Dropout from Higher Education and Social Stratification in Japan

Satoshi MIWA
(Associate Professor, Graduate School of Education, Tohoku University)
Minami SHIMOSEGAWA
(Graduate student, Graduate School of Education, Tohoku University)

Abstract

This study aims to explore the factors affecting the decision to drop out from higher education in Japan. While the number of students who drop out from higher education in contemporary Japan does not go unnoticed, very few studies have examined this issue. Moreover, there has been no established theory behind Japan's dropout rate in the sociology of education field. Almost all prior studies have used data from students belonging to just one school, and those studies do not focus on the interaction between individuals and their environment. This study used national survey datasets for the empirical data analysis of 2,356 respondents who graduated or dropped out from higher education in Japan. The causal factors were expected to be generalizable, and these factors were examined as they changed by birth cohorts. In addition, a focus was placed on the interaction between school type and individual factors. The results of logistic regression analyses showed four factors have a significant impact on dropouts: gender, mother's years of schooling, mother's employment status, and respondent's educational aspirations at the age of 15 years. While the role that gender played on dropping out did not affect in the youngest birth cohort, the importance of respondents' mothers as determinants for both the young and older cohorts was confirmed. Furthermore, the causal mechanism that determined dropout varied between the types of higher education. As for those who studied in private universities, the causal mechanism of determinants on dropping out was identical to that of the whole sample. These results reveal that it is important to encourage students to aspire toward higher education up until they are 15 years of age, and for families, especially mothers, to support school life. In addition, aspiration for higher education depends on the social stratification with which students grew up. In order to compensate for these disadvantages in the school environment, concrete action, such as university-level education programs for freshman, should be considered.

Key words: dropout, higher education, social stratification

INTRODUCTION

This study examines the factors that contribute to the Japanese higher education dropout rate.

Today, higher education in Japan has become generalized with more than 50% of students engaging in higher education. Figures 1 and 2 display the changes that have occurred between 1950 and 2010; Figure 1 shows the number of undergraduate students in universities, whereas Figure 2 shows the number of universities and other institutions. From these figures, a considerable increase in the number of private schools is seen. Additionally, the number of national and public universities or colleges, is increasing steadily as well as the number of students who attend them. Junior colleges, technical colleges, and professional training colleges are excluded from these figures; thus, more students are working toward higher education than these statistics show.

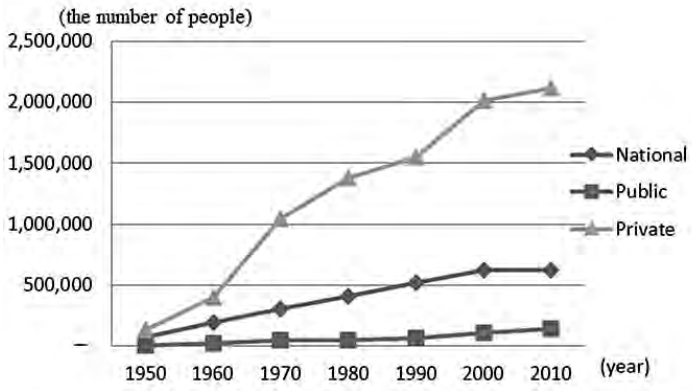

Figure 1. Trends in the number of undergraduate students in Japan

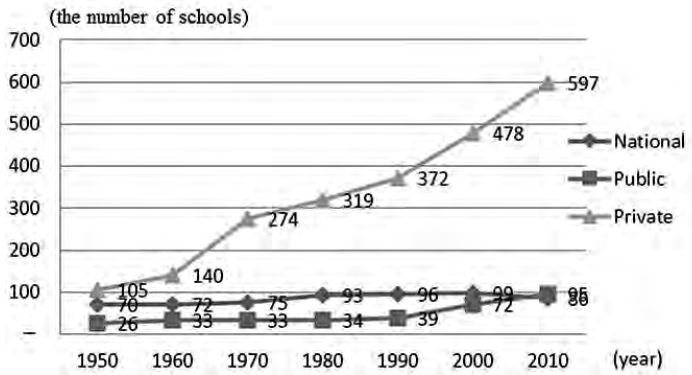

Figure 2. Trends in the number of universities

Given these increases, it is important to look at the number of students who drop out. Figure 3 provides a comparison of the dropout rate in Japan to the dropout rate in the countries represented by the Organization for Economic Co-operation and Development (OECD). By far, Japan has the lowest rate, at almost half that of Denmark, which has the second lowest rate. This figure may give off the impression that the dropout rate in Japan is not a serious problem.

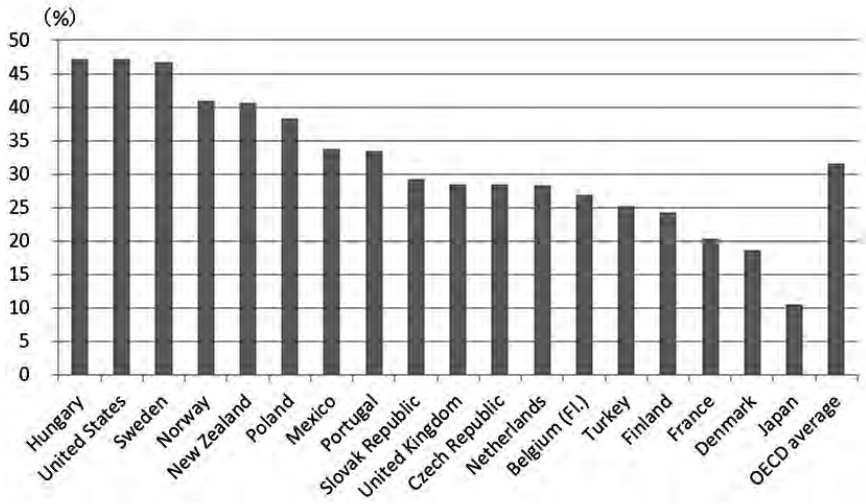

Figure 3. International comparison of dropout rate

However, according to Yomiuri Online (2012), almost 43,000 students dropped out from universities in 2011 number that high should not be ignored. Moreover, this excludes students who dropped out from junior colleges, technical colleges, and professional training colleges; hence, the actual number is greater. Despite this, higher education dropouts are not a primary concern in Japan. While the number of dropouts from high school is indicated clearly in "Investigations of Various Problems on Student Counseling," one has to estimate the number of students who have dropped out from higher education from the data of the schools' basic surveys. In addition, very few studies have examined this issue in the sociology of education field. Little is known about dropping out of higher education and those who do leave are treated as a minority.

In fact, there are people who do not complete higher education. Some find it difficult to live because of having chosen to drop out. In other words, there is a possibility that the gap in the model of occupational attainment is estimated to be smaller than the actual gap. Thus, there is a need to reveal the determinants of dropouts by examining the possibility of dropping out.

Because of the lack of previous research, there is no established theory on the determinants of dropping out from higher education, and almost all of the previous research used data from students belonging to just one school, and focused either on the environment or the individuals.

Furthermore, the factors that have had a substantial effect have not been validated—either innate factors, such as gender or origin of social stratification, or achieved factors, such as grade or aspiration. In short, the most significant determinant of dropouts has not been verified.

Therefore, in this study, the general factors that influence the decision to drop out are examined by focusing on ascribed, achieved, and environmental factors and by using data from a national survey, not from just one school.

LITERATURE REVIEW

As previously mentioned, little research has addressed the risk of students' dropping out of higher education in Japan. In this section, previous research on student dropout and the determinants that have caused students to decide not to complete their education was reviewed.

Class Origin

In Japan, there is a framework of literature in Japan that reveals that the association between class origin and children's educational attainment is consistently repeated (Ojima 2002; Furuta 2011; Kondo and Furuta 2011). In social stratification and social mobility research, it is well-known that class origin has a great effect on the occupational attainment process, including educational attainment. Therefore, class origin can be an important factor that causes students to decide whether to leave school.

Previous studies on the relationships between class origin and school dropout use various types of variables for class origin. In Sewell and Shah (1967), for example, class origin was measured by a factor-weighted index consisting of (a) father's occupational prestige, (b) levels of parental education, (c) economic and financial ability of parents to pay children's tuition (school expenses), (d) the ratio of tuition to domestic finance (household accounts), (e) the number of cultural assets, and (f) household income. They pointed out that using these aspects to measure class origin led to a positive effect on school completion rate, which implies that the lower the socioeconomic background, the more difficult it is for children to graduate from school. Other findings indicated that parents' income had the same effect on children's school completion (Chen and DesJardins 2006), and a particular scholarship system decreased the risk of dropping out (Stratton et al. 2008). In addition, Kaji (2010) suggested it was probable that appropriate and efficient scholarship operations could completely reduce the differences in the risk of dropping out due to class origin. In contrast to these findings, however, Bean (1980) found no relationship between class origin and the school dropout rate. Thus, it has been widely discussed whether the relationship between class origin and dropout behavior exists, and how social class or the social stratification system affects the risk of dropping out.

Level of Educational Aspiration

Independent of class origin and student's academic performance, the level of children's educational aspirations could be an important factor that affects the risk of dropping out. A large body of research in Western countries measured levels of educational aspirations by asking respondents whether they regarded university graduation as important, which, in turn, decreased the probability of dropping out of school (Pascarella and Chapman 1983; Chen and DesJardins 2006). However, there has been little previous research completed in Japan examining the effect of educational aspirations on dropout risk. Koga (1999) found virtually no difference in educational aspirations between those who dropped out of high school and those who did not.

Social Background and Educational System in Japan

Some researchers considered individual or micro-level factors, such as socioeconomic background, academic performance, and level of educational aspirations. Other studies highlighted the educational system or social background as important macro-level determinants of dropout behavior.

An important macro-level factor is the change in social conditions, including the transformation of the labor market. According to Katayama (2008), the following ratios interact with the changes in dropout rates in high school: the percentage of students who found work after graduating from high school and the proportion of job offers intended for high-school students to applicants who will enter the labor market shortly after graduation. In Japan, due to the economic depression, there is a tight high school labor market. Higher education increases the percentage of students who quit high school, which causes more young people to engage in non-regular employment (termed *Hiseiki-Koyo*) and lack consciousness about the importance of working (Katayama 2008). Although these results can be attributed to the choices of individual behavior and responsibility, this research suggests there is a need for studying the perspectives of social and environmental factors surrounding high school students, as previous studies on school dropout focused mainly on individual attribution as determinants. In addition, whether the effects of the labor market and social background can vary over time is an important topic for discussion.

The second factor, the Japanese education system and educational facilities, is related to the risk of school dropout respectively. The total number of students per faculty, the ratio of students to teachers, the ratio of part-time teachers to full-time teachers, and the average number of students per lecture increase the risk of students dropping out of university (Maruyama 1984).

Furthermore, students' recognition or positive evaluation of their university has affected the extent to which they make affirmative commitments to that university (Bean 1980).

HYPOTHESES

In our research, we assumed there were three kinds of factors that increased the risk of individuals dropping out of junior colleges or four-year universities—(1) ascribed, (2) achieved, and (3) external.

Ascribed Factor

The ascribed factor includes respondents' gender and class origin and the employment status of their mothers. Class origin is measured by fathers' occupations, levels of parental education, and economic condition at the age of 15 years (details are described below). We hypothesize from previous research that class origin determines children's access to higher education and their awareness of the importance of graduating from a prestigious university. The cost of advancing to higher education is very high, regardless of school type—national, public, or private—which means that socioeconomic background can be an index for whether children are able to proceed to higher education. In addition, the extent to which children emphasize the importance of attending and completing brand-name universities is determined mostly by class origin, which implies that the higher their socioeconomic backgrounds are, the more likely they are to consider graduation from higher education as very important. Therefore, the effect of class origin on the decision of whether to drop out of higher education remains statistically significant, controlling for respondents' gender and birth years. Furthermore, the types of employment status of mothers (full-time/part-time/unemployed) determine the extent to which mothers can interact with their children. Mothers are thought to play an educational role in forming and monitoring their children's attitudes to higher education. The less time mothers are able to spend communicating with their children probably increases the risk of children's school dropout, which suggests that children whose mothers engage in full-time work are more likely to drop out of higher education than those whose mothers work as part-time workers or are unemployed.

Achieved Factor

Two measures of children's achieved factor come from their academic performance and the level of their educational aspiration at the age of 15 years. At this age, Japanese children graduate from nine years of compulsory education and proceed to high school and junior college or four-year university. These factors can determine the extent to which children are able to adjust themselves to school environments. In addition, academic performance and educational aspirations affect children's awareness of the importance of completing higher education after advancing there directly. Therefore, children who attend higher education and have lower levels of educational aspiration are more likely to drop out of higher education.

External Factor

Three measures are used as indicators of the external factor: university type (national or public university/private university/junior or technical college/vocational school), department or faculty type, and birth cohort. In previous studies, there are statistically significant differences in dropout rates between national or public universities and private universities. In addition, there are differences in dropout rates among types of department or faculty—for example, the rate is 12% in the faculty of business administration, 9% in the faculty of international studies, and 3% in the faculty of medicine (Yomiuri Online 2012). Therefore, we predict that the kind of university faculty or department that children attend will have an effect on dropout rates. The birth cohort reflects the trend of proceeding to higher levels of education and the change in the total number of undergraduate students and university institutions. The dramatic popularization of higher education may cause an absolute increase of students who experience school dropout, which results in the prediction that children who belong to the recent birth cohort are at higher risk of quitting university. However, children's birth years can be regarded also as an ascribed factor. In our study, when we examine the main effect of birth year on dropout rates, we interpret this factor as ascribed, whereas when checking the interaction effect between other external factors and the birth year, we view it as an external factor.

DATA AND VARIABLES

Datasets

The data used for this study were from the 2005 Social Stratification and Social Mobility (SSM) survey and the youth and prime panel data of the 2008 Japanese Life Course Panel Survey (JLPS).

The national SSM survey is a large-scale social survey that has been executed every 10 years since 1955. The 2005 SSM survey was completed through face-to-face interview and a self-administered questionnaire to people aged 20–69. There were 5,742 responses and a 44.1 % response rate.

The JLPS has been a follow-up study by the Institute of Social Science at the University of Tokyo since 2007. The youth panel data were collected from people aged 20–34 in Japan. There were 2,716 responses and an 80.7% response rate as a proportion of the previous year's response rate. The prime panel data were collected from people aged 35–40 in Japan. There were 1,245 responses and an 87% response rate as a proportion of the previous year's response rate. In both surveys, self-administered questionnaires were mailed and collected during visits.

In this study, people who graduated from or dropped out of higher education are regarded as participants but those who presently attend or do not attend higher education are excluded.

Variables

The dependent variable was a composite measure that asked respondents whether they graduated from the school they last attended, and used a dropout dummy variable (1 for dropped out and 0 for graduated). For respondents who attended more than one higher education institution, the response was taken for the initial school they attended.

The independent variables are as follows:

Birth cohort: The dummy variable was comprised of people born from 1973–1989 (reference: people born in 1935–1972). This dummy includes young people (15–34 years) in 2007.

Gender: Male dummy variable (reference: female).

Parents' education: Years for parents' educational attainments (dropouts were regarded as graduated).

Father's occupation: After using the SSM 8-classification to group fathers' main occupations for each response, professional and management were classified into "upper nonmanual"; clerical and sales into "lower nonmanual"; and skilled, semi-skilled, non-skilled, and agriculture into "manual". Then, two dummy variables were generated (reference: lower nonmanual).

Mother's employment status: Management, executive and full-time worker were classified into "full-time worker"; part-time job, temporary worker and contract worker into "part-time worker"; self-employed, family worker, and side job into "self-employed, family worker, side job"; and did not work into "no jobs (including housewives)". Then, three dummy variables are generated (reference: full-time worker).

Economic condition at the age of 15 years: In both surveys, the response categories ranged from 1 (wealthy) to 5 (poor) but in this study, this was reversed and used as a five points scale.

Academic record at the age of 15 years: In both surveys, the responses of recorded positions in grade categories ranged from 1 (good) to 5 (bad) but in this study, this was reversed and used as a five points scale.

Educational aspiration: Three dummy variables were generated based upon the following question. "Which school did you want to go to when you were 15 years old?": Responses were "high school"; "junior college, technical college, vocational school"; "university or more"; and "no hope" (reference: university or more).

Type of institution: Three dummy variables were generated for whether students graduated from or dropped out of school. The dummy variables were "private university"; "junior college, technical college"; and "vocational school" (reference: national/public university).

Department: Four dummy variables were generated for the department of the school that students graduated or dropped out of. They were "social science"; "science, engineering, agriculture"; "medical"; and "commercial science, domestic science, and art" (reference: the

humanities).

In addition, an SSM dummy variable was added to control differences of the dataset.

Table 1. Descriptive statistics

		N	min	max	mean	s.d.
Graduate status	dropout	2356	0	1	.060	.237
Birth cohort	born in 1973-86		0	1	.471	.499
Gender	male		0	1	.505	.500
Father's occupation	upper nonmanual		0	1	.297	.457
	manual/farming		0	1	.370	.483
Father's years of schooling			6	18	12.603	2.988
Economic condition at the age 15			1	5	3.225	.780
Mother's years of schooling			6	18	11.804	2.306
Mother's employment status	no job (housewife)		0	1	.310	.463
	part-time worker		0	1	.272	.445
	self-employed etc.		0	1	.228	.420
Academic record at the age 15			1	5	3.659	1.007
Educational aspiration	junior high/high school		0	1	.096	.295
	other tertialy education		0	1	.153	.360
	no aspiration		0	1	.113	.316
Types of institution	private university		0	1	.472	.499
	junior/technican college		0	1	.239	.426
	vocational school		0	1	.138	.345
Department	social sciences		0	1	.294	.456
	natural sciences		0	1	.211	.408
	medical		0	1	.085	.279
	art, domestic, etc.		0	1	.159	.366

ANALYSIS

Table 1 presents the descriptive statistics, whereas Table 2 presents the result of the logistic regression analyses. For all models, in order to control the differences between the SSM and the JLPS data, SSM dummy was used. The youth cohort and male dummy were inserted into Model 1 to confirm the effect of the steadiest individually attributed factors. The class origin variables were inserted into Model 2. The class origin variables or home support variables and the factors related to mothers were inserted into Model 3. The SSM dummy and achieved factors were inserted into Model 4. Both achieved and ascribed factors were inserted into Model 5. The SSM dummy and the external factors for higher education are inserted into Model 6. Model 7 is a full model that includes all innate, achieved, and external factors.

Table 2. Estimates of logistic regression analyses

		model1	model2	model3	model4	model5	model6	model7
		Exp(B)	Exp(B)	Exp(B)	Exp(B)	Exp(B)	Exp(B)	Exp(B)
Constant		.050	.093	.250	.102	.297	.024	.110
Data (ref: JLPS)	SSM	.869	.819	.767	1.025 †	.822	1.248	1.054
Birth cohort (ref: 1935-72)	born in 1973-86	.911	.987	1.041		1.016		1.027
Gender (ref: female)	male	1.800 **	1.771 **	1.824 **		1.828 **		1.542 †
Father's occupation	upper nonmanual		1.018	1.015		1.035		1.028
(ref: lower nonmanual)	manual/farming		1.151	1.104		1.118		1.101
Father's years of schooling			.942	1.006		1.014		1.022
Economic condition at the age 15			1.015	1.058		1.068		1.052
Mother's years of schooling				.495 **		.871 *		.875 *
Mother's employment status	no job (housewife)			.876 **		.508 *		.522 *
(ref: full-time worker)	part-time worker			.729		.892		.933
	self-employed etc.			1.472		.749		.761
Academic record at the age 15					.858 **	.879		.944
Educational aspiration	junior high/high school				1.191 †	1.030		.983
(ref: university or more)	other tertiary education				.834 †	.998		.907
	no aspiration				1.737 **	1.673 *		1.566 †
Types of institution	private university						1.897 *	1.686
(ref: national/public university)	junior/technical college						1.078	1.024
	vocational school						4.154 **	3.036 **
Department	social sciences						1.319	1.075
(ref: humanities)	natural sciences						1.777 *	1.419
	medical						.885	.899
	art, domestic, etc.						1.462	1.506
	Cox-Snell R^2	.005	.007	.013	.005	.016	.014	.024
	-2Log likelihood	1056.147	1050.792	1036.844	1056.585	1029.161	1034.569	1010.080
	AIC	1064.147	1066.792	1060.844	1068.585	1061.161	1052.569	1056.080
	N				2356			

note: ** $p<.01$, * $p<.05$, † $p<.1$ (two-tailed test)

The first remarkable point is that the male dummy had a significant effect on all models. From Model 7, after controlling all other factors, men were about one and a half times more likely to drop out than women. At the hypothesis stage, it was expected that women would be less likely to drop out, influenced by time background or school type; however, this showed that men are more likely to drop out because they are influenced by factors not considered in this analysis.

The second noteworthy point is the outcome of factors related to mothers, as the mother's educational years and the housewife dummy yielded perceptible results. For a mother's educational years, the sign of effect was negative. When a mother's years of schooling was increased by one year, the probability of dropping out decreased 1.1 times. Based on the measurement in this analysis, a difference of one step in educational background represented a difference of at least 2 years. Therefore, if a mother's educational backgrounds varied by one step, the risk of dropping out differed by about 1.2 times. On the other hand, with regard to the mother's employment, students with mothers who were housewives were less likely to drop out than those whose mothers were employed full time. After other factors were controlled, the risk of dropping out differed twice as much among students whose mothers had different educational backgrounds. In addition, it is notable to mention that the modes of employment and the risk of dropping out were not significantly related amongst students with mothers who worked. Given that a student's circumstances at 15 years of age and their father's occupations had no significant effect in Model 7, a mother's educational years and modes of employment showed the important role a mother had in childcare and support for school life compared with the effect of class origin focused on bearing cost of higher education.

The third point relates to educational aspirations. In Model 5, the influence of educational aspirations for less than four years of college disappeared, which was explained by class origin. However, when no aspirations were formed, the effect was significant in Model 7. Those who did not make future decisions were 1.6 times more likely to drop out than people who aspired to go to college or graduate school.

Another striking point is that vocational school students are more likely to drop out than others. In Model 7, the absolute value of the regression coefficient of the vocational school dummy was the largest. Compared to college students, vocational school students' risk of dropping out was three times higher. After controlling the other factors, the effects of the environment and the vocational school system remained. On the other hand, factors that were not included in this analysis might influence the ease with which vocational school students drop out.

When comparing the relative fit of models using the Akaike Information Criterion (AIC), Model 7 (the full model) was best. It was expected that the effect of external factors was largest on the risk of dropping out, considering that the regression coefficient of the vocational school dummy was the biggest in Model 7, and when compared to Model 3 (only acquisition factors), Model 4 (only innate factors), and Model 6 (outside circumstances), the AIC of Model 6 was the smallest,. Conversely, when factors concerning mothers were inserted, the AIC decreased greatly from Model 2 to Model 3. It is shown that the AIC of Model 3 (only innate factors) is less than that of Model 5 (individual factors), and the absolute value of the regression coefficient of the

housewife dummy was the largest in Model 5, the factors relating to mothers were important compared to external factors.

Table 3 presents the results of the logistic regression for the two birth cohort groups of 1935–1972 and 1973–1986. In this analysis, to ascertain the difference of each factor's effect, only Model 7 was used.

Table 3. Estimates of logistic regression analyses by birth cohort

		birth cohort	
		1935-72	1973-82
		Exp(B)	Exp(B)
Constant		.038	.058
Data (ref: JLPS)	SSM	.707	1.863 †
Gender (ref: female)	male	2.755 **	1.009
Father's occupation	upper nonmanual	1.054	.992
(ref: lower nonmanual)	manual/farming	1.245	.956
Father's years of schooling		.973	1.130 †
Economic condition at the age 15		1.206	.924
Mother's years of schooling		.870 †	.878
Mother's employment status	no job (housewife)	.668	.465 *
(ref: full-time worker)	part-time worker	1.718	.568 †
	self-employed etc.	1.090	.467 †
Academic record at the age 15		1.110	.790 †
Educational aspiration	junior high/high school	1.271	.612
(ref: university or more)	other tertialy education	1.605	.464
	no aspiration	1.778 †	1.173
Types of institution	private university	1.503	1.849
(ref: national/public university)	junior/technican college	.676	1.638
	vocational school	2.124	4.283 *
Department	social sciences	1.112	1.093
(ref: humanities)	natural sciences	1.357	1.604
	medical	0.734	1.094
	art, domestic, etc.	3.014 *	.817
	Cox-Snell R^2	.045	.028
	-2Log likelihood	525.7	452.4
	AIC	569.7	496.4
	N	1246	1110

note: ** $p<.01$, * $p<.05$, † $p<.1$ (two-tailed test)

The first point to note is the effect of the male dummy. When the sample was divided by cohort, the male dummy that previously had a significant effect did not affect the recent cohort. From this, it is possible that the effect in the analysis of the whole sample was influenced by the old cohort. Thus, gender difference currently does not affect the probability of dropping out.

The next point is the effect of parents' educational years and a mother's types of employment. In the older cohort, the higher the mother's educational years, the more likely the

dropout rate was reduced. In the recent cohort, however, the relation was no longer found. Instead, the father's educational years had a significant effect, an increase in the father's educational years influenced the ease of dropping out. When the father's educational years were increased by one year, the probability of dropping out increased 1.1 times. Regarding a mother's modes of employment, in the older cohort, there was no significant difference of the dropout risk between students with mothers who were housewives and those with mothers who worked. Yet, there was a significant difference in the recent cohort, as students with mothers who were employed full-time had the highest dropout risk.

The third point is the effect of educational aspirations. In the older cohort, the effect of the dummy indicated that unformed aspirations were significant at the 10 percent level. In contrast, in the recent cohort, significant effect was not observed. Instead, the student's academic record at 15 years of age had a significant effect at the 10 percent level. If it increased by one point, then the probability of dropping out would decrease by about 1.3 times. This may be connected to specific university because the variability of quality or substance of higher education influences whether students graduate. On the other hand, aspirations could be determined by the student's academic record.

Finally, the largest absolute value of the regression coefficients (B) in two models was confirmed. In the older cohort, the largest value was for "commercial science, domestic science, art," and in the recent cohort, the prevalent value was for the vocational school dummy. In both cohorts, the effects of outside circumstances were larger than those of individual innate factors or acquisition factors at 15 years of age.

DISCUSSION

In this study, the factors that affected dropout decisions were verified through using an individual-level dataset. The results of logistic regression showed that external factors, specifically, the effects of attending vocational school, had the most predominant influence on dropping out. Despite this, when the achieved factors were controlled, mother's years of schooling and employment status yielded considerable results. This suggests the possibility that the risk of dropout depends on an ascribed factor.

Thus, more time was devoted to check each hypothesis. First, ascribed factors were considered. With regard to gender, this study did not support the hypothesis that the effect of gender disappears when school type is controlled; yet did support the hypothesis that the effect of gender disappears when the sample was split into cohorts. Furthermore, the effect of class origin was supported partially, that is, the fact of whether it was possible to commit to higher education was influenced by different educational backgrounds. However, the meaning of dropout

might change depending on the effect of the father's or mother's educational years. Additionally, social class differences regarding the financial risk of dropping out were found only in the "junior college, technical college" category. Moreover, the meaning of dropout was deemed to be positive in order to obtain the chance of a more desirable higher education, and thus, this hypothesis was not supported. Regarding the effect of mother's types of employment, the results almost supported the hypothesis. A difference in the risk of dropout was found between mothers who were full-time employees and those who were not, rather than between working and nonworking mothers. The results showed the data of mothers who were unable to support children's school lives because of job burden.

With regard to the achieved factors, the results differed from the hypothesis due to the fact that a student's academic record at 15 years of age affected dropping out while educational aspirations did not. This is because the effect of a student's record at 15 years of age existed only when the school type was controlled. In other words, the record determines aspirations, and the school type depends on aspirations. Therefore, the hypothesis may be roughly supported, and it is notable that academic records directly determines the risk of dropping out.

In relation to external factors, the effect of school type was not supported, and only the vocational school had a significantly high risk of dropout. From this, it is considered that there might be a mechanism that was not explained as a circumstantial factor, such as scale or diversity. In addition, attention should be paid to the mechanism of dropping out being changed by the interaction of circumstantial factors and individual factors, as the variables that have an effect on each school differ. A direct correlation to birth cohort was not found. That is, if students experienced the same conditions, the risk of dropout did not depend on the birth cohort. This differs from the hypothesis. On the other hand, the variables that had an effect were different between cohorts and the condition that increased the risk of dropout also varied between cohorts.

As mentioned in the introduction, currently in Japan, the effect of social stratification cannot be ignored in studies of educational achievement. However, from the point of view of the dropout, it is said that social stratification has no significant effect or the effect cannot be validated.

In this study, determinants used by national survey datasets were scrutinized under the hypothesis that the origin of social stratification affects the student decision on whether to drop out or not. The results of this study sufficiently prove this conclusion, and this is the first study in Japan to verify these results.

Given that circumstances at 15 years of age and occupations of respondents' fathers did not yield significant effects, it seemed there was no difference in the risk of dropping out caused by financial aspects and socioeconomic status. Although this issue is not that simple, as factors affected by social stratification, such as academic records or educational aspirations at 15 years of

age, contribute to the dropping out. The results suggest the possibility that socioeconomic status affects which institutions students enter and determines whether they are able to graduate.

Primarily, the risk of dropping out certainly differs by parents' years of schooling. In other words, risk differences are determined by differences in the affinity toward higher education received in students' childhoods, such as the importance of higher education or aspirations for academic careers. Moreover, the effect of the mother's years of schooling on children's educational gap is represented by Kikkawa (2009); the gap is more serious than that from a financial aspect.

These results showed sufficient evidence of the influence of social stratification on dropout. Specifically, this study illustrated the existence of cultural differences in receiving education regarding social stratification and the possibility that cultural reproduction can explain more about the educational gap in Japan than Furuta (2011) mentioned. The rational choice model explains why the educational gap continues to exist in Japan, even after World War II, because cultural reproduction or descriptions of conflict among social groups do not represent an actuality.

In the research area of educational attainment, there is an assumption that people who graduate from institutions of higher education are completely the same as those who entered. Therefore, the fact is ignored that not all freshmen can achieve the goal of graduation. Nevertheless, the gap is more serious than actually thought because there is a difference of possibility as to whether one can graduate, even if all students equally enter the institution of higher education. Strictly speaking, there is a two-phase gap in educational achievement: first, whether one can enter the institution and second, whether one can graduate. Fortunately, the results also show that the environmental factor was the most influential. This suggests that controlling the environment can correct the risk of dropping out.

When the analysis was conducted using separate cohorts, the effect of the mother's educational years disappeared while the father's educational years had a significant effect on the risk of dropping out, which suggests a changed meaning of dropout. More specifically, the results were due to the acceptance of "positive dropout" by fathers of higher educated students. In addition, Herzog (2005) showed that middle class students had a tendency to move prominently into different higher schools and that this trend may expand. Furthermore, there was a difference of risk of dropping out among students with mothers who were housewives and those who worked. From this, an increased burden on mothers with children was present due to women's social advancement. In addition, it was remarkable that when the effect of educational aspirations was removed, the effect of academic records at 15 years of age had a direct impact on dropout risk. From this, the unformed aspiration might be the "wish to go to college or graduate school." In other words, aspirations were determined automatically only by student's academic records. Thus, the direct effect of academic record at 15 years of age was observed only when school type

was controlled because the risk of dropout is different by school type, which is determined by aspiration.

The following is suggested to prevent students from dropping out of higher education in Japan. The results show that the risk of dropout is raised if students do not have any aspirations. If students decide to attend school based only on their academic records, it is more likely to become a case of unwilling entrance. Hence, to avoid dropping out, it is important to carefully examine aspects that cannot be estimated from the rank of the school. Examples of such aspects include whether students are willing to attend school environments, whether the system has sufficient types of programs and course to match the students' needs, and whether the school traditions are suitable for making friends.

After students enter the school, it is important for them to make friends through attending lectures, or club activities because they will help each other, as friends assist one other by attending and committing to the school.

Aspirations at 15 years of age influence the decisions of those who drop out. Thus, children should be allowed to consider what they want to be and what they need to do to make their aspirations a reality. It is necessary for children to make several plans, and parents should assist in helping their children make the best choice, as this will enhance their children's aspirations for higher education in such a way could reduce the risk of dropping out.

Students with mothers who work full-time are at a high risk of dropping out, as the results revealed that full-time working mothers are extremely busy due to dual housekeeping and workloads. Hence, to circumvent children dropping out, it is important for both mothers and fathers to complete housework and to raise children equally. In addition, the results that show the significance of the mother's education suggesting that mothers, not fathers, play an important role raising children. However, it is clear that fathers need to cooperate with mothers to nurture children starting when they are infants. In addition, fathers should be able to communicate with their children at any time to support them mentally.

In order to decrease the number of students who drop out, it is necessary to take care of various students' needs by cooperating with institutions inside and outside of schools. It is certainly necessary to reduce the number of students who enter school unwillingly, and it is crucial to cooperate with other faculties or nearby institutions and to keep students informed about their options. In addition, increasing the numbers of students who attend lectures, and encouraging student participation in club activities in their first year are effective methods to promote making friends. Therefore, the most sufficient way to prevent students from dropping out involves an indirect approach, such as valuing their will and promoting relations between students, rather than a direct approach, such as forcing students to attend class.

The most recent analysis of dropping out in Japan using national survey data is Maruyama's study (1984); which used data that has not existed for almost a quarter of a century; thus, one of the most important contributions of this study is its selection of a neglected subject. The first of the remaining problems is to accomplish established theory by accumulating such studies.

This analysis used features of individuals as independent variables; however, this dataset did not measure subjective factors, such as commitment, which is considered one of the most important determinants of dropping out. As such, this study is limited by the lack of consideration of such factors. In addition, the analysis needs to take into account a longitudinal process (Chen and DesJardins 2006); for instance, considering the event and the stage at which the event occurs, or distinguishing stopout from dropout. Nevertheless, the methodological limits of the available datasets are not suitable for explaining the low interest in dropout from higher education in Japan and the lack of studies conducted on this topic.

References

Bean, John P. 1980. "DROPOUTS AND TURNOVER: The Synthesis and Test of a Causal Model of Student Attrition." *Research in Higher Education,* Vol. 12, No. 2: 155–187.

Chen, Rong, and Stephen L DesJardins. 2006. "Exploring the Effects of Aid on Gap in Student Dropout by Income Levels." *Research in Higher Education,* Vol. 49: 1–18.

DesJardins, Stephen L, Dennis A Ahlburg, and Brian P McCall. 1999. "An Event History Model of Student Departure." *Economics of Education Review,* Vol. 18: 375–390.

Furuta, Kazuhisa. 2011. "On the Mechanism of Class Difference in Educational Attainment." *Bulletin of Graduate School of Human Sciences, Osaka University,* Vol. 37: 193–214.

Herzog, Serge. 2005, "MEASURING DETERMINANTS OF STUDENT RETURN VS. DROPOUT / STOPOUT VS. TRANSFER: A First-to-Second Year Analysis of New Freshman," *Research in Higher Education,* Vol. 46, No. 8: 883–928.

Hirasawa, Kazushi. 2005. "Currently Problem on Studies of Transition from University to Occupation in the Field of Sociology." *The Japanese Journal of Labor Studies,* Vol. 47, No. 9: 29–37.

Ishitani, Terry T. 2008. "How to Explore Timing of Intervention for Students at Risk of Departure." *New Directions for Institutional Research,* Vol. 137: 105–122.

Kaji, Itaru. 2010. "Predictors of Student Dropout in a New University: A Regression Analysis." *Abstracts of Presentations of Annual Meeting of the Japan Society of Educational Sociology,* Vol. 62: 392–393.

Katayama, Yuki. 2008. "Dropouts and the Labor Market for High School Graduates: From the Viewpoint of the Acceptance of Becoming a Free-ter." *The Journal of Educational Sociology,* Vol. 83: 23–43.

Kikkawa, Toru. 2009. "'Differentiation of Schooling and Mother's Education." *Japanese Journal of Family Sociology,* Vol. 21, No. 1: 61–64.

Koga, Masayoshi. 1999. "Dropout without Reasons: A Case Study of Girls' High School Attached to the University."

Abstracts of Presentations of Annual Meeting of the Japan Society of Educational Sociology, Vol. 51: 175–176.

Kondo, Hiroyuki, and Kazuhisa Furuta. 2011. "Long-Term Trend of Class Difference in Education." In Hiroshi Ishida, Hiroyuki Kondo, and Keiko Nakao (eds.), *Currently Stratified Society 2: The Structure of Stratification and Mobility*. Tokyo: University of Tokyo Press, pp. 89–105.

Maruyama, Fumihiro. 1984. "A Study in Dropout in Japanese Colleges and Universities." *The Journal of Educational Sociology,* Vol. 39: 140–153.

Ojima, Fumiaki. 2002. "Social Stratification and Educational Choices: Changes in the 1990s." *The Journal of Educational Sociology,* Vol. 70: 125–142.

Pascarella, Ernest T, and David W Chapman. 1983. "VALIDATION OF THEORETICAL MODEL OF COLLEGE WITHDRAWAL: Interaction Effects in a Multi-Institutional Sample." *Research in Higher Education,* Vol. 19, No. 1: 25–48.

Sewell, William H, and Vimal P Shah. 1967. "Socioeconomic Status, Intelligence and the Attainment of Higher Education." *Sociology of Education,* Vol. 40: 1–23.

Stratton, Leslie S, Dennis M O'Toole, and James N Wetzel. 2008. "A Multinomial Logit Model of College Stopout and Dropout Behavior." *Economics of Education Review,* Vol. 27: 319–337.

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