Intergenerational status mobility in pre-industrial Korea:

Evidence from the Seoul household registers between 1897 and 1906*

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Abstract

In this study, we examine intergenerational status mobility in pre-industrial Korea by using the population registers collected at the turn of the twentieth century. We pay a close attention to the data issues. Although the available data certainly suffer from the selection bias and other weaknesses, we can trace a long-term mobility trend in pre-industrial Korea by using the household heads’ and ancestral (up to great grandfathers) status information in the registers. The analysis shows diverging trends of social fluidity. Intergenerational inheritance among the commoners became weaker over time, increasing social fluidity at the bottom. At the same time, high status people became more successful in preventing offspring’s downward mobility, strengthening social rigidity at the top. We relate this diverging mobility pattern to the tremendous socioeconomic changes since the port opening in 1876. We also discuss comparability of our findings to those of Western countries.

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**Introduction**

The current study examines intergenerational status mobility in pre-industrial Korea. Intergenerational mobility has been a crucial topic in stratification research because this is an important indicator of social fluidity. Extensive studies examined intergenerational mobility in historical and contemporary societies. In historical studies, a key question is whether or not industrialization and modernization led to more social fluidity. According to the *industrialization hypothesis* (Treiman 1970), industrialization promoted intergenerational mobility because achieved characteristics instead of ascriptive ones became crucial for individuals’ socioeconomic success. Sorokin (1959[1929]) proposed a contrasting view that social mobility exhibited “trendless fluctuation” instead of increasing or decreasing fluidity. In general, historical studies tend to support industrialization hypothesis (Dribe et al. 2015; Miles 1999); intergenerational mobility increased as societies went through industrialization. By contrast, studies of contemporary populations largely confirmed Sorokin’s proposition: common mobility patterns exist in industrial societies although there are non-negligible cross-national and cross-temporal variations (Featherman, Jones and Hauser 1975; Erikson and Goldthorpe 1992; Breen 2004).

Social mobility in non-Western societies in the pre-industrial period have not been studied extensively. This limitation is largely due to the lack of data. Whereas high-quality European population registers data have been collected and analyzed, such data have not been available for non-Western societies until recently. However, the situations have been changing rapidly. For example, the Eurasian Population and Family History Project (EAP) compiled the micro-level population registers, and conducted extensive demographic studies (Bengtsson et al., 2004; Tsuya et al., 2010; Lundh et al., 2014). Intergenerational mobility was not a major topic in this project, but there were some notable exceptions (Campbell and
Lee 2003; 2011). Although the Korean data were not included in the EAP project, the Korean population registers have also been digitized and analyzed recently (e.g., Kim et al. 2013; Kye and Park 2013; Son and Lee 2013). The current study is a part of this emerging enterprise, and contribute to understanding social mobility in non-Western pre-industrial societies.

The paper is organized in the following order. First, we review historical studies of social mobility during the industrialization, and discuss the Korean historical contexts. Then, we describe the data, Gwangmu household registers (1897-1906), and discuss statistical models. Third, we present the findings. Finally, we discuss the implications of findings.

**Literature review**

*Studies in Europe*

The relationship between industrialization and social mobility have been extensively studied in European countries. Here, we briefly summarize the key findings, and please see van Leeuwen and Maas (2010) for an extensive review. First, studies on absolute mobility did not find that industrialization was associated with increasing total mobility (Kaelble 1981). Depending on the data and status classification, studies reached contrasting results. Second, studies on relative mobility provided positive evidence for increasing fluidity during the industrialization. Miles (1999) found that social fluidity increased during the industrialization in England by examining relative mobility. Recently, Dribe et al. (2015) found increasing absolute and relative mobility in a rural Swedish during the industrialization. Interestingly, they also found the increasing downward mobility in this process. This largely reflected the diversification of peasants during the industrialization. This suggests that industrialization affected social mobility in different ways; whereas this increased upward mobility by
changing occupational structure, the impacts differed by sectors.

The Korean context

A Japanese historian Hiroshi during the colonial period pioneered historical studies in changing status distribution during the Joseon Dynasty (Hiroshi 1976[1938]). By comparing the status distribution that appeared in population registers (hojuk) over time, he showed the long-run trend of status upgrading in the late Joseon Dynasty. He showed that the proportion of the noble class (yangban) increased from 10 percent in the late 17th century to 70 percent in the early 19th century, interpreting that the status regime in the late Joseon Dynasty experienced breakup. His finding was critically reviewed, and an alternative interpretation has been suggested. The key argument in the alternative interpretation is that status recorded in population registers did not reflect social status accurately (Choi 2003; Son 2009). In particular, the records in the 19th century are regarded as unreliable. These studies argued that the status upgrading in the 19th century shown in the population registers was a consequence of false reporting instead of real change. Case studies showed that there were attempts among commoners to claim their and ancestral status as noble (yangban), and these efforts became more successful in the 19th century (Choi 2003).

These studies, however, had important methodological limitations. First, Hiroshi’s

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1 During the Joseon Dynasty, household registers were constructed in two steps. In the first step, each household reported the household roasters that included status of heads and their ancestors (hogyu-danja). In the second stages, the local government officials verified the information and stored them (Jangjuk). Comparison of these two sources for several families showed that status of ancestors, reported by households, was often downgraded by local officers. This illustrates that individuals attempted upgrading their status by (falsely) upgrading ancestral status and this attempt was not always successful (Choi 2003). Studies suggest that this double-check became loose in the 19th century, and consequently the status records during this period were not reliable (Son 2009).
studies simply compared the status distribution in different time points. Because the population registers during the Joseon Dynasty was far from complete, selective registration would drive the changes in status distribution. The purpose of population registers was to secure taxation base instead of enumerating households and individuals accurately. Differential registration by status was certainly possible, and this pattern would change over time. For example, more active registration of high status people in the later period would yield the patterns observed by Hiroshi (1976[1938]). Case studies were also limited because their findings are difficult to generalize (e.g., Choi 2003). Recently, more comprehensive data became digitized and available to handle these methodological problems appropriately. By constructing family lines longitudinally using the population registers, Lee (2014) showed that intergenerational mobility became more prevalent during the 18th century; low status people became more successful in upward mobility but their chance of becoming upper class was still limited. This recent study overcame methodological limitations of Hiroshi (1976[1938]) by looking at intergenerational mobility instead of changes in status distribution. It also overcame the case studies by using more comprehensive data. Nonetheless, understanding the status mobility and distributional changes during the 19th century is still limited. Because of the unreliability of status report in the 19th century population registers, Lee (2014) did not analyze the 19th century data. The Gwangmu population registers provide an opportunity to study the social mobility during the 19th century, and help us fill in the gap in the literature. We will make this point clear in the next section.

Data and methods

Data

In this study, we use the Gwangmu household registers collected in 1897, 1903 and
1906 in Seoul. Although the registers were conducted every year, we have the data only for these three years. In addition, the available data are concentrated in particular area. Below, we will discuss this geographic concentration issue in more detail. The Joseon Dynasty implemented comprehensive reforms, The Gwangmu Reform in 1897. After the port opening in 1876, the Joseon Dynasty encountered international and domestic challenges such as the Qing-Japan war, and the agrarian revolt. The Gwangmu Reform was a response to these challenges, including reconstruction of household registration. Although the Joseon Dynasty already had household registration system, this was far from complete. For example, the coverage was estimated to be about 40 percent (Shin and Kwon 1977). The new registration intended to enumerate all the households and individuals, which was different from the earlier registrations. The reality, however, was different from the ideal; the coverage did not increase compared with the traditional registers (Son 2009). However, the quality of information, including family relationship, was known to be much better than the earlier ones. Son (2005, 2008) argued that the Gwangmu household registers were in a transitional stage from traditional to modern ones. Although there are several concerns about the data quality, the Gwangmu household registers provide valuable information to study a long-run trend in intergenerational mobility in pre-industrial Korea. Below, I discuss several important features of the Gwangmu household registers.

The Gwangmu household recorded the status of household heads (hoju), their father, grandfather, maternal grandfather, and great grandfather. This multi-generational information provides us with an important opportunity to examine a long-run social mobility trend in pre-industrial Korea. Although imperfect, generations are closely related to birth cohorts. In other words, the head’s generation was certainly younger than the father’s generation on average although some heads could be older than other heads’ fathers. This is also the case for
preceding generational pairs. This suggests that we can trace intergenerational mobility over the long run by comparing the three pairs of two-generational mobility tables (great grandfather to grandfather, grandfather to father, and father to son). The mean age of household heads used in the analysis is 45.3. Because the data were collected at the turn of the 20th century, the average person was born in the mid-1850s. By assuming that the mean of generation interval was about 30 years, then ancestral generations were born on average in the mid-1820s (father), the mid-1790s (grandfather), and the mid-1760 (great grandfather) respectively. In this sense, the data approximately cover the birth cohort of more than a century, between the mid-18th century and the late 19th-century. Because the age of ancestors is not available, this claim is based on just a speculation and difficult to verify. Nonetheless, we are sure that the preceding generation is older than the following one on average, so comparing two-generational mobility tables should be informative to understand a long-run trend of intergenerational mobility in pre-industrial Korea.

Although the Gwangmu household registers provide valuable information to the long-run trend of social mobility in pre-industrial Korea, there are several features that warrant cautious interpretation of the results. First, the status composition of the data is likely to be skewed upwardly. Seoul was a political center of the Joseon Dynasty that included disproportionately high share of government officials (Kye and Park 2013). Because government officials were definitely high status people during the Joseon Dynasty, the status composition in Seoul was distinctive from other areas. In addition, the areas in which data remain and are available are concentrated around the Royal Palace. These locations were likely to include disproportionately large share of government officials. In addition, status information was only available for household heads and their ancestors. Registers included information on individual household members such as age and sex, but recorded only the
number of non-family members without individual information. These non-family members were likely to be low status people because they could not form their own households. From this discussion, it appears that the status composition of data should be substantially different from national and even Seoul population in at the turn of the twentieth century. Hence, it is difficult to generalize the findings, and we need to be cautious in interpreting results.

Second, the concept of socioeconomic status is not matched to contemporary concept of class or socioeconomic status. Actually, the Gwangmu household registers requested recording occupation, instead of status, of heads and their ancestors. Nonetheless, many people recorded their and ancestral status instead of occupation. This illustrates the transitional feature of the Gwangmu household registers (Son 2009). If household heads or their ancestors held positions in government, their ranks in governmental job ladder were recorded. If they did not hold such positions, the data recorded their occupation or status such as commoners, peasants, merchants, artisans, and soldiers. Another category includes ‘yuhak’ or ‘hannyang’, which meant “students”. These people were supposed to prepare for the state examination (gwageo), which was highly competitive. Because preparation of the state examination took long time and required huge familial support in general, commoners were unlikely to belong to this category. This description tells that the status variable in the data indicates multiple things: rank in governmental hierarchy, status, occupation, and studentship. To study intergenerational mobility using this information, we need to apply a single criterion, which imposes an important analytic challenge. Most contemporary studies use occupation as an indicator of class or socioeconomic status (Blau and Duncan 1967; Wright and Perrone 1977; Ganzeboom and Treiman 1996). Here, the occupation is classified based on what a person is doing in a workplace. Historical studies in social mobility in Western countries also use occupation as a key indicator of socioeconomic status, and there has been an effort to
standardize occupational codes in historical populations such as HISCO (van Leeuwen et al. 2002). To facilitate international comparison, it should be desirable to classify individuals based on the occupation. Unfortunately, occupation was not recorded for many cases. Inevitably, we ended up classifying individuals and their ancestors based on their status in traditional sense. In the next section, Measurements of status, we describe how to classify status.

Third, we found that many missing in ancestral status variables. In the data, less than 10 percent of household heads are missing in their status variables. By contrast, about 70 percent are missing in ancestral status variables. If we use case-wise deletion, we should end up with much smaller cases for data analysis. Interestingly, virtually no observation reported that their ancestors were commoners. If we delete observations whose ancestral status was missing, then virtually all ancestors are nobles (yangban). Then, we would analyze status mobility among the noble families. To avoid this problem, we make an assumption that those whose ancestors were commoners did not report ancestral status. This is a big assumption that is difficult to verify. However, we have circumstantial evidence to support this assumption. As we discussed earlier, there was a huge effort among the commoners to upgrade their status in the late Joseon Dynasty. Because the individual status was based not solely on individual success (e.g., passing the state examination) but also on familial reputation, it has been known that individuals attempted to (falsely) upgrade ancestral status during this period (Choi 2003; Son 2009). Considering this fact, it was unlikely that

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2 During the Joseon Dynasty, household registers were constructed in two steps. In the first step, each household reported the household roasters that included status of heads and their ancestors (hogu-danja). In the second stages, the local government officials verified the information and stored them (Jangjuk). Comparison of these two sources for several families showed that status of ancestors was downgraded in some cases by local officers. This illustrates that individuals attempted upgrading their status by (falsely) upgrading ancestral
offspring of noble people did not report their ancestral status. Hence, missing in ancestral status was likely to mean that their ancestors were commoners although there should be some exceptions.

**Measurements of status**

We classify status of heads and their ancestors into five categories: higher officials, middle officials, lower officials, non-officials, and commoners. This classification is based on the social reputation. Status is related to social reputation whereas class is related to economic resources (Weber 1978). In this aspect, government officials were generally regarded as the highest position during the Joseon Dynasty. *Yuhak* and *hannyaung* was generally regarded as more respectable than the commoners, peasants, merchants, artisans, and soldiers. In addition, we treat commoners, peasant, merchants, and artisans as the same category, named “commoners”. Although commoners were diverse in terms of occupation, there was no distinction in status because commoner meant “individual of lower class” in Joseon. They were less highly regarded than the government officials and *Yuhak*. Hence, the classification of status reflects positions in social hierarchy in Joseon Dynasty. This is close to the concept of status in the Weberian sense.

The status was also associated with economic resources. The data do not have a direct measure of economic resources, but contain one indicator, the number of rooms in house. A study showed that the number of rooms in the house was highly correlated with the status (Park and Kye 2015). On average, government officials lived in the largest house, *Yuhaks* were in the middle, and commoners were the last. Among the government officials, high rank officials tend to live in larger houses. This tells that the reputation associated with the status and this attempt was not always successful (Choi 2003).
variable was consistent with the level economic resources. Hence, our classification, based on social status, is also in line with economic resources, capturing the essential socioeconomic hierarchy during the Joseon Dynasty.

Methods: Measuring absolute and relative mobility

We analyze intergenerational mobility using the Gwangmu Hojuk data. We examine both absolute and relative mobility. The absolute mobility refers to the distribution of offspring’s status conditional on ancestral status. By comparing this conditional distribution by ancestral status, we can assess the intergenerational association in status. Although this is a straightforward way of examining intergenerational mobility, the approach has one important drawback. The absolute mobility is greatly influenced by difference in marginal distribution between ancestors and offspring. For example, when the offspring’s distribution is more skewed upwardly than the ancestral one, upward mobility should be prevalent. We may misinterpret this as evidence for the weak intergenerational association (Breen 2004; Erikson and Goldthorpe 1992; Featherman, Hauser, and Jones 1975; Hout 1983).

We also examine relative mobility, measured by odds ratios, which is not affected by the difference in marginal distributions between origin and destination. Odds ratios are computed in the following way.

\[
OR_{ijkl} = \frac{(C_{ik}/C_{il})(C_{jk}/C_{jl})}{(C_{ik} \cdot C_{il})/(C_{il} \cdot C_{jk})} = \frac{C_{ik} \cdot C_{il}}{C_{il} \cdot C_{jk}}
\]

(1)

\(i, j: \text{origin} \quad k, l: \text{destination}\)

In equation (1), \(i\) and \(j\) represent status of ancestor; \(k\) and \(l\) represent status of offspring. \(C_{ik}\) represents the number of observations of which ancestors belong to status \(i\) and
offspring to $k$. Odds is the ratio of success to failure, and odds ratio is the ratio of two odds. The odds of $i$ belonging to $k$ instead of $l$ is equal to $C_{ik}/C_{il}$, and the odds of $j$ belonging to $k$ instead of $l$ is equal to $C_{jk}/C_{jl}$. The odds ratio is just the ratio of these two quantities, which equal to the ratio of multiple of diagonal cells to that of off-diagonal ones. The high odds ratio suggests that offspring of $i$ has the higher chance of belonging to $k$ instead of $l$ than the offspring of $j$, implying strong association between origin and destination if $i<j$ and $k<l$. A nice property of odds ratios is that this is not affected by difference in marginal distributions (Agresti 2002). This is why mobility study has widely used odds ratios to assess the intergenerational association instead of absolute mobility rates that are affected by structural changes as well as intergenerational association.

Examining absolute mobility has an important weakness. If ancestor’s and son’s generation have different status distribution structure, we may reach erroneous conclusion. This is the case for the current study. Father’s generation was likely to be skewed downwardly than the son’s generation because son’s generation lived in Seoul where high status people concentrated. However, there is no reason to expect that father’s generation was more selective than the grandfather’s generation in terms of status distribution. This suggests that upward mobility was likely to be more prevalent in the father-son mobility table than those of preceding generations. Hence, we may erroneously conclude that intergenerational mobility increased during this period because of the data construction; (probable) high mobility in the father-son mobility table should reflect the fact that the son’s generation was a highly selected group who lived in the capital city. There is no straightforward way to fix this problem. Nonetheless, the key property of odds ratios should minimizes this problem. Although status distribution of the ancestral generations were not comparable to son’s one,
the odds ratios should be comparable. Consequently, we can compare odds ratios for three two-generational mobility tables, and assess how intergenerational association in Joseon Dynasty changed in the long-run.

As discussed earlier, we assume that each generation represents different birth cohorts. Building on this assumption, we compare intergenerational mobility of each pair: great grandfather-grandfather, grandfather-father, and father-son. Furthermore, we interpret the differences across generational pairs as representing changing intergenerational association in the long run. To make the comparison informative, we use a framework developed by Ishida (2001), shown in Figure 1. According to the Figure 1, there are three possibilities in changing intergenerational association. The first pattern represents weakening association over time. In this pattern, the association in time 2 is weaker than that in time 1. The second pattern represents the strengthening association over time: association in time 2 is stronger than that in time 1. The third pattern represents cross-over: positive association becomes negative or vice versa. By examining the changing odds ratios patterns across

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3 In contemporary clinical studies, the data are typically available only for those who have certain medical events (e.g., incidences of diseases). They do not have direct information on those who do not have these events. To examine the association between the likelihood of events and socioeconomic characteristics, studies combine the clinical data with the representative sample of population. The combined sample is not representative of population, but the estimated odds ratios are known to be unbiased (Agresti 2002). Although our case is different from these clinical studies, the underlying logic to estimate the association is similar. Hence, the data issue is not likely to cause our estimates of odds ratios seriously biased.

4 Ishida (2001) initially developed this framework to see how intergenerational association changed as industrialization proceeded. He hypothesized intergenerational association would become stronger in later stage of industrialization because the accumulated asset may play a more important role as societies advance to post industrialization. However, he failed to find evidence for post-industrial rigidity hypothesis in the Japanese context.
generations, we trace the trends of intergenerational association in status during the late Joseon Dynasty.

Results

Absolute mobility

Table 1 shows distribution of status in each generation conditional on father’s status. In other words, this shows pairwise comparison of two-generational status mobility: father-son, grandfather-son, and great grandfather-grandfather. We can see an interesting pattern. While mobility between great grandfather and grandfather was similar that between grandfather and father, the mobility between father and son was much higher. While more than 80 percent of grandfathers and fathers had the same status as their fathers (great grandfathers and grandfathers, respectively), just about half of sons had the same status as their fathers. Interestingly, both upward and downward mobility were higher for the father-son pair than the other two pairs. Higher upward mobility was driven by upward mobility among the commoners in the son’s generation. While almost all sons of commoners in father’s and grandfather’s generation (97.6 percent and 98.9 percent, respectively) became commoners, only 68 percent of commoners in son’s generation did so. Marginal distribution of status of son’s generation was also distinctive from their ancestors’. While about 7,000 sons were commoners, this figure was about 8,000 for earlier generations. In addition, the size of middle and lower officials were also larger for the son’s generation than its ancestors’.
The difference in the marginal distributions and high upward mobility among the son’s generation can be interpreted in several ways. First, this sizeable difference might indicate no substantial change in status distribution until the mid-19th century. As we discussed earlier, studies using the 19th century *hajuk* showed drastic changes in status distribution; more than 70 percent of household heads in rural areas were classified as the nobles (*yangban*) (Hiroshi 1976[1938]). Previous works questioned the data quality and argued that this drastic change was driven by false reporting (Choi 2003). Because Seoul residents and their ancestors were likely to be nobles than those in rural areas, we should have observed even higher proportion of the nobles in our data than those reported by Hiroshi (1976[1938]) if status upgrading had been real. Our data showed that only about 30 percent of ancestors were the nobles and their distribution did not change across generations. Because the ancestors were largely born in the 18th and the 19th century, this indicates that Hiroshi’s studies overestimated proportion of the nobles.

Second, this indicates fundamental changes in status structure after the port opening. While immobility was a key feature in preceding generational pairs (great grandfather to grandfather, and grandfather to father), substantial upward mobility in son’s generation was observed. Because the status in son’s generation was largely decided in the late 19th century, this fundamental change implies that status upgrading happened since the port opening.

Finally, the data construction is also responsible for huge difference in marginal distribution and upward mobility. Son’s generation was likely to differ from the earlier generations in terms of their status composition because they were Seoul residents that included disproportionate share of high status people, government officials. In other words, son’s generation was positively selected in terms of status. Preceding generations did not have to be highly selected although their status was higher than the national average.
Consequently, difference in marginal distribution and higher upward mobility in son’s generation partly reflects this data issue in addition to probable structural change since the port opening. Unfortunately, we are not in position to disentangle the structural change from the data problem, and assessing the implications of structural change for intergenerational mobility is challenging. It would be reasonable to conclude that there was substantial change in son’s status distribution leading to increasing upward mobility while the patterns reported in Table 1 exaggerate the upward mobility to some extent.

**Changing odds ratios patterns**

We can conduct more valid comparison of the patterns of intergenerational status mobility by comparing odds ratios, which are free from the influences of marginal distribution. As we discussed earlier, we treat each generation as a pseudo-cohort and see how intergenerational association changed over time. Here, we have three generational pairs to compare: great grandfather-grandfather, grandfather-father, and father-son. Table summarizes the patterns. For each pair, we have 100 unique odds ratios because we have 5 status categories ($5C_2^2=100$). We classify the patterns into 4 categories: no change, decreasing, increasing, and cross-over. No change means that odds ratios did not change significantly across comparing pairs. Other categories represent statistically significant change with designated direction.\(^5\) First, 67 percent of odds ratios did not change significantly between the first comparing pairs: from great grandfather to grandfather vs. grandfather to father. This

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\(^5\) Because the data used are not a randomly selected sample, conducting statistical test may not be meaningful. Here, we interpret that the changes are significant if the difference in log odds ratios are greater than twice their standard errors. We did this not to conduct statistical test in a strict sense. Instead, we aim at ruling out the possibility that small changes in odds ratios with not many observations represent meaningful changes.
number decreased to 45 percent between the second comparing pairs. While 67 percent of the associations between great grandfather and grandfather was similar to those between grandfather and father, less than half of associations between father and son was similar to their preceding generational pair. This suggests increasing intergenerational mobility. Second, we can also see a diverging trend. While 25 percent shows decreasing odds ratios for the first pair comparison, this number amounts to 36 percent for the second pair comparison. At the same time, while only 2 percent shows increasing trend for the first pair, 13 percent shows the increasing trend for the second pair. This suggests that mobility trend was not straightforward. While father-son association became significantly different from grandfather-father association (or great grandfather-grandfather), the direction was diverging. Some became stronger, and others weaker. In addition, we can see that there was no change in cross-over patterns. Table 3 presents log odds of adjacent cell mobility, short-distance mobility, for the sake of space. The full results will be available upon request. The short-distance mobility did not show any substantial change across generational pairs.

To examine the sources of diverging trends, we closely examined the trend of each odds ratio and found a couple of interesting patterns. First, Figure 2 shows the log odds associated with immobility among the commoners. For example, 1515 is computed in the following way: \( \frac{(C_{11}/C_{15})/(C_{51}/C_{55})} \). The numerator is the odds of becoming the high officials instead of commoners for the son of high officials. The denominator is the same odds for the son of commoners. The other odds ratios are computed in the same manner. The higher odds ratios suggest that the son of commoners is more likely to become a commoner.
than the comparison groups. Figure 2 shows that the odds ratios associated with commoners’ immobility clearly decreased over time. This means that upward mobility among the commoners became more prevalent over time. This is consistent with the results reported in Table 1: sizeable upward mobility in the father-son relationship. However, the results presented in Figure 2 provide stronger evidence for increasing social mobility among the commoners. The absolute mobility reported in Table 2 is influenced by the difference in the marginal distribution of status in each generation as we discussed earlier. The higher upward mobility among the commoners in the son’s generation than the previous generations was partly a consequence of changes in marginal distribution in son’s generation: shrinkage of commoners and expansions of lower and middle officials since the port opening. Although high upward mobility among the commoners in the son’s generation was informative, this does not necessarily indicate that social fluidity increased over time. However, the odds ratios reported in Figure 2 are free of this structural difference. Hence, the decreasing odds ratios can be interpreted as strong evidence for increasing social fluidity since the port opening. The chance of the upward mobility among the commoners indeed increased even after controlling for the structural change. This increasing mobility chance among the commoners was reflected in the increasing share of decreasing association over time reported in Table 5.

<Figure 2> about here

In Table 2, we also found that increasing share of odds ratios show the increasing trends. This suggests the trends of intergenerational association were divergent. Figure 2 shows the sources the decreasing trends. Then, where can we find the increasing trend? Figure 3 tells a part of this story. Figure 3 contains 16 graphs. The 4 graphs in the leftist
compare the odds of being a high official to a middle official among the descendants of
government officials, and the next 4 graphs compare the odds of being a high official to a
lower official. These 8 graphs do not show any noticeable change as a whole: some remained
stable, and others decreased. This means that the chance of becoming higher officials
depended on father’s status among the sons of government officials, and the relationship did
not change much over time. This means that differentiation among the noble class did not
change noticeably over time in terms of son’s chance of becoming a high official. By contrast,
we can see the increasing buffering effects of father’s status among noble class. The 4 graphs
in the third column compare the odds of being a lower official to a commoner, and the 4
graphs in the last compare the odds of being a non-incumbent to a commoner. These graphs
illustrate how father’s status protected downward mobility. We can see the increasing trends
in general. In particular, high officials became more successful over time in preventing the
sons from being commoners compared with the middle and lower officials. Whereas
inheritance among high officials did not increased over time, they became more successful in
preventing downward mobility. This diverging pattern is partly responsible for the results
reported in Table 2.

**Summary**

This paper examines long run trends in social mobility in the nineteenth century
using the head of household and ancestral records in the *Gwangmu* household register. We
can find two patterns. First, absolute mobility patterns changed in the late 19th century. There
was no change in absolute mobility patterns in earlier generations (e.g., great grandfather to
grandfather, and grandfather to father). Only son’s generation showed substantial
intergenerational mobility. The patterns also confirm that simple tabulation of household
heads’ status provides misleading results (Hiroshi 1976[1938]). According to our analysis, status distribution did not change substantially until the mid-18th century, and it indeed changed after the port opening in 1876. Second, social fluidity, measured by odds ratios, was higher for the father-son pair than the preceding pairs. This increasing social fluidity may be a consequence of the port opening. However, there was also diverging trends by status; (1) the higher upward mobility among the commoners occurred in the son’s generation than the previous generations; (2) the noble class did not differentiate themselves in terms of likelihood of becoming a high official; and (3) the upper noble class was successful in preventing offspring’s downward mobility. In sum, social fluidity increased over time, but there also existed a diverging trend.
Table 1 Absolute mobility

<table>
<thead>
<tr>
<th>Father's status</th>
<th>Son's status</th>
<th>High official</th>
<th>Middle official</th>
<th>Lower official</th>
<th>Non-official</th>
<th>Commoner</th>
<th>Total</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>High official</td>
<td>17.7</td>
<td>46.2</td>
<td>24.1</td>
<td>7.5</td>
<td>4.5</td>
<td>100.0</td>
<td>266</td>
<td></td>
</tr>
<tr>
<td>Middle official</td>
<td>2.6</td>
<td>31.5</td>
<td>30.7</td>
<td>13.6</td>
<td>21.7</td>
<td>100.0</td>
<td>1,099</td>
<td></td>
</tr>
<tr>
<td>Lower official</td>
<td>8.5</td>
<td>27.6</td>
<td>32.1</td>
<td>12.1</td>
<td>19.8</td>
<td>100.0</td>
<td>663</td>
<td></td>
</tr>
<tr>
<td>Non-official</td>
<td>0.8</td>
<td>13.8</td>
<td>13.5</td>
<td>15.4</td>
<td>56.6</td>
<td>100.0</td>
<td>2,080</td>
<td></td>
</tr>
<tr>
<td>Commoner</td>
<td>1.0</td>
<td>10.1</td>
<td>10.2</td>
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<td>% up</td>
<td>19.2</td>
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<td>28.2</td>
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<table>
<thead>
<tr>
<th>Father's status</th>
<th>Son's status</th>
<th>High official</th>
<th>Middle official</th>
<th>Lower official</th>
<th>Non-official</th>
<th>Commoner</th>
<th>Total</th>
<th>N</th>
</tr>
</thead>
<tbody>
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<td>High official</td>
<td>36.0</td>
<td>33.1</td>
<td>17.5</td>
<td>9.1</td>
<td>4.4</td>
<td>100.0</td>
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<tr>
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<td>5.4</td>
<td>45.6</td>
<td>17.6</td>
<td>22.2</td>
<td>9.2</td>
<td>100.0</td>
<td>1,085</td>
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<td>Lower official</td>
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<td>30.2</td>
<td>33.6</td>
<td>14.3</td>
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<th>Great grandfather's status</th>
<th>Son's status</th>
<th>High official</th>
<th>Middle official</th>
<th>Lower official</th>
<th>Non-official</th>
<th>Commoner</th>
<th>Total</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>High official</td>
<td>42.2</td>
<td>32.9</td>
<td>12.8</td>
<td>9.3</td>
<td>2.8</td>
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<td>Middle official</td>
<td>5.9</td>
<td>55.5</td>
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<td>100.0</td>
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<td>Lower official</td>
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<td>22.0</td>
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<td>0.2</td>
<td>0.4</td>
<td>98.9</td>
<td>100.0</td>
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<tr>
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<td>% up</td>
<td>6.2</td>
<td>% down</td>
<td>5.4</td>
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<td></td>
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Table 2 Changing intergenerational associations across generations

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<tr>
<th>Generation</th>
<th>No Change</th>
<th>Decreasing</th>
<th>Increasing</th>
<th>Crossing</th>
<th>Total</th>
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<tbody>
<tr>
<td>From 1st-to-2nd</td>
<td>67</td>
<td>25</td>
<td>2</td>
<td>6</td>
<td>100</td>
</tr>
<tr>
<td>To 2nd-to 3rd</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>From 2nd-to-3rd</td>
<td>45</td>
<td>36</td>
<td>13</td>
<td>6</td>
<td>100</td>
</tr>
<tr>
<td>To 3rd-to 4th</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1st: Great grandfather, 2nd: Grandfather, 3rd: Father, 4th: Son
**Table 3 Intersticial log odds ratios trends**

<table>
<thead>
<tr>
<th>Odds ratios</th>
<th>logit</th>
<th>s.e.</th>
<th>logit</th>
<th>s.e.</th>
<th>logit</th>
<th>s.e.</th>
</tr>
</thead>
<tbody>
<tr>
<td>OR_{1212}</td>
<td>2.486</td>
<td>0.188</td>
<td>2.228</td>
<td>0.201</td>
<td>1.517</td>
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<tr>
<td>OR_{1223}</td>
<td>-0.345</td>
<td>0.212</td>
<td>-0.313</td>
<td>0.198</td>
<td>0.627</td>
<td>0.172</td>
</tr>
<tr>
<td>OR_{1234}</td>
<td>0.613</td>
<td>0.272</td>
<td>0.885</td>
<td>0.265</td>
<td>0.347</td>
<td>0.274</td>
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<tr>
<td>OR_{1245}</td>
<td>-0.867</td>
<td>0.448</td>
<td>-0.146</td>
<td>0.371</td>
<td>0.979</td>
<td>0.380</td>
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<tr>
<td>OR_{2312}</td>
<td>-1.391</td>
<td>0.195</td>
<td>-1.250</td>
<td>0.190</td>
<td>-1.295</td>
<td>0.246</td>
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<td>OR_{2323}</td>
<td>2.093</td>
<td>0.129</td>
<td>1.060</td>
<td>0.129</td>
<td>0.178</td>
<td>0.127</td>
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<tr>
<td>OR_{2334}</td>
<td>-1.443</td>
<td>0.148</td>
<td>-1.089</td>
<td>0.156</td>
<td>-0.163</td>
<td>0.164</td>
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<tr>
<td>OR_{2345}</td>
<td>0.593</td>
<td>0.296</td>
<td>0.474</td>
<td>0.200</td>
<td>0.025</td>
<td>0.176</td>
</tr>
<tr>
<td>OR_{3412}</td>
<td>1.755</td>
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<td>-0.550</td>
<td>0.140</td>
<td>-0.173</td>
<td>0.131</td>
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<tr>
<td>OR_{3434}</td>
<td>4.030</td>
<td>0.150</td>
<td>3.176</td>
<td>0.147</td>
<td>1.116</td>
<td>0.155</td>
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<tr>
<td>OR_{3445}</td>
<td>-3.206</td>
<td>0.335</td>
<td>-2.384</td>
<td>0.191</td>
<td>0.806</td>
<td>0.155</td>
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<tr>
<td>OR_{4512}</td>
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<td>0.029</td>
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<td>-0.518</td>
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<tr>
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<td>0.230</td>
<td>0.035</td>
<td>0.098</td>
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<tr>
<td>OR_{4534}</td>
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<td>0.147</td>
<td>0.540</td>
<td>0.073</td>
</tr>
</tbody>
</table>

*OR_{ijkl}=(C_{ik}*C_{jl})/(C_{il}*C_{jk})
Figure 1 Changing logit patterns

Sources: Ishida (2001: 598)
Figure 2 Immobility among the commoners

1: Great grandfather, 2: Grandfather, 3: Father, 4: Son
Figure 3 Upward and downward mobility among the nobles

1: Great grandfather, 2: Grandfather, 3: Father, 4: Son
Reference


