The elite-biased growth of elementary schooling in colonial Korea

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Abstract

Two conventional views on the development of public elementary schooling in colonial Korea fail to explain why the increase in the public school enrollment rate was limited. Rather than the conventional views -- the ideological-device theory and the self-empowerment theory -- we offer an alternative theory based on the elite-biased growth of colonial public schools. The alternative theory was tested using newly constructed province and county level data. The empirical results support the view that the rise of Korean public elementary schooling was biased toward elites during the colonial period. Local Korean elites chose to pay more fees for their own children, instead of paying tax for everyone. The elites also successfully limited the opportunities for public schooling through the discretionary admission process.

Keywords: Colonial Korea, Elementary Education, Public School Finance, Elite Bias, Japanese Imperialism

JEL classification: N35, O15, I22, I28

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1. Introduction

Korea is now a global leader in educational attainment. In 2010, 98% of the young adults between the ages of 25-34 graduated from high schools, and 65% of the age group completed college-level education, both of which are the highest among the OECD countries.\textsuperscript{1} Decades ago, the situation was quite different from what it is today. For example, thirty years ago, the shares of the young adults that had attained either tertiary or upper-secondary education were merely 13% and 43% respectively. The big success in secondary and tertiary education of today indeed did not hold true in the past. However, the development of elementary schooling in Korea was much earlier. The primary school enrollment rate was already 96.4% in 1959. Even in 1948, three years after independence and when the Republic of Korea was formally established, the primary school enrollment rate was 74.8%. Therefore, it was not surprising for scholars to seek the origin of Korea’s educational success from the colonial era from 1910 to 1945, when Korea was under Japanese rule. Moreover, the formal education system of elementary and secondary schools was thought to be established and to have developed during the colonial period, just as many other modern institutions.

The significance of the colonial period in the development of elementary schooling in Korea is confirmed by data. Figure 1 shows the share of 7-year old children who had at least some elementary schooling by 1966. In the figure, the colonial period is depicted by a long and gradual growth of elementary schooling. The continuous expansion of primary education was undeniably due to the rise of public elementary schools led by the colonial initiative. Meanwhile, why was the progress of public elementary schooling so slow and gradual? Why did it take so long to have universal public schooling?

Contemporary colonial statistics also cast doubts about the colonial leadership and success in elementary schooling. As revealed in Figure 2, the public school enrollment rate measured as a percentage of 5-14 year-old children increased but the overall level was considerably low throughout the entire colonial period. The rise of Korean elementary schooling was slightly better than that of India, but was behind other countries such as Taiwan or Brazil. The enrollment rates were below the Asian and global averages, and far below the Japanese level. If we compare the enrollment rate of colonial Korea with British colonies in Africa before 1940, Korean enrollment rate was lower than those of at least Mauritius, Nyasaland, North Rhodesia, South Rhodesia, and Uganda.\textsuperscript{2}

Two conventional views have dominated in the study of education in colonial Korea. One is the ideological device theory, which argues that the colonial government took the initiative for the expansion as Japanese colonizers believed that formal schooling could make Korean children more obedient to the colonial authority. The other is the self-empowerment theory.

\textsuperscript{1} OECD (2012), \textit{Education at a glance 2012}.

\textsuperscript{2} I have compared the statistics of colonial Korea with the African statistics from Frankema (2012).
insisting that the rise of formal schooling was actually led by local Korean elites, or grass- 
root activists, who aimed for the empowerment of local children for the ultimate 
independence of Korean from Japanese rule. But the modest and gradual growth of the 
enrollment rates demand revision of the two theories. The overall growth of elementary 
schooling in the colonial period does not look sufficiently high enough to accommodate any 
of the two theories.

In this paper, we offer an alternative theory focusing on school finance. In world history, 
the most popular impediment against universal public schooling was the resistance and 
hostility of tax-paying elites. According to our theory, the self-interests of local Korean elites, 
who paid a significant portion of the public school budget, were the key to the colonial 
evolution of public elementary schooling. In the decentralized school finance system, local 
Korean elites colluded with Japanese colonizers to benefit from the public school system. 
Thus the growth of public elementary schooling in colonial Korea was biased toward local 
Korean elites. We test the elite-bias theory using newly constructed province and county level 
panel data.

The paper is organized as follows. In Section 2, we explain the brief history of public 
elementary schooling in colonial Korea. We are especially interested in finding the channel of 
school finance through which local elites could have influenced public elementary schools. In 
Section 3, based on the historical facts, we offer an alternative theory to explain the colonial 
rise of public elementary schooling in Korea. Section 4 describes the data and regression 
specification. The results are presented in Section 5, and Section 6 is the conclusions.

2. Elementary schooling in colonial Korea

Right after the Japanese colonization of Korea, little change in the spread of elementary 
education was observed by the end of the 1910s. The rise of public elementary schools for 
Korean children started after 1919, as shown in Figure 2. The upward trend in the public 
elementary school enrollment rates of Korean children continued to the mid-1920s. After 
several years of stagnation, the enrollment rate resumed its rise around 1932. Then, the 
increase in the enrollment rate was accelerated and continued into the early 1940s.

The beginning of modern education dates back to the late 19th century, when Western

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3 Korea became a Japanese protectorate in 1905, and was officially annexed by Japan in 1910. In 1919, the 
March 1st (Samil) movement, a series of peaceful rallies by the Korean public demanding independence from 
Japanese occupation, swept the country. The movement was eventually unsuccessful but a watershed into 
altering many colonial policies towards leniency. However, the colonial rules reversed again after the onset of 
the Second Sino-Japanese War in 1937. Japanese rule of Korea ended in 1945 after Japan’s defeat in WWII.
missionaries established private elementary and secondary schools. The Chosun government also established the first modern public elementary schools after the Gabo reform of 1895. But elementary education at that time was far from universal schooling. Seodang, a traditional elementary school, was more popular than modern educational institutions, but still offered only to a limited number of children. The overall shape of elementary education did not change much up till the early colonial period. We estimate that the total enrollment rate in all elementary-level schools of 5-14 age children was about 8.22% in 1912. The enrollment rate in the Korean public primary schools, which were called Botong Hakgyo (common schools) by the 1930s, was 1.36%, and Seodang’s enrollment rate was 5.16%. The remaining 1.69% was the enrollment rate in private elementary schools.

The rise of elementary schooling in colonial Korea started around 1919. As shown in Panel A of , public elementary schools led the expansion. Also public elementary schools substituted for the Seodang, the traditional elementary-level educational institutions. Private schools did not show an impressive increase during the colonial period. It is notable that all those schools were only for Korean children. In colonial Korea, Japanese children were separately educated at their own schools at the elementary and secondary levels. The segregated elementary schools for the Japanese children residing in Korea were called So-Hakgyo, same as in Japan, and they were separately operated. In this paper, we distinguish the public elementary schools only for Japanese children as the public schools for the Japanese, and the public elementary schools for Korean children as the public schools for the Korean. Sometimes for convenience, we will denote each type of schools in abbreviated forms such as Japanese schools and Korean schools.

Who then entered colonial public elementary schools? Elementary education was not compulsory in colonial Korea, which was different from Japan where all 6-14 year-old children were required to attend schools. Even the school age was not clearly defined in colonial Korea. The Common School Act had a provision that prohibits children younger than 6 years old from attending public schools. Furthermore, parents in colonial Korea typically reported a birth of a baby one or two years later than the actual birth date, it was problematic in practice to enforce the age regulation.

A gender bias in the development of elementary schooling during the colonial period is quite apparent. As in Panel B of , the first phase of the enrollment rate increase in the early 1920s was mostly for boys. The share of girls who attended public elementary schools slightly increased but was far less than boy’s enrollment rates. In the second phase of the enrollment rate increase in the 1930s, girl’s enrollment rates increased at a similar rate to boy’s enrollment rate, but the gap between boys’ and girls’ enrollment rates did not narrow during the colonial period.

4 Ch. 2 in Woo et al. (1998), pp. 29-65.
Another conspicuous difference is found between the urban and rural areas. Panel C of Figure 3 reveals a dramatic increase of the enrollment rates in the 1920s. The enrollment rate in the rural areas also increased in the 1920s, but the growth rate was much lower. The rise of elementary schooling continued in the rural areas in the 1930s, while it stagnated in the urban areas.

So far we have identified two different phases of the public school enrollment rate increases in colonial Korea. The first phase was from 1919 to 1925. The expansion of elementary schooling during the first phase is characterized by an impressive increase in boys’ enrollment rates and the expansion of public schools in the urban areas. The second phase was from 1931 to about 1941, when girls’ enrollment rate also increased and rural education continued to grow. In fact, the two phases were initiated by the colonial policies. The central colonial government first introduced the “One school per three townships” policy in 1919, which aimed at establishing at least one public elementary school per three townships by 1926. The “One school per each township” policy was again implemented by the central colonial government in 1929.

However, the colonial policies do not clearly explain the rise of Korean public elementary schooling. An immediate question is why the enrollment rate was so low and why the colonial education did not provide universal schooling. In colonial Korea, the public school enrollment rate of male children, who were the most favored group, was still less than 40% in the 1940s. The enrollment rate in the urban schools had stagnated around 50% since the mid-1920s, and the rural enrollment rate did not increase over 20% by the late-1930s. Therefore, the central government’s policy to increase the number of schools was not successful enough to universally expand public elementary schooling.

Figure 4 offers a clue about why the colonial policies were not successful. The number of schools per 10,000 children had increased without interruption since 1919. But the number of classes, and teachers, per 1,000 children shows a similar pattern to the rise of the enrollment rate. Though the two phases in the rise of elementary schooling in colonial Korea were initiated by the colonial policies, the limited supply of teachers and classes prevented public elementary schooling from growing faster. The colonial initiatives were not accompanied by an appropriate increase in school funding. Apparently, we need to analyze who had actually paid for hiring teachers and operating colonial public schools.

In colonial Korea, public school finance was controlled at the county level. Since the Chosun school expenditure act of 1920, all the counties were required to establish an independent account for school expenses to finance the establishment and maintenance of

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6 For convenience, we call colonial Korean local administrative units in English names. We call Do as a province, Gun as a county, and Myun as a township. A township (Myun) consisted of several small local towns. A county (Gun) was composed of several townships, and several counties formed a province (Do). Colonial Korea had 13 provinces.
public schools. Again, the accounts for Korean schools and Japanese schools were separately managed, and the investment level was higher in Japanese schools than in Korean schools. Figure 5 shows the real per-pupil expenditure level, in 1936 won, for Japanese and Korean schools separately. The gap between the per-pupil expenditures of Korean and Japanese schools continued and did not vary considerably during the colonial period, except around 1919 and 1920 when a sizable amount of subsidies to establish Korean public schools flowed into the Korean school account.

Public school income was financed by various sources such as local tax, tuition fees, subsidies by the central government, private donation, property income, and debt. The share of public school income from each source is presented in Figure 6. Panel A of Figure 6 shows the trend in each income share. The largest income source was the subsidy from the central government. Except for the first phase of the expansion between 1919 and 1926, the amount of the subsidy was the greatest among all the income sources. Local tax was the most important income source in the first phase, but the amount of local tax plummeted in 1927 as the local surtax on the national property tax was abolished. But the amount of local tax increased again since the mid-1930s and almost overtook the subsidy by 1940. Tuition fees steadily grew from the early 1920s through the colonial period. The amount of donations increased as well, but the overall income shares from donation and other income sources were modest. Panel B of Figure 6 presents the changes in each share of income source, which reconfirms what we found above.

Subsidies and donation were important to finance the cost for building new schools. But for the operation of public schools, two major contributors among the various income sources were local tax and tuition fees. Tuition fees were the user fees that were paid by the parents of pupils. However, tax could have been a channel of redistribution when it was imposed on someone else except for the parents of pupils. Then, who paid the local tax for Korean public schools?

In the colonial period, local taxes for Korean schools were imposed at the county level. Taxpayers were the Korean residents of the county and the non-resident Koreans who owned property in the county. There were three different types of county school taxes—surtax on the provincial householder tax, surtax on the national property tax, and county household tax. The two surtaxes comprised most of the county school tax revenue. The rates of the surtaxes were determined by each county government up to the maximum rate set by the central government. The maximum property surtax rate was initially 1-2% of the national tax, but increased to 30% after 1920. The surtax on the national property tax was abolished in 1927. The maximum rate of the surtax on the provincial householder tax was also increased from 10% to 30% of the provincial householder tax. In 1920, the tax base was changed from all the householders to taxpaying householders, and the maximum tax became on average 0.4 won per each householder. The maximum tax amount had increased to 1.9 won per householder by 1939. However, not all the counties raised the taxes at the maximum rate. It was always
possible to raise low or zero tax depending on local politics. The surtax on the provincial householder tax was progressive as the householder tax was, and average tax rates varied across counties.

Because the county government had the authority to determine the local tax rate and the fee levels, we need to understand local politics in colonial Korea. Generally, the magistrate of a county was appointed by the central colonial government and there was no local election. But it was not always easy to govern the area and to raise taxes without the compliance and cooperation of the residents. To facilitate the compliance and cooperation, each county had a school council, whose members were typically wealthy local elites owning large properties. A council member was elected by each township council, which was also dominated by the township’s economic and political elites. The county school council was only for consultation and did not have any effective legal authority. But we expect that local elites could have successfully affected the local decisions on public school finance through the council, as the county government wanted tax compliance by the local elites.

Another interesting fact is that not all the Korean children who were willing to attend public elementary schools were admitted to the schools. Figure 7 shows that only 50~90 percent of the applicants were accepted to public schools every year since the early 1910s. The acceptance rate decreased in the early 1920s and through the 1930s, when public schooling was expanding. Decisions on public elementary school admission were made by the principal of a public elementary school. The most popular way was the two stage screening process of the paper screening and the mental test. The paper screening was to check if the applicant meets the legal requirements of age but sometimes also used to give a priority to elder children when the competition was high. In the mental test, applicants were tested by examiners whether they possessed the basic mental ability to study at the school. Indeed, public school principals had a wide range of discretion in the screening process. Thus, depending on the local politics and the relationship between the principal and local elites, it was highly probable that the screening process could have been biased toward local elites.\(^7\) Given that the screening process could have discouraged some from applying to local elementary schools, the admission rate was likely to be much lower.

If the school finance had been centralized and the central government could have financed most of the cost, tax resistance of local elites would have not been a problem that hampered the faster growth of the public elementary schooling in colonial Korea. However, the central government was not enthusiastic in raising the investment level in educating Korean children. Figure 8 shows the annual series of the support ratio, public school expenditure per 5-14 children divided by GDP per capita, during the colonial period. After the initial increase in the 1910s, the support ratio stagnated around 0.03~0.04 in the 1920s and 1930s. The colonial government did not increase the funding for public elementary

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\(^7\) Oh (2000), pp.152-156.
3. Who led the rise of public elementary schooling in colonial Korea?

The rise of formal schooling in colonial Korea has conventionally been thought of as a result of a colonial policy to utilize schooling for consolidating the Japanese hold of power in colonized Korea. Some scholars argue that Japanese invested in public elementary schools for Korean children not because they were benevolent colonizers but because they thought elementary schools could be an effective ideological device to enhance colonial governance. In fact, the ideological aspects of colonial public elementary schooling were popular. The elementary school curriculum included ethics and moral education based on Japanese imperialism. In language education, more emphasis was put on the Japanese language than the Korean language. Extracurricular activities were also frequently related to services for the colonial government. The principals of public elementary schools were typically Japanese.

We do not refute that the investment by the colonial government helped the rise of elementary schooling. However, it is curious that Japanese colonizers did not fully utilize the formal public schooling system for offering ideological education to Korean children. As discussed in the previous section, less than 30% of 5-14 year-old Korean children attended public elementary schools in 1940, when more than twenty years had passed since the onset of the colonial education policy. If formal schooling was an effective ideological device to enhance colonial governance, why didn’t they utilize it for all the children?

Recently, a group of revisionists argues that the colonial rise of elementary schooling in Korea was actually led by Korean elites. They argue that the demand for public schooling by Korean people increased after the March 1st movement (the Samil movement) in 1919, a series of peaceful demonstration throughout the country against Japanese colonization. The movement was eventually not successful to winning independence of Korea from Japan, but the failure encouraged many elites to begin a new wave of movement focusing more on self-empowerment through education and economic development instead of directly demanding independence from Japan. The “self-empowerment” movement was a grass-roots movement aiming at the independence of Korea through the empowerment of the Korean people to ultimately lead to the independence of Korea.

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8 Later, the education of the Korean language was eliminated from the curriculum, and the Japanese language became the only official language of instruction at school.

9 Oh (2000), Ch. 6; Yuh (2010).

We agree with that the self-empowerment movement since the 1920s promoted the education of common Korean people in many countryside towns as well as urban slums. Indeed, informal education boomed in the colonial period. Many young elites moved to rural areas and established informal educational institutions, typically called *Yahak*, where they taught local children the Korean language and history. However, formal public elementary schools were mainly controlled by Japanese colonizers and offered quite different curriculums. Not all the children who applied to formal public schools were accepted, thus the enrollment rate of formal schools was quite low. It was true that local elites donated a considerable amount of money to build local public schools. But the opportunity of education offered by formal public schools was too limited to effectively empower the Korean commons.

Then, what was the key factor that led the evolution of public elementary schooling in colonial Korea? We offer an alternative theory on the rise of schooling in colonial Korea. We still focus on the role of Korean local elites, but now we consider each of them as a rational economic agent seeking their own self-interests. Elementary schooling could have been a good way to educate the children of local elites and to raise human capital. The curriculum of elementary public schools, which included the Japanese language and history, was also well designed to educate future elites in colonial society.

Colonial Korea, dominated by Japanese colonizers, was far from a democratic society. However, as found in the previous section, public elementary schools required local tax paid by wealthy local Korean elites. Therefore, the colonial government established a county school council that assisted the county government in determining the local school tax rate and administering public schools. Local Korean elites could have affected decisions regarding school administration and finance through the county school council. There was also a provincial-level administrative council in every province of colonial Korea, which comprised of Korean and Japanese elites and assisted the provincial government in general. Colonial Korea was not a democratic society, yet elites could have affected decisions regarding public schools through such channels.

The existence of elite bias may have affected the structure of public school finance. To exclusively benefit their own children, the elites might have preferred paying tuition fees to tax. Therefore, we expect that the elite bias could be identified by the changes in the structure of school finance, such as rising tuition fees and stagnating tax incomes. The elite bias can be also captured by the support ratio presented in Figure 8. The support ratio increased by the mid-1920s, but we cannot discern any clear upward trend afterwards.

We consider two different types of elite dominance in colonial Korea. The first is the

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12 The support ratio here is defined by the expenditure per 5-14 year-old children over the GDP per capita, which is a little different from the definition of the support ratio in Lindert (2004) and Chaudhary et al. (2012).
dominance of the Japanese over the Korean. Colonial public elementary schools were segregated between the Japanese and Korean children, thus there might have been a competition between Japanese and Korean schools over local funding. The greater the Japanese dominance, the more local funding could have been directed into Japanese schools, thus hampering the development of Korean public schools. The second is the dominance of Korean elites over the commons. By raising fees, or manipulating the admission process for the local public schools, local Korean elites may have exclusively controlled local schools under their own self-interests. In this way, the enrollment rates in colonial Korea may not have increased much, and the further development of colonial education could have been impeded.

The elite-biased growth of early public schooling can be also found in many other countries. In the American South before the Civil War, evidence is found that the control of public schools was dominated by the slave-owning elites. Similar elite biases are found in the early phase of public elementary education expansion in India, Brazil, Russia, and China. School finance was decentralized in many cases, and the direction of the development of public schools was led by the people who had a political voice.

4. Data and regression specifications

To test the elite-bias theory, we have collected province and county level data from various sources such as the Annual Reports of the Statistics, Census Reports, and the Abstracts of Local Public Finance. The province-level data set is comprised of the 19-year panel data of the variables related to the structure of public school finance and political economy from 1914 to 1932. The county-level data is composed of the county level variables in 1926 and 1936 combined with the population statistics from 1925 and 1935 Censuses. There are also some variables that are available only for 1926, 1930, or 1936.

We first run a province-level panel regression with fixed effects as Equation (1) to figure out what determined the public school funding structure. Here, s is province, and t is year. In this specification, we are interested in investigating if there was evidence of elite dominance in the structure of public school finance. The dependent variables are the share of public school income from tax, fees, or subsidy. The regressors, \( X_{st} \), include the number of Japanese per Korean and the ratio of tenants to all farmers to capture the effect of elite dominance in different aspects. \( \tau_1 \) and \( \tau_2 \) are decade fixed effects that are 1 if t is in the 1920s or in the 1930s. \( \delta_s \) is the province fixed effects.

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13 Go and Lindert (2010).
14 Chaudhary (2009); Chaudhary et al. (2012)
\[ y_{st} = \alpha + \beta x_{st} + \tau_1 + \tau_2 + \delta_s + \varepsilon_{st} \] ................................. (1)

Using county-level data, we investigate what was the effect of the school finance structure on enrollments. We run first-difference regressions to eliminate the time-invariant unobservables. Equation (2) is acquired by subtracting the 1926 equation from the 1936 equation. The dependent variable is the difference of the Korean public school enrollment rate. The regressors in \( \Delta X_i \) include variables to capture the changes in the structure of public school finance, the supply of schools and classes, and the local political economy. To deal with the possibility that some unobservables can affect the changes in the enrollment rate, we also run additional regressions including some “level” variables, which are not the difference between the two years but the values in a specific year, 1926, 1930, or 1936. Equation (3) shows the specification with the level variables \( Z_i \).

\[ \Delta y_i = \alpha + \beta \Delta X_i + \varepsilon_{it} \] ................................. (2)

\[ \Delta y_i = \alpha + \beta \Delta X_i + \gamma Z_i + \varepsilon_{it} \] ................................. (3)

The descriptive statistics of the variables are reported in Table 1.

5. Results

(1) The determinants of the school finance structure

As explained in the previous section, we first examine what had influenced the public school revenue structure using province-level panel data for 1914-1932. Table 2 reports the results from the panel regression with the province and decade fixed effects. The first and second columns of Table 2 clearly show that the politics in the provincial level played a key role in defining the structure of public school finance over time. When there was a relatively greater population of Japanese, the provincial government reduced the share of the Korean public school revenue from taxation and increased the share from the fees paid by the parents of pupils. This can be explained by a possible competition between Japanese and Koreans for local tax revenue. The provincial governments in colonial Korea were basically controlled by Japanese colonizers. When the relative size of the Japanese population was greater, the demand for social spending for the Japanese residents must have been also larger. For
example, they may have needed more schools for Japanese children. An easy way to raise revenue for the Japanese public schools was to redirect some of tax revenue from the Korean public schools. To deal with the decrease in public school income, the Korean schools may have been required to raise the share of school revenue from tuition fees. We call it the Japanese effect.  

Taxpayers may have been also seriously interested in how their tax payment would be utilized. The coefficient estimates for the tenancy rates in Table 2 clearly reflect the theory of rich landowners who would be less likely to pay tax for the children of their poor neighbors. When the ratio of tenants to all farmers increased, the share of school income from tax decreased and the share of school income from fees consequently increased. We call this the tenancy effect. In colonial Korea, we cannot find any evidence of the Tocqueville thesis that the majority poor tax the minority rich to raise social spending for redistribution. This is not surprising as colonial society was not very close to the ideal democracy regime. Also we cannot find a clear evidence of the benefit theory of local taxation which postulates that local public goods financed by local taxes benefit the taxpayers by the increase in the property values. It was possible the link between local property tax and public schools was weak in colonial Korea as the public schools were not open to all Korean children. As described in the previous sections, children had to pass the entrance exam, and the tuition fees for public schools were expensive.

The subsidy equation in the last column of Table 2, however, shows a slightly different story about the political economy of public elementary school finance in colonial Korea. The subsidy was basically from the central colonial government. Therefore, we may expect that the local-level variables might not have been closely related to the share of public school income from subsidy. Indeed, the relative size of the Japanese population had no clear effect on the share of public school income from subsidies. But the share from subsidies increased as the tenancy ratio rose. This means that the decisions at the central government level might have been different from those at the local level. The positive coefficient estimate shows that the share of public school income from subsidies increased in reality when the ratio of tenants to all farmers was higher. This was possible if the amount of subsidy increased or at least did not decrease as much as the local tax revenue for Korean schools diminished. That is, the tenancy effect might have been much weaker in the central government. Or the central colonial government might have been much more interested in expanding the public school system, thus having increased the amount of subsidy to the provinces where there were more poor tenants.

The two revealed effects – the Japanese effect and the tenancy effect – show that the rise

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15 Given that Japanese did not pay tax for Korean schools, there were two possible ways that caused the Japanese effect. First, the Japanese might have redirected Korean tax revenue for other programs, which is directly beneficial for them, rather than formal elementary schooling for Korean children. Second, the Korean tax base might have been weaker in places where the Japanese population size was greater.
of elementary schooling in colonial Korea had an elite bias. Elementary schooling had expanded through the colonial period, but not all the children could enter the schools. It was not tax revenue but private user fees that financially supported the rise of public elementary schools. The local elites, Japanese or landowners, were not eager to invest in universal public schooling by raising more tax revenue, though the central colonial government was more interested in expanding public elementary schooling by offering subsidies. When local elites were reluctant to pay tax for Korean public schools, the importance of tuition fees in school finance became greater.

(2) The effect of the school finance structure on enrollments

To more closely investigate the link from the school finance structure to the rise of public elementary schooling, we have run first-difference regressions using 1926 and 1936 county-level data excluding major big cities. We use the first-difference regressions to control for the unobservable time-invariant county-specific factors. The first column of Table 3 shows the baseline specification of the first-difference regression model. The dependent variable is the difference between the 1926 and 1936 enrollment rates of Korean public elementary schools. Eight regressors are included in the baseline specification, all of which are also differences between 1926 and 1936. Three variables – the shares of public school income from tax, fees, and subsidy – capture changes in the public school finance structure. Two variables – the number of schools and classes per each township – control for the supply factor that was mostly driven by the central colonial government. The remaining three variables – the ratio of school-age children to local population, the average number of Japanese per Korean, and the change in the average tax payment for local Korean public schools by each household – represent some changes in the county-level political economy.

The baseline result shows that the structural change in public school finance was closely related to the expansion in elementary schooling in colonial Korea. The rise of the enrollment rates of Korean public schools at the county level was associated with the decreasing share of public school income from local tax. As shown in Table 3, the share of public school income from tax had decreased since the late 1920s. Therefore, the negative coefficient estimate of the tax share change means that a 10 percentage point decrease in the tax share was associated with a 0.96 percentage point increase in the enrollment rate. In the counties where the enrollment rate increased, the increase in the fee share substituted for the decrease in the tax share. The increase of 10 percentage points in the fee share was associated with a

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16 Major big cities were called “Bu” in colonial Korea, whereas typical counties were called “Gun.” We exclude all the Bu’s from the sample as Bu-level data are not available for 1936.
17 The difference was calculated by subtracting the 1926 values from the 1936 values.
18 The share of public school income from donation and others is excluded from the regression.
19 One standard deviation decrease in the tax share was associated with about 2.1 percentage point increase in the Korean public school enrollment rate.
1.46 percentage point increase in the enrollment rate.\textsuperscript{20} The changes in the subsidy share do not show a clear effect, which is consistent to the provincial level analysis.

A strong supply-side effect is also revealed from the county-level analysis. Both the number of schools and the number of classes per township had a positive effect on raising the enrollment rate. Between 1926 and 1936, the central colonial government offered a considerable amount of subsidy to localities to expand public elementary schooling, first by the one school per three townships policy and by the one school per one townships policy after then. Hence the increase in the number of schools per township can be interpreted as a result of the policies of the central colonial government. The increase in the school size captured by the number of classes was also led by the central colonial government’s initiative.

Interestingly, all the changes in the variables that represent the local political economy show a clear effect on the rise of public elementary schooling. The relative population size of school-age children had a negative effect as expected. The population pressure made the relatively smaller portion of children attend public elementary schools. However, the changes in the number of Japanese per Korean and the difference between two year’s average tax payments do not reveal any clear effect. We need further investigation to explain why the increase in the relative size of local Japanese population and the decrease in the average tax payment per household were not directly linked to the changes in the enrollment rates.

One possible concern on the baseline specification is that there could be a bias driven by the differences in the initial level of the dependent variable. If the changes of the regressors are also correlated with the initial level of the enrollment rates, a false effect can be captured by the first-difference regressions. To deal with this concern, we add the 1926 enrollment rates and report the result on the second column of Table 3. The results are very similar to the baseline result, which confirms that the estimates are not biased by the initial level differences.

Though the first difference specification controls for the time-invariant unknown variables at the county level, we also have a concern over a possible channel from the county-specific unobservable characteristics to the changes in the enrollment rate over time. Differencing two cross-section equations will eliminate the effect of the time-invariant variables on the dependent variable in each year, but the effect of those variables on the changes of the dependent variable over time would not disappear. If this effect on the changes is possibly correlated with our key regressors, the estimates in the baseline specification could be biased. To capture this effect, we added a set of “level” variables in a certain year to the regressions. By adding the “level” variables, we also hope to capture some effects of the time-varying missing variables, which we want to add to the regressions as “change” variables but the data are not available.

\textsuperscript{20} One standard deviation increase in the fee share was associated with about 1.3 percentage point increase in the Korean public school enrollment rate.
The first level variable that we consider is the number of Japanese per Korean in 1925. If the number of Japanese per Korean did not vary significantly over time, the coefficient estimates of this variable can be read as the effect of the local political domination of Japanese on the growth of the enrollment rate. Indeed, the number of Japanese per Korean did not change much between 1925 and 1935. As reported in Table 1, the average change of this variable was only 0.0752 per 100 Koreans, which constitutes only about 6.37% of the average number of Japanese per Korean in 1925. The sign of the coefficient estimates are negative as expected. Another interesting fact is that the magnitude of the effects of the school finance structure variables decreases considerably when this variable is added to the regressions. As shown in the third, fourth, and last columns of Table 3, with the 1925 Japanese per Korean variable, the coefficient estimates of the tax share and fee share variables diminishes and eventually become statistically insignificant as other level variables are included together. This is possible if the effect of school finance variables are principally driven by the local political economy captured by the number of Japanese per Korean, as also revealed in the provincial level regressions.

Another interesting “level” variable is the assessed land value per 1,000 children of age 5-14 in 1936. Having a greater amount of taxable resources could allow localities to supply a given quality of school at a lower tax rate. The coefficient estimates are positive as expected. Also the inclusion of this variable reduces the magnitude and statistical significance of the school finance structure variables, as the number of Japanese per Korean did.

Some may think that it could have been more costly to expand schools in the less populated areas, as the number of pupils per school and teacher were lower and the transportation of pupils were required. We tested this idea by adding the population density of each county in 1936 to the regressions. The results are reported in the last two columns of Table 3. The sign of the coefficient estimates is negative, which is the opposite of the previous expectation. The idea of elite-biased enrollment growth also helps to explain this result. If colonial public schooling was not for all the children but only for some of them from elite families, there might not have been a considerable difference between more and less populated areas. Moreover, the Korean elites are thought to have had greater political voice in the rural areas than in the more populated urban areas. We offer two reasons for this thought. There may have been less competition over local resources between Korean elites and Japanese in the rural areas. Indeed we find that the coefficient estimate of the 1925 Japanese per Korean variable becomes smaller, while still significant at the 5% level. Another reason is that there could have been more private schools in more populated areas. Thus Korean elites would have been less enthusiastic about investing in local public schools in the more populated areas.

The coefficient estimates for the share of agricultural householders who were tenants or farm workers show similar results. This poor household share variable in 1936 is positively associated with the change in the enrollment rate, as local elites were more politically
dominant in the counties with a greater population of the poor agricultural householders who were politically subordinate to the elites in the colonial society. However, the effect diminishes to almost nil when other political economy “level” variables are included, as in the last column of Table 3.

We also include two additional “level” variables. The 1930 literacy rate shows a positive correlation with the increase of the enrollment rates. The more literate public may have more easily appreciated the benefit from educating children. But we cannot perfectly rule out the possibility that the rising literacy had been caused by the expansion of elementary schooling itself. The 1930 share of all employees in the non-agricultural sector shows a negative coefficient. But the coefficient estimate of the variable is not statistically significant when the 1925 Japanese-Korean ratio and the 1936 average assessed land value are included in the regression.

6. Conclusions

The rise of public elementary schooling in colonial Korea was led by the initiative of the central colonial government and the self-interests of local Korean elites. Whatever their intentions, the policies proposed by the central colonial government successfully raised the supply of schools in Korea. However, the subsidies by the central government were not sufficient to secure the operation of public schools and to universally expand elementary education. When local support for public schools was demanded, the local Korean elites chose to pay fees for their own children instead of paying taxes for all. Less public resources were available for Korean schools when the relative size of the Japanese residents was greater. Our province and county level regression results provide evidence for this elite-bias in the rise of public elementary schooling in colonial Korea.

A comparative study of the Korean case with other colonies would be useful to develop the elite-bias theory on the early development of public schools. A good candidate is Taiwan, which was also colonized by Japan. Interestingly, the rise of public elementary schooling in Taiwan was faster and more successful than in Korea.21 We need more research on the differences between the political economy of each colony regarding public school finance.

Another interesting aspect in the history of early public elementary schooling in Korea is the persistence of Seodang, the traditional educational institution in Korea, throughout the colonial period. The number of Seodangs even increased in the mid-1930s. Why did they last so long and what did they do? Did the persistence of Seodang impede the development of the formal elementary education system? We still need more research on these topics.

21 Oh (2005).
References


University of Chicago Press.


Woo, Yong-Je, Bangran Ryu, Woo-hee Han, and Seongcheol Oh (1998), *A study on modern Korean elementary education*, Seoul: Kyoyookbook. (in Korean)

Figure 1. The percentage of school-entering-year cohort who finally had some elementary schooling

Data: 1966 population census microdata 1% sample
Figure 2. Public school enrollment rates, 1910-1940 (% of 5-14 year-old children)

Sources: Korean data are from *The Annual Report of Statistics*; Others are from Benavot and Riddle (1988)

Note: The Korean enrollment rate includes pupils of all the types of elementary schools such as public, private, and traditional elementary schools.
A. By the type of schools

B. By sex

C. Urban versus rural enrollment rates (%)

Source: The Annual Report of Statistics
Figure 4. The number of schools and classes supplied, 1911-1943

Source: The Annual Report of Statistics

Notes: The denominator is the number of 5-14 age-old children.
Figure 5. Real public school expenditure per pupil, 1911-1939 (1936 Won)

Source: The Annual Report of Statistics

Notes: The nominal per-pupil expenditure is divided by the CPI estimated by Park and Kim (2011). Japanese schools mean public elementary schools only for Japanese in colonial Korea. No data for Korean public schools are available for 1913-1919.
Figure 6. The sources of public school income, 1912-1939 (1936 Won)

(A) Changes in each income source

(B) Changes in the share of income sources, 1919-1939 (%)

Source: The Annual Report of Statistics
Figure 7. The acceptance rate to public elementary schools, 1912-1940

Figure 8. The support ratio for primary school expenditures, 1911-1940

Source: Calculated using data from the Annual Report of Statistics

Note: The support ratio is defined by the ratio of public elementary school expenditure per 5-14 year-old children to the GDP per capita.
Table 1. Descriptive statistics

<table>
<thead>
<tr>
<th>Variable</th>
<th>Observations</th>
<th>Average</th>
<th>Standard Deviation</th>
</tr>
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<tbody>
<tr>
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<td></td>
<td></td>
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<tr>
<td>Tax share</td>
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<tr>
<td>Fee share</td>
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</tr>
<tr>
<td>Japanese per Korean</td>
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<td><strong>B. County-level data</strong></td>
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<td></td>
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<tr>
<td>[1] 1926-1936 Differences</td>
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<td>1936 Assessed land value per 1,000 5-14 child</td>
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<td>Population density (1,000/km2)</td>
<td>187</td>
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<td>Poor household share</td>
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<td>[4] 1930 level</td>
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<td>1930 Non-agricultural employee share</td>
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Table 2. The political economy of public school finance at the provincial level, 1914-1932

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<th>Local tax share</th>
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<td>Japanese per Korean</td>
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<td>6.742**</td>
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<td>Period 1920-1930</td>
<td>0.258**</td>
<td>0.076**</td>
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<td>[0.013]</td>
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<td>Period 1931-1932</td>
<td>0.207**</td>
<td>0.073**</td>
<td>-0.288**</td>
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<td>[0.015]</td>
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<tr>
<td>Constant</td>
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<td>[0.056]</td>
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Observations 247 247 234
R-squared 0.379 0.520 0.563

Note: Robust standard errors in brackets. ** p<0.01, * p<0.05. Twelve do fixed effects are also included. The number of dos is 13.
Table 3. The determinants of the enrollment rate growth at the county level, 1926-1936

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<td>-0.095**</td>
<td>-0.066**</td>
<td>-0.012</td>
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<td>Δ Fee share</td>
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<td>Δ Subsidy share</td>
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<td>-0.011</td>
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<td>Δ Schools/Myun</td>
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<td>0.073**</td>
<td>0.059**</td>
<td>0.068**</td>
<td>0.084**</td>
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<tr>
<td>Δ Classes/Myun</td>
<td>0.013*</td>
<td>0.013*</td>
<td>0.018**</td>
<td>0.021**</td>
<td>0.012*</td>
<td>0.014**</td>
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<td>Δ 8-13 Children share</td>
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<td>-0.014**</td>
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<tr>
<td>Δ Japanese/Korean</td>
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<td>0.430</td>
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<td>Δ Average tax per household</td>
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<td>0.031**</td>
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<td>1926 Enrollment Rate</td>
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<td>-0.117</td>
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<td></td>
<td>[0.090]</td>
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<td>-0.861**</td>
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<tr>
<td>1936 Assessed land value per</td>
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<td>0.365**</td>
<td></td>
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<tr>
<td>1,000 5-14 child</td>
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<td>1936 Population density</td>
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<td>-0.210**</td>
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<td>[0.040]</td>
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<tr>
<td>(1,000/km²)</td>
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<td></td>
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<tr>
<td>1936 Poor household share</td>
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<td>0.041*</td>
<td>-0.006</td>
<td>[0.020]</td>
<td>[0.020]</td>
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<tr>
<td>1930 Literacy rate</td>
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<td>0.090**</td>
<td>0.131**</td>
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<td>1930 Non-agricultural</td>
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<td>employee’s share</td>
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Robust standard errors in brackets. ** p<0.01, * p<0.05
Note: The dependent variables are the difference between 1936 and 1926 enrollment rates.