

Economic History of Taiwan: A Survey

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Abstract

This paper surveys the research works on Taiwan's economic history for the past fifteen years. The period was from about the 18th to early 20th century. I have tried to cover the works by economists as well as the studies by researchers in History and other fields. The topics selected to be surveyed are: change of Taiwan's per-capita GDP in the long-term, trade and development, aborigine property rights, and institutional change in early Japanese colonial period.

The purpose of this paper is to survey the research works on Taiwan's economic history for the past fifteen years. During the period, there have been so many publications in various fields that it is impossible for me to discuss all of them. The research works selected to be covered in this paper certainly reflects my preference. I give priority to those topics that have attracted more researchers. Yeh (1994) has written a survey article on Taiwan's economic history earlier. Her survey covers mainly the works of scholars in the field of Economics and the main focus is on the Japanese colonial period. Her surveyed topics include: change in real income of Taiwanese people, land tenure system, economic development and structural change, and so on. With the idea that this paper is a complement to Yeh (1994) in mind, this survey covers also the studies on the Ch'ing era, and pays attention to researchers in History and other fields. Generally speaking, research works by

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historians have different focus than economists, so I try to pick those works that might be of interest to economists.

Following the above principles, the four topics chosen to be surveyed in this paper are: change of Taiwan's per-capita GDP (Gross Domestic Product) in the long-term, trade and development, aborigine property rights, and institutional change in early Japanese colonial period. An important topic that this paper has skipped but continued to attract the attention of researchers is the economic development during the Japanese colonial period. The interested readers may consult Yeh (1994) for the literature. Each of the following four sections is devoted to one of the four topics mentioned above.

1 Change of Taiwan's per-capita GDP in the long-term

From around mid-1980s, economic growth once again becomes a hot topic in economic research. A major result from this wave of research is that we now have more complete long-term population and GDP statistics for developing as well as developed countries. More importantly, growth economists are able to obtain more stylized facts from the data concerning long-term economic development.

In parallel to the above studies, there have been several works to construct Taiwan's long-term economic statistics. One of the most important results is Mizoguchi and Umemura (1988), which assembles many research fruits of Japanese economists. The statistical appendix of the book contains time-series data of national income, price indices, wage rate, import and export, government expenditures, and etc. For the national income statistics, the book contains estimates of Gross National Expenditure and GDP. In terms of understanding Taiwan's long-term economic growth, a deficiency in the GDP series is that it covers only the period of 1903–1938, and so can not be directly linked to the post-1950 official GDP estimates.

Wu (1991) provides a new estimate on Taiwan's GDP. It covers the period of 1910–51, and so can be linked to the post-War official series. Wu's estimation, however, has a potential problem in that it uses a certain Wholesale Price Index as a deflator to compute the real GDP. This might have introduced a serious bias to the real GDP estimate especially for the 1945–50 hyperinflation period. Another work of GDP estimation is Kuo et al. (1997), which estimates Taiwan's GDP of 1937–50. The period covered is shorter, but the

result seems to be more robust.

By combining the above estimates, and using a recent new estimate of agricultural production as a proxy for GDP of the early colonial period, Wu (2004) is able to construct a time series of Taiwan's per capita GDP from 1903 to 1999. The result shows that Taiwan's per capita GDP was about 550 dollars in 1990 international currency. This is about the per capita income level of a traditional agriculture economy. It is illuminating to compare Taiwan's per capita GDP estimate with China. It is generally agreed that the Chinese economy before the 20th century was a traditional agriculture economy. Its per capita GDP in 1812 was conjectured by Maddison (2001, pp. 90, 126) to be 600 dollars, and the estimate for 1913 was 552 dollars. These numbers are compatible with Taiwan's per capita GDP in 1903.

Another characteristics of a traditional agriculture economy is low or zero growth rate in per capita GDP. For example, Maddison (2001) conjectures that Chinese per capita GDP growth rate in 1500–1821 was zero. From 1683 to 1895, Taiwan was under the Ch'ing rule, and so its agriculture technology should be the same as China. Wu (2004) argues that this implies that Taiwan's per capita GDP growth rate during the Ch'ing period should be close to zero. Zero growth rate of per capita GDP means that GDP level grows at the same rate as population, but it does not necessarily mean that there is no increase in GDP. According to Shepherd (1993, p. 161), Taiwan's population was about 100,000 in 1660, and it increased to 2,545,731 in 1893. A simple calculation shows that the average population growth rate was 0.4% per year during the period. If the above estimates are reliable, they imply that Taiwan's annual growth rate of GDP was 0.4% during the 212 years of Ch'ing rule. In contrast, economic growth during the Japanese colonial period was significantly higher. The data compiled by Wu (2004) show that annual per capita GDP growth rate was about 2.0% during 1903–1940.

The increase of per capita GDP growth rate from 0% to 2% suggests that there was a structural change in Taiwan's economy at the beginning of the Japanese colonial era. The GDP estimates in early Japanese colonial period might contain many errors and be biased. However, the conclusion of structural change gains support from the work of Olds (2000). The Japanese colonial government conducted island-wide body height survey on Taiwanese in the 1920s. By analyzing the body height of the adults in the data set, Olds

finds that the adult body height of those who were born after 1895 was significantly higher than those who were born before. The rise in body height might be due to higher income or better health, whatever the case the phenomenon was consistent with the argument that there was a structural change in the economy during the early colonial period.

Taiwan was a colony of Japan from 1895 to 1945. To many people, colony means that the Taiwanese people were treated unfairly by the colonial government, not only politically but also economically. In fact, a recurrent question in the research on the colonial period was: Did real income of Taiwanese people rise with the economic development? There was a debate on this issue among several economists in the 1960s and 1970s. Yeh (1994) has done a survey on this literature, and concluded that the consensus from the literature was that at least after 1920s, there were evidences to support that the real income of the Taiwanese people did increase. How the Taiwanese livelihood before 1920s was, however, remains an open question. The results of Olds (2000) concerning the increase in body height suggests that the real income of the Taiwanese people might have started to increase in the early 20th century.

A related literature on this topic was the income distribution between Taiwanese and Japanese. Kimura (1997) directly estimates the income distribution of Taiwanese, Japanese, foreigners, and the government sector in the years of 1930 and 1940. His result shows that the income share of Taiwanese people was 70.8% in 1930, and 71.9% in 1940. Yen (1997) uses an indirect method to estimate the income distribution, and she is able to compile ten estimates during the period 1912–1941. Her estimate of the Taiwanese income share for 1929 was 69.9%, very close to 70.8% as estimated by Kimura, while the estimate for 1940 was 64.5%, somewhat lower than that by Kimura. For the period before 1920s, Yen (1997) has five estimates in 1912–1919, and the income share estimates were between 60.8% and 69.6%.

What do the long-term GDP statistics and income distribution shares tell us about the income change of Taiwanese people during the Japanese colonial period? Using the data compiled by Wu (2004) and the Taiwanese population statistics, and for simplicity assuming that Taiwanese share of national income was 65%, then a simple calculation shows that per capita GDP growth rate of Taiwanese people was 1.97% in 1905–1940. This is significantly higher than the zero growth rate during the Ch'ing period. The calculation

also supports the argument that per capita GDP of the Taiwanese people started to grow not in the 1920s, but early in the colonial period.

2 Trade and development

Taiwan is a small island with limited natural resources. Since the Dutch period, external trade has been a driving force for development. Ts'ao (2000) discusses the role of Taiwan in the international trade around south China sea during the 17th century. Before early 17th century, Ming dynasty banned international trade. This resulted in many smuggling activities in the south China sea, where merchants and pirates traded goods from Japan, China, and Manila. Taiwan was located in the route of the trade, and sometimes served as a convenient place for traders and pirates to meet.

Although Taiwan had been trading with other countries well before the 17th century, it was the Dutch period that international trade boomed, and directed the route of development. When the Dutch came to the east, the original intention was to trade with China. After repeated rejections by the Ming dynasty, the Dutch finally settled on Taiwan in 1624. Initially, the Dutch engaged in trading goods produced in Japan, China, and the Dutch colonial islands in the south China sea. But it did not take long for them to realize that Taiwan's deerskins, sugar, and fishes were valuable products for export. According to the Dutch records, during the period of 1633–60, average annual export of deerskins was 71,915 pieces. Taiwan also exported a lot of sugar, most of them went to Japan and Persia. The export of sugar had induced a booming sugarcane agriculture.

The Dutch was expelled from Taiwan by Koxinga (Cheng Ch'eng-kung) in 1662. Twenty one years later, Cheng's grandson surrendered to the Ch'ing in 1683. The next year, Ch'ing government lifted the ban on international trade, and foreigners were allowed to trade with China via Amoy. Ng (1983) discusses the Amoy network of international and domestic trade, and its effects on Taiwan during the late 17th and early 18th centuries. With the rise of Amoy, Taiwan no longer played a direct role in the international trade around the south China sea, it was only a small prefecture of Fukien province within the Ch'ing empire. During the 18th and 19th centuries, China itself was a stagnant economy. The advances in technology and institutions, if any, were rather slow. So even though Taiwan continued to export sugar and rice through Amoy, the effect of trade on the development

seemed to be limited.

At the beginning of the Ch'ing rule, government policy toward Taiwan swayed between pro-colonization and quarantine. The Ch'ing court was very concerned about the possibility that Taiwan would become a base for anti-Ch'ing movement, and quarantine policy was adopted initially. Following the quarantine policy, Chinese immigration to Taiwan was restricted, and Taiwan's rice export was regulated. The Ch'ing court was afraid that if too much rice was exported, Taiwan's rice price would increase, and this might cause disturbances. In addition, all the trade with China had to pass through Tainan in Taiwan and Amoy in Fukien.

In early 18th century, the quarantine policy was gradually replaced by the pro-colonization policy. One of the reasons for the change seemed to be that during the Ch'ing period, Fukien, Kwangtung and other southeastern provinces faced serious food shortage problem. Many authors, e.g, Wang (1986), have shown that Taiwan's rice export helped to alleviate the food shortage problem. A pro-colonization policy would boost rice production, and hence help to solve the food shortage problem. Under the pro-colonization policy, more and more Chinese emigrated to Taiwan. The expansion of the Chinese immigration and land reclamation, and the increase in rice and sugar exports were reflected in the opening up of more official harbors in Taiwan. This was carefully documented by Lin (1994).

Taiwan's booming trade economy seemed to face a downturn in the early 19th century. From the changes in rice price and the exchange rate between silver and copper, Wang (1997) argued that China's economy was in continued depression from early to mid-19th century. In addition, China began to import a lot of rices from Nanyang. Both factors probably had a negative effect on Taiwan's rice export. Ch'en (1994) documented the number of the junks arriving Taiwan from the mainland during the period. He found that in 1780s, each year there were 400–500 junks arriving to Tainan from Amoy, and in 1850s the number decreased to 25. One of the reasons for the decrease might be that the Tainan harbor has partially silted up. Nevertheless, after looking into other evidences, Ch'en (1994) argued that there was indeed a depression in Taiwan during the period.

In 1757, the Ch'ing government changed the official port for international trade from Amoy to Kwangtung, but the former continued to serve as a major port for domestic trade,

through which Taiwan's rice was transferred to Fukien's food shortage areas, and sugar was sold to the northern provinces or exported to Japan. After the Opium war, China was forced to open five ports, including Amoy and Fuchow, for international trade in 1843. Seventeen years later, Taiwan also opened up two ports: Tamshui in the north and Takow in the south. So after about 200 years of closeness, Taiwan rejoined the world. Immediately, a new industry emerged in northern Taiwan.

Gardella (1994) discussed China's tea industry from the late 18th century to the early 20th century, and provided a good perspective to understand the development of Taiwan's tea industry in late Ch'ing. Tea was China's most important export in mid-Ch'ing. The available data show that from 1786 to 1830, China's tea export continued to increase, and most of the tea was produced in northern Fukien. Although Taiwan was very close to Fukien, the booming tea industry did not produce a spill-over effect on Taiwan during this period. Before mid-1850s, there was only a very small amount of tea produced in Taiwan, and probably only for domestic consumption. After Taiwan was opened up to the world, John Dodd, a Scotch merchant, successfully developed a tea industry in northern Taiwan. Almost all the tea produced in Taiwan was for export. And at the end of Ch'ing period, tea became the most important export from Taiwan, surpassing rice and sugar.

After Taiwan became a colony of Japan, trade continued to play a critical role in the economic development of Taiwan. During the colonial period, sugar and rice (after mid-1920s) were the two most important exports, and almost all the exports went to Japan.

3 Aborigine land rights

As mentioned above, in the beginning of the Ch'ing rule, a primary concern for the Ch'ing court was to prevent Taiwan from becoming a rebel base. During the Ch'ing rule, Taiwan was notorious for the high frequency of strife and revolts. Some of the local disturbances were caused by conflicts between the aborigines and the Chinese immigrants. The Ch'ing government quickly realized that to reduce local disturbances in Taiwan, it had to deal carefully with the aborigines. To the Ch'ing government, Taiwan's aborigines were to be divided into two groups: plains aborigines and "raw" aborigines. The former group refers to those who has been pacified.

Shepherd (1993, 1999) discussed in great details about the aborigine policy of the Ch'ing government in the 17th and 18th centuries. In the beginning, when quarantine policy was adopted, Ch'ing government restricted Chinese immigration to Taiwan. For those Chinese already in Taiwan, the Ch'ing government set up various regulations to constrain the interactions between the Chinese and the aborigines. The primary objective of the Chinese immigrants was to reclaim Taiwan's large area of unopen fields. Since the aborigines owned large area of hunting fields, it was inevitable that the Chinese immigrants would like to reclaim the fields. Some officials of the Ch'ing government, however, feared that this might produce disastrous effects on the aborigines, which in turn would cause social disturbances. The question faced the Ch'ing government was: Would the quarantine policy produce desirable results?

3.1 The evolution of plain aborigine land rights

Before the Dutch period, Taiwan's plains aborigines were described as hunter-horticulturalists (Shepherd, 1993). They also engaged in agriculture, but the production technology was crude and unproductive. The Dutch had introduced better agricultural technology to the aborigines, but hunting seemed to remain important, because Taiwan continued to export a lot of deerskins up to the early Ch'ing.

There were several tribes of plains aborigines living in Taiwan, each possessed a specific hunting territory. A very important element in Ch'ing's aborigine policy was that it recognized and protected the land rights of aborigine hunting field. Why Ch'ing government adopted such a policy? One of the reasons was that Ch'ing government had resorted to plains aborigines to suppress local rebellions. Another reason was that plains aborigines paid tax as well.

Since plains aborigine owned land rights, the Chinese immigrants had to sign contract with the aborigine landlord if they wanted to reclaim the hunting fields. As a principle, the Ch'ing government did not regulate renting contracts between Chinese immigrants. But as more and more Chinese immigrants came to Taiwan, land-related disputes between immigrants and aborigines rose. In 1704, the Ch'ing court declared that if a Chinese wanted to reclaim an aborigine's field, he was required to apply for permission. During the 1720s and 1730s, the quarantine policy was gradually replaced by pro-colonization policy. In

1724, for example, a decree was issued by the emperor to encourage the Chinese immigrants to reclaim the aborigine's land which was still unopen. However, the Ch'ing court still forbade the Chinese to buy aborigine lands (Shih, 1990a, pp. 124, 131).

As the land disputes between the Chinese and the aborigines increased, government officials proposed to setup a boundary in a north-south direction to prevent Chinese immigrants from entering into the aborigine territory. In the beginning, the boundary was meant to separate the Chinese immigrants from the plains aborigines. The boundary had been relocated several times later. And in 1760, a boundary trenches (the so-called "earth-oxen") was built (Shih, 1990b). As more immigrants came to Taiwan, the Chinese immigrants interacted more intensively with the aborigines, not only with plains aborigines but also with the raw aborigines living in the mountains. Consequently, a dual boundary system was proposed and established in the 1790s to separate Chinese, plains aborigines, and raw aborigines into three areas. Shih (1990b) argues that the whole Chu-ch'ien area (in northern Taiwan) can be divided into three sub-areas: Chinese cultivation area, plains aborigines reservation area, and the so-called *ai-k'en* area near the mountain ranges. In late 18th century, almost all of the lands in the Chinese cultivation area had already fallen into the hands of Chinese immigrants. For the reservation area, under the protection policy of the Ch'ing government, most of the lands were still owned by plains aborigines until early 20th century.

After the Ch'ing government issued the decree to forbid Chinese immigrants to buy aborigine lands, a common practice was for the Chinese to reclaim the fields for plains aborigines. Most often, the contract would state that it was the responsibility of the Chinese reclaimant to prepare all the funds and labor. In other words, plains aborigines only provided land, and nothing more. If the land was successfully reclaimed, the Chinese tenant would continue to cultivate the land. Each year, the Chinese would pay the aborigine landlord a rent, called aborigine large-rent.¹ The Chinese tenant might in turn sublet the land to other farmers for cultivation, and the rent he received was called small-rent. Usually, if the Chinese tenant wanted to sell his large-rent rights to others, he needed not to get permission from the aborigine landlord beforehand. The aborigine could also sell his large-rent rights independently of the Chinese tenant. This is the so-called "two lords to

¹Ka (2001) discussed in great details the various forms of aborigine large-rent.

a field” system.² Although the government forbade the Chinese to buy aborigine lands, it turned out that most of the aborigine lands were lent out to the Chinese for reclamation. In other words, most of the plains aborigines only owned large-rent rights, and not small-rent rights.

With the arrival of the Chinese immigrants, the livelihoods of the plains aborigines were affected in two ways. First, as more and more fields were reclaimed, animals escaped into mountains, this reduced the output of hunting activities. On the other hand, since aborigines owned large area of fields, the demand for lands from the Chinese immigrants was a potential source for profits. Before the early 18th century, hunting fields were publicly owned by tribe members. When more and more fields were reclaimed, motivation for private land rights system arose. In other words, as a hunting economy was gradually transformed to an agriculture economy, there was a stronger incentive to establish a private land rights system.

Ch'en (1994) studies the evolution of the land rights system of *an-li* tribe located in middle Taiwan. In 1740s, *an-li* tribe aborigines proceeded to privatize their fields that were publicly owned by all the tribe members until then. Except for a small portion of the fields that was reserved for public usage, the rest of the fields was divided into small pieces and the land rights were assigned to individual tribe members. A private land rights system was thus established. In early 1900s, when the Japanese colonial government engaged in the island-wide cadastral survey, it requested all the land owners to register their lands. Upon the request, *an-li* tribe further divided the remaining public land into individual pieces, and assigned the property rights to individuals (Ch'en, 1994, pp. 222–224). So over a time span of 160 years, all the fields that were originally owned by the public became individual properties in the beginning of the 20th century.

3.2 The loss of aborigine lands

In the studies of the plains aborigines, the loss of aborigine lands receives much attention because the loss of lands is regarded as the main factor that leads to poverty of plains aborigines. Although there have been many studies on this issue, there is still no consensus

²It should be noted that this system also existed among Chinese, namely, the first land owner could also be a Chinese.

as to why the plains aborigines lost their lands.

Based on some field studies in northern Taiwan, Shepherd (1993, p. 8) infers that “large areas of Taiwan’s west coast were subject to aborigine large-rent” up to the early 20th century. He suggests that the protection policy of the Ch’ing government on aborigine lands may be regarded as successful. The study by Ka (2001, pp. 322–325), however, shows that aborigine large-rent existed almost exclusively in the reservation area. So if most of the lands in the Chinese cultivation area were originally owned by the plains aborigines, then land loss did occur during the reclamation process. In addition, even though plain aborigines owned large-rents, most of the small-rents were collected by the Chinese.

Why plains aborigines lost their lands? An interpretation provided in the traditional literature was that aborigines lacked agricultural skills, and so they would rather sell their fields. Shih (1990a) does not agree with this interpretation. He argues that the main reason is that the Ch’ing government required the natives to provide many *corvée* labor service, as a result it was difficult for the aborigines to concentrate on cultivation. Ch’en (1994, pp. 75–76) argues instead that *corvée* labor service was only one of the many factors that led to the land loss, lack of labor and funds might also be an important factor.

The argument of *corvée* labor service implicitly assumes that the aborigines were forced by the Ch’ing government to do the job. Liu and Lin (2001) argues that plains aborigines got pay from *corvée* and other labor services, and so it could be an optimal decision for the aborigines to take the labor service job instead of cultivating their own land. In addition, from the contents of land contracts, it seems that most of the transfers of land rights were voluntary. So if the loss of land leads to poverty of the aborigines, it is a puzzle why voluntary decisions lead to self-defeating result. Although there have been a large literature on the aborigine land rights problem, more studies are needed to explain the loss of land phenomenon.

4 Institutional change in early Japanese colonial period

An important problem in economic growth research is that how a stagnant agriculture economy is transformed to a modern economy. Many scholars argue that institutional change plays a critical role. According to North (1991), institutions means informal customs and traditions, as well as formal constitutions, laws, and property rights. From early

17th century to 1945, Taiwan was ruled by Dutch, the Ch'ing dynasty, and Japan. For each change of the ruler, there was an accompanying change in institutions. For the study of economic growth, the institutional change from late Ch'ing to the early Japanese period was the most important, because Taiwan was transformed from a traditional agriculture economy to a modern economy.

Although only a few studies have been done on this topic, some interesting results have emerged from the works. The first step in the study of institutional change is to clarify what have changed. Wang (1999) discussed in details the change in law system under the Japanese colonial rule. During the Ch'ing period, there was no independent legal system from the administration system. In other words, a local administrative official also served as a judge or a magistrate.

It was the Japanese colonial government that introduced the western-style legal system to Taiwan. The Japanese also tried to apply the Japan's legal code to Taiwan, but it immediately faced with the problem that the Japanese law was not completely compatible with the Chinese law. For example, under the Chinese law system it is for all the sons to inherit the family property, while under the Japanese system all the property is inherited by the eldest son. Wang (1999) also argues that the concept of property rights under the Chinese law is not the same as that in the western law. For example, under the Chinese law system, all the lands within the empire were considered to belong to the emperor. A landlord only owns administration rights. What is the implication of the difference in the property rights concept, however, remains unclear.

A legal code by itself can not function without enforcement mechanism. As mentioned above, administration and law is just one system during the Ch'ing period, and both verdict making and enforcement are the responsibilities of the local government officials. However, it is generally recognized by scholars that the local officials of the Ch'ing government were neither responsive nor efficient. More explicitly, except for security maintenance and taxation, Taiwan's rural government in general did not get involved in the local affairs (Dai, 1979, p. 334). Most often, minor disputes among villagers were referred to a local mediator for resolution. Only when the mediation failed, would the local magistrate take on the mediator's role himself (Allee, 1994, pp. 10–12),

Given that security maintenance and taxation were the two most important respon-

sibilities for the local government, the capability and efficiency of the local government could be accessed by how well the jobs were done. During the Ch'ing era, land taxation was the most important source of revenues for the local government, it is a well-known fact that land area registered for taxation was significantly lower than cultivated area. In the Self-strengthening Movement during late Ch'ing, Taiwan governor Liu Ming-ch'uan initiated an island-wide cadastral survey to enroll "hidden" land on the tax registers. As a result of the survey, the taxed area quadrupled. Fifteen years later, the Japanese colonial government made another cadastral survey. As a result of the new survey, the registered paddy area increased from 240,767 chias to 312,022 chias, and dry field area increased from 188,515 chias to 299,367 chias. Governor Liu was generally regarded as an able official in late Ch'ing, the difference in area statistics, however, clearly indicates the inefficiency of the local Ch'ing government

Given that the rural government is inefficient, local people must try to devise a systematic way to take care of the public affairs by themselves. In this regard, the wealthy families played an important role. In Ch'ing Taiwan, family wealth was accumulated mainly through land and trade. And of course these two roads were not independent, a landlord could also be a big trade merchant, and vice versa. During the Ch'ing era, traders usually organized themselves to form a guild. Guild organization could be associated with a particular commodity or a specific area. For example, sugar exporters in southern Taiwan formed several sugar guilds, and traders in Chu-ch'ien area (northern Taiwan) formed a "Chu-Ch'ien guild". Most of the guild members were wealthy people, and so guild played an important role in local public affairs.

A related issue is religion. Many scholars have argued that a weak government probably induces a more active role of religious corporations in local affairs. Olds and Liu (2000) provides a concise survey on the role of religious corporations in Ch'ing Taiwan. Using a set of survey data during the Japanese colonial period, they investigate the economic functions of religious corporations. Whatever the functions, all religious corporations need financial support from people or institutions. The case study on Chu-Ch'ien guild by Lin (2000) provides many details about the relationship between guild organization and religious corporations. Chu-Ch'ien guild was established in early 19th century, most of its members were also members of religious corporations. The guild organization had eco-

conomic purposes. For example, guild members might supply loans with each others, and might import and export goods together. Besides economic functions, Chu-Ch'ien guild, like other guild organizations in Ch'ing Taiwan, helped protecting life and property, dredging harbor, constructing roads and bridges.

Financial difficulties had always been a big problem to Taiwan's local government. When there was a temporary increase in government spending, a common practice was for the local government to resort to the wealthy families and merchants for help. This was nothing more than a temporary taxation on wealthy families and merchants, and guild organization might be regarded as an organization formed by merchants to meet the demand from local officials. So where did Chu-Ch'ien guild get its money from? The study of Lin (2000, pp. 205–209) shows that the financial sources of Chu-Ch'ien guild include: donation, returns from guild's properties, and the so-called *tsou-fen* system. *Tsou-fen* was actually a tax system applied to the import and export commodities from guild members.

Chu-Ch'ien guild levied import and export tax on its members, and the proceeds were then used to help taking care of local public affairs. This is like what a modern government would do. When a government was weak, it seems natural and probably efficient for the local people to establish an organization such as Chu-ch'ien guild. However, the guild organization was different from a local government in an important way: It had no legal status. For example, it could not take effective actions against those members who failed to contribute *tsou-fen*. In addition, Lin (2000, pp. 297–312) argues that leaving public affairs to guild organizations or wealthy families has a serious side effect. Because the relationship between local officials and wealthy families became more closer than otherwise, it was difficult to distinguish public interests from private profits under the system. Since wealthy families and the local officials shared the same interests, it was quite likely that the officials would bend his public decisions to the favor of the wealthy families. Possibly due to the above problems, Governor Liu ordered to eliminate all the *tsou-fen* system in the 1880s.

5 Concluding remarks

This paper surveys the researches on the economic history of Taiwan in the area of long-term economic statistics, trade and development, aborigine land rights, and institutional changes in early Japanese colonial period. This is only a short and incomplete survey, but

we do find some interesting problems awaiting for further studies. Some of the problems have already been mentioned above, and I would like to add another one here to conclude the survey.

The “two lords to a field” system was generally regarded as inefficient by officials as well as scholars, and the large-rent was completely eliminated in 1904 by the Japanese colonial government. If the system was inefficient, however, it is a puzzle why a free economy would produce an inefficient system? In section 3 above, we discuss how the public land rights system in *an-li* tribe was transformed to a private land rights system when economic environments changed. The case shows clearly that in a free economy, an institution would adapt to the environment change to reach optimality. With this case in mind, it is difficult to accept the conclusion that “two lords to a field” system is inefficient because the system also evolved in the same free economy. It might be that the system was efficient during the early Ch’ing period, but later became inefficient because of the changes in the environment environments. Whatever the case, more studies are needed to understand the phenomenon.

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