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Are There Increasing Barriers to Intergenerational Mobility? Trends in Intergenerational Class Reproduction in Contemporary Japan

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Abstract

This study examines trends in intergenerational mobility using the method of survival analysis. It focuses on the intergenerational inheritance of the upper white-collar class and of the non-skilled manual class, and uses four historical periods, rather than the survey years, as the unit of trend analysis in order to specify the effect of historical context. The study examines separately the entry into the upper white-collar class or into the non-skilled manual class at the time of first entry into the labor market and entry into the upper white-collar class or into the non-skilled manual class during the career history.

The analysis reveals that entry into both the upper white-collar class and the non-skilled manual class at the time of first labor market entry is strongly affected by class origin. However, the effect of class origin does not vary by historical context. An analysis predicting the hazard rate of entry into the upper white-collar class (or into the non-skilled manual class), given that the person has not entered the class, presents a different picture. The chances of reaching the upper white-collar class (or the non-skilled manual class) through one's occupational career are strongly affected by class origin. Furthermore, the effect of class origin appears to be stronger in the most recent period of 1996–2005. In other words, the inheritance of the upper white-collar class and of the non-skilled manual class seems to have increased in the most recent period.

1. INTRODUCTION

Intergenerational social mobility is a research area which sociologists have addressed over many years. Status inheritance between fathers' and children's social positions has been widely used as an index to show the degree of social closure. In the context of industrialization thesis and modernization theories, prior studies focused on increasing intergenerational mobility and social fluidity. Attention was focused on the extent to which the inter-regional movements from rural to urban areas and the expansion of education have facilitated such mobility. However, in recent debate over social disparity in Japanese society, intergenerational mobility has been considered to be reflective of the social closure of the class system and the expansion of social inequality. The way in which intergenerational social mobility is treated depends very much upon the historical background of each period.

This paper contributes to this time-honored research area by examining three sets of issues. The first is methodological. This paper proposes a survival analysis approach which is different from the conventional methods such as mobility table analysis (including cross tabulations and log-linear models) and path analysis (often used in status attainment models). Survival analysis has previously been used for intra-generational mobility analysis, for instance, in the examination of occupational career. However, this paper will show that this method can be employed for investigating mobility between generations. Second, this paper attempts to critically scrutinize the accumulated studies of intergenerational mobility and to demonstrate that new analytical methods can shed light upon issues which earlier research has failed to address. Specifically, by treating occupational career paths as lines rather than dots, and by taking into account the time dimension, we will examine the process through which children inherit their fathers' classes and the degree to which historical context influences class inheritance. Third, the new methodological strategy endeavors to make fresh observations about the so-called 'social disparity' issues which both Japanese scholars and mass media have frequently taken up since the latter half of the 1990s.

2. HYPOTHESIS OF INCREASING BARRIERS TO INTERGENERATIONAL MOBILITY

Numerous studies on the trends of intergenerational mobility have been conducted using the SSM data collected every ten years since1955. Hara and Seiyama (1999), Ishida (2000), Kanomata (2001) and others have pointed out that the patterns of intergenerational mobility in postwar Japan have been stable, showing no substantial changes. The association between class origin and class destination is consistently

strong for more than half a century since the end of the Second World War, with the pattern of association in Japan resembling those of other industrial countries (Ishida, Golthorpe, and Erikson, 1991). However, some studies have raised questions about the stability of trends in intergenerational mobility.[1] Sato (2000) highlighted the point in *Japan as Unequal Society*, which established itself as a best-seller at the beginning of the 21st century.

Sato argues that conventional intergenerational mobility research suffers from a fundamental lacuna: it regards the present occupation of each respondent from 20 to 69 years of age as his class destination. He points out that we should see occupational career as a line rather than a point at the time of the survey (see also Yasuda, 1971 for similar ideas). Father's principal occupation is usually used as the index of class origin. As far as the respondent is concerned, his occupation at the age of 40 best corresponds to this. In Sato's judgment, using the long range from 20 to 69 years of age confounds various historical factors. Focusing upon respondents from 40 to 59 years of age, one can limit such influences. On this basis, Sato picks up males in this ten year age bracket from the 1955 to 1995 SSM survey data so that he can identify each respondent's occupation at the age of 40. Using the class position at age 40, rather than his present class, as the indicator of class destination, Sato then constructs new intergenerational mobility tables and makes a fresh discovery: intergenerational mobility to upper white-collar employees (professional and managerial class) has declined from 1985 to 1995, claiming that entry to this class has increasingly been closed. This is an observation that is not revealed when the respondent's present class is used as class destination. Sato then concludes that, 'while Japanese society was gradually opening from the late 1960s to the early 1980s, it has been in the process of becoming more closed since the late 1980s' (2000: 76). Based on these observations, he argues that the reproduction of the intellectual elite class (upper white-collar employees) has strengthened, leading to the emergence of an unequal society. In his interpretation, postwar Japanese society until the first half of the 1980s was a society which 'rewarded hard workers in one way or another' (2000: 87). In the 1990s, in contrast, Japan has changed to a society in which social disparity based on class origin prevails and 'individual efforts are not rewarded' (2000: 128).

To scrutinize Sato's hypothesis about the emergence of an unequal society, the most important point for consideration is whether the reproduction of upper white-collar employees has continued to strengthen or not. His hypothesis is given credence if their

[1] See Grusky et al. (2008), Hashimoto (2006), Kanomata (2008), Miwa (2008a) for recent studies based on the 2005 SSM data.

class closure in the 2005 data is similar to or greater than that in the 1995 data. Figure 1 plots the class inheritance rate (intergenerational reproduction rate) of upper white-collar employees.2 The figure follows Sato's calculation methods in constructing intergenerational mobility tables. It cross-tabulates the occupation at the age of 40 of the male respondents between 40 and 59 years of age in the 2005 data by their fathers' occupation.3 The right most value is based on the 2005 survey, and represents the log of odds ratios calculated from the mobility tables of the cohorts born between 1945 and 1965. As to the cohorts before this period, Sato's Figure 2.4 (2000: 58) is reproduced by using a logarithmic scale on the Y-axis. From this figure, one can see that the SSM95 value considerably deviates from others and the SSM05 value approximately matches the trend from SSM55 to SSM85. In other words, the general tendency is for the inheritance rate of upper white-collar employees to decline, and the increase observed in 1995 represents a deviation from the overall pattern.

A variety of questions have been raised about Sato's frame of analysis and findings. Seiyama (2000), for example, contends that Sato's argument that Japan entered into a period of social inequality as a consequence of the strengthened reproduction of the intellectual elite class is nothing but a 'fiction' based on a small sample and lacks sufficient empirical evidence. Seiyama (2003) also challenges Sato's claim that the reproduction of the intellectual elite class is mediated through education and demonstrated – using the same 1995 data – that class inheritance through education has not increased. Hashimoto (2001) points out that the upper white-collar employees whom Sato classifies as the intellectual elite actually include many managers of small or medium-size enterprises. Hashimoto suggests that the level of reproduction of the capitalist class has increased. The present study does not directly address these questions. Instead, it takes up a different problem about the interpretation of the historical period that was already pointed out by Ishida (2002) and shows how new analytical methods will solve the problem.

Sato contends that social disparity has been enlarged since the latter half of the

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[2] We cannot be certain that Figure 1 precisely reproduces Sato's analysis because he does not show the details of variable constructions based on his proposed eight class categories. However, we have done our best to reconstruct his Figure 2.4 (Sato, 2000: 58).

[3] The analysis is based on two by two tables. They cross-tabulate (1) upper white-collar employee and (2) other classes for the fathers' class by the same two categories for the respondents' class. From these tables, the logarithmic odds ratios which show the strength of relationship between fathers' and respondents' class were calculated from the surveys of the relevant years.

1980s. His argument is predicated on the comparison of mobility tables between the 1985 survey and the 1995 survey with respect to the respondents' occupations at the age of 40. However, it is not necessarily the case that the respondents of the 1995 survey arrived at their occupations at age 40 after 1985. It is true that the respondents' occupations in 1995 were influenced by the labor market conditions of the 1990s. Yet, the occupations at the age of 40 of those who were between 40 and 59 years old in 1995 cannot directly reflect the socio-economic circumstances in 1995. They reached their 40-year old occupations prior to the survey year (1995) – anytime between the 1950s and the 1990s. Sato's hypothesis and the historical period the data cover therefore do not correspond with each other.

The mismatch can be explained through analyzing the 2005 SSM data. Of the male respondents who are between 40 and 59 years of age, 35% reported occupations in the upper white-collar employee category at the age of 40. When we examined the age when they reached the upper white-collar employee category, 27% were already in this group in their teens and twenties and a majority (52%) reached it by age 34. In terms of the years of arrival, 12% arrived in this group in the 1970s and 44% in the 1980s; altogether 56% had reached this position by the 1980s. Thus, although these individuals were surveyed in 2005, a majority were already in the upper white-collar category by the 1980s. Indeed, approximately one-third of those male respondents who were 40 to 59 years of age in 2005 were already in this category at the beginning of their career, i.e., at their first jobs.

Thus, two groups can be identified among those who had reached the upper white-collar class at the age of 40. One consists of the people who entered this category as soon as they secured their first job upon completion of school education. The other comprises individuals who arrived in the class in question after promotion, transfer or establishing a business during their occupational career. These two groups clearly differ in their class entry mechanism, with one group achieving entry through transition from school and the other by mobility during occupational life. One should, therefore, analyze these two groups separately. The first major contribution of this study is to focus on the two groups in turn, and to pay heed to each groups' particular occupational paths.

The second contribution of this study is to attempt to examine the impact of historical circumstances on intergenerational inheritance as precisely as possible with a view to testing Sato's hypothesis that intergenerational mobility declined in a particular period. For this purpose, the present research divides the initial job entry time and the occupational career of the respondents to the 2005 survey into decade blocks with a

view to inspecting the class inheritance between generations in 1985–1995 (the time-frame examined in Sato's study) and in 1996–2005 (the decade which the SSM 2005 study can complement). In this way, one can see the movements of people in the labor market in their corresponding historical period.

The third contribution of the present study is to use detailed data about the occupational careers of the respondents up to the age of 40 from the time of their initial employment and to take into account the timing of entry into the upper white-collar class. This approach differs from Sato's one-point focus on whether they were in the upper white-collar class at the age of 40. The proposed strategy is to trace their occupational careers as a line, not as a point, and calculate the probabilities of entry into the upper white-collar class (more precisely, hazard rate) by using the methods of survival analysis.

Finally, the present study scrutinizes not only the intergenerational reproduction of the upper white-collar class but also that of the non-skilled manual working class. In the recent debate on social disparity issues, attention is paid not only to the exclusiveness of the most privileged class but also to the inheritance patterns of the most underprivileged class, which faces the so-called vicious cycle of poverty. It is therefore meaningful to examine the latter class, who tends to fail to accumulate skills across generations, on the basis of the 2005 data.

3. DATA, VARIABLES, AND THE METHODS OF ANALYSIS

The data which this paper utilizes are the Social Stratification and Social Mobility (SSM) Japan Survey conducted in 2005. To allow accurate comparison with earlier SSM data, the data set under examination is confined to male respondents. In the analysis of first job entries, those from 20 to 69 years of age are subject to investigation. In the analysis of occupational career, the data from first employment to the age of 40 are examined. Data about occupational career are based on respondents' retrospective reports and include information about their movements in terms of employing firm, industry, firm size, employment status (such as managers, the self-employed and employees), occupation and managerial position in the workplace.

Based on four survey questions in the questionnaire (employment status, occupation, managerial status, and firm size), we constructed the six-category version of the EGP class schema (Erikson, Goldthorpe and Portocarero 1979; Erikson and Goldthorpe 1992) for the respondents' class and the fathers' class: upper white-collar (professional and managerial) class,[4] lower white-collar (clerical and sales) class, the

[4]The upper white-collar (professional and managerial) category roughly corresponds to

self-employed class, farming class, skilled manual working class and semi- and non-skilled manual working class. In the following survival analysis, those who are unemployed, househusbands and students are included in the risk set, so we included a separate category representing 'the unemployed, househusbands and students', in addition to EGP class categories. As to education, three levels – middle and high school, junior and technical college, and university level (both undergraduate and graduate) – are distinguished on the basis of the SSM educational classification scheme.

The dependent variables are entry into the upper white-collar class and that into the non-skilled manual class, which will be separately analyzed. First, the cases of entry into these classes at the time of the first job will be studied. Then, focus will shift to cases in which entry is achieved through occupational career after the first job.5 In order to capture the fluctuations of macroscopic economic conditions, four ten-year blocks are distinguished in regard to the year of first job entry and the years of occupational career (from first job to 40 years of age): (1) 1975 or before, (2) 1976 to 1985, (3) 1986 to 1995, and (4) 1996 to 2005. The periodization is based on the following justification. The decade from 1996 to 2005 constitutes the phase which only the 2005 SSM data can address, with previous SSM data unable to examine. These ten years are grouped together as a period when events which took place after the preceding surveys, with the present study endeavoring to find out how this phase differs from the earlier periods. This decade witnessed the bursting of the so-called bubble economy and the beginning of a long recession. The impact of the economic downturn is more vividly recorded in the labor market indices such as employment rates of new graduates after 1995 than in changes to economic growth rates. The decade from 1986 to 1995 is the period in which the bubble economy reached its peak and began to stagnate. The years from 1976 to 1985 were a decade of low economic growth following the oil shock of November 1973. The fourth and final period before 1976 represents the postwar high economic growth phase. Occupational careers during these four decades will be analyzed separately, and investigation will seek to determine if the relationship between father's class and son's class differs depending upon the period.

Sato's upper white-collar employee category (Sato 2000).

[5] Preceding studies have examined the influence of macroscopic labor market conditions, using variables such as the unemployment rate of the job entry year and the size of the birth cohort at the time of 18 years of age (that is, the number of middle school graduates three years before). The inclusion of these as control variables did not show any significant effect. Therefore, they are excluded in the tables of the present study (Kurosawa and Genda 2001; Ishida 2005).

The methods of analysis used here are logit analysis and survival analysis. The figures of intergenerational inheritance are based on recalculations after recoding the father's class and the son's class into two categories. With regard to first jobs, the method of binary logit analysis will be used, examining the presence or absence of the upper white-collar class membership and that of the non-skilled class membership. As to the transition into the upper white-collar class and the non-skilled manual class, discrete-time survival analysis will be used.

Discrete-time survival analysis is applied to data about the same agents, observable at multiple specifiable discrete time points, and examines the repeated observation of whether they have encountered a particular event or not at these points.[6] The present study looks at whether or not each individual entered the upper white-collar class or the non-skilled manual class at any time point from his first job until he is 40 years of age. It should be reiterated that the observed values here are based on individuals' recollections of occupational careers rather than on data which actually traced his class at each time point. Assume that observations are made repeatedly at q time points about n observed subjects (individuals). T is a discrete-time variable whose values range from 1 to q. Another discrete-time variable is y_{it} (i=1, ..., n) where it takes the value of 1 when the i^{th} subject encounters the event in question at the t^{th} time point and the value of 0 when it does not. The probability (the discrete-time hazard rate) of the event occurring at the t^{th} point on the condition that it did not occur at the $(t-1)^{th}$ point is expressed as:

$$\begin{aligned} p_{it} &= \Pr(y_{it} = 1 \mid y_{it-1} = 0, y_{it-2} = 0, y_{it-3} = 0, \ldots, y_{i0} = 0) \\ &= \Pr(T_i = t \mid T_i \geq t) \end{aligned}$$

A logarithmic transformation is performed on (p_{it}) so that its observed values can range from 0 to 1. The discrete-time hazard rate of the i^{th} subject encountering the event at the t^{th} point can be written as a logit model as follows, where the probability is expressed as k independent variables (including both time-fixed and time-varying types): $\boldsymbol{x}_{it}' = (x_{i1t}, x_{i2t}, x_{i3t}, \ldots, x_{ikt})$:

$$p_{it} = [\exp(\alpha_t + \boldsymbol{x}_{it}'\beta)] \quad / \quad 1 + [\exp(\alpha_t + \boldsymbol{x}_{it}'\beta)]$$

The independent variables include both (1) time-fixed variables such as the

[6] For discrete-time survival analysis, see Allison (1984), Powers and Xie (2000), and Yamaguchi (1991).

subject's class origin and education (on the assumption that this is determined at the time of first job acquisition) and (2) time-varying variables such as his class and employer at the time of *t-1*. The major focus of analysis here is to measure the effects of the respondent's class origin and to inspect their historical changes. The dependent variable is the discrete-time hazard rate of entry into the upper white-collar class (and that of the non-skilled manual class) during the time between the first job to 40 years of age. By taking the log-transformation, the parameters of the independent variables can be interpreted as log odds ratios. It is well known that the odds ratios are not subject to marginal distributions. This is an advantage which they share with the log linear models used for the analysis of mobility tables. Survival analysis can handle the question of identifying the timing of entry into the class during the respondent's career, an issue which is often debated in mobility table analysis. Specification of the timing of mobility enables researchers to include the above-mentioned four periods and use them as a historical context for analysis.

4. ENTRY INTO THE UPPER WHITE-COLLAR CLASS AND THE NON-SKILLED MANUAL CLASS AT THE TIME OF FIRST JOB

We first examine the differences between those who entered the upper white-collar class at the point of their first job and those who did not using the 2005 SSM data. In the data set of male respondents from 20 to 69 years of age, 14% belong to the upper white-collar class. The rate differs depending on the period: 9% for 1954–75, 18% for 1976–85, 19% for 1986–95, and 20% for 1996–2005. It is obvious that this class has enlarged overall since 1976. Inspecting the finer categories of the class reveals that some 90% are professional workers. This means that, when we refer to the upper white-collar members who entered this class at the point of their first job, we are by and large talking about professionals who got their job immediately after completing their school education.

Table 1 displays the result of binary logit analysis, where the dependent variable is whether the first job is in the upper white-collar class or not. Model 1 uses only the father's class, the respondent's age and the age squared as independent variables. Men of the upper white-collar class origin are six times ($e^{1.812}$) more likely to enter the same class as the first job than men of the non-skilled manual class origin. The likelihood of entry into the upper white-collar class for the son of a lower white-collar father is three time ($e^{1.231}$) higher and for the son of a self-employed father it is twice ($e^{0.858}$) higher than that of the non-skilled manual father. The age variable shows a positive impact and the square of age variable a negative effect, suggesting a tendency

for the probability of entry into the upper white-collar class to rise with the increase in age (up to approximately 60 years of age).7 This is due to the fact that older entrants are likely to have higher education. Therefore, once education is controlled, the effect of age disappears (see Model 4).

Model 2 introduces the period when the respondent entered the first job as a control variable. The effect of the father's class remains strong and significant. By reflecting the expansion of white-collar jobs after 1976, there is an increasing probability of entry into the upper white-collar class, particularly in recent years. However, the effects of the first job entry period variable appear to be somewhat inflated, because they partially reflect the differences in the composition of educational level among respondents between the periods of entry. The expansion of white-collar jobs after 1976 tends to increase the probability of upper white-collar class entry, particularly in recent years. Model 3 adds, as an independent variable, the interaction effects between the father's class (upper white-collar) and the year of the son's entry into the labor market. In comparison with the 1996–2005 entry (base category), the 1986–1995 entry group shows the weaker effect of the father's class (-0.301), but the effect is not statistically significant. Based on the results of statistical analysis, one cannot conclude that the father's class influence is stronger in the latest 1996–2005 entry group than the earlier groups, and therefore one cannot claim that upper white-collar class closure has enhanced in recent years.

Model 4 adds the education variable into analysis. Education increases the probability of entry into the upper white-collar class at the point of the first job, regardless of class origin, age and entry year. In comparison with those with middle and high school education, the graduates of junior colleges and technical colleges are 8.5 times (e2.135) more likely to get into this class. The figure goes up to 9.2 times ($e^{2.218}$) when it comes to the graduates of universities both at undergraduate and postgraduate levels. The values of the effects of the father's class indicate its effects after the removal of the indirect effects through education. Among those who achieved class entry during the 1996–2005 period at the time of their first job, those whose father was a member of the upper white-collar class are 2.8 times ($e^{1.014}$) more likely to enter this class than those whose father is a member of the non-skilled manual class. The direct effect of class origin constitutes approximately two-thirds of the total effect of the father being a

[7] By setting the partial differentiation of the quadratic equation of the age and the square-of-age variables to zero, the apex of the curve (the limit of the equation) was calculated. The same method was used in the following calculations.

member of the upper white-collar class.8 The proportion of respondents who entered the upper white-collar class via education is smaller than that of those who achieved entry regardless of education.9 The interactions between the father's class (upper white-collar) and the year of entry are not statistically significant. This means that the effect of the father's class does not differ statistically between the 1996–2005 period and the preceding periods. That is to say, one cannot conclude that the upper white-collar class has become more exclusive.

Model 5 adds interaction effects of education and labor market entry time into analysis. All interaction terms have positive coefficients, a finding that the effect of education is smallest for the 1996–2005 period. However, none of them are statistically significant, and therefore, we cannot conclude that these differences are present in the population.

Next, we shift the focus of our attention to those who entered the non-skilled manual class at the time of the first job, and compare this group with those who entered other classes. In the 2005 SSM data (males from 20 to 69 years of age), 18% belonged to the non-skilled manual class at the time of the first job. If we breakdown the percentage by entry period, we find 18% in 1950–75, 17% in 1976–85, 15% in 1986–95, and 22% in 1996–2005. The latest decade clearly shows a sharp upswing.

Table 2 displays the results of binary logit analysis with the dependent variable being whether or not the respondents were members of the non-skilled manual class at the time of their first job. Model 1 uses only the father's class, age and the square of age as independent variables. The likelihood of entering the non-skilled manual class at the first job is some three times ($e^{0.974}$) more for those whose father is in the same class than for those whose father belongs to the upper white-collar class. The figures are 1.8 times ($e^{0.611}$) higher for those whose father is a member of the skilled manual class and 1.7 times ($e^{0.548}$) higher for those whose father is of the farming class or lower white-collar class than those whose father is upper white-collar class. Since the coefficient of the age

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[8] The impact of the father's class being upper white-collar prior to controlling for education is 1.537. Therefore, the proportion of the direct effect is 1.014/1.537=0.66. In the following analysis, the same method is used for calculating direct effects.

[9] Here, the education variable takes only three values: high school, junior college, and university. These are simple vertical classifications. However, more refined classifications are desirable. For instance, other educational institutions like technical colleges ought to be considered. Distinctions between undergraduate and postgraduate education at the university level as well as the ranking of universities can also be considered. With the inclusion of these variables, the indirect effects of education will increase and its direct effects will decline.

variable is negative and the squared age variable is positive, the younger people are more likely to enter the non-skilled manual class at the first job, with the probability going down up to approximately 42 years of age. Similar to Table 1, this tendency reflects the fact that the older class entrants are more likely to have higher educational levels. When education is controlled, the age effects disappear (see Model 4).

Model 2 adds the years of entry to the first job to the independent variable set. While the effect of the father's class hardly changes from Model 1, the new variables suggest that class entry is more likely in the earlier periods and less likely in more recent decades, a pattern reflective of the fact that there are more people with higher educational level in recent years. An inspection of marginal distributions shows that the proportions of non-skilled manuals is 22% in 1996–2005 and 17% in preceding periods, a pattern indicative of the influence of the different compositions of education in different periods. In Model 3, interactions between the father's class (non-skilled manual) and the year of class entry are added. For all periods, their coefficients are negative, indicating that the father's class had a greater influence in 1996–2005 (benchmark decade) than in the preceding periods. In particular, the strength of the father's class influence in this decade is significantly higher than that in the oldest period, 1955–1975 (at 10% significance level). During 1996–2005, those with non-skilled manual fathers recorded entry into the same class six times ($e^{1.858}$) more likely than those with upper white-collar fathers. In preceding periods (1995 or before), the likelihood of entry amounts to approximately twice ($e^{0.853}$). [10] These observations point to the possibility that the intergenerational closure of the most disadvantaged group, the non-skilled manual class, is increasing.

Model 4 adds the education variable into the independent variable list. The higher educational level (especially with university undergraduate and postgraduate levels) decreases the probability of first-job entry into the non-skilled manual class, regardless of class origin, age, and year of entry. For example, those with university education are approximately six times ($e^{1.752}$) more unlikely to get into this class than those with middle or high school education only. Once education is controlled, the influence of the father's class diminishes and becomes not statistically significant, with the exception of the non-skilled manual class. This means that the tendency for those with lower white-collar, farming and skilled manual class origins to record first-job class entry into the non-skilled manual class can be attributable mostly to the relatively

[10] The value was obtained after all the entrants before 1995 are lumped together and compared with the corresponding group in 1996–2005 (Coefficient=0.853, p value=0.131).

low educational level of the former class groups. In contrast, it is confirmed that, in the case of sons whose class origin is the non-skilled manual class, class origin tends to be reproduced at the first job, regardless of their education. Model 5 further adds the interactions between education and entry year to the independent variable set. The coefficients of the interaction variables are negative for the graduates of junior colleges and positive for university graduates. This means that, during the decade of 1996–2005, the effects of junior college education were strongest and those of university education were weakest in comparison with other periods. However, none of the values are statistically significant.

Here are some points of summary of this section. Figure 2 displays a succinct picture of class entry into the upper white-collar class and into the non-skilled manual class. In this figure, we dichotomized both the first job and the father's class between the upper white-collar class and others as well as between the non-skilled manual class and others. Based on this dichotomized variable approach, we estimated a model which includes father's class, age, squared age, entry year, and interaction between father's class and entry year. Therefore, the values of the figure differ slightly from those of Tables 1 and 2. From the figure, it is clear that the log odds ratios are generally high for both classes, indicating that the intergenerational class reproduction tendency is salient. Looking at the trend over time, one can see that class entrants during the latest decade, 1996–2005, show a greater influence of their father's class than those during other periods. In particular, for the non-skilled manual class, the level of influence shows a steep upswing, with the difference between the 1996–2005 period and the pre-1976 period being statistically significant. A tentative conclusion here is that the influence of the father's class (namely, the degree of intergenerational class inheritance) is observed consistently across the four periods with some upsurge, though it is not statistically significant. One cannot make conclusive remarks because the sample size of the 1996–2005 entrants is small. Though it is possible that the class closures have increased during 1996–2005 for the two classes under consideration (particularly the non-skilled manual class), the foregoing analysis shows no clear-cut evidence to support the proposition.[11]

[11] One should be cautious about drawing definitive conclusions, because the number of persons who recorded class entry is limited in the 2005 SSM data. I have repeated a similar analysis using the Japanese Life Course Panel Survey conducted in 2007, which was targeted at both males and females, with two groups – those from 20 to 34 years of age (sample size 3,367) and those from 35 to 40 (sample size 1,433) (for details of the survey, see Ishida, Miwa and Oshima 2008; Miwa 2008b). The appendix figure (Figure 4) shows the result of this study. The samples included only those who

5. ENTRY INTO THE UPPER WHITE-COLLAR CLASS AND THE NON-SKILLED MANUAL CLASS AFTER THE FIRST JOB

This section deals with those who did not achieve the upper white-collar class (or the non-skilled manual class) upon their first job. The analysis will focus upon whether or not they arrived at the upper white-collar class or the non-skilled manual class during their occupational career. We begin with the analysis of the upper white-collar class.12 Here the method of survival analysis will be used to include those 'censored' individuals who had not yet arrived in this class by the time of observation. Survival analysis is capable of considering two types of information simultaneously: whether respondents entered the upper white-collar class or not and, if they did, at what age. The unit of analysis is what is called the spell or the segment of the person-year. In other words, the employment situation of each respondent at a particular age constitutes a unit. For instance, 13 person-year spells will be built into analysis for a respondent who started his first job at the age of 18 and was 30 years of age at the time of the survey. Similarly, 19 person-year spells will be subjected to analysis for a respondent who was first employed at the age of 22 and arrived at a managerial position at the age of 40 at the time of the survey. In all of these cases, the employment position of each respondent at each age should constitute the unit of analysis.13

The important point in survival analysis is the concept of risk set which focuses

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were below 40 years of age at the time of the survey. The number of first-job entrants prior to 1986 was quite limited. Therefore, a comparison was made only between those who entered in 1986–1995 and those in 1996–2005. The figure indicates that the degree of intergenerational mobility of both the upper white-collar class and the non-skilled manual class declined slightly though the differences are not statistically significant.

[12] Precisely speaking, those who entered the upper white-collar class at the first job and moved to other classes are included in the risk set whenever they moved out of the upper white collar class. For example, the respondent who was a ship captain (which is in a professional category) at his first job and became an advertising agent (which belongs to a category of other service jobs) is subject to analysis at the time when he stopped being a ship captain (spell). Those who fall into the risk set in this way constitute approximately 2% of all spells. Some respondents recorded multiple entries into the upper white-collar class and constitute some 5% of all respondents. They are included in the risk set at the point when they moved out of the upper white-collar class.

[13] In constructing the person-year file, a program specified in Ishida (2002) was used to enable comparison with the analysis of the 1995 SSM survey. Tokio Yasuda provided the SPSS syntax to build the person-year file from the 2005 SSM data. The 2005 Survey Research Group appreciates his generous offer of sharing the syntax.

upon who should be included as objects of analysis: in the present case, respondents who have the risks (or chances) of reaching the upper white-collar class. Those who arrived at this class at the first job are eliminated from the risk set. In other words, all the situations where the respondents have not reached this class are included in the risk set. Therefore, the self-employed and family workers are included in the set, as are those who temporarily became jobless persons, househusbands or students during the course of their occupational career. They are considered to have the risk of moving into the upper white-collar class.14 Furthermore, the occupational career from the first job (from 15 years of age in the youngest cases) to the job at 40 years old is subjected to analysis. Age 40 is selected because, in the intergenerational mobility debate, whether the upper white-collar class status is achieved by age 40 is often the central issue in the literature as discussed above, and this age also corresponds to the father's main occupation.15

When we examined those respondents who were not members of the upper white-collar class at their first jobs but reached this class at or before the age of 40, they are mainly holders of managerial posts, with professionals constituting less than 20%.16 In other words, an overwhelming majority is managers who attained their managerial positions through promotions, job changes, or inaugurated businesses; those with professional positions are a small minority. This means that the upper white-collar class members, either at their current position or at the age of 40, are made up primarily of two groups: (1) professionals who have been members of this class since their first job and (2) managers who entered this class during their occupational career.

Table 3 exhibits the results of survival analysis of entry into the upper white-collar class from other classes. The table excludes those who were already in this class in their first job and includes only those who entered it during their occupational career. The independent variables include the father's class (using the category of the non-skilled manual as the benchmark), age at the spell (person-year), the square of age at the spell, the spell year (1996–2005 as the reference), interaction between the father's class (upper white-collar) and the spell (1996–2005 as the reference), education (middle

[14] However, when these groups were excluded from the risk set and only employees are included, the same results were obtained.

[15] When the age range is extended to 60 years of age, the results reported in this section hold.

[16] More precisely, an extremely small number of respondents (approximately 2%) were members of the upper white-collar class at their first jobs but later moved into other classes.

and high school as the reference), the class in the previous spell (non-skilled manual class as the reference), and change in the place of employment from the previous spell.

Model 1 uses the father's class, age at the spell (person-year), its square and the spell year dummy variables as the independent variables. Those whose father belongs to the upper white-collar class are 2.6 times ($e^{0.971}$) more likely to enter the same class than those whose father is a member of the non-skilled manual class and 2.3 times ($e^{0.839}$) more likely than those whose father belongs to the lower white-collar class. Age and its square together show that the probability of entry into the upper white-collar class rises with age up to 33–34 years but reaches a limit and declines thereafter. The dummy variable of the spell year compares the likelihood of entry into the white-collar class in the 1986–1995 period, the 1976–1985 period, and the period prior to 1996 with that in the 1996–2005 period (the base category). The comparison reveals no statistically significant differences between the 1996–2005 period and the others in terms of the likelihood of entry into the upper white-collar class. In each period, various age groups (up to 40) are included, and the result suggests that there is no clear tendency for the probability of entry into the upper white-collar class to be higher in the more recent period.17

Model 2 attempts to demonstrate one of the most important points of this study. It tries to examine if the influence of the father's class (upper white-collar) differs, depending upon the period. In comparison with the years 1996–2005, the father's class influences in the three preceding periods are consistently smaller in a statistically significant way. Since there are no statistically significant differences between the three periods before 1996–2005 with respect to the influence of the father's class, one can generate Model 3 by lumping together those three periods into one. The influence of the father's class in 1996–2005 is 1.435, implying that those whose father's class is upper white-collar are 4.2 times ($e^{1.435}$) more likely to enter this class than those with non-skilled manual fathers. During the lumped period from 1950 to 1995, the former are 2.2 times ($e^{0.809}$) more likely to get into the upper white-collar class than the latter.18 These observations suggest that the degree of social closure (the extent of class inheritance) of the upper white-collar class has risen in the 1996–2005 period.

Model 4 adds education to Model 3. The model shows that education has effects independent of the father's class, the age of the respondent and the decade. Even

[17] No statistically significant results were obtained with the introduction of each year as a dummy variable.

[18] The effect of the upper white-collar class during the 1950–1995 period was calculated by adding the 1996–2005 effect (1.435) to the interaction effect (-0.626).

if the father's class is controlled, those with junior and technical college education are 2.8 times ($e^{1.046}$) more likely to join the upper white-collar class than those with middle or high school education only. The effect climbs to 3.2 times ($e^{1.148}$) for those with undergraduate and postgraduate university education. The effect of the father's class here is direct after the exclusion of the indirect effect via education. As discussed in the examination of Model 3, even when education is introduced as an independent variable, the direct effect of the father's class differs significantly between the decade 1996–2005 and the years prior to that. The direct effect of the father's class during 1996–2005 is 1.012. This means that those whose fathers are members of the upper white-collar class are 2.8 times ($e^{1.012}$) more likely to enter the class than those with non-skilled manual class fathers, even if the sons have the same level of education. In the prior period from 1950–1995, the likelihood is only 1.4 times ($e^{0.348}$) greater.

Moreover, one can observe differences between the two periods in the proportion of the direct effect of the father's class which does not go through education. During 1996–2005, some 70% of the effects of the father's class remain even after the introduction of education. However, the corresponding figure is only 40% for the period from 1950–1995.[19] In other words, when the father belonged to the upper white-collar class, the main mechanism of his son arriving at the same class was through education in 1950–1995. In contrast, in 1996–2005, the main mechanism was without going through education. The mechanism of intergenerational inheritance of the professional and managerial class has changed. In the latest decade in comparison with the period before, not only has the social closure of this class increased but the pattern of class inheritance has also become more direct, with the weight of the path of going through educational attainment declining.

Model 5 adds two further variables – the class prior to entry into the upper white-collar class in the previous year and the place of employment – to Model 4. The inspection of the two newly added variables clearly reveals that belonging to either the lower white-collar class or unemployed in the previous year increases the likelihood of entry into the upper white-collar class while belonging to the self-employed or the farming class decreases the likelihood. As to the place of employment, job changes tend to facilitate one's entry into the upper white-collar class. Even if other factors remain constant, those who have changed their place of employment or started a new enterprise are 10 times ($e^{2.396}$) more likely than those who have stayed in the same job to get into the upper white-collar class. Approximately 7% of all the spells recorded the changes in

[19] The effect of education is constant regardless of the period. Interactions between education and the period are not statistically significant.

the place of employment from the previous year to the current one. Among those who achieved entry into the upper white-collar class, some one-third had changed jobs (including those who established new companies) and two-thirds had stayed and been promoted at the same place of employment. Notably, those who changed jobs have distinctly higher chances of entering the upper white-collar class. Once the class in the previous year and the change in the place of employment are controlled, the difference between the periods in the effect of the father's class weakens but remains statistically significant. The general observation that the social closure of the upper white-collar class is higher in 1996–2005 than the previous periods still stands.

Next, we take up entry into the non-skilled manual class.[20] This class differs from the upper white-collar class in two respects. In the first place, there is no clear-cut difference between the two paths of entry – those who entered the class at their first job and those who entered during their occupational career – unlike the upper white-collar class in which the first group is dominated by professionals and the latter by managers. Nevertheless, we can specify that for those who entered the class at their first job, 35% are production process workers (mainly working in factories) and 40% are laborers (such as earthwork, construction and road-cleaning workers).Transport workers (such as truck drivers) constitute only 13% of this category. Of those who arrived in the non-skilled manual class during their occupational career, 22% are production processing workers, 31% are laborers and 37% are transport workers. Although the difference between the two groups of transport workers is considerable, this is perhaps attributable to the fact that many of them did not possess drivers' licenses at the time when they left school, could not obtain jobs in the transport sector, and initially had to work in factories or construction sites as manual workers.

The second difference between the two classes is that, in the case of the upper white-collar class, only a very small number of people exited from this class after the first job and joined the risk set, while in the case of the non-skilled manual class, this a relatively common occurrence. Of all spells in the risk set, some 10% were in the non-skilled manual class initially at their first job and moved out of this class later. Among the events which mark entering the non-skilled manual class during an occupational career, 17% were in the class in the first job, then exited it, and finally returned to it. In this way, no conspicuous difference is present between the two groups in this class – the first job entry type and the post-progression entry type – recording more frequent entry and exit movements than the upper white-collar class.

[20] Among those at the age of 40, approximately 13% are non-skilled manual class members.

Table 4 shows the results of survival analysis of entry into the non-skilled manual class during an occupational career from other classes as the starting point. The independent variables are the same as those used in Table 3, except that the upper white-collar class is used as the base reference category for the father's class and the class in the previous spell.

The independent variables of Model 1 are the father's class, age at the person-year, its square, and the spell (dummy). From the table, it is obvious that the effect of the father's class is strong. It is 2.7 times ($e^{1.006}$) more likely for the sons of non-skilled manual fathers to get into the fathers' class than the sons of upper white-collar fathers and almost twice ($e^{0.612}$) as likely for the sons of skilled manual or farming class fathers. The age and age-squared variables suggest that the probability of younger people entering the non-skilled manual class is high and declines with age until 57 years or so, though the probability increases thereafter. Once the class origin and age variables are controlled, people in the older cohort are less likely to arrive at this class.

Model 2 investigates how the effect of the father's class (non-skilled manual) differs, depending upon the period. In comparison with the 1996–2005 decade, it is small in the 1986–1995 period as well as in the 1976–1985 period in a statistically significant way. No significant difference is found between 1996–2005 period and the years before 1976. In Model 3, the years from 1976 to 1995 are lumped together to form the 1976–1995 period, and its interaction with the father's class is inspected. The model shows that the effect of the father's class during the most recent 1996–2005 period increases from that in 1976–1995 in a statistically significant fashion. The effect of intergenerational inheritance of the father's class (non-skilled manual) in 1996–2005 is 1.444. The sons of non-skilled manual fathers are 4.2 times ($e^{1.444}$) more likely to get into the non-skilled class than those of upper white-collar fathers. In 1976–1995, the effect of the father's class is much smaller, with the corresponding degree of likelihood being only approximately twice ($e^{0.669}$). In short, the analysis suggests that the extent of social closure (intergenerational inheritance) of the non-skilled manual class has doubled in the last decade.

Model 4 demonstrates that education has statistically significant effects. Even when other variables are controlled, the graduates of junior and technical colleges are 2.3 times ($e^{0.849}$) less likely to get into the non-skilled manual class than those of middle and high schools. The likelihood of not entering the non-skilled manual class increases to 4 times ($e^{1.396}$) for those who have completed undergraduate or postgraduate university education. The effect of the father's class (the inheritance of the non-skilled manual class) is different between 1996–2005 and 1976–1995 in a statistically

significant way, even after the introduction of education as an independent variable. Moreover, between these periods, the proportions of the direct effects of the father's class are different, a pattern similar to that found in the analysis of entries into the upper white-collar class. In 1996–2005, 75% of the effects of the father's class (inheritance of the non-skilled manual class) are direct, without going through the educational route, whereas in 1976–1995 the direct effect does not reach 50%. In other words, in the earlier period, sons of non-skilled manual fathers were likely to arrive at the same class primarily because of their low levels of education. In the most recent period, in contrast, the intergenerational reproduction of the non-skilled manual class tended to continue regardless of the sons' educational level.

Finally, Model 5 attempts to examine the effect of the class prior to entry into the non-skilled manual class and that of changes in the place of employment. It shows that, in cases where the class in the previous year is upper white-collar (benchmark category), the probability of entering the non-skilled manual class is low. In contrast, the probability is particularly high in cases where the class in the previous year is either farming or jobless. With respect to the jobless group, a notable point should be mentioned. About one-third of the respondents who got a non-skilled manual job at first, then moved into a different class and went back into the initial class had a spell of joblessness along the way, a pattern that suggests that joblessness forms an important pathway to the non-skilled manual class. This has to do with the fact that the jobless people in the male sample tend to include, in large numbers, involuntarily unemployed persons. To that extent, changes in the place of employment greatly facilitates entry into the non-skilled manual class. One can comprehend the effect of this route, once one considers the fact that changes in the place of employment include not only cases where people moved from one job to another or started a new enterprise but also those who left their jobs against their will. Model 5 also demonstrates that, in controlling the changes in the place of employment, the effect of the father's class (inheritance of the non-skilled manual class) is greatly increased. This is attributable to the fact that the members of the non-skilled manual class generally are less likely to change their place of employment than those of other classes. In the 1996–2005 decade, the effect of the father's class being non-skilled manual is 1.352. This means that those whose class origin is non-skilled manual class, are 4 times ($e^{1.352}$) more likely to enter this class than those whose class origin is upper white-collar. The effect of the father's class (inheritance of the blue-collar class) is very high both in the group that changed their place of employment and in the group that did not. In contrast, in the 1976–1995 period, a similar effect of the father's class is not discernible. In other words, in the model that

controls the variable on changes in the place of employment, the observation that the non-skilled manual class is more closed in 1996–2005 than in the preceding period does stand.

6. CONCLUDING REMARKS

This article analyzed the trends of intergenerational mobility by using the method of survival analysis, with a focus upon the reproduction (intergenerational inheritance) of the upper white-collar class and the non-skilled manual class. The study avoided using the survey year as the unit of trend analysis but distinguished four periods with respect to the time point of first-job entry and that of class entry via occupational career in an attempt to clarify the historical context. Focusing upon different paths of entry into the class, two patterns were identified: (1) the cases of class entry at the time of the first job upon graduating from or leaving school and (2) the cases of class entry after attaining promotion, making job changes or starting a business during an occupational career. For these two types, separate analyses were performed. As to the second type, considerations were made for the censored cases in which observations were terminated before the respondents had arrived at the upper white-collar class or the non-skilled manual class.

Among those respondents who were members of the upper white-collar class at the age of 40 (40–59 years of age at the survey year of 2005), a little over one-third had already entered this class at the time of their first job. These respondents arrived at this class not by accumulating occupational skills during a career but at the stage of transition from school to occupational life. Furthermore, entry into this class at the first job was strongly influenced by the father's class. However, there was no statistically significant difference in the degree of this influence between four periods. In comparing the period from the latter half of the 1990s to the present – when the social disparity issue has been hotly debated – with the preceding periods, no evidence was found that the influence of the father's class has increased and that entry into the upper white-collar class has increasingly closed with respect to entry at the first-job. The conclusion on this point is that the influence of the father's class (intergenerational inheritance of the upper white-collar class) was consistently high and did not record significant changes in this respect.

However, a different conclusion is drawn with respect to the respondents who achieved entry into the upper white-collar class through their occupational career. They make up two-thirds of the members of this class at the age of 40. There is evidence that the occupational career paths of these respondents were strongly influenced by the

father's class (upper white-collar). More importantly, it is quite probable that such influence was strengthened during the decade 1996–2005, suggesting that the class closure of this class (intergenerational class inheritance) was enhanced in recent years. Furthermore, during this decade, the mechanism of class inheritance appears to have changed; the weight of direct class inheritance from the father to the son without the mediating path of education has increased.

As to the non-skilled manual class, similar, almost parallel, conclusions can be drawn. One can observe that the impact of the father's class (inheritance of the non-skilled manual class) on first-job class entry has increased in recent years. Yet, there is no evidence to suggest that intergenerational mobility was more closed in 1996–2005 than in the preceding periods in a statistically significant fashion. However, with regard to the respondents who entered the non-skilled manual class during their occupational career, there is evidence to suggest that class inheritance was strengthened during the 1996–2005 decade. Similar to the intergenerational class reproduction mechanism manifest in the upper white-collar analysis, the weight of direct class inheritance from fathers to sons without the mediation of education increased.

Figure 3 plots the temporal trends of the intergenerational inheritance through the occupational career of the upper white-collar class and that of the non-skilled manual class.21 The figure shows that the inheritance rates (log odds ratios) of the upper white-collar class are roughly constant up to the decade 1986–1995. However, the ratio of the 1996–2005 period shows an upward swing which is statistically significant, an observation that appears to be in tune with the recent argument that the level of social disparity has increased. Likewise, the inheritance rate of the non-skilled manual class has increased from 1976–1995 to 1996–2005 in a statistically significant way. One must, however, refrain from leaping to the conclusions of the 'increasing disparity argument' on the basis of these results. Nevertheless, the data set under consideration includes information about the years after the mid-1990s, which the preceding SSM surveys could not provide. The latest data set suggests that social mobility into the upper white-collar class has declined for those who attempt to enter the class through the accumulation of occupational career – such as intra-company promotions, inter-company transfers, establishing new businesses, etc. The inheritance rates of the

[21] The values shown in Figure 3 are the log odds ratios of the current generations' entry into the upper white-collar class (or into the non-skilled manual class) up to the age of 40 between those who came from the same class origin and those who did not. The model included such variables as age at the entry year, its square, entry year (dummy) and interaction between class origin and entry year. Therefore, the values in this figure differ slightly from those of Tables 3 and 4.

upper white-collar class have been consistently high throughout the post-World War II era. There is no change between the 1986–1995 period and earlier periods, the comparison on which Sato's argument (2000) is based. Importantly, the present study has shown that the symptoms of the increased intergenerational class inheritance and the associated expansion of social disparity are present in the latest decade under observation, 1996–2005. With respect to the non-skilled manual class, the most disadvantaged class, the signs of increased social disparity are observable only during the latest period since the mid-1990s. Careful attention ought to be paid to whether the rising trends of the inheritance rates of these classes continue in the future or not.

One may get the impression that the observed tendency for the reproduction of the upper white-collar class and the non-skilled manual class in recent years is inconsistent with other research results (Miwa and Ishida, 2008; Ishida and Miwa, 2008) based upon the analysis of mobility tables. These studies did not find any evidence to suggest that the level of class inheritance has increased from 1995 to 2005. They used survey data conducted every ten years from 1955 to 2005 as the unit of trend analysis, analyzed mobility tables based on the present occupations of males from 30 to 64 years of age and concluded that the intergenerational mobility patterns, including the inheritance rates of the upper white-collar and non-skilled manual classes, were basically stable, with no evidence of increased social closure in these classes. However, while sharing these studies' research focus on intergenerational mobility, the present study differs from them in terms of the objects of investigation, research methods and objectives. The mobility table research predicated on the present jobs of people at different ages aims to grasp the overall picture of society at the time point of each survey and to study the strengths of openness and closure of a society as a whole. The data sets at two time points, ten years apart between 1995 and 2005, include the same birth cohorts as the objects of study, with the exception of the oldest age group in their 60s in 1995 and the youngest in their 20s in 2005. This merely reflects the simple fact that the people who make up Japanese society in 1995 and those in 2005 considerably overlap. Therefore, it is not surprising that the intergenerational mobility patterns in the 1995 survey and those in the 2005 survey show similarities. The present study used different analytical methods to scrutinize the class entry of respondents after the mid-1990s, subjects and a time span that the 1995 survey was unable to investigate. Despite the same research focus on intergenerational mobility, it is quite conceivable that different studies produce different research outcomes.

The 2005 SSM survey provides data about occupational history during the post-1995 period when the social disparity issue attracted public attention. It is an

important mission for SSM researchers to use this precious data set to find answers to the issue of whether social disparity with respect to intergenerational mobility has enlarged or not and whether the mechanisms that produce social disparity have changed. This paper is an attempt to provide a fresh perspective by using an analytical method which differs from the conventional approaches. Admittedly, this paper shed light only on one aspect of intergenerational inheritance, namely the reproduction of the upper white-collar class and the non-skilled manual class. However, the potential of the analytical method used in this paper is arguably not restricted to studies of the intergenerational inheritance of these two classes. It is hoped that a comprehensive picture of intergenerational mobility can be developed by making maximum use of the merits of survival analysis.

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Table 1 Logit analysis of entry into the upper white-collar class at the first job

	Model 1	Model 2	Model 3	Model 4	Model 5
Father's class (Reference: Non-skilled manual)					
Upper white-collar	1.812 **	1.600 **	1.537 **	1.014 *	1.126 *
Lower white-collar	1.231 **	1.061 **	1.066 **	0.642 +	0.618 +
Self-employed	0.858 **	0.782 *	0.805 *	0.526	0.518
Farming	0.293	0.361	0.427	0.554	0.571
Skilled manual	0.510	0.610 +	0.612 +	0.646 +	0.635 +
Age	0.120 **	0.452 **	0.452 **	0.147 +	0.162 *
Age squared	-0.001 **	-0.004 **	-0.004 **	-0.001	-0.001
Years of entry at the first job (Reference: 1996–2005)					
1986–1995		-1.865 **	-1.754 **	-0.480	-1.275 +
1976–1985		-3.328 **	-3.382 **	-1.205 *	-1.684 *
1975 and before		-5.187 **	-5.286 **	-2.233 **	-3.134 **
Interaction between the father's class and the year of first-job entry					
Upper white-collar*1986–1995			-0.301	-0.377	-0.527
Upper white-collar*1976–1985			0.144	0.000	-0.041
Upper white-collar*1975 and before			0.325	-0.035	-0.223
Education (Reference: Middle and high school)					
Juninor and techinical college				2.135 **	0.746
University				2.218 **	1.496 **
Interaction between education and the year of first-job entry					
Junior and technical college*1986–1995					1.413
Junior and technical college*1976–1985					1.351
Junior and technical college*1975 and before					1.596
University*1986–1995					0.930
University*1976–1985					0.357
University*1975 and before					0.954
Constant	-4.315 **	-16.610 **	-16.509 **	-6.381 **	-5.167 *
-2Log Likelihood	1660.009	1576.594	1573.680	1387.997	1382.972
Cox & Snell R-square	0.052	0.087	0.088	0.161	0.163
Number of cases	2230	2230	2230	2230	2230

** significant at 1% * significant at 5% + significant at 10%

Table 2 Logit analysis of entry into non-skilled manual class at the first job

	Model 1	Model 2	Model 3	Model 4	Model 5
Father's class (Reference: Upper white-collar)					
Lower whie-collar	0.548 *	0.534 *	0.533 *	0.255	0.273
Self-employed	0.216	0.173	0.164	-0.242	-0.239
Farming	0.517 **	0.444 *	0.423 *	-0.136	-0.132
Skilled manual	0.611 **	0.539 *	0.541 *	0.033	0.043
Non-skilled manual	0.974 **	0.926 **	1.858 **	1.390 *	1.328 +
Age	-0.077 *	-0.171 **	-0.167 **	0.049	0.054
Age squared	0.001 *	0.002 **	0.001 **	0.000	0.000
Years of entry at the first job (Reference: 1996–2005)					
1986–1995		0.221	0.292	-0.724 +	-0.754 +
1976–1985		0.894 +	0.927 +	-0.781	-0.793
1975 and before		1.067 +	1.159 +	-1.160 +	-1.190
Interaction between the father's class and the year of first-job entry					
Non-skilled manual*1986–1995			-0.963	-1.030	-0.951
Non-skilled manual*1976–1985			-0.777	-0.878	-0.820
Non-skilled manual*1975 and before			-1.164 +	-1.219 +	-1.147
Education (Reference: Middle and high school)					
Juninor and techinical college				-0.702 +	0.460
University				-1.752 **	-1.951 **
Interaction between education and the year of first-job entry					
Junior and technical college*1986–1995					-1.545
Junior and technical college*1976–1985					-1.030
Junior and technical college*1975 and before					-2.142
University*1986–1995					0.332
University*1976–1985					0.076
University*1975 and before					0.308
Constant	0.209 **	3.231 +	1.876	-5.757 **	-7.322 **
-2Log Likelihood	2014.172	2007.486	2004.337	1910.868	1906.929
Cox & Snell R-square	0.014	0.017	0.018	0.059	0.060
Number of cases	2230	2230	2230	2230	2230

** significant at 1% * significant at 5% + significant at 10%

Table 3 Survival analysis of entry into the upper white-collar class via occupational career

	Model 1		Model 2		Model 3		Model 4		Model 5	
Father's class (Reference: Non-skilled manual)										
Upper white-collar	0.971	**	1.436	**	1.435	**	1.012	**	0.820	**
Lower white-collar	0.839	**	0.842	**	0.841	**	0.592	**	0.489	*
Self-employed	0.215		0.203		0.201		0.059		0.242	
Farming	-0.197		-0.225		-0.229		-0.171		0.110	
Skilled manual	0.224		0.233		0.233		0.295		0.363	+
Age at spell year	0.536	**	0.533	**	0.534	**	0.439	**	0.512	**
Age squared (at spell year	-0.008	**	-0.008	**	-0.008	**	-0.007	**	-0.007	**
Spell year (Reference: 1996–2005)										
1986–1995	0.147		0.375	*	0.366	*	0.343	*	0.331	*
1976–1985	-0.137		0.092		0.083		0.124		0.220	
1975 and before	-0.143		0.054		0.073		0.236		0.373	*
Interaction between the father's class and the spell year										
Upper white-collar*1986–1995			-0.663	*						
Upper white-collar*1976–1985			-0.668	*						
Upper white-collar*1975 and before			-0.535	+						
Upper white-collar*1995 and before					-0.626	**	-0.664	**	-0.516	*
Education (Reference: Middle and high school)										
Juninor and techinical college							1.046	**	0.778	**
University							1.148	**	0.702	**
Class prior to entry (Reference: Non-skilled manual)										
Lower whie-collar									1.437	**
Self-employed									-1.086	**
Farming									-1.524	*
Skilled manual									0.154	
Jobless									1.198	**
Change in the place of employment									2.396	**
Constant	-12.330	**	-13.000	**	-12.386	**	-10.276	**	-11.904	**
-2Log Likelihood	5331.727		5324.207		5324.473		5194.355		4529.565	
Cox & Snell R-square	0.006		0.006		0.006		0.010		0.029	
spells	34248		34248		34248		34248		34248	
events	539		539		539		539		539	

** significant at 1% * significant at 5% ＋ significant at 10%

Table 4 Survival analysis of entry into the non-skilled manual class via occupational career

	Model 1	Model 2	Model 3	Model 4	Model 5
Father's class (Reference: Upper white-collar)					
Lower whie-collar	0.203	0.205	0.205	0.016	0.142
Self-employed	0.319 +	0.319 +	0.319 +	0.027	0.134
Farming	0.639 **	0.641 **	0.642 **	0.241	0.282
Skilled manual	0.612 **	0.609 **	0.609 **	0.206	0.075
Non-skilled manual	1.006 **	1.444 **	1.444 **	1.090 **	1.352 **
Age at spell year	-0.231 **	-0.227 **	-0.227 **	-0.152 *	-0.064
Age squared (at spell ye	0.002 +	0.002 +	0.002 +	0.001	0.001
Spell year (Reference: 1996–2005)					
1986–1995	-0.112	0.027	0.031	0.027	0.114
1976–1985	-0.387 *	-0.254	-0.258	-0.300 +	-0.151
1975 and before	-0.688 **	-0.642 **	-0.642 **	-0.734 **	-0.537 *
Interaction between the father's class and the spell year					
Non-skilled manual*1986–1995		-0.752 +			
Non-skilled manual*1976–1985		-0.807 +			
Non-skilled manual*1975 and before		-0.227	-0.227	-0.225	-0.525
Non-skilled manual*1976–1995			-0.775 *	-0.804 *	-1.344 **
Education (Reference: Middle and high school)					
Juninor and techinical college				-0.849 *	-0.976 *
University				-1.396 **	-1.312 **
Class prior to entry (Reference: Upper white-collar)					
Lower whie-collar					1.321 **
Self-employed					1.462 **
Farming					2.081 **
Skilled manual					1.328 **
Jobless					1.960 **
Change in the place of employment					6.657 **
Constant	-0.105	-0.881	-0.491	-2.509 **	-2.631 *
-2Log Likelihood	4277.280	4271.557	4271.594	4203.915	1975.738
Cox & Snell R-square	0.006	0.007	0.007	0.008	0.068
spells	35864	35864	35864	35864	35864
events	413	413	413	413	413

** significant at 1% * significant at 5% + significant at 10%

Figure 1 Intergenerational inheritance of the upper white-collar class by birth cohort (SSM)

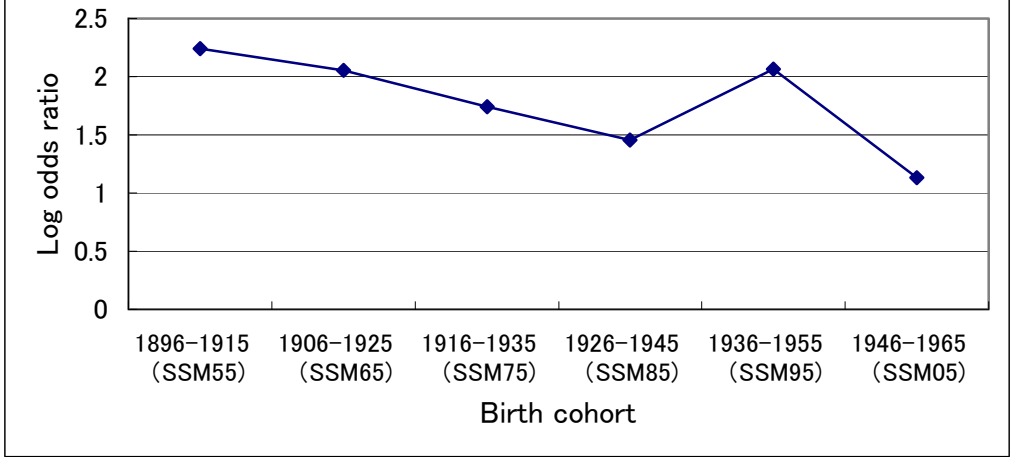


Figure 2 Temporal trends of intergenerational inheritance rate of the upper white-collar class and the non-skilled manual class at the first job (SSM)

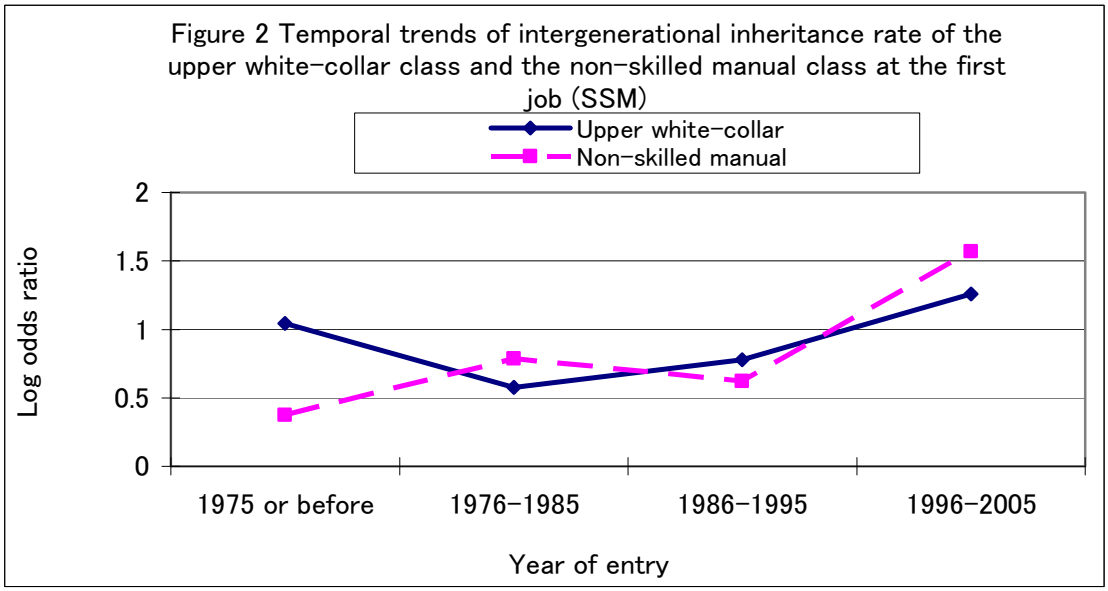
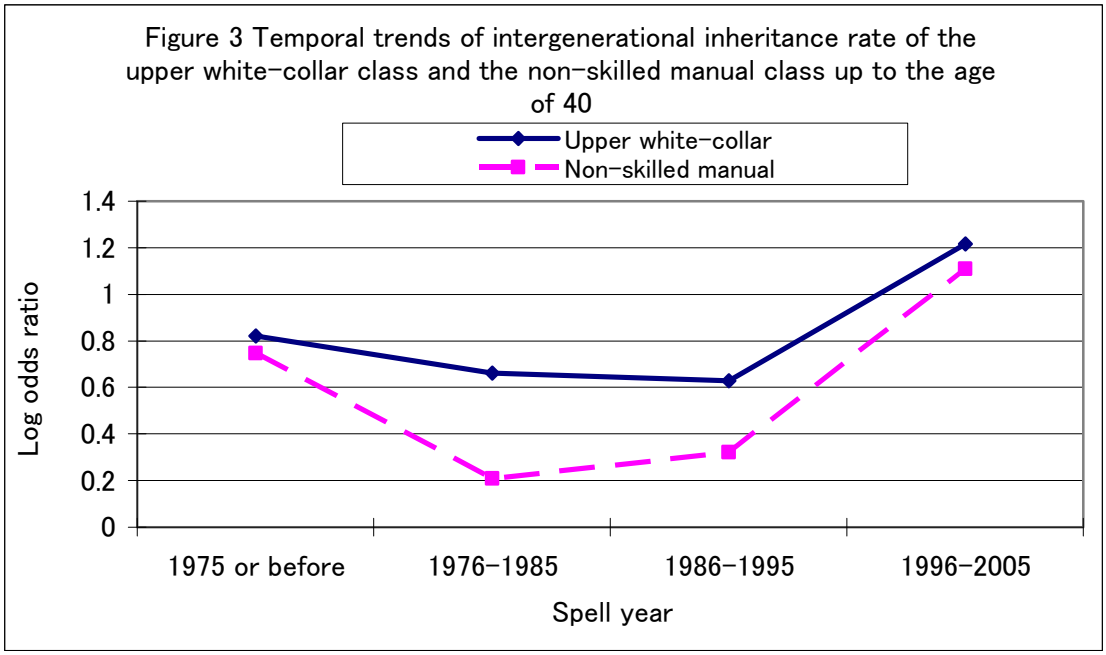


Figure 3 Temporal trends of intergenerational inheritance rate of the upper white-collar class and the non-skilled manual class up to the age of 40



東京大学社会科学研究所パネル調査プロジェクトについて

労働市場の構造変動、急激な少子高齢化、グローバル化の進展などにともない、日本社会における就業、結婚、家族、教育、意識、ライフスタイルのあり方は大きく変化を遂げようとしている。これからの日本社会がどのような方向に進むのかを考える上で、現在生じている変化がどのような原因によるものなのか、あるいはどこが変化してどこが変化していないのかを明確にすることはきわめて重要である。

本プロジェクトは、こうした問題をパネル調査の手法を用いることによって、実証的に解明することを研究課題とするものである。このため社会科学研究所では、若年パネル調査、壮年パネル調査、高卒パネル調査の３つのパネル調査を実施している。

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東京大学社会科学研究所パネル調査プロジェクト
ディスカッションペーパーシリーズについて

東京大学社会科学研究所パネル調査プロジェクトディスカッションペーパーシリーズは、東京大学社会科学研究所におけるパネル調査プロジェクト関連の研究成果を、速報性を重視し暫定的にまとめたものである。

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