



RIETI Discussion Paper Series 20-E-016

**Disparity in High School Enrollment between Native and
Immigrant Children in Japan
(Revised)**

HAGIWARA, Risa

Meikai university

LIU, Yang

RIETI



Research Institute of Economy, Trade & Industry, IAA

The Research Institute of Economy, Trade and Industry
<https://www.rieti.go.jp/en/>

Disparity in High School Enrollment between Native and Immigrant Children in Japan^{*}

Risa HAGIWARA

Meikai university

Yang LIU

Research Institute of Economy, Trade and Industry

Abstract

Using nonlinear decomposition, this study examines the gap in high school enrollment between native and immigrant children based on data from the 2010 Population Census. The school attendance probability of immigrant children is significantly lower than that of native children. Factors contributing to the gap are length of stay in Japan, parental employment status, and home ownership. The total explained part of all observable factors is approximately 30% in the comparison between native and immigrant children whose parents are both foreigners. Furthermore, immigrant children who do not attend high school are more likely to be unemployed.

Keywords: Immigrant, High school enrollment, Decomposition method

JEL classifications: J15, I24, I28

The RIETI Discussion Papers Series aims at widely disseminating research results in the form of professional papers, with the goal of stimulating lively discussion. The views expressed in the papers are solely those of the author(s), and neither represent those of the organization(s) to which the author(s) belong(s) nor the Research Institute of Economy, Trade and Industry.

^{*}This study is conducted as a part of the Project “Empirical Studies on Employment, Migration, and Family Issues of Foreigners in Japan” undertaken at the Research Institute of Economy, Trade and Industry (RIETI). It was supported by the Japan Society for the Promotion of Science (JSPS) Grant-in-Aid for Scientific Research (B) Grant Number 17KT0037 and a Grant-in-Aid for Young Scientists Grant Number 18K12799. This study utilizes the micro data of the questionnaire information based on 2010 Population Census which is conducted by the Ministry of Internal Affairs and Communications (MIC).

1. Introduction

In light of the increasing number of migrants to Japan since 2012, the issue of immigrant children has recently attracted a great deal of policy interest (Cabinet of Japan, 2018, 2019a, 2019b). According to the Ministry of Justice, at the end of 2021, Japan was home to a record 2,760,635 foreign residents. Japan has long been hesitant to accept foreigners, owing to concerns about increasing crime rates, fiscal burden, and the unemployment of Japanese workers (Bartram, 2000; Kobayashi, 2010; Oishi, 2020), even though many foreign countries are accepting of foreigners as immigrants.¹ However, Japan is dealing with the serious and growing problem of an aging population, prompting the government to shift its policy toward accepting foreigners to join the Japanese labor force, which faces a supply shortage.

In 2012, the residency management system was renewed. Under the new system, the period of the right to stay in Japan was extended to a maximum of five years, including one-year extension of the re-entry permit maximum validity period at one time. These changes have encouraged more people to move to Japan. In 2018, Japan's parliament approved a new immigrant law, the Immigration Control and Refugee Recognition Act, which encourages workers to come to the country to alleviate labor shortage. Under the new law, foreigners can work in construction, farming, and nursing, but not as technical trainees or interns. Moreover, two new visa categories have been created for foreign workers: 1) a renewable five-year visa for semi-qualified and blue collar work, two employment categories that face labor shortages, and 2) an unlimited renewal visa for high-skilled workers. Both visa types require Japanese language proficiency. These new visa categories are expected to increase the numbers of both high-skilled and low-wage foreign workers coming to Japan.

Despite the changes to Japan's immigration system and the society's gradual multiracial and multiethnic transformation, immigrants face adaptation challenges, especially when compared with the adaptation experiences of foreign residents in some other host countries (Liu-Farrer, 2020). Thus, foreign residents must adapt to their host country, as doing so benefits both the host country and the immigrant. For example, according to Chiswick (1991) and Borjas (1994), earnings assimilation occurs when immigrants improve their language skills or obtain more education. In particular, because immigrants are likely to have children, the adaptation of these children is an important policy issue.

The OECD (2015, 2017) revealed that immigrant children experience difficulties with education, employment, and other forms of social participation in host countries. This is particularly the case for those immigrant children whose native language differs from the language or languages of the host country (for the case in Japan, see Liu-Farrer, 2020). This language disadvantage has serious consequences for the future success of immigrant children. As these children grow older, their lack of language skills can place them at a huge disadvantage in critical life stages, such as school entrance examinations and job interviews. Thus, governments in many host countries have implemented policies to assist immigrant families to better adaptation (e.g., integrating language and subject learning from the earlier grades, expanding access to high-quality early childhood education and care program, and tailoring programs to the needs of pre-school migrant children), as accepting foreign workers is inevitable.

In this study, immigrant children (i.e., children of immigrants) are individuals who have at least one parent who has a foreign nationality. According to the OECD (2003) glossary of statistical terms, “the immigrant population is usually defined in one of two ways: some countries have traditionally focused on producing data that represents foreign nationals (European countries and Japan) while others refer to the foreign-born (Australia, Canada and the United States).” Foreign-born people who have changed their nationalities to become natives are still classified as immigrants in Australia, Canada, and the United States. However, they have been classified as natives in Japan and European countries, according to this OECD glossary. Especially in Japan, obtaining Japanese nationalities for foreign-born people necessitates long-term living in Japan, completely changing their family and given names into Japanese formal ones, giving up original nationalities, and meeting certain economic conditions (Ministry of Justice). Therefore, they may share some similar characteristics with natives. Although their foreign-born background may influence their behaviors and outcomes, they cannot be identified in studies in Japan because of the lack of data in their birth country. For these reasons, the classification of native and immigrant children in this study is based on their parents’ nationalities, rather than on their parents’ countries of birth, which are not available.

This study aims to examine the assimilation of immigrant children into host countries by

examining high school enrollment and completion and to discuss associated immigrant issues. Assimilation is the process whereby immigrants become socially, culturally, and economically “more like” natives (Grant, 1999; Borjas, 1985, 1995). This study examines assimilation in educational attainment. The gap between natives and immigrants measures how well immigrants assimilate (Hu, 2000), and a narrower gap over a longer period of stay confirms immigrant assimilation (Grant, 1999).² Furthermore, high school attendance is examined because, as Korekawa (2018) has found, the education attainment gap increases during the high school years. Both blue collar and high-earning employees must have graduated from high school. Japan has a history of restricting its acceptance to foreign residents who can more easily be assimilated into the country, including *Zainichi*³ and *Nikkei*⁴ residents (Liu-Farrer, 2020). Speaking a native language similar to Japanese is one factor that improves chances of adaptation (Liu-Farrer, 2020). Without strictly enforced policy, improving the language proficiency of immigrant children and, thus, decreasing the high school enrollment gap, may be difficult. Other factors determine educational attainment, including financial factors, and the most important factors underlying the gap must be clarified to enhance immigrant assimilation. To do so, we used a nonlinear decomposition method to analyze data from Japan’s 2010 Population Census.⁵

The differences between immigrants and natives are in part related to family structure. Immigrant children with two foreign parents are at a disadvantage at high school compared with immigrant children with only one foreign parent, because of the differences in quantity and quality of Japanese spoken at home. However, most immigrant children with two foreign parents could be *Zainichi* and *Nikkei* immigrant families; with Japanese ancestry and experience of Japanese culture, the difference may not be as significant. Therefore, this study compared three types of children: 1) native children whose parents are both Japanese; 2) immigrant children with two foreign parents; and 3) immigrant children with one foreign parent. Although findings will refer to the *Zainichi* or *Nikkei* group, this paper does not directly and specifically explore the impact of having a *Zainichi* or *Nikkei* parent for their children. This issue is a future task of this study.

The remainder of this paper is structured as follows: Section 2 introduces the related literature, Section 3 describes the empirical strategy, Section 4 introduces the data and descriptive

statistics, Section 5 presents the results, and Section 6 concludes.

2. Related Literature

The assimilation of immigrant children has been studied across a wide range of research fields. Many studies compare immigrant and native children and examine cause of disparities, including discrimination, differences in ability, and social or family background. This section introduces the results of previous research related to the education of immigrant children.

Existing research suggests that the determinants of immigrant children's educational outcomes include parental characteristics, such as length of stay in the host country, language skills, and aspirations for and expectations of the child's school performance (OECD, 2017). For example, the length of stay in a host country has been found to positively affect immigrant children's language skills and school grades (Worswick, 2004; Dos Santos and Wolff, 2011; Nielsen and Rangvid, 2012; Smith et al., 2016). Parental language skills also have a positive effect on the speaking proficiency and school attendance of children (Bleakley and Chin, 2008; Casey and Dustmann, 2008; Dos Santos and Wolff, 2011).

Research in Hungary (Brinbaum and Cebolla-Boado, 2007), Belgium (Hagelskamp et al., 2010), and the United States (Raleigh and Kao, 2010) has found that, compared with native parents, immigrant parents have higher aspirations for and expectations of their children. The literature also indicates that high parental aspirations positively affect children's educational achievements (Kao and Tienda, 1995; Vallet and Caille, 1999; Glick and White, 2004; Hagelskamp et al., 2010). However, according to Coate and Loury's (1993) theoretical findings, immigrant families are less motivated to invest in skills because of low returns on human capital investment. Moreover, Losen and Orfield (2002) indicated that children from some communities face discrimination in access to education, quality of schooling, grade retention, and tracking decisions. Therefore, although immigrant parents have high aspirations for their children, translating these educational aspirations into reality is often difficult. Salikutluk (2016) suggested the concept of the aspiration–achievement paradox.

Studies of immigrant children in Japan are limited in number. For instance, using cross-

sectional microdata from the Program for International Student Assessment from 2000 to 2012, Ishida et al. (2016) found that first-generation immigrants perform worse in reading literacy than natives and second-generation immigrants. They also clarified that the negative effects for immigrant children become insignificant and small when controlling for language spoken at home. Moreover, such effect on the mathematics and science test scores of immigrant children is insignificant.

Meanwhile, using the 2000 and 2010 Population Census data, Korekawa (2012, 2018) found that the disparity in educational attainment increases during high school. Moreover, Korekawa (2018) found that immigrants who have lived in Japan for more than five years are more likely to attend high school and that children in single-mother households have difficulty attending high school, using the same data in this paper.

A review of this literature concludes that a statistically significant difference exists between immigrants and natives. However, these studies do not investigate the main determinant of this difference and the extent to which observable factors impact such difference. Determining which factors increase the difference is crucial to enhancing the assimilation of immigrants and to resolving the disparity between immigrants and natives.

3. Empirical Strategy

This study uses Blinder (1973) and Oaxaca's (1973) decomposition method, which is widely used in studies related to gender and race wage gaps. This method divides wage differences into explained and unexplained categories. The explained category refers to differences that can be accounted for by observable characteristics, whereas the unexplained category, which is often regarded as a measure for discrimination, refers to residual elements that cannot be accounted for by differences in determinants. This method reveals which factors expand the difference between immigrant and native children. Blinder–Oaxaca decomposition is primarily used in linear regression model (ordinary least squares) frameworks, although it has been extended to nonlinear regression models to obtain consistent parameters and avoid misleading results (Gomulka and Stern, 1990; Fairlie, 1999, 2003, 2005; Yun, 2003).

First, we consider the decomposition method using the linear regression model

$$Y^g = X^g \beta^g + e^g, \quad (1)$$

where Y^g is a vector of dependent variables, X^g is a vector of independent variables, β^g is a vector of coefficient parameters, and e^g is a vector of error terms. g indicates nationality, that is, whether an individual is an immigrant or a native. If n is assigned to g , an individual is a native, and if f is assigned to g , an individual is an immigrant.

The decomposition using the linear regression model is

$$\bar{Y}^n - \bar{Y}^f = \Delta^{OLS} = \hat{\beta}^n(\bar{X}^n - \bar{X}^f) + \bar{X}^f(\hat{\beta}^n - \hat{\beta}^f), \quad (2)$$

where $\bar{Y}^g = \sum Y^g / N^g$ is the average value of the dependent variables and $\bar{X}^g = \sum X^g / N^g$ is the average value of the independent variables. N^g is the sample size, and $\hat{\beta}^g$ is an estimated parameter in the equation. In equation (2), the first term on the right-hand side is the explained category or the difference between independent variables, and the second term is the unexplained category or the difference between the coefficients.

The decomposition of the outcome variable is inappropriate for the nonlinear case because the conditional expectation $E(Y^g | X^g)$ in the nonlinear regression model is different from $\bar{X}^g \hat{\beta}^g$ in the linear regression model. Therefore, decomposition using the nonlinear regression model is necessary.

Next, we consider the nonlinear regression model

$$Y^{g*} = X^g \beta^g + e^g, \\ Y^g = \begin{cases} 0 & \text{if } Y^{g*} \leq 0 \\ 1 & \text{if } Y^{g*} > 0 \end{cases} \quad (3)$$

where Y^{g*} is a latent variable. The decomposition of the mean difference of outcome Y^g between

natives and immigrant children in the case of reference group n is

$$\bar{Y}^n - \bar{Y}^f = \Delta^{NL,n} = [\sum F(X^n \hat{\beta}^n)/N^n - \sum F(X^f \hat{\beta}^n)/N^f] + [\sum F(X^f \hat{\beta}^n)/N^f - \sum F(X^f \hat{\beta}^f)/N^f], \quad (4)$$

where $\sum F(X^g \hat{\beta}^g)/N^g$ is the conditional expectation of Y^g given X^g , which is evaluated at parameter β in the case of group g . Under a logit model, the probability is written as $p^g = Pr(Y^g = 1|X^g) = (\exp(X^g \beta^g))/(1 + \exp(X^g \beta^g)) = F(X^g \hat{\beta}^g)$, where F is the cumulative distribution function.⁶ Meanwhile, in equation (4), the first term on the right-hand side is the explained category, which is the difference between variables, and the second term is the unexplained category, which is the difference between the coefficients. Equation (4) shows the decomposition in the case of reference group n . Then, $\hat{\beta}^n$ is used as a weight for the first term in the decomposition, and X^f is used as a weight for the second term.

As mentioned by Oaxaca (1973), some alternative methods can be used for calculating the decomposition to deal with the so-called “index problem” of Blinder–Oaxaca decomposition. Choosing from alternative methods of calculating the first term of the decomposition is difficult. For example, Oaxaca and Ransom (1994) suggested a method to weight the first term using coefficients estimated from the pooled sample of the two groups. However, some research cases consisted of more than two comparative groups. Thus, Fairlie (2005) and Fairlie and Robb (2007) proposed another decomposition method that weights the first term using coefficients estimated from the full sample of all groups. This method has the advantage of including full sample information of all groups and is useful for the research presented in this paper, which compares gaps between three groups.

In addition, this method solves the problem of sample size difference between two comparative groups. First, the pooled coefficient estimates were used to calculate predicted outcome probabilities for each group of observations. Second, a subsample of the larger sample size group was randomly drawn to equal the full sample of the smaller sample size group. The predicted probabilities were used to rank each observation in the subsample of the larger group and the full sample of the

smaller group. Then, Oaxaca and Ransom's (1994) robustness check method was used.

4. Data

This study uses the individual data from the 2010 Population Census provided by the Ministry of Internal Affairs and Communications. The survey pertains to the entire population of Japan. The Japanese government conducts this census every five years, but it collects education information only every ten years. As a result, the education data were included in the 2010 and 2020 censuses, but not in the 2015 census. Individual data from the 2020 census have not been made available at the time of writing; hence, the 2010 census provides the most up-to-date data for this study. The 2010 census includes information regarding education level, age, family structure, working status, and nationality. The survey covered 51,950,504 households and 128,057,352 people (48.7% male), of which approximately 125,359,000 were Japanese citizens and approximately 1,648,000 were foreign residents of Japan. This study used detailed sample tabulation data, extracting 10% of the data, and merged children's data with those of their parents. In addition, we used the data from samples of females and males aged 16 to 18 years and living with both parents.⁷ Non-responses were excluded. In Japan, children usually live with their parents until high school graduation, and they move away from home when entering universities or colleges. Therefore, the research focused on high school enrollment. The final sample size was 223,507. With so few immigrants, conducting meaningful quantitative research is often difficult, and collecting the data on immigrant children has traditionally been especially difficult in Japan. However, owing to the large sample size in this research, the probabilities of immigrant and native children could be meaningfully compared.

The independent and dependent variables were based on the survey from the OECD (2017). According to the findings of previous studies (Worswick, 2004; Dos Santos and Wolff, 2011; Nielsen and Rangvid, 2012; Smith et al., 2016), the greater the length of stay is, the easier it is for immigrants to obtain high-quality education. Therefore, this study employed the length of stay in Japan as a dummy variable that is equal to 1 if parents had lived in Japan for more than five years and 0 otherwise. We use the data as a proxy for this variable because they only provide the information about the place

of residence five years ago. This limitation would result in a downward bias in the estimates, which will be carefully examined.

Parental background is also an important determinant of children's educational attainment. This study used two kinds of independent variables. First, we considered financial burden as a crucial issue for immigrants when deciding whether to send their children to high school. To observe the financial burden effect, we employed four kinds of father's employment status as dummies. These were dummies for regular employee, non-regular employee, executive officer, self-employed/employed, and unemployed (the reference group was the unemployed group). In addition, a mother's working dummy variable was used, which is equal to 1 if the mother worked and 0 otherwise.⁸ Second, parents who hold a four-year college degree may have higher aspirations for and expectations of their children. Therefore, this study used a four-year college degree dummy, which is equal to 1 if at least one parent had a four-year college degree and 0 otherwise.

In addition, we used a female dummy variable, age, number of siblings, a home ownership dummy variable (1 if the household owns a home and 0 otherwise), a densely inhabited district dummy variable (1 if the household lives in a densely inhabited district and 0 otherwise), and a prefecture dummy variable as control variables.

Before proceeding with the analysis, we show in Table 1 the main descriptive statistics of high school attendance. Meanwhile, Table 2 shows the descriptive statistics for the nationality of fathers, mother, and children. It reveals that in the sample of immigrant children with two foreign parents, the majority of parents are Korean (about 41%), Brazilian (about 20%), and Chinese (about 20%). These may be *Nikkei*, that is, people of Japanese ancestry living abroad as citizens of other countries whose descendants have moved to Japan.⁹ The sample of immigrant children with one foreign parent shows large differences between the nationality of mothers and that of fathers. In this sample, Japanese fathers account for 83.4% of the total number of fathers. Of the total number of mothers, Thai mothers account for 37.8%, Japanese mothers for 16.6%, Korean mothers for 16.1%, and Chinese mothers for 13.7%. The percentage of children with Japanese nationality is 89.1%, suggesting that many immigrant children have roots in Japan even if neither parent is Japanese.

As shown in Table 1, high school attendance for native Japanese children is 96.8%; for immigrant children with two foreign parents, 89.7%; and for immigrant children with one foreign parent, 90.9%. Most of the sample attended high school between the ages of 16 and 18 years. Individuals not in high school tend to be workers, job seekers, or homemakers. The sample of immigrants with one foreign parent differs slightly from the other samples, with a higher percentage of unemployed high school aged children.

Almost 100% of natives and immigrants with one foreign parent compared to 90% of immigrants with two foreign parents had lived in Japan for more than five years. Female children range from 47.2% to 49.2% in the different subsamples, and the gender ratio is almost 50:50. The percentages of those aged 16, 17, and 18 are about 30% to 40%. The mean number of siblings ranges from 2.099 to 2.228.

Approximately 70% to 80% of all fathers are employed. Of native fathers, 72.9% are regular employees, 4.59% non-regular employees, and 9.04% executive officers. Among immigrant children with two foreign parents, 42.8% of fathers are regular employees, 25.9% non-regular employees, and 12.5% executive officers. Among immigrant children with only one foreign parent, 53.4% of fathers are regular employees, 13.2% non-regular employees, and 10.5% executive officers.

For natives, 74.9% have a working mother and 34.2% have one parent with a college degree. For immigrant children with two foreign parents, 61.2% have a working mother, and 34.2% have one parent with a college degree. Meanwhile, for immigrant children with one foreign parent, 59.0% have a working mother, and 28.8% have one parent with a college degree.

Among natives, immigrant children with two foreign parents, and immigrant children with one foreign parent, 84.1%, 49.9%, and 64.0% of parents owned their own home, respectively. Meanwhile, 54.3% to 78.3% of households lived in densely inhabited districts. Households with foreign parents tend to be located in densely inhabited districts, such as the Kanto area, including Tokyo, Saitama, and Kanagawa, and the Kansai area, including Osaka, Kyoto, and Hyogo (see Tables 1 and 3).

[Insert Tables 1–3 here]

5. Estimation Results

5.1 Logistic regression

First, we present the logistic regression results in Table 4 for high school attendance, using the pooled samples and samples of natives, immigrants whose two foreign parents, and immigrants with one foreign parent.

The coefficients of the dummies for immigrant children with one foreign parent are significantly negative and larger than those of immigrant children with two foreign parents. This means that immigrants with one foreign parent are less likely to attend high school than natives and immigrants with two foreign parents. The coefficients of immigrant children with two foreign parents are insignificant.

Significantly positive effects were also found for the dummies for females, living in Japan for more than five years¹⁰ (except in the case of the native sample), parental working status, parents with four-year college degrees, and home ownership. Immigrant children's attendance at high school is correlated to length of stay in Japan, parental roots, parental employment status (namely, regular employment, executive officer, or self-employed/employed), parents with a four-year college degree, and home ownership. Meanwhile, the coefficients of the dummy for densely inhabited district were significantly positive only for the native sample.

However, for both natives and immigrant children with two foreign parents, the coefficients for number of siblings were significantly negative. Having more siblings discouraged high school attendance. The coefficients of age are also significantly negative in all sample cases, indicating that some high school children left school before graduation.¹¹

[Insert Table 4 here]

5.2 Decomposition

The decomposition results are presented in Table 5. Columns 1 and 2 show the results using the three-group pooled sample and the decomposition method suggested by Fairlie (2005). Meanwhile, columns 3 and 4 show the results using the two-group pooled sample and the decomposition method suggested by Oaxaca and Ransom (1994). Columns 1 and 3 compare natives with immigrant children with two foreign parents, whereas columns 2 and 4 compare natives with immigrant children with one foreign parent.

The differences between natives and immigrant children with two foreign parents are 0.0713 in columns 1 and 3, and the explained category is 31.0% and 28.2% in columns 1 and 3, respectively. The decomposition results reveal that group differences in all of the included characteristics account for approximately 30% of the gap in high school attendance. However, differences between natives and immigrant children with one foreign parent are 0.0594 in columns 2 and 4, and the explained category is 19.4% and 17.7% in columns 2 and 4, respectively. The estimated differences between natives and immigrants indicate that the probability of high school attendance among immigrant children is lower on average than among native children. The range of difference between natives and immigrant children with two foreign parents is slightly larger than that between natives and immigrant children with one foreign parent. The latter disparity is more serious than the former. The percentage of the explained category in the pooled sample comparing natives with immigrant children with two foreign parents is larger than that in the pooled sample comparing natives with immigrant children with one foreign parent. This indicates many other reasons for the gap in high school attendance between natives and immigrant children with one foreign parent, compared with immigrant children with two foreign parents.

Observing the results for each independent variable, we found significantly positive coefficients of the dummy variables, including living in Japan for more than five years, parental employment (namely, regular employee, executive officer, or self-employed/employed), and home ownership. These factors increase the gap between natives and immigrant children. The largest factor explaining the disparity between natives and immigrant children with two foreign parents in columns 1 and 3 is home ownership, and the second largest factor is father's regular employment status. The

explained power of home ownership is 0.0108 to 0.0110 (15.1% to 15.4% of the difference) and that of father's regular employment status is 0.00888 to 0.00901 (12.5% to 12.6% of the difference).

Meanwhile, the largest factor explaining the disparity between natives and immigrant children with one foreign parent in columns 2 and 4 is home ownership, with an explained power of 0.00561 to 0.00562 (9.4% to 9.5% of the difference). The second largest factor is father's regular employment status, and its impact size is almost equal to that of home ownership. The explained power is 0.00530 to 0.00531 (8.9% of the difference).

[Insert Table 5 here]

5.3 Prospects for individuals who do not attend high school

Table 6 presents the results of the multinomial logit model for individuals who did not attend high school. There are three decision variables, namely, employed, unemployed, and homemaker (the employed group is the reference group).

The coefficients of both dummies for immigrant children with two foreign parents and immigrant children with one foreign parent are significantly positive with regard to unemployment estimation. Meanwhile, the coefficient for immigrant children with two foreign parents is greater than that of immigrant children with one foreign parent. This means that immigrant children with two foreign parents are more likely to be unemployed than natives or immigrant children with one foreign parent. However, these coefficients for homemaking are insignificant.

Unemployment of a job seekers is determined by the probability that the job seeker matched to a vacant position, and the probability that the job seeker accepts the job (Cahuc and Zylberberg, 2014). The estimated result shows significantly positive results for parents with four-year college degrees. The explanation could be that parents who have a higher level of education may aspire better job opportunities for their children, which help children to spend more time in job search and to be more patient to wait for a good job offer; thus, unemployment periods increase. Meanwhile, significantly negative estimates of employment status and home ownership indicates that financial

factors could help children find jobs by increasing their job search effort, such as collecting more job information and sending more job applications. Finally, the probability to be unemployed could be reduced by child's age and having more siblings.

Regarding being a homemaker, the estimates of almost all variables are significantly negative, with several exceptions. The negative estimate of living in Japan for more than five years indicates that children who live in Japan for a longer period are less likely to be homemakers. Furthermore, a significantly negative estimate of working mother implies that children with working mothers are less likely to be homemakers. In addition, the positive estimate of female dummy indicates that female children are more likely to choose to be homemakers.

[Insert Table 6 here]

6. Conclusion

Applying the nonlinear decomposition method to data from the 2010 Population Census, this research examined the high school educational gap between native Japanese children and immigrant children with similar characteristics.

The results of logistic regression reveal that the average high school attendance probability of immigrant children is lower than that of native children. School attendance probability increased for those who had lived in Japan for more than five years, those with a working parent, those with a parent with a four-year college degree, and those whose parents own their own home. These results were observed when comparing native children and immigrant children with two foreign parents, and native children and immigrant children with one foreign parent.

Nonlinear decomposition analysis revealed a significant difference in the probability of high school attendance between native children and immigrant children aged 16 to 18 years. The size of this difference varied depending on whether one or both parents were foreigners. The size of the difference between native children and immigrant children with two foreign parents is larger than that between native children and immigrant children with one foreign parent. The following factors

increased the gap: length of stay in Japan, parental employment status, parents with a four-year college degree, and home ownership. The nonlinear decomposition results showed that the financial status improvement is crucial for better assimilation of immigrant children.

One solution to the issue would be to increase scholarships and student loans for immigrants. Some funding is already available through the Japan Student Services Organization, Japan's largest and most well-known provider of scholarships and student loans. The growing number of immigrant students is expected to increase the need for scholarships and loans in the future. Another way to improve the financial status of immigrants would be for the government, local government, and institutions (e.g., colleges and universities) to provide financial aid. For example, immigrant children are eligible for federal student aid, state aid, and institutional aid from colleges and universities in the United States.¹²

This research was limited by its definition of immigrant children as children with one or two foreign parents. However, because of the data used, only the parental background of children living with their parents was known. In other words, a sample selection bias may exist, as individuals living away from the family home were excluded. Analysis with a sample of immigrants who do not live with their parents should be conducted in the future.

Footnotes

¹ Immigrants are people who legally move from their home country or another country to a host country. In Japan, immigrants do not have citizenship rights to settle or reside. Permanent residents and naturalized citizens in Japan are regarded as immigrants (see Taguchi, 1983, for details).

² Grant (1999) found many cohorts of immigrants “may never assimilate” because the gaps between them and natives do not narrow.

³ Japan’s largest ethnic minority groups are of Korean and Chinese descent, and they are referred to as *Zainichi*. In general, they are from Japan’s former colonies and the descendants of those people. However, since the 1980s, the numbers of migrants from elsewhere in Asia and from South America have grown considerably.

⁴ A person of Japanese ancestry living abroad as a citizen of another country is referred to as *Nikkei*. Most *Nikkei* now residing in Japan are from Korea, China, and Brazil.

⁵ The Population Census is the largest dataset available in Japan (see Takenaka et al., 2016). However, its usage has some analytical limitations, as some factors, such as income, language proficiency, and year of immigration to Japan, are not surveyed. This study attempts to address these data limitations by using alternative variables.

⁶ If the conditional expectation of Y^g given X^g is linear, then a linear probability model is estimated.

⁷ Adding such constraints, we determined that the data may be limited to foreign children who live in Japan on family visas.

⁸ The most appropriate variable to explain the impact of family economic conditions may be income. However, the 2010 Population Census does not cover earnings, hourly wages, annual incomes, bonus, and so on. Hence, this research used variables of father’s employment type, mother’s working status, and home ownership to measure the impact of economic conditions.

⁹ According to the Statistics on Foreign National Residents, published by the Japanese Ministry of Justice, the percentages of permanent resident, spouse or child of Japanese national, spouse or child of permanent resident, and long-term resident are 85.5% for Korean, 98.5% for Brazilian, and 38.6% for Chinese immigrants. These immigrants tend to choose resident status that enables them to remain in Japan for longer. Actually, because the third-generation residents of Japanese descent are eligible to obtain the long-term resident status in Japan, descendants of Japanese who have moved abroad are more likely to obtain resident status. In addition, Korea, Brazil, and China are the main countries where Japanese government had implemented to immigrate abroad in the migration policy.

¹⁰ The estimate of living in Japan for more than five years may be skewed downward bias because of data limitation. However, because the result is significantly positive, this bias has no bearing on the main conclusion that the length

of stay contributes to assimilation.

¹¹ This study focuses on the parent's financial status and education attainment. Because of data limitation, the study does not examine the similarities to the host country's language and native language, which may be important for assimilation into the host country. Chiswick and Miller (2005) and Isphording and Otten (2013, 2014) argued that the similarities between immigrant's native language and host country's language positively affects host country language acquisition. According to survey research, such as the OECD (2017), parental language skills affect children's language skills. Almost all studies related to immigrant children's education performance use parental language skills variables rather than children's language skills variables, as data used in previous studies do not include direct information about children's language skills. The OECD (2017) has also suggested that the relationship between parental language skills and children's language skills is far from simple. For example, the problem of reverse causality means that the language skills of a child affect those of the parents, making empirical analysis difficult. Researchers must carefully verify the results of their analyses. Although some precautions must be taken when relying on existing research on immigrant children's language skills, almost all studies conclude that low parental language skills negatively affect children's language acquisition. Thus, the language proficiency is a crucial variable; however, our data does not survey. This issue is a future subject for our study.

¹² The financial support is of two types: need-based and merit-based. The need-based financial support is based on the student's financial need, which is also known as grants, and the merit-based financial support is based on the student's ability.

References

- Bartram, D. 2000. Japan and labor migration: theoretical and methodological implications of negative cases, *International Migration Review*, vol. 34, no. 1, 5–32.
- Bleakley, H. and Chin, A. 2008. What holds back the second generation? The intergenerational transmission of language human capital among immigrants, *Journal of Human Resources*, vol. 43, no. 2, 267–98.
- Borjas, G.J. 1985. Assimilation, changes in cohort quality, and the earnings of immigrants, *Journal of Labor Economics*, vol. 3, no. 4, 463–89.
- Borjas, G.J. 1994. Economics of immigration, *Journal of Economic Literature*, vol. 32, 1667–717.
- Borjas, G.J. 1995. Assimilation and changes in cohort quality revisited: what happened to immigrant earnings in the 1980s?, *Journal of Labor Economics*, vol. 13, no. 2, 201–45.
- Brinbaum, Y. and Cebolla-Boado, H. 2007. The school careers of ethnic minority youth in France: success or disillusion?, *Ethnicities*, vol. 7, no. 3, 445–74.
- Cabinet of Japan. 2018. Comprehensive policies for foreign labors' acceptance and integration (decided by cabinet council on foreign labors' acceptance and integration, Dec. 25th, 2018), in Japanese, https://www.kantei.go.jp/jp/singi/gaikokujinzai/kaigi/pdf/taiousaku_honbun.pdf
- Cabinet of Japan. 2019a. Expanding comprehensive policies for foreign labors' acceptance and integration (decided by cabinet council on foreign labors' acceptance and integration, Jun. 18th, 2019), in Japanese, https://www.kantei.go.jp/jp/singi/gaikokujinzai/kaigi/pdf/jujitsu_honbun.pdf (2021/05/27 browsed)
- Cabinet of Japan. 2019b. (Revised) Comprehensive policies for foreign labors' acceptance and integration (decided by cabinet council on foreign labors' acceptance and integration, Dec. 20th, 2019), in Japanese https://www.kantei.go.jp/jp/singi/gaikokujinzai/kaigi/pdf/taiosaku_kaitei_honbun.pdf (2021/05/27 browsed)
- Casey, T. and Dustmann, C. 2008. Intergenerational transmission of language capital and economic outcomes, *Journal of Human Resources*, vol. 43, no. 3, 660–87.

- Cahuc, P., Carcillo, S., and Zylberberg, A. 2014. *Labor Economics*, Cambridge MA, MIT Press.
- Chiswick, B. 1991. Speaking, reading and earnings among low-skilled immigrants, *Journal of Labor Economics*, vol. 9, no. 2, 149–70.
- Chiswick, B. R. and Miller, P.W. 2005. Linguistic distance: a quantitative measure of the distance between English and other languages, *Journal of Multilingual and Multicultural Development*, vol. 26, no. 1, 1–11.
- Coate, S. and Loury, G.C. 1993. Will affirmative-action policies eliminate negative stereotypes? *American Economic Review*, vol. 83, no. 5, 1220–40.
- Dos Santos, M.D. and F.C. Wolff, 2011, Human capital background and the educational attainment of second-generation immigrants in France. *Economics of Education Review*, vol. 30, no. 5, 1085–96.
- Fairlie, R.W. 1999. The absence of the African-American owned business: an analysis of the dynamics of self-employment, *Journal of Labor Economics*, vol. 17, no. 1, 80–108.
- Fairlie, R.W. 2003. An extension of the Blinder–Oaxaca decomposition technique to logit and probit models. Economic Growth Center, Yale University Discussion Paper No. 873.
- Fairlie, R.W. 2005. An extension of the Blinder–Oaxaca decomposition technique to logit and probit models, *Journal of Economic and Social Measurement*, vol. 30, 305–16.
- Glick, J.E. and White, M.J. 2004. Post-secondary school participation of immigrant and native youth: the role of familial resources and educational expectations, *Social Science Research*, vol. 33, no. 2, 272–99.
- Gomulka, J. and Stern, N. 1990. The employment of married women in the United Kingdom 1970–83. *Economica*, vol. 57, 171–99.
- Grant, M.L. 1999. Evidence of new immigrant assimilation in Canada, *Canadian Journal of Economics*, vol. 32, no. 4, 930–955.
- Hagelskamp, C., C. Suárez-Orozco, and D. Hughes, 2010, Migrating to opportunities: how family migration motivations shape academic trajectories among newcomer immigrant youth. *Journal of Social Issues*, vol. 66, no. 4, 717–39.
- Hu, W.Y. 2000. Immigrant earnings assimilation: estimates from longitudinal data, *American*

- Economic Review*, vol. 90, no. 2, 368–72.
- Ishida, K., Nakamuro, M., and Takenaka, A. 2016. The academic achievement of immigrant children in Japan: an empirical analysis of the assimilation hypothesis, *Educational Studies in Japan: International Yearbook*, vol. 10, 93–107.
- Isphording, I.E. and Otten, S. 2013. The costs of Babylon—Linguistic distance in applied economics, *Review of International Economics*, vol. 21, no. 2, 354–69.
- Isphording, I.E., and Otten, S. 2014. Linguistic barriers in the destination language acquisition of immigrants. *Journal of economic behavior & organization*, vol. 105, 30–50.
- Kao, G. and Tienda, M. 1995. Optimism and achievement: the educational performance of immigrant youth, *Social Science Quarterly*, vol. 76, no. 1, 1–19.
- Kobayashi, H. 2010. ‘Immigration and Crime Rates in Japan: Does an Increase in Foreign-Born People Threaten Japanese Public Safety?’, MA Thesis, Georgetown University.
- Korekawa, Y. 2012. An analysis of Japan’s immigrant settlement process: Social stratification occupational attainment and intergenerational mobility (in Japanese). Economic and Social Research Institute (ESRI) No. 283.
- Korekawa, Y. 2018. Educational attainment and intergenerational class mobility of the second-generation immigrant in Japan: analyzing high school enrollment, *The Journal of Population Studies*, vol. 54, 2–25.
- Liu-Farrer, G. 2020. *Immigrant Japan: Mobility and Belonging in an Ethno-Nationalist Society*, New York, Cornell University Press.
- Losen, D. J. and Orfield, G. 2002. *Racial Inequity in Special Education*, Cambridge, MA, Harvard Education Publishing Group.
- Ministry of Justice, Questions and answers relating to nationalities,
<https://www.moj.go.jp/MINJI/minji78.html#a09>
<https://www.moj.go.jp/MINJI/minji78.html#a09> (2022/05/20 browsed)
- Nielsen, H.S. and Rangvid, B.S. 2012. The impact of parents’ years since migration on children’s academic achievement, *IZA Journal of Migration*, vol. 1, no. 1, 6.

- OECD. 2003. Immigrant population, Glossary of Statistical Terms.
<https://stats.oecd.org/glossary/detail.asp?ID=1284>
<https://stats.oecd.org/glossary/detail.asp?ID=1284> (2022/05/20 browsed)
- Oishi, N. 2020. Skilled or unskilled?: The reconfiguration of migration policies in Japan, *Journal of Ethnic and Migration Studies*, 1–18.
- Organisation for Economic Co-operation and Development (OECD). 2015. *Helping Immigrant Students to Succeed at School-and Beyond*.
- Organisation for Economic Co-operation and Development (OECD). 2017. *Catching Up? Intergenerational Mobility and Children of Immigrants*.
- Raleigh, E. and Kao, G. 2010. Do immigrant minority parents have more consistent college aspirations for their children? *Social Science Quarterly*, vol. 91, no. 4, 1083–102.
- Salikutluk, Z. 2016. Why do immigrant students aim high? Explaining the aspiration–achievement paradox of immigrants in Germany, *European Sociological Review*, vol. 32, no. 5, 581–92.
- Smith, C.D., Helgertz, J. and Scott, K. 2016. Parents’ years in Sweden and children’s educational performance, *IZA Journal of Migration*, vol. 5, no. 1, Article No. 6.
- Takenaka, A., Nakamuro, M., and Ishida, K. 2016. Negative assimilation: how immigrants experience economic mobility in Japan, *International Migration Review*, vol. 50, no. 2, 506–33.
- Taguchi, S. 1983. A note on current research of immigrant groups in Japan, *International Migration Review*, vol. 17, no. 4, 699–714.
- Vallet, L.A. and Caille, J.P. 1999. Migration and integration in France. Academic careers of immigrants’ children in lower and upper secondary school. In: European Science Foundation Conference on Migrations and Inter-ethnic Relations in Europe, Obernai, France.
- Worswick, C. 2004. Adaptation and inequality: children of immigrants in Canadian schools, *Canadian Journal of Economics*, vol. 37, no. 1, 53–77.
- Yun, M.S. 2003. Decomposing differences in the first moment. IZA Discussion Paper No. 877.

Table 1. Descriptive Statistics

	Native	Immigrant child with two foreign parents	Immigrant child with one foreign parent	All sample
Native	1.000	0.000	0.000	0.988
Immigrant child with two foreign parents	0.000	1.000	0.000	0.00365
Immigrant child with one foreign parent	0.000	0.000	1.000	0.00829
Attending school	0.968	0.897	0.909	0.967
Working	0.0196	0.0589	0.0367	0.0199
Unemployed	0.00908	0.0368	0.0448	0.00948
Homemaker	0.00312	0.00736	0.0097	0.00319
Living in Japan for more than five years	0.999	0.898	0.954	0.998
Father: Not working	0.0117	0.0466	0.0567	0.0122
Father: Regular employee	0.729	0.428	0.534	0.726
Father: Non-regular employee	0.0459	0.259	0.132	0.0474
Father: Executive officer	0.0904	0.125	0.105	0.0906
Father: Self-employed/employed	0.123	0.141	0.172	0.123
Mother: Working	0.749	0.612	0.590	0.748
Parents: Four-year college graduate	0.342	0.342	0.288	0.341
Female	0.492	0.475	0.472	0.492
Age 16	0.365	0.385	0.373	0.365
Age 17	0.347	0.351	0.355	0.347
Age 18	0.288	0.264	0.271	0.288
Number of siblings	2.156	2.228	2.099	2.156
Home owner	0.841	0.499	0.640	0.838
Densely inhabited district	0.543	0.783	0.648	0.544

Source: 2010 Population Census (MIC)

Table 2. Descriptive Statistics (Nationality)

	Native	Immigrant child with two foreign parents	Immigrant child with one foreign parent	All sample
Father: Japanese	1.000	0.000	0.834	0.995
Father: Korean	0.000	0.415	0.0966	0.00231
Father: Chinese	0.000	0.200	0.0221	0.000913
Father: Thai	0.000	0.0258	0.00108	0.000103
Father: Filipino	0.000	0.000	0.000540	0.0000447
Father: Indonesian	0.000	0.00491	0.00108	0.0000268
Father: Vietnamese	0.000	0.0258	0.000	0.0000940
Father: British	0.000	0.00123	0.00432	0.0000403
Father: American	0.000	0.0147	0.0130	0.0001611
Father: Brazilian	0.000	0.202	0.00270	0.000761
Father: Peruvian	0.000	0.0687	0.000540	0.000255
Father: Others	0.000	0.0417	0.0237	0.000349
Mother: Japanese	1.000	0.000	0.166	0.989
Mother: Korean	0.000	0.410	0.161	0.00283
Mother: Chinese	0.000	0.200	0.137	0.00186
Mother: Thai	0.000	0.0294	0.378	0.00324
Mother: Filipino	0.000	0.000	0.0561	0.000465
Mother: Indonesian	0.000	0.00491	0.00486	0.0000582
Mother: Vietnamese	0.000	0.0245	0.00216	0.0001074
Mother: British	0.000	0.00368	0.000	0.0000134
Mother: American	0.000	0.0147	0.00702	0.000112
Mother: Brazilian	0.000	0.205	0.0275	0.000975
Mother: Peruvian	0.000	0.0663	0.00702	0.000300
Mother: Others	0.000	0.0417	0.0534	0.000595
Japanese	1.000	0.0160	0.891	0.995
Korean	0.000	0.410	0.0108	0.00158
Chinese	0.000	0.193	0.0470	0.00110
Thai	0.000	0.0258	0.0351	0.000389
Filipino	0.000	0.000	0.00432	0.0000403
Indonesian	0.000	0.00491	0.000540	0.0000224
Vietnamese	0.000	0.0258	0.000540	0.0000984
British	0.000	0.00368	0.000	0.0000134
American	0.000	0.0196	0.000540	0.000103
Brazilian	0.000	0.204	0.00270	0.000765
Peruvian	0.000	0.0638	0.000	0.000233
Others	0.000	0.0344	0.00756	0.000210

Source: 2010 Population Census (MIC)

Table 3. Descriptive Statistics (Prefecture)

	Native	Immigrant child with two foreign parents	Immigrant child with one foreign parent	All sample
Hokkaido	0.117	0.000	0.0443	0.116
Aomori	0.0131	0.000	0.00270	0.0130
Iwate	0.0134	0.000	0.0103	0.0134
Miyagi	0.0180	0.000	0.0119	0.0179
Akita	0.00758	0.000	0.000	0.00749
Yamagata	0.0111	0.000	0.0270	0.0112
Fukushima	0.0203	0.000	0.000	0.0201
Ibaraki	0.0232	0.0270	0.0448	0.0234
Tochigi	0.0162	0.0307	0.0162	0.0163
Gunma	0.0157	0.0282	0.0232	0.0158
Saitama	0.0529	0.0638	0.0874	0.0532
Chiba	0.0373	0.000	0.0718	0.0374
Tokyo	0.0457	0.0810	0.0950	0.0463
Kanagawa	0.0474	0.0982	0.0739	0.0479
Niigata	0.0196	0.000	0.0135	0.0195
Toyama	0.0067	0.000	0.000	0.00666
Ishikawa	0.0093	0.000	0.00324	0.00924
Fukui	0.0066	0.000	0.0113	0.007
Yamanashi	0.0104	0.0147	0.0113	0.010
Nagano	0.0242	0.0405	0.0426	0.024
Gifu	0.0182	0.0405	0.0157	0.018
Shizuoka	0.0290	0.0589	0.0259	0.0291
Aichi	0.0497	0.124	0.0615	0.0501
Mie	0.0152	0.0196	0.0151	0.0152
Shiga	0.0117	0.0282	0.00863	0.0118
Kyoto	0.0191	0.0466	0.0237	0.0193
Osaka	0.0559	0.172	0.0907	0.0566
Hyogo	0.0353	0.0810	0.0405	0.0355
Nara	0.0137	0.000	0.000	0.0135
Wakayama	0.0104	0.000	0.000	0.0103
Tottori	0.00632	0.000	0.00540	0.00629
Shimane	0.00655	0.000	0.000	0.00647
Okayama	0.0147	0.0098	0.0113	0.0147
Hiroshima	0.0217	0.0282	0.0227	0.0218
Yamaguchi	0.0109	0.000	0.000	0.0108
Tokushima	0.00737	0.000	0.00486	0.00732
Kagawa	0.00748	0.00736	0.000	0.00742
Ehime	0.0114	0.000	0.00216	0.0112
Kochi	0.00862	0.000	0.000	0.00852
Fukuoka	0.0392	0.000	0.0237	0.0389
Saga	0.00883	0.000	0.00540	0.00876
Nagasaki	0.0117	0.000	0.00486	0.0116
Kumamoto	0.0160	0.000	0.00810	0.0159
Oita	0.00853	0.000	0.00432	0.00846
Miyazaki	0.0115	0.000	0.00540	0.0114
Kagoshima	0.0186	0.000	0.0151	0.0185
Okinawa	0.0162	0.000	0.0146	0.0161

Source: 2010 Population Census (MIC)

Table 4. Logit Estimation Results

Logit model	Age 16–18 years			
	(1)	(2)	(3)	(4)
Dependent variable: Schooling dummy	Native	Immigrant child with two foreign parents	Immigrant child with one foreign parent	Pooled sample
Immigrant child with two foreign parents				-0.828*** (0.137)
Immigrant child with one foreign parent				-0.893*** (0.0968)
Living in Japan for more than five years	-1.694* (1.018)	1.580*** (0.392)	1.074*** (0.339)	0.789*** (0.195)
Father: Regular employee	0.654*** (0.083)	0.679 (0.528)	0.669* (0.373)	0.659*** (0.080)
Father: Non-regular employee	0.0591 (0.093)	-0.875* (0.517)	-0.0717 (0.414)	0.0368 (0.0889)
Father: Executive officer	0.731*** (0.0950)	0.845 (0.789)	1.225** (0.501)	0.746*** (0.0917)
Father: Self-employed/employed	0.360*** (0.0881)	-0.113 (0.646)	0.809* (0.423)	0.372*** (0.085)
Mother: Working	0.351*** (0.0292)	1.544*** (0.370)	0.186 (0.202)	0.354*** (0.0288)
Parents: Four-year college graduate	1.381*** (0.041)	0.657* (0.360)	1.226*** (0.293)	1.372*** (0.0405)
Female	0.166*** (0.0253)	0.34 (0.297)	0.17 (0.179)	0.170*** (0.025)
Age 17	2.208*** (0.0386)	1.753*** (0.348)	1.720*** (0.232)	2.187*** (0.0376)
Age 18	1.678*** (0.0324)	1.059*** (0.326)	0.928*** (0.190)	1.649*** (0.0315)
Number of siblings	-0.278*** (0.0152)	-0.386*** (0.126)	-0.128 (0.110)	-0.275*** (0.0149)
Home owner	0.618*** (0.0305)	0.701** (0.339)	0.459** (0.192)	0.617*** (0.0299)
Densely inhabited district	0.0922*** (0.0287)	0.549 (0.347)	-0.0412 (0.230)	0.0950*** (0.0283)
Prefecture	Yes	Yes	Yes	Yes
Constant	3.406*** (1.023)	0.945 (0.985)	0.225 (0.660)	0.961*** (0.224)
Observations	220,839	815	1,853	223,507
Loglikelihood	-26374	-182.5	-476.4	-27112

Notes: ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively. Coefficients and standard errors are shown in parentheses. The results are estimated by employing cluster robust standard errors using household ID.

Table 5. Nonlinear Decomposition Results

Nonlinear decomposition Dependent variable: High school attendance dummy	Age 16–18 years							
	(1)		(2)		(3)		(4)	
	All sample		All sample		Native/Immigrant child with two foreign parents sample		Native/Immigrant child with one foreign parent sample	
	(Native vs Immigrant child with two foreign parents)		(Native vs Immigrant child with one foreign parent)		(Native vs Immigrant child with two foreign parents)		(Native vs Immigrant child with one foreign parent)	
Living in Japan for more than five years	0.00680*** (0.00209)	9.5%	0.00222*** (0.000708)	3.7%	0.00420** (0.00214)	5.9%	0.00101 (0.000702)	1.7%
Father: Regular employee	0.00901*** (0.0012)	12.6%	0.00531*** (0.0008)	8.9%	0.00888*** (0.0013)	12.5%	0.00530*** (0.001)	8.9%
Father: Non-regular employee	-0.000481 (0.00121)	-0.7%	-0.000173 (0.000443)	-0.3%	-0.000469 (0.00123)	-0.7%	-0.000261 (0.000438)	-0.4%
Father: Executive officer	0.0000586 (0.00020)	0.1%	-0.000194 (0.00020)	-0.3%	0.0000833 (0.00021)	0.01%	-0.000167 (0.00020)	-0.3%
Father: Self-employed/employed	0.000530** (0.000241)	0.7%	-0.000365 (0.000271)	-0.6%	0.000474** (0.000236)	0.7%	-0.000392 (0.000278)	-0.7%
Mother: Working	0.00177*** (0.00017)	2.5%	0.00232*** (0.00021)	3.9%	0.00172*** (0.00016)	2.4%	0.00221*** (0.00020)	3.7%
Parents: Four-year college graduate	-0.0000775 (0.000206)	-0.1%	0.00173*** (0.00013)	2.9%	0.0000652 (0.000202)	0.1%	0.00150*** (0.000128)	2.5%
Female	-0.0000075 (0.000044)	-0.01%	7.86e-05** (0.000031)	0.1%	-0.000014 (0.000043)	-0.02%	7.06e-05** (0.000031)	0.1%
Age 17	-0.00399*** (0.000561)	-5.6%	-0.00162*** (0.000321)	-2.7%	-0.00475*** (0.000588)	-6.7%	-0.000943*** (0.000312)	-1.6%
Age 18	-0.00293*** (0.00039)	-4.1%	-0.00166*** (0.000254)	-2.8%	-0.00156*** (0.00039)	-2.2%	-0.00173*** (0.000261)	-2.9%
Number of siblings	0.00100*** (0.000157)	1.4%	-0.000723*** (0.000117)	-1.2%	0.00115*** (0.00017)	1.6%	-0.000627*** (0.000121)	-1.1%
Home owner	0.0110*** (0.00070)	15.4%	0.00562*** (0.000333)	9.5%	0.0108*** (0.00070)	15.1%	0.00561*** (0.000335)	9.4%
Densely inhabited district	-0.00109*** (0.000337)	-1.5%	-0.000553*** (0.000172)	-0.9%	-0.00108*** (0.000333)	-1.5%	-0.000531*** (0.000171)	-0.9%
Prefecture	0.000600 (0.00071)	0.8%	-0.000533 (0.0004)	-0.9%	0.000711 (0.000698)	1.0%	-0.000498 (0.000396)	-0.8%
Observations	223,507		223,507		221,654		222,692	
Explained part	0.0221		0.0115		0.0201		0.0105	
Difference	0.0713		0.0594		0.0713		0.0594	
% of explained part	31.0%		19.4%		28.2%		17.7%	
Probability_1	0.897		0.909		0.897		0.909	
Probability_0	0.968		0.968		0.968		0.968	
Numbers_1	815		1,853		815		1,853	
Numbers_0	220,839		220,839		220,839		220,839	

Notes: ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively. Coefficients and standard errors are shown in parentheses. The percentages on the right side are the sizes of explained part in each factor. The results are estimated by employing cluster robust standard errors using household ID.

Table 6. Multinomial Logit Model Results

Multinomial logit model Dependent variable: Status dummy (Reference group: Working)	Age 16–18 years	
	(1)	(2)
	Unemployed	Homemaker
Immigrant child with two foreign parents	0.0415 (0.298)	-1.188** (0.551)
Immigrant child with one foreign parent	0.774*** (0.182)	-0.167 (0.311)
Living in Japan for more than five years	0.666 (0.425)	-1.147* (0.590)
Father: Regular employee	-1.157*** (0.164)	-0.624** (0.244)
Father: Non-regular employee	-1.068*** (0.183)	-0.540* (0.282)
Father: Executive officer	-1.079*** (0.20)	-0.672** (0.292)
Father: Self-employed/employed	-1.292*** (0.177)	-0.805*** (0.267)
Mother: Working	-0.438*** (0.063)	-0.732*** (0.095)
Parents: Four-year college graduate	0.314*** (0.0924)	0.837*** (0.132)
Female	-0.0425 (0.0574)	1.811*** (0.102)
Age 17	1.168*** (0.0877)	1.779*** (0.126)
Age 18	0.957*** (0.0727)	1.498*** (0.1090)
Number of siblings	-0.0510* (0.0276)	-0.055 (0.045)
Home owner	-0.222*** (0.0652)	0.0189 (0.103)
Densely inhabited district	-0.0497 (0.0631)	-0.0266 (0.098)
Prefecture	Yes	Yes
Constant	0.0225 (0.498)	-0.639 (0.690)
Observations	7,271	
Loglikelihood	-5726	

Notes: ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively. Coefficients and standard errors are shown in parentheses. The results are estimated by employing cluster robust standard errors using household ID.