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RESEARCH ARTICLE

Intergenerational Mobility of Education in Thailand: Effects of Parents' Socioeconomic Status on Children's Opportunity in Higher Education

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Abstract: As a result of the government investment in education opportunity, there has been a remarkable expansion of higher education over the last 50 years in Thailand. Nevertheless, it still remains questionable whether the expansion is accompanied by ensuring equality of opportunity in higher education. Thus, this study, employing the concept of intergenerational mobility, examined both cross-sectional and long-term effects of parents' socioeconomic status on children's opportunity in higher education with the nationwide socioeconomic data of 2005 and 2017. The results indicated that although the higher education opportunity increased by approximately 30% during the 12-years period, parents' socioeconomic status still played a significant role for the increased opportunity. For household factors, the higher education opportunity was significantly lower among children in lower income, large-sized, single-parent, or rural households. For parental factors, that was significantly lower among children with lower educated, unemployed, or informal-sector parents. Particularly for income, the opportunity gap was nearly 13 times between the highest and lowest income households. Furthermore, these patterns were persistent or worse during the 12-years period. Among several policy recommendations that we proposed, a family involvement program, which has been identified as an effective intervention to mitigate the gap in educational attainment caused by socioeconomic differences, should be a prior consideration.

Keywords: education opportunity, higher education, university education, social mobility, intergenerational mobility, intergenerational transmission, parents' socioeconomic backgrounds

Introduction

Equal society is a universal subject of interest for most people in the world. It is not an easy concept to define; however, no one would disagree that equality of opportunity (or equal opportunity) should be one of the core values for equal society. If a society ensures the same opportunities for success to its members regardless of their socioeconomic status predetermined at birth, one would say that the society is moving towards equal society.

While equal opportunity is also hard to define and measure, intergenerational mobility (or intergenerational transmission) has been widely used as a proxy indicator to measure it in the field of social sciences (Mazumder, 2015; Torche, 2016). Intergenerational mobility refers to the degree of whether socioeconomic status of an individual differ from those of his or her parents (Mazumder, 2015; Narayan & Weide, 2018; Organisation for Economic Co-operation and Development [OECD], 2006). A society with a higher degree of intergenerational mobility values individuals' efforts and abilities. In the society, individuals' socioeconomic success and outcomes tend to rely less on their parents' socioeconomic backgrounds and status. Meanwhile, in a society with a lower degree of intergenerational mobility, such success and outcomes tend to be predetermined by the accident of birth, which is in opposition to the concept of equal society (Narayan & Weide, 2018).

Among opportunities available in society, education opportunity may be one of the essential ones. Education has been regarded as a social ladder for promoting mobility between social classes or strata in society (Iannelli & Paterson, 2005; Nam & Huang, 2009; Ng, 2014). If equal education opportunity (in reality, equal education opportunity generally means equal access to education) is ensured, anybody can achieve success by their efforts and abilities through the opportunity but not by their predetermined backgrounds and status. Accordingly, it is expected to enhance intergenerational mobility, which moves society towards equal society.

In Thailand, there has been a large expansion of higher education (i.e., college- and university-level education) over the last 50 years together with the government's active investment in and people's strong needs for it. However, whether the expansion has

ensured equality of opportunity in higher education especially for people in socially or economically unfavorable circumstances still remain questionable. To answer for the question, this study, employing the concept of intergenerational mobility, aimed to examine effects of parents' socioeconomic status on children's opportunity in higher education. Specifically, by using the two national socioeconomic survey data of 2005 and 2017, both cross-sectional and long-term effects were investigated.

Literature Review

Many countries have made their continuous effort to ensure equality of education opportunity through diverse public policies. Free (or affordable) compulsory education for primary and secondary school may be a representative example of the policies. Despite such policies, it is a general perception that equality of education opportunity may not be guaranteed for certain groups of people, particularly those in socially or economically unfavorable circumstances. Some of them cannot take the opportunity due to physical or mental disabilities, or others cannot due to burden of direct and indirect expenses for education (e.g., school supplies, food, and transportation; OECD and United Nations Educational, Scientific and Cultural Organization [UNESCO], 2016; UNESCO Institute for Statistics and United Nations Children's Fund [UNICEF], 2015; UNICEF, 2012).

More importantly, in fact, even though such equal education opportunity is guaranteed completely, there can still be inequality in academic performance because parents' socioeconomic difference may create another difference in investment in their children's learning and education (e.g., time and financial investment). For this reason, merely ensuring equal education opportunity may again result in another unequal opportunity in education, particularly higher education (e.g., college- and university-level education), which mostly is not compulsory.

Indeed, many previous studies have investigated such intergenerational mobility of education and consistently revealed that parents' socioeconomic status played a more significant role for their children's academic performance and education opportunity. Among the parents' socioeconomic status, three factors (parents' income, education, and occupation type) were found to be the major determinants, though the determinants varied across the studies, to some degree

(Bailey & Dynarski, 2011; Chetty et al., 2017; Guryan et al., 2008; Jung & Lee, 2010; Reardon, 2011).

Some of the studies, analyzing the gap in educational investment by parents' socioeconomic status, showed that parents with higher socioeconomic status spent more time and expense for their children's education (Baker & Stevenson, 1986; Choi & Park, 2016; Guryan et al., 2008; Jung & Lee, 2010; Kornrich, 2016; Ramey & Ramey, 2010; Schneider et al., 2018; Stevenson & Baker, 1992; Vellymalay, 2012). For instance, Guryan et al. (2008) showed that mothers with a college level of education or above tended to spend about 5 hours more per week than those with a high school level of education or below. Interestingly, those higher educated mothers were mostly working mothers who also spent more time for working outside the home. Jung and Lee (2010) found that high-income parents and high-educated mothers were more likely to spend more expense for private supplementary tutoring or cram schooling for their children than their counterparts.

In addition, probably due to such educational investment gap as the previous findings above indicated, the other studies found that academic performance or education opportunity was significantly higher among children with higher socioeconomic parents and families (Ahmad & Khan, 2012; Ahmar & Anwar, 2013; Bailey & Dynarski, 2011; Chen et al., 2018; Chetty et al., 2017; Galindo-Rueda & Vignoles, 2002; Kapinga, 2014; Li et al., 2019; López, 2009; Reardon, 2011; Sirin, 2005; Vellymalay, 2012). For instance, Reardon (2011), performing a longitudinal cohort analysis, indicated that the gap in children's academic performance (e.g., reading and math scores) was up to 40% larger between children in higher income (i.e., in the top 10% of household income) and lower income families (i.e., in the bottom 10% of household income). The gap was found to increase during the last 40 years. Bailey and Dynarski (2011) showed that college admission, persistence, and graduation significantly relied on parents' income. Especially for college admission, Chetty et al. (2017) showed that children in the top 1% of household income had a 77 times higher chance to attend "Ivy League" universities than those in the bottom 20% of household income.

There can be two opposing views regarding these previous findings. On the one hand, it is universal that most parents have an earnest wish for their children to accomplish educational success and subsequently promote socioeconomic status. They would not hesitate

to invest any available resources for their children's education. In this view, the importance of parents' role for children's educational attainment should not be an issue. Rather, it may be a natural social phenomenon.

On the other hand, if we assume that the education system consists of two components, which are main and supplementary ones, the main component may be formal education, which is offered in a regular school system including certified schools and teachers. And the supplementary one may be informal education (e.g., private tutoring and cram schooling), which is offered outside the formal education. In this view, the previous findings (i.e., children with higher socioeconomic parents and families tended to have higher academic performance and education opportunity due to more time and financial investment) may imply that the supplementary component is becoming more important than the main component in the education system.

It means that children, particularly those in lower socioeconomic families, if they depend on such formal education only, would eventually have a lower opportunity to acquire and improve educational attainment and accordingly accomplish socioeconomic success. Additionally, the private education market such as private supplementary tutoring and cram schooling has become remarkably growing particularly in Asian countries (Choi & Park, 2016; Jung & Lee, 2010; Stevenson & Baker, 1992), and we expect that such growth may even further decrease the opportunity for them. Thus, the previous findings imply that the education system, particularly the formal (public) education system, does not function properly, and it is decreasing intergenerational mobility of education, which is in opposition to the concept of equal society.

Significance of the Study

The formal education system in Thailand is classified into two levels, which are basic and higher education. Basic education refers to 6-year primary, 3-year lower secondary, and 3-year upper secondary education. Among them, the 6-year primary and 3-year lower secondary education are compulsory. People who have completed the compulsory education are eligible to choose between two parallel education tracks, which are vocational education and general or academic education. Vocational education includes lower, higher, and tertiary vocational education. General or academic education includes upper secondary and

higher education including undergraduate and graduate studies (Ministry of Education, 2017).

Particularly for higher education, which is the main focus of this study, the higher education sector has expanded substantially by the government's active investment in as well as people's strong needs for higher education (Michael & Trines, 2018; Tangkitvanich & Manasboonphempool, 2011). In 2015, there were a total of 156 higher education institutions, which include general universities, specialized universities (e.g., nursing school and military academy), and community colleges. Among the institutions, approximately 52% and 48% were public and private, respectively. The number of students enrolled in the higher education institutions has been increased by approximately 20 times over the last 40 years. Specifically, the number increased from 130,000 in the 1970s to 2.5 million in 2015 (Michael & Trines, 2018; Ministry of Education, 2017).

However, whether such expansion is accompanied by ensuring equality of opportunity in higher education for people, especially those in lower socioeconomic families, still remains questionable. Since the system does not mandate the upper secondary school program, which is a necessary step for higher education, access to the upper secondary school may be differential by socioeconomic status, which may disproportionately benefit children from higher socioeconomic families. In addition, geographical imbalance of qualified teachers and schools between urban and rural areas as well as financial burden of university-level education may also be substantial barriers to access to higher education (Michael & Trines, 2018; OECD & UNESCO, 2016).

As expected, several previous studies conducted in Thailand consistently showed that academic performance and education opportunity (mostly in the secondary school settings) depended significantly on families' socioeconomic backgrounds. Like the previous studies conducted in the international settings, those studies similarly showed family income and parents' education level and occupation type as the key determinants (Chantavanich et al., 1979; Knodel, 1997; Knodel & Wongsith, 1989; Nitungkorn, 1988; Pinitjitsamut, 2009; Tan & Naiyavitit, 1980; Tonboot & Pannarunthai, 2016).

For instance, a study by Tan and Naiyavitit (1980) found that children with lower education level tended to be in lower income and larger-sized families, whereas those with higher education level tended to

be in families with higher income levels, with higher educated parents, and in urban areas (specifically Bangkok metropolitan areas). Another study by Chantavanich et al. (1979) showed that children with parents who were informal-sector employees (e.g., farmers and laborers) had significantly lower education access than those with parents who were government-sector employees (e.g., civil servants or government officials).

However, these previous findings are relatively outdated; thus, they still provide a limited understanding of the current situation of how parents' socioeconomic backgrounds and status influence children's education opportunity. Additionally, while the previous studies focused more on secondary-level education, there are only few empirical studies focusing on higher education such as university-level education, to the best of our knowledge. Therefore, the purpose of this study was to investigate intergenerational mobility of higher education in Thailand. Specifically, by using two national socioeconomic survey data of the year 2005 and 2017, we attempted to analyze whether parents' socioeconomic status was associated with children's opportunity in higher education (or children's status of higher education) and whether the association changed over time from 2005 to 2017.

Methods

Data and Study Sample

This study employed two nationwide data named "Socio-Economic Survey (SES)" of the years 2005 and 2017. The SES, which is a nationally representative annual (or biannual) data generated by the National Statistical Office (NSO) of Thailand, contains a broad range of demographic and socioeconomic characteristics of the entire population in Thailand. The demographic and socioeconomic characteristics are compiled at both individual and household levels in the data. The SES has been widely used for official statistics produced by the government and relevant public organizations (NSO, 2021).

For the study sample, since the purpose of this study was to examine factors related to children's opportunity in higher education (i.e., college- or university-level education), households with children aged 20–35 years were selected as the study sample. Among the selected households, we analyzed children's status of higher education and investigated how the education

status was associated with their parent's socioeconomic status. By the SES 2005 and 2017 data, both cross-sectional and long-term associations were analyzed.

Specifically, in this study, the higher education included not only bachelor's level but also master's level and doctoral level of education, which generally require 4 years, 2 years, and 3–5 years of study, respectively. In addition, there is a possibility that not all students may go to college or university right after their graduation. For instance, among the upper secondary school graduates who intend to go for higher education, some may be delayed to go because they need more time to prepare for the college or university that they wish to go to.

By considering this point, we set the starting age of children in the study sample as 20 years, not 18 years, which is the eligible age for the higher education. This rule was also applied to master's level and doctoral level of education. For this reason, we ultimately set the range of the children's age from 20–35 years in the study sample. In addition, since the SES data (2005 and 2017) used in this study had a 12-year gap, we also considered an overlapping issue that could potentially occur when the age range is not limited, though the two data are mutually independent.

Variable Selection and Measurement

Children's opportunity in higher education (i.e., children's status of higher education), which is a dependent variable, was measured as a binary variable (yes and no). In the SES data, if children reported their education status as either current students or previous graduates of higher education institutions (i.e., college and university) at all levels of education including bachelor's level, master's level, and doctoral level of education, they were classified into the "yes" group. If their education status was lower than college or university level, they were classified into the "no" group.

For independent variables, they were selected by considering the previous studies and variable availability in the SES data. A total of eight independent variables were ultimately selected, in which each four variables were parental- and household-level variables, respectively. Parental-level variables included parents' (father's and mother's) education level and employment status. For parents' education level, it was measured as ordinal variables with three levels, which were low (i.e., primary-level education or below),

middle (i.e., secondary-level education), and high (i.e., college-level education or above).

For parents' employment status, it was classified into four levels which are informal, private, government, and not working. "Informal" referred to employees in the informal employment sector (e.g., farmers, laborers, and self-employed). "Private" and "government" referred to employees in the formal private (e.g., office workers) and government (or public) employment sectors (e.g., civil servants or government officials), respectively. And "not working" indicated people who were not currently employed during the SES survey period.

Household-level variables included household income, size, type, and location. For household income, an income quartile ranging from Q1 to Q4 was used, in which a higher quartile (e.g., Q4) means higher income. Specifically, the SES data offer individual monetary incomes. Thus, we first summed up the individual incomes in each household, and then the summed-up incomes were classified into four income quartiles. Household size, which refers to the number of household members in each house, was measured as a binary variable, which was "4 members or below" and "5 members or above." Household type was also measured as a binary variable, which was "single-parent household" and "not single-parent household." Lastly, household location was measured as a categorical variable with three levels, which were Bangkok metropolitan, urban, and rural areas.

Statistical Analysis

The two-year SES data (2005 and 2017) could be regarded as pooled cross-sectional data, which include random samples collected independently at two different cross sections (or two different time points), but the samples in each cross section did not necessarily refer to the same unit. In addition, the dependent variable (children's status of higher education) is a binary variable. By considering these points, two statistical methods were ultimately used, which are logistic regression and pooled logistic regression analysis (Hosmer & Lemeshow, 2000; McAvay et al., 1996; Pallant, 2007).

We first established two separate logistic regression models for each year to analyze cross-sectional association between the dependent variable and independent variables. Then, pooled logistic regression analysis was conducted to investigate whether the

association changed between 2005 and 2017 (i.e., whether intergeneration mobility of higher education increased, decreased, or persisted). All analyses in this study were performed by IBM SPSS Statistics 20 software.

Results

Descriptive Analysis

Descriptive statistics of the study sample and study variables are shown in Table 1. For children's higher education status (dependent variable), the proportion of higher educated children (i.e., those with a college-level education or above) increased by approximately 30% from 2005 to 2017. The proportion specifically increased from 18.5% in 2005 to 23.9% in 2017. As expected, it may be probably because of the large expansion of the higher education sector by the government's active support and people's strong needs for higher education (Michael & Trines, 2018).

For independent variables, the children's higher education status appeared to depend on the socioeconomic level of both households and parents. For household factors, the results overall indicated that that lower income, large-sized, single-parent, and rural households included a large proportion of lower educated children (i.e., those with a secondary-level education and those with a primary-level education or below), as consistent with previous studies (Chantavanich et al., 1979; Knodel, 1997; Knodel & Wongsith, 1989; Nitungkorn, 1988; Pinitjitsamut, 2009; Tan & Naiyavitit, 1980; Tonboot & Pannarunothai, 2016).

Particularly, household income and location were relatively more significant than the other household factors. For household income, the proportion of the higher educated children was approximately 3 times larger in households at the highest income quartile (Q4) than those at the lowest quartile (Q1) in 2005. The proportion specifically was 74.5% at the quartile Q4 and 24.5% at the quartile Q1. In addition, the gap of the proportions was found to increase from 2005 to 2017. Specifically, in 2017, the proportion in households at the highest quartile Q4 (75.8%) was approximately 4 times larger than those at the lowest quartile Q1 (19.6%). It may indicate that expense for higher education has become a more significant barrier

especially for lower income households over the last 12 years.

For household location, households in Bangkok areas included a 3 times larger proportion of the higher educated children than those in rural areas in 2005. The proportion specifically was 78.5% and 29.5% in Bangkok and rural areas, respectively. However, unlike the results of household income, the gap of the proportions decreased from 2005 to 2017. Specifically, in 2017, the proportion in Bangkok areas (77.9%) was approximately 2 times larger than rural areas (39.2%). It may indicate that geographical barrier to higher education has become reduced over the last 12 years, and it may be partly due to the large expansion of the higher education sector. Nevertheless, geographical inequalities in the opportunity in higher education still existed significantly.

For parental factors, the children's higher education status was also found to depend on both parents' education level and employment status, as consistent with previous studies (Chantavanich et al., 1979; Knodel & Wongsith, 1989; Tan & Naiyavitit, 1980). For parent's education level, children with higher educated parents (particularly, those with a college-level education or above) had a 2 times higher opportunity in higher education than those of lower-educated parents (particularly, those with a primary-level education or below). For parents' employment status, the opportunity was also 2 times higher among parents who were government-sector employees than those who were informal-sector employees. However, unlike the results of household factors, the gap of the opportunity was not found to increase or decrease between 2005 and 2017.

Interestingly, for parents' employment status, it was found that children of parents who were currently unemployed had a higher opportunity in higher education than those who were informal-sector employees. Thus, we performed additional analysis to compare socioeconomic status between the unemployed and the informal-sector groups. The analysis results showed that the unemployed group included a larger proportion of people with higher income level and higher education level (particularly college-level education or above) and living in Bangkok or urban areas than the informal-sector group.

There may be a possibility that the unemployed people might already have had a sufficient amount of income savings for their life after retirement as

Table 1*Results of Descriptive Statistical Analysis of the Study Variables*

Variables	Year 2005 (n = 5,347)			Year 2017 (n = 4,519)		
	Overall	Children's Higher Education		Overall	Children's Higher Education	
		Yes (18.5%)	No (81.5%)		Yes (23.9%)	No (76.1%)
Household Factors						
Household Income ^{***,+++}						
Q1	25.3	24.5	75.5	26.1	19.6	80.4
Q2	25.3	35.3	64.7	29.7	39.9	60.1
Q3	25.3	47.7	52.3	20.6	52.0	48.0
Q4	24.2	74.5	25.5	23.6	75.8	24.2
Household Size ^{***,+++}						
4 or below	49.7	56.4	43.6	62.5	53.8	46.2
5 or above	50.3	42.4	57.6	37.5	42.9	57.1
Household Type ^{**,+}						
Single parent	31.1	47.0	53.0	29.7	47.1	52.9
No single parent	68.9	51.3	48.7	70.4	51.2	48.8
Household Location ^{***,+++}						
Bangkok	7.3	78.5	21.5	8.4	77.9	22.1
Urban	51.5	56.2	43.8	47.0	52.1	47.9
Rural	41.2	29.5	70.5	44.6	39.2	60.8
Parental Factors						
Father's Education ^{***,+++}						
Low	84.4	42.8	57.2	77.1	42.0	58.0
Middle	11.9	70.4	29.6	17.1	63.7	36.3
High	3.7	84.7	15.3	5.8	83.1	16.9
Mother's Education ^{***,+++}						
Low	87.9	43.1	56.9	79.3	42.7	57.3
Middle	8.5	76.5	23.5	14.4	62.3	37.7
High	3.6	84.7	15.3	6.3	84.4	15.6
Father's Employment ^{***,+++}						
Not employed	40.2	54.0	46.0	36.0	52.3	47.7
Informal	46.0	38.2	61.8	50.4	40.1	59.9
Private	4.2	54.2	45.8	6.8	58.5	41.5
Government	9.6	71.7	28.3	6.8	80.5	19.5
Mother's Employment ^{***,+++}						
Not employed	36.5	54.5	45.5	33.7	55.7	44.3
Informal	50.6	37.8	62.2	52.7	38.9	61.1
Private	3.5	48.3	51.7	6.8	50.7	49.3
Government	9.4	76.2	23.8	6.8	81.4	18.6

Note: ⁽⁺⁾, ⁽⁺⁺⁾, and ⁽⁺⁺⁺⁾ = p-value of chi-squared test < 0.10, 0.05, and 0.01, respectively, for the year 2005 (2017).

well as for their children's higher education. Or when they were employed previously, they might have had an enough income to pay for their children's higher education. Nevertheless, the SES data used in this study did not include this information; thus, it is hard to interpret and understand the results in detail. Especially for household income, since the data provided only monthly income but not accumulated income, such cross-sectional income information could not allow us to precisely assess actual financial situation of the currently unemployed people. The Thai NSO should take this issue into consideration for future SES survey.

Logistic Regression Analysis

Table 2 presents results of cross-sectional logistic regression analysis for the year 2005 (Model 1) and 2017 (Model 2). In the model 1, like the descriptive analysis, the results overall showed that for household factors, children in lower income, large-sized, single-parent, and rural households were more likely to have a lower opportunity in higher education. For parental factors, children with parents who had lower education level and were unemployed or informal-sector employees were more likely to have a lower opportunity in higher education.

Specifically for household factors, household income was significantly related to the children's higher education status. The odds ratios indicated that children in households at the quartile Q2, Q3, and Q4 were 1.7, 2.8, and 9.0 times, respectively, more likely to have a higher opportunity in higher education than those at the income quartile Q1. For household size and type, small-sized and non-single-parent households were 1.8 and 1.2 times more likely to have the higher educated children. For household location, children living in Bangkok and urban areas were 8.7 and 3.1 times, respectively, more likely to have a higher opportunity in higher education than those living in rural areas.

For parental factors, parents with middle-level (those with a secondary-level education) and high-level education (those with a college-level education or above) were approximately 4 and 7 times, respectively, more likely to have the higher educated children. For parents' employment status, children with parents who were government-sector employees were approximately 2.5 times more likely to have a higher opportunity in higher education than those who were unemployed. In addition, like the descriptive analysis,

children with unemployed parents tended to have a higher chance for higher education than parents who were informal-sector employees. And the opportunity was not significantly different between unemployed and private-sector parents.

In Model 2, almost the same pattern of the results in Model 1 was also found. For household factors, children in higher income, small-sized, non-single-parent, and urban households were more likely to have a higher opportunity in higher education. For parental factors, the opportunity was more likely to be higher among parents who had the middle- and high-level education and were government-sector employees.

Pooled Logistic Regression Analysis

Results of pooled logistic regression analysis to examine the long-term relationship between the dependent and independent variables between 2005 and 2017 are also presented in Table 2 (Model 3). For household factors, like the descriptive analysis, household income and location were found to be significant. For household income, the odds ratios of the quartiles Q2, Q3, and Q4 were 1.6, 1.6, and 1.4, respectively. It specifically means that during the last 12 years, opportunity in higher education among children in households at the quartiles Q2, Q3, and Q4 increased by approximately 60%, 60%, and 40%, respectively, compared to children in households at the quartile Q1. On the contrary, this means that the opportunity among children in the lowest income households (Q1) decreased by the amount.

In addition, if we exclude the lowest income households (Q1), the opportunity in higher education was relatively higher in lower income (Q2 and Q3, 60%) children than higher income children (Q4, 40%). Thus, it could be concluded that intergenerational mobility of higher education has been improved over the last 12 years. However, as the previous logistic regression Models 1 and 2 indicated, the absolute level of the opportunity was much lower among the lower income than among the higher income children. For this reason, it is still questionable that opportunity in higher education for the low-income children have substantially expanded merely due to the 20% difference.

For household location, the odds ratios of Bangkok and urban areas were 0.6 and 0.5, respectively. It specifically means that the higher education opportunity among children living in Bangkok and

Table 2*Results of BLR (Model 1 and 2) and Pooled BLR (Model 3) Analyses*

Variables	Model 1: BLR Year 2005 (n = 5,347)		Model 2: BLR Year 2017 (n = 4,519)		Model 3: Pooled BLR Year 2005–2017 (n = 9,866)	
	OR	[95% CI]	OR	[95% CI]	OR	[95% CI]
Household Factors						
Household Income						
Q2	1.7	[1.3–2.2]***	2.7	[2.1–3.5]***	1.6	[1.1–2.4]**
Q3	2.8	[2.2–3.6]***	4.4	[3.4–5.8]***	1.6	[1.1–2.3]**
Q4	9.0	[7.1–11.4]***	12.8	[10.0–16.5]***	1.4	[1.0–2.0]**
Q1	1.0		1.0		1.0	
Household Size						
4 or below	1.8	[1.5–2.0]***	1.6	[1.3–1.8]***	0.9	[0.7–1.1]
5 or above	1.0		1.0		1.0	
Household Type						
Not single parent	1.2	[1.0–1.4]**	1.2	[1.0–1.4]**	1.0	[0.8–1.2]
Single parent	1.0		1.0		1.0	
Household Location						
Bangkok	8.7	[6.8–11.2]***	5.5	[4.3–6.9]***	0.6	[0.4–0.9]***
Urban	3.1	[2.6–3.7]***	1.7	[1.5–2.0]***	0.5	[0.4–0.7]***
Rural	1.0		1.0		1.0	
Parental Factors						
Father's Education						
Middle	3.2	[2.6–3.8]***	2.4	[2.0–2.9]***	0.8	[0.6–1.0]**
High	7.4	[5.5–9.9]***	6.8	[5.2–8.8]***	0.9	[0.6–1.3]
Low	1.0		1.0		1.0	
Mother's Education						
Middle	4.3	[3.5–5.3]***	2.2	[1.9–2.7]***	0.5	[0.4–0.7]***
High	7.3	[5.4–9.8]***	7.3	[5.6–9.4]***	1.0	[0.7–1.5]
Low	1.0				1.0	
Father's Employment						
Informal	0.5	[0.4–0.6]***	0.6	[0.5–0.7]***	1.2	[0.9–1.5]
Private	1.0	[0.7–1.4]	1.3	[1.0–1.7]*	1.3	[0.8–2.0]
Government	2.2	[1.7–2.6]***	3.8	[2.9–4.8]***	1.8	[1.3–2.4]***
Not working	1.0		1.0		1.0	
Mother's Employment						
Informal	0.5	[0.4–0.6]***	0.5	[0.4–0.6]***	1.0	[0.8–1.2]
Private	0.8	[0.5–1.2]	0.8	[0.6–1.1]	1.0	[0.6–1.7]
Government	2.7	[2.2–3.3]***	3.5	[2.7–4.5]***	1.3	[0.9–1.8]
Not working	1.0		1.0		1.0	
H-L Goodness of Fit						
Chi-squared test (DF)	30.76 (8)		6.57 (8)		23.19 (8)	
p-Value	0.0002		0.5838		0.0031	

Note: *, **, and *** = p -value < 0.01, 0.05, and 0.01, respectively; BLR = binary logistic regression; H-L = Hosmer–Lemeshow; DF = degree of freedom; OR = odds ratio; CI = confidence interval.

urban areas decreased by approximately 67% and 100%, but simultaneously, the opportunity among those living in rural areas significantly increased by that amount during the last 12 years. Nevertheless, geographical inequalities in the higher education opportunity still were much larger in Bangkok and urban areas than in rural areas as the previous logistic analysis showed. For household size and type, they were not found to be significant. It means that the higher education opportunity has been persistently lower in large-sized and single-parent households over the last 12 years.

For parental factors, the mother's education level and father's employment status were found to be significant. For the mother's education level, the odds ratio equal to 0.5 in the middle-level education means that during the last 12 years, the opportunity in higher education among children with mothers with a secondary-level education decreased by approximately 100%, whereas among children with mothers with a primary-level education or below, the opportunity increased by that amount. At the same time, the opportunity among children with mothers with a college-level education or above was persistently higher between 2005 and 2017.

For the father's employment status, the higher education opportunity among children with fathers who were government-sector employees significantly increased by approximately 80%, whereas the opportunity decreased by that amount among those with fathers who were currently unemployed during the last 12 years. Aside from the two factors (mother's education and father's employment status), the higher education opportunity was found to be persistently higher among children with parents who had a higher education level and were government-sector employees.

Discussion

Equality of education opportunity is a fundamental value for equal society that most countries are aiming for. Thailand also has made its continuous effort to accomplish it through various education policies. As a result, there has been a remarkable expansion of participation in higher education for the last 50 years. Nevertheless, whether the expansion is accompanied by ensuring equality of opportunity in higher education

still remains questionable. Thus, this study, employing the concept of intergenerational mobility, attempted to examine both cross-sectional and long-term effects of parents' socioeconomic status on children's opportunity in higher education between 2005 and 2017.

The study results overall indicated that the higher education expansion significantly increased opportunity in higher education by approximately 30% during the 12-years period. However, the increase was found to disproportionately benefit children from higher socioeconomic families. That is, the higher education opportunity was significantly lower among children of parents with lower socioeconomic status, and the opportunity of the lower socioeconomic children was persistent or even lower between 2005 and 2017.

Specifically, the cross-sectional analysis showed that for household factors, children in lower income, large-sized, single-parent, and rural households were more likely to have a lower opportunity in higher education. For parental factors, the opportunity was significantly lower among parents who had a lower education level and were informal-sector employees. Among these factors, household income and parents' education were much more significant. For household income, the gap of the opportunity between the highest and lowest income quartiles was approximately 13 times in 2017. For parents' education, the gap between the highest and lowest education levels was approximately 7 times in the same year.

The long-term analysis indicated that the higher education opportunity significantly decreased in household income and father's employment factors. For household income, the opportunity among children in the lowest income quartile decreased by approximately 40%, compared to the highest income quartile. For father's employment, the opportunity among children with parents who were unemployed decreased by approximately 80% between 2005 and 2017, compared to parents who were government-sector employees. Aside from these two factors, the opportunity among children in large-sized and single-parent households was persistently low during the same period of time.

Nevertheless, partly due to the government efforts for expanding the higher education sector, there was also an improvement in the higher education opportunity among children with relatively low socioeconomic status. The improvement appeared

specifically among children in rural households, in middle-income households (the quartiles Q2 and Q3), and with mothers who had a low education level (a primary-level education or below). However, as the descriptive and logistic regression analyses indicated, the absolute level of the opportunity among the children was much lower. Also, for higher socioeconomic groups (particularly the higher income group), the opportunity was persistently high or even higher over time. Thus, when the improvement is considered together with these results above, it is hard to conclude that the improvement was significantly effective. Rather, considering their low socioeconomic status, there is concern that the improvement might have caused only economic burden of higher education for them.

In sum, the results indicate that parents' socioeconomic status has played a significant role for children's opportunity in higher education, and the socioeconomic status, particularly income, has increasingly become more important over time. This may imply that the formal education system is not functioning properly, and as a result, the opportunity for children (particularly low-socioeconomic children) who depend on the formal education only is becoming lower.

There may be two possible reasons why the children with lower socioeconomic parents did not continue to higher education. The first reason is due to the inequality of the gap in educational investment between higher and lower socioeconomic parents. As shown in previous studies, parents with higher socioeconomic status could have spent more time and expense for their children's education than those with lower status. Accordingly, children with lower socioeconomic parents could have had a low academic performance, which is not qualified for continuing to university education. It may imply that such time and financial supports of parents are becoming more important for children's higher education opportunity than the formal education.

In this sense, the government should focus on a policy to strengthen the formal (public) education system, so that children can improve educational attainment even if they depend only on the formal education regardless of socioeconomic status. Among potential policy interventions, this study particularly proposes a family involvement program in school (or parent-child class participation) as an important

intervention. A family involvement program, which has been widely proven to have positive effects on educational attainment of children, has also been identified as an effective intervention to reduce the gap in educational attainment caused by the socioeconomic difference (Dearing et al., 2006; Fan & Chen, 2001; Jaynes, 2007).

For instance, a study conducted by Dearing et al. (2006) found that family involvement in school significantly improved academic performance of children in general. More importantly, despite the improvement, there was still a significantly large gap of the academic performance between children in low and high socioeconomic families, when the degree of the family involvement was low. However, when the degree of the involvement was high, the academic performance was not different between those in low and high socioeconomic families. It means that a family involvement program could mitigate the socioeconomic impact, which widens the gap in educational attainment. Currently in Thailand, a family involvement program is implemented voluntarily at school level only. Thus, the government needs to consider incorporating such voluntary school-level programs into the formal education system at policy level. Integrating a family involvement program into the regular school curriculum for some subject may be a first step for that.

The second reason is that for children who had a qualified academic performance, some of them could not have continued to higher education due to financial burden of the education. This situation could have been more significant particularly for those with lower income parents as this study showed that income was one of the most significant determinants of the inequality of higher education opportunity. Indeed, various media outlets have reported that financial burden (e.g., tuition fee and living expenses including room rent) has long been a key barrier to access to and studying at college or university (Bangkok Post, 2019; Chantanusornsiri, 2019; Mala, 2016). According to Bangkok Post (2019), more than 50% of parents in Bangkok and surrounding areas experienced a significant financial burden on university education for their children. For approximately 18% of them, the burden was much severer.

Thus, the government should continue the effort to alleviate such financial burden in the long term. Currently, two major policies have been implemented

for that, which are education subsidy and student loan programs (Polsiri et al., 2011; Tangkitvanich & Manasboonphempool, 2011). An education subsidy program, as a supply-side financing program, has functioned mainly to subsidize enrollment in higher education institutions, and subsequently, current tuition fees are far lower than the actual costs. However, due to the supply-side (or top-down) manner of implementation, actual benefits of the program tended to be distributed to higher income families rather than lower income families (Tangkitvanich & Manasboonphempool, 2011).

A student loan program, which is a demand-side financing program to supplement the education subsidy program, has been implemented for students whose annual household income is lower than 200,000 Thai baht (equivalent to approximately 6,500 US dollars). Like the education subsidy program, it has also had several administrative problems (e.g., difficulties of assessing the incomes and screening the eligibility), and accordingly, poor families were less likely to have the program's benefit than near-poor families (Polsiri et al., 2011; Tangkitvanich & Manasboonphempool, 2011). Thus, in the long term, the government should gradually reform the policies in order to increase the responsiveness of students who are really in need. Additionally, this long-term reform should be accompanied by addressing well-known issues such as the shortage of qualified teachers and schools in rural and remote areas and the significantly lower enrolment rate of marginalized population (e.g., ethnic minority groups).

The study results are consistent with previous results, in which household income and parents' education level and occupation type were the major determinants of children's education opportunity (Chantavanich et al., 1979; Knodel, 1997; Knodel & Wongsith, 1989; Nitungkorn, 1988; Pinitjitsamut, 2009; Tan & Naiyavitit, 1980; Tonboot & Pannarunothai, 2016). In addition, we aim to discuss several differences between this study and the previous studies in order to demonstrate the originality of this study.

First, since previous studies carried in Thailand focused on secondary-level education, there have not been many empirical studies focusing on higher education to our knowledge. Thus, we expect that this study may provide another meaningful insight on intergenerational mobility of higher education in Thailand. Second, while most of the previous

studies conducted a cross-sectional analysis, this study, conducting a long-term analysis, could further identify that the impact of the determinants was persistent or was more significant over time. Last, this study utilized some additional variables (e.g., single-parent household) that were not analyzed in the previous studies, and accordingly, this study could offer a broader understanding of the impact of the determinants. However, since there is a large variation in methodologies used between this study and the previous studies, systematic assessment of the differences of the impact found in those studies is needed in future study.

Conclusion

This study found that intergenerational mobility of higher education was persistently low over time. This really raises our concern that the hope of social and economic success through education may be disappearing in Thai society. For the concern, it is necessary to give special attention to children in socially and economically unfavorable conditions throughout all stages in education system. Although the government has made its continuous efforts to close the education gap through various education policy interventions, the interventions are required to be more pragmatic and effective for children who are really in needs. This study particularly proposes family involvement program in school for strengthening the formation education system and accordingly reducing the current unequal education opportunity caused by the existing socioeconomic difference in the short term. In the long term, the current education subsidy and student loan should be reformed to increase the responsiveness of people based on their needs. Also, this long-term reform should be accompanied by improving well-known issues such as the imbalance of qualified teachers and schools between rural and urban areas, the shortage of education resources and infrastructures in rural and remote areas, and the lack of education enrollment of marginalized population such as ethnic minorities.

Lastly, this study must mention several limitations for future study. First, this study used two years of socioeconomic survey data for analyzing long-term effects of parental socioeconomic conditions on children's higher education status. However, the use

of only two years may not be sufficient to generalize the study results, particularly long-term effects. Thus, use of more years of data in a longer period setting is required to alleviate the potential generalization issue and also capture a more precise trend of the socioeconomic impact on children's education status.

Second, this study used household quartile income as a proxy indicator to assess overall household financial situations. However, there are two potential concerns. First, there is a possibility that income information in the SES data may be inaccurately reported. Although this study eliminated the households with outliers or erroneous values in the income variable, the study results may include undetected errors. Future study should take this point into consideration. Utilizing household consumption or expenditure information can be a methodological alternative to this concern. Second, as mentioned previously, the SES data includes monthly income only. Such cross-sectional income information might not accurately capture the actual financial situation of people, and accordingly, the income impact found in this study might be over- or underestimated. Particularly for unemployed parents, a substantial proportion of them might possibly be those who are retired. For them, even though they reported no or a small amount of monthly income, their accumulated income might be sufficient. Thus, the Thai NSO should consider including more diverse indicators to evaluate a more comprehensive household financial situations (e.g., household assets and land holdings) in future SES system.

Third, since the study used quantitative methods with secondary data, the interpretations of the study results tended to be rather simplified. As previously mentioned, because we viewed that the reasons for the lower education opportunity among lower socioeconomic children were due to lower academic performance and substantial financial burden of higher education as highlighted in previous studies. Nevertheless, the reasons are not directly from the study results but are from our hypothetical assumption based on previous results. Thus, it is essential to explore and identify actual reasons and barriers for not continuing to higher education. For that, qualitative research approaches such as in-depth interview should be a prior methodological consideration in future study.

Last, as mentioned previously, there have been no empirical studies on intergenerational mobility of

education, particularly higher education in Thailand, to our knowledge. Thus, this study, as a first step, narrowed down its focus on analyzing only major factors that were commonly highlighted in previous studies. Thus, future studies should include more diverse potential factors, and they would provide a more precise and comprehensive understanding of the study subject.

Declaration of Ownership

This report is our original work.

Conflict of Interest

None.

Ethical Clearance

This study was approved by the institution.

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Appendix*Detailed Results of Pooled BLR Analysis (Model 3, n = 9,866)*

Variables	OR	[95% CI]		OR	[95% CI]	
Time Dummy Effects						
Year 2017	1.4	[1.3–1.5]	***			
Year 2005	1.0					
	Effects without Time Interaction			Effects with Time Interaction		
Household Factors						
Household Income						
Q2	1.7	[1.3–2.2]	***	1.6	[1.1–2.4]	**
Q3	2.8	[2.2–3.6]	***	1.6	[1.1–2.3]	**
Q4	9.0	[7.1–11.4]	***	1.4	[1.0–2.0]	**
Q1	1.0			1.0		
Household Size						
4 or below	1.8	[1.5–2.0]	***	0.9	[0.7–1.1]	
5 or above	1.0			1.0		
Household Type						
Not single parent	1.2	[1.0–1.4]	**	1.0	[0.8–1.2]	
Single parent	1.0			1.0		
Household Location						
Bangkok	8.7	[6.8–11.2]	***	0.6	[0.4–0.9]	***
Urban	3.1	[2.6–3.7]	***	0.5	[0.4–0.7]	***
Rural	1.0			1.0		
Parental Factors						
Father's Education						
Middle	3.2	[2.6–3.8]	***	0.8	[0.6–1.0]	**
High	7.4	[5.5–9.9]	***	0.9	[0.6–1.3]	
Low	1.0			1.0		
Mother's Education						
Middle	4.3	[3.5–5.3]	***	0.5	[0.4–0.7]	***
High	7.3	[5.4–9.8]	***	1.0	[0.7–1.5]	
Low	1.0			1.0		
Father's Employment						
Informal	0.5	[0.4–0.6]	***	1.2	[0.9–1.5]	
Private	1.0	[0.7–1.4]		1.3	[0.8–2.0]	
Government	2.2	[1.7–2.6]	***	1.8	[1.3–2.4]	***
Not working	1.0			1.0		
Mother's Employment						
Informal	0.5	[0.4–0.6]	***	1.0	[0.8–1.2]	
Private	0.8	[0.5–1.2]		1.0	[0.6–1.7]	
Government	2.7	[2.2–3.3]	***	1.3	[0.9–1.8]	
Not working	1.0			1.0		
H-L Goodness of Fit						
Chi-squared test (DF)				23.19 (8)		
p-Value				0.0031		

Note: *, **, and *** = p -value < 0.01, 0.05, and 0.01, respectively; BLR = binary logistic regression; H-L = Hosmer–Lemeshow; DF = degree of freedom; OR = odds ratio; CI = confidence interval.