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Relationship between Industrial Structure Change and Economic Growth in Comparative Perspective of China and Japan

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Relationship between Industrial Structure Change and Economic Growth in Comparative Perspective of China and Japan

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Industrial Structure Change

Between China and Japan

Hongtian ma

Economics 101

Abstract:

Since China's reform and opening up, through the transformation and upgrading of economic structure, the gross domestic product (GDP) of China's economy developed rapidly in 2010, which became the second largest economy after the United States. After World War II, Japan's economy also developed rapidly through a series of economic restructuring. The basic situation of China and Japan is very different. China has a large population and rich land resources. Compared with China, Japan has a small population and a shortage of land resources. The GDP of the two countries is the second and third in the world respectively. This article will analyze the similarities and differences of the economic structure adjustment between China and Japan in terms of GDP, structure of employment, changes in import and export trade and economic policy. At the same time, the future development trend of economic structure in China will also be forecasted.

Industrial structure refers to the composition of various industries, as well as the relationship and proportion between them. With the rapid economic development, more and more production departments are formed due to the increasingly detailed division of labor. There will be enormous differences in the growth rate, the number of employed people, the proportion in the total economic output, the role of promoting economic growth, etc. in these production departments due to different factors' influence and restriction. In general, the industrial structure can be divided into three categories: primary industry, secondary industry and tertiary industry respectively. The primary industry refers to agriculture, including farming, forestry, animal husbandry and fisheries. The secondary industry refers to modern industry, including mining, manufacturing, construction, as well as water, electricity, and gas supply. The tertiary industry includes all industries except for the primary and secondary industries. It can be divided into two parts: the circulation department and the service department. The circulation

department includes transportation, retail trade, wholesale and catering. while the service department includes finance, education, scientific research and political parties.

Each industry has its own advantages and disadvantages. For example, human beings cannot live without food, and the development of the primary industry can guarantee adequate supply of food for human beings. Every coin has 2 sides that the disadvantages of it are also obvious. Since most of the food produced is neither expensive nor rare, the development of the primary industry will not make the country’s economy growing rapidly because the country does not develop on rice and fish. In this case, the government will be committed to increasing the share of the secondary industry in total GDP by energetically developing the manufacturing industry, thus increasing the economic growth rate through import and export trade. However, it is necessary to build factories for the secondary industry, which will definitely affect the environment with most countries being affected by environmental pollution to varying degrees. At this time, it is urgent to develop tertiary industry. It is universally acknowledged that the primary industry aims at ensuring the basic life of human being, while the development of the tertiary industry is for improving people's quality of life. Most governments will vigorously develop the tertiary industry for the sustainable development of the economy. In general, almost every country’s industrial structure change starts from the primary industry, followed by the secondary industry and finally the tertiary industry. However, there would be subtle differences between different countries. This article will analyze the relationship between industrial restructuring and economic growth by comparing macroeconomic data between China and Japan.

China (1978-2015)

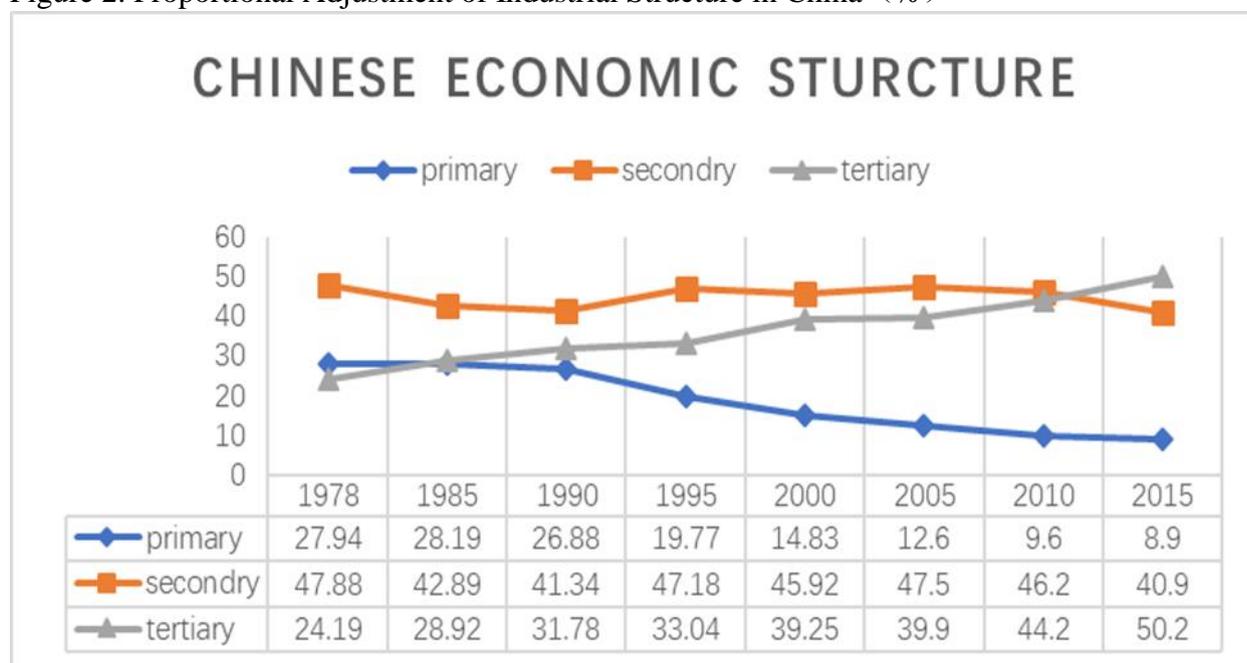
After 1978, Chinese government issued a series of policies to promote economy. According to chart 1, China’s growth stage can be roughly divided into three parts, the first stage from 1978 to 1985, the second from 1985 to 2000, and the third from 2001 to 2015.

Figure 1. Chinese GDP growth rate (%)



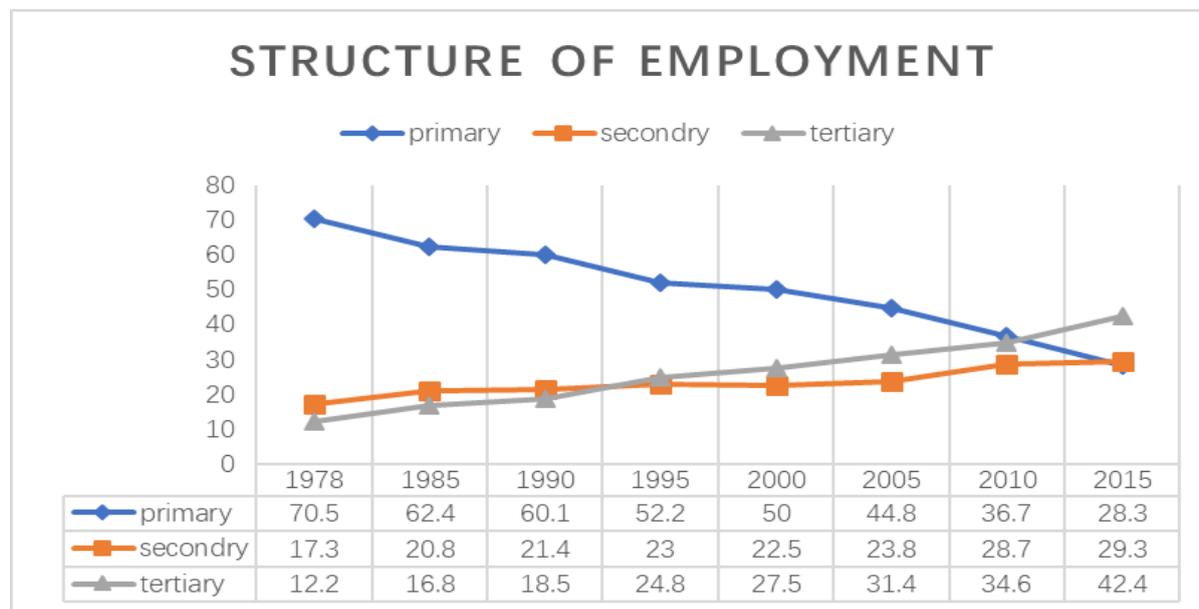
The first stage (1978-1985), according to the table, China’s economy developed very fast in this period, the growth rate of GDP reached 11.7% in 1978 and then continues to rise. By 1985, the growth rate of GDP was 13.5%. To compared with the average GDP growth rate within 5 years, the average GDP growth rate of 1975 to 1980 was 6.62%, and it can be seen that the average growth rate was 10.78% from 1980 to 1985. In the second stage (1985-2000), under the influence of the international environment, the growth rate of GDP declined sharply in 1985. It is only 3.8% in 1990, which was far below the average growth rate of 7.92% from 1985 to 1990. In 1990, China's economy began to recover, but still below the average. In the third stage(2000-2015), After China entered the World Trade Organization, in 2005, the growth rate of GDP was over 10% to 11.3, and remained stable since then, because the average growth rate was close to that in 5 years. China’s GDP growth rose at first and then went down and then picked up, and China's industrial structure also changed significant

Figure 2. Proportional Adjustment of Industrial Structure in China (%)



According to the table, we can see that the largest proportion was the second industry before 1978; the first industry was equal to the third industry. However, between 1978 and 1985, the Chinese government thinks highly of the development of the first industry and the third industry. After 1985, the proportion of the first industry declined. In contrast, the second and third industries continued to rise. The annual growth rate of the third industry is obviously higher than that of the second industry and continues to rise since then; it rose to 50.2 in 2015. The second industry rose from 1985 to 1995, and after a small bump from 1995 to 2005, the proportion of the second industry was smaller and smaller after 2005. In 2015, the second industry accounted for only 40.9, which is the lowest number from 1985 to 2015.

Figure 3. Employment Structure of Industrial Structure in China (%)



Influenced by the adjustment of industrial structure, the employment structure has also changed. According to the chart, 70.5% of the employers were in the first industry. With the continuous development of China's economy, the second and third industrial structures develop rapidly and the proportion of employer in first industry is lower and lower. Compared with the growing people in third industry, the number of employers in the second industry also continues to rise, except some fluctuations from 1995 to 2000.

Figure 4. Proportion Distribution of Eight Industries in China (%)

Year	Agriculture Forestry Fishery industries	Industry	construction	Wholesale and retail trades
1978	28.1	43.9	3.8	6.6
1982	33.3	40.4	4.1	3.2
1986	27	38.4	5.1	8.3
1990	27	36.4	4.6	6.8
1995	19.9	40.7	6.1	7.8
2000	15	40	5.5	8.2
2005	12.1	41.4	5.6	7.5
2010	9.9	39.7	6.6	8.8

2014	9.5	35.9	7	9.8
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year	Transport storage	Hotel and catering service	Financial intermediation	Real estate
1978	5	1.2	2.1	2.2
1982	4.5	1.1	1.9	2.0
1986	4.8	1.6	3.9	2.9
1990	6.2	1.6	6.1	3.5
1995	5.3	2	5.3	3.9
2000	6.2	2.2	4.8	4.2
2005	5.7	2.3	4	4.6
2010	4.6	1.9	6.3	5.8
2014	4.5	1.8	7.3	6

The best way to adjust the proportion of industrial structure is to start with the country's economic policies, and China's economic policies differ from each other in these three stages. From 1978 to 1984, according to the figure4, we can see that the Chinese government has increased the proportion of the first industry at this stage and encouraged the development of agriculture. The specific policies are as follows:

Policy (1978-1984) 1 Household contract responsibility system: 1. The government issued the task and the farmers completed the agricultural production via free combination 2. The government allocated the land to each farmer, and the part exceeding the prescribed amount was owned by the farmer himself. 3. According to the characteristics of each region, the land was distributed to users, and the portion exceeding the prescribed amount was still owned by the farmers. 4. Increasing the price of purchasing agricultural and sideline products. The government distributed the state-owned land to the farmers, and encouraged them to cultivate, and they can also obtain the all food they cultivated at this stage. Some of the food is eaten by the farmers themselves, the rest will be put into the market, which not only improves the productivity of agriculture, but also increases trade, which can be said kill two birds with one stone.

(1985-1990) From 1985 to 1990, the Chinese government began to improve its support for enterprises. The specific policies were as follows: Reducing government intervention: The number of export commodities managed by the state dropped from 900 to 27, enterprises can decide sales, product pricing, raw material procurement, fund use, fund allocation, and freely choose various production products, to carry out multiple operations. According to the size of enterprises, starting to implement the experiments of responsibility system, rent system and shareholding system, and encourage companies to go public in 1987. The Chinese government choose to decentralization power first, reduce the limit to the

enterprise, including the trade type and quantity, which greatly increase the number of Chinese enterprises. However, when the state of saturation is reached, the government will change its internal management policy to make it more formal through policies, which lay a solid foundation for international trade in the future.

(1990-2000) Two events occurred at this stage. The first thing was inflation. Before 1989, the state economy was developing at a high speed. Due to the rapid economic development, the total social demand was greater than the total supply, the main proportion of the national economy was unbalanced, which led to the serious inflation in 1988. What's more, the consumer price index reached 18.8% in 1988. In order to control prices, China decided to start price reform. The price reform intensified people's inflation expectations, people all over the country rushed to purchase, which makes price rose further in 1988. Rising price has exceeded people's ability to afford, affecting economic development and social stability. In response to the above situation, the state proposes a series of measures to eliminating overheating and curbing inflation. Specific measures include reducing investment scale, controlling credit scale, rectifying circulation area and increasing effective supply. After adjustment, China's price inflation has improved in 1989, but there are still some problems such as imbalance between supply and demand and the decline of industrial production speed. In 1990, the central government proposed to continue to regulate and control the total demand of the society.

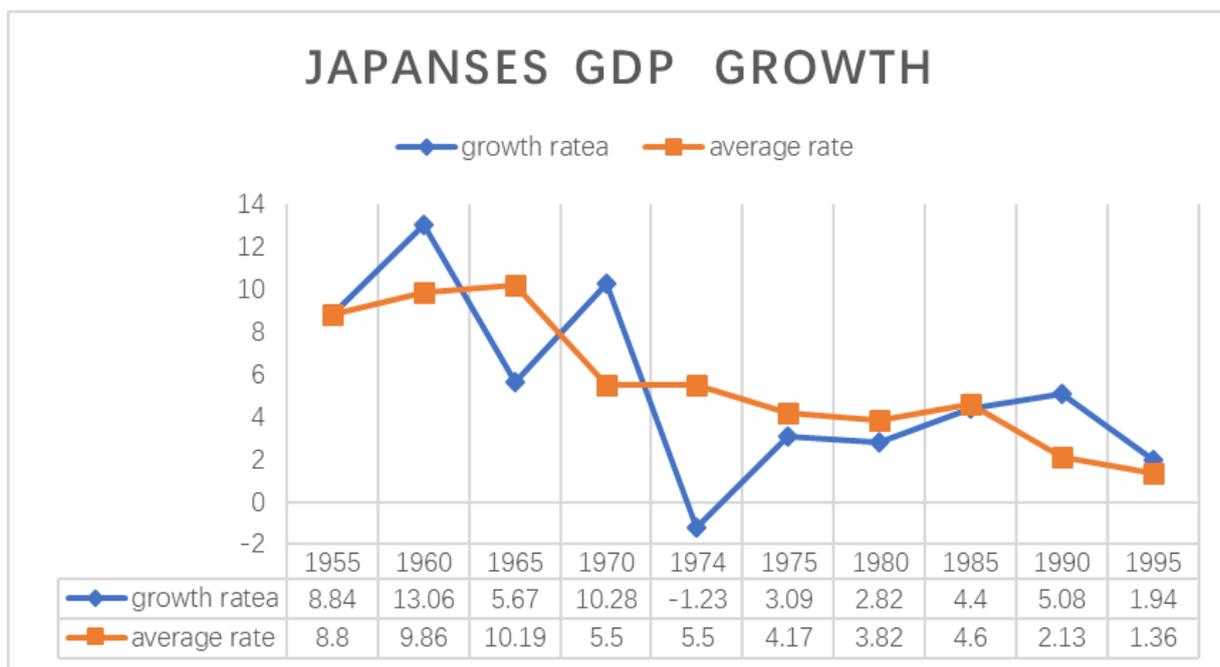
In the summer of 1988, there was a run on Banks around the country, and all kinds of goods were snapped up. Some shops and businesses have taken the opportunity to raise prices, while bank deposits have fallen by 40billion Chinese money, and Banks have had to print a lot of renminbi to relieve the difficulties, which led the inflation. The inflation has made the GDP growth rate declining from 1989 to 1990. The second thing is that the strategy of big trade has to be formulated. The Chinese government has issued an economic strategy, striving to develop the retail manufacturing industry, promoting international trade and applying for WTO accession in 1994. It provides conditions for economic recovery in 2000 though the economy is developing slowly at this stage. According to the chart of 1990 -2000, it can be seen that in this stage, all the industries changed little except retail industry, which increase from 6.8 to 8.2 in 10 years, the characteristic of retail industry is large in amount, but the average price is very low, so the economy is not growing very quickly at this stage. The biggest function seems to be preparing for joining the international WTO.

(2000-2015) In this stage, the biggest event is that China formally joined the World Trade Organization in 2001. The benefits are: 1. Reduce the restrictions of developed countries on China's export quotas; 2. It is helpful for Chinese government to regulate trade market; 3. Expand export, and the 134 members of the organization can maximum benefit for their countries; 4. It is beneficial for the introduction of foreign capital and the creation of job. 5. It can improve people's living standards. After joining the WTO, tariff reduced, and people can buy qualified goods in equal currency. All these benefits help China surpass Japan in 2010 and become the second largest economy in the world.

Japan (1955-1995)

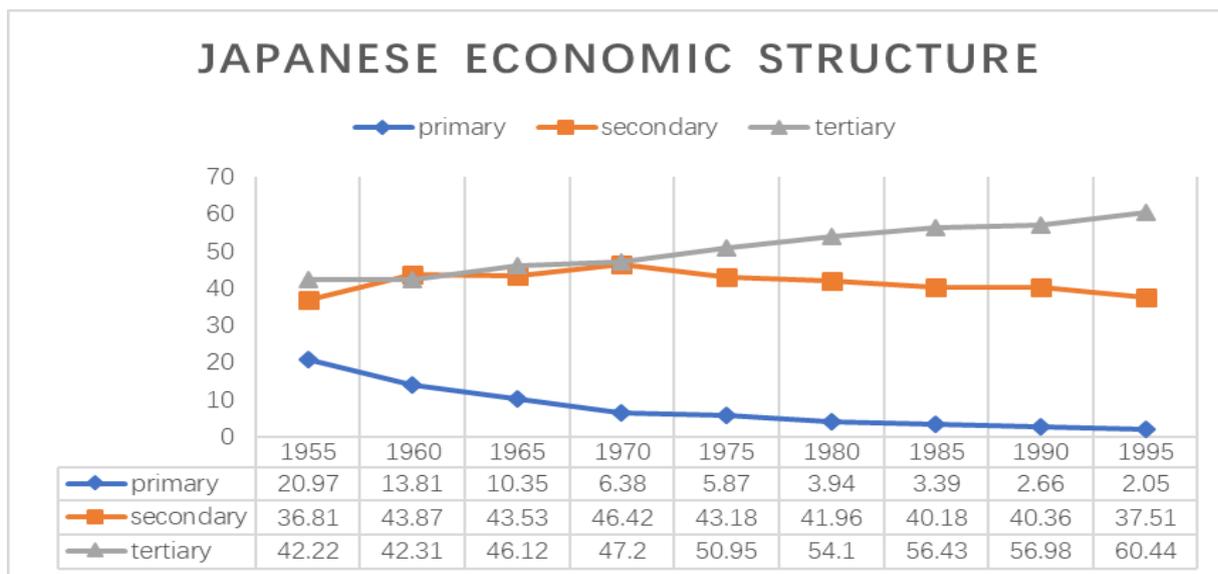
Compared with China, the economy of Japan increases evidently. It is mainly divided into three stages. First stage (1955-1974), second stage(1975-1985) and third stage(1985-1995). Supported by America, Gross domestic product of Japan was restored to the pre-war level in 1955. With fast growth, the Japanese economic output exceeded that of Germany in 1968, making Japan the world's second largest economic entity. After the international oil crisis broke out in 1973, Japanese economy entered the second phase. It suffered another serious blow after Japan signed the Plaza Accord in 1985. The real growth rate of Japanese economy remained 3%~5%, excluding the sharp growth rate of 7.2% in 1988.

Figure 5. Japanese GDP growth rate (%)



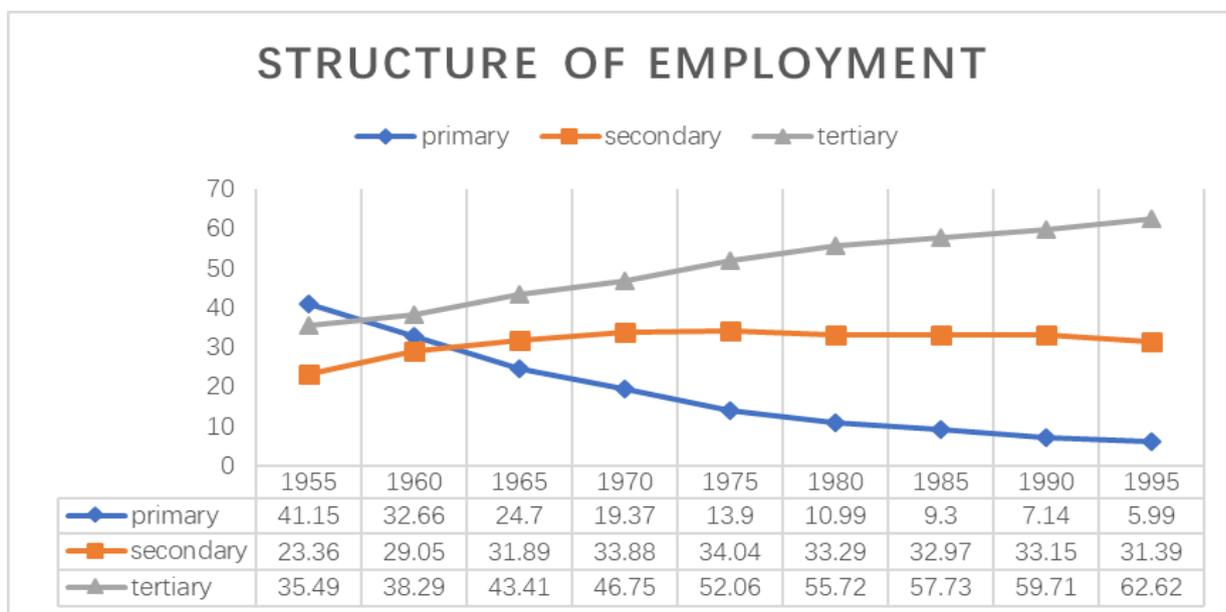
First stage (1955-1964). The economy of Japan developed rapidly in this stage. In this ten years, average growth rate of 5 years is 8.8% and 9.86%. And in 1960, the growth rate of GDP has reached 13.06%. In second stage (1975-1985, the economy of Japan has further developed since 1965. The actual growth rate of GDP was always beyond 10% until 1971 which dropped to 4.4%. Such long-time and high-speed growth is rare in the history, in 1974, because of the influence of world oil crisis, negative growth occurred in the economy of Japan for the first time, which is -1.23%. After that, though it rose a bit, however, Japan is in bubble economy era in 1980, land prices had risen sharply, and the bubble burst after the influence of trade, the economy of Japan had been hit badly.

Figure 6. Industrial Structure Distribution Proportion of Japan %



In the first stage, according to the figure6, the reason why the economic development of Japan is that the Japanese government has gradually increased the proportion of the second industry and reduced the proportion of the first industry. But in the second stage, from 1970, the Japanese government reduced the proportion of the first and second industries and focused on the development of the third industry.

Figure 7. Employment Structure Distribution Proportion of Japan%



According to the adjustment of the industrial structure, the employment structure has

also been adjusted, and the number of people in the first industry has been getting less and less. Instead, the number of employees in the second third industry has increased year by year.

Figure 8. Proportion Distribution of Output Value of Major Industries in Japan

Year	Wholesale and retail industry	Financial Insurance	Real estate	Transport communication	service
1955	11.25	4.28	5.85	7.69	10.64
1960	12.22	3.72	7.99	7.81	7.92
1965	13.88	4.73	9.03	7.89	8.24
1970	14.96	4.43	8.38	7.17	10.05
1975	15.81	5.62	8.75	6.88	11.72
1980	16.41	5.55	10.1	6.59	12.51
1985	14.22	5.64	10.74	7	15.4
1990	14.21	6.22	11.39	6.93	15.49
1995	13.40	5.35	13.69	6.89	18.09

According to the data in figure 8, manufacturing was the leading industry in Japan between 1955 and 1995. The industries whose industrial outputs ranked the top five in 1995 include the manufacture industry, the service industry, the real estate industry, the wholesaling & retailing industry and transportation & communication industry. In this phase, the proportion of agriculture dramatically decreased—the proportion of agriculture, forestry and aquaculture output to total output decreased from 20.97% in 1955 to 2.05% in 1995. The proportion of mining industry was lowered to 0.24%; the proportions of manufacturing industry and construction industry first increased and then decreased; the proportions of financial industry and retailing & wholesaling industries increased slightly; the proportions of the real-estate industry and service industry significantly increased and these industries became the third largest industry in Japan that dominated national economy.

Figure 9. Various Industries in the internal Manufacturing from 1955 to 1975

Year	1955	1960	1965	1970	1975
Food	19.04	18.6	16.91	12.34	11.66
Fiber	25.91	12.2	10.59	7.87	8.06
Woodwork	5.37	4.11	4.61	4.36	4.12
Paper making and printing	4.21	5.49	6.18	5.74	6.3
Ceramics & earth-rock	2.81	2.72	3.02	3.42	4.45
Light industry in total	57.34	43.12	41.31	33.73	34.59
Chemical industry	8.22	9.66	10.37	9.03	8.88

Petroleum products	1.59	2.5	3.04	3.04	4.09
Coal	1.32	0.8	0.73	0.83	0.94
Steel	13.29	14.4	12.34	14.48	8.9
Metalwork	5.65	5.27	6.29	7.23	8.28
General machinery	4.21	8.14	8.13	10.68	11.3
Electrical machinery	2.88	7.27	7.01	9.79	9.84
Transport machinery	4.26	7.39	9.32	9.78	11.41
Precision machinery	1.23	1.12	1.47	1.41	1.78
Heavy chemical industry in total	42.65	56.55	58.7	66.27	56.54

Japanese heavy chemical industry: The Japanese manufacturing industry showed a significant tendency of shifting towards heavy chemical industry between 1955 and 1975. The proportion of heavy chemical industry to manufacturing industry kept increasing and became gradually stable (see Table 9). The proportions of light industries represented by food, fiber and wood products decreased annually from 57.34% in 1955 to 34.58% in 1975.

In 1974, the world oil crisis broke out: the economic crisis caused by the influence of changes in oil prices on the world economy or the economies of all countries. In December 1960, OPEC was established, the number including Iran, Iraq, Kuwait, Saudi Arabia and Venezuela, and South American Venezuela, and OPEC has become the key organization to control the price of oil in the world. Due to this situation, the negative growth is happened in Japanese economy. Because of the global oil crisis in 1974, the Japanese government adjusted its industrial structure in time. Japan mainly adopted four policies during its moderate and rapid economic growth: 1. launched Conception on Industrial Policies for International Trade in the 1970s in 1971: saved energy and developed intensive industrial structure to replace the past emphasis over heavy industries and chemical industry. The intensive industrial structure refers to achieving economic growth by improving the quality and utilization efficiency of production elements, optimizing the combination of production elements, making technological progress, improving laborers' qualities and increasing the utilization of capital, equipment and raw materials. Its essences lie in improving the quality of economic growth and centering on economic benefits. 2. Launched Planning of the Sustainable Development of Industrial Structure in 1974: improved processing level and technology-intensive level and raised the proportion of knowledge intensive industry; 3. launched the Act on Temporary Measures for Depressions in 1978: listed 14 industries as depression industries, including steel, aluminum refining, synthetic fiber, shipbuilding and textile industries, and abandoned excessive equipment according to the plan.

Figure 10. Export volume of auto industry production and proportion of the money

Year	Automotive production volume	Automotive export volume	Export rate	Export value	Proportion of export value	World rankings of exports value
1970	5289	1087	20.6	13.34	6.9	3
1975	6942	2678	38.6	61.9	11.1	2
1980	11043	5967	54	232.7	17.9	1
1985	12271	7730	54.8	343.8	19.6	1

The huge success of Japanese intensive industrial structure is reflected in automobile export. Because of the global oil crisis, Japanese government launched new measures and guided small-scale production with large-scale manufacturing, so as to meet consumers' demands better. Being energy-conserving, environmentally-friendly and small, Japanese automobiles gained fast access to the international market and Japanese industrial export also increased from 20.6% in 1970 to 54.8% in 1985. In addition, it also drove the proportion of Japanese export to rise and the export & import with all countries were affected somehow. As is shown by Table 10, the industrial output of Japanese automobiles didn't decrease yet increased substantially. Surprisingly, Japanese automobile export ranked first worldwide in this phase.

After the signing of the Plaza Accord, Japanese exchange rate raised. As a result, other countries needed to purchase Japanese products with more money, which affected Japanese imports and exports. To solve this problem, the Japanese government published The Maekawa Report and put forward three economy policies: 1. Expand domestic demands; 2. Open the market; 3. Promote foreign direct investment. With these measures, Japan stabilized the exchange rate of yen, reformed its taxation system, developed the economic dominated by domestic demands and facilitated economic cooperation with the international community. According to the data mentioned above, the Japanese government aimed to reduce the loss caused by the rising exchange rate of yen. From the perspective of GDP development, such actions were unsuccessful, because the average growth rate was below 5%

To solve the problem, the Japanese government has focused on the production of the automobile industry. According to the chart, the export volume of cars has reached the top level in the world. Plaza accord is a agreement signed by governor of the central bank and finance minister of industrial developed countries of America, Japan, Britain, France and West Germany after a secret meeting in the Plaza Hotel in New York, USA in September 22, 1985. It aims at joint intervention in the foreign exchange market, make major currencies like US dollar, yen and mark orderly come down so as to solve the huge trade deficit in the United

States, resulting in a significant appreciation of the yen. The sharp rise in yen led to Japan's loss of trade comparative advantage, and other countries needed to spend more money on import and export trade. This accelerated the burst of the Japanese real estate bubble, up to 1995, Japan entered the "lost 20 years".

Compared with the industrial structure, the same point between China and Japan is that the two countries have the same change experience in the industrial structure, from the first industry to the second industry, then to the third industry. From the characteristics of the country, China has a large population, rich resources, the large population means that the efficiency of developing third industry is not high, it is a long-term event to improve living standard of everyone. It seems to sensible to focus on the second industry, especially manufacturing industry, since China has a lot of cheap labor. Although per capita GDP will not grow rapidly, combined with import and export trade, think highly of number rather than price can make China a stronger country. By contrast, Japan should think highly of technology. Since the population is relatively small, it will be effective to develop third industry and improve the education level of everyone. Different like the China's manufacturing trade, Japan can trade in patent to be a technological superpower rather than imitate other countries to develop the second industry.

The future development of China will focus on sustainable development. The biggest disadvantage of industry is environmental pollution. The government should focus on improving the economy on the premise of guaranteeing people's quality of life. With the advent of the Internet era, trade is more efficient than before. China should emphasize developing its own advantages and achieve economic development through trade. In the meanwhile, improve the orderliness of China's internal structure, exert the characteristics of each area to the extreme.

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