



RIETI Discussion Paper Series 16-E-028

From Economic Controls to Export Expansion in Postwar Taiwan: 1946-1960

Tsong-Min WU
National Taiwan University



Research Institute of Economy, Trade & Industry, IAA

The Research Institute of Economy, Trade and Industry
<http://www.rieti.go.jp/en/>

From Economic Controls to Export Expansion in Postwar Taiwan: 1946-1960¹

Tsong-Min WU

Department of Economics, National Taiwan University

Abstract

During 1955-2000, Taiwan's per capita gross domestic product (GDP) growth rate was the highest in the world. In the first half of the 20th century, the Japanese colonial government laid the basis for economic growth by establishing a modern economic institution in Taiwan. After taking over Taiwan in 1945, however, the Kuomintang (KMT) government adopted economic control policies which caused hyperinflation during 1946-1949. The control policies were continued after the KMT government retreated to Taiwan in late 1949. As a result, economic growth was stagnant. Fortunately, deregulations were initiated in the late 1950s, and Taiwan was able to rapidly expand its export sector. Using the textile industry as an important case, this paper analyzes what policy changes were critical in fostering the postwar export expansion and economic growth.

Keywords: Economic growth, Inflation, Exchange rate, Tax policy

JEL classification: E31, O24, O43

RIETI Discussion Papers Series aims at widely disseminating research results in the form of professional papers, thereby stimulating lively discussion. The views expressed in the papers are solely those of the author(s), and neither represent those of the organization to which the author(s) belong(s) nor the Research Institute of Economy, Trade and Industry.

¹This study is conducted as a part of the Project “Historical Study on Japan's Trade and Industrial Policy: From an International Perspective” undertaken at Research Institute of Economy, Trade and Industry (RIETI). I thank Professor Haruhito Takeda, Professor Masahisa Fujita, other members in the project, and Discussion Paper seminar participants in RIETI for providing valuable comments on the previous drafts of this paper. I also thank Professor Teruhiro Minato for Japanese translation.

1 Introduction

In 1955–2000, Taiwan's GDP per capita growth rate was the highest in the world, followed by South Korea, Equatorial Guinea, Botswana, Oman, Singapore, Hong Kong, and Japan.¹ Equatorial Guinea, Botswana and Oman are endowed with rich natural resources of oil and diamonds, which partly explains why they grew so fast. The average growth rates of the other five countries are: Taiwan (6.82%), South Korea (6.59%), Singapore (5.65%), Hong Kong (5.45%), and Japan (5.13%). In contrast, the growth rates of U.K. and U.S. were 2.49% and 2.45%, respectively.

In 1955, Taiwan's GDP per capita ranked the 86th in the world. Because of the extremely high growth rate, the ranking of Taiwan's GDP per capita rose quickly during the second half of the 20th century. She ranks the 14th in 2010.² Taiwan, South Korea, Hong Kong and Singapore was called the Asian Four Dragons due to their high economic growth rates after World War II. There have been many studies trying to explain the high growth of the Four Dragons. In the case of Taiwan, almost all the researchers agree that the institutions and infrastructure established during the Japanese colonial period laid the foundation for the postwar high growth.

Taiwan's postwar high growth was accompanied by export expansion, and many studies tries to explain how export expansion was initialized in the late 1950s. Important studies include Hsing (1971), Lin (1973), Ho (1978), Little (1979) and Scott (1979). In particular, Scott (1979, pp. 321–30) analyzed the policy changes in the late 1950s, and concluded that the following were crucial: tax rebate for exports, removal of import restriction, moving from multiple exchange rate to single exchange rate system, and depreciation of the New Taiwan dollar. Figure 1 compares the growth patterns of Taiwan and five other countries. In 1955, GDP per capita in the Philippines was higher than that in Taiwan by 14%. But in 1955–2000, its growth rage was only 1.37%. Because of this, its GDP per capita was only 14.0% of Taiwan in 2000.

Figure 1 also shows that Taiwan's high growth began in the early 1960s, the growth rate in the 1950s was nothing special. After World War II, the KMT government adopted economic control policies which brought adverse effects on the economy. The deregulations in the late 1950s effectively promoted economic growth. However, the policy change from controls to de-controls have not been fully understood. This study will investigate the origin of the control policies first. We then provide a detailed case study of the textile industry, and analyze how export expansion policy was implemented in

¹Source, Maddison Project, <http://www.ggdcc.net/maddison/maddison-project/home.htm>, unit, 1990 International Geary-Khamis dollars. Growth rate was calculated by taking the ratio of the first year to that of the last year, and then computed the average growth rate.

²Using the data from the World Bank, Taiwan ranks the 22nd in 2013.

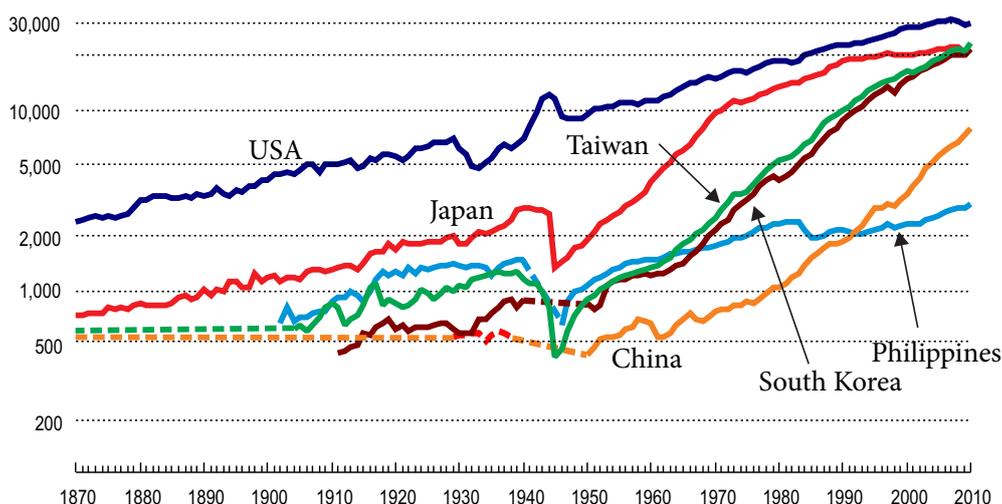


Figure 1: GDP per capita growth rate

Source: Taiwan, Wu (2004); other countries, Maddison Project.

the late 1950s.

In the following, section 2 explains how the economic controls in the second half of 1940s led to a hyperinflation in Taiwan. The Provincial government adopted a monetary reform in June 1949, and issued the New Taiwan (NT) dollar. To establish the public confidence on the new currency, the NT dollar was supported by gold standard and fixed exchange rate. However, since the price level did not stabilize completely, the exchange rate was forced to be adjusted repeatedly. Section 3 explained that in order to solve the trade deficit problem, the Bank of Taiwan (BOT) started to differentiate the exchange rate for export and import, the rates for public and private companies were also different.

The textile industry began to develop in the early 1950s, it became the most important private industry in the 1960–70s. Section 4 shows that in 1950, textile industry was free from regulation. But by the end of 1952, both prices and quantities were controlled by the government. During 1953–56, there were de-controls, re-controls, and then de-controls again. Section 5 first shows that over-valuation of the NT and high tax rate made it impossible for Taiwan to export cotton yarn and clothing. In the late 1950s, with the introduction of tax refund and depreciation of NT dollar, the comparative advantage of cheap labor emerged, and Taiwan was able to export textile products. Section 6 analyzes the conditions of high growth, and argues that institutions and infrastructure were essential for Taiwan's postwar growth. And finally in section 7, we argue that, in contrast to a widely-held view, import substitution in the early 1950s was not a necessary condition for the export expansion later.

2 Economic Controls and Hyperinflation

After the KMT government took over Taiwan in 1945, almost all of the Japanese enterprises were turned into public enterprises. The most important one was the Taiwan Sugar Corporation (TSC), which was consolidated from four Japanese private companies, and became a monopoly after 1946.

2.1 State Enterprise and Hyperinflation

The rationale used by the KMT officials for turning Taiwan into a state enterprises system was the doctrine by Dr. Sun Yat-sen, “developing state capital, restricting private capital” (「發達國家資本, 節制私人資本」). However, Sun’s proposal was mainly for heavy industry, utilities and transportation, and sugar industry was none of them. Trading company was another example. In November 1945, the KMT government consolidated seven Japanese trading companies into the Taiwan Trade Bureau (貿易局), a state enterprise. In 1946, more than one third of the trading service in Taiwan was provided by the Bureau.

If “developing state capital” was at most a slogan, what was the real motive for creating a state enterprise system? Through public enterprises, it was easier for the government to get income to finance its expenditure. In FY 1946, for example, public enterprises and state monopolies contributed 34.5% of government income. The percentage for 1947–49 was 36.6%, 42.7%, and 29.1%, respectively.³ The Taiwan Trade Bureau played a especially important role in government finance. In FY 1946, its contribution to the Treasury was 547 million Taiwan dollars, or 21.0% of the Provincial government’s expenditure.⁴

Chen (1956, p. 150) pointed out that Taiwan Trade Bureau and the succeeding Trade Committee (貿易調節委員會) was operated with an aim to finance the budget deficit. The Trade Bureau’s big profit actually came from a tax on private and public enterprises, and hence led to protests from the latter. However, the practice of using the profit of public enterprises to finance government budget deficit was continued after the KMT government retreated to Taiwan at the end of 1949.

Fig 2 shows the percentage of production of the public enterprises to total manufacturing. Comparing with the prewar period, the share increased tremendously after 1946. Unfortunately, the enormous scale of the public enterprise system produced serious effects on the economy, and hyperinflation was one of them. Figure 3 shows money supply and WPI in 1942–52. From the end of August to the year-end of 1950, Taiwan’s

³Taiwan Provincial Government (1971), pp. 694–95.

⁴Wu (1997), pp. 536–38.

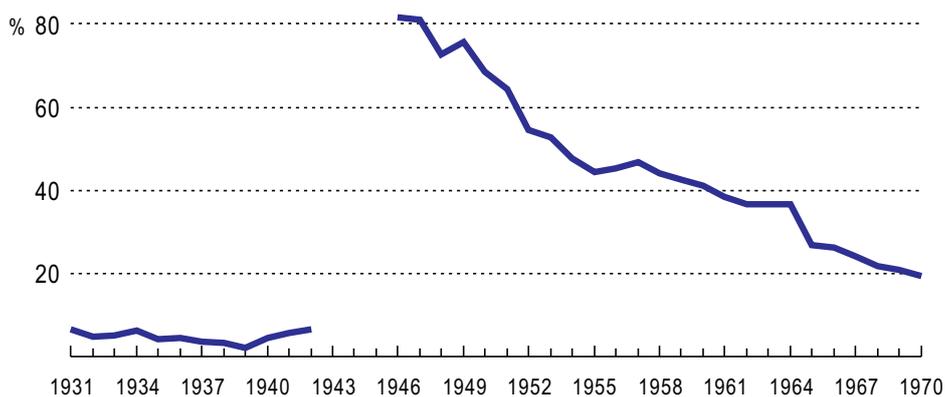


Figure 2: Percentage of state enterprises production

Source: Wu (1997), figure 8.

WPI increased by 35 thousands times. The study by Wu (1997) showed that the two main causes for Taiwan’s hyperinflation were the state enterprise system and the government budget deficit. For the former, the government asked the Taiwan Sugar Company to sell sugar in Shanghai at a price usually lower than the production cost. The money-losing TSC then had to borrow money from the BOT. The more strict of the government control on sugar price, the more the TSC had to borrow from the BOT, and the more money was printed.

In the beginning of the 1950s, the Taiwan District Production Business Management Committee (TDPBMC) was in charge of designing the industrial policy. The TDPBMC was established on the 10th of June, and five days later the Provincial government announced a monetary reform. To counter hyperinflation, the Provincial government declared that “production must increase, . . . and all the public enterprises must cooperate under the direction of the TDPBMC”⁵ Ironically, loans from the BOT to public enterprises was the main cause of money supply increase at least during the period of 1946–48. This situation did not change after the monetary reform.

At the end of 1948, among the total loans from the BOT, 81.7% was directed to public enterprises, and 18.3% was to the government offices.⁶ Toward the end of 1949, the total amount of loans increased tremendously, but the percentage of loans to public enterprises was lowered to 40.4%, while the percentage to government offices increased to 59.6%. After the KMT government retreated to Taiwan at the end of 1949, defense spending increased tremendously. The percentage of defense spending to central government spending reached 89.4% in FY 1950, and government budget deficit became the main cause of inflation.

⁵Chen (1953), pp. 214–15.

⁶Wu (1994), table 5, p. 194.

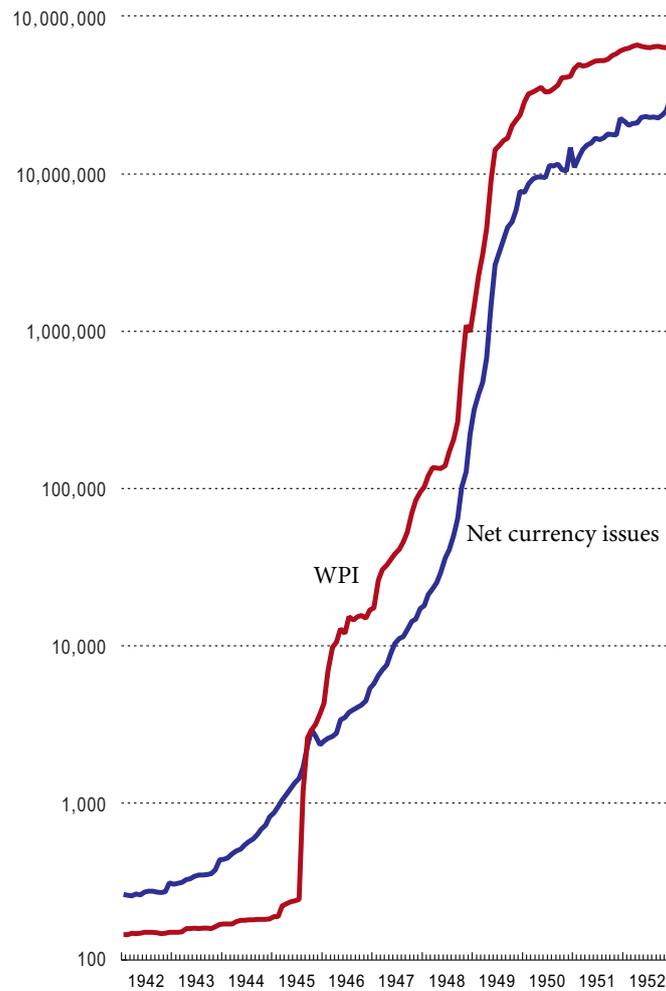


Figure 3: Money supply and inflation: 1942–1952

The unit of net currency issues was million Taiwan dollars. The base year of WPI was 1937, WPI = 100. Source: Wu and Kuo (1991).

2.2 Monetary Reform and Gold Savings Deposit

On June 15, 1949, the Provincial government launched a monetary reform, a new currency called the New Taiwan dollar was issued to replace the original one, with the exchange rate set to be 1 to 40,000. To establish public confidence on the new currency, the government introduced two policies. The first policy was to fix the price of the NT dollar to gold, with one Taiwanese ounce to be equal to NT 330 dollar. The second policy was to fix the exchange rate of one US dollar to be equal to five NT dollars. The public were allowed to buy gold or US dollar from the BOT with NT dollar.

Comparing the price level of 1937 and June 1949, the official exchange rate was an over-valuation of the NT dollar. In 1937, the market exchange rate of the Taiwan dollar with the US dollar was 3.471. From the first half of 1937 to June 1949, Taipei's retail

price index increased by 154,562.3 times. During the same period, the US CPI increased by 1.65 times. According to purchasing power parity, the market equilibrium exchange rate of the NT dollar in June 1949 would be 8.28. As expected, the over-valuation caused drainage of the BOT's foreign reserves.

About one month before the monetary reform, the BOT launched the Gold Savings Deposit on May 17th. The public were encouraged to open an account in any of the branches of the BOT. After a deposit in Taiwan dollar was made, and the money had been stored in the account for over one month, the depositor had the option to withdraw an equivalent value of gold. When the monetary reform was launched, the time required for drawing out gold was shortened to ten days.

The purpose of the Gold Savings Deposit was to establish the NT dollar as a gold standard currency. However, the reform did not completely stabilize the price level. Between 1950 and 1955, WPI increased by 2.33 times, which amounted to an annual inflation rate of 18.4%. The public rushed to the BOT to open a Gold Savings account and to withdraw gold two weeks later, and importers bought a large amount of US dollars from the BOT. As a result, there were a big drain of gold and foreign exchanges, and the BOT was forced to change both policies. The changes and adjustments in the exchange rate policy led to the notorious multiple exchange rate system in the 1950s.

2.3 The End of Hyperinflation

Because the drainage of gold, the BOT began to change the official price of gold in June 1950, but the drainage did not stopped. Before the monetary reform, the BOT accumulated gold worthy of 44.8 million US dollars and 10 million US dollars in cash. Toward the end of 1950, the BOT lost about two thirds of gold reserves.⁷ On December 27, 1950, the BOT abandoned the Gold Savings Deposit policy.

Why the Gold Savings Deposit policy failed? In the second half of 1949, the military situation of the KMT government in the mainland deteriorated quickly. and finally the KMT government retreated to Taiwan in December 1949. In the beginning of 1950, official information agencies in the US and UK predicted that the Communist would attack Taiwan in June 1950.⁸ In May 1950, the US consulate in Taipei began to prepare for the withdrawal of the personnel in anticipation that the Communist would attack Taiwan. He also asked all the American civilians to leave Taiwan.⁹ Under the circumstances, it was impossible for the Gold Savings Deposit policy to raise the public confidence on the NT dollar.

⁷See Shih, Chou, and Su (1961), pp. 109–10, and Lin (1973).

⁸Cummings (1990), p. 525.

⁹Jarman (1997), vol. 9, p. 117.

The report of the British Consulate in Tamshui said that the breakout of the Korean War on June 25, 1950 was a “Deus ex Machina” to Taiwan.¹⁰ On June 27, 1950, US president Truman announced that the US would resume the aid program to Taiwan. The US government first provided aid to the Republic of China in 1948, but the program was suspended in 1949. The resumption of the US aid saved Taiwan from being taken over by the Communist China. In addition, the US aid was the key to the ending of Taiwan’s hyperinflation, because it tremendously reduced Taiwan’s budget deficit.

3 Controls on Exchange Rate and Trade

When the monetary reform was announced, the exchange rate of the NT dollar to the US dollar was 5. To establish public confidence on the NT dollar, the BOT did not restrict foreign exchange transactions. Importers were allowed to apply for as much foreign exchanges as needed from the BOT. Since the US dollar was under-valued, the BOT’s foreign exchange reserve was drained.¹¹ This was exactly the same as the effects of the Gold Savings Deposit policy.

The termination of the Gold Savings Deposit did not produce adverse effects on the economy because gold was not the medium of exchange. In contrast, the US dollar was extensively used in international trade. The BOT could also terminated US exchange transactions, but this would be equivalent to the abandonment of fixed exchange rate system. The KMT government took another route instead: controlled exchange rate, restrained public holdings of foreign exchange, and finally controlled foreign trade.

As the first step to stop drainage of the foreign reserves, the government asked all the public enterprises to transfer their foreign exchange holdings to the BOT in February 1950. However, this did not lessen the draining because the private enterprises continued to buy foreign exchanges from the BOT. The official exchange rate was changed to 7.50 dollar on February 14, 1950, and then to 8.0 on April 18. At the time, the exchange rate in the black market was 9.33, so the depreciation did not stop speculation on the foreign exchange.¹²

On December 19, 1950, the BOT started to control the demand for foreign exchange. All the applications for foreign exchange needed to be examined and verified. Without passing the verification, foreign exchange would not be provided. However, if an importer bought foreign exchange from the market, he was still able to import goods from abroad. On April 9, 1951, the Executive Yuan announced a new “Policy on Financial

¹⁰Jarman (1997), vol. 9, pp. 124–25.

¹¹Hu (1954), pp. 1–3; Chen (1956), pp. 153–54.

¹²Chen (1956), pp. 200–01.

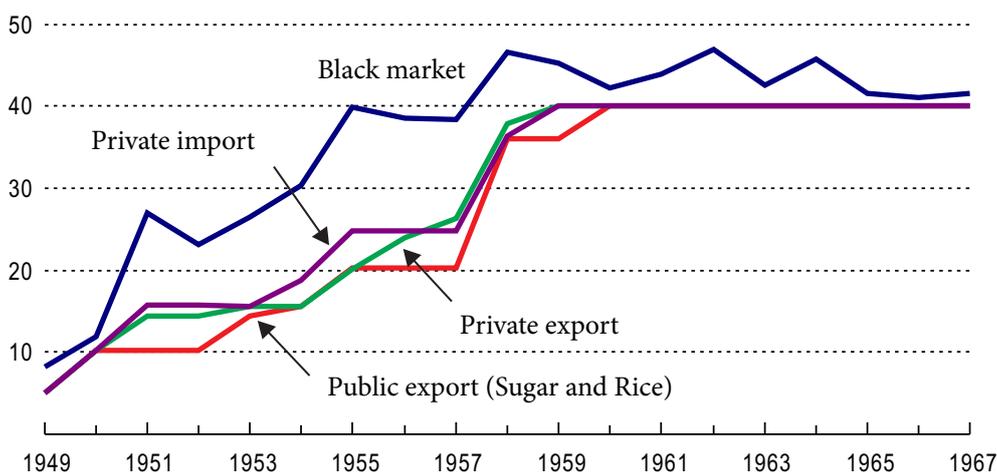


Figure 4: The Exchange Rate to the US Dollar (End of Year)

Private import includes machinery and material. Private export includes banana and other exports, what is shown in the figure is for other exports only. Source: 1949–50, Chen (1956), pp. 100–01. 1951 and later, Ho (1978), pp. 394–96. Black market, Lin (1973), p. 46.

Transactions” (有關金融措施規定辦法), in which holding foreign exchange and gold was still allowed, but transactions were prohibited. In other words, all the transactions of foreign exchange and gold had to be done with the BOT. This policy put all the imports under the control of the government.

On April 11, 1951, the exchange rate for the public enterprise’s export was changed to 10.25, and 14.73 for private enterprise’s export.¹³ The exchange rate for public enterprise’s imports and the US aid imports was 10.25; and the rate was 15.85 for private sector’s import. A complicated multiple exchange rate system was developed, as shown in Figure 4.

The multiple exchange rate system was complicated, but there were three characteristics. First, the NT dollar was over-valued. Second, the NT dollar was gradually de-valued through the 1950s. Finally, the exchange rate for public enterprise’s export was lower than that of the private enterprise. The long-term de-valuation of the NT dollar was easy to understand. From June 1949 to the end of 1958, Taipei’s retail price index increased by 7.02 times, and the US CPI increased by 1.21 times. According to purchasing power parity, the equilibrium exchange rate would increase by 5.8 times, but in fact the official exchange rate was increased by 7.2 times. This implied that the NT dollar was over-valued in June 1949.

Why the government set the export exchange rate of public enterprise to be lower than that of the private enterprise? In the early 1950s, price had not yet been completely

¹³Hu (1954), pp. 7–8; Shih, Chou, and Su (1961), pp. 120–23; Chen (1956), pp. 157–59.

stabilized. To reduce inflation pressure, the BOT tried hard to reduce money supply. During the period, the TSC was the most important exporter. The foreign exchanges earned from sugar export was required to be sold to the BOT. If the exchange rate was low, the BOT would issue less money, which presumably would reduce inflation pressure.

The policy looked like a smart method to reduce the inflation pressure, but actually it did not work. Because of the exchange rate control, the TSC's export was losing money and so it had to borrow from the BOT. The money supply might decrease in the beginning, but eventually it had to increase.¹⁴ Besides, the interest rate charged on public enterprises was significantly lower than the market rate, this encouraged public enterprises to borrow from the BOT.

Due to over-valuation of the NT dollar, Taiwan's export had difficulty to compete in the international market. On January 4, 1953, exchange rate for sugar export was raised to 14.49. In September, import exchange for private sector was raised to 18.78, but the adjustment was due to a new Defense surtax introduced by the Ministry of Finance. In 1955, the BOT introduced a foreign exchange certificate system, which in effect raised the exchange rate by six NT dollars. At the end of 1955, market price for the certificate was 12.9 dollars, and so import exchange rate for private enterprise was 31.69 dollars. In contrast, export exchange rate was 25.87 dollars.¹⁵

As shown in Figure 4, from 1949 to 1967 the official exchange rate was always lower than the black market rate, indicating an over-valuation of the NT dollar. In the 1950s, Taiwan faced persistent trade deficit. A de-valuation of the NT dollar should be helpful to reverse the trend, but government officials did not believe that Taiwan was able to produce new industrial products to compete in the international market.¹⁶ They also worried that de-valuation would cause price increase for imports, and hence worsen the inflation problem.

4 Import Substitution: Textile Industry

During the Japanese colonial period, Taiwan imported most of the clothing from Japan. In 1938, domestic production of cotton cloth amounted to 4.98% of total supply, the rest was imported from Japan. There were some small textile firms in Taiwan, which were consolidated into a public enterprise by the KMT government after World War II. In 1946–49, clothing were imported from the mainland China instead. After the mainland

¹⁴Chen (1956), pp. 157–58.

¹⁵Shih, Chou, and Su (1961), pp. 120–22.

¹⁶Scott (1979), p. 380.

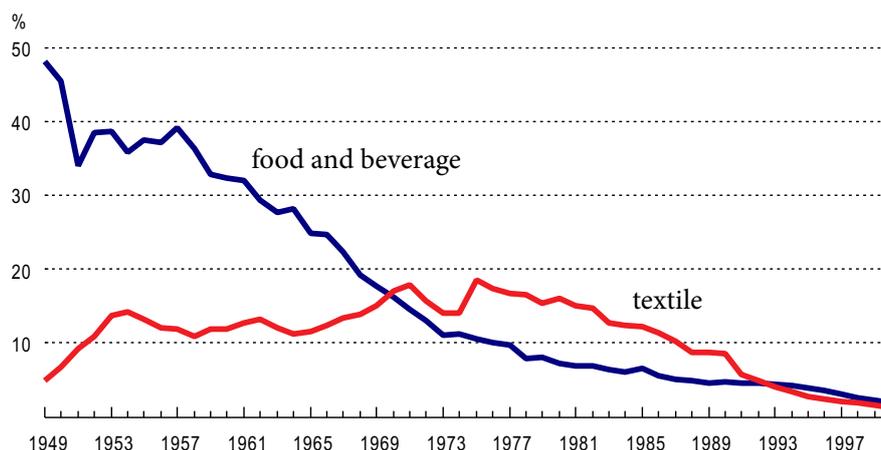


Figure 5: Percentage Share of Food and Textile Industry

Source: DGBAS.

was lost, Taiwan had to find other channels for clothing supply. Taiwan's textile industry began to develop in the early 1950s, but production value was quite small. After export expansion was successful in the early 1960s, textile industry became one of the most successful private industries in Taiwan.

The development of the textile industry in the 1950s reflected how government officials' thought on economic policy changed over time, from strict control in the beginning to market mechanism later. On the other hand, the textile industry policy also reflected the constraint that the KMT government faced during the time. In the beginning of the 1950s, the KMT government had to deal with three difficult problems: hyperinflation, budget deficit, and trade deficit.

Figure 5 compares the percentage share of food and beverage and textile industry. In early postwar period, food and beverage was the main industry, in which sugar was the most important product. However, the share of food and beverage decreased over time. In contrast, while the share of textiles increased from about 5% in 1949 to over 15% in the mid-1970s, the share of food and beverage had decreased to about 10%.

4.1 Free Market: 1949–1950

Taiwan did not grow cotton, all the cotton needed by yarn spinning mills was imported. During the US aid era (1950–65), almost all the cotton were imported from the US. Immediately after the TDPBMC was established in June 1949, Taiwan faced a serious problem of clothing shortage. From the mid-1949 to mid-1950, the TDPBMC tried to let the market to solve the problem, adopting policies to encourage import and to promote domestic production.

To encourage import, import tax for cotton cloth was reduced from 65% to 20% in

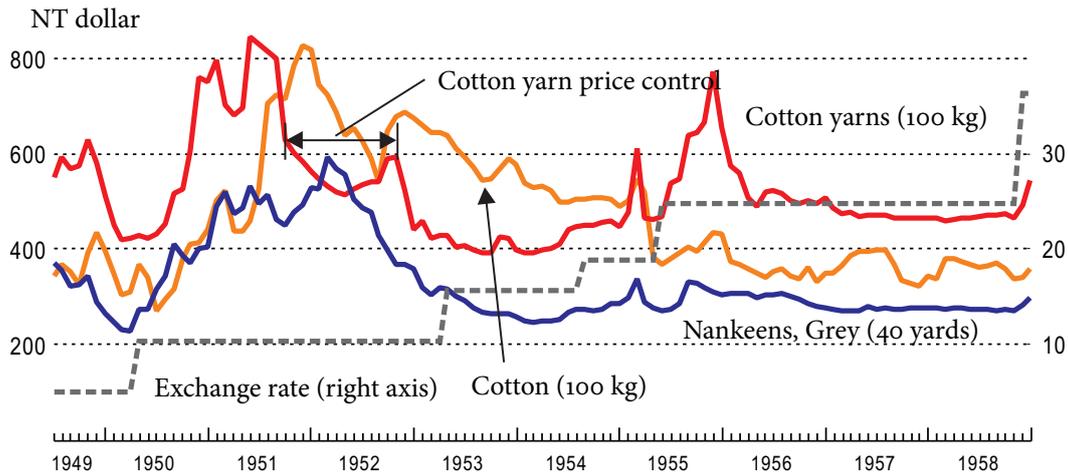


Figure 6: Textile prices

All prices have been deflated by WPI, base period, June 1949. Source: *Taiwan Monthly of Commodity-Price Statistics*, various issues.

August 1948. And to promote domestic production, import tax for cotton was temporarily suspended for one year, and tax for cotton yarn was decreased from 50% to 5%. As a result of tax reduction, cotton cloth import increased tremendously, mostly from Japan. Taiwan imported 2.50 million meters of cotton cloth in 1949, it increased to 58.6 million meters in 1950. The effect of tax reduction could be seen from Figure 6. From June 1949 to March 1950, the price of Nankeens (a widely-used fabric) decreased by 37.2%.

The domestic fabric mills were seriously affected by the import. On the other hand, import tax reduction for cotton yarn was welcomed by fabric mills, but spinners were adversely affected. In summary, free import and tax reduction policy were beneficial to the public, but effects on yarn spinning mills and fabric mills were mixed.

The extent of the adverse effects partly depended upon the exchange rate. If exchange rate was relatively high, domestic product would be relatively cheaper, and the effects would be smaller, or even nil. Before March 1950, the official exchange rate was 5 dollar, but the black market rate of 8.26 dollar. At the end of 1950, official rate rose to 10 dollars, and market rate was 14.02 dollar. Because the NT was over-valued, domestic mills had difficulty to compete with the imports.

4.2 From Free Market to Strict Control

In April 1950, Cotton Textile Association (台灣棉紡織同業公會) asked for help from the government. Specifically, the Association asked the government to prohibit import of cotton yarn and cloth, to provide loans from the US aid, to buy up inventories, and to supply low-interest loans. On May 17, the TDPBMC proposed to the Council for Inter-

national Economic Cooperation (經合署), which was responsible for US aid import, to stop importing US cotton yarn, and also to limit supply of clothes imported from the US aid program.¹⁷

In May 1950, the Taiwan Joint Textile Allocation committee was established, its responsibility was to allocate cottons, cotton yarns, and clothes which were imported through the US aid program. The committee was the decision maker for the textile industry policy, and the Central Trust of China (CTC) was responsible for policy execution. The committee had been reorganized several times later, sometimes with the name changed slightly. But for simplicity of presentation, the decision-making committee would be called “the Textile committee” in the following.

Starting mid-1950, the imported cotton from the US aid program was directly allocated to yarn-spinning mills. Under the system, yarn-spinning mills were nothing more than subcontractors for the Textile committee. For every 100 pounds of cotton allocated, the mill got 28 pounds of cotton as remuneration, and the cotton yarn produced from the latter could be freely sold in the market.¹⁸ The cotton yarns collected back by the Textile committee were then allocated to fabric mills, which would produce fabric with a specified remuneration. Again the fabric mills were nothing more than subcontractors.¹⁹ The system was called “the textile subcontractor system” (代紡代織). The Textile committee might directly import cotton yarns from abroad, and allocated them to fabric mills. In 1950, the share of cotton yarn import was estimated to be 30.7% of the total supply in the domestic market.²⁰

Under the system, the cotton yarn price was supposed to be under the control of the Textile committee. However, as shown in Figure 6, cotton yarn prices rose dramatically after June 1950. Yarn-spinning mills were profited from the price rise, fabric mills were adversely affected. The latter petitioned the government for prohibition of cotton cloth imports.

The TDPBMC thought that the price increase of cotton yarns was due to “unlawful speculation” (不法人士操縱), and hence a series of control policies were taken to stabilize the price. Whenever a policy did not achieve the objective, a even stronger policy was implemented. As a result, toward the end of 1951 the whole textile industry, from cotton to fabrics, was under strict controls. During the time, government officials were extremely worried about any price rise, and regarded price control as an effective solution. For example, K. Y. Yin who was the vice-director of the TDPBMC said that

¹⁷Li (2004), pp. 59, 67.

¹⁸Li (2004), pp. 62–64; Hsu (2003), p. 50.

¹⁹Li (2004), pp. 64–65, 93–94.

²⁰Huang (1956), pp. 27–28.

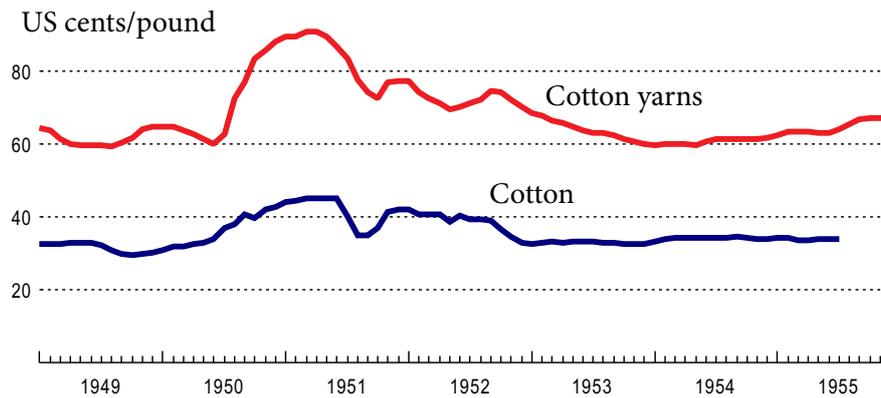


Figure 7: US Cotton and Cotton Prices

Wholesale price deflated by CPI.

the price rise of cotton yarn was due to “deficiency in cotton yarn allocation system, ... the government has to control cotton yarn.”²¹

In fact, cotton yarn price increase in mid-1950 was a reflection of changes in demand and supply. First of all, the Textile committee only allocated cotton yarns to big fabric mills, small mills had to buy yarns from the market. Second, big mills received only about 40% of cotton yarns of its capacity on average, so it had to buy additional yarns from the market. As mentioned above, yarn-spinning mills got a certain amount of cotton as remuneration, and the cotton yarns produced from which could be freely sold in the market. When demand was high, price would be rise.

Part of cotton yarns were imported from abroad. In 1950, cotton yarn import was about 31% of the total supply. Naturally, domestic cotton yarn price would be affected by the world price. As shown in Figure 7, world cotton price increased dramatically around mid-1950. But about one year later, cotton yarn price started to fall. The rise and fall of cotton yarn price in Taiwan was roughly consistent with the New York’s price, so it seemed clear that Taiwan’s price was affected by the world market.

In June 1951, the TDPBMC announced that import applications for cotton fabrics would be temporarily suspended. As a result of the policy, supply of fabrics was reduced, which in turn led to an increase in demand for cotton yarns from domestic spinning mills, and the price of cotton yarn increased even more. Early in February 1951, the CTC announced that the price of cloth was NT 4.25 dollar per yard. Household buyer had to show his Household registration card when purchasing cloth. In April, the Executive Yuan announced that all the exchange transactions had to be done through the BOT. After the policy change, unless importers got foreign exchange from the black market, it was impossible for the private sector to import cotton yarns.

²¹Yin (1952), p. 50.

On May 25, 1951, a new Textile committee was established to replace the original one, and control policies were reenforced. Starting from June, spinning mills were remunerated with cash instead of cottons. For a piece of cotton yarn (400 pounds), the remuneration was NT 1,600 dollars. Previously the subcontractor mills could sell the cotton yarns made from the remuneration cottons, now all the cotton yarns produced by the domestic firms were controlled of the CTC.

On August 14, the Provincial government decreed that the price ceiling for domestic and imported cotton yarns would be set by the government. In September, the TDPBMC passed a resolution to temporarily suspend applications for cotton yarn import from private sector, as a result the CTC also monopolized cotton yarn import. In November, it was decreed that in Taipei city one household could purchased at most 5 yards of white fine cloth per year. There were similar restriction in other cities of Taiwan.

At the second half of 1949, the textile market was a free market, import taxes were low or even nil. But by the end of 1951, the market was under complete control by the government. Only the CTC could import cotton and cotton yarn, and the allocation of cottons and cotton yarns was controlled by the government, The government set price ceilings on cotton yarns and clothes. It also reserved the right to buy 70% of the cotton yarns produced by spinning mills.²²

Did the controls succeeded in stabilizing cotton yarn price? Figure 6 shows the price index of cotton yarn in April 1952 (512.9) was lower than that of August 1950 (515.0), so it seemed that the control policies worked. But in fact, world cotton yarn price had already declined since mid-1951. Also the domestic market for cotton yarns had already reached saturation.²³ So even without the control policies the cotton yarn price should had declined at least in early 1952.

The control policies taken in the early 1950s were usually described as an import substitution policy, but actually most of the policies were aimed at controlling cotton yarn price. After 1952, domestic cotton yarn price was lowered to the normal level, so control policies were removed gradually. However, three years later a similar control policy was launched by the government again.

4.3 De-control and Re-control

Starting September 1952, controls were gradually removed, cotton yarn produced by spinning mills was allowed to be freely sold in the market. The main reason for de-

²²Li (2004), p. 71.

²³Huang (1956), p. 28.

control was that cotton price had been lower than the price ceiling.²⁴ Also any control on cotton yarn price produced a profit re-distribution between spinners and fabric mills. Spinner welcomed higher cotton yarn price, but fabric mills would complain. There was also a profit re-distribution problem within spinners and fabric mills. Large and efficient spinners desired for more cottons. Similarly, large and efficient fabric mills asked for more cotton yarns. Finally, the cost of control policy implementation was commonly shared by the spinning and fabric mills, this was yet another reason that some mills wanted to reduce or remove the controls.

In December 1952, fabric subcontractor system (代織制度) was abolished, fabric mills could sell its fabric in the market. In February 1953, spinning subcontractor system (代紡制度) was also abolished. Spinners were allowed to import cottons, and then sold the produced cotton yarns in the market. However, the TDPBMC still set price ceiling.²⁵ Finally in September 1954, ESB abolished the price ceiling because market prices had been much lower. Another reason was that even if market price was higher than the price ceiling, there was actually no effective enforcement mechanism to deal with the problem.²⁶ However, import of cotton yarn and cotton cloth remained prohibited.

As can be seen from Figure 6, cotton yarn price was relatively stable in 1953 and 1954, but then it started to rise again in February 1955. The main reason for this round of price rise was that the government raised commodity tax and import tax, and also de-valued the NT dollar. Commodity tax rose from 5% to 15% in August 1954, and import tax for cotton yarns was raised from 5% to 17% in 1955. The exchange rate for cotton import from the US aid program was 15.6 dollars previously, it was raised to 24.78 dollar in July 1955.

With de-valuation and tax rate hikes, it was reasonable for mills to raise cotton yarn price. But the government launched a new wave of price control. In February 1955, the government asked spinning mills to submit their cotton yarns to the Textiles Association, which was asked to sell the yarns “in an equitable manner”. On July 9, the CTC took over the job of allocation, but its new regulation that the fabric mills were required to pay deposit of 50% was heavily protested. In November, the deposit was reduced to 25%.

In the beginning of 1956, cotton yarns price fell, and the regulations established in the previous year were removed. In March, spinning mills had accumulated too much inventory and asked the government for help. The ESB asked the CTC to buy the inventory, but the CTC objected, and proposed instead that the system of cotton yarns

²⁴Li (2004), pp. 131–32.

²⁵Li (2004), pp. 125–28.

²⁶Li (2004), pp. 93–94.

allocation be removed. In July 1957, the allocation system was terminated.²⁷

5 Export Expansion

The idea of promoting textile export was raised at least as early as in 1953, the motivation was that there had been an excess supply of cotton yarn in the domestic market. The initial proposal was to barter with Egypt for cotton suitable for fine yarn and then with Pakistan for cotton suitable for coarse yarn. But an estimate of cost showed that for a piece of fine cotton yarn exported, the government needed to subsidize NT 523 dollars. without subsidy, the export would lose money. In August 1953, the price of cotton yarn in the domestic market was 4,300 dollars, so the subsidy was about 12.2% of the export price.²⁸

5.1 Tax Refund, devaluation and Low Interest Loans

The share of textile export to production was 0.26% in 1954. It increased to 1.36% in 1958, and then 8.56% next year. What policy change was critical for the export expansion success? Why Taiwan was not able to export until late 1950s?

In 1953, the Ministry of Economic Affairs promoted an idea of exporting cotton yarn to South Korea. Table 1 was an estimate of the cost structure by spinners. Column 2 was calculated with the official exchange rate of 15.60 dollars. To make a piece of cotton yarn, 470 pounds of cotton was needed. The import cost for one pound of cotton was NT 5.7 dollar, or 0.365 US dollar by the official exchange rate. In other words, the cost of cotton for one piece of cotton yarn was NT 2,545 dollar (import tax of 5% not included). Processing charge (including wages) was NT 1,350 dollars. Adding transport, insurance, and gross profit, the price of one piece of cotton yarn was NT 4,367 dollars, or US 0.700 dollar per pound.²⁹ In June 1953, wholesale cotton yarn price in New York was US 0.639 dollar, so exporter would lose money.

Column 2 was an estimate using the official exchange rate of 15.60 dollar. In 1953, black market rate was 26.5 dollar. Using this rate, the cotton yarn price would be lowered to US 0.593 dollar (column 3), and exporters could make a profit. However, the estimate of cost excluded cotton import tax (5%), commodity tax (15%), and harbour duty (2%).³⁰ If the above taxes were included, export price would be raised to 0.674 dollar, exporters still lost money. The estimate shows clearly that de-valuation and tax refund will be

²⁷Hsu (2003), pp. 126–32.

²⁸Hsu (2003), pp. 98–99.

²⁹The estimate was for export to South Korea. If the destination was the US, transport and insurance would be higher.

³⁰Commodity tax was 5% in 1953, but increased to 15% in August 1954.

Table 1: Cost structure of Cotton Yarn Export

Exchange rate	15.60	26.50	40.00
Cotton price	2,545	4,310	6,505
Processing charges	1,350	1,350	1,350
Packaging	80	80	80
Sea transport	55	55	55
Land transport	20	20	20
Insurance	21	21	21
Interest	80	136	205
Gross profit (5%)	227	329	455
Total	4,367	6,281	8,662
Cotton yarn (US dollar/pound)	0.700	0.593	0.541

Source: Liu (1954), Lu (1953), Lu (1954), and Huang (1956). If import tax (5%), commodity tax (15%), and harbour duty (2%) were added, cotton prices would become US 0.781 dollar, 0.674 dollar, and 0.623 dollar, respectively.

an effective policy for export expansion. In 1960, the exchange rate was depreciated to 40 dollars. Column 3 shows that cotton yarn price became 0.541 dollar if taxes were excluded. If taxes were included, export price would be raised to 0.623 dollar, so it was still profitable to export.

The role of exchange rate and taxes can be explained by the following equation. Let p_c be the cost of cotton (in US dollar) for a piece of cotton yarn, and p_n the price of cotton yarn. Variable w is the sum of processing charge, transport, insurance, and gross profit (in NT dollar), t is the sum of taxes, and e is the exchange rate, then

$$p_n = \frac{e \cdot p_c + w + t}{e} = p_c + \frac{w + t}{e}. \quad (1)$$

It is clear that both exchange rate and tax rate affect the price of cotton yarn. Equation (1) can be rewritten as follows:

$$\frac{p_n}{p_c} = 1 + \frac{w + t}{p_c} \cdot \frac{1}{e}. \quad (2)$$

For Taiwan, p_c was determined by the world market. If the exchange rate e is higher (the NT dollar de-valued), p_n would be lower, and Taiwan's cotton yarn becomes more competitive in the world market.

It is also clear that the effect of devaluation would be larger if the ratio $(w + t)/p_c$ is large. Using the data from input-output table, Scott (1979, p. 358) calculated the ratio of traded inputs to price, p_c/p_n , was 0.70 for Taiwan's textile industry in 1971. Alternatively, using the figures in column 3 of Table 1, $p_c/p_n = 0.75$.

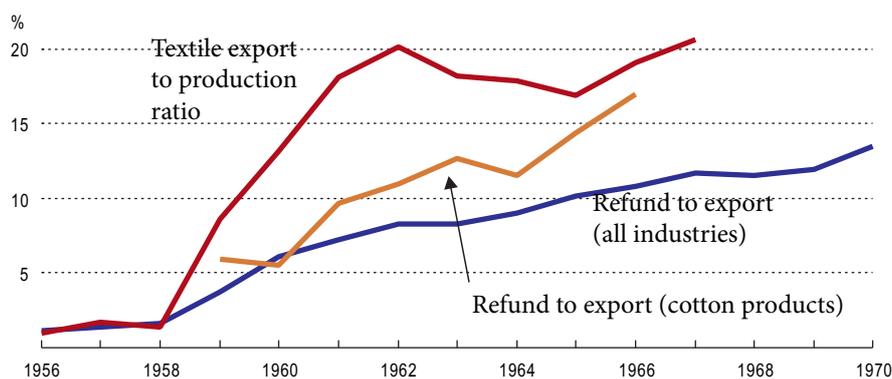


Figure 8: Tax refund and export expansion

Tax refund was fiscal year data, export was calendar data, the former was transformed into calendar data by simple average. Source: Refund to export (all industries), Hsiao (1994), p. 139; refund to export (cotton products), Lin (1969), pp. 89, 106; textile export, Lin (1969), p. 83, textile production, *Industry of Free China*, various issues.

Tax also affected export price. For Taiwan, all the cotton was imported. De-valuation would lower the price of cotton yarn in the world market, but price of cotton would increase, which in turn would increase the price of cotton yarn. However, if import tax and commodity taxes could be refunded to exporters, it would lower the export price of cotton yarn. The first tax refund after World War II in Taiwan was applied to paper hat industry. In the beginning, only a portion of import tax could be refunded. In 1952, the system was revised and tax offsetting was allowed.

In March 1954, Economic Stability Board (ESB, 經安會) passed a resolution to extend tax refund to cotton yarn export. Besides exporters were qualified to apply for low-interest loans. But spinners were not interested because taxes had to be paid first, refund would be given back only after cotton yarns were exported. Similarly, low-interest loans would be provided only after cotton yarns were exported.

In 1955, the government was preoccupied with controlling prices. In 1956 there was again an excess supply of cotton yarns, and the idea of promoting textile export was raised again. During the following two years, tax refund policies were revised several times, and finally in December 1959, an effective tax refund and offsetting policy was established, which covered import tax, defense surtax, commodity tax, and harbour duties. As shown in Figure 8, the policy worked this time, and textile export started to grow.

In the beginning, tax refund was for textile industry only, but later it was applied to all other export industries as well. In 1958, the ratio of tax refund to export was 2.3%, it increased to 4.5% in 1959, and then 8.5% in 1960. The purpose of tax refund and offsetting was intended to reduce of cost of export, but there was tremendous transaction

costs involved. In 1966, export processing zones and bonded factories and warehouses were established, which reduced the transaction cost of tax refund even further.³¹

Besides tax refund, other policies also help to reduce export cost, including devaluation, low interest loans, and removal of import restrictions. The NT dollar devalued from 24.58 dollar in 1958 to 36.08 in 1959, and then 40.04 in 1960. The exchange rate stayed at this level until 1972, and then decreased to 38.0. Starting July 1957, the BOT provided low interest rate to exporters. The annual interest rate was 6.0% if the loan was paid back in US dollar, 11.88% if paid back in NT dollar. In contrast, black market interest rate was 33.1% in 1958.

Scott (1979, p. 327) thought that the most critical policy change during the late 1950s was the removal of import allocation system. Import allocation system for cotton yarns had been removed in July 1957.³² For cotton import, although spinner could now import cotton directly, the supply of foreign reserves were controlled by the BOT. The allocation was based on the criterion of capacity and production efficiency. Starting 1959, the allocation was based first on export record, and then on capacity.³³

5.2 Comparative Advantage

In Table 1, the key component in processing charge was wage rate. The policy change in the late 1950s made low wage rate a comparative advantage for Taiwan. Scott (1979, pp. 357–60) compared manufacturing sector's cost structure of Taiwan and the US around 1970. For textile industry, the share of wage cost was 21.3% in the US, but only 8.3% in Taiwan. He then listed hourly earnings for workers in textiles and electronics for Taiwan and other countries, US was 2.75 dollars, Japan 1.20 dollar, and Taiwan 0.20 dollar. In other words, Taiwanese earnings was only 7.3% of the US, and 16.7% of Japan.

Figure 9 compared monthly wage in manufacturing of Japan and Taiwan. In 1960–80, Taiwan's monthly wage was 24.8% of Japan. Apparently, wage ratio between two countries was affected by the exchange rate. In 1954, Taiwan's monthly wage was 29.6 US dollars, it decreased to 18.9 US dollars due to devaluation in the late 1950s.

To sum up, in the early postwar period Taiwan's low wage rate was potentially its comparative advantage. However, the potential was far from a reality in the beginning. It was only after the policy change in the late 1950s, the potential was realized. The labor-intensive industry was the most fast-growing export industry after early 1960s. This

³¹However, the zones were for "technology-intensive" firms only, and no cotton textiles or cotton garments firms were allowed into the zones. See Scott (1979), pp. 339.

³²Hsu (2003), pp. 126–32.

³³Hsu (2003), p. 87.

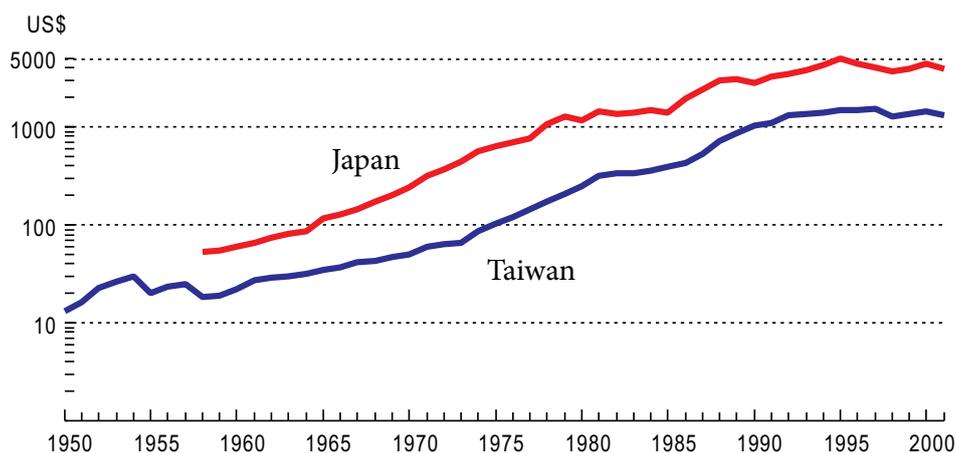


Figure 9: Male wage rate in manufacturing

For Taiwan, export exchange rate for private sector was used in conversion. Source: Taiwan, Mizoguchi (2008), p. 288. The original data was daily wage rate, monthly wage was assumed to be 25 times of daily wage rate. Japan, <http://www.stat.go.jp/english/data/chouki/19.htm>, 19-37-a.

reflected the fact that Taiwan's comparative advantage was low wage rate.³⁴ It should be pointed out that although Taiwan's wage rate was low, Taiwanese workers were relatively well-educated. This was helpful when Taiwan began to move into technology-intensive industries.³⁵

5.3 Export Expansion and Capital Formation

Figure 10 compares the export ratio of Taiwan, Japan, and the world average. During 1951–60, Taiwan's export ratio was 9.42%, probably lower than the world average if data were available. It started to rise in the early 1960s, and the average rose to 20.65% in 1961–70. In 1980, Taiwan's export ratio was 51.53%, while the world average was 19.45%. Comparing Figure 10 and Figure 1 above, export ratio went up with the GDP growth beginning in the early 1960s, leading to the widely-held view that it was an export-led growth.

Following the successful expansion of exports, private fixed formation increased. Figure 11 shows fixed investment to GDP ratio from 1951 to 1980. In the 1950s, the ratio was about 6%, it started to increase in the early 1960s, and reached 15% in 1974. Two other factors should have been helpful. One was the Statute for Encouraging Investment passed by the Legislative Yuan in 1960. The other was that Kinmen, a small island near Fujien province, was attacked and blockaded by the Communist China on August 23, 1958. But the KMT government with the help of the US successfully fought back, and

³⁴Lin (1973), p. 130; Ranis (1979), pp. 236–37.

³⁵Scott (1979), p. 361.

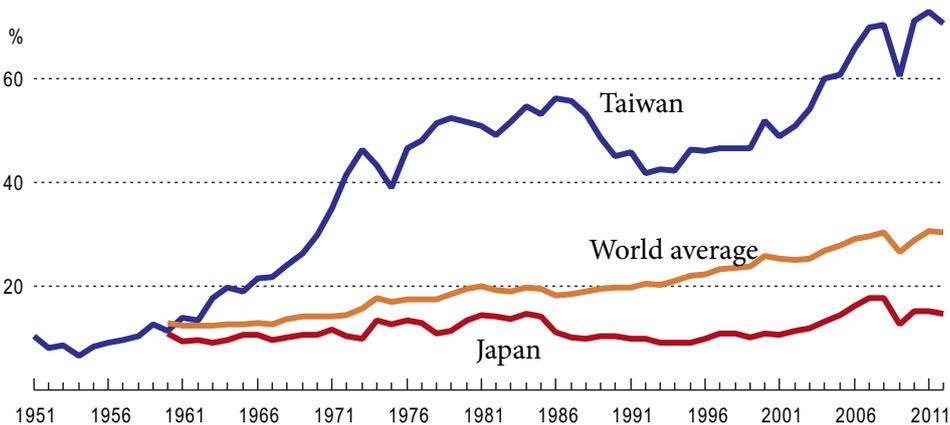


Figure 10: Export to GDP ratio

Source: DGBAS and World Bank.



Figure 11: Private Fixed Investment to GDP Ratio

Source: DGBAS.

the Communist China removed the blockade in the beginning of October. The end of blockade enhanced the long-term stability prospect of Taiwan and the motive for investment. Notwithstanding, if the products of textile industry could be sold only in the domestic market, the incentive to invest could not be high.

When the government adopted tax refund and devaluation policy, it also raised import tax and commodity tax for textiles including cotton, cotton yarn, and cotton cloth. This reflected the idea of K. Y. Yin, who said in 1952 that “Taiwan’s textile industry can not compete with Japan. Without protections, the industry would be ravaged.”³⁶ Little (1979, p. 475) pointed out that “the effect of the new policies was not to create laissez-faire conditions for the whole of the industry . . . They created a kind of dual economy in which only exports . . . could be manufactured under virtually free trade conditions.” According to Hsing (1993), the dual system was continued until at least the early 1980s.

³⁶Yin (1953).

6 Japanese Colonization and the US Aid

Little (1979, p. 475) pointed out that the dual economy policy was soon copied by South Korea and other developing countries. South Korea was a successful case of development, but most of the others were not. Did these countries forget to do something? Or there were other necessary conditions for growth missing in these countries?

6.1 Institutions

Acemoglu and Robinson (2008, p. 24) study the high growths of postwar Taiwan, Singapore, South Korea, and China since 1980s, and argue that institution was the key for growth. The role of institutions in economic growth had been emphasized by early growth economists. For example, North (1990, p. 67) pointed that “[w]ith insecure property rights, poorly enforced laws, barriers to entry, and monopolistic restrictions, the profit-maximization firms will tend to have ... little capital.”

After Taiwan was ceded to Japan in 1895, the colonial government endeavored to establish new institutions and to construct modern infrastructure. One of the most important results was the creation of a modern land property rights system. In 1898, an island-wide land census was started, and a sequence of tasks was implemented including identification of land property rights, land measurement, buy-out of the ta-tsu land rights, and finally adjusting land tax rates. After the land census was completed in 1905, the colonial government started a land registration system which established a modern land property rights system in Taiwan.³⁷

Yanaihara (1929) argued that after the land census was completed, the land property rights were well-defined, and land transactions were much secured. In contrast to the late Ch'ing dynasty when land rights were only loosely defined, and enforcement was weak, land litigation cases after the reform should be much lower, and there would be much more land transactions. Figure 12 shows the percentage of land litigation and mediation cases. Besides the cases related to land, other categories include money, human relationship, food and so on. From 1899 to 1940, while the total of the cases had a long-term growing trend, with 2,026 cases in 1900, and 8,116 cases in 1940, the percentage of cases related to land showed a clear downward trend after 1905.

An established institution could be abolished later. For example, after World War II, North Korea abolished private property rights. The Communist China also abolished private property rights after 1949.³⁸ The abolishment of private property rights produced adverse effects for both countries. Fortunately, Taiwan private property rights

³⁷Wu (2014).

³⁸But private property was a legal right again in 2007.

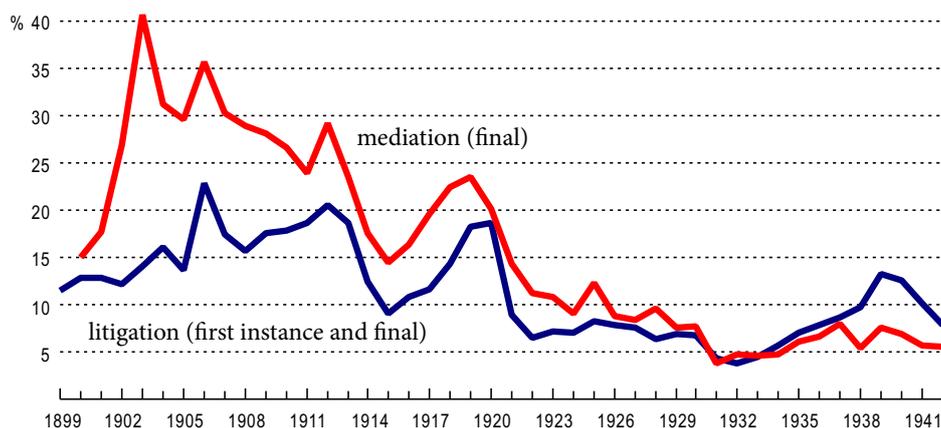


Figure 12: Percentage of land litigation and mediation

This diagram shows the percentage of land litigation and mediation cases to the total cases. Source: Wu (2014), figure 7.

remained intact after the KMT government retreated to Taiwan. In contrast, land right institution in the Philippines was still rather backward today.³⁹ Is this the reason that the Philippines did not grow as fast as Taiwan during the postwar period? This is a question worthy of further exploration in the future.

6.2 US Aid to Taiwan

From 1946 to 1967, Taiwan received US economic aid of 1,768.3 million US dollars, and military aid of 2,384.2 million dollars.⁴⁰ For comparison, Taiwan's GDP was 308.2 million US dollars in 1951. What was the role of the US aid in the postwar high growth of Taiwan? Scott (1979, pp. 369–78) reviewed the literature, and concluded that US aid was not the only, or even the main, important factor.

It is impossible to clearly define what is meant by “important factor”, but as we have discussed in section 2 above, during the first half of the 1950s, in anticipations that the Communist China was going to attack, Taiwan was in a precarious situation. It was only after the US aid was announced on June 27, 1950, the political situation became stabilized. Without the US aid, Taiwan had to defend herself on her own. Even if she could survive the attack, defense spending would crowd out economic expenditures, and tax rate would be much higher. For the central government, defense spending was 89.2% of total expenditures in 1950, and the ratio of budget deficit to total spending was as high as 24.2%. During the later period of hyperinflation (1948–49) budget deficit was the main cause of money supply increase. Without the US aid, budget deficit would be difficult to reduce, and inflation would be a persistent problem difficult to get rid of.

³⁹Vargas (2003), p. 9.

⁴⁰Ho (1978), p. 110.

After price became relatively stable in the early 1950s, the US aid funds were directed to economic development, and the main focus was on capital formation. Capital assistance, funds going into fixed assets, formed about four-fifths of all project aid.⁴¹ Alternatively, the allocation of aid funds could be divided into four categories: infrastructure (37.3%), agriculture (21.5%), human resources (25.9%), and industry (15.3%). Among the funds dedicated to infrastructure, about 68.5% was allocated to Taiwan Power Company.⁴² Even with such a big input from the US aid, there were sometimes electricity shortage problems. This showed clearly how the US aid had helped the industrial development.

Finally, as shown in Figure 2 above, percentage of production from state enterprises was over 80% in 1946, but decreased to about 20% in 1970. The export expansion in the beginning of the 1960s was brought out by private enterprises. Jacoby (1966, p. 138) was surprised that only 6% of all aid funds went to private enterprises. But he also argued that “US aid helped to create a booming private sector of Taiwan’s economy indirectly.”⁴³

7 Concluding Remarks

Regarding Taiwan’s economic development in the 1950s and 1960s, many researchers thought that the import substitution policy in the beginning laid the foundation for the export expansion later. For example, Lin (1973, pp. 162–65) argued that without the protection policies installed during the import substitution period, export expansion during the late 1950s could not be developed.

One argument for protection was that it took time to learn new technology. This argument did not apply to Taiwan’s textile industry, however. Most of the spinning mills and fabric mills were moved to Taiwan from the mainland China in 1949, and the owners of the mills were familiar with the textile technology before coming to Taiwan. Also as discussed in section 4, the control policies imposed in the early and the middle of the 1950s were intended to control the price of cotton yarns. They did not help the development of textile technology, and was of no use to promote export either.

In his speech in May 1952, Yin (1952, p. 4) said that the purpose of textile development was to conserve foreign exchange. However, there was no mention of export expansion at all. When the government pursued the import substitution in the early 1950s, export expansion was not even considered as a policy option. It was only when textile market had reached saturation, the government started to explore the possibility

⁴¹Jacoby (1966), p. 51.

⁴²Jacoby (1966), pp. 50, 176–78.

⁴³Jacoby (1966), pp. 132–35.

of export. As we have shown above, the important policies for export expansion were tax refund, de-valuation, low interest loans, and removal of import restrictions. If these policies were implemented earlier, there was no reason why Taiwan's high growth would not be started earlier.

References

- Acemoglu, Daron and James A. Robinson (2008), "The Role of Institutions in Growth and Development," Working Paper, Commission on Growth and Development.
- Chen, Rong-Fu (1953), *Historical Statistics of Finance in Taiwan* (台灣之金融史料), Taiwan: Bank of Taiwan.
- (1956), *Finance and Foreign Trade of Taiwan, 1895–1955* (六十年來台灣之金融與貿易), Taipei: Sanseido.
- Cumings, Bruce (1990), *The Origins of Korean War*, vol. 2, New Jersey: Princeton University Press.
- Ho, Samuel P.S. (1978), *Economic Development of Taiwan, 1860–1970*, New Haven: Yale University Press.
- Hsiao, Fong-Hsiung (1994), *The Industrial Policy and Development in Taiwan* (我國產業政策與產業發展), Taipei: Far Eastern Economic Research.
- Hsing, Mo-Huan (1971), "Taiwan," in John H. Power, Gerardo P. Sicat, and Mo-Huan Hsing (eds.), *The Philippines and Taiwan*, London: Oxford University Press, 135–309.
- (1993), "On Taiwan's Long-term Industrial Development (再論臺灣工業長期發展政策)," in Mo-Huan Hsing (ed.), *On Taiwan's Economic Policy*, Taipei: San-Min, 79–91.
- Hsu, Hui-Shang (2003), "Cotton Textile Industrial Policy, 1949–1958 (進口替代時期台灣的棉紡織政策, 1949–1958)," MA thesis, Department of History, National ChengChi University.
- Hu, Hsiang-Ling (1954), "The Evolution of Taiwan's Foreign Exchange Management (臺灣管理外匯辦法之演變)," *Bank of Taiwan Quarterly*, 6, 1–25.
- Huang, Dong-Zi (1956), "Cotton Industry in Taiwan (臺灣之棉紡工業)," *Bank of Taiwan Quarterly*, 7, 1–33.
- Jacoby, Neil (1966), *U.S. Aid to Taiwan*, New York: Fredric A. Prager Publishers.
- Jarman, Robert L. (ed.) (1997), *Taiwan: Political and Economic Reports: 1861–1960*, 10 vols., Slough, U.K.: Archive Editions Limited.
- Li, Yue-Sheung (2004), "A Study on Taiwan's Cotton Textile Industry, 1949–1953 (臺灣棉紡織業政策之研究, 1949–1953)," MA thesis, Department of History, National Chengchi University.
- Lin, Bang-Chong (1969), "Taiwan's Cotton Yarn Industry (臺灣之棉紡工業)," *Bank of Taiwan Quarterly*, 20, 76–125.

- Lin, Ching-yuan (1973), *Industrialization in Taiwan, 1946–72*, New York: Praeger.
- Little, Ian M. D. (1979), “An Economic Reconnaissance,” in Walter Galenson (ed.), *Economic Growth and Structural Change in Taiwan*, Ithaca: Cornell University Press, 448–507.
- Liu, Wen-Terng (1954), “A Report on Economic Mission to South Korea (赴韓經濟訪問團紡織部份報告書),” *Textile Industry*, no. 50, 5–9.
- Lu, Ler-San (1953), “The Cost of Cotton Yarn Export (紗布外銷的成本問題),” *Textile Industry*, no. 48, 11–12.
- (1954), “The Cost and Loss of Cotton Yarn Export (棉紗的外銷成本及虧損的問題),” *Textile Industry*, no. 51, 6–8.
- Mizoguchi, Toshiyuki (2008), *Asian Long-term Economic Statistics I: Taiwan (アジア長期經濟統計 I: 臺灣)*, Tokyo: Toyo Keizai Shinposha.
- North, Douglass C. (1990), *Institutions, Institutional Change and Economic Performance*, New York: Cambridge University Press.
- Ranis, Gustav (1979), “Industrial Development,” in Walter Galenson (ed.), *Economic Growth and Structural Change in Taiwan*, Ithaca: Cornell University Press, 206–262.
- Scott, Maurice (1979), “Foreign Trade,” in Walter Galenson (ed.), *Economic Growth and Structural Change in Taiwan*, Ithaca: Cornell University Press, 308–383.
- Shih, Kuan-Sen, Jen-Hsing Chou, and Jen Su (1961), “A Study on Taiwan’s Trade and Foreign Exchange (臺灣貿易外匯之研究),” *Bank of Taiwan Quarterly*, 20, 83–125.
- Taiwan Provincial Government (1971), *Statistical Abstract of Taiwan Province, Republic of China, 1946–1967*, Nantou: Bureau of Accounting and Statistics, Taiwan Provincial Government.
- Vargas, Alberto (2003), “The Philippines Country Brief: Property Rights and Land Markets,” Land Tenure Center, University of Wisconsin—Madison.
- Wu, Tsong-Min (1994), “Taiwan’s Post-World War II Hyperinflation,” in Kuo-Su Liang (ed.), *Taiwan Economic Development*, Taipei: China Times.
- (1997), “The Nationalist Government’s Economic Policies Regarding Taiwan: 1945–1949,” *Taiwan Economic Review*, 25, 521–54.
- (2004), “Taiwan’s Per Capita GDP in Long-term Development,” *Taiwan Economic Review*, 32, 293–320.
- (2014), “A Study on Taiwan’s Land Rights Reform During the Early Japanese Colonial Period,” working paper, National Taiwan University.
- Wu, Tsong-Min and Yin-Feng Kuo (1991), “An Empirical Study on Taiwan’s Inflation and Money Growth: 1907–1986,” *Taiwan Economic Review*, 19, 23–71.
- Yanaihara, Tadao (1929), *Taiwan Under Imperialism (帝國主義下の台灣)*, Tokyo: Iwanami Shoten.
- Yin, K. Y. (1952), “A Review on the Textile Industry Development (發展本省紡織工業問題的檢討),” *Textile Industry (紡織界)*, no. 2, May 26, 1952, 4–5.

Yin, K. Y. (1953), "Controls of Taiwan's Textiles for the Past Year (一年來台灣花紗布的管制工作)," *Textile Industry* (紡織界), joint issue of 33/34, January 1953, 8.