing. In January 2000, Changhong, in order to attack some of its rivals, sold 21-inch color TV sets at the price of 990 yuan in Qingdao.

Because the basic reason of price wars is over-capacity and over-production, it won't cease until some makers stop producing TV sets. The exit process in China is much slower than ordinary market economy, because loose implementation of bankruptcy law allows enterprises to keep on operation even when they are insolvent. Color TV makers can postpone payments to the CRT makers until they have sold their TV sets by drawing bills. And CRT makers in turn can postpone payments for their materials and bank loans. Therefore it is possible to continue producing TV sets for a while even when there are no sales of TV sets. There were four rounds of price wars since 1996, but there still remain more than 90 makers that produce color TV sets in China at present.

Undoubtedly, price wars have brought about a huge increase in consumer welfare. From Table2- 4, we can see that the price of a 21-inch color TV set fell 60% in ten years since 1989. TV makers also competed in the variety and quality of products and after-sales service, further enhancing consumer welfare. In this sense we can say that the transition to market economy of Chinese television industry was a success. But, at the same time, it is true that many people in Chinese television industry and the government are worried about the future of the industry. Price wars may force all enterprises to get into the red, depriving them of the ability to improve technology. The Chinese government still may not call the transition a success, because no maker has become a world giant yet.

Table2-4 Retail price of 21-inch color TV

Year	Yuan
1989	3300
1990	3250
1992	2400
1994	2972
1995	2835
1996	2386
1997	1798
1998	1650
April 1999	1280

(Source): ZDB, various issues

2.2: UNDERSTANDING TRANSITION

With the rapid growth of production, a constant decline of prices, and improvement in quality, we can fairly judge that the transition of Chinese television industry was a success. This experience, I believe, tells us many things about transition.

It is not necessary for the government to have a comprehensive reform plan. Proponents of "big-bang" insisted that there must be a reform-minded government that has the capability to implement reform thoroughly and a comprehensive reform plan in order to make the transition successful (See, for example, Lipton and Sachs, 1990). But in the story of Chinese television industry, we cannot find a reform-minded government, nor comprehensive reform plan, and the government's capability was limited. Rather, most of the Ministry of Electronics Industry's policies on television industry since the reform reflected their intention to maintain and strengthen their control on production, price and distribution. The plan to create a nationwide division of labor for color TV production in the early 1980s, the policy to qualify color TV makers since 1985, the central allocation of CRTs and the tightening of price and distribution control in 1989 are the examples of "market-unfriendly" policies. We can see from the policies that whenever the government faced some kinds of problems, they always thought that planning and control might lead to a better solution than just leaving it to the market.

This is not say, however, that all of the Chinese government's policies after the reform were anti-market. Delegations of rights to local governments and enterprises, price reforms, and enterprise reforms have market orientations. The Communist Party's decision on the establishment of "socialist market economy" in 1993 may be regarded as a comprehensive reform plan. But the study of television industry tells us that when the comprehensive plan appeared the process of transition was already in its final stage. It is noteworthy that major breakthroughs in transition proceeded during the period which the conservatives became politically powerful, propagating anti-liberalization or planning-oriented ideologies, namely 1986, 1989 to 1991.

We can say that the decentralization and reforms provided the precondition of transition, but the liberalization of prices and production, the most conspicuous mark of transition, were not the act of the government. It was the oversupply of products that forced the government to abandon its control on price and production.

Institutional changes under surplus economy. When we review the transition process of monochrome TV sets, color TV sets and CRTs, we find a common pattern as follows: (1) Decentralization induces rampant entry to the industry, which boosts the production capacity of the industry; (2) The macroeconomic austerity policy leads to oversupply and overcapacity of the product. Oversupply makes it difficult and meaningless for the government to hold control on price and production. If the period of oversupply lasts long enough the government will give up its attempt to resume control, and prices and production will be liberalized; (3) At the same time, the distribution system of planned economy collapses. Firms start to develop distribution networks among themselves, which will be more efficient than the system of planned economy.

The emergence of oversupply is the dividing ridge in transition. In a shortage economy, price liberalization will lead to inflation, liberalization of distribution may lead to rampant rent-seeking activities, and the liberalization of the allocation of materials may also lead to inflation or a contraction in the production of end products. Therefore there is a reason for the government to control prices, distribution and the allocation of materials. For example, the rationing system of TV sets using tickets can be regarded as a measure for the equal distribution of products. If the price elasticity of supply is small, the repression of prices and rationing system may increase consumer surplus.

But after the emergence of oversupply, these controls lose their meanings. Price controls become difficult and meaningless, since the prices start to decline. If the materials of production also turn into oversupply, central allocation of them will lose its meaning and collapse. It will become very difficult to earn profit just by changing hands, so the rent-seekers will voluntarily leave the business, and the makers will acquire full autonomy in marketing. The makers will be liberalized from restrictions on production and marketing, but it means that the makers have to pave their way to the market by themselves under unfavorable market conditions. Makers will be pressed to open up marketing routes that will expand their sales and transmit the information of the market most effectively. Makers need to establish their reputation as reliable suppliers, by abiding by contracts and delivery schedules, providing after-sales services, if they want to expand sales. After the collapse of the allocation of materials, makers must find a way to ensure the supply of materials by themselves, and to find the most efficient and reliable material maker. The new networks of distribution of end products, the new relationships between materials suppliers and vendors, and the customs of business, including the most efficient way of payment, which will be developed among enterprises, are the institutions that make market economy work efficiently. Interviews with TV set makers and CRT makers reveal that the formation of these new institutions, or to use the term by McMillan and Naughton (1992), institutional tatonnement, was a time-consuming and troublesome process. These institutions will only be developed by the voluntary action of enterprises. Enterprises will be most likely to take action during the period of oversupply.

The creation of these institutions will help to make the transition process irreversible. Because, by the creation of an efficient distribution network, makers will be sensitive to the changes in market, and the creation of an efficient network of materials and components suppliers will increase the price elasticity of supply of industries. Therefore, with the exception of such products as agricultural products that may be affected by weather, it is unlikely that the shortage of supply will emerge many times in the future. Even if shortage should appear in some sectors, it is unlikely that the distribution system of planned economy will be restored, because it will be less efficient than the existing distribution network.

The creation of the above institutions is an important part of transition. Market economy, unlike the model that is described in textbooks of microeconomics, consists not only of free prices and free trade, but also of various institutions among economic entities.

Transformation of Shortage Economy to a Surplus Economy

1. Preconditions.

Not everything in planned economy is in short supply. Shortage and oversupply coexist in a planned economy. Oversupply in some industries in planned economies, however, will not initiate the transition to market economy. In the case of Chinese electronics industry, the oversupply of electronic parts in the early 1970s did not lead to their liberalization. In both the former Soviet Union and China, the machinery industry usually had huge amounts of production capacity during the era of planned economy, but the industry didn't transfer into market economy. Some preconditions are necessary for oversupply to initiate a process of transition.

First, firms must have the incentive to increase profits or diminish deficits. Otherwise, firms won't care much even if there is no market for their products, and they won't take the trouble to create new institutions. Therefore, decentralization and enterprise reform are the necessary conditions of transition.

Secondly, demand must have price elasticity. If the price level has no relation with demand, the seller won't cut the price even under oversupply. And if cutting prices and cutting distribution costs have no relation with the amount of sales, firms may not cut prices and seek new distribution channels, and destroy the system of planned economy.

The second precondition tells us why the process of transition won't start from capital goods industry. The demand for capital goods is not so elastic, because it mostly comes from state-owned enterprises, which are under soft-budget constraints. By contrast, consumer demand is price elastic even in planned economies. Especially in the case of non-staple consumer goods, such as durables, price elasticity is always quite large. Therefore, under the condition that firms have incentives to increase demand, the oversupply of durables may easily lead to price competition, and hence price liberalization.

2. The creation of surplus economy

In a planned economy, consumer goods are usually in short supply but their prices are high. Therefore by giving firms and local governments incentives and autonomy, investments to the consumer goods industry can be attracted quite easily. Hence the production capacity of consumer goods may expand quickly. But the surge of investments to consumer goods industry may lead to the expansion of aggregate demand, aggravate the shortage of capital goods, and even trigger inflation. Therefore, after successfully increasing investments to consumer goods industry, the government is often forced to adopt macroeconomic retrenchment policy. Retrenchment policy will lead to the oversupply of some consumer goods, which eventually will lead to liberalization of prices and production. After several cycles of overheating and retrenchment, more and more products will come out of shortage. Liberalization of consumer goods industry will stimulate the development of related capital goods industry. The capital goods industry will also, after several cycles of overheating and retrenchment, come out of shortage. Since 1995, almost every industry in China has been facing the problem of over-capacity and over-production. This means that China has already turned into a 'surplus economy.' In real-life market economy, not the market economy in textbooks, surplus capacities and surplus products are very commonplace. It seems, however, the present problem of over-capacity in China is severer than ordinary capitalist economy. The reason of this is that the exit process of inefficient firms is retarded.

It should be noted, however, that the above course of transition is not without risks. Liberalizing investment under distorted prices may lead to the aggravation of shortage of inputs, which may result in little expansion in the actual capacity of consumer goods industry. Furthermore, if we liberalize not only entry but also exit, then the supply of capital goods, which are usually priced low, may be reduced by exit of firms from capital goods industries, which makes the shortage even more serious. Therefore, in process of transition, the government must make efforts to ameliorate the imbalance between various industrial sectors. To relieve the bottlenecks of development, the government can make direct investments, or promote investments, strengthen control by using plans and rectify the distorted price structure. These measures, it is true, are not 'market-oriented,' but these, by helping the economy to get rid of shortage, will prepare the preconditions for the economy to move to a surplus economy.

The proponents of "big-bang" also insist the necessity to reform "shortage economy," but they only talk about suppressing the excess demand and don't talk about stimulating investment and increase supply. They think that stimulating investments under distorted price structure will necessarily aggravate the imbalance of industrial structure. But the Chinese experience tells us that by stimulating investments the imbalance of industrial structure can be improved, and the shortage of consumer goods can be ameliorated. Suppression of excess demand may be necessary, but if there is no increase in supply at the same time, it will lead to the contraction of production and reduce the welfare of the people.

The proponents of "big-bang" believe that without the rectification of distorted price structure by a reform-minded, clever and powerful government, market economy cannot develop healthily. But market economy is something more robust. It can develop even

under distorted prices and interference of the government. The main actors that create market economy are the firms and consumers, not the government.

The government, however, can enhance the function of markets. The current peril of Chinese television industry is caused by the slow exit process of inefficient enterprises. Loose and unclear bankruptcy rules, slow state-owned enterprise reforms and underdeveloped social security system are the reasons that cause the slowness. The government can enhance the effect of market competition by creating rules and systems.

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