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Abstract

A sustainable fiscal state needs to have two critical factors: A stable tax base and access to an efficient bond market. The Tokugawa Shogunate had a stable land tax revenue, which was inherited to modern Japan after the Meiji restoration. Taxation, however, was restricted by the constitution after the Meiji restoration. The parliament opposed to expansionary policy in the early 1890s, and then it turned to support that at the exchange of governmental commitment to investment in social infrastructure. The government committed to investment to increase productivity, and was allowed to raise tax rate. About the bond market, at the other hand, the government had issued bonds only in the domestic market until the mid 1890s. In the late 1890s, after Japan joined the international gold standard, the government began to issue considerable amount of bonds, and the balance surged during the Russo-Japanese war in 1904-1905. Now the London market efficiently financed Japanese government. In the early 20th century, the government was one and only one player that had established its own reputation in the international financial market. Hence balance of Japanese government bonds was the only route to import capital. This route also provided Japanese economy with macroeconomic stability, offsetting short-term current account deficit by import of capital. Japan had finally been equipped with necessary instruments as a stable and sustainable fiscal state.

Key words: Fiscal state, government bonds, macroeconomic stability.
JEL: N45, N25.

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Introduction

Tokugawa Japan had relatively stronghold of stable tax basis, as a feudalist country, and this was an important legacy for the New Imperial Government after the Meiji Restoration in 1868. The New Imperial government, after taking over the early modern tax basis, formed the modern domestic bond market first, and then went into the London market, to settle the fiscal system in the financial market so that it could be efficiently financed. To understand this process of rise of the Japanese fiscal state, it would be helpful to inquire three aspects.

The first one is process of centralizing taxation and stabilizing tax revenue. A nationwide tax and land reform by Hideyoshi Toyotomi, who was the ruling *samurai* then, was the landmark of simplification and centralization of taxation in feudalist Japan. By this reform, the central government and feudalist states (*han*s) acquired strong tax control. The tax payment ratio in agricultural crop reached as high as 40 percent. This regime was inherited to the Tokugawa Shogunate. This was the historical origin of feudalist Japan, where fiscal stability was high as a feudalist country. This legacy of strong taxation scheme was took over by the New Imperial Government after the Meiji Restoration in 1868. The New Imperial Government conducted a big tax and land reform again, by which autonomy of feudal states was removed and all tax revenue of the country came under control of the central government.

The second one is the big change of political environment after Japan developed into a constitutional state in 1890, which meant the taxation and expenditure had to be approved by the parliament. In the process of modernization and Westernization, people had grown up as "citizens" who thought they had the right to control taxation and expenditure. The New Imperial Government had no other option than to change into a constitutional state in order to justify their rule. In the early 1890s, right after the constitution became effective and the parliament was called first, the parliament was a battle field where the majority of representatives strongly asserted the tax cut and the administration, which was not elected from representatives in the period and sought expansion of military expenditure. However, in the late 1890s, they moved to the other equilibrium where the parliament agreed to tax increase and the administration increased expenditure for civil capital formation, not only for military. Stable tax revenue and public capital formation became the rule of fiscal policy since then.

The third one is the government's access to the bond market. While some feudalist states issued bonds and notes which were permitted to circulate only within the issuer state in Tokugawa Japan, the Tokugawa Shogunate, the central government, did not issue bonds, so that the Shogunate capital Edo (later Tokyo) and Osaka, the two biggest cities ruled by the Shogunate, did not have any secondary bond market. The role of capital market in fiscal policy was negligible in Tokugawa Japan. The New Imperial Government began to issue government bonds right after the Meiji Restoration, which was the historical origin of the modern capital market in Japan. However, because the New Imperial Government considered the risk of being colonized by Western powers, it had hesitated to issue government bonds in international markets until the late 1890s. The circumstances gradually changed in the mid 1890s. Leaving from the silver standard and joining the gold standard in 1897 decreased Japan's country risk that led to smaller country premium rate required when to issue government bonds. A big turning point came in 1904-1905 when Japan was in a war against Russia. Japanese government finally decided to

issue huge amount of Japanese Government Bonds at the London market, endorsed by British merchant banks, to afford the Russo-Japanese war. Both of this issue and the war were successful, and then connection to the international capital market became an important instrument both for fiscal stability and for macroeconomic stability. Issuing bonds in the international market could decrease "crowding out" effect in the small domestic capital market, so that the government had a more flexible arm to raise funds. Also, import of capital when the current account deficit increased enabled the Bank of Japan, the central bank, to take a more moderate financial policy. Otherwise the Bank of Japan should have increased interest rate suddenly to keep the parity of Japanese yen against the starling pound any time current account deficit surged. In the 1900s, when Japanese private companies had not yet established their own reputation in the international financial market, Japanese Government Bond was the dominant channel to import capital. Thus fiscal policy gave the macroeconomic stability to Japanese economy, and the macroeconomic stability in turn provided the government with stable tax revenue.

In the phase where Japan developed to a modern "fiscal state," therefore, the well-functioning international financial market centered at London took a critical role. However, at the same time, if the government had made a mistake about when to enter the international market, Japan could have faced with the risk to be colonized. After establishing a constitutional state, creating a nation state, and being heavily armed, then the Japanese government got into the London financial market without being politically threatened. Whether exploiting or being exploited by the London market was a critical junction to the first rising non-Western country.

I. Formation and development of early modern fiscal state: 1192-1867

A. From an ancient empire to a feudalist country

Since the late 6th century, ruling family in the Kinki region,[1] the ruling family, which was later called the imperial family, had made efforts to introduce sophisticated political institutions and technologies from the Chinese empire. In 701, the *Taiho* Imperial Legal Codes (*Taiho Ritsuryo*), a land mark of ancient legal history was promulgated. That legal codes was a modified copy of the legal codes of the Chinese empire, written in classical Chinese. The Imperial Legal Codes stipulated very centralized scheme of legal and political system, but the Imperial Government did not hold sufficient resources to really enforce the scheme. The Imperial Government therefore delegated duties to keep orders in segmented domains to the Imperial family, nobles and large temples, and those delegatees were guaranteed privileges to collect some portion of rents from the relevant areas. This was an origin of Japanese manorial system.

In many manors, real enforcement power was provided professional worriers, not by the owners of manor. Those worriers came to be called "*samurai*"s, which originally meant "servants." *samurai*s were delegated duties to keep orders and peace in local communities, and to collect tax, at the exchange of the privilege to correct some rent for themselves. By the 11th

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[1]The central area of Honshu island, the main island of Japanese islands.

century, in some regions, especially in Eastern Japan which is far away from Kyoto, the Imperial Capital, *samurai*s formed groups led by noble *samurai*s,[2] and had acquired enough power to rule the areas.

In 1192, a big group of *samurai*s in Eastern Japan finally established their own government, the Kamakura Shogunate. *samurai*s did not follow the Imperial Legal Codes, but they did their common law. The court of the Shogunate enforced this Japanese common law. However, in terms of the fiscal regime, the Kamakura Shogunate was basically a part of the manorial system at least in the 12th century. The main revenue of the Shogunate was from manors the Shogunate family held, and income of *samurai*s still depended on rent guaranteed by owners of manors. A critical feature with the manorial system was in that sovereignty to rule people and to correct taxes from them was not explicitly distinguished from ownership of land that allowed the owner to claim residual return, and in that either sovereignty over or ownership of land was fragmented. Typical case was as follows: The sovereignty over a piece of land officially belonged to the Emperor, the highest-rank duty to rule the piece of land was delegated to the Imperial family (Imperial family as private agents) with privilege to collect some rent, some high-rank duty with privilege to collect rent was delegated to high-class nobles such as the Fujiwara family,[3] middle-rank duty with privilege to collect rent was delegated to middle-class metropolitan nobles or local nobles, and the low-rank duty to keep orders and to really collect land taxes from peasants cultivating the piece of land was delegated to local *samurai*s with some privilege to collect rent at the exchange of their duty. Thus a fragmented stratus of sovereignty and ownership was built on the same piece of land.[4]

*Samurai*s were delegated to only the lowest rank of duty, but they had the real power for enforcement. Since then *samurai*s therefore gradually eluded the manorial system and expanded their interests. In the 14-15th centuries, Japan entered the period of warfares, when the manorial system was almost destroyed.

B. Land and tax reform in the 1590s

The period of warfares ended by Nobunaga Oda, the ruling samurai, and his successor, Hideyoshi Toyotomi. Given the virtually destroyed manorial system, Toyotomi's government conducted a drastic land and tax reform in the 1590s. The essential factors of his reform were, 1)he officially denied the fragmented sovereignty over land, declared that land of whole Japan belonged officially to him, and delegated one and only one feudal lord he recognized as his subordinate the duty to rule a certain domain with the authority to collect tax; 2)he determined the standard of taxation and ordered his feudal lords to commit to certain tax rates to peasants; 3)he guaranteed the right to occupy and cultivate a piece of land to one and only one registered peasant on the piece of land.

Now a piece of land had one and only one lord who held authority of taxation and one and only one holder of the right of cultivation. Provided that feudal lords were forced to commit to

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[2]They were originally sent by the Imperial government as governors or bureaucrats, and then stayed the areas.

[3]The family led assembling the Imperial Legal Codes in the 8th century.

[4]Nagahara (1973).

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some explicit taxation policies and were prohibited from discretionarily imposing taxes, each peasant virtually had the right to acquire residual crop after he paid tax. Toyotomi conducted the reform to maximize land tax revenue in the long term by protecting the residual claim of peasants.[5]

C. Revenue stability of the Tokugawa Japan

When Ieyasu Tokugawa took over the government from the Toyotomi family and established the Tokugawa Shogunate in 1603, he inherited this scheme of explicitly committed taxation policy with guaranteed property right of peasantry. Taxation mainly consisted of three kinds of items. The first one is called "Primary Tax (*Hon nengu*)," "Small Crops (*Ko mono nari*)," and "Charter Fee (*Myoga kin*)" and other kinds of indirect taxes. "Primary Tax" is land tax officially denominated by the amount of rice, and considerable portion of that was indeed paid in kind. The measure of crop and tax was "*Koku*." One *Koku* is 180.39litters, which was thought to be standard amount for an individual to live a year, so that productivity of a domoain measured by "*Koku*" was supposed to also show the amount of human resources that could be mobilized for warfares. "Small crops" were imposed on other crops than rice. "Charter Fee" were imposed on privileged merchants mainly in big cities such as Osaka, Edo, renamed to Tokyo after the Meiji restoration, and Kyoto.

The "Primary Tax" was indeed the main source of revenue in Tokugawa Japan. The Shogunate and feudal lords conducted inspection of rice production in their domains from the 1590s to the 1600s, and the result was registered at the Tokugawa Shogunate. This registered estimation of crop was the tax base of "Primary Tax." By the early 18th century, the taxation policy was based sharecropping. The Shogunate and feudal lords committed to some tax rate, such as 40 percent or 50 percent, and unless the crop was very bad, the tax rate was imposed on crop of the year.

In the early 18th century, the Tokugawa Shogunate changed its taxation policy. Under the new policy, the amount of tax was fixed. The Shogunate inspected crop of each peasant for the latest several years up to the inspection year, and then determined the tax amount for his farm, and this fixed amount of tax instead of rate was effective for next several years. Thus, while peasants took on more risk of bad cropping, they were given more incentive to increase production, given that all residual after tax deduction belonged to them.

Feudalist Japan was fragmented to small states and domains governed by different feudal lords, and each lord held taxation autonomy. While it is difficult to show tax revenue of all feudal lords, about the Tokugawa Shogunate, the central government, revenue of "Primary Tax" is available from 1716 to 1841. After the reform of taxation in the 1710s, tax revenue moderately increased, which indicated that the new taxation policy gave peasants stronger incentives. This shows the tax revenue of the Tokugawa Shogunate was fairly stable.

[Figure 1].

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[5]Araki (1986).

While tax officially amounted to near 35 percent in the period (Figure 1), we should be careful because this ratio was based on the official expectation of crop. Mainly based on crop inspections in the 17th century, official expected crop was determined as tax base. This official expected crop was hardly changed, thus official expected crop of whole the Shogunate domain was stable, except for minor changes in acreage of the domain. Officially expected crop per acreage of land seems to have been stable.

However, Hayami and Miyamoto (1988) estimates the country wide crop increased from 31 million kokus in 1700 to 41 million kokus in 1850, and land productivity (crop per *cho*) also increased since 1700 (Table 1).

[Table 1].

In the Tokugawa Shogunate Domain, tax rate ratio generally lower than other feudal lords' domains, and autonomy of villages were stronger, hence peasants had stronger incentives to increase productivity. Thus the increase of crop in the Tokugawa Shogunate Domain in the period is supposed to have been considerable. As a conservative estimation, we applied the country-wide increase rate of land productivity to the Shogunate Domain, and estimated real crop in the 18-19th centuries, and then effective tax rate.[6] Based on this estimation of crop, effective tax rate drop below 30 percent in the early 19th century. The Tokugawa Shogunate provided strong incentives to increase productivity with peasants, but the fruit belonged to peasants themselves, not to the Shogunate.

This bargaining result favorable to peasants was partly due to the structure of governance itself. The Shogunate deployed few officials in rural area, and it was a delegated duty of villages to keep order, and to collect tax. Taxation policy including tax amount imposed on a village was a kind of contract between the Shoguate and the village. As long as the village paid the prescribed tax, the village kept its autonomy. This was an efficient way of collecting tax, and economizing costs of ruling society. However, small number of officials meant that harsh asymmetric information existed between the village and the Shogunate. Given this asymmetric information, ex-post renegotiation of taxation policy accompanied large costs. When the crop was bad, due to natural disaster for instance, the village called for temporal tax cut. Because the Shogunate wanted to stabilize tax revenue in the long term, and really bad crop was easy to observe, it basically accepted this kind of tax cut. However, incremental increase of productivity

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[6]Put y_t and y_{t+n} as crop in the t th year and $(t + n)$ th year. Then average growth rate r between t th year and $(t + n)$ th year is shown by $r = (y_{t+n}/y_t)^{1/n} - 1$. From the Table 1, we have average growth rate r in 1720-1730, 1730-1750, 1750-1800, and 1800-1850. "Officially expected crop in the domain" (a) in the Appendix I can be interpreted as a proxy of acreage rather than real crop. Thus we can estimate crop in the t the year b_t by $b_t = (1 + r) \times (a_t/a_{t-1}) \times b_{t-1}$. For 1721-1730, 1731-1750, 1751-1800, and 1801-1841, we used r calculated by the procedure above. Before 1720, we assume that the "Officially expected crop a" was fairly close to real crop, thus we inserted a_{1716} to a_{1720} as b_{1716} to b_{1720}.

was hard to observe from the Shogunate side, and any renegotiation for tax increase incurred huge cost on the Shogunate, which strongly depended on autonomous villages as instruments of governance. Therefore, while the Shogunate could keep the stable land tax revenue, marginal increase of agricultural productivity drained from the Shogunate treasury.

Consequently, the Shogunate came to rely more on indirect taxes from merchants in the big cities in the mid 19th century (Table 2). Increased expenditure for salaries and civil services forced the Shogunate to find new revenue sources (Table 3).[7]

[Table 2], [Table 3].

Even though the imbalance between stable land tax and increasing expenditure was a serious problem to the Shogunate, the Shogunate did not issue neither bonds nor notes.[8] The Shogunate allowed other feudal lords to issue bonds and notes that circulated only within their own territories, but the Shogunate itself never issued. Because the Shogunate exclusively held the currency sovereignty to issue coins, it could acquire extra revenue by re-coinage to deteriorated quality coins (Table 2). This was a useful inflation tax to transfer from the private sector to the government sector, but only temporarily. The Shogunate can be said to had stable tax base, but not to have had any sustainable institution to finance the government.

II. The Meiji Restoration: 1868-1889

A. Abolition of feudalist system and fiscal centralization

The Tokugawa Shogunate exclusively had held the sovereignty over diplomacy and national security. However, when Commodore Matthew Calbraith Perry of the US Navy arrived with 4 battleships at Uraga of the Edo bay, the Shogunate could not exclude them. Furthermore, when he came back in the next year with 7 battleships this time, the Shogunate concluded a treaty of peace and amity under which Japan was obliged to open Shimoda Port in Shizuoka and Hakodate Port in Hokkaido, to provide the United States with a most-favored-nation treatment, to accept a consul at Shimoda port, and to give the US consular jurisdiction, but the US was obliged to give Japan neither a most-favored-nation treatment nor consular jurisdiction. Under the Tokugawa ideology, peasants had obligation to pay tax while the *samurai*s had the responsibility to national security. Thus a historically shameful treaty with a foreign country made feudal lords and people sceptical against the Tokugawa Shogunate sovereignty.

In 1858, the Shogunate concluded a treaty of friendship and commerce with the United States, under which Japan was obliged to open Yokohama, Nagasaki, Niigata, and Hyogo as treaty ports, to accept the free trade mechanism, and to give up tariff autonomy. This sudden

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[7]Oguchi (1976).

[8]More precisely, there was an exception. In 1867, the Shogunate issued convertible notes at Yokohama, the treaty port, and Edo, to facilitate foreign exchanges.

joining the international market provided Japan with a drastic change of relative prices, where huge loss belonged to relatively disadvantaged industries, and huge gain to relatively advantaged industries. This drastic change meant destroyed was the existing commercial network which large merchants privileged by the Shogunate had managed. Losing ability to control politics and economy, the Shogunate lost to the Boshin Civil War with the State of Choshu and the State of Satsuma, on the side of which the Emperor stood, in 1868.[9]

In 1871, the New Imperial Government abolished any autonomy of 260 feudal states and domains, and declared sovereignty all over Japan exclusively belonged to the New Imperial Government. Feudal lords received government bonds to compensate their financial benefit from their domains, but they lost any authority against their domains. Now all tax revenue of the country belonged to the central government.

B. Land tax reform in the 1870s

In Tokugawa Japan, a registered peasant exclusively held the right to cultivate his registered farm and to take residual after tax payment. However, he could not freely sell his farm, or at least, the Shogunate court did not enforce any contract of trading registered farm.[10] In 1872, the New Imperial Government officially allowed farm holding peasants to sell and buy their farm. Then, in 1873, the Land Tax Act was promulgated. The act guaranteed modern property right of farm to the registered farmer at the exchange of tax payment. Also the act prescribed that land tax be paid by money, not in kind. Procedure of the tax reform was as follows: First the prefectural government inspected productivity of a piece of land and calculated average return from the piece of land; second, the prefectural government determined the principle value from the calculated return and prescribed the principle value as the "land price"; third, 3 percent of the "land price" is the designated land tax from the piece of land. Thus the "land price" was the new tax base, and this "price" was fixed and had no direct relation with real trades in the market.

Another object in enforcement of the act was to have stable land tax revenue. Because the New Imperial Government had announced the land tax would be cut before it defeated the Shogunate in order to gather people's support, some peasants rose in revolt. Riots were suppressed by the Imperial Army nation-widely deployed, but also the government had to concede: tax rate of "land price" was reduced to 2.5 percent.

That effort was so effective that land tax revenue increased rapidly in the early 1870s, and it is thought to have recovered to the level in the Tokugawa period in the mid 1870s (Figure 2).

[Figure 2].

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[9]Even after the Shogun surrendered in 1868, the Shogunate Navy and Northeastern states continued to fight the Imperial army. The last battle between the Shogunate Navy and the Imperial Army ended in May, 1869, in Hokkaido.

[10]Trade of non-farm land was legal, and transfer of the right over non-farm land was enforced by the Shogunate court.

However, in 1877, the New Imperial Government faced with the last civil war with ex-*samurai*s in Kyushu region, which incurred huge costs on the government. The government issued considerable amount of government notes, and it led to rapid inflation. Since the "land prices" were fixed, inflation meant tax cut in real term. This real tax reduction stimulated rural economy.

In 1882, Masayoshi Matsukata took over the chair of Minister of Finance, and started harsh deflationary policy, where the government repaid the government notes by the budget surplus (Appendix 3). While the primary object of this deflationary policy was to stabilize prices and financial system, another important by-product was real increase of land tax. This deflationary policy gave disastrous damages to rural economy especially in Eastern Japan, partly because it started occasionally at the same time European economy turned down in 1882. Silk reeling was the export industry of Eastern Japan, so that the region hit both by the international business cycle and the fiscal policy.

Therefore, it is not clear whether Matsukata's deflationary policy increased social welfare or not,[11] but it stabilized the budget of the government anyway. In the 1880s, the governmental budget strongly depended on the land tax (Figure 2) and its dependence was actually as high as it was in the mid Tokugawa period (Table 2). In terms of tax base, the New Imperial Government in the late 19th century relied on the Tokugawa heritage.

C. Government Bonds in the domestic capital market

As an effort to modernize financial system, the government promulgated the National Bank Act in 1872, which was a copy of American national bank system, so that national banks were actually joint stock companies that held privilege to issue bank notes as currency. Under this act, 153 national banks were established. Correspondence network among those national banks began to integrate fragmented financial markets.

Departing from the Tokugawa shogunate policy for the central government not to issue notes nor bonds, the New Imperial Government issued government notes and bonds from the very beginning. Transformation of feudal lords' revenue to government consul bonds also increased the amount of circulating government bonds. The bond market therefore emerged in the 1870s. This was the birth of the capital market in Japan.

Thus infant financial and stock markets were being formed in the 1870s. After he took his office, Matsukata, the Minister of Finance, was dedicated to also complete modernization of financial system. Under his leadership, the Yokohama Specie Bank, the state-backed foreign exchange bank, was established in 1880. Also he chose the British style of central banking as a better system, so he established the Bank of Japan in 1882 as the central bank that exclusively issue bank notes. The Bank of Japan began to allow the bank notes to be convert to the silver

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[11]Patrick (1965) points out that Matsukata's policy balanced the governmental budget by transfer from from the private sector to the government sector at the expense of growth.

coins of Japanese yen.[12] Since then, the Bank of Japan held the silver standard until October 1897, when it moved to the gold standard.

Provided that the value of currency had become stable and modern financial market was formed, the government acquired a well-functioning government bonds market. Since the late 1870s, the balance of issued domestic bonds gradually increased (Figure 3). The domestic bond market had become a sustainable instrument to finance the government.[13]

[Figure 3].

III. Fiscal state under the constitution: 1890-1914

A. Rivals in the parliament

In 1889, the Constitution of the Empire of Japan was proclaimed. The constitution basically followed the one of Prussia, and it gave a strong power to the lower house as well as the upper house consisting of nobles and other characters chosen by the government: The budget of each year had to be approved by both houses. If the government failed to pass the budget, it had to enforce the budget of the last year. Following the Prussian constitution, the constitution did not officially take the parliamentary cabinet system, while the leading drafter of the constitution, Hirofumi Itoh, thought Japan should move to the parliamentary cabinet system soon or later. In the early 1890s, the prime minister and other ministers ware appointed independently to the parliament. On the other hand, the opposition parties kept the majority of the lower house.

The government sought to build a strong military, to stand against the Western powers. On the other hand, the opposition parties led by the Liberal Party were supported by rich landowners, who cared more of economic development than military. Thus the majority of the lower house strongly called for large tax cut. However, the opposition parties had also a weak point. The Clause 67 of the constitution prescribed that items belonging to the imperial sovereignty in the budget could not be cut by the parliament without approvement by the cabinet. A typical item belonging to the imperial sovereignty was military expenditure, that took a large part of the budget in that period. Therefore, unless the cabinet approved, the parliament could not cut the military expenditure. Given the structure of the constitution, harsh rivalry between the parliament and the cabinet gave any benefit neither to the cabinet nor to the parliament.

The Sino-Japanese war, whose main issue was the "independence" of Korea against China, gave a momentum. This was the first war since the Mongolian invasion to Japan in the 13th century. Facing with a national event, the parliament stop to fight the cabinet, and approved a large increase of military expenditure.

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[12]In this period Mexican dollar was the key currency in treaty ports of East Asia, so 1 Japanese yen coin contained the same amount of silver that 1 Mexican dollar did.

[13]Kamiyama (1995), Hoshi and Kashyap (2001).

B. Increasing tax with increasing capital formation

After the price index dropped in the mid 1880s, it began to inflate again since the late 1880s. This was mainly because Japan took the silver standard. From the 1870s to the 1880s, most European countries decided to accept the gold standard, which led to the decline of the international silver price. This meant decreasing exchange rate of Japanese yen. Under the silver standard, the Bank of Japan controlled the domestic financial market to have exchange rate of Japanese yen fixed on the international silver price. Low exchange rate finally led to inflation of domestic prices. A serious result of the inflation was decrease of governmental revenue in real term, given that the "land price" was nominally fixed, hence the land tax was too. The cabinet desperately sought land tax increase.

On the side of the opposition parties, the Liberal Party, the leading opposition party, drastically changed its stance against the cabinet, after the Sino-Japanese war. Under the effect of clause 67 of the constitution, the parliament could not increase expenditure for public welfare. Therefore, the party finally approved the land tax increase at the exchange of the cabinet's commitment to considerable increase in expenditure for public welfare, especially for social infrastructure. This strategic change of the Liberal Party resulted in the establishment of the de facto parliamentary cabinet system, where the majority of the lower house held the cabinet.[14]

The effect of the structural change in politics was remarkable. The government expenditure in the Gross National Expenditure steadily increased since the mid 1890s (Figure 4). Not only the military expenditure, also the governmental non-military capital formation surged in the late 1890s, showing that the cabinet indeed committed to investment in social infrastructure. Especially from the late 1890s to the early 1900, the period of Japanese industrial revolution, the governmental investment in infrastructure had a considerable role (Figure 5).

[Figure 4].[Figure 5].

C. Government Bonds in the international capital market

Except for the very beginning of the New Imperial Government, the government had hesitate to issue government bonds in the international market, because it considered the risk of being a dependency on Western powers. The victory in the Sino-Japanese war mitigated this consideration.

In October, 1897, Japan switched from the silver standard to the gold standard. A reason of the decision was in access to the international financial market. As long as Japanese yen pegged to silver, issue of bonds in the London market would require some premium to compensate the downward risk of the silver price. The government indeed resumed issuing government bonds in the London market in 1898 (Figure 3). Government bonds issue shot up during the Russo-Japanese war from 1904 to 1905. After the war, the London market had kept its critical role in

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[14]Mitani (1995).

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Japanese fiscal policy. To avoid high interest rate in the domestic market directly, hence to calm crowding-out effect indirectly, the government actively issued bonds in the London market after the Russo-Japanese war.[15]

Moving to the gold standard and joining the international financial market centered at the London market had important implication both in handling government budget and in sustaining macroeconomic stability. In Japan as a developing country, governmental investment in infrastructure took a critical role. However, even if investment in social infrastructure could increase productivity in the long term, governmental expenditure and investment themselves stimulated effective demand in the domestic economy in the short term that led to the current account deficit. If the Japanese capital market had effectively been integrated in the international market, this current account deficit in the short term would not be a serious problem. Expecting increased productivity, capital inflow would offset the short-term current account deficit, so that the Bank of Japan, which was responsible for the value of yen against the hard currency, did not need to trigger a financial panic by a sudden increase of interest rate as an instrument to have the domestic demand suddenly shrink.[16] However, in the early 20th century, no Japanese firm established its own reputation in the international market, hence it could not be expected for the private sector to successfully import capital.

By defeating Russia, only the government established its own reputation in the international financial market. Therefore, if any importer of capital, the government was one and only one. Issuing the government bonds in the international market was a critical macroeconomic stabilizer for a emerging country.

The government gave a contract the Yokohama Specie Bank, a partly state-owned foreign exchange bank, to issue bonds. The London branch office of the Yokohama Specie Bank have British merchant banks endorse the bonds, and then sell the bonds. The gold standard before the World War I was basically the sterling pound exchange standard, hence reserve of the starling pound supported trust in the yen. The balance at the London branch of the Yokohama Specie Bank was then included into reserve of the Bank of Japan. The Bank of Japan considered not only its own reserve in Japan, also reserve at the London branch of the Yokohama Specie Bank, when it determined official discount rate.[17] As long as the London market expected that Japanese economy was on a sustainable growth path, Japanese government was financed, which meant Japanese economy was financed too.

After the Russo-Japanese war, not only the international financial market provided a sustainable channel of fund raising with the government, capital import through the government bonds had become an important instrument to keep macroeconomic stability of Japan.

For this mechanism to work well, the market had to be efficient, in terms of imposing risk premium. Otherwise the governmental budget would just lose discipline. Or, the fiscal stability could be hurt if the market were instable. For instance, the American economy had been attacked by instable international financial market in the 19th century. In that sense, joining the London market in the early 20th century was a good decision. Exactly at that time, financial

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[15]Kamiyama (1995).

[16]Net export ($[Exports] - [Imports]$) must equal to Net capital outflow. Thus net capital inflow offsets net import.

[17]Kamiyama (1995).

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market was globally integrated and the London market functioned very well as the center.

Conclusion

The Tokugawa Shogunate guaranteed the right to cultivate and to take residual after tax payment to registered peasants, and respected autonomy of local communities as long as those communities took responsibility to tax payment. This institution gave the Shogunate a s table land tax base. This land tax kept being the main revenue not only to the Tokugawa Shogunate, also to the New Imperial Government after the Meiji restoration.

After 1890, the constitution admitted the authority to approve budget to the lower house, while the government was eager to increase tax revenue in order to enhance military ability. The leading opposition party chose a way where the party approved increased expenditure on the one hand, the government committed to investment in social infrastructure. Japanese democracy finished its youth at that point, and the fiscal policy came to have internalize a sustainable mechanism to invest in infrastructure and to increase tax revenue.

Facing with short of revenue during its centralization process, the New Imperial Government had issued bonds in the domestic market since the 1870s. Establishment of modern financial system facilitated it. However, the domestic market was not sufficiently large especially when the government came to take an important role in building infrastructure. Therefore Japan moved from the silver standard to the gold standard in 1897, and accessed the international financial market. The government indeed began to issue bonds in the London market in the late 1890s, and the balance surged during the Russo-Japanese war from 1904-1905. Now the government had a stable instrument to finance itself.

The channel to the London market had another implication. In the early 20th century, any Japanese firm had not established its own reputation in the international capital market. Thus the government bonds was the route to import capital. This channel enabled the government and the Bank of Japan to hold growth-oriented fiscal and monetary policy, without considering short-term current account deficit too much.

While the central government had built a stable tax base in the 17th century, this was finally equipped with a sustainable financing mechanism when it entered the London market in the late 1890s. At this point, Japanese fiscal state was formed as a sustainable mechanism.

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Table 1 Population and rice production in the Tokugawa period.

Year	Population	Cultivated acreage	Rice production
	thousands	thousands of cho	thansands of koku
1600	1,200	2,065	19,731
1650	1,718	2,345	23,133
1700	2,769	2,841	30,630
1720	3,128	2,927	32,034
1730	3,208	2,971	32,736
1750	3,110	2,991	34,140
1800	3,065	3,032	37,650
1850	3,228	3,170	41,160
1872	3,311	3,234	46,812

Source: Hayami and Miyamoto (1988), p. 41.

Table 2 Revenue Structure of the Tokugawa Shogunate   thousands of Ryo

			1730	1843	1844
General Account	Land tax (Nengu, paid officially in kind of rice)	*a*	509.0	603.7	646.8
	Direct tax for state public works (Kuniyaku, paid in		24.9	20.2	7.2
	Direct tax for small public works (Kobushin, paid in		26.9	22.4	23.3
	Direct tax for special civil service (Shoyakusho no, paid		55.0	45.9	71.3
	Indirect tax (Goyokin, paid by money)		29.0	158.0	706.4
	Subtotal	*b*	644.8	850.2	1,455.0
		a/*b*	79%	71%	44%
Special Accounts	Surplus from selling tax rice (Kome uri harai dai)		112.9	45.7	32.1
	Repayment of lending (Sho kashitsuke hen no, paid in		20.8	208.8	165.7
	Surplus from recoinage		10.4	394.4	856.4
	Other revenues		9.8	43.8	66.3
	Subtotal	*c*	153.9	692.7	1,120.5
	Total	*b*+*c*	798.7	1,542.9	2,575.5

Source: Ohguchi (1976), p. 352.

Table 3 Expenditure Structure of the Tokugawa Shogunate   thousands of Ryo

			1730	1843	1844
General Account	Salaries of public servants (Kirimai,		297.3	405.0	428.3
	Expenses of Shogunate house (Okumuki)		60.4	91.9	89.0
	Civil services (Yakusho)		149.5	337.0	288.8
	Public works		68.5	73.0	68.0
	Subsidies		12.1	146.5	183.7
	Expenses for Nikko visit		0.0	101.0	2.0
	Restoration of the Edo catsle		0.0	0.0	836.1
	other expenditures		5.2	66.5	57.5
	Subtotal	*a*	593.0	1,220.9	1,953.4
Special Accounts	Government purchase of rice		103.5	96.8	95.0
	Government lending		34.9	127.7	80.8
	Subtotal	*b*	138.4	224.5	175.8
	Total	*a+b*	731.4	1,445.4	2,129.2

Source : Ohguchi (1976), p. 352.

Figure 1 Land tax collection of the Tokugawa Shogunate Domain: 1716-1841.

Koku

- Officially expected crop (left)
- Land tax (left)
- Estimated crop (left)
- Official tax rate (right)
- Estimated effective tax rate (right)

Year
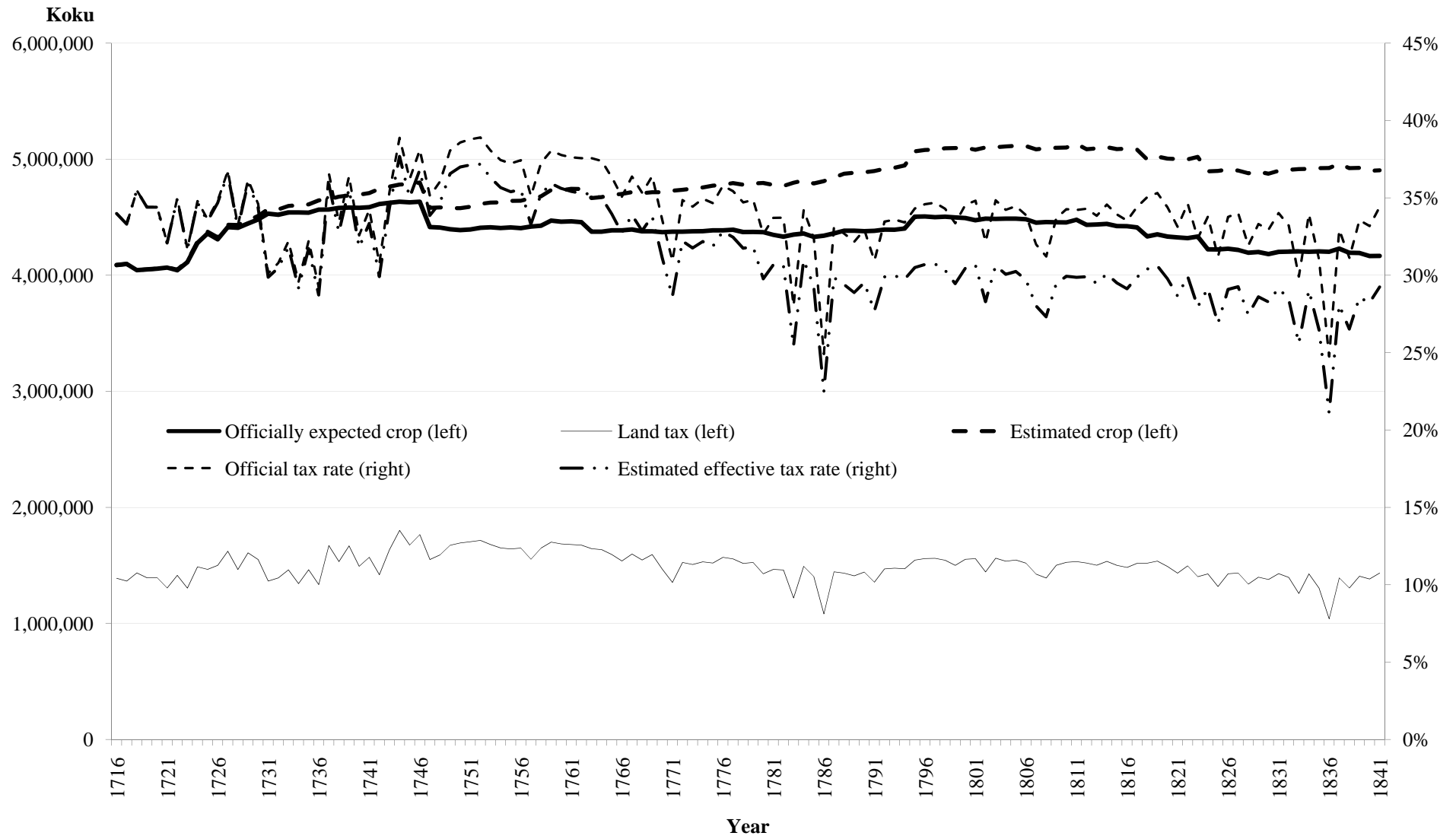
Source: Appendix. 1.

Fogire 2 Land tax revenue in total tax revenue of the central government: 1868-1914.
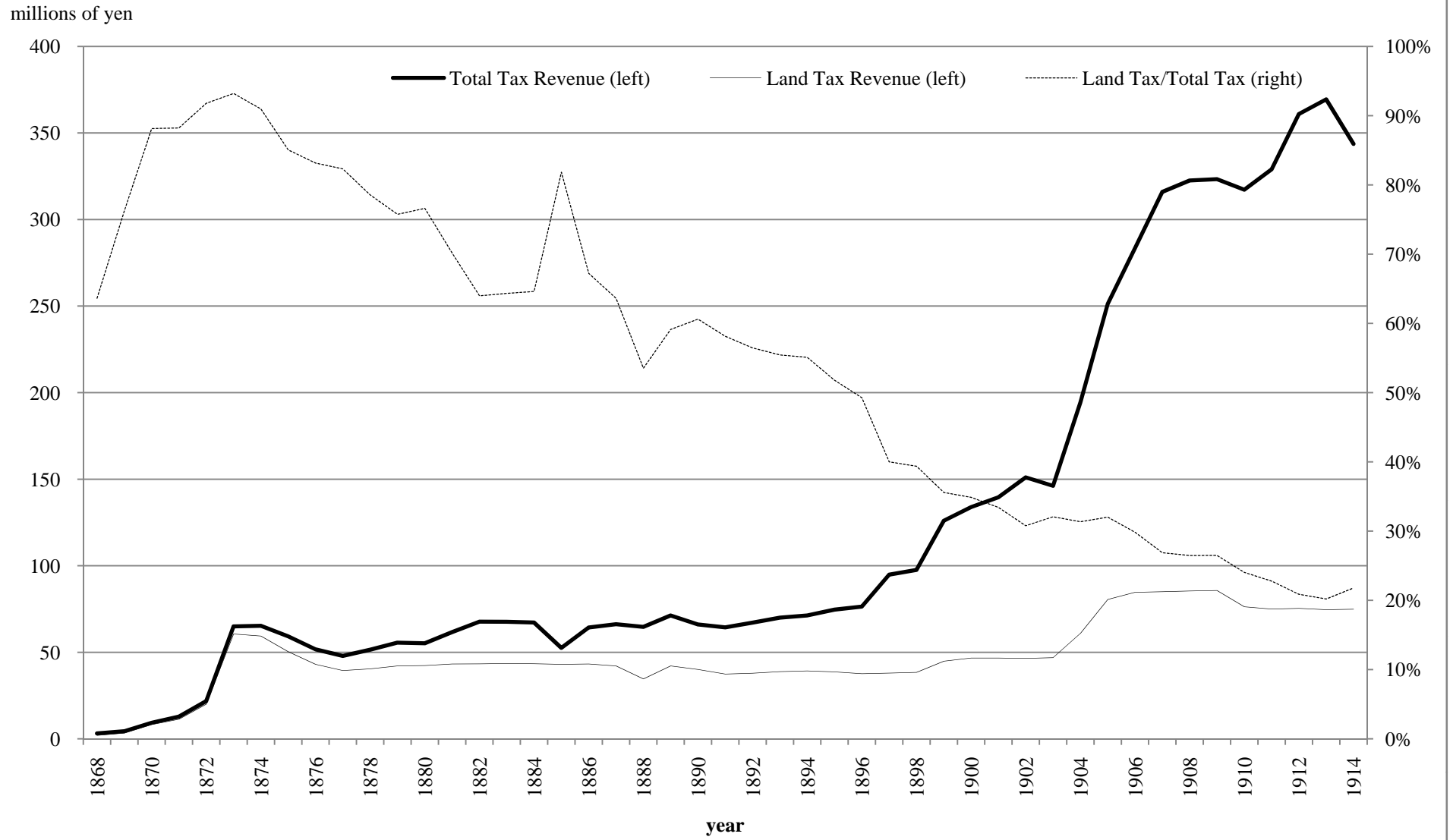
millions of yen

Source: Appendix 3.

Figure 3 Amount of central governt issued bonds: 1870-1914.
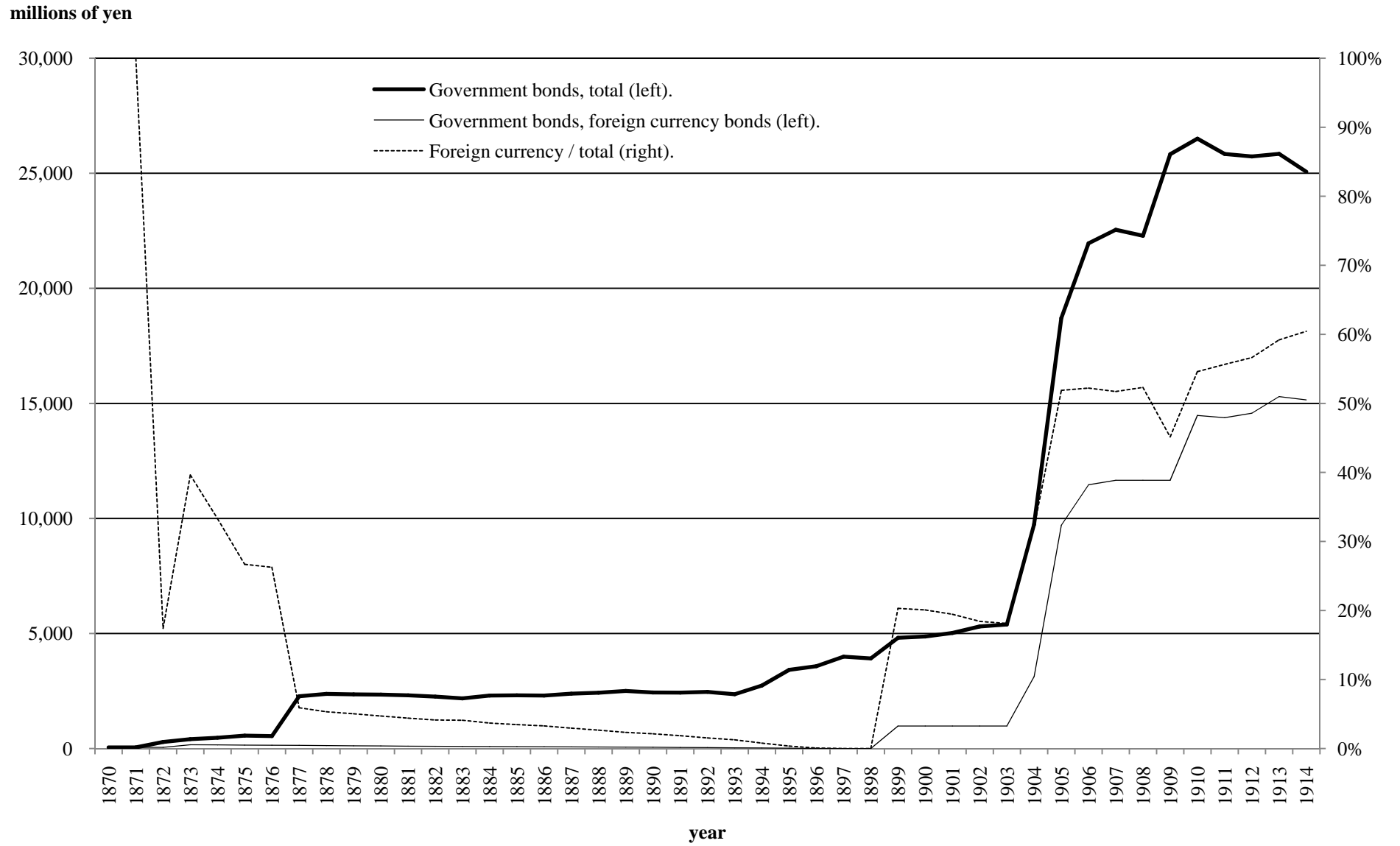
millions of yen

Source: Appendix: 6.

Figure 4 Gross National Expenditure and governrnent expenditure: 1885-1914.
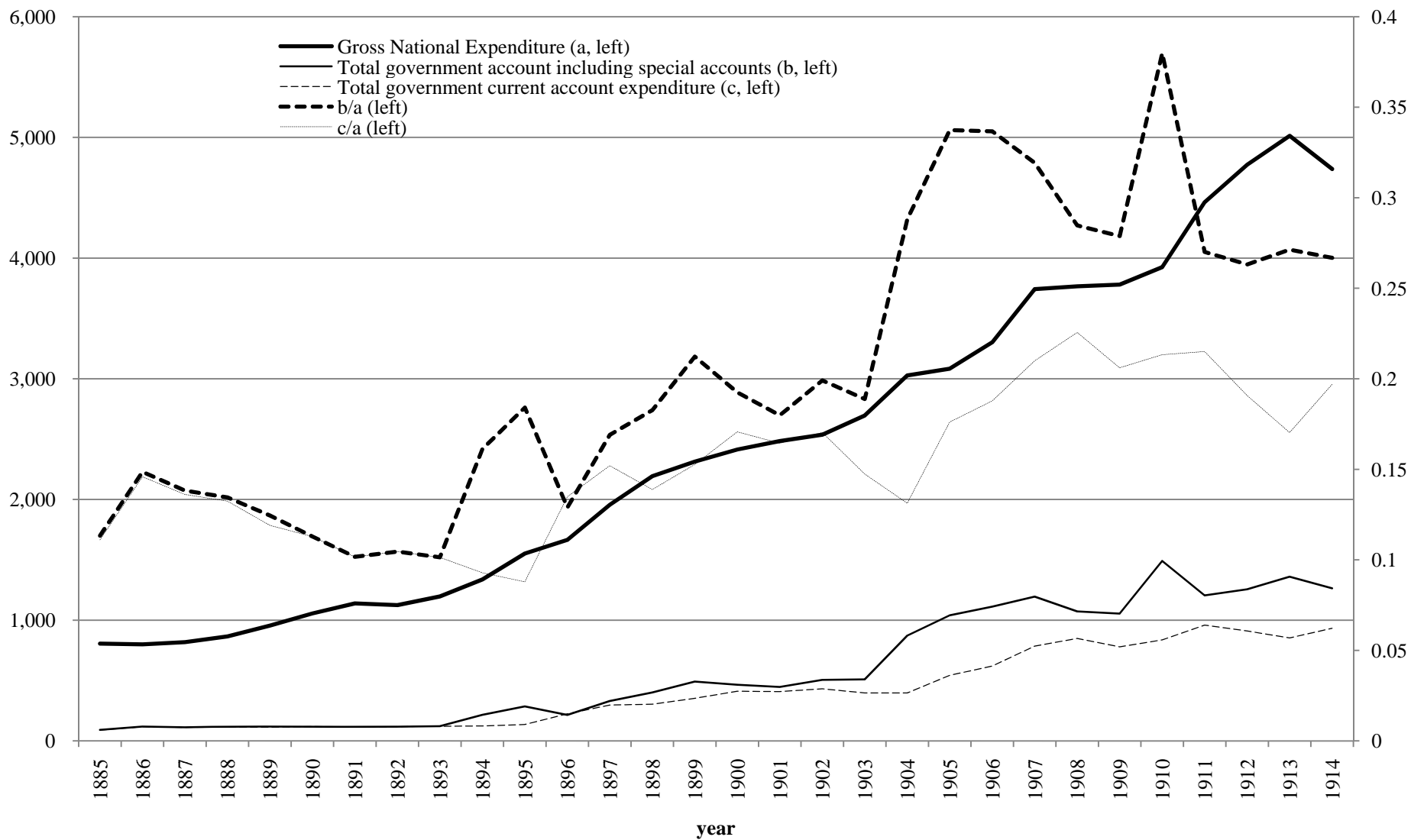
Source: GNE: Appendix 2. Government expenditure: Appendix 4.

Figure 5 Fixed capital formation by government and private sectors: 1868-1914.

— Total government fixed capital formation (left)
- - Non-military government fixed capital formation (left)
— Private fixed capital formation (left)
-·- Non-military government/Total government (right)
-··- Private/Non-military government (right)

millions of yen
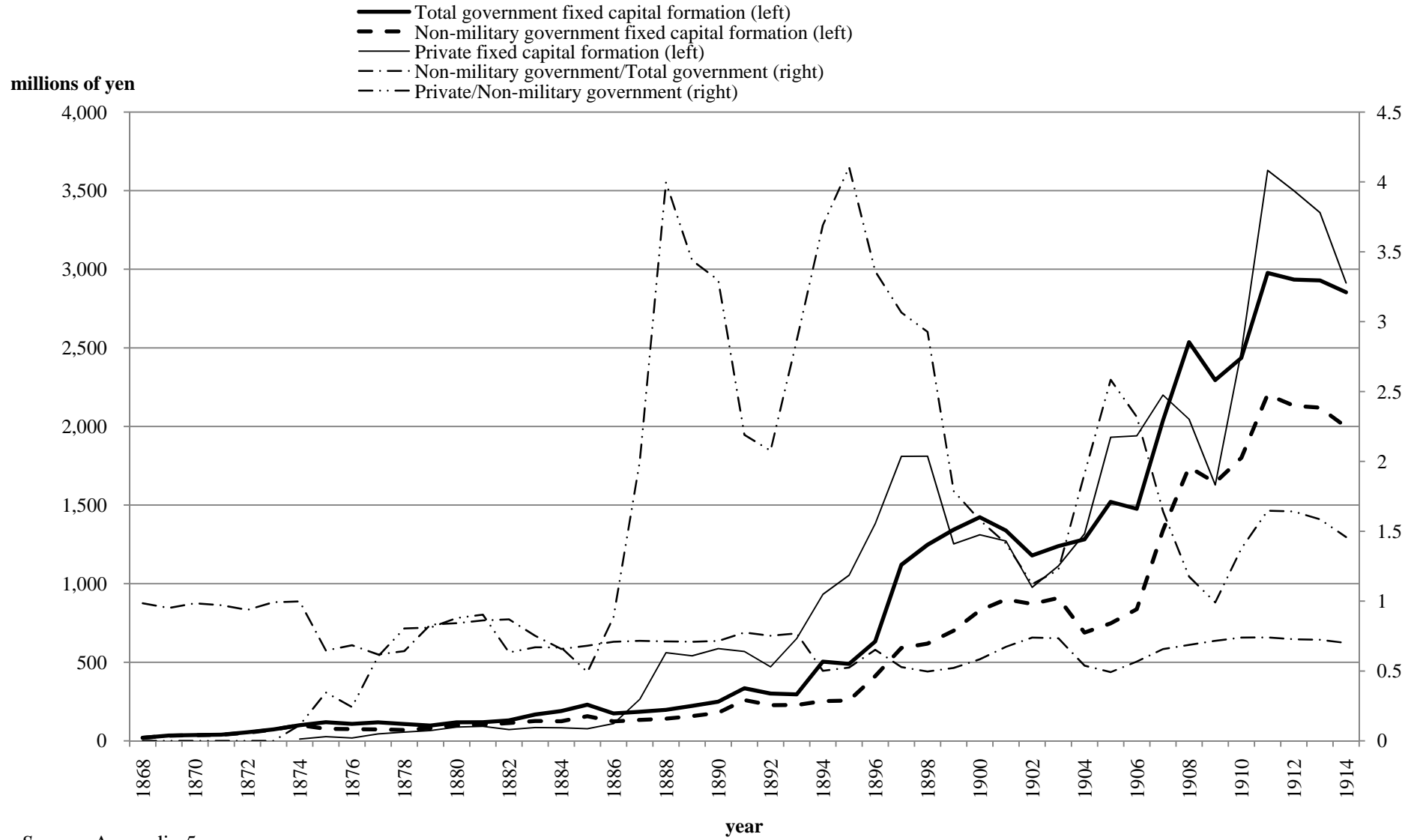
Source: Appendix 5.

Appendix 1 Rice production and land tax revenue of the Tokugawa Shogunate Domain: 1716-1841.

Year	Official estimation of crop in the domain (Koku) *a*	Estimated crop (Koku) *b*	Land Tax Officially calculated amount (Koku) *c*	Land Tax Paid in kind (Koku)	Land Tax Paid in money (Ryo)	Official tax rate *c*/*a*	Estimated effective tax rate *b*/*a*
1716	4,088,530	4,088,530	1,389,570	1,074,035	115,176	34%	34%
1717	4,098,371	4,098,371	1,365,060	1,080,090	102,494	33%	33%
1718	4,044,570	4,044,570	1,435,542	1,127,181	111,765	35%	35%
1719	4,050,850	4,050,850	1,393,529	1,092,581	109,236	34%	34%
1720	4,057,180	4,057,180	1,395,682	1,098,490	107,949	34%	34%
1721	4,066,500	4,069,249	1,305,650	1,027,061	100,722	32%	32%
1722	4,043,320	4,048,788	1,414,290	1,115,508	108,478	35%	35%
1723	4,112,390	4,120,735	1,303,930	1,050,289	91,534	32%	32%
1724	4,278,370	4,289,949	1,488,360	1,190,997	107,910	35%	35%
1725	4,360,670	4,375,427	1,466,215	1,166,544	108,849	34%	34%
1726	4,310,100	4,327,609	1,500,691	1,204,965	107,182	35%	35%
1727	4,414,850	4,435,781	1,621,980	1,374,545	110,750	37%	37%
1728	4,409,753	4,433,655	1,465,486	1,181,659	101,501	33%	33%
1729	4,446,688	4,473,812	1,608,354	1,292,703	114,346	36%	36%
1730	4,481,056	4,511,437	1,551,345	1,233,428	115,654	35%	34%
1731	4,530,908	4,569,682	1,365,049	1,080,557	100,769	30%	30%
1732	4,521,401	4,568,146	1,392,391	1,062,635	119,558	31%	30%
1733	4,541,744	4,596,802	1,461,986	1,153,187	113,489	32%	32%
1734	4,541,816	4,604,992	1,343,519	1,061,441	101,655	30%	29%
1735	4,539,331	4,610,600	1,462,706	1,137,432	119,238	32%	32%
1736	4,565,359	4,645,224	1,334,481	1,018,661	115,445	29%	29%
1737	4,567,151	4,655,253	1,670,819	1,314,779	128,643	37%	36%
1738	4,580,554	4,677,159	1,533,133	1,181,529	127,282	33%	33%
1739	4,583,446	4,688,377	1,668,584	1,313,907	127,838	36%	36%
1740	4,581,523	4,694,685	1,492,492	1,153,881	122,431	33%	32%
1741	4,586,472	4,708,055	1,570,388	1,228,550	123,445	34%	33%
1742	4,614,502	4,745,193	1,419,558	1,140,592	98,989	31%	30%
1743	4,624,664	4,764,040	1,636,409	1,298,149	122,666	35%	34%
1744	4,634,076	4,782,165	1,801,855	1,462,749	123,262	39%	38%
1745	4,628,935	4,785,295	1,676,322	1,335,114	124,001	36%	35%
1746	4,634,065	4,799,057	1,766,214	1,422,876	124,602	38%	37%
1747	4,415,820	4,581,117	1,551,214	1,237,156	117,334	35%	34%
1748	4,411,241	4,584,448	1,590,491	1,270,661	117,702	36%	35%
1749	4,397,089	4,577,809	1,673,573	1,354,984	117,411	38%	37%
1750	4,390,109	4,578,613	1,693,726	1,380,425	115,691	39%	37%
1751	4,394,525	4,590,948	1,704,664	1,389,211	115,471	39%	37%
1752	4,409,637	4,614,504	1,715,630	1,398,975	115,947	39%	37%
1753	4,413,541	4,626,378	1,680,002	1,365,578	115,165	38%	36%
1754	4,407,515	4,627,853	1,650,387	1,336,747	114,783	37%	36%
1755	4,412,347	4,640,739	1,642,551	1,336,213	113,371	37%	35%
1756	4,406,064	4,641,946	1,649,384	1,331,264	116,328	37%	36%
1757	4,420,503	4,665,012	1,552,846	1,262,896	105,630	35%	33%
1758	4,426,889	4,679,630	1,649,532	1,332,456	116,202	37%	35%
1759	4,471,712	4,734,983	1,701,560	1,383,755	116,464	38%	36%
1760	4,461,631	4,732,276	1,685,345	1,369,539	115,982	38%	36%
1761	4,465,654	4,744,530	1,680,127	1,359,958	117,523	38%	35%
1762	4,458,083	4,744,474	1,674,699	1,354,852	117,320	38%	35%

1763	4,375,836	4,664,797	1,643,963	1,334,204	113,262	38%	35%
1764	4,376,432	4,673,300	1,636,386	1,324,862	113,954	37%	35%
1765	4,387,292	4,692,797	1,594,040	1,284,248	113,332	36%	34%
1766	4,387,045	4,700,447	1,538,971	1,241,941	108,724	35%	33%
1767	4,394,756	4,716,649	1,598,767	1,287,527	114,163	36%	34%
1768	4,378,684	4,707,325	1,547,248	1,229,794	116,619	35%	33%
1769	4,378,574	4,715,145	1,594,461	1,275,740	117,153	36%	34%
1770	4,371,923	4,715,922	1,467,010	1,131,973	123,549	34%	31%
1771	4,375,647	4,727,899	1,353,282	1,021,543	123,363	31%	29%
1772	4,375,961	4,736,212	1,525,624	1,193,539	123,281	35%	32%
1773	4,378,819	4,747,297	1,508,026	1,175,311	123,413	34%	32%
1774	4,379,699	4,756,259	1,530,615	1,208,170	119,349	35%	32%
1775	4,387,091	4,772,321	1,520,866	1,199,900	117,750	35%	32%
1776	4,387,201	4,780,489	1,569,988	1,250,265	117,405	36%	33%
1777	4,392,791	4,794,652	1,556,681	1,237,369	116,793	35%	32%
1778	4,372,435	4,780,482	1,517,858	1,190,441	118,462	35%	32%
1779	4,373,996	4,790,253	1,525,452	1,194,575	119,859	35%	32%
1780	4,371,639	4,795,746	1,427,789	1,124,839	108,691	33%	30%
1781	4,348,278	4,778,163	1,465,836	1,147,934	114,663	34%	31%
1782	4,332,441	4,768,789	1,460,933	1,138,370	116,529	34%	31%
1783	4,350,709	4,796,972	1,219,484	968,418	95,865	28%	25%
1784	4,360,521	4,815,899	1,492,139	1,172,935	116,465	34%	31%
1785	4,330,634	4,790,956	1,403,708	1,093,200	114,412	32%	29%
1786	4,341,213	4,810,759	1,081,485	851,493	83,945	25%	22%
1787	4,361,544	4,841,440	1,444,933	1,164,205	112,291	33%	30%
1788	4,384,334	4,874,945	1,433,377	1,162,389	108,395	33%	29%
1789	4,384,279	4,883,104	1,410,414	1,118,088	107,612	32%	29%
1790	4,380,524	4,887,150	1,442,995	1,159,230	105,731	33%	30%
1791	4,382,813	4,897,950	1,356,289	1,088,669	99,550	31%	28%
1792	4,393,572	4,918,253	1,470,399	1,187,978	105,196	33%	30%
1793	4,393,000	4,925,906	1,476,278	1,199,720	103,481	34%	30%
1794	4,403,622	4,946,144	1,471,301	1,190,091	105,320	33%	30%
1795	4,504,516	5,068,000	1,545,767	1,257,316	107,963	34%	31%
1796	4,507,226	5,079,601	1,559,023	1,269,573	108,164	35%	31%
1797	4,501,193	5,081,356	1,561,828	1,274,532	107,273	35%	31%
1798	4,504,565	5,093,739	1,544,821	1,256,977	107,609	34%	30%
1799	4,499,020	5,096,048	1,501,108	1,121,107	107,801	33%	29%
1800	4,493,395	5,098,259	1,552,740	1,265,727	107,103	35%	30%
1801	4,474,977	5,081,896	1,558,351	1,273,466	106,658	35%	31%
1802	4,488,636	5,101,959	1,443,666	1,170,456	102,311	32%	28%
1803	4,485,711	5,103,187	1,562,872	1,272,120	107,627	35%	31%
1804	4,487,780	5,110,099	1,536,203	1,266,228	107,990	34%	30%
1805	4,487,885	5,114,782	1,546,915	1,277,485	107,771	34%	30%
1806	4,482,740	5,113,480	1,519,075	1,250,456	107,447	34%	30%
1807	4,453,870	5,085,084	1,425,102	1,163,522	107,211	32%	28%
1808	4,459,079	5,095,577	1,391,881	1,151,226	96,261	31%	27%
1809	4,457,080	5,097,840	1,501,989	1,230,897	108,436	34%	29%
1810	4,455,394	5,100,462	1,527,031	1,256,777	99,994	34%	30%
1811	4,478,873	5,131,919	1,532,910	1,241,483	108,476	34%	30%
1812	4,434,556	5,085,677	1,520,969	1,240,486	102,732	34%	30%
1813	4,437,458	5,093,549	1,501,877	1,221,763	103,459	34%	29%
1814	4,442,669	5,104,084	1,535,799	1,249,917	105,053	35%	30%
1815	4,423,929	5,087,092	1,501,023	1,214,791	105,240	34%	30%
1816	4,423,274	5,090,880	1,483,067	1,196,505	105,212	34%	29%
1817	4,412,452	5,082,959	1,518,991	1,231,283	105,629	34%	30%
1818	4,334,570	4,997,701	1,519,374	1,233,374	104,982	35%	30%

1819	4,352,548	5,022,910	1,537,207	1,250,568	105,133	35%	31%
1820	4,333,634	5,005,549	1,490,752	1,205,297	104,672	34%	30%
1821	4,326,489	5,001,758	1,433,694	1,148,678	104,968	33%	29%
1822	4,320,482	4,999,273	1,496,240	1,208,342	105,244	35%	30%
1823	4,333,886	5,019,261	1,403,384	1,117,660	105,592	32%	28%
1824	4,223,923	4,896,276	1,427,619	1,158,677	98,889	34%	29%
1825	4,223,068	4,899,656	1,317,840	1,065,745	94,194	31%	27%
1826	4,229,389	4,911,371	1,428,537	1,163,502	97,406	34%	29%
1827	4,218,089	4,902,622	1,434,498	1,166,669	98,523	34%	29%
1828	4,194,554	4,879,621	1,339,578	1,077,787	96,223	32%	27%
1829	4,201,033	4,891,522	1,399,289	1,133,201	97,797	33%	29%
1830	4,182,691	4,874,514	1,378,578	1,113,204	97,715	33%	28%
1831	4,201,301	4,900,574	1,429,328	1,162,448	97,980	34%	29%
1832	4,204,038	4,908,145	1,396,390	1,120,504	101,292	33%	28%
1833	4,205,910	4,914,715	1,258,230	1,005,367	96,022	30%	26%
1834	4,202,806	4,915,473	1,427,193	1,150,709	101,648	34%	29%
1835	4,205,570	4,923,097	1,304,313	1,036,653	98,054	31%	26%
1836	4,202,493	4,923,888	1,039,970	807,068	93,161	25%	21%
1837	4,229,581	4,960,051	1,392,915	1,122,234	100,023	33%	28%
1838	4,194,210	4,922,963	1,305,746	1,046,104	97,412	31%	27%
1839	4,192,637	4,925,510	1,407,218	1,140,499	99,311	34%	29%
1840	4,166,475	4,899,146	1,382,698	1,138,359	97,735	33%	28%
1841	4,167,613	4,904,860	1,434,342	1,168,412	97,737	34%	29%

Source : Official expected crop and land tax: Seisai Mukouyama, "On tori ka tsuji kakitsuke (Record of tax collection)," in Seisai Mukouyama, *Mukouyama Seisai Zakki* (Memorandum by Seisai Mukouyama), Tempo-Koka Hen, vol. 3, Tokyo: Yumani Shobo, 2003. Estimated crop: See the text.

Note : 1 Koku = 180.39 litters = 5.12 US bushels.

Appendix 2 Gross National Expenditure: Current prices, 1885-1914.   millions of Yen

Year	Personal Consumption Expenditure	General Government Consumption Expenditure	Gross Domestic Fixed Capital Formation	Government Sector	Exports of Goods and Sevices and Factor Income Received from Abroad	Imports of Goods and Services and Factor Income Paid Abroad	Suplus on Current Account	Gross National Expenditure at Market Prices	Government Consumption and Fixed Capital Formatin in GNE
	a	*b*	*c*	*d*	*e*	*f*	*g = e − f*	*a + b + c + g*	*(b + d)/g*
1885	652	60	97	23	42	45	-3	806	10%
1886	630	63	101	18	55	49	6	800	10%
1887	664	62	100	18	59	67	-8	818	10%
1888	677	62	133	20	74	80	-6	866	9%
1889	755	59	141	22	78	78	0	955	8%
1890	869	66	153	25	65	97	-32	1,056	9%
1891	903	63	160	34	89	76	13	1,139	9%
1892	888	70	153	30	102	88	14	1,125	9%
1893	970	66	165	29	100	104	-4	1,197	8%
1894	1,009	124	220	51	125	140	-15	1,338	13%
1895	1,160	148	251	49	150	157	-7	1,552	13%
1896	1,308	118	308	62	135	203	-68	1,666	11%
1897	1,545	111	402	112	191	292	-101	1,957	11%
1898	1,808	131	426	125	200	371	-171	2,194	12%
1899	1,776	150	376	134	257	245	12	2,314	12%
1900	1,914	183	391	143	259	333	-74	2,414	14%
1901	1,898	201	379	134	310	304	6	2,484	13%
1902	1,984	202	335	118	332	316	16	2,537	13%
1903	2,103	241	366	124	370	384	-14	2,696	14%
1904	2,259	546	364	128	383	524	-141	3,028	22%
1905	2,278	626	517	152	401	738	-337	3,084	25%
1906	2,312	485	540	147	540	575	-35	3,302	19%
1907	2,787	338	634	204	617	633	-16	3,743	14%
1908	2,884	307	663	254	506	594	-88	3,766	15%
1909	2,880	320	597	229	539	556	-17	3,780	15%
1910	2,967	338	689	244	587	656	-69	3,925	15%
1911	3,295	407	860	298	619	718	-99	4,463	16%
1912	3,657	370	857	294	727	837	-110	4,774	14%
1913	3,920	339	861	293	844	951	-107	5,013	13%
1914	3,595	354	806	285	799	816	-17	4,738	13%

Source : Kazushi Ohkawa, Nbukiyo Takamatsu, and Yuzo Yamamoto, *Estimates of long term statitcs of Japan since 1868: 1 National income* , Tokyo: Toyo Keizai Shimposha, 1974, pp. 178, 184-185.

Appendix 3 Tax Revenue of Central Government: Current prices,
1885-1914.   millions of yen

Year	Tax Total	Land Tax	Income Tax	Corpo-ration Tax	Liqour Tax	Custom Duty	b/a	Consumer price index in rural
	a	b	c	d	e	f	b/a	
1868	3.157	2.009				0.720	64%	
1869	4.399	3.355				0.502	76%	
1870	9.323	8.218				0.648	88%	
1871	12.852	11.340				1.071	88%	
1872	21.845	20.051			0.016	1.331	92%	
1873	65.014	60.604			0.961	1.685	93%	
1874	65.303	59.412			1.683	1.498	91%	
1875	59.194	50.345			2.555	1.718	85%	
1876	51.730	43.023			1.911	1.988	83%	
1877	47.923	39.450			3.050	2.358	82%	
1878	51.485	40.454			5.100	2.351	79%	
1879	55.579	42.112			6.463	2.691	76%	100
1880	55.262	42.346			5.511	2.624	77%	114
1881	61.675	43.274			10.646	2.569	70%	126
1882	67.738	43.342			16.329	2.613	64%	118
1883	67.659	43.537			13.490	2.681	64%	99
1884	67.203	43.425			14.068	2.750	65%	95
1885	52.581	43.033			1.053	2.085	82%	95
1886	64.371	43.282			11.743	2.989	67%	87
1887	66.255	42.152	0.527		13.069	4.135	64%	86
1888	64.727	34.650	1.066		17.063	4.615	54%	83
1889	71.294	42.161	1.052		16.439	4.728	59%	87
1890	66.114	40.084	1.092		13.912	4.392	61%	94
1891	64.423	37.457	1.110		14.686	4.539	58%	89
1892	67.167	37.925	1.132		15.812	4.991	56%	91
1893	70.004	38.808	1.238		16.637	5.125	55%	93
1894	71.286	39.291	1.353		16.130	5.755	55%	96
1895	74.697	38.692	1.497		17.748	6.785	52%	105
1896	76.387	37.640	1.810		19.476	6.728	49%	113
1897	94.912	37.964	2.095		31.105	8.020	40%	129
1898	97.629	38.440	2.350		32.959	9.092	39%	139
1899	126.034	44.861	4.837	1.520	48.918	15.936	36%	132
1900	133.926	46.717	6.368	2.244	50.293	17.009	35%	147
1901	139.574	46.666	6.836	2.176	58.017	13.630	33%	144
1902	151.084	46.505	7.460	2.267	63.738	15.501	31%	150
1903	146.163	46.873	8.247	2.355	52.821	17.378	32%	158
1904	194.362	60.939	14.369	3.753	58.286	23.159	31%	161
1905	251.275	80.473	23.278	7.945	59.099	36.757	32%	168
1906	283.468	84.637	26.348	9.435	71.100	41.853	30%	172
1907	315.983	84.973	27.291	8.345	78.406	50.027	27%	189
1908	322.636	85.418	32.144	8.918	83.590	40.067	26%	182
1909	323.407	85.693	32.800	8.254	91.480	36.423	26%	175
1910	317.285	76.291	31.722	7.527	86.701	39.949	24%	176
1911	329.071	74.936	34.755	9.713	86.032	48.518	23%	189
1912	360.969	75.365	38.933	11.474	93.861	68.496	21%	199
1913	369.479	74.635	35.591	13.068	93.223	73.722	20%	205
1914	343.708	74.925	37.157	13.222	95.781	44.228	22%	190

Source : Tax revenue: Katsuma Ohsato, *Hundred-year statistics of the Japanese economy* , Tokyo: Statistics
Department, The Bank of Japan, 1966, p.136.   Price index: Kazushi Ohkawa, Miyohei Shinohara, and Mataji

Appendix 4 Total Expenditures of Government: Current prices, 1868-1914.   millions of Yen

Year	General Account – Central Government a	General Account – Local Government c	General Account – Transfer d	General Account – Net Total e = a + c − d	Special Account f	Total Government Expenditure g = e + f	Total Government Expenditure – Military and War-related Expenditure h
1868	30.5			30.5	0.0	30.5	5.6
1869	20.7			20.7	0.0	20.7	4.0
1870	20.1			20.1	0.0	20.1	2.7
1871	19.2			19.2	0.0	19.2	3.8
1872	57.7			57.7	0.0	57.7	10.5
1873	62.6			62.6	0.0	62.6	11.6
1874	82.2			82.2	0.0	82.2	15.9
1875	69.2			69.2	0.0	69.2	12.2
1876	59.3			59.3	22.4	81.7	35.6
1877	48.4			48.4	18.8	67.2	42.4
1878	60.9			60.9	0.4	61.3	25.0
1879	60.3	24.2	2.6	81.9	2.6	84.5	26.4
1880	63.1	27.7	3.6	87.2	3.6	90.8	27.3
1881	71.4	34.5	1.4	104.5	1.4	105.9	26.8
1882	73.4	38.1	1.3	110.2	1.3	111.5	27.0
1883	81.0	36.8	1.7	116.1	1.7	117.8	33.3
1884	76.6	36.0	1.5	111.1	1.5	112.6	34.9
1885	61.1	30.3	1.9	89.5	1.9	91.4	32.4
1886	83.2	35.7	2.2	116.7	2.2	118.9	34.9
1887	79.4	33.7	1.7	111.4	1.7	113.1	36.4
1888	81.5	35.0	1.8	114.7	1.8	116.5	36.5
1889	79.7	38.3	4.3	113.7	5.2	118.9	37.5
1890	82.1	40.7	3.6	119.2	0.0	119.2	34.1
1891	83.5	42.8	10.5	115.8	0.0	115.8	37.0
1892	76.7	46.1	5.1	117.7	0.0	117.7	36.8
1893	84.5	48.6	11.7	121.4	0.0	121.4	37.3
1894	78.1	50.8	4.6	124.3	91.4	215.7	140.5
1895	85.3	55.5	4.4	136.4	149.4	285.8	133.8
1896	168.8	67.4	11.5	224.7	-9.8	214.9	93.4
1897	223.6	84.4	10.5	297.5	33.3	330.8	132.4
1898	219.7	92.7	7.8	304.6	96.3	400.9	134.6
1899	254.1	110.0	10.7	353.4	137.8	491.2	139.9
1900	292.7	128.6	9.2	412.1	52.6	464.7	159.9
1901	266.8	150.7	9.1	408.4	38.3	446.7	133.7
1902	289.2	153.9	10.8	432.3	72.9	505.2	114.8
1903	249.5	158.9	11.0	397.4	111.7	509.1	180.9
1904	277.0	128.4	7.8	397.6	474.8	872.4	726.7
1905	420.7	131.0	8.5	543.2	497.2	1,040.4	843.2
1906	464.2	167.8	12.0	620.0	491.7	1,111.7	514.4
1907	602.4	201.0	17.5	785.9	409.1	1,195.0	358.7
1908	636.3	230.2	16.9	849.6	222.5	1,072.1	344.1
1909	532.8	263.1	16.9	779.0	274.9	1,053.9	319.0
1910	569.1	280.6	12.4	837.3	653.5	1,490.8	332.8
1911	585.3	389.2	14.7	959.8	245.4	1,205.2	350.1
1912	593.5	328.6	11.4	910.7	345.6	1,256.3	342.3
1913	573.6	292.7	12.6	853.7	506.6	1,360.3	335.1
1914	648.4	299.3	14.5	933.2	330.9	1,264.1	345.5

Source: Koichi Emi and Yuichi Shionoya, *Estimates of long term statitcs of Japan since 1868: 7 Government Expenditure*, Tokyo: Toyo Keizai Shimposha, 1966, pp. 168-169, 186-187.

Appendix 5 Gross Domestic Fixed Capital Formation, 1868-1914. millions of Yen

Year	Government				Private			Total
		Non-						
			Constructio	Equipment		Constructio	Equipment	
	a	b	c	d	e	f	g	h=a+e
1868	19.320	19.020	14.120	4.900				19.320
1869	34.170	32.510	29.280	3.230				34.170
1870	36.560	35.990	32.410	3.580				36.560
1871	39.440	38.300	33.180	5.120				39.440
1872	54.140	50.730	41.310	9.420				54.140
1873	72.370	71.810	58.720	13.090				72.370
1874	99.660	99.400	80.920	18.530	11.140		11.140	110.800
1875	118.530	76.570	61.990	9.690	26.520		26.520	145.050
1876	107.910	73.830	66.090	12.630	17.890		17.890	125.800
1877	117.500	72.620	57.420	15.200	43.960	0.370	43.590	161.460
1878	107.310	68.870	54.030	14.840	55.400	0.500	54.900	162.710
1879	96.800	80.490	64.240	16.250	65.230	0.530	64.700	162.030
1880	117.920	99.270	74.790	24.480	87.230	0.400	86.830	205.150
1881	118.310	101.920	74.030	27.890	92.040	0.300	91.740	210.350
1882	130.290	113.230	87.280	25.950	71.660	0.270	71.390	201.950
1883	167.260	125.750	98.530	27.220	84.190	7.930	76.260	251.450
1884	189.510	124.630	95.920	28.710	83.210	9.940	73.270	272.720
1885	229.900	156.380	121.680	34.700	76.940	8.960	67.980	306.840
1886	174.400	123.660	99.820	23.860	109.630	20.190	89.440	284.030
1887	185.070	132.490	109.050	23.440	264.490	112.480	152.010	449.560
1888	197.250	140.370	116.400	23.970	560.950	251.290	309.660	758.200
1889	222.010	157.390	133.420	23.970	541.120	300.630	240.490	763.130
1890	248.780	177.850	147.730	30.120	586.370	291.890	294.480	835.150
1891	334.660	259.480	217.820	41.660	568.170	217.430	350.740	902.830
1892	301.170	226.480	183.260	43.220	470.340	183.710	286.630	771.510
1893	295.460	227.210	187.630	39.580	650.910	236.910	414.000	946.370
1894	503.890	252.630	211.490	41.140	932.360	321.390	610.970	1,436.250
1895	489.520	256.590	205.820	50.770	1,053.530	392.210	661.320	1,543.050
1896	632.030	411.370	342.960	68.410	1,382.090	482.750	899.340	2,014.120
1897	1,119.810	590.390	476.430	113.960	1,809.670	804.000	1,005.670	2,929.480
1898	1,247.230	618.460	477.840	140.620	1,810.560	848.060	962.500	3,057.790
1899	1,343.210	700.700	547.020	153.680	1,252.430	736.140	516.290	2,595.640
1900	1,422.320	829.930	638.410	191.520	1,310.830	666.490	644.340	2,733.150
1901	1,338.030	899.710	670.420	229.290	1,271.030	757.950	513.080	2,609.060
1902	1,179.520	871.060	642.010	229.050	976.450	663.590	312.860	2,155.970
1903	1,238.880	908.740	661.540	247.200	1,112.070	748.880	363.190	2,350.950
1904	1,281.140	688.600	458.590	230.010	1,316.560	568.580	747.980	2,597.700
1905	1,520.500	747.370	525.220	222.150	1,930.930	672.080	1,258.850	3,451.430
1906	1,476.020	837.200	580.960	256.240	1,940.440	877.890	1,062.550	3,416.460
1907	2,037.140	1,337.930	995.210	342.720	2,199.950	922.120	1,277.830	4,237.090
1908	2,535.940	1,741.420	1,314.050	427.370	2,045.780	944.430	1,101.350	4,581.720
1909	2,295.090	1,642.490	1,211.220	431.270	1,627.760	867.100	760.660	3,922.850
1910	2,436.280	1,800.450	1,337.900	462.550	2,478.750	1,439.050	1,039.700	4,915.030
1911	2,976.390	2,202.700	1,670.900	531.800	3,629.180	2,172.040	1,457.140	6,605.570
1912	2,934.130	2,132.420	1,498.430	633.990	3,500.540	1,451.660	2,048.880	6,434.670
1913	2,928.860	2,119.830	1,482.190	637.650	3,360.240	1,396.180	1,964.050	6,289.100
1914	2,853.300	1,997.140	1,359.530	637.610	2,912.230	1,376.550	1,535.680	5,765.530

Source: Koichi Emi, *Estimates of long term statitcs of Japan since 1868: 4 Capital Formation*, Tokyo: Toyo Keizai Shimposha, 1971, pp. 224-227.

Appendix 6 Cnetral Government Debts: Current prices, 1868-1914.   millions of Yen

Year	Long-term Government Securities Total	Domestic Bonds	Foreign Currency Bonds	Short-term Government Securities	Borrowings	Total
	a			b	c	d=a+b+c
1870	48.800		48.800			48.800
1871	48.800		48.800			48.800
1872	280.560	231.760	48.800			280.560
1873	406.400	245.360	161.040			406.400
1874	469.190	313.030	156.160			469.190
1875	558.100	409.160	148.940			558.100
1876	539.270	397.720	141.550			539.270
1877	2,268.540	2,134.550	133.990		113.360	2,381.900
1878	2,373.640	2,247.400	126.240		150.000	2,523.640
1879	2,351.980	2,233.690	118.290		150.000	2,501.980
1880	2,343.380	2,233.250	110.130		150.000	2,493.380
1881	2,311.270	2,209.540	101.730		150.000	2,461.270
1882	2,255.110	2,162.020	93.090		150.000	2,405.110
1883	2,176.620	2,087.560	89.060		100.000	2,276.620
1884	2,298.610	2,213.850	84.760		120.000	2,418.610
1885	2,312.550	2,232.400	80.150		153.960	2,466.510
1886	2,299.940	2,224.720	75.220		198.180	2,498.120
1887	2,379.810	2,309.870	69.940		179.750	2,559.560
1888	2,425.470	2,361.170	64.300		145.230	2,570.700
1889	2,500.530	2,442.270	58.260		100.000	2,600.530
1890	2,432.360	2,380.560	51.800		320.000	2,752.360
1891	2,426.260	2,381.370	44.890		320.000	2,746.260
1892	2,458.940	2,421.450	37.490		320.000	2,778.940
1893	2,358.140	2,328.570	29.570		320.000	2,678.140
1894	2,736.280	2,715.180	21.100		525.000	3,261.280
1895	3,417.590	3,405.560	12.030		679.000	4,096.590
1896	3,573.350	3,571.010	2.340		530.000	4,103.350
1897	3,992.450	3,992.450	0.000		220.000	4,212.450
1898	3,912.530	3,912.530	0.000		220.000	4,132.530
1899	4,809.670	3,883.370	976.300		252.000	5,061.670
1900	4,864.640	3,888.340	976.300		323.000	5,187.640
1901	5,022.260	4,045.960	976.300	100.000	563.000	5,685.260
1902	5,301.800	4,325.500	976.300	100.000	444.400	5,846.200
1903	5,389.620	4,413.320	976.300	0.000	783.490	6,173.110
1904	9,736.470	6,612.310	3,124.160	350.000	701.490	10,787.960
1905	18,703.860	8,999.760	9,704.100	990.000	1,442.000	21,135.860
1906	21,957.070	10,495.460	11,461.610	962.000	351.560	23,270.630
1907	22,543.460	10,886.450	11,657.010	227.000	279.940	23,050.400
1908	22,283.060	10,626.050	11,657.010	370.000	275.050	22,928.110
1909	25,828.040	14,171.290	11,656.750	190.000	494.350	26,512.390
1910	26,503.550	12,031.400	14,472.150	100.000	1,199.860	27,803.410
1911	25,836.650	11,462.160	14,374.490	500.000	1,084.750	27,421.400
1912	25,732.190	11,162.470	14,569.720	350.000	1,424.490	27,506.680
1913	25,841.220	10,546.340	15,294.880	0.000	1,023.920	26,865.140
1914	25,063.710	9,915.310	15,148.400	0.000	1,433.480	26,497.190

Source: Katsuma Ohsato, *Hundred-year statistics of the Japanese economy*, Tokyo:
Statistics Department, The Bank of Japan, 1966, p.158.