Graduate School of
Business Administration

KOBE UNIVERSITY

ROKKO KOBE JAPAN

2009-32

The Local Management of Japanese
Cotton Spinners in China during the Inter-War Days
: Naigaiwata & Company

Tetsuya Kuwahara

Discussion Paper Series

The Local Management of Japanese Cotton Spinners in China during the Inter-War Days : Naigaiwata & Company

Tetsuya Kuwahara
Graduate School of Business Administration, Kobe University
20090816

Abstract

Naigaiwata kept its position of being the most advanced cotton spinning company in technology and management and value addition of product during the inter-war days. Its competitiveness in technology and management were developed in-house by the local factories in Japan and were transferred to its factories in China through a large number of Japanese expatriates. It also adapted part of its labor management to fit the local situation in China. However, Naigaiwata did not allow the promotion of the Chinese from the rank and file to the administrative position. These practices were considered the uniqueness of local management of Japanese cotton spinning firms in China before the end of Second World War.

Question and Viewpoint

1. Question

Japanese companies started to become multinationals along with Japan's process of industrialization started. The trading companies that engaged in import and export activities began to set up with the construction of their branches at the beginning. After the Japan-Sino War investment from Japan began to pour into the colonized countries and after the Japan-Russo War investment across the China continent and Korea, direct investment in infrastructure such as the South Manchurian Railroad began. In 1911, Naigaiwata based in Osaka was the first manufacturing company to start cotton spinning in China. This was the beginning of Japanese direct investment by the majority of large Japanese cotton spinning companies in China after the the First World War. The Japanese owned cotton spinning factories in China are known as called as " Zaikabo". Although the majority of them managed to gain a strong foothold in China and grew to dominate the Chinese cotton market, the Second World War brought an end to what they had achieved.

The overseas operations that were lost as a result of the war were re-started in the 1950s and showed remarkably rapid growth from the 1970s. By 2002, Japan became a country that was ranked fifth in the world in terms of direct foreign investment (Note 1). However, the continuity of multinationalization by Japanese companies going back to

the late 19th century is still not fully understood. The mainstream view, especially among researchers in Japan, has been especially that overseas activities by Japanese companies before the Second World War, especially direct investment in China were very different in nature from those after the Second World War, as were the differences in the multinationalization strategies between the Japanese companies and other foreign companies.

The author has already brought to light the fact that in the period before the Second World War Japanese overseas investment was carried out to protect the export market, by major companies acting independently as they had their own in-house resources to sustain this situation. (Note 2) The aim has been to explain the process of how the Japanese multinationals maintained their position in the Chinese market immediately after the World War One, by focusing on the top managers and the product market structure of their companies. In this paper a much persuasive explanation will be presented of the continuity in the management practices of the Japanese multinational companies that can be seen in the local management practices of these companies in the early 20th century up to the present day, by looking at Naigaiwata Company the largest company of Zaikabo.

2. Previous Research

Research on investment in China before the Second World War by the Japanese cotton companies is widely accessible. Virtually all of the research on Japanese investment in China have been carried out using economics research methods that provide explanations from the point of view of imperialism.(Note 3)

These works explain the invasive characteristics of Japanese cotton spinning companies towards Chinese investment, in which China was under an enforced unequal treaty. Furthermore, when investments were made with the backing from both political and military powers, it was assumed that these investments would return profits. While this might have been a necessary condition given the conditions of the time, it is rather difficult to assert that this condition had also been a sufficient condition for the success of the Japanese companies in China. Indeed, very little research has been carried out on the history of Zaikabo from the point of view of their in-house capabilities for solving management problems. (Note 4)

This paper aims to analyze the process of development of the local management by the Japanese companies in China, highlighting the case of Naigaiwata and explaining how they independently created an in-house ability and local management structures to solve problems through a series of trials and errors in China during the days of the

Inter-War Days.

3. Data Sources

One of the reasons that a clear picture of Zaikabo has not been established, to date, is that there is a lack of primary research materials on local management in China, and few documents remain from that era. However, it has come to light that there are over 1200 items of documents related to Naigaiwata that had been preserved in the Liaison Center of Policy Research at the Research Institute of Economics and Business Administration at Kobe University. These documents had been reserved at Naigaiwata office located in Osaka, when it began to be dissolved in 1949. Among the records sent to the head offices from the three operation bases in China, there are communiqués between the headquarters in Osaka and the local factories, which have been used here to shed light on the local operations of Naigaiwata in China at that time. The documents of Naigaiwata mostly cover the period from 1922 up to 1948 when Naigaiwata was reorganized as Shin Naigaiwata Kaisha(New Naigaiwata & Co.). This paper has used these rare and authentic documents to explain the process of how local management was developed by Naigaiwata in China during the interwar days.

Chapter 1. The Chinese Cotton Spinning Industry and Naigaiwata

Section1. Formation of a Chinese Spinning Iindustry

Chinese cotton spinning had already begun in Shanghai around the 1890s, but the growth of the industry up to the First World War was slow. However, during the war period production increased rapidly as the number of spindles increased from 520,000 in 1913 to 2.27 million by 1922. In the years to the World War One, the spinning firms based on foreign investment was established. In April 1895, the Shimonoseki Treaty between Japan and China was signed. It contained a clause that permitted Japanese nationals to engage in manufacturing activities in the treaty ports. However, the initial investment came from Western companies and not from the Japanese companies. In 1897, four Western companies built local plants based on the most favored nation clause backed their respective home countries. They were Iwo Cotton Spinning and Weaving Company and Lao Gong Mao Cotton Spinning Company of both British capital, Ruiji Cotton Spinning Company form Germany, and International Cotton Manufacturing Company from U.S.A. Subsequently Gongyi Cotton Spinning Company of Britain started production in 1907 and Yangshupu Cotton Spinning Company of Britain started production in 1914.

Initial entry in the Chinese cotton spinning industry from Japan began with trading

companies. In 1902, Mitsui & Co. bought out a Chinese company Xing Tai Cotton Spinning Company and set up Shanghai Cotton Spinning Co. They acquired another Chinese company San Tai Cotton Spinning in 1906. They reorganized the Shanghai Cotton Spinning to the Shanghai Cotton Spinning and Weaving Co. which owned a factory of San Tai Cotton Spinning Company in the year. In 1907, Japan Cotton Company, a trading company set up a joint venture Jiu Cheng Cotton Spinning Company with the Chinese, which was fully taken over by Japan Cotton in 1909, was renamed as Ri Xin Cotton Spinning Company in that year. However, in 1916 it was bought out by a Chinese. Naigaiwata was the first cotton spinning company to invest in China, starting up a factory of 20,000 spindles in Shanghai in 1911. (Note 5) However the major cotton spinning companies in Japan continuously increased in export to Chinese market for another 10 years, and entered there for local production immediately after the World War One.

Section 2. Development of the Chinese Cotton Spinning Industry

Many local Chinese native cotton spinning companies increased on a large scale during the World War One, leading to marking a rapid expansion of the industry in China. As the Chinese cotton spinning industry expanded, so did Japanese cotton spinning companies make massive investments in China. In addition to Naigaiwata & Company and Shanghai Cotton Spinning and Weaving Company that had been operating in China before the War, 13 other Japanese companies of Knegafuchi Cotton Spinning, Touyou Cotton Spinning, Dainippon Cotton Spinning, Fuji Gasu Cotton Spinning, Tong Xing Cotton Spinning and Weaving, Nissin Cotton Spinning, Fukushima Cotton Spinning, Nagasaki Cotton Spinning, Manchuria Cotton Spinning, Japan China Cotton Spinning and Weaving、Donghua Cotton Spinning、Tai An Cotton Spinning、Toyoda Cotton Spinning started local production in China. (Note 6)

In 1930 the number of spindles of the 80 companies in the Chinese cotton spinning industry had numbered around 4.61 million spindles：2.84 million spindles were owned by 64 Chinese native companies (including one overseas Chinese company owning 213 thousand spindles), 1.64 million by 15 Japanese companies, and 177 thousand by one British company. (Note 7) The 10 largest companies in terms of spindle number held 51% of the share of spinning equipment (Table 1) and the majority of these had weaving sections, so that the number of weaving machines was around 55% of the total of all the spinning companies. Among the top ten companies, three were Chinese native companies, one overseas Chinese company, four the Japanese companies and one British company.

Most of the Japanese companies creating a foothold in China and grew into large-scale companies. As mentioned above, the penetration of the Japanese investors in Chinese cotton industry and the market took two forms, one in the form of trading companies, such as Mitsui & Co., and the other in the form of spinning companies such as Naigaiwata. All of the local plants of these cotton spinning companies posted good results, much better than those of trading companies except for Shanghai Cotton Spinning and Weaving Company. In particular, Naigaiwata, Kanegafuchi, Touyou, Dainippon rapidly developed themselves as central players in the Chinese market.

Among the Zaikabo funded by trading companies, Japan Cotton Company had pulled the spinning subsidiary out of China during the WWI temporarily. In 1918 an investment group centered around Japan Cotton, Chu Ito & Company and an entrepreneur in wool trade named Suketarou Kawasaki, with which Fuji Gasu Cotton Spinning joined in Shanghai, bought out International Cotton Manufacturing Company owned by an the American trading company, and formed Japan China Cotton Spinning and Weaving Company. In 1920, Donghua Cotton Spinning Company formed by a group of Osaka based cotton trading companies bought out the Chinese company Yongyuan Cotton Spinning Company and started operations. In 1922 Donghua built a new factory and grew to operate 60,000 spindles. However, both companies operated with poor performance. In the 30 financial periods from 1921 to 1935 Japan China Cotton Spinning had 8 periods with losses and Donghua had 13. (Note 8) In that period, Donghua sold its first factory to a Chinese company and reduced its operation to 45 thousand spindles. Eventually, it was bought out by Japan-China Cotton Spinning and Weaving in 1944. Before that, in 1939 Japan China Cotton Spinning and Weaving had fallen under the control of Kurashiki Cotton Spinning Company who had bought half their shares.

Western owned companies in China declined since the World War One. The German funded Ruiji Cotton Spinning Company was controlled by a UK company when the WWI broke out and renamed it as Dongfang Cotton Spinning Company. Later in 1929, it was bought out by a Chinese company Shen Xin Cotton Spinning Company. As already mentioned, the International Cotton Spinning and Weaving Company of U.S.A had been bought out by a Japanese group in 1918. Laou Kung Mow Cotton Spinning Company which began with funding from the British was bought out by Kanegafuchi Cotton Spinning in 1925. Although Jardine Matheson bought the two British owned two spinning companies, vis. Gongyi Cotton Spinning Company and Yangshupu Cotton Spinning Company in 1922 and its cotton spinning division Iwo Cotton Spinning and Weaving Company controlled these two. This resulted in a spinning company of 170,000

spindles and 1900 looms; the growth was slow afterwards. Jardine Matheson floated Iwo's shares on the market and as a result 80% of the shares went into the Chinese hands by the latter half of 1920s (Note 9). The companies from the West were not able to sustain long-term results; with 1 of the 6 companies was bought out by Chinese native spinners and 2 out of the 6 were bought out by Japanese companies. The remaining 3 companies were integrated into one but remained stagnant, as above stated.

The Chinese spinning companies continued to increase even after the World War One, and held the largest share in terms of quantity of production. However, most of them had serious management problems that could not been solved, resulting in a short life span of the company; with many factories being bought out or sold off. Despite this there were some companies, such as Shen Xin and Da Sheng, and overseas Chinese Yong An that are worthy of note, which introduced new technologies and streamlined their operations. These Chinese companies became competitive enough to resist foreign investment including that from the Japanese companies and grew into major companies (Table 1). (Note 10)

Section 3, Initial Growth of Naigaiwata

In 1909, Naigaiwata decided to build by themselves a spinning plant in Shanghai from scratch and within 2 years that is in 1911, the plant became operational (Note 11). Naigaiwata was operating two factories in Japan, which had been acquired at home. Before operations started in Shanghai, Chinese female employees were brought to Nishinomiya for training. They dispatched substantial number of Japanese personnel to local plants from domestic factory in Japan, formed this structure of direct management of Chinese workers, which became a model for local management of Zaikabo.

Naigaiwata carried out direct management of its factories in Shanghai from 1911 onwards, which as stated above, gave it a leading edge over the Chinese native companies which employed "the Number One System" in which companies contracted part of spinning processes with experienced workers and the European owned cotton spinning factories that employed a system in which factory owner gave out a contract for the whole factory production to Chinese comprador. Naigaiwata secured a strong position in the Chinese market and grew very rapidly compared to most of the Chinese cotton mills and most Western mills that were poorly run. Naigaiwata built seven spinning and two weaving factories and bought out one spinning factory in Shanghai from 1913 to 1923. (Note 12) Thus Naigaiwata owned a total of eleven factories in Shanghai by 1923. Then from 1930 to 1932 they built two weaving factories and two

processing factories of cloth. In 1916 they started construction of a factory in Qingdao which came into operation in 1918, to be followed by two more that were completed in 1923 and 1930, resulting in a production capacity of 90,000 spindles there. Furthermore, they completed construction of two factories in Jīnzhōu in the Kwantung Leased Territory in China in 1925 and 1928, and by 1930 they had a total capacity of 63,200 spindles in that region. By the year Naigaiwata had become the biggest spinning company in China with a total production capacity of 433,812 spindles, 1600 looms and one processing plant in China.

Naigaiwata had invested 93% of its capital in China by 1922 and this figure rose to 98% by the first half financial period of 1932 (Note 13). By the second half of financial period of 1932 its investment in Shanghai accounted for 70% of its total assets. The sales of Shanghai Branch kept to enjoy the largest share of total sales of Naigaiwata. With 72 percent of the total sales, the Shanghai Branch enjoyed the largest share of total sales of Naigaiwata in 1922 (Table 2). Afterwards the Shanghai branch regularly maintained over 60 percent of the total sales. In sum the Naigaiwata's central location was in Shanghai. The product value added strategy was developed mainly at the Shanghai Branch, that will be explained in the Chapter 4.

Chapter 2 , Technology Transfer

Section 1, Japanese Personnel in Local Plants

Naigaiwata faced major challenges from the large Japanese cotton spinning companies who constructed large number of plants in China immediately after the First World War. Moreover some of Chinese native cotton spinners set about modernization of factories and began to catch up with the Japanese firms in China.

The Japanese expatriates increased to 367 in 1924 from 54 in 1917 (Table 3). Japanese expatriates increased more rapidly than the increase of number of spindles. During the period, the number of the spindles per one Japanese worker decreased from 2139 to 869. Large number of Japanese expatriates was retained and later the number of Japanese expatriates increased. Chinese workers per one Japanese worker decreased from 41 of 1921 to 28 of 1930.

The Naigaiwata's Japanese staff asked Chinese labor to follow the work discipline strictly and adopt the standardized work motion punctually. In 1927, Japanese workers increased to 397 persons and the spindles per Japanese worker decreased to 788 in that year from 869 in 1923. Looking into the factory operations in Shanghai, the factory was managed just like in Japan, except that workers were Chinese. A majority of managing people such as directors, factory heads and department heads were ten and out of whom

eight were engineers and only two were in charge of trade, labor and office work. In 1929, engineers and technicians were 217, equivalent to 59% of the total of 368 Japanese employees. The Japanese in charge of labor affairs is 30% of that. (Note 14) This pattern of personal composition that was largely dominated by engineering staff in the Chinese factories resembled with the pattern in the factories in Japan.

Section 2, Ratioalization

Beginning in the 1920s, Naigaiwata undertook to replace the operators from male workers to female workers. They intended to reduce cost by employing the Japanese model of division of labor. In cotton spinning factory, female workers consisted of 90% of total number of workers in Japan. The kind of division of labor between male and female was already established in cotton spinning factory as early as in the 1890s. The female workers were posted as operators in the processes of drawing, roving, spinning and reeling, where most of the labor of cotton spinning factories was put in. On the other hand male workers were in charge of machine maintenance, as well as being posted as operators in the processes like mixing, carding and packing where relatively small number of manpower was required. The wage of young female workers was less expensive than adult male ones who supported family financially. Operators in spinning factory could reach at required level of skill in less than half a year. Consequently even if young female workers served in the period before their marriage, they could contribute well enough to the factory operation. Hence for the reasons of lower cost of female workers, it employed more women than men. Naigawata adopted this model in China in the 1920s. Looking at composition of workers of eight factories in Shanghai in 1925, five spinning factories i.e. No. 3, No.4, No.5, No.8 and No.12 which were completed by 1919, the number of male workers were larger than female ones, while the female workers were more than male ones in three factories of No. 13, No.14 and No.15 which were built in 1922 and 1923. (table 4) Moreover, the percentage of female workers was higher in the factories of No. 14 and No. 15 build in 1923 were higher than in No. 13 build in 1922. Male workers were posted in maintenance activities and also as operators in processes of mixing, carding and packing, while female workers were put as operators in processes of drawing, roving, spinning and reeling where most of the labor was posted in. As mentioned before although the number of male workers was larger than female workers in five spinning factories of No.3, No. 4, No. 5, No.9 and No.12 in 1925, the number of female workers was dominant in all the factories by 1937. During the years, the number of male workers decreased from 6758 to 3736, while number of female workers remained steady from 8956 to 8796. In total 15 factories except for 2

processing factories, female worker percent increased to 75% in 1937. Although, Naigaiwata succeeded in increasing in female percentage, the subsequent dismiss of male workers lead to tension of industrial relation and hence Naigaiwata had to develop a new labor management practices. The process is explained in Chapter 3.

Naigawata gave a training program for maintenance workers begun in 1919 Chinese trainees were chosen out of male experienced workers. Naigaiwata gave the education of Japanese language in the preparatory course for one hour in work time every day, and then the education of the technical expertise of spinning for one hour in work time every day in the regular course following training standardized motion. The training of newly recruited workers began in 1922. (Note 15) Zaikabo factories including Naigaiwata put newly recruited female workers on one month training program in 1931.(Note 16)

Naigaiwata was able to continually update its technology in the local Chinese operations by transferring the latest technical and management know-how from Japan through this structure. At the latter half of the 1920s the Shanghai mill was upgraded to a high draft system followed by the Jīnzhōu plant at the second half of 1929. The machinery in the weaving section of No. 1 Factory was fully automated in 1931 and that of the No. 2 in 1932. By 1933, 69% of the total of 3,793 weaving machines in operation in Shanghai had already been automated. (Note 17)

Under the Japanese management, rationalization went on steadily in Naigaiwata's factory in China. The number of Chinese labor decreased from 15714 in 1925 to 12532 in 1937 whereas the number of spinning and weaving machines increased. As a results spindles per Chinese labor increased from 20 to 33. (Table 3)

Section 3, Constraction of New Factory of the State of Arts in Japan

In the midst of rapid technological developments in the Japanese spinning industry, there were still problems of aging equipment in the two domestic plants operated by Naigaiwata. By 1930 the Denpou Factory in Osaka was already 40 years old and was shut down that year and the Nishinomiya plant was also over 30 years old. In order to prevent any delay in technology transfer to China due to the aging of plants in Japan, Naigaiwata drew up plans to build a new domestic plant with state of the art technology at the end of the 1920s. In 1929, it bought land in Anjou in Aichi Prefecture for their new plant. Giichi Takamasa who was transferred from the Shanghai Branch to Nishinomiya in 1930 to oversee training of new employees, was given the responsibility for designing the new plant in Anjou. He was sent on a 6 month fact finding mission from May to October 1931 to observe plants in America, Britain, Belgium, Holland,

Germany, Czechoslovakia, France, Switzerland and Italy (Note 18) He and his team drew up designs for the Anjou factory in the Osaka headquarters and construction work started on the No. 1 Factory in 1932, which was completed in 1934 followed by the fully operating No. 2 Factory in 1935. The Anjou plant operated 60,000 spindles and was equipped with cutting edge technology for a spinning plant in that era. It was said to be among the top three plants in the country, in terms of technological facilities, ranking alongside Dai Nippon Cotton Spinning's Kaizuka plant, the Fukushima Cotton Spinning's Sasazu plant. Also, the Anjou Factory had taken over the role of spinning technology transfer from the Nishinomiya plant, which kept to be responsible for weaving technology transfer to China. According to Yasunobu Nakamura who was enrolled in Naigaiwata in April, 1939, fifteen of the new employees; graduates from university, college and high schools, were given training at Anjou. (Note 19) The career of eleven of total fifteen were confirmed based on his letter to the author. Eight were engineers, among them, two were graduates from engineering colleges and the other six graduates from technical high schools. The other three were from commercial high schools. After having initial training in Anjou Factory for two months seven of the total fifteen were posted in Shanghai, Qingdao and Zinzhou. They were given further on-job training in above factories in China. Four stayed behind in Anjou. One out of the four was dispatched to No. 7 Spinning Factory of Shanghai in two years and the other one to the No. 4 Spinning Factory in about three years. Nakamura states that at the No. 1 Spinning Factory in Shanghai, they used the new technologies from Anjou to upgrade the transmission of spinning frame from belt-driven to direct motor. They also paid particular attention to the air conditioning system. In fact Anjou took a role of mother factory for transferring spinning technology to the plants in China.

Chapter 3, Localization of Labor Management

Section 1, Incentives for Workers' Motivation

Naigaiwata attempted to duplicate the management practices of its Nishinomiya Factory to its factories in China. The Japanese management enforced strict regulations and demanded high levels of workmanship from the local workforce. If we look at its operations in 1930 we see that new local recruits were molded into disciplined workers. This was a major difference from the management in the factories run by native Chinese companies. While some local Chinese spinning companies such as Shen Xin, Yong An and Dasheng started to rationalize their operations, the majority of these companies employed very loose practices in terms of cleanliness in the plants, with

workers eating in the shop floor, looking after children while working, and sitting down during breaks on the shop floor.

Ayazou Takei who was appointed the President of Naigaiwata in August 1922, made the following reply to a letter sent to him on 28th February 1925, from the Shanghai Student Association and other 41 groups, criticizing Naigaiwata for their harsh treatment of local staff (Note 20) "They make it public known that Japanese spinning firms drive workers hard like a beast of burden. This is a misunderstangings at all. It is a opinion of persons who don't know the realities in factories at all. Otherwise they slander the Japanese firms intentionally by using the words which arouse easily the public sympathy. They should conduct field research well deeply. Every person can visit our factories and observe for themselves the operations inside the factories if they make the appropriate applications to visit our factories. We would like them to come and see for themselves what the real situations is. Japanese management fully realize that treating working people too harshly was in fact unproductive, making the performance deteriorative. Far from making our Chinese labor work too hard, we are in fact striving to give the workers better working conditions and better life ". He realized that the criticisms by local agitators were unfounded if they came to see the plants. His view was common among management people of the Japanese cotton spinners in China. Takei also made the following comment about the wage structure (Note 21). Naigaiwata paid the Chinese workers considering their needs for living cost so that they themselves were not making any demands for wage increase. Chinese workers earned virtually equivalent of Japanese workers of good skill in Japan considering relatively less expensive local living standard. " A survey by Toua Doubun Kai reported that in January of 1925 the average wage for weaving employees in Zaikabo ranged from 50.5 cents in Shanghai Dollar at Naigaiwata to 41.9 cents at Donghua Cotton Spinning. Compared to this, Chinese native spinners paid 39.0 cents and British owned factories paid 40.0 cents (Note 22). Also, Freda Attley stated that wages in Japanese factories were higher than Chinese native factories (Note 23) Chinese workers in cotton spinning factories in Qingdao were reported as saying 'If you want to have an easy life with spare time go to Chinese factories, if you want to earn good money go to Naigaiwata' .(Note 24)

Naigaiwata took all the steps it could to improve the living conditions for its workers, and implemented many plans for its Chinese workers. In March, of 1925, Takei gave the following explanation of the welfare facilities at the Shanghai Branch (Note 25) . In the factory dining hall, hot tea was provided. Prior to this, the Chinese workers would eat on the shop floor whilst standing. Provision of dining hall brought a noticeable improvement in conditions. Accommodation was also provided through the construction

of 2000 apartments in single and double storey buildings, with cheap rents. These housed 14,300 people of which 6,700 were Naigaiwata's workers. Schools were also provided for their children and five teachers were employed to teach 300 children who attended classes. Furthermore, in a park named "Moon on Water" situated in the Shanghai Branch, every spring, 100 key workers were invited to a luncheon party with all the Japanese staff. This park was also used for outdoors theatres and film shows in the summer and sports events in the autumn, where all the workers could participate. These gatherings were treated to snacks and local cuisine. There was also a medical center, a kiosk, etc that offered comprehensive welfare facilities (Note 26). Care of workers concerning their every-day life outside the factories was the responsibility of labor contractors. Chinese workers were strictly supervised inside the factories but the workers were free to do whatever they wanted once they left the factory gates, without any regulations on their living or restrictive values from the company. This was in stark contrast to the Japanese factories where even life outside the factories that is in the dormitories was also directly and strictly controlled by the company.

It was quite easy to ensure the employment stability of Chinese workers whilst the company was in a period of growth. Japanese companies, including Naigaiwata, were seldom the targets of buy-outs by Chinese companies due to their strong financial performance figures. Also, they did not undertake measures to curtail their operations, as frequently as did the Chinese native and British companies with the downturn of business, and therefore the Japanese companies offered relatively more stability to the local workforce.

Chinese workers were able to acquire high-level skills by working in the strict and technically advanced environments at Naigaiwata, and workers who gained this experience were highly prized by local Chinese companies and preferred over other workers at the time of the recruitment. For example, Qingdao in 1919 Hua Xin Cotton Spinning Company recruited 300 workers from Naigaiwata when they started up a new operation(Note 27). This suggests that the skills acquired by the Chinese workers by working in the Japanese companies was highly evaluated in terms of employability, and that these Japanese-trained workers played a significant role in technology transfer when they moved from Zaikabo to local Chinese companies.

Section 2、Adopting the System of Labor Contractors

The labor relations that had been relatively stable so far became unstable when Naigaiwata began to replace operators on spinning factories from male worker to female worker. One worker of Naigawata recalled, Japanese managers came and talked to the

male workers. ” Our factory is going bankrupt, and cannot keep running. We will give you some money, and you can go look for other way of making a living,’ they said to us. Just like that they eliminated us one by one, and then recruited women to do our jobs” (Note 28) . Male workers protested against this replacement policy of Naigaiwata. Some of the male workers manipulated the Hank meter, an instrument measuring output. Malpractices in the shop floor intruded from around November 1924 (Note 29). Naigaiwata dismissed total 85 workers in No. 8 Factory from the end of January to the beginning of February, 1925. Male workers began to protest fiercely and in all of the factories of Naigaiwata labor strike broke out from 12th of that month. Naigaiwata had not experienced the strike caused by labor management issue by that time, although, labor strike broke out in factories during the period June 5th -11th of 1920, at the height of the May Fourth movement, which was a political protest against Japan. However, strike of February 1925, had the causes of workers’ dissatisfaction against labor management practices. This labor strike spread to all Zaikabo in Sanghai. Communist Party and the left wing of Guo Min Dang (Nationalist Party) intervened with that strike. The Communist party had already planted their fraction in Naigaiwata factories to exercise their control on male workers (Nnote 30)

Sabotaging happened frequently in Naigaiwata factories since the beginning of May. They dismissed seven male workers in No. 12 Factory on May 14. On that occasion outsiders together with Naigaiwata workers intruded desperately No. 7 Weaving Factory using cotton yarn of No. 12 and No. 5 spinning factories and destroyed the machines. One of the Japanese staff fired gun and one Chinese worker was killed. This incidence developed to anti-imperialism movement widely in town and the May Thirtieth Incident brought out Nan Jing Lu in Shanghai in May 30, 1925, following General Strike there for the next three months.

Naigaiwata had to remove the intervention and turbulence from outside factory. Tying alliance with social network in Shanghai was considered for a possible solution. It developed an alliance with Green Gang which was a secret society of mutual assistance for workers, an organization that had a strong influence in Shanghai. Naigaiwata set a part of labor management contracts to member of Green Gang (Note 31) . Naigaiwata delegated labor recruitment and care of workers’ daily life outside factories to labor contractors who were Green Gang members. Naigaiwata expected to develop mutual interests with Green Gang and wanted Du Yesheng head of the Green Gang to work as a mediator of labor conflict. So far Naigaiwata recruited Chinese workers in a variety of methods. In case of a Naigaiwata factory with 30000 spindles in 1919, out of total 1919

workers 69% was recruited by recommendation mainly by Number One, heads of labor on the work sites, 26% was recruited by advertisements and 4.4% was from applicants. (Note 32) Since the latter half of 1920s, Naigaiwata began to use the labor contractor system for recruitment, through their alliance with Green Gang. Subsequently this solution is considered to be effective by the Japanese Cotton Spinners Association in China, which was organized by the Japanese cotton spinners in China on June 18th in the mid that General Strike and they agreed to adopt this strategy to overcome the labor problems arising out of the General Strike. (Note 33)

The labor contractors recruited young female workers using their linkage in rural villages around Shanghai and took them to Shanghai. They borrowed the company housing built by Naigaiwata and let those workers live there. They took care of meals of their recruits, their clothes and medical care. The contractors served as supervisors of these factory labors outside the factory premises. They received wages of the workers and handed out the balances to them after deducting the housing and meal expenses of the workers. “In the days when this system was popular, a labor contractor in a Japanese spinning company had more than 600 workers under his supervision.” “In summer of 1940, in Zaikabo in Sanghai many contractors had more than 15 workers under each of their supervision, while some contractors had several dozen of workers” (Note 34).

It is estimated that more than 50% of workers in Sanghai was under the control of labor contractors before the Sino-Japanese War of 1937 (Note 35). Using this labor contractor system that was operated in alliance with Green Gang, Naigaiwata could stabilize the industrial relations. They experienced 44 labour strikes during 2 years 10 months i.e. from Feb. 1925 to Nov. 1927, and afterwards up until Sino-Japanese war, it experienced only three labor strikes(Note 36).

Naigaiwata adopted outright transfer of its labor management practices of Nishinomiya Factory its factories in China. It provided a variety of incentives and aimed to improve workers’ morale and motivation. These labor policies worked well for Naigaiwata in China. However not all of them were accepted. Consequently, Naigaiwata had to modify the labor management practices, accommodating to local society. This localization contributed significantly to stabilize the industrial relations （Note 37）.

Chapter 4, Product Value Added Strategy

Section 1, Increasing Quality Products Demands in China Market and Product Strategy of Naigaiwata

In the latter half of 1920s, in the process of rationalization of operation of local factories, Naigaiwata took extensive steps in Shanghai towards value addition on its cotton products. This meant that Naigaiwata tried to improve its product quality of tis products so that these products could become substitute for imports of higher quality products to China (Note 38).

During and after the WWI, in China, the demand for cotton products moved up high in quality and the need to manufacture value added product began to grow significantly. This also reflected the steady growth in the income of people in China as the Chinese economy grew. Those value added products were mostly imported from Japan and Britain. There was shift in imports from plain cloth to processed cloth which was made of thin and light cotton cloth woven by medium and high count cotton yarns. The Chinese imported cotton cloth totaled 184million Yuan in 1929. At least 75% (dyed 38%, printed 17% and bleached 19%) of the amount was processed cotton cloth. Plain cloth was 21% and miscellaneous cloth was 4.0%. Modern processed cotton cloth manufacturing had begun since the 1910s, but the Chinese could not compete against imported processed cotton cloth. Total output of Chinese owned factories in Shanghai that had more than ten employees totaled 5.18 million Yuan even in 1930, while the imports of printed cotton cloth in Shanghai reached 21.39 million Yuan in the same year.

Since the WWI period, Chinese government endeavored to restore the custom duties autonomy for that purpose of protecting domestic industries. After the revision of custom duties in 1919, it raised the duties to 5% of the current prices in 1923 based on resolution of Washington Conference of the previous year. In 1926 the government of Nationalist Party in Kanton executed the inland transition tax of 2.5 % in addition to the import tax of 5% in 1926. Subsequently, Peking government executed additional import duty of 2.5% to the import tax in 1927. Finally, China could restore the tariff autonomy in 1929. Naigaiwata, most of whose business was located in China recognized the opportunity to replace imports of value added cotton products through local production of value added product.

Takei recognized the prospective product strategy of Naigaiwata as he wrote to his son visiting in London in July 1924. (Note 39) “Considering the cotton business, which I am engaged in, the spinning of low count cotton yarns like 16 count and 20count have no future even in China. The 32 and 42 count cotton yarns might still survive, but not for long. Definitely we should take steps to produce bleached and dyed cotton cloth from now on. In the field of processed cotton cloth there are items such as printed cloth and mercerized cotton cloth. We should definitely manufacture these items in China. To my

understanding, the polishing techniques we should adopt are mercerization for cotton yarn and silk-finishing for cotton cloth. While consulting this issues with Mr. Atarashi of Mitsui & Company in London, it is good for you to visit and study generally the processing factories in Britain." At the general meetings of shareholders of Naigaiwata & Company on September 28th, 1931, he mentioned. (Note 40) " Peoples' life in China is gradually improving and the culture and society will progress. We should therefore try to advance our business step by step, to adapt to the higher living standard of the Chinese people."

The success or failure of production of value added product was dependent upon management of quality control. It means manufacturers were required the ability for production of high volumes with quality goods and at high yield rate. The higher the value addition of the products, the longer the production processes and accordingly, we require more hands, and longer time. Production of high count cotton yarn requires longer time with more hands than the production of lower count yarn. Quality of cotton cloth is dependent upon the quality of grey cotton yarn as well as upon quality control of weaving process itself. Quality of processed cotton cloth is dependent upon quality of grey cotton cloth as well as upon product quality control in processing stages. Moreover, as the price of raw cotton for fine cotton goods is expensive, the yield rates have to be maintained well. These capabilities in the factory for quality management were realized in local production in China through Naigaiwata's the process of technology transfer, skill development of workers, and the localization of labor management.

The value added product strategy that was started in Shanghai was then replicated in Qingdao and then moved to Zinzhou.

Section 2, Development of Value Added Products Strategy

1. Medium and High Count Cotton Yarn

Naigaiwata used to produce low count cotton yarn in Shanghai. After the World War One it started to produce some medium count cotton yarns, but in 1923, 95% of production was still thick yarn thread (Note 41) In the first half of the financial year 1926, their cotton yarn included: more than 90% were thick yarns of 20 count, 16 count and 20/3 count (cotton made from 3 strands of 20 count yarn), and remaining 8% were medium 42 count doubled yarn. (Note, 42) However, from there on, production of higher count yarn gathered momentum, and within four years it was producing only medium count yarns. By the first half of year 1929, more than 95% of its whole yarn production was 42 count doubled yarn, 40 count, 32 count, and 32 count doubled yarns. By the second half of 1929 all its yarns were medium count yarns. From January, 1930 No. 15

Factory(renamed as No. 8 Spinning Factory in 1931) was refurbished and started production of 60 count gassed yarns, and in the following year it refurbished No. 4 Spinning Factory to make 80 count gassed yarns.

Sales of medium count yarns were not confined to the Chinese market they were also exported to other third countries, especially India. It is reported that in 1928 15% of the cotton was exported abroad (Note 43). Also, in 1930 Japan had a gold embargo with rising yen price and the Japanese companies had difficulties to export overseas. However, Naigaiwata could export to India from Shanghai and acquired larger market shares of medium yarns in India, a market that was earlier dominated by Toyo Cotton Spinning Company, Dainippon Cotton Spinning Company and Fuji Gasu Cotton Spinnning Company (Note 44). In 1932 17% of Naigaiwata's sales were in India.

2. Fine Cloth

Production of cotton cloth had already started in October 1918 at No. 7 Factory (renamed No.6 Weaving Factory in 1931) with 600 weaving looms. This was followed by production at No. 9 Factory bringing the total number of looms at Naigaiwata in Shanghai to 1600 in 1922. Sales of cotton cloth reached 28% of total sales of Shanghai branch total sales by 1927 (Table 5). Production of processed cloth was started by being supplies of grey cotton cloth by No. 1 Factory built in 1931 and was expanded with the start of the grey cloth production in No. 2 in 1932, taking the total number of looms in Shanghai to 3,521.

During that time, cloth produced in Shanghai was of very high quality. At the second half of 1927 over 80% of the total output figures was for thick cotton cloth like sheeting but from the second half of the same year the figure for thin cloth like shirting rose sharply to 50%. Fine cloth accounted for the 100% mark at the first half of 1929.

3, Shift to Printed Cloth

The major breakthrough for Naigaiwata in its product strategy for the Chinese market was in processed cotton cloth. From 1927, it started designing and choosing equipment for its processing plants led by an engineering staff Tarou Yamakawa. (Note 45) Yamakawa's team drew up plans by bringing in outside expertise. In 1930, there was a big industrial dispute at the Knegafuchi Cotton Spinning Company, and one of the main base of the dispute was the Yodogawa factory in Osaka. Because of this dispute many expert dyers left Kanegafuchi and Naigaiwata hired them, completing the No. 1 Processing factory in 1930. This was a pilot plant, and it led the way for a second full scale plant starting operation in July, 1932. Naigaiwata's processing plants were the

largest in China and were far ahead of others in terms of volume of production. This shift to processed cloth was made possible by supplying good quality of yarn and cloth. Weaving of fine cloth require high quality medium and high count yarns. Processed cloth that can be traded at high prices could be made only from fine cloth.

Sales of processed cloth were good, and in the second half of 1932, sales of processed cloth surpassed that of grey cloth. By the second half of 1932, processed cloth accounted for 65% of total sales in the Shanghai branch and went on to be the main product item there (Table 5).

4, Value-added products in Qingdao and Jīnzhōu

In Qingdao from around 1931 Naigaiwata began to switch over low count yarns to medium count ones. In 1934, 25% of the yarns in Qingdao were medium count (Note 46) In Jīnzhōu large spinning cum weaving factories were constructed in 1936 and 1940. In 1940 the Jīnzhōu factory was equipped with 108,352 spindles and 2,003 looms. By the end of 1941, cloth accounted for 45% of sales there (Note 47)

Chapter 5, Performance in China

The outcome of a value added product strategy in the operations started in Shanghai soon became clear. Up to the first half of 1929 sales from China contributed over 80% level of the total sales but from the second half of the year this figure rose to over 90% (Table 2). What do these figures tell us from the viewpoint of profitability? With the end of the boom era after the First World War, profitability from sales in China fell to 15% by the first period of 1923, and remained around that level (Table 6).

The Shanghai Branch that was the lynchpin of Naigaiwata's operations in China posted profitability figures of over 50% immediately after the First World War, but this fell to around 10% and bounced back to 18% by the start of 1923, thereafter it stayed around the 15% mark. The profitability figures for the Shanghai office can therefore be evaluated positively. The good operating figures from Chinese operations played a significant role in making up for the poor domestic figures from the beginning of 1923. The Denpou Factory in Osaka, regularly posted negative results from 1927 and was shut down in 1930. Nishinomiya Factory fell below 10% profitability in 1928 and posted losses on both halves of 1930. The problems suffered by the domestic plants were offset by the Chinese operations and as a result Naigaiwata & Company as a whole did not feel any damaging effect that other Japanese spinning companies faced during this time.

However, it was to experience increasing downturns on sales in China, due to labor

strikes and the political incidents in both Shanghai and Qingdao. For example, in 1927 Chang Kai Shek's army moved to Shanghai causing mayhem and stopping production. In January 1932 the first Shanghai Incident broke out and Japanese personnel had to be repatriated until April of the same year. In July 1937 the Japan-Sino War started with the second Shanghai Incident and Japanese personnel were again forced to go back to Japan until January of the following year, stopping operation of all factories during that period. Profitability of Shanghai operations fell to 4% in the second half of 1925, 9% in the first half of 1927, 3% in the first half of 1932 and 4% in the second half of the same year. It bounced back to around 15% after that but fell back to 8% in the first half of 1938. In Qingdao there were similar turbulent results with profitability running at 6% in the first half of 1925, 4% in the first half of 1927, 5% in the second half of the same year, and 5% in the first half of 1929. Also, production was stopped in August 1937 following the Shanghai Incident, when Japanese personnel were repatriated, and the plant was finally damaged by bombing the following December.

This clearly shows that external events such as political incidents, rather than management practices, which were beyond the control of Naigaiwata, led to the periods of turbulence in China significantly disturbing the operations of Naigaiwata.

Conclusion

During the period of fierce competition in China after the First World War, Naigaiwata emulated the practices of the newly built local factories of major Japanese cotton spinning companies. It was also critical to keep a close eye on some Chinese companies to catch up with the best in China. Naigaiwata kept rationalizing production for quality control and to keep the cost down. It increased its number of Japanese expatriates in Shanghai from 54 in 1919 to 398 in 1926. It began to transplant technology and management of Nishinomiya Factory in Japan to China, and later from the Anjou Factory, a newly built factory with the state of arts technology in 1934. Naigaiwata gave training programs to Chinese workers and asked them to carry out standardized work practices and to observe work disciplines strictly. In the process of the rationalization, Naigaiwata faced a formidable protest from the male workers, when it began to replace male operators with female workers. The communist group and the left wing of Nationalist Party took advantage of this occasion to gather their own strength, and soon the labor conflicts developed to anti imperialism campaign from outside the factories to the town. For removing unstable social disputes inside and outside company, Naigaiwata created ties with the local network Green Gang in Shanghai. While it controlled labor strictly inside factory, it left recruitment of workers

and care of their daily lives to the labor contractors; the members of the Green Gang network. This labor management method stabilized the industrial relations inside and outside factory.

While Naigaiwata proceeded with the rationalization of local operation, it took a step in the product value addition strategy on a full scale in the latter half of 1920s. All of cotton yarn became medium count cotton yarn in 1927, and production of gassed yarn began in 1930. All of the plain cotton cloth became thin and light cloth like shirting by 1931. The dyed, bleached and printed cotton cloth which began to be produced in 1930 occupied 65% of the total Shanghai sales in 1933. This also made it possible for Naigaiwata to segregate its own market from that of the local Chinese producers. Qingdao Branch and Jinzhou Factory followed the product strategy of Shanghai.

Naigaiwata could maintain its position of largest cotton spinning company in China during the inter war days. It realized profitability on total assets to about 15% there, with only temporary drop in its performance due to political and military incidents between Chinese government and Japanese government.

Naigaiwata kept its position of most advanced cotton spinning company in technology and management and value addition of product. Its technology and management competitiveness were developed in-house of its local factories in Japan and were through the transferred to its factories in China through a large number of Japanese expatriates. It also adapted a part of its labor management to the local situation in China. Its process of local operation has a great deal of continuity to that of Japanese multinationals after the Second World War. However, Naigaiwata did not allow the promotion of the Chinese from rank and file to administrative class. The above practices were considered the uniqueness of local management of Zaikabo.

Epilogue

After the Japan-Sino War broke out Naigaiwata was in a poor condition as it had suffered from severe damage during the conflict and the impact was disastrous. In the 2nd Shanghai Incident in 1937 military conflict had forced Japanese nationals in Shanghai to return to Japan from August until January of the following year, and the Japanese nationals in Qingdao Branch had to also repatriate in this August under the uneasy situation. The factory in Qingdao was destroyed by explosives in December 1937. During the Japan-Sino War, Naigaiwata had been forced to manage Chinese spinning companies under military control, and it is almost certain that Naigaiwata did not want to be involved in taking on that role, but were forced to do as a way of supporting the military in its campaign.

In 1939 it became difficult to procure raw cotton at Qingdao and Jīnzhōu and operations declined sharply (Table 7). In 1940 Shanghai production levels fell constantly due to a lack of cotton, and from there on followed a period in which Naigaiwata sales of cotton, which represented their main business, reduced sharply. During that period Naigaiwata's Chinese operations posted high profits in their profit and loss statement sheets (Table 6). However, if we consider the decrease in operating levels it is hard to take these figures to represent the real situation for their sales figures. This was nothing more than a result of inflation during the war period.

In this situation, its factories were under the control of the military and were not productive. The spinning and weaving machinery were delivered for military purpose, whilst at the same time it shifted away from producing yarn and cloth to other areas to support the military campaign under the Japanese military command. In the end, this resulted in the destruction of its ability to operate as a cotton company. At the end of the war in 1945, Naigaiwata's assets in China were seized by the Chinese authorities.

Acknowledgment

This paper has made use of part of the database created through an MEXT research grant of Promotion of Sciences of Ministry of Education (No. 11630080), which was held between 1999 and 2002 entitled 'Rise and Fall of Japanese textile companies in China: an analysis of Naigaiwata Company from 1920-40'. I would like to thank my research collaborator Professor Takeshi Abe (Graduate School of Economics, Osaka University) for allowing me to use this information. This paper was edited by Dr. Amar K. J. R. Nayak(Associate Professor of Xavier Institute of Management, Bhubaneswar, India) to whom I am grateful.

[2009.8.17 936]

Footnotes

Note 1, Geoffrey Jones, *Multinationals and Global Capitalism from the Nineteenth to the Twenty First Century*, Oxford University Press, 2005, p.22.

Note 2, Tetsuya Kuwahara, *Kigyou Kokusaika no Shiteki Bunseki (Historical Aanalysis of Internationalization of Firms: Japanese Cotton Spinners' Direct Investment in China before the Second World War)*, 1990.

Note 3, Major contributions from this view point are as follows: Seijirou Usami and Harumaru Harada, "Shoukuminchi Shinnryaku to Kokka Dokusen Sihonsyugi(Invation in Colonies amd National Monopolic Capitalism) " , Seijirou Usami and Harumaru Harada, *Kiki ni okeru Nihon Shihonsyugi no Kouzou(The Stracture of Japanese Capitalism in the Crisis)*, Iwanami Syoten, 1951. Zhongpin Yan （YoshiieYoda

translated） , *Chuugoku Kindai Hattatsushi (History of Development of Modern China)* ,Azekura Syobou, 1966. Juichi Nakase, “Sen-i Sangyou no Kaigai Sinsyutu to Zaikabo (Chapter 9, Overseas Operations of Textile Industry and Zaikabo” in Mitsuo Fujii, Juichi Nakase, Kei Maruyama and Mitsumasa Ikeda, *Nihon no Takokuseki Kigyou no Shiteki Tenkai(Development of Multinationals from Japan in Historical Perspective,* Vol.1, Ohtsuki Shoten, 1999. Hiroaki Yamazaki, “Senji-ka ni okeru Zai Kahoku Nihon Bouseki Kaisha no Keiei Doukou ni kansuru Oboegaki(Note on Business Process of Japanese Cotton Spinning Companies in North China during the Sino-Japanese War)” , Tokyo University Shakai Kagaku Kenkyuusho ed., *Shakai Kagaku Kenkyuu(Jouranal of Social Sciences)*, Vol. 4・5, 1977. Peter Duus, ”Nihon Bouseki Kigyou to Chuugoku- Teikokusyugi no Hitotu no Keisu Stadei(Japanese Cotton Spinning Industry and China- A Case Study of Imperialism-)”, Rhuuei Nakamura, *Senkan-ki no Nihon Keizai Bunseki (The Japanese Economy in the Interwar Years)*, Yamakawa Syuppan-sha, 1981. Naosuke Takamura, *Kindai Nihon Mengyou to Chuugoku (Modern Japanese Cotton Industryn and China)*, Minerva Shobou, 1986. Hiroshi Nishikawa, *Nihon Teikoku to Mengyo(Japanese Empire and the Cotton Industry),* Minerva Shobou, 1987. Peter Duus, “Chaper 3, Zaikabo, Japanese Cotton Mills in Chaina, 1895-1937, Peter Duus, Ramon H. Mayers, and Mark Peattie, R. Peattie ed., *The Japanese Informal Empire in China,1895-1937*, Princeton University Press, 1989.

Note 4, The major contributions from this viepoint are as follows: Tetsuya Kuwahara, ibid., 1990. Takeshi Abe, “ Mengyou(Cotton Industry)”, Haruhito Takeda, *Nihon Sangyou Hatten no Dainamizumu(Dynamism in Development of Japanese Industry),* University of Tokyo Press, 1995. Tetsuya Kuwahara, “Zaikabou no Seisui – Kuni no Unmei to Kigyou no Unmei, Naigaiwata Kaisha (The Rise and Fall of the Japanese Coton Spinners in China – The Loss of War and the Firm’s Destiny , Naigaiwata.” ,Kobe University, *Kokumin Keizai Zasshi(Journal of Economics and Business Administration)*, Vo. 178, No.4, 1998. Tetsuya Kuwahara, “ Zaikabou no Sosiki-nouryoku — Ryoutaisenkan–ki no Naigaiwata (Naigaiwata in the Inter Period) ”, Ryuukoku University, *Keieigaku-Ronshu(Journal of Business Studies),* Vo.44, No.1, June 2004. Tetsuya Kuwahara, “ Zaikabo – Shinshutsu Kigyou to Minzoku Kigyou no Soukoku – (Zaikabo: Competition against Chinese Native Firms)”, Keieisi-gakkai, *Gaikoku-Keieishi no Kiso-Chishiki(Basic Kowledge of Business History of Foreign Countries),* 2005. Tetsuya Kuwahara, “Nihon Kigyou no Kokusai-keiei ni kansuru Rekisiteki Kousatsu - Ryoutaisenkan-ki, Chuugoku ni okeru Naigaiwata Kaisha –(The

Overseas Operations of Japanese Manufacturing Multinationals during the Inter-war Years: Naigaiwata in China)", *Nihon Rodo Kenkyu Zasshi (The Japanese Journal of Labour Studies)*, No.262,May 2007.

Note 5, Tetsuya Kuwahara, " The Establishment of Oligopoly in the Japanese Cotton Spinning Industry and the Business Strategies of Latecomers:Case of Naigaiwata", Keiichiro Nakagawa and Hidemasa Morikawa ed., *Japanese Yearbook on Business History,* vol.3, 1986

Note 6, Knegafuchi Cotton Spinning Company had been operating a silk spinning factory in Shanghai, the local name Shanghai Silk Spinning Company which was acquired at the merger of Kenshi Bouseki Kaisya(Silk Spinning Company) in Kyoto, Japan in 1911 . Tetsuya Kuwahara, ibid., 1990, pp.1-8, 145.

Note 7, Cotton Spinning and Weaving Association of Shanghai City, *Zhong Guo Mian Fang Tong Ji Zi Liao (Coton Spinning Satatistics in China)*、Shanghai,1950.

Note 8, Takamura, ibid., 1986, p.131.

Note 9, Takamura, ibid.., 1986, p.131.

Note 10, Although outstanding research that includes fieldwork exists such as Zijian Wang, Zhen z hong Wang(tranlated by Fumio Kunimatsu), *Sina Bouseki-gyou (Cotton Industry in China)*, 1940, and Toshiyoshi Okabe, *Kyuu Chuugoku no Bouseki Roudou Kenkyuu (Research of Cotton Spinning Labor in Old China*), University of Kyusyuu Press, 1992, there are still some important facts that have been missed and need further investigation.

Note 11, Tetsuya Kuwahara, ibid., 1986.

Note 12, In 1913 they built No. 4 Spinning Factory, and in 1915 No. 5 Spinning Factory. In 1918 they bought out Yu Yuan Cotton Spinning Company and gave name of No.9 Spinning Factory. It built No. 12 Spinning Factory (renamed as No.6 Spinning Factory in 1931. hereafter the factory number renamed in 1931 is denoted in the parentheses) in 1919, No.8 Spinning Factory (No. 7 Spinning Factory) and No. 13 Spinning Factory(No. 1 Spinning Factory) both in 1922, No14 Spinning Factory (No. 2 Spinning Factory) and No. 15 Spinning Factory(No. 8 Spinning Factory) both in 1923. Moreover two weaving factories were built: No. 7 Weaving Factory in 1918 and No.9 Weaving Factory in 1922.

Note 13, Tetsuya Kuwahara, ibid., 2004, Table 2.

Chapter 2 , Technology Transfer

Note 14, Kinpuu Sha, *Sina Zairyuu Houjin Jinmeiroku(The Directory of Japanese Residents in Shanghai)* , the 21st version, March, 1930.

Note 15, Yasushi Udaka, *Sina Roudou-mondai(Labor Problems in China)* 1925, pp. 352~356). Emily Honig, *Sisters and Strangers: Women in Shanhai Cotton Mills, 1919~1949*, California University Press, 1986, p.79. Kiichi Nishikawa、*Chuubu Sina Roudousya no Genjo to Zenkoku Roudou Sougi(The Reality of Workers in the Middle China and Industrial Conflicts over China*, 1924, p.20.

Note 16, Toua Doubun-kai, *Sina Kougyou Souran(Overview of Chinese Industries)*, 1931, pp.93-95.

Note 17, Tetsuya Kuwahara, ibid., 1998, p.32.

Note 18, Tetsuya Kuwahara and Takeshi Abe, ibid., June 2003.

Note 19, Letter to Tetsuya Kuwahara from Yasunobu Nakamura, dated on April 12, 2004, reserved by the author.

Chapter 3, Localization of Labor Management

Note 20, Naigaiwata Kaisha, "Shanghai Naigaiwata Hikou Jijou(Labor Strikes of Naigaiwata, Shanghai)", June 1925. , Statistics of the end pages.

Note 21, Naigaiwata Kaisha, ibid., June 1925, pp.47,48.

Note 22, Toua Doubun-kai, ibid., 1931, p.89.

Note 23, Freda Attley, "Eikokujin no Mitaru Zaisi Bouseki-gyou(The Cotton Spinning Firms in China Observed by A British)", *Touyou Boueki Kenkyuu(Study of the Oriental Trade)*, Vol.80, No.10, Oct. 1929, pp.7,8.

Note 24, Tooru Kubo, ibid.., 2005, p.85.

Note 25, Naigaiwata Kaisha, ibid., June 1925、pp., 51-55. Yasushi Udaka, ibid., 1925, p. 346.

Note 26, Naigaiwata Kaisha, Naigaiwata Kaisha Gojuu Nennshi (The Fifty Years of Naigaiwata & Co.), 1937, pp. 133~145.

Note 27, Tooru Kubo, ibid., 2005, p.69.

Note 28, Emily Honig, *Sisters and Strangers: Women in Shanghai Cotton Mills, 1919~1949,* California University Press, 1986, p.51.

Note 29 Naigaiwata Kaisha, ibid., 1937, pp. 67~75. Naigaiwata Kaisha, ibid., June 1925, pp1-11. Yasushi Udaka, ibid., 1925, pp.587~597.

Note 30, Yasushi Udaka, ibid., 1925, p. 596.

Note 31, Sherman Cochran, ibid., 2000, pp.111~112. Emily Honig, ibid., 1986, p.130.The Green Gang swept away the Communist Party in supporting Chang Kai Shek's army in Shanghai in 1927 and was getting more powers there.

Note 32, Yasushi Udaka, ibid., 1925, p.329 .

Note 33, Danzou Tachikawa, *Funatsu Tasuichirou*, 1958, pp.174-176, 186.

Note 34, Toshiyoshi Okabe, “Sina Roudou-ukeoi-seido no Youshiki(The Patterns of Labor Contractors System in China”, Kyoto Daigaku , *Toua Keizai Ronsou(Journal of East Asian Economy)*, Vol. 1, No.2, February 1941, p.152.

Note 35, Toshiyoshi Okabe, “Sina Bouseki-gyou ni okeru Roudou-ukeoi-seido (The Labor Contractors System in Cotton Spinning Firms in China)”, Kyoto Daigaku, *Toua Keizai Ronsou(Journal of East Asian Economy)*, Vol. 1, No.1, February 1941, pp.204. Toshiyoshi Okabe, “Sina Roudou-ukeoi-seido no Hattatsu(2) (The Development of Labor Contractors System in China(2)”, Kyoto Daigaku, *Toua Keizai Ronsou(Journal of East Asian Economy)*, Vol. 1, No.4, December 1941, pp.202, 203.

Note 36, H. D. Hong, *Cotton Industry and Trade in China*, 1932, p.164. Sherman Cochran, ibid., 2000, p.112.

Note 37, However the contractors often conducted intermediary exploitation of female labor and this practice is considered to decrease their manpower.

Chapter 4, Product Value Added Strategy

Note 38, Tetsuya Kuwahara, ibid., 1998. Zhongpin Yan (Yosiie Yoda translated) , ibid., 1966, tables at end pages. After that year China’s processed cotton cloth factories grew under the protection of tariffs based on the custom autonomy. Tooru Kubo “ Nankin Seifu no Kanzei Seisaku to sono Rekishiteki Igi”(Custom Duty Policies of the Nanking Government and its Historical Significance), *Tochi Seido Shigaku (Journal of Political Economy and Economic History*) Vo.8, p.46. Kou Takei, *Takei Ayazou Ibun-syuu(Essay of Memories of Ayazou Takei)*, 1935, p.135.

Note 39, Ayazou Takei, ibid., 1934, pp.135-136.

Note 40, Naigaiwata Kaisha, *Kabunushi Soukai Gijiroku(Minutes of General Meeting of Shareholders)*, 1931.

Note 41, Shouichi Okuyama, “Shanghai ni okeru Houjinn Bouseki Gyou(The Japanese Cotton Spinners in Shanghai)”, Kobe College of Commerce, *Kaigai Ryokou Cyousa Houkoku (Research Report of Overseas Travel , Summer of 1924)* ,1925.

Note, 42, Naigaiwata Kaisha, Zousi Kinenchou*(Memirial Photo Album of Increase of Capital of 1931),* 1932.

Note 43, Naigaiwata Kaisha, *Kabunushi-soukai Gijiroku(Minutes of General Meeting of Stochholders)*, Jan. 1929.

Note 44, Shunyou Adachi, *Naigaiwata wo Kataru(Talking of Naigaiwata.)*, 1932, pp.10,11, 12.

Note 45, Tetsuya Kuwahara, ibid., 1998, p.30.

Note 46, Zaika Bouseki Dougyou-kai, “Zaika Bou Seisan-daka(Product Output of

Zaikabo)“, 1935, reserved in the Department of Library, Research Institute of Economics and Business Administration, Kobe University.

Note 47, Tetsuya Kuwahara and Takeshi Abe, “ Zaikabou no Seisui- 1920~ 40 Nendai no Naigaiwata Kaisha no Bunseki (The Rise and Fall of Zaikabo: Analysis of Naigaiwata. during Years 1920s~1940s) “, Kagaku Kenkyuu-hi Houkoku-syo (Report of Research by the Grant for Promotion of Science of Ministry of Education and Science) C-2, No. 11630080 , June 2003.

Table 1
Top ten cotton spinning firms in China(based on spindles)
1930

rankin	firms	location	nationalit	number of spindles		number of weaving looms		remarks
1	Naigaiwata & Co.	Shanghai, Qingdao, Jīnzhōu	Japan	434,776	9%	1,600	4%	Oneprocessing plants is not included
2	Shen Xin Spininng	Shanghai, Wu xi、Han Kou	China	383,232	8%	3,857	10%	
3	Japan China Cotton Spinning and Weaving	Shanghai	Japan	244,832	5%	500	1%	
4	Yong An Spinning	Shanghai	Overseas Chinese	213,216	5%	1,298	3%	
5	Kanegafuchi Cotton Spinning（Shanghai Silk Manufacturing）	Shanghai	Japan	193,720	4%	3,048	8%	No.3 factory of silk spinning is not included
6	Iwo Spinning and Weaving	Shanghai, Qingdao	Japan	178,288	4%	4,388	11%	
7	Dasheng Spinning	Shanghai	U.K	177,228	4%	2,480	6%	
8	Shanghai Spinning and Weaving	Nan Tong 、Qi Dong 、Hai Men	China	152,444	3%	1,392	4%	
9	Dainippon Cotton Spinning	Shanghai, Qingdao	Japan	134,992	3%	1,320	3%	
10	Hu Bei Spinning and Weaving	Wu Chang	China	90,000	2%	0	0%	out of operation
Total for the 10 companies			2,200,728	48%	21,083	53%	137,314	
Total for the other 70 companies			2,391,862	52%	18,353	47%	141,128	
Total for 80 companies			4,592,590	100%	39,436	100%	278,442	

Source
Shanghai Shi Mian Fang Zhi Gong Ye Tong Ye Gong Hui, *Zhong Guo Mian Fang Tong Ji Zi Liao (Coton Spinning Satatistics in China)*、Shanghai、1950.

Table 2, Sales by branch

unit:Yen

year		No. 1 Factory	No. 2 Factory	Anjou Factory	Domestic total	Shanghai branch	Qingdao branch	Jīnzhōu Factory	Total in China	Total	
										amount	share
1921	First Half	n. a.	n. a.		n. a.	n. a.	n. a.		n. a.	n.a.	n. a.
	Second Half	5%	13%		18%	70%	12%		82%	20,303,022	100%
1922	First Half	5%	13%		19%	72%	10%		81%	24,270,844	100%
	Second Half	6%	13%		18%	72%	10%		82%	22,518,321	100%
1923	First Half	5%	12%		17%	70%	13%		83%	25,364,497	100%
	Second Half	5%	10%		15%	67%	18%		85%	26,173,787	100%
1924	First Half	4%	10%		14%	65%	20%		86%	38,811,651	100%
	Second Half	4%	12%		16%	64%	20%		84%	40,350,516	100%
1925	First Half	6%	11%		17%	65%	18%		83%	38,887,104	100%
	Second Half	8%	19%		26%	42%	23%	9%	74%	27,151,185	100%
1926	First Half	5%	10%		15%	63%	18%	4%	85%	35,865,141	100%
	Second Half	n. a.	n. a.		n. a.	n. a.	n. a.	n. a.	n. a.	n.a.	n. a.
1927	First Half	n. a.	n. a.		n. a.	n. a.	n. a.	n. a.	n. a.	n.a.	n. a.
	Second Half	4%	12%		16%	55%	24%	5%	84%	21,033,761	100%
1928	First Half	2%	8%		10%	60%	25%	5%	90%	26,693,849	100%
	Second Half	2%	8%		10%	58%	26%	6%	90%	26,700,625	100%
1929	First Half	2%	7%		9%	60%	23%	8%	91%	28,632,563	100%
	Second Half	2%	8%		11%	71%	9%	10%	89%	22,182,038	100%
1930	First Half	2%	6%		8%	64%	17%	10%	92%	20,846,603	100%
	Second Half	1%	7%		9%	61%	19%	12%	91%	16,155,643	100%
1931	First Half	n. a.	5%		5%	62%	22%	11%	95%	18,385,196	100%
	Second Half	n. a.	7%		7%	59%	22%	12%	93%	14,405,416	100%
1932	First Half	n. a.	6%		6%	44%	35%	16%	94%	15,306,528	100%
	Second Half	n. a.	6%		6%	59%	23%	12%	94%	21,641,199	100%
1933	First Half	n. a.	6%		6%	55%	27%	13%	94%	26,996,998	100%
	Second Half	n. a.	5%		5%	60%	24%	11%	95%	32,906,260	100%
1934	First Half	n. a.	5%	0. 00939	6%	59%	23%	12%	94%	33,591,438	100%
	Second Half	n. a.	n. a.	n. a.	n. a.	n. a.	n. a.	n. a.	n. a.	n.a.	n. a.
1935	First Half	n. a.	n. a.	n. a.	n. a.	n. a.	n. a.	n. a.	n. a.	n.a.	n. a.
	Second Half		4%	0. 037113	8%	58%	21%	11%	92%	41,085,600	100%
1936	First Half		5%	0. 050176	10%	53%	23%	15%	90%	36,440,336	100%
	Second Half		4%	0. 048756	8%	58%	19%	14%	92%	40,640,078	100%
1937	First Half		n. a.	n. a.	n. a.	n. a.	n. a.	n. a.	n. a.	n.a.	n. a.
	Second Half		8%	0. 097237	17%	35%	14%	34%	83%	26,092,498	100%

1938	First Half		8%	0.105158	18%	34%	0%	47%	82%	**20,144,883**	100%
	Second Half		4%	0.048357	8%	63%	0%	29%	92%	**36,119,113**	100%
1939	First Half		4%	0.065231	10%	52%	4%	34%	90%	**29,401,859**	100%
	Second Half		3%	0.06409	10%	59%	9%	22%	90%	**28,771,852**	100%
1940	First Half		1%	0.028645	4%	73%	10%	13%	96%	**65,925,041**	100%
	Second Half		2%	0.021447	4%	68%	13%	15%	96%	**75,487,918**	100%
1941	First Half		2%	0.029528	5%	64%	14%	17%	95%	**56,730,060**	100%
	Second Half		2%	0.022978	4%	66%	14%	16%	96%	**62,683,439**	100%

Data sourc

Naigawata &Co.,"Kaku-siten Koujou-keisan-bo(Account Books of Branches and Factories)" First Half of 1921- Second Half of 1941.

However, figures are not available for Second Half of 1926, First Half of 1927, Second half of 1934 and First Half of 1935, and First half of 1937.

Notes

1, The sales volume are calculated as follows: Sales for each product
= balance brought forward from the previous period + turnover for that period -
balance brought forward from the next period + profit (or loss)
The sales for Shanghai and Qingdao for the period 1935-41 are obtained by converting the local currency into Yen.
The conversion rate is referred to the following lliterature.
Hisiao Liang-lin, China's Foreign Trade Statistics, 1864-1949,(Harvard East Asian monograph; 56),1974,p.192
Haikwan Tael = 1.114 Shanghai Dollar (Shanghai $) = 1.05 Qingdao Yin
2, Waste thread and waste cloth are added to the respective spinning and cloth products up to 1938

Table 3,
Spindles, Japanese Expatriate and Chinese Labor at Shanghai Branch (1911–1942)

	Spindles	Japanese expatriates at Shanghai branch	Chinese labor	Chinese labor per one Japanese	Spindles per Chinese	Spindles per Japanese
1911	20736					
1912	21504					
1913	52304					
1914	54304					
1915	106937					
1916	113991					
1917	115,527	54			2139	
1918	115,527					
1919	192,040	65			2954	
1920	192,040	118			1627	
1921	192,640					
1922	233,076	232			1005	
1923	319,061	367			869	
1924	319,061	*379*	15,119	40	842	21
1925	319,061	*379*	15,714	41	842	20
1926	319,061	391	15,400	39	816	21
1927	312,973	397			788	
1928	330,813					
1929	327,193					
1930	343,089	370	10589	29	927	32
1931	376,730					
1932	340,262					
1933	340,162	350			972	
1934	416,686					
1935	393,646					
1936	393,886					
1937	393,886	398	12,532	31	990	31
1938	393,886	380			1037	

1939	393,886					
1940	393,906	363			1085	
1941	392,454					
1942	392,454	383			1025	

Remarks

The number of spindles include twisting machines, weaving machines, processing equipment shich are converted to number of spindles.

source

1, number of spindles

1911-1937:Naigaiwata Kaisha, *Naigaiwata Gojuu Nennshi (The Fifty Years of Naigaiwata)*、*1937*、*end pages.*

1937-1942:Naigaiwata Kaisha, "Kotei-sisan Kanjou(Accounts of Fixed Assets)", The Second Half each.

The rate converted to spindles from looms, twisting frame and processing machines to spindles is available on the end pages of Naigaiwata Kaisha, ibid., 1937、end pages.

2, Number of Japanese expatriate

1), Number of the following years is from, Kinnpuusha, *Sina Zairyuu Houjin Jinmei-roku(Directory of Japanese Residents in Shanghai)*

1917; The 8th Version, December 1917.

1919; The 10th version, in December 1918.

1920; The 11th version, in June 1920.

1922; The 13th version, August 1922.

1923; The 14th version, July 1923.)

1926; The 17th version, May 1926.

1927; The 18th version,April 1927.

1930; The 21th version, Marchl 1930.

1933; The 24th version, January 1933.

1938; *Rinji Shanghai Ban (The Special version of Shanghai),* June 1938.

1940*; Kinen-gou (The Memorial Issue of the 30th version), September 1940.*

1942*; Chuusi Ban, (The Memorial Issue of the 32th version), August 1942.*

2), 1937: Naigaiwata Kaisha, ibid., 1937, end pages

3, Number of Chinese labor

1924: Yasushi Udaka, *Sina Roudou Mondai(Labor Issues in China)*, 1925,p.111.

1925: Naigaiwata Kaisya, "Shanghai, Naigaiwata Kaisha Hikou Jijou(Labor Strikes in Naigaiwata, Shanghai) June 1925.

1926: Shigeo Imura, *Bouseki no Keiei to Seihin(Business and Products of Cotton Spinning Companies)*, 1926, pp. 346,347.

1930: Shanghai Shi Mian Fang Zhi Gong Ye Tong Ye Gong Hui, *Coton Spinning Satatistics in China*、Shanghai、1950.
Labor of weaving section is included.

1937: Naigaiwata Kaisha, ibid.,1937、end pages.

Table 4
Labor of Sex Distinction at Shanghai Branch

factory			labor					
			May,1925			May, 1937		
name in 1925	name in 1937		male	female	total	male	female	total
No. 3 Spinning	No. 3 Spinning	191107	**861**	499	1360	195	516	711
No. 4 Spinning	No. 4 Spinning	191304	**955**	912	1867	197	867	1064
No. 5 Spinning	No. 5 Spinning	191411	**2130**	1268	2398	283	1130	1386
No. 7 Weaving	No. 7 Weaving	191810	262	1410	1672	167	805	972
No. 8 Spinning	No. 7 Spinning	192202	265	518	783	161	718	879
No. 9 Spinning	No. 9 Spinning	191810	**783**	96	834	184	372	556
No.9 Weaving	No.9 Weaving	192201	321	1226	1547	184	818	1002
No. 12 Spinning	No. 6 Spinning	191904	**306**	285	591	283	1103	1386
No. 13 Spinning	No. 1 Spinning	192208	344	864	1208	290	599	889
	No. 1 Weaving	193109				192	680	892
No.14 Spinning	No.2 Spinning	192306	255	876	1131	188	427	615
	No. 2 Weaving	193207				186	626	812
No.15 Spinning	No.8 Spinning	192310	321	1002	1323	208	748	956
	No.1 Processing	193001				**178**	52	230
	No.2 Processing	193209				**672**	89	761
Total			6758	8956	15714	3736	8796	12532
percentage of male and female out of total			43%	57%	100%	29.8%	70.20%	100%

source
labor of 1925; Naigaiwata Kaisha, *Shanghai, Naigaiwata Kaisha Hikou Jijou(Labor Strikes in Naigaiwata, Shanghai)* June 1925.
labor of 1937; Naigaiwata Kaisha, *Naigaiwata Gojuu Nennshi (The Fifty Years of Naigaiwata)*、1937, end pages.

Table 5
Sales by product for the Shanghai Branch
Units: 1921–41 Yen, 1942–43 Shanghai Dollars

Products		Cotton yarn	Grey cotton cloth	Processed cotton cloth	Other products	Total	
		%	%	%	%	Value	%
1921	First Half	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
	Second Half	n.a.	n.a.	n.a.	n.a.	14,296,082	100%
1922	First Half	n.a.	n.a.	n.a.	n.a.	17,471,962	100%
	Second Half	n.a.	n.a.	n.a.	n.a.	16,101,849	100%
1923	First Half	n.a.	n.a.	n.a.	n.a.	17,754,582	100%
	Second Half	n.a.	n.a.	n.a.	n.a.	17,573,099	100%
1924	First Half	n.a.	n.a.	n.a.	n.a.	25,284,600	100%
	Second Half	n.a.	n.a.	n.a.	n.a.	25,781,587	100%
1925	First Half	n.a.	n.a.	n.a.	n.a.	25,462,267	100%
	Second Half	n.a.	n.a.	n.a.	n.a.	11,343,900	100%
1926	First Half	n.a.	n.a.	n.a.	n.a.	22,418,937	100%
	Second Half	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
1927	First Half	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
	Second Half	72%	28%	0%	0	11,622,444	100%
1928	First Half	70%	30%	0%	0	16,143,042	100%
	Second Half	74%	26%	0%	0	15,533,935	100%
1929	First Half	69%	31%	0%	0	17,141,156	100%
	Second Half	70%	30%	0%	0	15,693,036	100%
1930	First Half	74%	27%	−1%	0	13,380,573	100%
	Second Half	75%	14%	11%	0	9,801,132	100%
1931	First Half	67%	30%	4%	0	11,385,581	100%
	Second Half	66%	15%	20%	0	8,469,140	100%
1932	First Half	61%	25%	14%	0	6,661,394	100%
	Second Half	51%	10%	40%	0	12,833,138	100%
1933	First Half	53%	14%	33%	0	14,915,764	100%
	Second Half	33%	4%	63%	0	19,748,274	100%
1934	First Half	36%	9%	55%	0	19,850,196	100%
	Second Half	n.a.	n.a.	n.a.	n.a.	n.a.	100%
1935	First Half	n.a.	n.a.	n.a.	n.a.	n.a.	100%
	Second Half	32%	11%	57%	0%	23,754,006	100%
1936	First Half	36%	10%	54%	0%	19,319,281	100%
	Second Half	31%	8%	60%	0%	23,731,711	100%

1937	First Half	n.a.	n.a.	n.a.	n.a.	n.a.	100%
	Second Half	42%	10%	50%	0%	9,119,502	100%
1938	First Half	39%	27%	34%	0%	6,890,296	100%
	Second Half	40%	26%	34%	0%	22,800,745	100%
1939	First Half	46%	12%	42%	0%	15,408,929	100%
	Second Half	45%	10%	44%	1%	16,930,296	100%
1940	First Half	47%	20%	32%	1%	48,110,565	100%
	Second Half	47%	13%	38%	2%	51,466,281	100%
1941	First Half	42%	21%	36%	2%	36,255,353	100%
	Second Half	39%	14%	46%	1%	41,584,562	100%
1942	First Half	32%	24%	43%	0%	159,246,018	100%
	Second Half	46%	16%	38%	0%	115,239,028	100%
1943	First Half	42%	10%	49%	0%	124,934,814	100%
	Second Half	34%	21%	44%	1%	76,335,678	100%

Data Naigawata Kaisha, Kaku-siten Koujou-keisan-bo(Account Books of Branches and Factories)" First Half of 1921-Second Half of 1943.

Notes

1, The sales volume are calculated as follows: Sales for each product
= balance brought forward from the previous period + turnover for that period -
balance brought forward from the next period + profit (or loss)
The sales for Shanghai for the period 1935-41 are obtained by converting the local currency into Yen.
The conversion rate is referred to the following literature. Hisiao Liang-lin, *China's Foreign Trade Statistics, 1864-1949*
(Harvard East Asian monograph 56), 1974,p.192.
2, Waste thread and waste cloth is added to the respective spinning and cloth products up to 1938

Table 6
Profitability of total assets of branches (1922–1943)

branch		Denpou Spinning and Weaving Factory(Osaka)	NIshinomiya Spinning and Weaving Factory(Hyougo)	Anjou Factory	domestic total	Shanghai Branch	Qingdao Branch	Jīnzhōu Factory	total in China	total of Japanese operations and Chinese operations		
										ordinal profit	total assets	profitability
1921	First Half	15%	32%		25%	58%	61%		59%	6189720	21,904,593	57%
	Second Half	79%	82%		81%	50%	47%		50%	6171098	23,637,570	52%
1922	First Half	75%	80%		78%	46%	15%		39%	5393554	25,935,649	42%
	Second Half	41%	39%		40%	42%	6%		33%	4646394	27,525,519	34%
1923	First Half	25%	29%		28%	18%	8%		15%	2739091	34,090,524	16%
	Second Half	4%	2%		3%	18%	11%		16%	2616027	34,119,267	15%
1924	First Half	37%	34%		35%	14%	14%		14%	2766553	38,071,867	15%
	Second Half	9%	17%		14%	15%	18%		16%	2883029	36,752,627	16%
1925	First Half	29%	12%		17%	15%	6%		11%	2648307	47,684,532	11%
	Second Half	30%	36%		34%	4%	8%	3%	6%	1433808	43,596,799	7%
1926	First Half	8%	1%		3%	13%	9%	−4%	10%	2004738	40,309,880	10%
	Second Half	n.a.	n.a.		n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
1927	First Half	−6%	34%		21%	9%	4%	−4%	7%	1436877	37,680,340	8%
	Second Half	−2%	27%		19%	12%	5%	10%	10%	1842998	36,019,135	10%
1928	First Half	−18%	9%		1%	12%	11%	5%	11%	1886708	36,237,684	10%
	Second Half	4%	8%		7%	12%	15%	7%	12%	2038420	34,326,328	12%
1929	First Half	−3%	7%		4%	17%	20%	12%	17%	3057308	36,845,109	17%
	Second Half	−9%	13%		6%	19%	5%	10%	14%	2632502	37,438,114	14%
1930	First Half	−20%	−11%		−14%	15%	9%	5%	13%	2525043	44,068,366	11%
	Second Half	−14%	−21%		−19%	12%	9%	2%	10%	2119619	46,978,706	9%
1931	First Half	n.a.	30%		22%	24%	12%	20%	21%	4270008	40,710,573	21%
	Second Half	n.a.	26%		20%	16%	8%	15%	15%	3280482	44,495,601	15%
1932	First Half	n.a.	17%		13%	3%	17%	19%	7%	1773503	48,737,744	7%
	Second Half	n.a.	19%		14%	4%	13%	14%	6%	1675487	52,378,320	6%

1933	First Half	n.a.	73%		56%	9%	19%	24%	12%	3487335	53,579,325	13%
	Second Half	n.a.	60%		46%	13%	14%	18%	14%	3683161	51,306,519	14%
1934	First Half	n.a.	57%	7%	21%	17%	12%	22%	17%	4811870	56,435,816	17%
	Second Half	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
1935	First Half	n.a.	32%	14%	20%	17%	10%	11%	15%	4680113	60,721,751	15%
	Second Half		24%	8%	12%	14%	6%	13%	12%	3748546	60,408,896	12%
1936	First Half		32%	11%	13%	15%	13%	12%	14%	4133698	59,467,958	14%
	Second Half		27%	14%	17%	16%	19%	9%	15%	4200713	55,072,987	15%
1937	First Half		n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
	Second Half		26%	19%	21%	12%	13%	22%	14%	4451526	59,036,666	15%
1938	First Half		59%	32%	40%	7%	0%	33%	15%	4186117	49,835,162	17%
	Second Half		37%	24%	27%	25%	0%	42%	29%	8327796	57,295,869	29%
1939	First Half		29%	20%	23%	31%	9%	42%	31%	8382676	54,509,970	31%
	Second Half		25%	21%	22%	43%	24%	35%	38%	11070411	59,267,741	37%
1940	First Half		22%	25%	24%	56%	22%	28%	47%	24452564	105,995,944	46%
	Second Half		4%	4%	4%	54%	38%	18%	47%	25748878	114,153,837	45%
1941	First Half		35%	17%	24%	8%	25%	11%	11%	5745770	100,671,932	11%
	Second Half		31%	26%	28%	48%	39%	18%	42%	28780376	137,485,048	42%
1942	First Half		13%	23%	19%	n.a.	n.a.	16%	n.a.	n.a.	n.a.	n.a.
	Second Half		9%	6%	7%	n.a.	n.a.	17%	n.a.	n.a.	n.a.	n.a.
1943	First Half		6%	4%	5%	n.a.	n.a.	14%	n.a.	n.a.	n.a.	n.a.
	Second Half		−12%	30%	13%	n.a.	n.a.	13%	n.a.	n.a.	n.a.	n.a.

source Naigawata Kaisha, Kaku−siten Koujou −keisan-bo(Account Books of Branches and Factories), First Half of 1921- Second Half of 1941.

Notes The conversion rate of local currency (Shanghai dollar, and Qingdao Yin) to yen during years from Second Half of 1935 to Second Half of 1941is obtained in Hsiao Liang-lin, *China's Foreign Trade Statistics, 1864-1949,* (Harvard East Asian Monographs; 56), 1974, p.192.
Conversion rate among local currencies is as follows:
1 Haikwan Tael=1.114 Shanghai dollars =1.05 Qingdao Yin

Table 7
Operation Rates of Branches (1939–Second Half of 1944)

Year		Branches and Factories				Notes
		Domestic(Nishinomiya and Anjou are combined)	Shanghai	Qīngdǎo	Jinzhou	
1939	First Half	64%	Spinning 100%, Processing 70%	Spinning 80%, Weaving 60%	60%	The Jinzhou's rate 60% was the figure from April.
	Second Half	61%	Spinning 100%, Processing 90%	83%	50%	The figures of domestic factories and of Zinghou were those from September onward. The figures of Shanghai factories were those at the end of th period.
1940	First Half	70%	100%	67%	52%	
	Second Half	53%	66%	79%	50%	The figure of domestic factories were that at the end of th period.
1941	First Half	n.a	50%	n.a	n.a	
	Second Half	n.a	n.a	n.a	n.a	
1942	First Half	n.a	n.a	n.a	40%	Shanghai planned for closure of No. 9 Factory and No. 1 Processing Factory.
	Second Half	24%	28%	45%	40%	Nishinomiya was reduced by 21,184 spindles.
1943	First Half	n.a	n.a	n.a	n.a	
	Second Half	n.a	n.a	n.a	n.a	
1944	First Half		10%	11%	21%	Anjo ceased operation from 5th March

source
Tetsuya Kuwahara, "Zaikabo no Seisui – Kuni no Unmei to Kigyou no Unmei, Naigaiwata Kaisha
(The Rise and Fall of the Japanese Coton Spinning Firms in China; The Loss of War and the Firm's Destiny, Naigaiwata & Co.)"
Kobe University, *Kokuminkeizai Zasshi(Journal of Economics and Business Administration)*, Vol. 178, No.4, 1998, p.35.