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Training and the Labor Market:
A Comparison between Taiwan and Japan

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This paper examines the relation between educational systems and labor markets in Japan and Taiwan, from the viewpoint of workplace retention rates. Although Japan and Taiwan have similar educational systems, the relative proportion of students attending vocational high schools is greater in Taiwan than in Japan. The strong school-to-work transition system in Japan presupposes the existence of an internal labor market. Generally, the internal labor market is comprised of large companies, which enable their employees to be educated through on-the-job training. On the other hand, the Taiwanese labor market consists mostly of small family companies, and they cannot afford to train their employees by themselves. Thus, while worker retention rates are generally higher in Japan than in Taiwan, professionals and blue-collar workers in Taiwan are less likely to leave their workplaces to take advantage of vocation specific education. In addition, because Japan's internal labor market has traditionally been applicable only to men, differences between retention rates for women in Japan and Taiwan are not clear.

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1. Introduction

Education is regarded as an important factor in the economic growth and development of globalized societies. Many countries have realized that education nurtures talent and produces skilled and effective workers. As a result, a significant focus is being given to the relationship between education and the labor market. This paper examines this connection in the context of Japan and Taiwan.

Japan and Taiwan are located close to each other, and the two societies share similar cultural backgrounds and education systems. The education system in both countries was introduced after World War II, on the lines of the system in the United States, consisting of 6-year elementary schools, 3-year junior high schools, 3-year senior high schools, and 4-year universities (6-3-3-4 system). Considering the similar systems, the relationship between schools and the labor market in Japan and Taiwan would be expected to have a lot in common. However, there are wide differences in the labor markets of the two countries, as well as dissimilarities in the education systems despite the apparent likeness. In a comparative study, it is convenient for researchers to focus on the impact of institutions on people's choices and activities, because the overall impact of different institutions can be assessed by controlling the framework of the education systems. In this paper, I will examine the influence of vocational specificity and the dual tracking system at the secondary school level on job careers by comparing two similar East Asian societies, Japan and Taiwan.

Although the education system can influence the structure of the labor market, conversely, it can be adapted to the demand of the labor market. Though two different industrial structures originally existed in the countries, but the education systems introduced were similar. Minor changes were made to adapt the systems to each society without completely destroying the framework of the education structures. Thus, the education systems and labor markets have a complementary relationship with each other (Allmendinger, 1989; Kerckhoff, 2001).

Before making an analysis, I will review the education systems and the labor markets in Japan and Taiwan, and discuss the relevant existing studies. I will suggest hypotheses on the degree of stratification and vocational specificity in the education systems. Finally, I will show and interpret the results of event history analysis, and examine the limitations, and suggest further studies for the future.

2. Background

2-1. Comparison between Japan and Taiwan

East Asian countries such as Japan, Taiwan, and South Korea, were influenced by the transitions of Confucianism or Buddhism. These countries also achieved extraordinary economic growth after the end of World War II, being largely fueled by exports of industrial products (Hamilton and Biggart, 1988). Before the war, Japan had colonized Taiwan and the government had introduced an education system similar to that in Japan. After the war ended, the Taiwanese government adopted the American 6-3-3-4 system. The Taiwanese education system places great value on high-stakes written examinations. The competition for qualifying the entrance examinations to popular schools is severe and, in senior high schools, academic courses are ranked higher than vocational courses are. The Japanese education system shows similar characteristics.

Although rapid economic growth was achieved by both Taiwan and Japan, it happened separately. One of the factors contributing to economic growth is the expansion of the education system. Upon examining the process of expansion, differences can easily be found in the two countries (Blossfeld and Shavit, 1993). In Japan, economic recovery started just after the war, owing to which economic growth was achieved earlier than in Taiwan. Junior high schools were established and included in the compulsory education scheme, and the rate of progression to senior high schools rapidly increased. In 1974, the attendance at senior high schools exceeded 90%. On the other hand, although the attendance rate for tertiary education also increased, it stagnated at around the 40% mark from the 1970s to the 1980s and started increasing only in the 1990s as it became easier to pass the entrance examinations owing to the low fertility rate and the decreasing number of children.

Today, junior colleges in Japan are attended exclusively by women because most of the courses offered are related to fields dominated by women, such as home economics, literature, nursing, dietetics, and welfare. Higher education is characterized by gender segregation, although the gender gap has started to decrease. The attendance rate in tertiary education for women is comparable to that for men, but it takes a certain percentage for junior college (Ishida, 2007).

In Taiwan, junior high schools were also established soon after the end of World War II, though attendance became compulsory only in 1968. The attendance at senior

high schools had not exceeded 50% in the 1970s, and was only about 10% at tertiary education institutes. However, there was a rapid expansion of the secondary and tertiary education systems after the 1980s. The attendance rate at senior high schools currently exceeds 90%, and that for tertiary education has also nearly caught up with the rate in Japan. The expansion of the educational system in Taiwan has been delayed, but the speed of expansion is higher than Japan's. In addition, although some fields in tertiary education show gender-based segregation, no institution of tertiary education, such as the junior colleges in Japan, is exclusively dominated by one gender.¹

The structure of senior high schools, or the *tracking system*, is different in Japan and Taiwan. Both countries follow a dual-course system, comprising one academic course that covers non-vocational subjects for admission to higher education institutions, and another vocational course that includes training to help the students obtain jobs after graduation from high school. Before the end of World War II, the opportunities for progressing to secondary or tertiary education were severely restricted, and the dual-tracking system was adopted for secondary education. As a result, students attending the vocational secondary schools could hardly progress to colleges or universities. However, following postwar democratization, people were encouraged to move to the upper level of schools, and consequently, the severe competition for passing the entrance examinations became a social problem. The academic high school course, with its curriculum being considered as advantageous for passing the university entrance examinations, was popular amongst applicants. Consequently, the local governments increased the number of academic course high schools, as a result of which the majority of Japanese high schools follow academic courses. The ratio of academic to vocational courses did not change dramatically.

On the other hand, in Taiwan, there were more vocational high school students than academic students until the 1990s. Although the ratio of vocational to academic high school students has been decreasing since 2000s, it is still high. In comparison to Japan, there are more vocational high school graduates in Taiwan, and the structural ratio of high school courses has changed dramatically (Guo, 2005; Tsai and Shavit, 2007). As the share for attending academic high schools in Taiwan is lower than that in

¹ In Japan, there is a formal tertiary education institution called *Kōsen* (abbreviation of *Kôtō-Semmon Gakkō*), College of Technology. This school accepts junior high school students and provides a 5-year high level vocational education course. However, the number of *Kōsen* is low, and most of *Kōsen* students are males because the specialty of *Kōsen* is limited to engineering.

Japan, passing the entrance examination for high schools is more important for Taiwanese students who want to attend universities. Thus, preparatory education for examinations has become competitive, and junior high school students are allocated to ability-based groups that affect the choice of senior high school courses (Broaded, 1997). Although senior high schools in Japan are also ranked on the basis of academic grades, ability-based group instruction, such as in Taiwan, is rare in Japanese junior high schools and particularly in the public schools.

The industrial structure and the labor market are also different in the two countries. Although the economic development in both countries was fueled by the export of industrial products, the dependence on trade is much higher in Taiwan. Family firms or small business groups play a crucial role in the export-oriented manufacturing sector in Taiwan. On the other hand, in Japan, there are networks of large companies involved in unrelated businesses that are joined by central banks or trading companies, a vestige of the pre-World War II “*zaibatsu*”. The major manufacturers construct a hierarchical system of smaller, independent firms, and have an influence on the management of these firms. Therefore, in declining economic conditions, the smaller firms are more likely to face severe problems. On the other hand, the small companies obtain information concerning their management through the network of companies, and can thereby prepare to face the problems. As the small firms in Taiwan do not have such networks, their business prospects are lower. Consequently, the risk of bankruptcy is high (Hamilton and Biggart, 1988).

Traditionally, large Japanese companies have offered a full range of fringe benefits to attract promising new graduates. These recruits, who were predominantly males, were employed as regular workers and provided on-the-job-training. The salaries were gradually increased if the employees remained in the same company. On the other hand, married women were usually excluded from the labor market of regular workers, and were expected to do unpaid work in the form of supporting their husbands’ firm-centered life. This led to the formation of a gender-segregated labor market (Miyamoto, 2008).

The position of male regular workers is strongly protected. The employers prefer to respond economic changes through employment adjustment such as offering part-time peripheral jobs to married women. At the same time, it has become expensive for employers to keep large number of such workers in the globalized economy, and the percentage of regular workers has decreased since the late 1970s. In addition,

owing to criticism not offering women opportunities for regular workers, the employers have started to recruit women. The number of temporary workers has gradually increased, particularly amongst members of the younger generation².

The Japanese companies have a unique employee training system. Regular workers in large companies are usually moved from one section to another every few years. The companies tend to place more value on knowledge or skills that are firm-specific rather than field specific, and regular employees gain experience in several kinds of roles within the company. Thus, the employers tend to recruit fresh graduates who have not been regular workers in any other firms. These practices have led to the formation of the unique Japanese school-to-work transition system (Kariya and Rosenbaum, 1995), supported by the strong linkage between schools and employers. This system, once established by the influential large companies, was followed by the smaller companies as well. Thereafter, the education system adapted itself to the labor market, and the relationship between education and the labor market became complementary (Aoki, 2001).

It emerges that there are three main differences between Japan and Taiwan with regard to the education system and the labor market: (1) The proportion of vocational high school students is much higher in Taiwan. (2) High school courses offering educational choices to the students started earlier in Taiwan. (3) Export-oriented industrial manufacturing plays a more significant role in the Taiwanese economy. (4) The ratio of small or family-run firms is higher in Taiwan, and there is no network or vertical relationship with large manufacturing firms.

2-2. Complementary Relationship between Education and Work

The education system provides the labor market with labor forces. It is natural for a strong association to exist between the labor market institutions and the education system. In previous studies, sociologists have focused on the degree of stratification of the secondary school system and the curriculum of vocational specificity. These variables were considered to affect the students' choice of jobs or occupational careers. For example, if the education system was differentiated and stratified on the basis of curriculum, the schools had a more significant function of allocation to the labor

² Traditionally, certain percentage of male day laborers, comprising unskilled or construction workers, have not been protected by any social security or fringe benefits system.

market, because the correspondence between the differentiated school system and the stratified occupational structure could be easily observed (Bowles and Gintis, 1976; Allmendinger, 1989). Under the stratified education system, it became easier to move from schools to jobs smoothly if vocational training was provided in the lower-ability track of secondary schools (Kerckhoff, 2001). As the attendance rate at senior high schools was saturated and that for tertiary education was not low, students graduating from senior high schools without vocational training and not progressing to tertiary education would have a high risk of unemployment (Iannelli and Raffe, 2006). Vocational courses could decrease such a risk by providing useful skills for students who wanted to start working soon after high school graduation. On the other hand, several researchers warned that such a tracking system was more likely to fix or expand the disparity of academic grades correlated with socioeconomic backgrounds, and reinforce the inequality in education opportunity, particularly in progression to higher education (Oakes, 1985). In addition, although the vocational courses could reduce the risk of unemployment, some researchers indicated that opportunities for promotion to managerial or professional positions were more likely to be closed for such students (Müller and Shavit, 1998; Pfeffer, 2008; Bol and van de Werfhorst, 2013).

Japan and Taiwan introduced apparently the same education system. However, vocational specificity is higher in Taiwan. This implies that Taiwanese secondary schools are more vocation-oriented, and that the association between school courses and occupational careers is stronger in Taiwan. Japanese senior high schools also have vocational courses, and there are colleges of technology that supply well trained, skilled manpower. However, the ratio of vocational courses in senior high schools is not large, and the number of colleges of technology is small³. This implies that the education system in Japan does not place much value on vocational training. Vocational high school graduates tend to obtain jobs that are relevant to what they have learned. However, as recent vocational high school graduates have often progressed to tertiary education⁴, there are few differences of occupational choices or careers between students of vocational courses and low-ranked academic courses. In addition,

³ As of 2013, there were only 63 colleges in Japan.

⁴ All students who complete senior high school education, from academic as well as vocational courses, are eligible to take an entrance examination for junior colleges or universities.

except for a few number of vocational training classes, the curriculum of vocational courses is almost the same as that of academic courses. The organizational structure of Japanese firms has probably related to the tendency to undervalue specific vocational training at schools.

Large firms can afford to recruit many new graduates at the same time. Once employed, the workers gain firm-specific skills and knowledge while competing against their colleagues who were employed in the same year. They are evaluated and promoted while being shifted from one section to another every few years (Doeringer and Piore, 1971). With middle-sized and small firms following practices of the large institutions, the ideals of lifetime employment and seniority have taken root in Japanese society (Aoki, 2001).

3. Hypotheses

It is often indicated that there still is a gender disparity in opportunities for obtaining regular jobs and of working conditions in the Japanese labor market (Brinton, 1989; Charles et al. 2004). The ideals of Japanese management, such as seniority and lifetime employment, are applicable only to the male regular workers in large companies and government offices. As the social security system has been fragile in Japan, large firms have implemented the comprehensive welfare schemes to obtain efficient workers. The working conditions and salaries of the male regular workers have improved, and their status has been strongly protected. However, the other male workers or women have been deprived of these opportunities. The male regular workers are more likely to be highly educated, and the women who get married to such men are also likely to be similarly qualified. According to functionalists, highly educated persons are less likely to leave the labor market. However, in Japan, a contradictory situation can be observed. While the husbands working in large companies concentrate only on paid work, their wives leave the labor market and devote themselves to housework and childrearing (Hirao, 2001). Women in East Asian countries cannot be homemakers unless their husbands have very high salaries as child education is expensive. Therefore, wives whose husbands do not have a high salary are more likely to be employed as temporary workers to help bear the costs of living and child education.

On the other hand, family firms or small business groups occupy the Taiwanese labor market. It is difficult for the workers to have clear plans for the future because the small firms are dependent on economic conditions. Although the Japanese have a more liberal attitude to gender, Taiwanese women are less likely to leave the labor market after marriage and childbirth (Yu, 2001a; Yu, 2009). A reason of this contradiction is since the small family firms cannot afford to provide welfare benefits to their employees, depending on only the husbands' salary seems risky (Yu, 2009).

Considering the conditions of the two societies, the choice of the first job seems to have a significant impact on people's careers in Japan, and male regular workers tend to remain in their first workplaces. In addition, the distribution of firm size in Japan differs from that in Taiwan. As the number of large firms in Japan is more than that in Taiwan, the total retention rate of workers in the first workplace seems higher in Japan. If the mechanism of the internal labor market functions, the employees who choose large firms or the government for the first jobs would be less likely to leave the workplace in both countries (Doeringer and Piore, 1971).

I suggest the following four hypotheses after considering these differences:

1) Employees in Taiwan are more likely to leave their first workplaces than those in Japan.

The employment system involving lifetime employment and seniority has penetrated not only the large firms in Japan, but the middle-sized and small firms as well. Therefore, it is natural that employees in Japan remain longer in their first workplaces than those in Taiwan.

2) Comparing the propensity to leave the workplace between men and women, men are less likely to leave their workplace in Japan, while there is little gender difference in Taiwan.

Historically, lifetime employment and seniority systems have been mainly applicable in the case of male regular workers, and most women have been excluded from the pool of regular workers in Japan. However, there is no such employment system in Taiwan because the majority of employers are small family firms that are unable to provide a welfare system to the employees. It is difficult for such firms to retain employees. Consequently, there is hardly any gender difference with regard to the propensity to remain in the workplace in Taiwan.

3) Employees in large firms or government offices tend to remain in their workplace in both countries.

Applying the internal labor market theory to the data analysis, firm size emerges as a crucial variable. In addition, as this theory is not specific to a specific society, it is possible to apply it to either country. Therefore, employees who start working in large firms or government offices are less likely to leave their jobs.

4) As vocational specificity is more prominent in the Taiwanese education system, professionals or blue-collar workers who require specific skills or techniques tend to remain in their first workplace. To the contrary, blue-collar workers in Japan are more likely to leave their first workplace.

Vocational specificity makes the association between education and occupation stronger. If the job fits the education, employees tend to remain in their workplace. However, since vocational education in Japan has been poor, it is difficult to find appropriate jobs before high school graduation.

In addition, the working conditions in Japanese manufacturing companies have deteriorated owing to developments in the globalized economy. These factors might have promoted blue-collar workers in Japan to leave their jobs.

4. Data and Methods

In this study, data for Japan was obtained from the Japanese Life Course Panel Survey (JLPS), conducted by the Institute of Social Sciences at the University of Tokyo. Under the survey, men and women aged from 20 to 40 years were randomly sampled nationwide at end-2007, and followed up surveys conducted annually to record the changes in factors such as occupation, social attitude, and marital status. The survey included data on occupational careers after graduation of schools. The occupational career data were used in this study⁵.

For Taiwan, the Social Stratification and Social Mobility (SSM) survey conducted in 2005 was used to obtain data. The SSM survey has been conducted every decade in Japan since 1955, and surveys with the same framework were conducted in

⁵ Occupational career data were included in the third panel survey, conducted in 2009. The sample size of the first survey was 4,800. Participants of the panel survey agreed to join the follow-up surveys in the coming years. Although panel survey attrition could not be avoided, over 80% of original samples remained in the third survey. I found no severe bias in the distribution of this data in comparison to the other data.

South Korea and Taiwan in 2005 to compare the structure of social stratification and mobility patterns in the East Asian countries. To compare the Taiwanese data with the JLPS data, this study made use of only the 2,309 samples from participants born between 1966 and 1984. As one of the aims of the SSM project was to obtain the histories of people's occupational changes, this Taiwanese data included information on occupational careers.

Information on the position, kind of occupation, size of firm, and the timing of occupational mobility were included in the data collected on occupational careers. Therefore, the period of stay at each workplace could be calculated. For this study, a respondent was classified as having left his/her workplace if a specific employer was left or if a self-employed person quit his/her business. Mobility such as personnel change, promotion, or change of occupational kind was not regarded as leaving the workplace. In addition, as Taiwanese men have to undertake compulsory military service, if the respondent did not change the employer before and after the service, I considered him as having remained at the same workplace.

First, I obtained the Kaplan-Meier survival curves to compare the duration of employment in the first workplaces between countries by controlling gender, and between genders by controlling country. Though the first workplace was the primary focus of this paper, the duration of second workplaces was also considered for confirmation. While some researchers have indicated that the first job has a significant impact on people's careers in Japan, I could not find similar observations for Taiwan. If an internship were to be regarded as the first job, it would be natural for the duration of the first job to be very short. In such cases, the second job would have a crucial impact on the occupational career.

Second, I converted occupational career data into the person-year format, and employed discrete-time logit models to estimate the effect of leaving the first or second workplace. The independent variables were firm size and occupational class. I used the Erikson, Goldthorpe, and Portocarero (EGP) class scheme to define occupational class (Erikson, Goldthorpe, and Portocarero, 1979). Dummies of time periods, education background⁶, and occupational status were also considered as control variables. In the analysis for Taiwan, I controlled whether or not the respondent had joined compulsory military service during the period of employment at the first or second workplace.

⁶ The "Junior/Technical College" category included the specialized training college (*Senshū-Gakkō*) in the analysis of Japanese data.

5. Results

5-1. Descriptive Statistics

For Taiwan, there was no clear difference in the distribution between the first and second workplaces. The analysis of the second workplace originally needed careful interpretation, because only people who left the first workplace could have obtained a second job. Thus, there was the problem of selectivity: For example, if people with low education background tended to leave the first workplace, those having worked at the second workplace would be biased toward people with low education. However, such a difference of distribution was not found in Taiwanese data. The distribution was similar except for the larger percentage of blue-collar workers for men and the larger percentage of clerical and sales workers for women.

Table 1 Descriptive Statistics of Taiwan Data

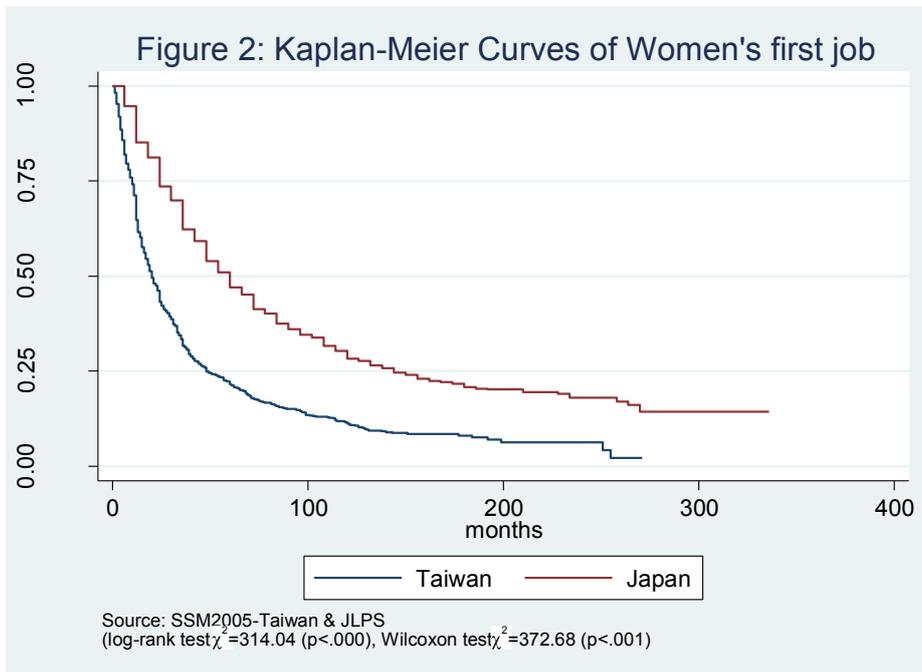
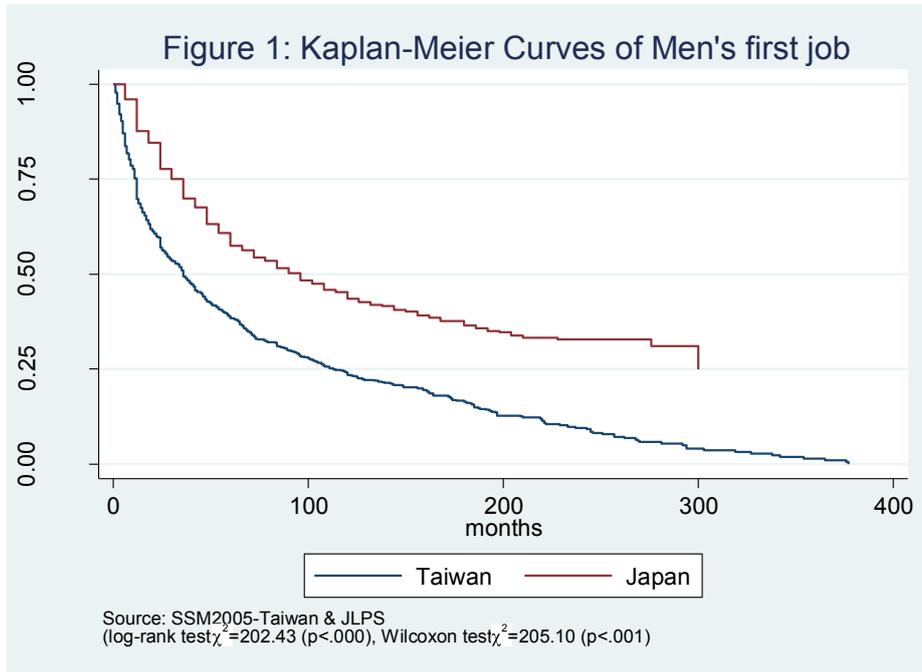
	Men (First Job)		Women (First Job)		Men (Second Job)		Women (Second Job)	
	N	%	N	%	N	%	N	%
Occupational Status								
Regular Worker	904	89.33	846	94.10	648	85.49	669	91.27
Temporary Worker	26	2.57	24	2.67	21	2.77	14	1.91
Self-employed or Family Worker	82	8.10	29	3.23	89	11.74	50	6.82
Education								
Junior High School	103	10.18	96	10.68	97	12.80	83	11.32
Academic High School	29	2.87	23	2.56	21	2.77	24	3.27
Vocational High School	362	35.77	281	31.26	292	38.52	248	33.83
Junior/Technical College	222	21.94	198	22.02	165	21.77	170	23.19
University or Graduate School	296	29.25	301	33.48	183	24.14	208	28.38
Company Size								
Small or Middle (less than 999)	805	79.55	736	81.87	635	83.77	607	82.81
Large (1,000 and over employees)	110	10.87	109	12.12	78	10.29	85	11.60
Public Sector	97	9.58	54	6.01	45	5.94	41	5.59
Occupational Class								
Service Class (EGP I + II)	265	26.19	183	20.36	212	27.97	153	20.87
Clerical Worker (EGP IIIa)	64	6.32	242	26.92	44	5.80	193	26.33
Sales Worker (EGP IIIb)	83	8.20	164	18.24	77	10.16	166	22.65
Petty Bourgeoisie and Farmer (EGP IV+VIIb)	57	5.63	10	1.11	53	6.99	19	2.59
Manual Worker (EGP V+VI+VIIa)	543	53.65	300	33.37	372	49.08	202	27.56
N	1012		899		758		733	

The percentage of temporary workers in Japan was more than that in Taiwan. In

addition, the distribution was different for men and women, with over half of the women being temporary workers at a second workplace. This indicates that it is still common for Japanese women to leave their workplaces after marriage to devote their time and energy to housework and childrearing, and to start working again as temporary workers to add to their husbands' income as the child grows up. The percentage of workers with lower education backgrounds at the second workplace was slightly higher than that at the first workplace, which indicates that people with lower education backgrounds are more likely to leave their first workplace. In addition, the percentage of small firms accounting for the second workplace was larger than that for the first workplace, which implies that people who got their first jobs at large firms or government offices are less likely to leave the first workplace. Finally, the distribution of the occupational class also changed from the first to the second workplace. Professionals are less likely to leave their first jobs. Men who leave their first job tend to obtain blue-collar jobs, and while such women are more likely to obtain clerical work.

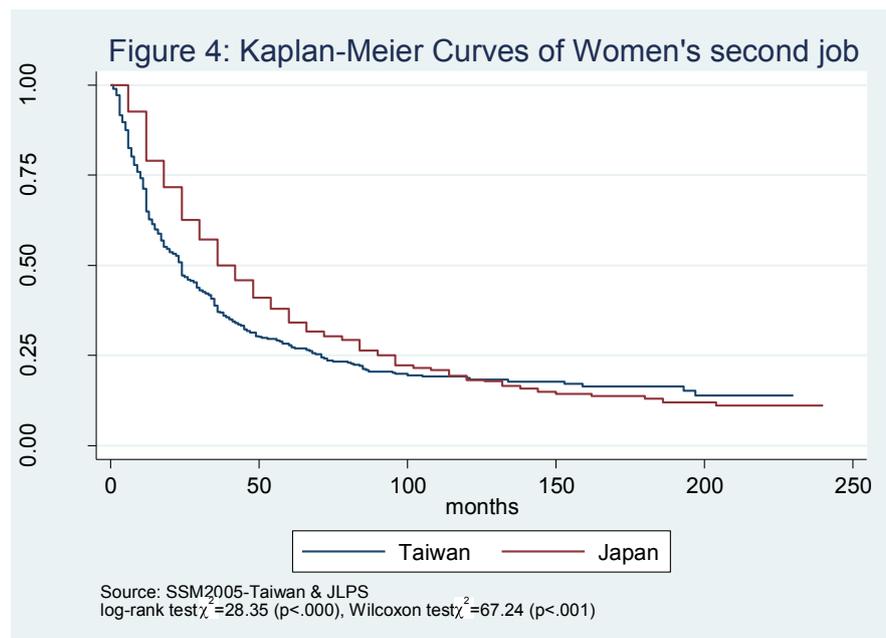
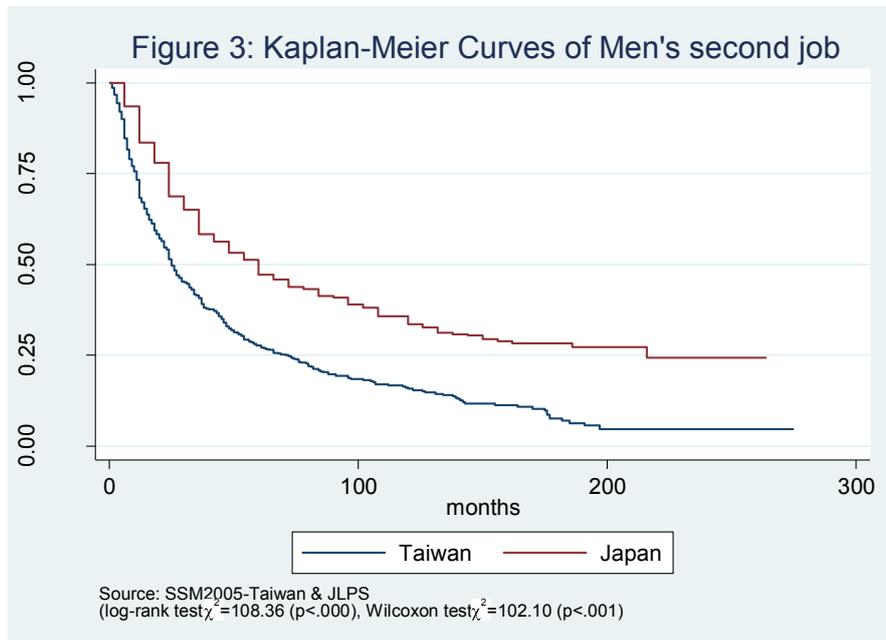
Table 2 Descriptive Statistics of Japan Data

	Men (First Job)		Women (First Job)		Men (Second Job)		Women (Second Job)	
	N	%	N	%	N	%	N	%
Occupational Status								
Regular Worker	1,010	83.33	1,121	76.41	474	68.30	414	42.33
Temporary Worker	168	13.86	326	22.22	176	25.36	528	53.99
Self-employed or Family Worker	34	2.81	20	1.36	44	6.34	36	3.68
Education								
Junior High School	16	1.32	11	.75	15	2.16	9	.92
Academic High School	286	23.60	306	20.86	186	26.80	227	23.21
Vocational High School	77	6.35	71	4.84	50	7.20	56	5.73
Junior/Technical College	267	22.03	674	45.94	181	26.08	461	47.14
University or Graduate School	566	46.70	405	27.61	262	37.75	225	23.01
Company Size								
Small or Middle (less than 999)	879	72.53	1078	73.49	588	84.73	778	79.55
Large (1,000 and over employees)	273	22.52	332	22.63	84	12.10	155	15.85
Public Sector	60	4.95	57	3.89	22	3.17	45	4.60
Occupational Class								
Service Class (EGP I + II)	270	22.28	353	24.06	124	17.87	179	18.30
Clerical Worker (EGP IIIa)	195	16.09	636	43.35	105	15.13	428	43.76
Sales Worker (EGP IIIb)	255	21.04	283	19.29	144	20.75	196	20.04
Petty Bourgeoisie and Farmer (EGP IV+VIIb)	39	3.22	9	.61	42	6.05	23	2.35
Manual Worker (EGP V+VI+VIIIa)	453	37.37	186	12.68	279	40.20	152	15.54
N	1212		1467		694		978	



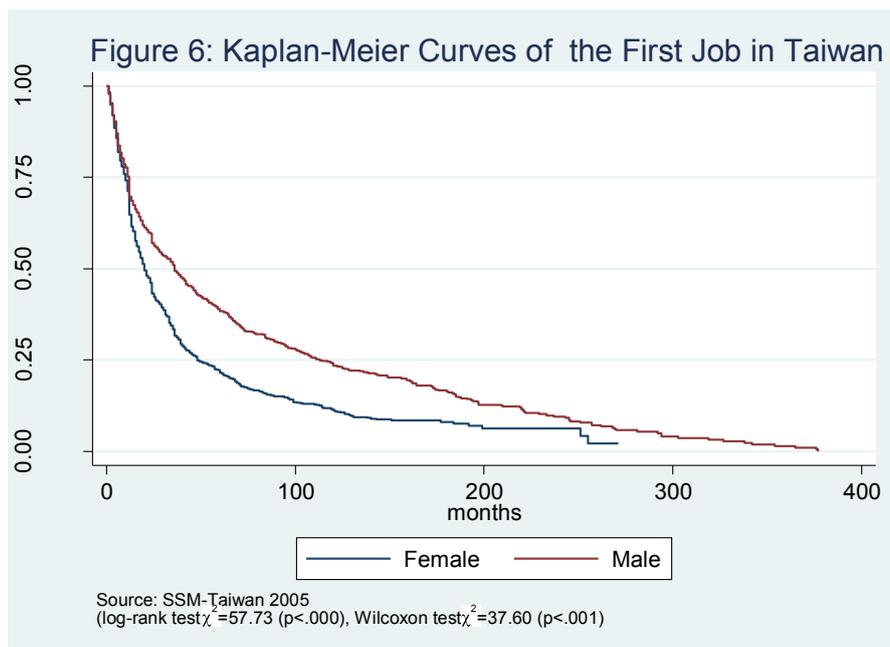
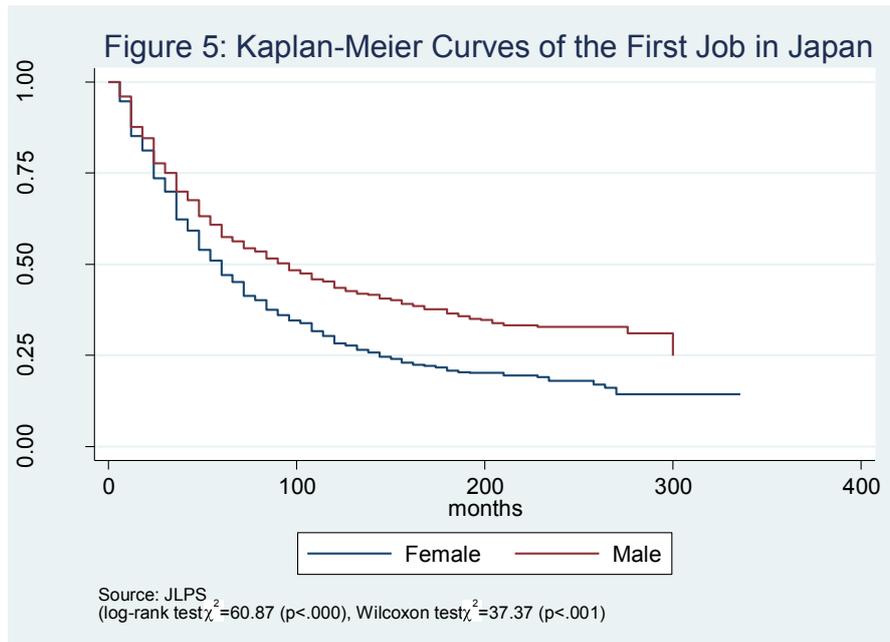
5-2. Comparison of Kaplan-Meier Curves

Figures 1 to 4 indicate the Kaplan-Meier survival curves of the first or second workplaces between Japan and Taiwan. The hypothesis, that the risk of leaving the workplace is higher in Taiwan, is generally supported with the exception of Figure 4. Although the duration of women's second jobs is statistically significant, we cannot



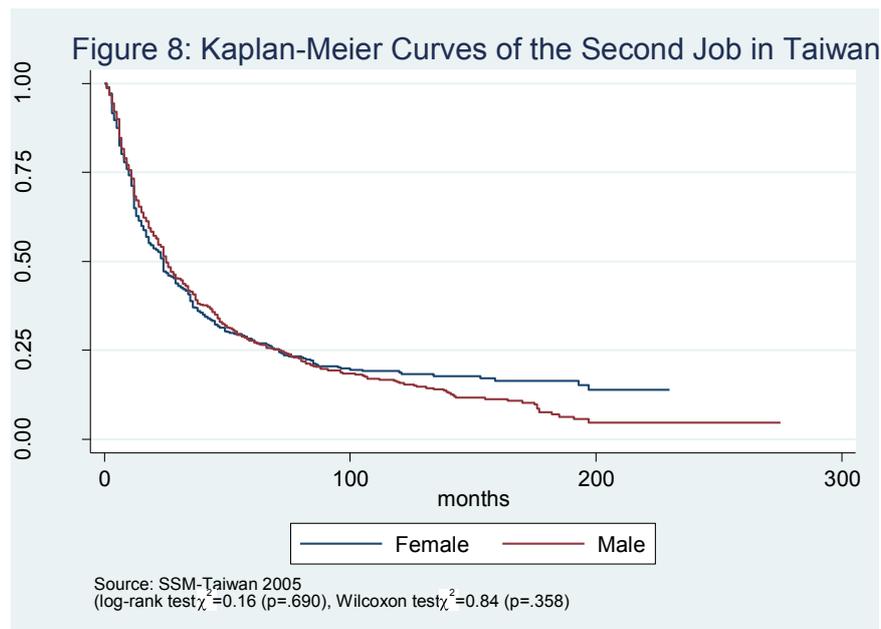
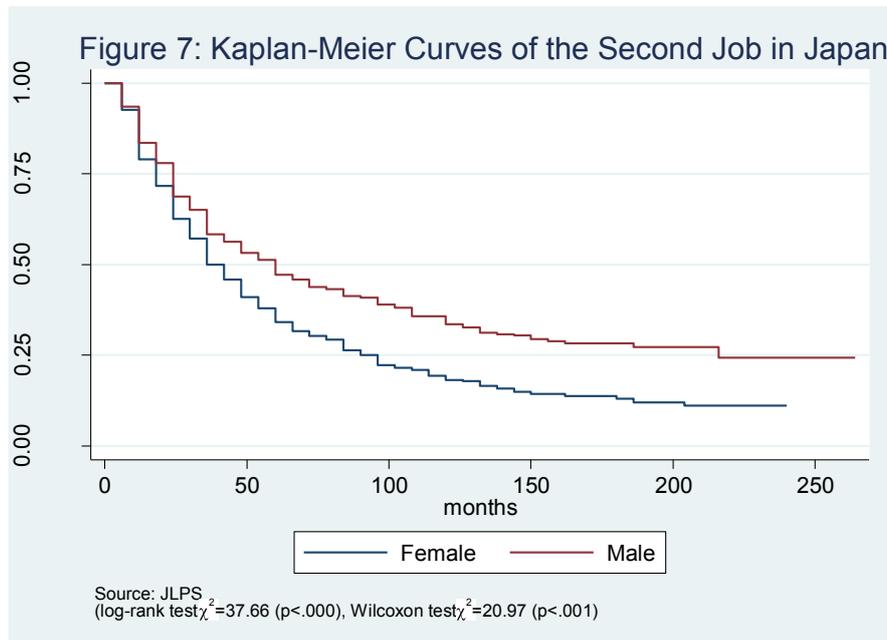
conclude that the hypothesis is supported at women's second jobs in this case because the two survival curves crossed each other. As Table 2 indicates, the percentage of women amongst temporary workers at their second jobs in Japan is large. As the temporary workers are less likely to remain in their workplaces, we could not find any difference in the survival curves between Japan and Taiwan.

Although the labor market in Japan is still considered to be segregated by gender, the barrier between men and women is now being eliminated. This is indicated by the results of the study, data for which was entirely collected from people belonging to the



younger generation. However, the elimination of the barrier only implies that some women are being included in the conventional male-dominated internal labor market.

Women still have a propensity to obtain marginal, temporary jobs. Figures 5 and 6 indicate that women are more likely to leave their first jobs in both countries. In Japan, the difference of the survival curves seems to be expanding. In Taiwan, women's retention rate at the first workplace decreased rapidly at the beginning, but the difference between the survival curves shrank. With reference to second workplaces, a similar trend is seen in Japan. However, there is no significant difference of the



survival curves between genders in Taiwan. Hypothesis 2, indicating that men are less likely to leave their jobs in Japan while there is no significant difference between genders in Taiwan, is generally supported except in the case of first workplaces in Taiwan.

5-3. Results of Discrete-Time Logit Models

Tables 3 and 4 indicate that Hypothesis 3, those who obtain jobs at large firms or government offices are less likely to leave the workplace, is generally supported. The

coefficient of firm size for women's second jobs in Japan is not statistically significant because the samples include data from many temporary workers. These workers are often treated badly and they have no motivation to continue their jobs. This condition has nothing to do with firm size.

Professionals and blue-collar workers in Taiwan are less likely to leave their first jobs as compared to clerical workers. Although the first two occupational classes are regarded as the extremes of high and low, it might be easily specify and imagine the ranges of the job. The vocational specificity of the Taiwanese education system has enabled these workers to remain in their first workplace for a long time. Comparing Tables 5 and 6, the links between university education and professionals and between secondary education and blue-collar workers are stronger in Taiwan than in Japan, and the percentage of vocational senior high school graduates is higher than in Taiwan as well. High school graduates in Japan tend to be blue-collar workers. However, as the vocational specificity of senior high schools in Japan is not strong, and as industrial manufacturers in the country have been facing difficulties, blue-collar workers are more likely to leave their jobs in Japan. This result supports Hypothesis 4.

However, contradictory results are found in the case of women and second workplaces. For example, unlike males, female blue-collar workers are more likely, in comparison to clerical workers, to leave their first jobs in both countries⁷. In Taiwan, the differences in the working conditions between genders appear small because of the high employment rate amongst married women. However, the salaries of female blue collar workers are extremely low (Yu, 2001b)⁸. The bad working conditions might be forcing them to change their jobs. In Japan, sales workers have positively significant effects. There are many temporary workers amongst salespersons. For example, working as salesclerks at supermarkets is regarded as a typical part-time (temporary) job for married women in Japan. Such workers do not need high skills, and the employers do not bear a high training cost for them. However, these sales workers are more likely to leave their jobs because there is no motivation to stay if they are not satisfied with the working conditions.

⁷ However, female vocational high school graduates are less likely to leave their first workplace. The vocational specificity of high school education might have contributed to this result.

⁸ According to SSM data, the mode of male blue collar workers' income was NT\$40,000~49,999. However, for females, this was only NT\$20,000~29,999.

Table 3 Discrete-time Logit Model Predicting Leaving Their Workplaces (Taiwan)

	Male First Job			Female First Job			Male Second Job			Female Second Job		
	Coef.	Robust .S.E.	Odds Ratio	Coef.	Robust .S.E.	Odds Ratio	Coef.	Robust .S.E.	Odds Ratio	Coef.	Robust .S.E.	Odds Ratio
Occupational Status (Temporary Worker)												
Regular Worker	-.652	.249 **	.521	.532	.302 +	1.702	.395	.296	1.485	.729	.606	2.073
Self-employed or Family Worker	-1.518	.370 ***	.219	-.628	.387	.534	-.444	.319	.641	-.710	.698	.492
Education (Academic High School)												
Junior High School	-.399	.285	.671	-.684	.236 **	.505	.066	.405	1.068	-.628	.315 *	.534
Vocational High School	-.294	.231	.745	-.421	.209 *	.656	.046	.393	1.047	-.394	.267	.674
Junior/Technical College	-.186	.230	.830	-.177	.215	.838	.164	.406	1.178	-.295	.273	.745
University or Graduate School	-.183	.229	.833	.006	.218	1.007	.091	.417	1.095	-.333	.283	.717
Company Size (less than 999)												
Large (1,000 and over employees)	-.432	.106 ***	.649	-.668	.104 ***	.513	-.217	.147	.805	-.674	.157 ***	.510
Public Sector	-.869	.154 ***	.419	-.598	.218 **	.550	-1.209	.257 ***	.298	-.354	.305	.702
Occupational Class (Clerical Worker: EGP IIIa)												
Service Class (EGP I + II)	-.331	.158 *	.718	-.103	.119	.902	.215	.210	1.240	-.460	.185 *	.631
Sales Worker (EGP IIIb)	-.017	.187	.983	.185	.127	1.203	.676	.225 **	1.967	.281	.154 +	1.325
Petty Bourgeoisie and Farmer (EGP IV+VIIb)	-.642	.367 +	.526	.575	.538	1.778	.195	.321	1.215	-1.068	.801	.344
Manual Worker (EGP V+VI+VIIa)	-.452	.164 **	.636	.424	.114 ***	1.529	.474	.197 *	1.606	.226	.149	1.253
Compulsory Military Service (No)												
Yes	-.855	.141 ***	.425	-	-	-	-.443	.284	.642	-	-	-
Number of People	1012			899			758			733		
Number of Observations	46513			27256			20534			15129		
Log Pseudolikelihood	-3628.742			-3169.340			-2107.849			-1597.540		

Note: Coefficients of time dummy variables are omitted.

+ $p < .10$ * $p < .05$ ** $p < .01$ *** $p < .001$ (two-tailed test)

Table 4 Discrete-time Logit Model Predicting Leaving Their Workplaces (Japan)

	Male First Job			Female First Job			Male Second Job			Female Second Job		
	Coef.	Robust S.E.	Odds Ratio	Coef.	Robust S.E.	Odds Ratio	Coef.	Robust S.E.	Odds Ratio	Coef.	Robust S.E.	Odds Ratio
Occupational Status (Temporary Worker)												
Regular Worker	-1.078	.114 ***	.340	-.725	.098 ***	.484	-1.387	.128 ***	.250	-.424	.090 ***	.654
Self-employed or Family Worker	-1.846	.444 ***	.158	-.619	.391	.538	-3.893	.674 ***	.020	-1.326	.469 **	.266
Education (Academic High School)												
Junior High School	.172	.311	1.187	-.471	.425	.624	-.545	.297 +	.580	-.157	.440	.854
Vocational High School	.213	.166	1.237	.084	.163	1.088	.171	.206	1.186	.201	.181	1.222
Junior/Technical College	.331	.112 **	1.392	.004	.095	1.004	.228	.147	1.256	.136	.113	1.146
University or Graduate School	.063	.115	1.065	.086	.112	1.090	-.011	.160	.989	.171	.132	1.187
Company Size (less than 999)												
Large (1,000 and over employees)	-.519	.090 ***	.595	-.262	.076 **	.769	-.233	.133 +	.792	-.127	.101	.881
Public Sector	-.489	.263 +	.613	-.351	.226	.704	-.848	.330 *	.428	-.016	.238	.984
Occupational Class (Clerical Worker: EGP IIIa)												
Service Class (EGP I + II)	-.146	.150	.864	.001	.097	1.001	-.245	.200	.782	-.094	.130	.911
Sales Worker (EGP IIIb)	.318	.148 *	1.375	.530	.103 ***	1.699	.289	.189	1.335	.338	.115 **	1.403
Petty Bourgeoisie and Farmer (EGP IV+VIIb)	.389	.415	1.476	-.801	.586	.449	1.019	.606 +	2.770	.349	.521	1.417
Manual Worker (EGP V+VI+VIIa)	.298	.146 *	1.347	.285	.109 **	1.330	-.152	.174	.859	.159	.134	1.172
Number of People	1212			1467			694			978		
Number of Observations	17189			15151			6640			6595		
Log Pseudolikelihood	-2672.236			-3324.590			-1338.784			-1985.176		

Note: Coefficients of time dummy variables are omitted.

+ $p < .10$ * $p < .05$ ** $p < .01$ *** $p < .001$ (two-tailed test)

6. Discussion

In the overall comparison between Japan and Taiwan, it emerges that workers in Taiwan are more likely to leave their jobs than. Temporary workers, however, are more likely to leave their workplaces in Japan. The difference between the two countries in the retention rate of women in second jobs is not clear because of the increasing number of temporary workers. Generally, male workers tend to remain in their workplace. However, there is no gender difference in the retention rate for second workplaces. As vocational specificity seems to be stronger in Taiwan than in Japan, male professionals and blue-collar workers are less likely to leave their first jobs in Taiwan. Similar results are not observed for Japan. Here, male blue-collar workers and sales workers are more likely to leave their first jobs. The negative effects of large firms and government offices can be observed in both countries.

It has been often stated that the relationship between leaving a job and marriage or childbirth is strong for women in Japan. However, as the timing of marriage or childbirth was not recorded in the Japanese data, no analysis could be done taking into account these life events. Even if a certain number of women in Japan left their jobs after marriage or childbirth, the retention rate for the first workplace would still higher than Taiwan. Furthermore, career histories including third or later jobs, or the relationship between occupational statuses before and after the mobility should be considered in future studies on this topic. It can be possible to extend the hypothesis that changes in occupational class will be limited in countries where the education systems are differentiated at the earlier stages and are specified to vocational education. Moreover, a theoretical explanation of the differences between Japan and Taiwan will be inadequately because there are several contradictory results to my hypotheses.

In conclusion, it can be said that the education system and the labor market are complementary to each other. The education system created a strong vocational specificity and a large number of vocational senior high school graduates in Taiwan. The labor market also required such an education system. The weak vocational specificity and the small number of vocational course graduates in Japan might be partly a result of the movements of the teachers' union after World War II. However, many junior high school graduates wanted to attend academic senior high schools, and the Japanese labor market accepted graduates who did not receive vocational training or did not learn any vocational skill. If the labor market changes owing to the

globalized economy, the education system also has to change in accordance with the conditions of the labor market. However, it is hard to imagine that rapid and dramatic changes taking place in the education system or the labor market because the two are deeply connected and people's values and attitudes are affected by these institutions.

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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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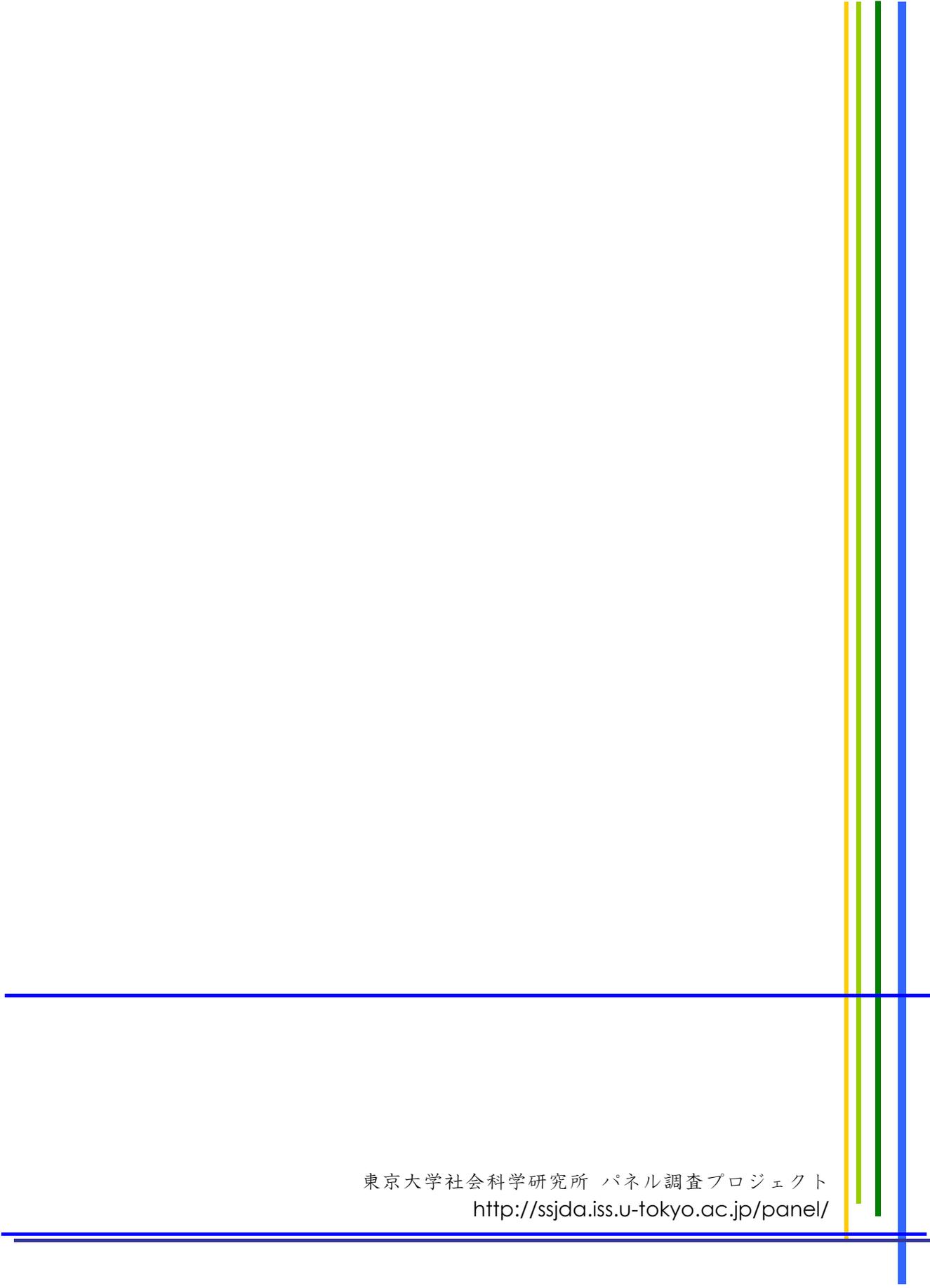
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