BRITISH INTER-UNIVERSITY CHINA CENTRE

The Competitiveness Accumulation of the Chinese Manufacturing

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BICC WORKING PAPER SERIES, No. 8

January 2008

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Abstract

This paper compares and traces the achievements and issues of the competitiveness accumulation of the Chinese automobile and electric home appliance manufacturers. The key research questions of this paper are as follows: How has the actualized difference of competitiveness been caused between the Chinese automobile and electric home appliance manufacturers along with China's joining the WTO? Concretely, what kind of relation exists between the extent of internal competition in each industry and the process of the strategy construction of each leading manufacturer in alliance with external environments factors such as government industrial policies up to now?

Biography

Jin CHEN (China, 19952) is a visiting scholar at Said Business School and Institute for Chinese Studies, Oxford of University from April 2007 to March 2008. He is a professor of Department of International Communication, University of Okinawa, Japan. He got Ph.D. in Economics at Tokyo University in 1999. He spent two years in Wharton School, University of Pennsylvania from 1993 as a visiting fellow and became an affiliated researcher of IMVP at MIT from then on. Jin Chen's current research interest is the enterprises of China and Japan, especially the strategy change and competitiveness accumulation of automobile and electric home appliance manufacturers. He is the author of *The Development Strategies of the Chinese Automobile Enterprises* (Shinzansha Press. 2000, in Japanese) which received Academic Honours of Japan International Business Academics in Oct. 2000, *Capacity of Chinese Manufacturing Industries* (Shinzansha Press. 2007, in Japanese) and over forty papers (including IMVP/MIT working papers) on development strategies of enterprises in Japanese, English and Chinese. From April 2008, Jin Chen will transfer to College of Business Administration of Ritsumeikan University (Japan) as a professor.

The Competitiveness Accumulation of the Chinese Manufacturing

1. Issue and Approach

This paper compares and traces the achievements and issues of the competitiveness accumulation of the Chinese leading manufacturers aiming at the establishment of mass production, which enter into the most representative automobile and electric home appliance industries by taking up China's manufacturing as "workshop of the world" and adaptation of applying the frame of corporate strategy theory.

The Chinese automobile and electric home appliance manufacturers showed up both in the middle of 1950's and the production scale and technological level of automobile manufacturers are advanced than electric home appliance manufacturers in terms of international comparison. The First Auto Works, a medium truck manufacturer with 30,000 annual outputs, possessed a technological level without inferiority compared with the Japanese truck manufacturing at that time. China proceeded for more than 15 years till 1970's in comparison with South Korea without similar scale of automobile factory. On the other hand, the technological level and production scale of electric home appliance manufacturers in a simultaneous period were extremely low, and they did not have the mass production ability of primary electric home appliances such as washing machine, refrigerator & color television till the end of 1970's, which was incomparable with Japanese and South Korean manufacturers. However, the competitiveness of both industries is reversed afterwards and obvious difference has appeared with the industrial protection and policy support of the government through the development of more than 20 years from the opening reform at the end of 1970's till present.

In comparison with 80% domestic share of Chinese domestic brands of refrigerators, washing machines and color televisions, the domestic share of Chinese domestic brands of passenger cars doesn't reach as much as 20% in 2003. Moreover, in terms of overseas export of main electric home appliances in 2004, such as about half of color television productivity, more than 40% of refrigerator productivity, 1/3 of air conditioner, 1/4 of washing machine productivity are exported, which the export of completed automobile accounts for only 2% of domestic productivity. Nevertheless passenger cars are hardly exported. The Chinese electric home appliance manufacturers are active in making inroads into foreign markets one after another and starting their local production & the establishment of sales network making along with China's joining the WTO and the globalization of economy. In contrast, the Chinese automobile manufacturers, especially the passenger car manufacturers evade direct competition with foreign manufacturers, and pursuit for new alliance with foreign enterprises as partners that have advanced to China instead.

Of course, because the manufacturing architecture is different between automobile and electric home appliance, the time spent in the ability accumulation of enterprises concerning development and production is various as well. For instance, in terms of business architecture, the relation between the function of the product architecture and parts module is 1 to 1, which is classified into clear modular architecture and integral architecture with complex integration between function & parts groups (Ulrich [1995], Fine [1998], Fujimoto [1998], and Baldwin and Clark [2000]). The modular production of washing machine, refrigerator and television do not require high knowledge, the extremely high ability accumulation is essential like the typical integral production of passenger car. However, even though the establishment of the mass production system of Chinese automobile manufacturers was in the middle of 1950's, which was almost 30 years early than electric home appliance manufacturers, the actual overseas export of automobiles is more than 15 years later than electric home appliances. The business architecture approach do not clarify the reason why the Chinese automobile manufacturers fell behind the late-started electric home appliance manufacturers so much despite of its early development in comparison with the actual simultaneous starting of overseas export of Japanese and Korean products.

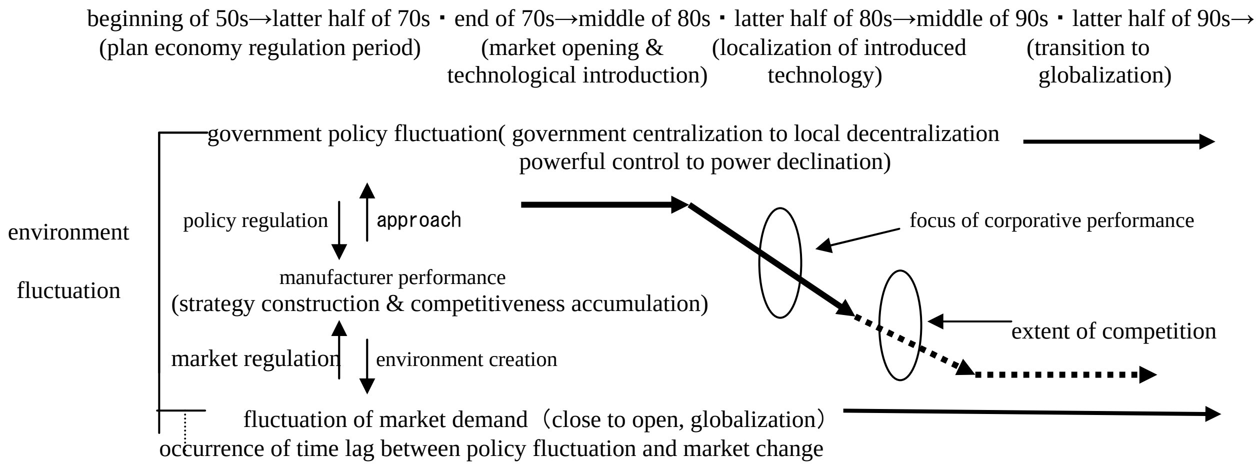
Based on the above recognition, the key research questions of this paper are as follows. How the actualized difference of competitiveness has been caused between the Chinese automobile and electric home appliance manufacturers along with China's joining the WTO and what are the factors? Concretely, what kind of relation exist between the extent of internal competition in each industry and the process of the strategy construction of each leading manufacturer in alliance with external environments factors such as government industrial policies up to now.

Corporate strategy is the basic policy of enterprises performance conducted within the acceptable risk range according to the synthetical judgment on market opportunity and self management resource, which is formed by interactions between various factors within enterprise and external environment factors. On the other hand, management resource and capacity have the distinctiveness of the accumulation specificity occurred in the historical development process of enterprise and peculiar competition pattern of enterprise. Due to the limitation such as improper reverse-change of environment and the speed of resource and capacity construction, the strategy formation has the feature of route reliance.

The Chinese economic ambience is not a pure market economy which locates at the time of transition from government plan management to free competition market for more than 20 years, unlike EU, USA and Japan. Therefore, the strategy performance of the Chinese enterprises underscores "operations on two sides. at the same time in alliance with the fluctuation of the government policy and market environment in the fiercely changing economic ambience as shown in Figure 1. More attention should be paid on the dynamic responses of the Chinese enterprises, such as environmental creation, ability accumulation and organization inertia abolishment activities (rigidity of existing routine).

FIGURE 1

Analysis Frame: Adjustment Process of the Chinese Manufacturer Performance from policy-orientation to market orientation



Source: by the author of this report

In terms of the external environment of the Chinese automobile and electric home appliance industries up to date from the establishment of the People's Republic of China in 1949, 4 periods can be divided (1)plan economy regulation period from the beginning of 1950s to the latter half of 1970s (2)market opening & technological introduction period from the end of 1970s to the middle of 1980s (3)localization of introduced technology period (import replacement)from the latter half of 1980s to the middle of 1990s (4)transition to globalization period from the latter half of 1990s.

Each manufacturer had to follow national plan and conduct its production activity with its growth suppressed by the consumption goods control policy of the government despite of the seller’s market of electric home appliance and automobile manufacturers for more than 20 years until the latter half of 1970's. The manufacturers tried to increase their production capacity greatly and expand their market share with the government localization policy (import replacement) from the latter half of 1980s to the middle of 1990s. In addition, upgrading & diversification of development & sales level are accomplished along with China’s joining the WTO from the latter half of 1990s which becomes the performance focus of automobile and electric home appliance manufacturers.

The government regulation to Chinese enterprises declines gradually with its transition from the center to the local in alliance with the fluctuation from the plan regulation of external environment to market competition. On the other hand, the market environment evolves from close to open and develops into the globalization, and its influence upon enterprises becomes more and more powerful. In such an environmental fluctuation, corporative performance adjusts its orientation gradually, and begins to shift its focus from the approach to the government to the adjustment to the market change.

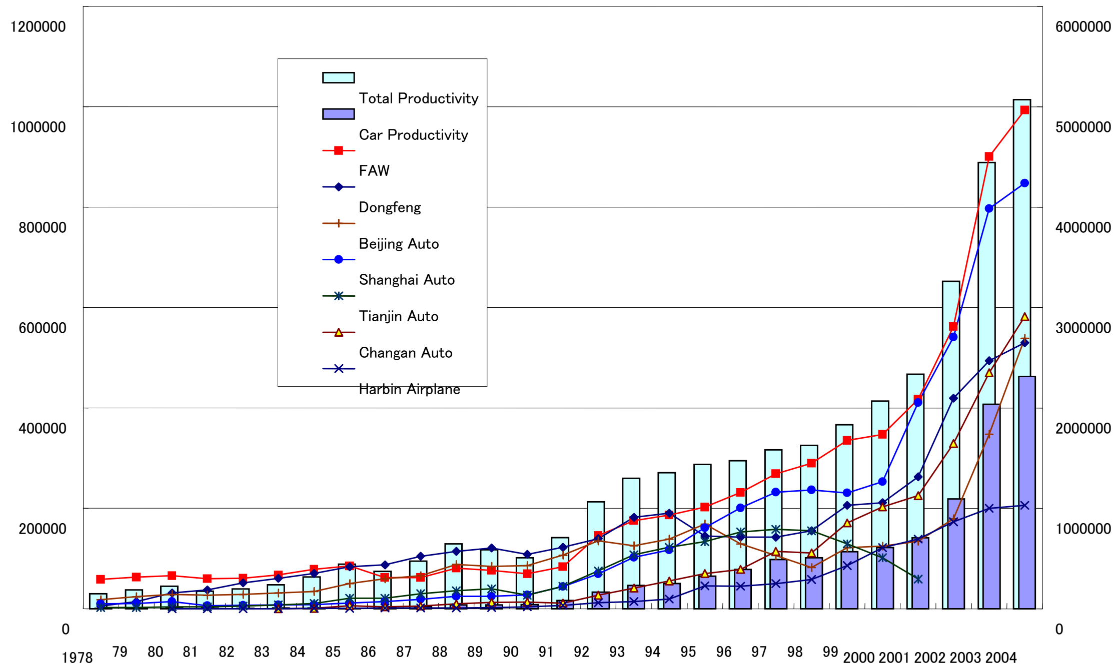
2. Competitiveness Accumulation of the Chinese Automobile Manufacturers

From 1990’s, the rising Chinese passenger car industry as rapid growth field both in production and market has attracted worldwide attention. Chinese total passenger car productivity takes 50% currently in 2004 instead of taking 10% in the beginning of 1990’s and emerges into main competition front among automobile makers (Figure2). Even though the automobile architecture has been shifted into integral in developed countries, the modular change and research development in China have been delayed without the competition pressure and the ability accumulation of integral architecture has not been improved. The competitiveness accumulation among the Chinese automobile manufacturers will be analyzed, focusing mainly on the rapidly developing passenger car segment and the commercial vehicle section later.

FIGURE 2

Production Volume of Leading Manufacturers in the Chinese Automobile Industry (1978-2004)

For each manufacturer national total productivity



Source: "Yearbook of the Chinese Automobile Industry" of each year edition,
"Reference Materials of the Automobile Industry Development", 1992.
Note: The volume of each manufacturer includes the productivity produced by joint-venture manufacturer.

Several trial constructions of automobile manufacturers in China were undertaken before 1949 and all ended with failure. While, automobile repair shops and parts factories existed mainly with the following two types. The first type was established in eastbound (coast areas) metropolitan cities evolved by the introduction of equipment and technique from Western or Japanese companies along with the transportation development from the beginning of this century. The Second type was established in westbound (interior areas) with the eastbound transfer of automobile factories due to the Sino-Japan War. The development of the automobile industry of New China (PRC) has based on the proceeding foundation.

2.1 Formation of Industrial Architecture of Major Manufacturers (the beginning 1950's ~ late 1970's)

At time when new China was just established, the nation-construction was focused on the heavy industry and the construction of the heavy industrial projects was put into practice. Due to the bottleneck by transportation ability shortage, one important issue of the central government came to be a promotion of automobile industry, as while as strengthening the railway transportation ability. Mao Zedong visited the Soviet Union in December 1949, conferred with Stalin, and decided over 156 assistance programs of industrial construction toward China by the Soviet Union. The construction project of the large-scale automobile working place (later First Automotive Works=FAW) was included in the long-term loans by the Soviet Union.

To take precautions against the war against U.S. or Soviet, the central government was advancing the construction of automobile related factories in the inland such as the Second Automotive Works (later Dongfeng) in the middle of 60's. The central government was promoting the investment policy that consistently almost centered on truck (especially on medium truck) from the beginning of 50's to the end of 70's, concerning the model policy. FAW had submitted model change plan of medium truck to the government several times by the end of 70's, which was rejected every time by the government due to the potential competition with Dongfeng's product (The Reform and Research Group, the Development and Research Center of Economy, Technology and Society of the State Council, pp.4-5, 1988).

From the end of 1950's, small- scaled automobile factories were established under the leadership of local government due to the insufficient supply of vehicle models except midsize truck. Therefore, the structure of three layers was formed by the end of 70's as for the Chinese automobile industry with 55 set manufacturers already advanced, i.e. giant manufacturers such as FAW and Dongfeng, mainstay manufacturers such as Shanghai Automobile(passenger car), Beijing Automobile(jeep), Nanjing Automobile(small truck) and Jinan Automobile(large truck) and local small manufacturers locating in Tianjin, Shenyang, Guangchou, and Wuhan.

All were state-owned enterprises though auto works were divided into major manufacturers that belonged to the central government and small or medium-sized manufacturers that belonged to local government. Because all processes from establishment to the expansion of production had been both assisted by the investment of the government, the dependency to the government investment (="plan and policy of government") was quite high. Moreover, each auto manufacturer merely received the plan instruction of the government, conducting neither development nor sales of products at all, and functioned merely as a production factory. The development plan of auto manufacturers in the whole country had been almost decided on by the central integrated section (the Industrial Automobile Department of the First Machinery Ministry= industrial commanding tower). Moreover, FAW and Dongfeng had been treated as key enterprises of the nation over many years and many of their executives had been appointed by the central government, with a strong relation to the central government, especially strong personnel relation with the automobile management office.

In the middle of 1950's, FAW introduced automobile mass production management system from the Soviet Union, and initial production capacity reached 30,000 annual outputs. Dongfeng which was established from the end of 60's to the middle of 70's, copied the mass production system of FAW, and already owned the production capacity of 25,000 four-wheel drive trucks in the middle of 70's. “Changchun Automobile Research Institute” which directly belonged to the First Machinery Ministry and is the biggest automobile development institute in China. Some technicians of the institute were transferred into Donfeng in 1960’s, and the institute was integrated into FAW in the end of 1970’s.

According to Chairman Mao Zedong's instruction, FAW trial produced “Red Flag”, SAW produced “Shanghai” and Beijing Auto produced “Dongfanghong” passenger cars for a minimum number of high-level executives by imitating foreign models from 1958. The Beijing Auto cancelled the production of passenger cars later in compliance with the demand of military leaders, and converted to making for trial production of military jeeps.

2.2 Technical Introduction of Complete Models and Rapid Increasing of New Production Participation (the end of 1970's ~ the middle of 80's)

The demand for vehicles has increased rapidly according to the opening reform from the end of 70's because of economic development and the expansion of the range of transportation. The central government gave priority to the plan investment to the central large enterprises like FAW and carried out division & diversification policies promoting FAW “downgrading”(small truck) production and Donfeng “upgrading”(large truck) production after 1982[1]. At that time, Donfeng proposed its small truck marching plan encouraged by its success in midsize truck, but it was rejected by the central government. The central government persistently insisted on its policy avoiding the competition between the two large makers.

Moreover, the gap of Chinese automobile technique level with developed countries was apparent along with the increasing of imported cars due to the opening policy. In order to amend the technique gap, the central government approved joint ventures of Beijing Automobile with America's AMC(1984) and Shanghai Automobile with Germany VW(1985). Furthermore, in order to improve the performance of the "Red Flag", the government began to negotiate with Bents in importing completed cars or CKD parts and encouraged FAW's further development. Despite the increase of passenger cars needs, the central government did not entirely carry out mass production plan. The technique innovations of "Red Flag", "Shanghai" and "Beijing Jeep" were merely applied to satisfy former users' needs of central government, local government or military leaders.

In the first half of 80's, the entry boom of models appeared, especially the light truck and mini vehicle by local enterprises and munitions enterprises other than medium truck. The number of set manufacturers doubled to 110 companies or more (entire state-owned enterprises) in the middle of 80's compared with 55 companies at the end of 70's. However, giant manufacturers, mainstay manufacturers and small manufacturers, so called the structure of three layers hardly changed though the number of set manufacturers doubled. The production capacity of most local and munitions enterprises were still suppressed to low-level extremely by the policy of the licensing-in limitation and the emphasis investment of a central government.

While, Japanese main passenger car manufacturers began to make success over this time when competing in an American market, and it was impossible to correspond to the cooperation request of Chinese manufacturers seriously yet. In order to fight over the market in Asia Pacific region rivalry with Japanese manufacturers, VW of Germany started advancing into the passenger car production in Shanghai over that time.

The market share of FAW has decreased gradually due to the new entry of local enterprises

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[1] At the some time the central government applied the policies of evolving restriction and production centralization referring to the automobile production participation of local and munitions manufacturers. On the other hand, the amount limit of fixed assets investment(10 million RMB) approved by each province government was not enough at all for the factory establishment of mass production of automobile till 1984.

and munitions enterprises. On the other hand, due to the rapid decline of military order influenced by cold war relaxation, Dongfeng developed its new midsize truck into market. From 1980's, FAW fell into severe sales depression with direct competition with Dongfeng. As a result, the postponed model change plan of midsize truck was finally approved by government. As a result, the government clearance was finally obtained at for the model change plan of medium truck that was not able to be accomplished for years.

On the other hand, the local auto manufacturer's intrusion and technical introduction of auto models other than medium truck advanced under the support of local government through the expansion of the structure reorganization and corporate autonomy. For instance, Shanghai Auto, Beijing Auto, Tianjin Auto and Guangzhou Auto persuaded the central government with the help of local government and promptly entered the production of passenger cars starting from a small amount cooping with the market fluctuation. However, because most models fell into insufficient supply condition due to the import limitation and increasing demand, the manufacturers made no effort in automobile market research and management improvement.

FAW and Dongfeng recognized the competition for medium truck was very essential in the acquisition of government projects, which was important for corporate growth. Therefore, Beijing office which located close to the central government was strengthened and the top administration personnel concentrated on the direct connection with government VIP. On the other hand, local automobile manufacturers strengthened the relation of cooperation and interests with the local government through the fiscal reform and the corporative organization reform, and extended negotiation activities to the central government together with the local government.

2.3 The Entry Limitation and Competing Exclusion of Passenger Car Production (the latter half of 1980's ~ the middle of 90's)

In the middle of 1980's, passenger car importation increased rapidly along with economy evolvement. The central government transferred its priority of automobile industry to passenger car from truck, protected passenger car market by high tariff[2], restricted new

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[2] According to Automotive Industry Bureaus of the Ministry of Manufacturing Industry and China Automotive Technology Research Center, [1996]pp.76, the tariff rate of the gasoline passenger car with more than 3L displacement and the diesel passenger car with more than 2.5L became 220% (150% afterwards), and the tariff rate of the tariff rate of the gasoline passenger car with less than 3L and the diesel passenger car with less than 2.5L became 180% (110% afterwards), while the

manufacturer, submitted entire preferential treatment and promotion policy to the selected automobile manufactures, investigated its industry policy[3] for promoting car localization in order to prevent limited foreign currency from being flew out.

In 1987, the central government submitted the strategy to promote the evolvement of automobile industry by investing funds mostly in FAW and Dongfeng. Moreover, in December 1988, the State Council proposed 6-company policy, so called “Three Big” passenger car production bases of FAW, Dongfeng and Shanghai and “Three Small” bases of Beijing Automobile, Tianjin Automobile and Guangzhou Automobile with technique introduction already. Including the munitions manufacturers of Guizhou Aviation and Changan Machinery added in 1992 later, 8-company system so call “Three Bigs, Three Smalls and Two Minis” of Chinese vehicle manufacturers were formalized.

Regarding the production model of manufactures entering passenger car production, the central government originally laid down its production policy depending on each segment, such as one model for one manufacturer based on engine displacement. For example, Cherokee of Beijing Automobile for 2.46L (L=liter, indicating engine displacement), small Red Flag of FAW for 2.2L, Peugeot of Guangzhou Automobile for 1.97L, Santana of Shanghai Automobile for 1.78L, Jetta of FAW for 1.56L, Citroen of Dongfeng Automobile for 1.36L, Charade of Tianjin Automobile for 0.99L, Alto of Changan Automobile for 0.79L, and Subaru of Guizhou Aviation for 0.54L. The government insisted on the national combination of all manufacturers and the serialization of all introduced automobile models, sharing all parts without mutual competition.

The frame of investment, called as "Five Year Plan" and the construction policy of "large lot" put out by the central government took long time to catch up with the market change corresponding to the vigorous needs for passenger cars, such as for taxis and specified cars for government use in various places. On the other hand, late evolved local manufacturers and munitions manufacturers entered and evolved actively by utilizing the difference of the time of the investment decision of government. However, late evolved manufacturers had to concentrate on the scale expansion little by little with the obtained fund under the restriction of the investment policy by the central government and grew up gradually.

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import tariff rate of truck less than GVW14t was 50% till the end of 1993.

[3] Referring to the parts import of automobile parts introduced by domestic car manufacturers, all tariff rates were settled 50% in the initial 3 years after the issue of tariff rate policy. The tariff rate becomes 48% in case of the localization rate between 40% and 60%, and the tariff rate becomes 32% in case of the localization rate between 60% and 80% after the 4th year. The tariff rate becomes 80% if the localization rate is less than 40%.

Therefore there were no direct competition among manufacturers in the Chinese passenger car market till the middle of 90's with the short supply of products and government competing evasion policy. The tendency of the foreign manufacturers in the Chinese market at this time was that European manufacturers especially VW were still remarkable only besides GM began to advance to Shanghai winning through Japanese manufacturers. Being defeated by Japanese manufacturers in the American market, VW was positively extending its intrusion strategy to China, established a joint enterprise with FAW, following the Shanghai Automobile and expanded its production of passenger cars with steady steps in the protected Chinese market[4].

The passenger car market had been protected by a high tariff of the government, so the domestic passenger car manufacturers were enjoying a high profit by the protection policy. Shanghai Automobile and Tianjin Automobile evolved with immediate investment occupied the top two positions by their snowball growing productivity till the middle of 90s corresponding with the short supply of market. Moreover, the models of Jetta of FAW, Citroen of Dongfeng, Alto of Changan Automobile had not been mass-produced yet, while Santana of Shanghai Automobile, Charade of Tianjin Automobile, Audi of FAW and Cherokee of Beijing Automobile were released in the passenger car market. Because there was no direct competition among model vehicles, each manufacturer only focused on the government approval and the enlargement of productivity instead of the improvement of quality & performance of their products and model change.

Leading automobile automakers had evolved their own technology in the commercial vehicle segment of medium and mini truck, while in passenger car segment did not have the development ability due to a high profit under the protection of the government and relied on foreign partners in their model change. There was not so much pressure to the improvement of production management and the quality control because of less direct competition among manufacturers. Most parts suppliers were delivering their products to a completed vehicle manufacturer without any competition excluding some parts suppliers related to Shanghai VW and the level of the technology was out-dated, even though each passenger car manufacturer evolved its parts localization with the backup of the government policy.

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[4] Moreover, French Citron established a joint-ventured with Dongfeng, strengthening its fundament in the Chinese market.

2.4 Impact of Joining the WTO and the Market Globalization (the latter half of 1990's ~)

The central government announced its automobile industrial policy for promoting the production of passenger cars from the two aspects of quantity and quality, and began to lower the import duty rate of passenger cars in preparation for joining the WTO (World Trade Organization) in 1994[5]. The government began to reorganize its automobile administration sections and adjust its management system in preparation for joining the WTO. However, it was difficult to conclude that all manufacturers had been treated equally since the automobile industrial policy of the central government declared the emphatic support for the former large-scaled state-owned manufacturers such as FAW, Dongfeng and Shanghai Automobile. Especially, the restriction of the central government to the new entry of the passenger car production was usual fiercely for a late-started manufacturer like a hurdle not easily to be exceeded easily.

The multinational automobile manufacturers positively entries to China and concentrates on the joint venture of passenger cars from the middle of 90's while aiming at the Chinese opened market. A keen price competition began to evolve among manufacturers of passenger cars when entering after 2000. Even though the new model vehicles of 30 ~60 were released annually in the Chinese market between 2001 and 2003, the setup price were mostly low. However, the Chinese domestic brand was quite limited with less than 20% among domestic share in 2004 currently. Moreover, those models were produced by the late-evolved manufacturers that mostly evolved after the middle of 90's, and the “Red Flag” of FAW has not reached 1% of the total passenger car production among the domestic brand vehicles produced by FAW, Dongfeng and Shanghai Automobile, so called “Three Bigs”. Moreover, the Chinese domestic vehicles especially the passenger cars were almost consumed domestically, and seldom were exported.

The leadership of the Chinese market gradually shifted to foreign manufacturers along with joining the WTO and the globalization. In order to avoid the risk of relying excessively on only one foreign venture partner, “Three Bigs” tried to connect the association with plural partner, but they failed to adjust the interest relation among cooperation partners and finally reorganized their structure under the leadership of foreign venture.

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[5] The tariff rate of the imported completed cars became 110%~150% from Jan. 1, 1994, while it used to be 180%~220% before.

On the other hand, manufacturers such as Harbin Airplane, Changhe Airplane, Nanjing Automobile, Chery, Yueda, Geely and Huachen newly evolved into the production of passenger cars around 2000, and broke down the system of eight companies of "three Bigs, three smalls and two minis". Moreover, the group, rural and private manufacturers such as Geely, Chunlan, Huachen evolved into the car production which kept destroying the state that had been monopolized by the state-owned manufacturers for years. The late-evolved manufactures such as Chery, Geely, Harbin Airplane and Foton began to grow up steadily by releasing low-priced products and expanding their sales by a flexible strategy.

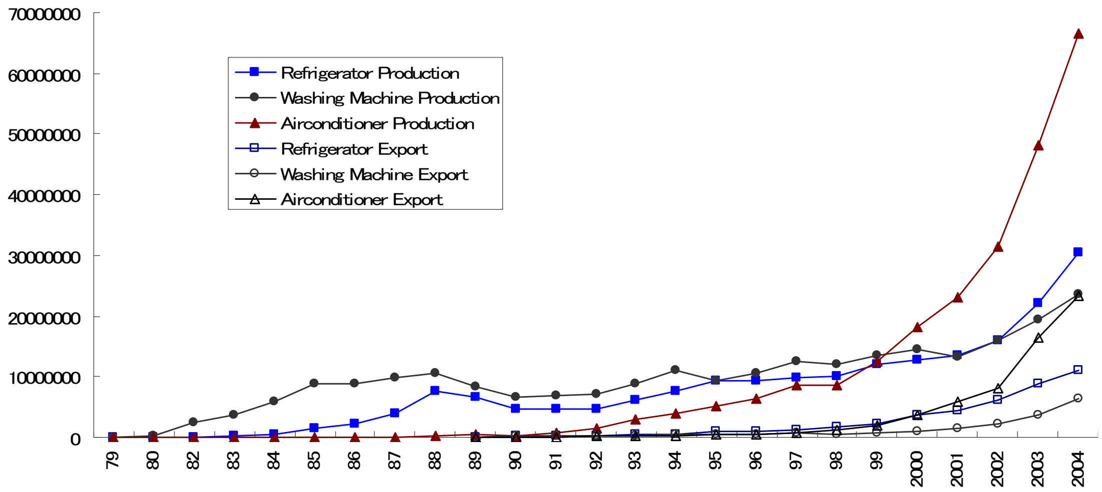
The manufacturers of “Three Bigs” released their introduced foreign model cars in the market and seldom invested in the R&D of passenger cars, even though they pursued their protected monopoly profit. Therefore, the consequence of neglecting the cultivation of the independent development ability led to the flowing out of R&D personnel. On the other hand, the late-evolving passenger car manufacturers such as Chery, Geely and Huachen positively accepted the technology and personnel of "Three Bigs". While the Chinese late-evolving manufacturers such as Huachen, Harbin Airplane, Geely, Chery named purchased foreign models cars with Chinese-style and external mini change by adaptation of foreign designers, and released new models in the market one after another by imitating foreign cars positively. Appeal cases of damaging the intellectual property right occurred one after another.

3. Competitiveness Accumulation of Electric Home Appliance Manufacturers

The Chinese electric home appliance industry chiefly indicated refrigerators and washing machines as white items, and the black items such as televisions were admitted as "electronic items". Because the national management system also classified the white item as electric home appliance item, black item as electronic item, and the production plan had been scheduled in a separate route till 1990’s, the papers discussed the two items separately are abundant so far. Hereby, this chapter will observe totally the competitiveness accumulation of the Chinese electric home appliance manufacturers evolved by severe competition, focusing mainly on white electric home appliance and partially on black electric home appliance.

FIGURE 3

The Transition of Productivity and Amount of Export of Chinese Leading Electric Home Appliance (1978-2004)



Note: The amount of export begins after 1989.

Source: "China's Light Industry Yearbook]" of each year, "China's Statistics Yearbook" of each year.

Most consumer electronic production was blank before the establishment of the People's Republic of China in 1949. Although 20 thousand fans and 70 thousand electric irons were produced mainly in the coast large cities such as Shanghai, Nanjing, and Tianjin in 1949 in the whole country around, almost all other electric home appliances did not exist. The electric home appliance industry of new China started evolving upon these bases.

3.1 Scattering of Small-scale Manufacturers and their Weak Production (the beginning of 1950's ~ the latter half of 1970's)

The evolvement of household electronic industry was limited by the central government due to some circumstances such as the shortage of power supply and low level of household consumption under the priority industry policy for the evolvement of heavy industry after the establishment of the new China. The small productivity was mainly commercially used for enterprises, hospitals, shops and was not consumed for individuals or household. The central government was giving its priority to the evolvement of munitions electronic items more than household electronic items. However, the disparity in technology with advanced countries kept expanding in respect of household electronic industry because the application in general industries had lagged behind by preceding evolvement in a narrow area for munitions.

The production of small electric home appliance products such as fan, electric iron and electric stoves evolved gradually after the establishment of New China in 1949, and electric home appliance manufacturers started their trial production of electric home appliance products with comparative complex structure. Shenyang Medical Treatment Machinery trial produced its refrigerator utilizing original open type compressor in 1954 and Tianjin Medical Treatment Machinery trial produced its refrigerator using close type compressor in 1955. However, there were only 150,000 refrigerators produced in all China within 23 years from 1955 to 1977. Concerning washing machine, despite of the trial productions in Shenyang in 1962 and Shanghai in 1965, both did not accomplish their mass production until 1977. Tianjin Wireless Factory which trial produced its first vacuum tube white and black television in 1958, succeeded in trial making the color television for the first time in 1971 but its annual production was only 3,800 units in 1978.

The central government did not conclude the production of white electric home appliances within the range of plan commodity, and did not establish integrated management section until 1977 either. Because the electric home appliance manufacturers that lay scattered in various places and their production scale was very small, they handled with all processes from the assembly of completed products to part production and the manufacturing efficiency was low because of self parts production. These small-scale enterprises did not have personnel relation with the government and not expect to obtain the investment and project from the government either. They fully utilized the balance of the investment of big enterprises and decentralized resource with local level, and supplemented the field that the big enterprise was unable to cover in compliance with various local needs.

Local small and medium-sized electric home appliance manufacturers without product development ability could only copy the products of foreign manufacturers and domestic companies under the planned economy system and made their self-help effort, corresponding to the local needs even confronted with difficult conditions on capital, equipment, and human resources.

The Chinese electric home appliance manufacturers had not introduced the mass production method and the process from parts manufacturing to the assembly of completed product was all by hand work in small production till the end of 1970's. Electric home appliance manufacturers owned their special repair team for years due to the unqualified products and they had to keep repairing always since a lot of breakdowns appeared after their products were released in the market once.

3.2 New Entry of Many Manufacturers and Technical Introduction Boom (the end of 1970's~the middle of 1980's)

The most part of market was still occupied with the imported product though the consumption of electric home appliance such as the color television, refrigerator & washing machine began to rise rapidly from the end of 1970's, and the productivity and amount of sales of domestic manufacturers almost doubled every year. The central government supported the development of the consumption goods industry especially the production of new consumption goods and enacted the priority policies relating to the raw material and project, by adopting the policy of tightening the import of durable consumption goods afterwards at the same time. As a result, a lot of manufacturers including munitions enterprises began to enter the production of electric home appliance.

However, the trend of the enterprise entry and the extension of production capacity in electric home appliance industry had greatly exceeded the “reasonable” range that the government had expected at first, the government came up with the policy of limiting the new entry at once. However, the local government and local enterprise started from available technology and small-scale production, expanded their production scale along with the investment in different steps by avoiding the limitation[6] of the central government.

The profit margin of each electric home appliance manufacturers at that time was considerably high because of the short supply of product. Such an obvious existence of huge demand and a high profit margin strongly caused the new entry. Moreover, because the enterprises of electric home appliance industry started from small-scale assembly, the necessary amount of investment was not large. Due to the rapid increase of new entry, the number of refrigerator manufacturers increased greatly from 20 to more than 110 in 1985 compared with the numbers in 1978, the number of washing machine manufacturers increased from 4 to 180, and the number of television manufacturers increased from 63 to more than 80

[6] The investment limitation of fixed assets approved by provincial-level government was 10 million RMB till 1984, and the limitation was up to 30 million RMB afterwards（Kawachi and others[1998]pp.112）。

respectively.

Moreover, the policy of granting the manufacturing know-how and equipment that took instead of the import of completed product import, which worked out by the government, caused the boom of introduction of electric home appliance works from advanced countries starting with Japan. In 1985, the productivity of color television reached 4.35 million units with its production capacity of 17 million units, the productivity of refrigerator reached 1.45 million units with its production capacity of 13.5 million units, the productivity washing machine reached 8.87 million units with its production capacity of 12.38 million units.

The state-owned manufacturers that had converted from former machinery and munitions industries became the existence that supported the half range of refrigerator and washing machine industries in the early 1980s. A lot of collective enterprises and rural-owned companies had entered the electric home appliance industry at this time as well besides the state-owned enterprises. In the refrigerator industry, non-state-owned enterprises occupied about 1/4, and occupied almost half in the washing machine industry[7].

Because the technological base of state-owned enterprises that had entered from machinery and munitions industries was stronger than that of collective enterprise and rural-owned manufacturer, there were many cases of production entry of electric home appliance products with comparatively complex structure. As for the production of collective enterprises and rural companies concentrated chiefly on products with comparatively easy products structure such as washing machines and refrigerators.

Moreover, the advancement of foreign enterprises was not so active because of the problems such as the unqualified maintenance of infrastructure and related legislation till 1980s. The investment of each Japanese electric home appliance manufacturers toward China was quite limited, and the local production of color television was only two joint enterprises, one was Hitachi Ltd. Co. (with Fuzhou city in 1981) and the other was Sanyo Electric Co. (with Shenzhen city in 1984).

Because the local government obtained the capital power could supported the project introduction and the accomplishment of the goal production scale of electric home appliance enterprises according to the reform of financial system, electric home appliance manufacturers began to put their main effort in the persuasion of local government and the

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7 The employee of the collective enterprises increased up to 170,000 compared to 20,000 employees of state-owned enterprises in the manufacturers of electric home appliance and the parts suppliers that belonged to the Ministry of Light Industries in 1985 (*Chinese Light Industries Yearbook in 1986* pp194).

acquisition of project investment & local market. The competition among enterprises was not so much in the market of short supply, and each manufacturer was concentrating only on the early stage of technological introduction and production. The electric home appliance manufacturers did not concern their quality control in their oligopolization at all.

3.3 Rushing into Competition Period and the Rapid Growth of Late-started Manufacturers (the latter half of 1980s~the middle of 1990s)

The central government fiercely limited the number of entry manufacturers while protecting its domestic market by a high tariff[8], and carried out the policy to promote the localization of electric home appliances by offering preferential treatment policies in each respect to the specified state-owned manufacturers in the 7th Five-year Plan started from 1986[9]. On the other hand, the number of appliance manufacturers hardly declined but increased instead since the middle of 1980s along with the promotion of local financial contract system and the expansion of corporate sovereignty[10] despite of the limitation policy of electric home appliance manufacturer by the central government.

The market with excessive supply got reduced at a dash influenced by the macro economy tightening policy after 1989, the competition was intensified due to the increasing stock. More than half of production facilities of refrigerator and washing machine industries became unemployed from the end of 1980s, and 1/3 manufacturers fell to deficit operations. Electric home appliance manufacturers rushed into selection age from expansion age of scale due to the excessive production. The manufacturers with weak competitiveness were driven in to a halt in production and a corporate lockout, with many cases of merging into powerful enterprises, and the number of enterprises began to decline.

Non-state-owned enterprises such as some new collective enterprises and rural enterprises continue to advance into electric home appliance industry in the intensified competition of electric home appliance industry. The late-started enterprises not only

8 For instance, the tariff rate of washing machine, color television and air conditioner was increased from former 70%~80% to 100% in the latter half of 1980s.

9 Because the main parts such as cathode-ray tube in color television industry and compressor in refrigerator industry were in the short supply over a long period of time until the end of 1980s, the allocation system was taken by the government. In the allocation, the priority was submitted to the government specified manufacturers in proportion and the allocation was carried out according to the ratio of the productivity of each manufacturer.

10 The investment margin of fixed assets which local government at the conserved level could authorize was increased to 30 million RMB from 10 million RMB, and the authority frame of project review and authorization concerning the technical introduction was increased to 5 million dollars from 1 million dollars(moreover to 10 million~30 million dollars in 1988) in 1985.

concentrated on their production, but also were active in the construction activities on their own sales network which focused on sales of products as well unlike forerunner enterprises. Since the middle of 1990s, some of collective or rural enterprises among late-started manufacturers such as Haier, Changhong, TCL, Konka, Kelon, Gree, Chunlan, Midea, Galanz, Royalstar and Little Swan made conspicuous figure and climbed up to high ranking by taking instead of fore-developed state-owned enterprises.

As a result, a lot of state-owned “specified manufacturers” appointed by the central government disappeared from the high rank in the middle of 1980s. Some of “specified manufacturers” with poor management achievement sold themselves and were merged & abolished by non-state-owned enterprises, or survived as joint enterprises in alliance with foreign manufacturers (Foreign autonomous investment was not permitted) which advanced to the Chinese market.

The competition focus among enterprises in electric home appliance industry shifted to the quality improvement of product, development ability of new technology and service level before and after sales, by which the expansion of market share was expected. Some of Chinese powerful giant manufacturers achieved constant level of after-sales service, visiting repair service within 24 hours or 48 hours for instance, and improved their service level further, such as feeding back and improvement of consumers, notification and strict observation of visiting repair manual, repair guarantee of product according to competition intensification in the end of 1980s.

The products of Chinese domestic giant manufacturers exceeded the imported products at the level of service even though domestic products equaled with imported products in respects of quality and technological level in the middle 1990s. Moreover, domestic products were exported in large quantities.

3.4 Globalization of Competition and Overseas Advancement (the latter half of 1990s~)

Along with the entry into the WTO, the government reduced the import tariff of electric home appliances one after another from the middle of 1990s. Moreover, the government executive organization to electric home appliance enterprises was gradually abolished. Therefore, the participation of the government in electric home appliance enterprises was weakened and became impossible in fact to affect all individual problems such as price reduction of electric home appliances. On the other hand, the electric home appliances purchased at the high growth period of market in the latter half of 1980s entered into upgrading period, and consumers increased their demand for the performance and quality of electric home appliances and became sensitive to any new function from the latter half of 1990s.

The foreign new entry increased from middle of 1990s aiming at new needs, and the excessive production capacity expanded further additionally. The share of Chinese electric home appliance brands that occupied the domestic market kept expanding from the beginning of 1990s. The share of domestic production refrigerator reached to 94.6% in 1997, washing machine reached 85.4%, and color television reached 80%. Afterwards, the shares of Chinese product brands such as color television, refrigerator, washing machine, air conditioner, and microwave ovens still maintained high level of 70%~90% though the offensive of foreign multinational enterprises became powerful, and domestic share of Chinese brands fell down somewhat. The productivity of domestic washing machine, refrigerator, color television and domestic air conditioner already reached peak-level in the world in 1996, and their amount of sales occupied the third position following the United States and Japan. The export began to increase rapidly along with the reduction of import of electric home appliances from the end of 1990s.

The withdrawal from electric home appliance industry of government capital accelerated along with China's joining the WTO. The electric home appliance manufacturers expanded their diversification strategy of product and management, exceeding their industry boundary between white item and black item electric home appliances with mutual entry and penetration. The competition within industries that had already intensified became more severe due to the mutual penetration among industries, which accelerated merger and acquisition among enterprises, and formed huge manufacturers that held high ranking productivity with plural electric home appliances one by one, like Haier, Kelon and Chunlan, TCL and Midea that extended many regions.

Moreover, the leading electric home appliance manufacturers established a lot of their overseas production bases in the United States, Europe & Asia and expanded their local production, as well as expanding their export to foreign countries. Furthermore, the leading electric home appliance manufacturers attempted to expand their tie-ups with foreign multinational enterprises, and tried themselves for product evolvement and globalization in foreign countries, and began to challenge international competition actually.

The Chinese electric home appliance manufacturers executed the reward & punishment system as well as strengthening their inner management and introducing the operation division system. Moreover, Chinese electric home appliance manufacturers utilized an outside talent resource in alliance with universities and national research institutions as well as enhancing their own R&D organizations, corresponding to severe market competition. The technological level of Chinese electric home appliances had already approached the world advanced level by technological introduction from advanced countries and strengthening their development ability.

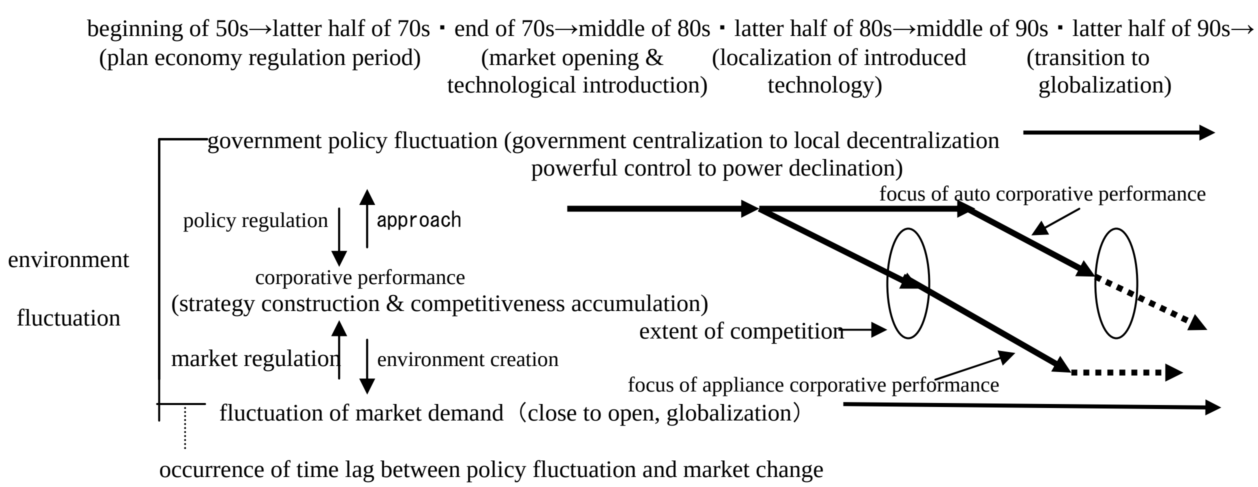
4. Conclusion

At the beginning of this paper, the issue was proposed, i.e. "What caused the apparent difference of the competitiveness between the Chinese automobile & electric home appliance manufacturers along with joining the WTO?" Hereby, this paper closes with the following conclusion, based on the analysis frame of this paper, i.e. "adjustment process of the Chinese corporative performance from policy-orientation to market orientation".

That is, the respective external environment factors, degree of industrial competition of two industries and the difference of construction processes of corporative strategy among each leading manufacture caused the adaptation time difference among the performance of respective leading manufacturers from policy-orientation to market orientation, and formed the difference of competitiveness drawn as in Figure 4.

FIGURE 4

Time Difference in the Adjustment Process of the Corporative Performance of the Chinese Electric home appliance & Automobile Manufacturers from policy-orientation to market orientation



Source: by the author of this report

First of all, the difference of competitiveness is explored in alliance with the tie-up to the external environment factors such as industrial policy. The accumulation of competitiveness in the Chinese automobile manufacturers was strongly restricted by government consistent competition exclusion policies, especially the severe entry limitation and competition exclusion policy of the central government executed in the latter half of 1980s when the market demand began to shift from truck to passenger car. On the contrast, the direct intervention of the government policy in electric home appliance manufacturers almost became impossible along with the conversion of the production of electric home appliances from seller's market to buyer's market because of a lot of new entries and the introduction of mass production capacity from the latter half of 1980s.

Next, the relation between the competitiveness and the degree of inner industrial competition is observed. Although local and munitions enterprises entered into the automobile industry, the scale supremacy was not formed under the investment restriction policy. On the other hand, giant manufacturer failed to establish its competition domination because the cycle of national project achievement was too long. On the other hand, the amount of investment required for technological introduction & factory construction of electric home appliance manufacture was not huge, the production capacity that many enterprises entered in a short term and introduced, exceeded the domestic demand, and the severe competition promoted the competitiveness of manufacturers for the market.

Finally, the relation between the difference of competitiveness and the process of the strategy construction of leading manufacturers is observed. Giant state-owned automobile manufacturers lagged behind greatly in the construction of competitiveness in alliance with the market environment fluctuation without getting rid of the dependence for government policy and plan investment despite of occupying their core industrial supremacy. On the contrast, the late-evolved non state-owned electric home appliance manufacturers became powerful actually in severe domestic market competition without the expectation of the plan investment from the government, expanded rapidly along with the competitiveness accumulation and climbed up to the top position within the industries by riding on the fluctuation of the market economy.

Therefore, the leading Chinese automobile & electric home appliance manufacturers effectively demonstrated and improved their original competitive ability produced from each history period in adjusting to the external environment from plan economy system to market-oriented economic and to globalization further, and got over the restriction of existing resource, but it was not so easy due to the obstruction in many aspects according to the environment factors within and outside the industry and the factor within the enterprise. Therefore, the superiority or inferiority of the competitiveness among manufacturers is actualized, and the difference of the growing path of manufacturer and dominant pattern for competition came to appearance.

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