

Expanded Opportunity, Persistent Inequality:  
Social Class and Gender Differentials in School Transitions in  
Korea

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## I. Introduction

Research on educational inequality has passed through two different phases. First, researchers have paid attention to how family background variables and individual characteristics affect school transitions (primary school => secondary school => tertiary education) within birth cohort. Secondly, researchers have dealt with how these vary between birth cohorts (older cohorts => younger cohorts) within school transitions (Mare, 1993: 351). The former means personal time of life course, and the latter means social-historical time of stratification process (Phang and Kim, 2001: 3). Previous research on changing patterns of educational continuation has found some empirical regularity for the economically developed countries (Blossfeld and Shavit, 1993)<sup>1</sup>. First, the effects of family backgrounds have not decreased over time. Second, gender differentials have persisted but have continuously decreased across age cohorts. Third, the effects of family background almost vanish at the graduate school level, which reflects historical trends (Mare, 1980; Stolzenberg, 1993). This study examines Korean data to see if these empirical regularities hold for the Korean school transition regimes.

According to both OECD and UNESCO reports (2003)<sup>2</sup>, Korean students got the highest mean scores of academic performance in the Program for International Student Assessment (PISA). Moreover, the level of relationship between students' family backgrounds and student performance was found to be the lowest despite family backgrounds having been found to be one of the most determining factors influencing students' academic performance. This report therefore praised Korea as model case in which high student performance was achieved without much disparity in educational opportunity between social classes.

On the other hand, it is well known that entering prestigious colleges is extremely competitive in Korea. Many high school graduates may spend one or more additional years preparing for the college entrance exam in order to be able to enter the college of their choice. In 2003, the number of repeat applicants for universities and junior colleges was 184,188 (27.4% of total applicants). Moreover, due to extreme competition, the burgeoning expansion of after-school shadow education (private cram schools, private tutoring, etc) had already emerged as one of the most serious social problem in Korea. In 1980, 14.9% of all students were reportedly involved in shadow education (*Hagwon*), with the percentage having increased to 58.1% as of 2000 (Kim et al, 2001: 40). Korea even goes to the extreme in that regard as some

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<sup>1</sup> Blossfeld and Shavit (1993) analyze thirteen countries. Thirteen countries are classified three major groups. Western capitalist countries are the United States of America, Germany, United Kingdom, Italy, Switzerland, the Netherlands, and Sweden. Non-western counties are Japan and Taiwan. Western formerly socialist countries are Poland, Hungary, and Czechoslovakia

<sup>2</sup> *Literacy Skills for the World of Tomorrow: Further Results from PISA 2000* (OECD and UNECO, 2003). See OECD website on detail contents (<http://www.pisa.oecd.org>).

high school students commit suicide out of despair over poor school records<sup>3</sup>.

The results of the PISA may indicate that Korea had been successful in setting up a high performance educational system that provides students of all classes with relatively equal opportunities and even outcomes. Still, the extreme competition and the expansion of shadow education may indicate that Korea failed to build up educational environments in which students' aptitudes and interests are best served, and as a result, have turned their educational systems into a 'contested terrain.'

In the following section we describe the Korean educational systems, along with the history of educational expansion. Thereafter we will review past research on family background and educational inequality, especially in the context of expanding educational opportunity, and introduce our research questions. Then this paper will present the data and variables to be used along with the analytical models we have adopted in order to analyze the trends and differentials in school transition rates over age cohorts and between social classes. Finally, we present the results of our analyses and discuss their implications.

## II. The Korean Educational Systems

Table 1 describes the educational systems in Korea. Following the Korean War, the occupying Allied Forces reformed the old educational system of Korea into an American one. The school grade systems had been the single-track '6-3-3-4' system, in which students spent six years receiving primary education, three years of lower secondary education, three years of upper secondary, and four years of tertiary education. Another feature of the Korean educational systems is that these are highly standardized (Kim, 2003; Park, 2003). According to Allmendingers (1989), "standardization" describes the degree to which the quality of education meets the same standard nationwide. Korean students are educated according to standardized curricula without regard to individual ability, through all levels of compulsory education. Moreover the Korean government has even controlled the number of students.

Also school tracking starts only at the upper secondary educational level, where the curriculum is divided into 'general education' and 'vocational education'. Historically vocational education was socially regarded as less important than general education. General educational courses were mainly focused on preparing students for continuing into college education, while vocational educational courses were geared towards training students for various vocations such as those found in agriculture, commerce, industry, music and art, etc.

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<sup>3</sup> According to an adolescent survey in Korea, 33.2 percent of middle school and high school students have once thought of committing suicide. And the main cause of suicide impulse was stress or depression related to academic performance as 19.8 percent (Choi, 2004).

Table 1. Post War Educational systems in Korea

Start year	1951 (since the Korean War)
School system	6-3-3-4 system, a single track
Primary	Elementary Schools ( <i>Chodeunghakgyo</i> ), 6 year, compulsory education since 1959
Secondary	1. Middle Schools ( <i>Junghakgyo</i> ), 3 year, compulsory education since 2002 2. High Schools ( <i>Godeughakgyo</i> ), 3 year, general / vocational courses
Tertiary	1. Junior Colleges ( <i>Jeonmundaehak</i> ), 2-3 year, higher education since 1951 2. Universities ( <i>Daehakgyo</i> ), 4-6 year since 1951 3. University of Education ( <i>Gyoyukdaehak</i> ), 4 year since 1981, 2 years since 1962 4. Industrial Universities ( <i>Saneopdaehak</i> ), higher education since 1982 5. Korea National Open University, 4 years since 1991, 5 years since 1981 6. Graduate Schools ( <i>Daehagwon</i> )
Others	Miscellaneous Schools
Standardization	High
Stratification	Compulsory stage: Low Upper secondary stage: Low Tertiary stage: High

Another feature of Korea is that compulsory education was promulgated much later than other countries. Compulsory education was applied only up to the elementary educational level and was subsequently raised to the middle school level quite late, in 1985 for rural areas and nationally in 2002. It was a very late decision, because in 1985 the middle school enrollment rate had already reached over 90%. On the other hand, Japanese compulsory education was required up to the 9<sup>th</sup> grade in 1947, and lower secondary education was the minimum official standard for educational participation during the 1950s.

Yet private expenditures on college education in Korea are estimated to be the highest in the world, standing at about 1.9 percent of its GDP. The relative proportion of private funding at the tertiary education in Korea is very greater (See A-Figure 1). An average of private share expenditure for the OECD countries is 22 percent, while Korean proportion shows surprisingly 84.1 percent in 2001. And about 80% of the tertiary educational institutions are private in Korea. The cost for attending private colleges is much (1.3 times) higher than for attending public (or national) colleges. In Korea, most of the cost is privately financed out of parent's savings or debt. By the way, an average of 16.8 percent of public expenditures is used to financial aid for students such as scholarships, student loans, other grants to households, while a percentage of this type in Korea is merely 9.5 percent. It is an exceptional case when compared with other countries where the level of private funding is higher (Chang, 2003: 16). The level of public

subsidies tends to be higher in these countries. For examples, 37.4 percent of public expenditures on tertiary education are provided in this type of support in United States.

### III. The Expansion of Education in Korea

There are several prominent features in the change of educational expansion in Korea. The first centers around, the fact that the proportion of students entering secondary education has reached almost 100 percent. In the trends in the number of Korean high school students by the school type, general high school students have increased steadily in the post war period, while vocational high school students have slowly decreased after the 1990s. Until the 1980s in Korea, many affluent middle school students were attracted to vocational high schools, because these schools were formally required as the answer to rapid industrialization's demand for manpower, and students in vocational schools were eligible to receive such financial support as various scholarships. But, after the 1990s, the vocational high schools came to a crisis point in that they lost their reason for exist. Although vocational schools were founded to provide technical semi-skilled workers, vocational schools recently have offered little contribution to the development of technical manpower.

Second, enrollment rates to institutions of higher education in Korea show a higher proportion than other countries. The proportion of those entering junior colleges and universities has increased by almost 2.5 times from 1965 (32.3%) to 2003 (79.9%) in Korea. Almost 80 percent of Korean high school graduates went to attend institutions of higher education in 2003. The expansion of higher education in Korea is an exceptional case among other countries. For example, Korea shows the highest change ratio among OECD countries; the percentage of the population that has attained tertiary education of the age group 25 to 34 is 4.5 times higher than that of the age group 55 to 64 (See A-Figure 2). For examples, though Japan also shows the third highest change ratio among OECD countries, Korea's change ratio is 1.5 times higher than that of Japan. By the way, the trends in the number of Korean junior colleges students show a very different pattern from other countries. Surprisingly, the number of junior colleges students in Korea increased almost 28 times from 33,483 in 1970 to 925,963 in 2003. In real terms, the expansion of higher education in Korea can be explained by the rapid expansion of the number of junior college students. According to the OECD report (OECD, 2003), the percentage of the population that attained Type-B tertiary education in the 25 to 34 age group was a 19.2 times higher than that of the 55 to 64 age group in Korea.

Third, the total number of master's course students in Korea has increased 38 times from 6,122 in 1970 to 234,358 in 2003. The number of students enrolled in graduate school per 1,000 persons in Korea is already twice as large as that in Japan in 2000. This can be explained by the

higher educational expectation level in Korea. According to Nakamura, et al (2002: 76-77), up to 20% of Korean senior high school students want to go to graduate school, while this number stands at just 9.7% of male and 4.8% of female Japanese.

#### IV. Research Questions

This study addresses the following three questions. *First, we examine whether or not parental effects decline across age cohorts in Korean.* Previous research on Korea has been consistent in this empirical regularity. Chang (2000) insisted that the effects of social origins have not decreased across age cohorts despite a rapid expansion of education in Korea. Park (2001) also stated that the impact of social origins on educational transitions has not decreased over this period in Korea, though there is some evidence of narrowing gaps between persons who grew up in metropolitan area and others. But there is less research about the changing patterns in terms of educational tracking or pathways (Lucas, 2001). Karen (2002) insisted that analysis of educational stratification needs to include the uniqueness of the educational system itself. Breen and Jonsson (2000) explained that the degree to which transition probabilities change from one level of education to another may be influenced by the particular educational pathways by which students arrived at the point of choice. Among other countries, the distribution of alternative pathways<sup>4</sup> throughout upper secondary education displays large differences among countries. Participation in the general education pathway is highest in Canada (94%), United States (88%), and Japan (74%). They account for some three quarters of all students in these countries. Otherwise, participation in school-based vocational pathways is greatest in the Hungary, Sweden, and Italy where they account for over 60 percent of all students. Participation apprenticeships are greatest in Switzerland, Germany, and Denmark, where they account for some 40 percent of students in secondary education. Particularly in Korea, there is little detailed analysis by educational pathway. Some research merely considered educational tracking at the higher education levels (Chang, 2003, 2004; Park, 2003). Phang and Kim (2003) created an analysis by the path of transition taken at each stage, namely at the secondary (general / vocational) and the tertiary stage (universities / junior colleges) in Korea. They insisted that the overall long-term trend in Korean educational stratification was toward decreasing inequality in the quantity (success) but increasing inequality in the quality (path) of educational continuation among social classes. This study focuses on the effects of background variables on qualitative

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<sup>4</sup> Pathways through upper secondary education can distinguish into three types (OECD, 2000: 58-59). First, general education pathways mean that these have as their principal purpose the preparation of students for entry to tertiary education. Secondly, school-based vocational pathways mean that these have as their principal goal the provision of an upper secondary level occupational qualification for entry to labor market. Finally, apprenticeship-type pathways mean that students in apprenticeship-type pathways normally spend the majority of their time in the workplace, the minority of their time in school.

different pathways of school transitions across age cohorts.

*Second, we examine how educational continuation across age cohorts vary by gender in Korea.* Researchers showed that gender disparities in access to education have steadily decreased, although gender inequality has persisted (Chang, 2003, 2004). Chang (2004) showed that gender differentials have steadily decreased in almost all transitions. But these differentials have decreased unequally across socio-economic backgrounds. We are quite interested in the tertiary stage as we continue to try and make more specific claims.

*Third, we examine the effects of family backgrounds and gender on transitions from university to graduate school in Korea.* Yet we do not know whether or not these factors have a substantial effect on the likelihood that university graduates will matriculate to graduate school in Korea. Korea has showed quite a fast expansion of the number of graduate school students. If university credentials lose their value due to the expansion of higher education, post-graduate credentials enter the field of competition of social class. Therefore, family backgrounds and gender may have significant effects on transitions from university to graduate school.

## V. Methods and Models

### Data

We used the 2002 Korean Labor and Income Panel Study (KLIPS) for this analysis<sup>5</sup>. The KLIPS was conducted by the Korea Labor Institute after 1998 and is a longitudinal survey of 5000 households and their members (aged 15 and over) residing in urban areas. The final number of members amounted to 13,321 in 1998, and the respondents of the fifth wave (2002) numbered 10,557. The sampling method of The KLIPS was a two-stage cluster systematic sampling. The field work of the fifth wave was started in May and finished in October in 2002.

The final samples of the KLIPS for this analysis were restricted to the respondents born between 1940 and 1979. The total observations of the KLIPS numbered 4,423, which do not include the missing cases. Sample sizes also decline across school transitions, since analytic cases in higher school transitions are the respondents that successfully advance from lower school transitions.

### Dependent Variables

The first transition point (T1) is marked by whether the respondents begin studies at high schools or leave school over junior high (middle) schools. At this point, the alternatives (MT1) are starting studies in either general courses or vocational ones. The fourth wave (2001) of the

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<sup>5</sup> See English web sites of the KLIPS ([http://www.kli.re.kr/30\\_labp\\_eng/index.asp](http://www.kli.re.kr/30_labp_eng/index.asp)) on the detail information.

KLIPS offers information about the types of high schools. General high schools include academic high schools<sup>6</sup> with humanities and natural science curriculums, specialized science high schools<sup>7</sup>, and foreign language high schools. Vocational schools include academic high schools with vocational classes, agricultural high schools, industrial high schools, commercial high schools, fishery and oceanography high schools, comprehensive high schools, and other assorted types of vocational high schools. Meanwhile, the MT1 variable is used as the independent variable.

The second transition point (T2) is marked by whether the respondents start studies at the tertiary education level (over 2-3 year junior colleges/colleges of technology) or not. At this point, the tertiary education entrance as a dependent variable is differentiated between 2-3 year junior colleges (included colleges of technology in Japan) and 4-6 year universities (MT2).

The final transition point (T3) is marked by whether the respondents who completed their undergraduate education got into graduate school or not. Table 2 shows the dependent variables and their percent distributions.

Table 2. Dependent Variables and Their Measurements

Name	Items used with coding
T1	High Schools Entrance 79.9 % (3,536), Leave School 20.1 % (887)
MT1	General 48.8%(2,157), Vocational 31.2% (1,379), Leave 20.1% (887)
T2	Junior Colleges/Universities 40.2 % (1,421), Leave 59.8 % (2,115)
MT2	Universities 26.4%(935), Junior Colleges 13.7%(486), Leave 59.8%(2,115)
T3	Graduate Schools 15.0 % (140), Leave 85.0 % (795)

#### Independent Variables

In this analysis, the main independent variables were family background variables. This analysis focuses on three family background measures: the father's education, mother's education, and father's occupation. The father's and mother's educations were measured by the number of years of schooling. In the KLIPS data, parents' education was measured by the grade of the highest level of school at which they graduated, and additionally the half of schooling years if they dropped out or were not registered.

<sup>6</sup> The curriculum for the first year of the academic high schools consists of common subjects, while the curriculum for the second and third years includes humanities, natural sciences, vocational training, and other necessary subjects. The category of general high school in this study excludes students of vocational training class of academic high schools.

<sup>7</sup> Science high schools were established to provide places for the education of students with affluent scientific talent. There are 16 science high schools in Korea, including the Seoul Science High School. Students who have completed two years in a science high school can be admitted to entry at the Korea Advanced Institute for Science and Technology (KAIST).



The father's occupation was measured by social class category. The KLIPS offers some information about the father's occupation<sup>8</sup> and employment status from when the respondent was 14 years old. Also, the father's occupation was diverted to units in the four-class version of the EGP schema (Erikson and Goldthorpe, 1992).

- (1) I+II+III White-collar Workers: I+II Service Class (professionals, administrators and managers; higher-grade technicians, supervisors of non-manual workers) and III Routine non-manual workers (routine non-manual employees in administration and commerce; sales personnel; other rank-and-file service workers)
- (2) IVab Petty bourgeoisie: proprietors and artisans, etc., with and without employees
- (3) V+VI+VIIa Manual Workers: V+VI Skilled (lower-grade technicians; supervisors of manual workers; skilled manual workers) and VIIa Non-skilled (semi-and unskilled manual workers)
- (4) IVc+VIIb Farm workers: farmers and smallholders and self-employed workers in primary production; agricultural and other workers in primary production

This study did not treat family income, because the KLIPS do not offer information about family income from when the respondent grew up<sup>9</sup>. Academic ability is also an important variable in the analysis of educational continuation. This is known as a factor mitigating the disparity between family background and educational attainment (Mare, 1980: 296). However the KLIPS merely provides information about the academic ability of young people under 30 years old in the 5<sup>th</sup> (2002) wave. Also, this information comes from the College Scholastic Ability Test (the CSAT), which only students who completed high school had taken. Therefore, this study only includes academic ability at the transition from university to graduate school (T3). The community variable indicates the place where the respondent grew up, mostly during the early teens (middle school ages), or as 15 years olds. This variable distinguished the metropolitan areas from non-metropolitan areas<sup>10</sup>.

Age cohorts were divided into four ten-year cohorts: 1940-1949, 1950-1959, 1960-1969, and 1970-1979. The oldest cohort respondents were those born in the 1940s and who graduated from high schools in the 1960s. The second cohort respondents were those born in the 1950s and who attended universities or junior colleges in the 1970s. The third cohort respondents were

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<sup>8</sup> The job category of the KLIPS uses 3-digit code of the KSCO (Korea Standard Classification of Occupation). The KSCO code uses the code of the ISCO-88 (International Standard Classification of Occupation) to major group (1-digit) from unit group (4-digit). We converted the ISCO-88 job code to EGP schema using Ganzeboom's conversion tools (<http://www.fss.uu.nl/soc/hg/ismf>). And we reconverted using other variables because job code cannot classify self-employed and firm size.

<sup>9</sup> The KLIPS merely offer household incomes over the last year.

<sup>10</sup> The KLIPS sample is an equal probability sample of households from the 7 metropolitan cities and urban areas in 8 provinces (excluding Cheju Island).

those born in the 1960s, and the fourth cohort respondents were those born in the 1970s, which defined the youngest cohort.

Table 3. Independent Variables and Their Measurements

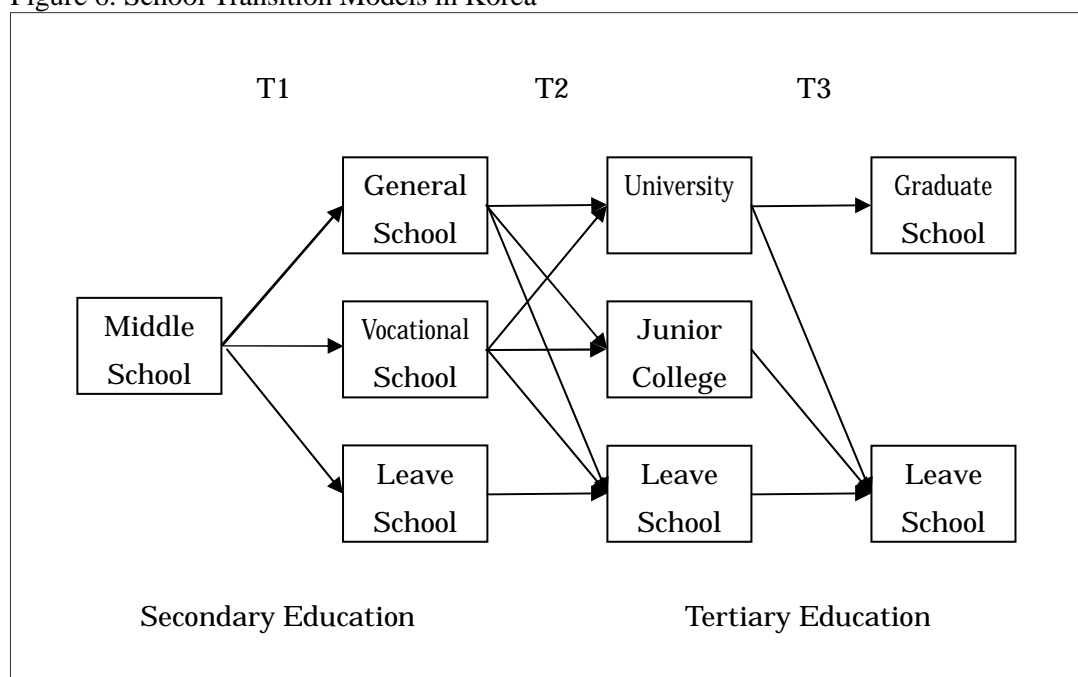
Name	Items used with coding	Mean (S.D.)
GENDER	Male 51.0 % (2,254), Female 49.0 % (2,169)	
COHORT	1940-1949 12.1% (537), 1950-1959 26.0% (1,151), 1960-1969 34.2% (1,511), 1970-1979 27.7% (1,224)	
LOCAL	The metropolitan 34.2 % (1,512), Non 65.8% (2,911)	
FEDU	None=0, Elementary=6, Middle School=9, High School=12, College=14, University=16, Master or Doctoral Course=18	6.82 (4.56)
MEDU	See FEDU	4.29 (4.02)
CLASS	White Collar 16.0% (706), Petty 17.3% (764), Manual Workers 16.5% (729), Farmers 50.3% (2,224)	
CSAT	The College Scholastic Ability Test (self-reported) 1= very lower score to 12=very higher score	8.77 (2.19)

### Models

Figure 6 describes education pathways in the educational systems in Korea. This shows that this study will theorize about three school transitions (T1 (MT1) =>T2 (MT2) =>T3). To estimate the effects of family background on the three school transitions, we will use the Mare model (Mare, 1980, 1981), which employed binary logistic regression to estimate the effects of family background for each school transition. The dependent variables in the Mare model were transitions from lower to higher stages in educational continuation.

As the second stage analysis, we utilized multinomial logit model (MT model) for comparison with results of the traditional binary logit model (Mare model). This focuses on the two steps, upper secondary education (T1) and tertiary education (T2), because the T3 does not have alternative pathways to entry levels of higher education. The MT model focuses on whether or not individuals successfully advanced to alternative pathways after middle school. The MT1 as a dependent variable is differentiated between (1) general high school, (2) vocational high school and (3) leaving school. The MT2 as a dependent variable is constituted as a 3-state transition: (1) entrance to 2-3 year junior colleges, (2) entrance to 4-6 year universities, and (3) leaving school altogether. In model tests, we considered the Bayesian Information Coefficient (BIC) and the significance of independent variables.

Figure 6. School Transition Models in Korea



## V. Research Findings

Tables 4 and 5 show descriptive statistics and percentage distributions for family background variables by age cohort. According to Table 4, the results of the means show that both the father's and mother's education variables consistently increased across age cohorts. Table 5 presents percentage distributions for the father's class and community of origins by age cohort. The distributions of self-employed workers (IVab) in Korea have increased from 12.7 percent in the oldest cohort to 23.3 percent in the newest cohort. And white collars (I+II+III) and manual workers (V+VI+VIIa) have consistently increased in size across age cohorts, but the number of farmers (IVa+IVIIb) has sharply decreased from the oldest cohort to the newest cohort. These results suggested that the transition from agricultural society to industrial society has made rapid progress in Korea after the half of the 20th.

The distribution of the community of social origin variable consistently increased in size across age cohorts. This result shows that the Korean population has become concentrated in metropolitan areas. In reality, Korean metropolitan areas show the dubious honor of having the highest population density in the world with the exception of the city-state of Singapore. The population of Seoul, the capital city of Korea, totaled 10.3 million, which represented almost 22 percent of the entire population.

Table 6 shows descriptive school transitions rates by age cohort at selected levels of schooling. School transitions rates by age cohort persistently increased across age cohorts, especially in the

case of upper secondary education which has expanded more quickly than tertiary education. This case has shown that those in general courses and vocational courses have simultaneously increased across age cohorts. In tertiary education, Korean junior colleges showed a rapid increase. These results were similar to the trends of national statistics in Korea.

Table 4. Descriptive Statistics for Father's and Mother's Education by Age Cohorts in Korea

	(Mean)			
	1940-1949	1950-1959	1960-1969	1970-1979
KOREA				
FEDU	4.60(4.47)	5.52(4.61)	6.83(4.35)	9.00(3.83)
MEDU	1.66(3.02)	2.76(3.52)	4.27(3.78)	6.91(3.63)

Note: Numbers in brackets are standard deviations.

Table 5. Percentage Distributions for Father's Class and Community of Origin by Age Cohorts in Korea

	(%)			
	1940-1949	1950-1959	1960-1969	1970-1979
KOREA				
CLASS				
I+II+III With Collar	11.0	15.2	14.8	20.3
IVab Petty	12.7	13	17.3	23.3
V+VI+VIIa Manual	6.7	10.8	14.2	28.9
IVa+IVIIb Farmers	69.6	60.9	53.8	27.5
LOCAL(1=metro)	24.8	27.7	31.2	48.1

Table 6. School Transition Rates by Age Cohorts in Korea

	(%)			
	1940-1949	1950-1959	1960-1969	1970-1979
KOREA				
T1(MT1)				
Upper Secondary	53.3	63.7	87.4	97.7
General Courses	34.5	39.8	51.8	59.8
Vocational Courses	18.8	23.9	35.7	37.9
Leave School	46.7	36.3	12.6	2.3
T2(MT2)				
Tertiary	29.7	28	37	53.7
University	27.6	20.9	25.4	30.8
Junior Colleges	2.1	7.1	11.7	22.9
Leave School	70.3	72	63	46.3
T3				
Graduate School	11.4	22.2	13.4	14.1
Leave School	88.6	77.8	86.6	85.9

Table 7. Coefficients of Independent Variables for Preferred Models in Transition 1

	Binary logit model	Multinomial logit model		
	High school/leave	General/leave	Vocational/leave	General/vocational
FEDU	.116(.013)***	.137(.014)***	.087(.014)***	.050(.010)***
MEDU	.148(.016)***	.173(.016)***	.111(.017)***	.062(.011)***
CLASS				
IVab	-.052(.219)	-.149(.222)	.275(.236)	-.424(.128)**
V+VI+VIIa	-.512(.217)*	-.660(.221)**	-.119(.234)	-.541(.130)***
IVc+VIIb	-.538(.188)**	-.704(.192)***	-.118(.207)	-.586(.127)***
GENDER	-1.423(.210)***	-1.253(.234)***	-1.798(.314)***	.545(.330)
LOCAL	.319(.116)***	.270(.121)*	.384(.126)**	-.114(.083)
COHORT				
1950-1959 (2)	.216(.152)	.041(.171)	.415(.178)*	-.374(.172)*
1960-1969 (3)	1.323(.173)***	1.187(.188)***	1.485(.195)***	-.299(.163)
1970-1979 (4)	1.669(.272)***	1.503(.283)***	1.891(.290)***	-.388(.179)*
C2*GENDER	.522(.249)*	.627(.278)*	.517(.356)	.110(.369)
C3*GENDER	.722(.267)**	.507(.291)	1.161(.359)**	-.654(.349)
C4*GENDER	2.467(.464)***	2.181(.479)***	2.965(.524)***	-.785(.352)*
Constant	.217(.227)	-.301(.240)	-.898(.258)***	.597(.198)**
Pseudo-R <sup>2</sup>	.401	.331		
-2LL	3137.846	2916.075		
Chi-square	1295.360	1512.302		
N	4,423	4,423		

Note: Pseudo-R<sup>2</sup> is Nagelkerke R<sup>2</sup>. Reference groups of father's class, gender, and cohort are white collars (I+II+III), female, and the oldest cohort (1940-1949).

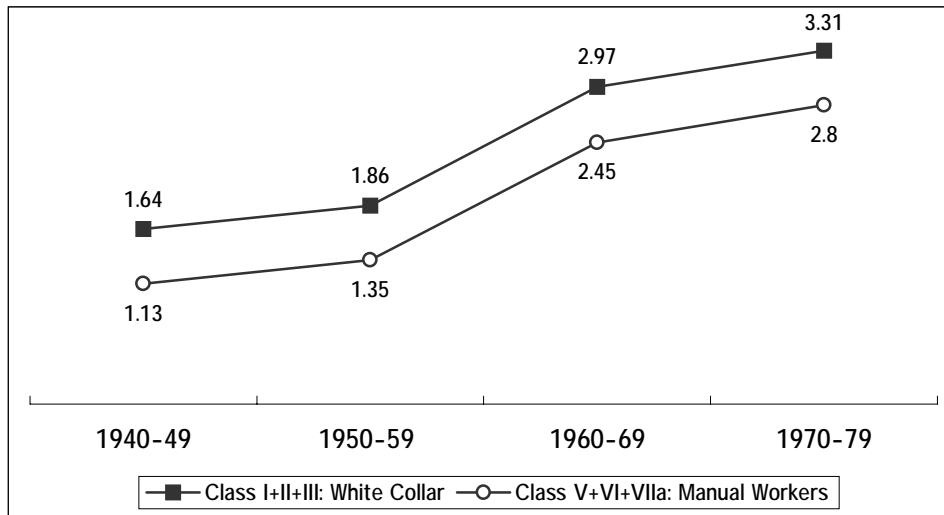
1) \* : p < .05 \*\* : p < .005 \*\*\*: p < .001

Table 7 shows coefficients of the independent variables for the preferred model at the secondary educational stages. The results of BIC model tests are presented in A-Table 1, A-Table 2. The primary interest of this study is the question of whether parental effects declined across age cohorts. According to the model tests, the interaction terms between age cohort and family background variables were mostly insignificant. These results mean that the effects of family backgrounds have not changed across age cohorts.

Figure 1 presents the log odds ratios of attending high school instead of leaving school by the father's class (white collars / manual workers) across age cohorts from the result of binary logit

model in Table 7. This result means that the effect of father’s class never decreased across age cohorts in T1.

Figure 1. Log Odds Ratios of Attending High School Instead of Leaving School by Father’s Class across Age Cohorts in Transition 1

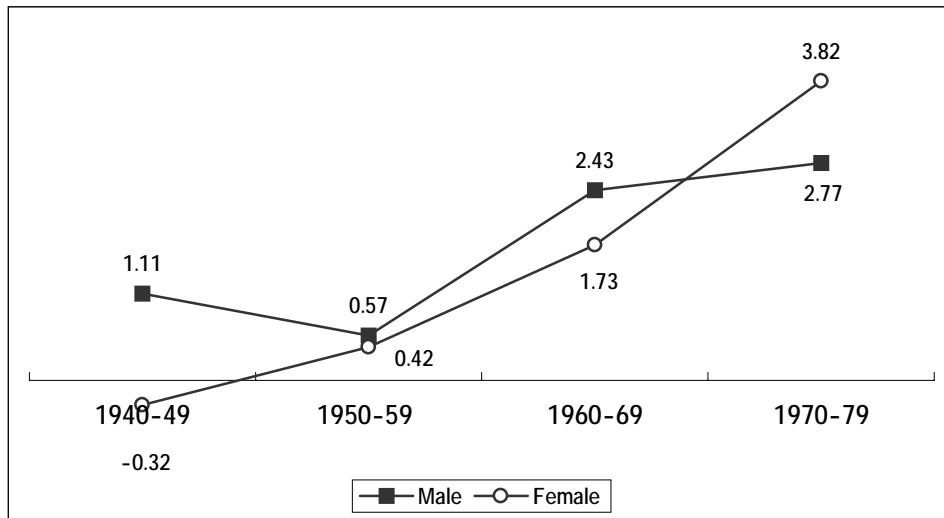


Note: FEDU=6.82, MEDU=4.29, LOCAL=0, GENDER=0. Continuous variables are calculated at means, and category variables are calculated at values of the largest proportion in distribution.

By the way, the father’s class displayed different features according to educational pathway, although it did not show significant changes across age cohorts in Table 7. The disparity of social classes in binary logit model is lower than that in the case of the log odds of attending general high school instead of vocational high school. Meanwhile, the log odds of attending vocational courses instead of leaving school show that disparity among classes is insignificant. According to Lucas (2001), if the expansion of education in any stage of the educational ladder has reached saturation, this means that qualitative differentiation has replaced educational inequalities in terms quantity. Therefore this result can be interpreted to mean that differentiation among social classes did not manifest strongly itself in terms of the quantity of education attained, but in the quality of placement in selective educational tracks.

A second interest of this study is how educational continuation across age cohorts varies by gender. Table 7 shows that the interaction terms between age cohort and gender display significant positive (+) effects. These results show that the quantitative disparity of gender has decreased over time in the T1. Figure2 shows log odds ratios of attending high school instead of leaving school by gender over time. To limit discussion to quantitative disparity, we can say that gender inequality has decreased over time at the stage of secondary education. But qualitative inequality (general courses / vocational courses) has significantly increased in the youngest cohort according to the multinomial logit model.

Figure 2. Log Odds Ratios of Attending High School Instead of Leaving School by Gender across Age Cohorts in Transition 1



Note: Continuous variables are calculated at means, and category variables are calculated at values of the largest proportion in distribution

Table 8 shows the coefficients of independent variables for preferred model at the higher education stages. The results of the BIC model tests are presented in the Appendix, A-Table 3, A-Table 4. First, we have been interested in whether or not parental effects decline across age cohorts in Korea and Japan. The model tests in the Appendix show that all interaction terms between age cohort and family background variables are insignificant. These results mean that the effects of family backgrounds have not changed across age cohorts at higher stage of education.

Also, Table 8 shows basic patterns of differentiation as follows. First, differentiation in the quantity and the quality at the tertiary levels displays features contrary to the T1. In the case of the odds ratios of attending tertiary education (university + junior college) instead of leaving school, the impacts of family backgrounds are larger than those of attending university instead of junior college. This result can be interpreted to mean that differentiation among social classes manifests itself in terms of the quantity of education attained at the tertiary levels.

Second, family backgrounds have stronger effect on university track (university / leave school) than on junior college track (junior college / leaving school), with the exception of farmers (IVc+VIIIb). Previous research has shown a similar result (Breen and Jonsson, 2000, Chang, 2004, Ishida, 2003, Phang and Kim, 2003). Breen and Jonsson (2000) explained this result by reasoning that the pathway to university was more difficult than that of junior college, and that differentials of social origins were more consequential to determining success at this level.

Table 8. Coefficients of Independent Variables for Preferred Models in Transition 2

	Binary logit model	Multinomial logit model		
	Tertiary/leave	University/leave	Junior College/leave	University/Jun.Col.
FEDU	.047(.012)***	.061(.014)***	.023(.017)	.038(.018)*
MEDU	.101(.013)***	.118(.110)***	.073(.017)***	.044(.019)*
CLASS				
IVab	-.387(.131)**	-.389(.146)**	-.376(.168)*	-.013(.169)
V+VI+VIIa	-.605(.135)***	-.631(.153)***	-.593(.173)**	-.037(.179)
IVc+VIIb	-.808(.132)***	-.648(.149)***	-1.088(.181)***	.441(.192)*
GENDER	-.693(.338)*	-1.021(.366)**	1.393(.890)	-2.414(.916)**
LOCAL	.300(.090)**	.398(.102)***	.120(.120)	-.279(.127)*
MT1	1.359(.087)***	1.801(.110)***	.753(.114)***	1.048(.139)**
COHORT				
1950-1959 (2)	.013(.195)	-.277(.208)	2.130(.735)**	-2.408(.744)**
1960-1969 (3)	.486(.183)**	.108(.194)	2.782(.724)***	-2.675(.731)***
1970-1979 (4)	.445(.197)*	-.107(.213)	3.038(.728)***	-3.146(.736)***
C2*GENDER	-.533(.391)	-.301(.428)	-2.456(.948)*	2.155(.986)*
C3*GENDER	-.470(.362)	-.344(.396)	-2.212(.908)*	1.869(.938)*
C4*GENDER	.496(.363)	.596(.396)	-1.339(.904)	1.935(.930)*
Constant	-1.767(.228)***	-2.388(.253)***	-4.358(.743)***	1.969(.756)**
Pseudo-R <sup>2</sup>	.327	.330		
-2LL	3783.847	3231.284		
Chi-square	980.992	1157.547		
N	3,536	3,536		

Note: Pseudo-R<sup>2</sup> is Nagelkerke R<sup>2</sup>. Reference groups of father's class, gender, MT1, and cohort are white collars (I+II+III), female, general courses, and the oldest cohort (1940-1949).

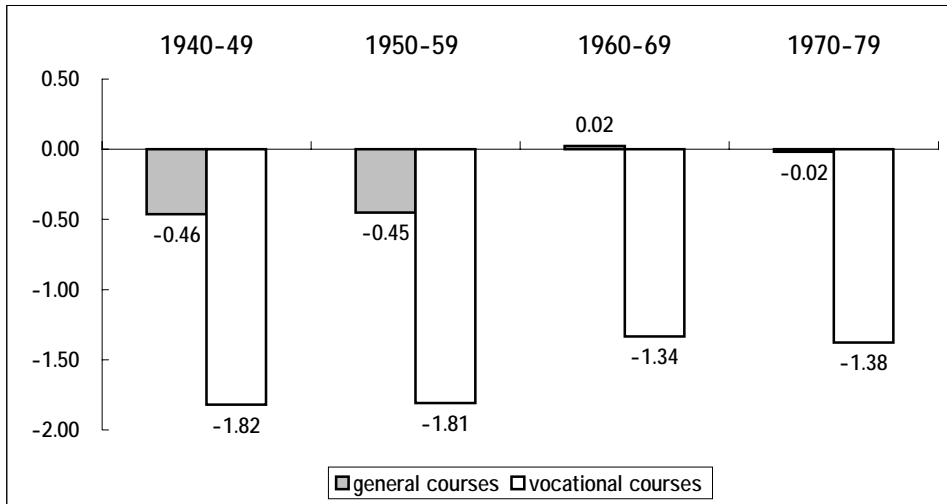
1) \* : p < .05    \*\* : p < .005    \*\*\*: p < .001

Meanwhile, an individual's previous educational track has a strong effect on school transitions at the tertiary levels. Figure 3 shows the estimated average log odds ratios for path dependence by age cohorts at the T2 (tertiary levels). It is clear that different pathways led to different conditional probabilities. Students who followed the vocational track have a very low conditional probability of entering institutions of higher education. The conditional probability of males entering colleges (university + junior college) to general high school (-0.02) is very larger than that of vocational high school (-1.38) in the newest cohort. This result gives support



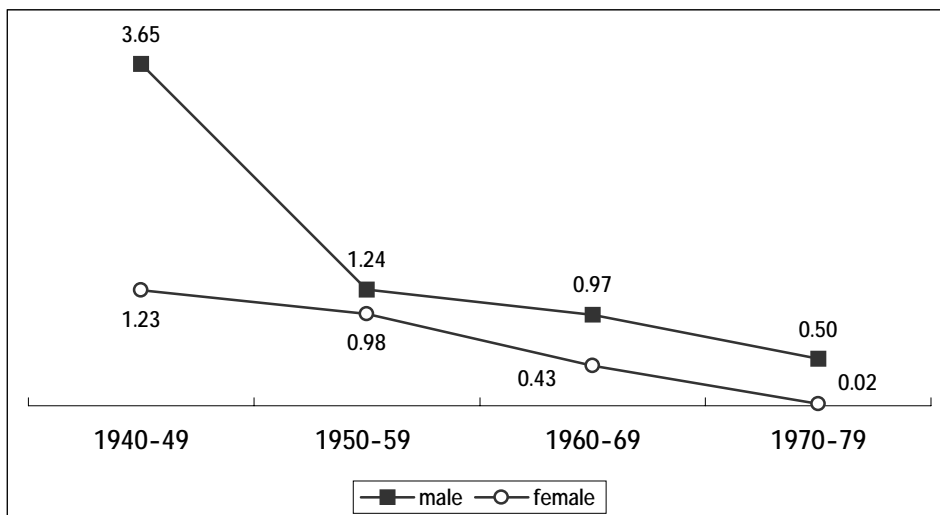
to the Breen and Jonsson (2000)'s *path dependence hypothesis*. According to Breen and Jonsson (2000), the effects of family background on transition probabilities vary according to the particular choice, and the probabilities of making a particular choice vary depending on the educational pathway.

Figure 3. Average Log Odds Ratios of Attending Colleges Instead of Leaving School by Previous Educational Track in Transition 2



Note: Continuous variables are calculated at means, and category variables are calculated at values of the largest proportion in distribution

Figure 4. Log Odds Ratios of Attending University Instead of Junior College by Gender across Age Cohorts in Transition 2



Note: Continuous variables are calculated at means, and category variables are calculated at values of the largest proportion in distribution, provided that CLASS is self-employed (IVab) without related to this criterion.

Subsequently, Table 8 shows that the interaction terms between age cohort and gender are insignificant in the binary logit model. These results mean that gender differential has never

deceased over time in the quantitative disparity (high school attendance / leaving school). By the way, qualitative inequality (university / junior college) by gender is very stronger than those of other pathway, while gender disparity has decreased over time in this case. Figure 4 shows log odds ratios of attending university instead of junior college by gender across age cohorts.

Table 9. Coefficients of Independent Variables for Preferred Models in Transition 3

	Except CSAT	Included CSAT
FEDU	.017(.029)	-.096(.077)
MEDU	.016(.030)	.073(.345)
CLASS		
IVab	-.171(.278)	-1.102(.559)*
V+VI+VIIa	-.093(.291)	-.693(.532)
IVc+VIIb	-.294(.314)	-1.270(.733)
GENDER	-.980(.228)***	-.977(.385)*
LOCAL	-.044(.207)	-.279(.419)
COHORT		
1950-1959	.713(.413)	-
1960-1969	.143(.400)	-
1970-1979	.323(.415)	-
CSAT	-	.161(.093)
Constant	-1.872(.500)***	-1.683(1.194)
Pseudo-R <sup>2</sup>	.057	.121
-2LL	758.747	192.718
Chi-square	30.851	18.172
N	935	266

Note: C is measured as continuous variable of COHORT. Pseudo-R<sup>2</sup> is Nagelkerke R<sup>2</sup>.

1) \* : p < .05 \*\* : p < .005 \*\*\*: p < .001

We are interested in whether independent variables have a substantial effect on the likelihood that university graduates continue to go to school or not. Table 9 shows the coefficients of dependent variables for preferred models in Transition 3. T3 models include the binary logit models with and without academic ability variable (CSAT). These models with CSAT analyze respondents under 30 years old. The results of BIC model tests yielded A-Table 5. This shows that all interaction terms between age cohorts and other independents are insignificant. These results mean that the effects of family backgrounds and community of origin, as well as gender, have not changed over time.

And Table 9 shows that the effects of these variables are almost insignificant. Gender variable is only negative (-) and significant. For example, the log odds ratio of female graduates of university on entering graduate school are about 0.375 times (=exp. [-.980]) smaller for male graduates in the model included CSAT. Meanwhile, the affect of academic ability is insignificant. Previous research shows that academic ability is a strong determinant of continuation into graduate education (Mullen, Goyette and Soares, 2003: 157). Although academic ability always does not show the strongest effect in determining entrance of graduate school, it at least shows significant positive effect in previous research (Stolzenberg, 1994: 66). Why academic ability does not show significant effects in case of new generation in Korea? This partly can be explained from abnormal motivation going to graduate school of new generation. About 11% of Korean university graduates go to graduate school because of difficult of employment (see A-Table 3). These graduate students may do not regard graduate school as educational institutions bearing professional academic career, but as a shelters of labor market avoiding unemployment after graduation.

## VI. Conclusions

This study analyzes educational continuation in Korea. Previous research on the changing patterns of educational continuation has found empirical regularities as follows. First, the effects of family backgrounds have not decreased over time. Second, the gender differential has decreased continuously across age cohorts. Third, it almost goes without saying that the effects of family background vanish at the graduate school level historical trends. Using the 2002 *Korea Labor and Income Panel Study* (KLIPS), this study examines these empirical regularities in Korea. Dependent variables are school transitions from lower to higher stages of educational continuation. Main independent variables are family backgrounds (father's education, mother's education, and father's class), community of origin, and gender.

First, this study examines whether or not family backgrounds decline across age cohorts in Korea. As a result, the effects of family backgrounds have not changed across age cohorts. By the way, the qualitative disparity (general entry/ vocational entry) of the father's class is higher than the quantitative disparity (high school entry/ leaving school) in the T1. And the log odd of attending vocational courses instead of leaving school is insignificant. This result partly predicts that if the expansion of education at any stage of the educational ladder has reached saturation, qualitative differentiation will be replaced by educational inequalities in the quantity. Also, this study observes that different educational pathways in the school system lead to different conditional probability for the continuation of education. Previous educational track (general / vocational courses) affects strongly on school transition at the higher education level. The log

odds ratios of general high school graduates on entering graduate school are about 4 times (=exp. [1.359]) larger for vocational ones.

Second, this study presents how educational continuation across age cohorts varies by gender in Korea. Gender inequality has decreased over time at the stage of upper secondary education, while we did not find same trends at the higher education level. But we found that the qualitative disparity (general / vocational) by gender in the T1 has significantly increased in the youngest cohort, while the qualitative disparity (university / junior college) by gender in the T2 have decreased in the youngest cohort. The former means that the gender differential also reveals something about the quality of placement in the selective educational tracks at the high school level. The latter means that gender inequality will decrease in the future, although qualitative inequality is very stronger.

In addition, this study observes that variables of family backgrounds do not have substantial effects on the likelihood that university graduates go to graduate school or not. But the gender differential has persisted over time in the transition to graduate school.

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## The Appendix

A-table 1. BIC Test for Binary Logit Models in Transition 1

Model	-2LL	d.f.	Chi.	N	BIC
m1: Fedu+Medu+Class+Local+Gender+Cohort	3169.16	10.00	1264.04	4423	1180.10
m2: m1+C*Fedu	3163.07	13.00	1270.14	4423	1161.01
m3: m1+C*Medu	3166.15	13.00	1267.06	4423	1157.93
m4: m1+C*Class2	3163.69	13.00	1269.51	4423	1160.38
m5: m1+C*Class3	3167.60	13.00	1265.60	4423	1156.47
m6: m1+C*Class4	3162.54	13.00	1270.67	4423	1161.54
m7: m1+C*Local	3163.94	13.00	1269.27	4423	1160.14
<b>m8: m1+C*Gender</b>	<b>3137.85</b>	<b>13.00</b>	<b>1295.36</b>	<b>4423</b>	<b>1186.23</b>
m9: m1+C*Gender+C*Fedu	3127.45	16.00	1305.76	4423	1171.45
m10: m1+C*Gender+C*Medu	3135.85	16.00	1297.36	4423	1163.04
m11: m1+C*Gender+C*Class2	3131.46	16.00	1301.75	4423	1167.43
m12: m1+C*Gender+C*Class3	3136.21	16.00	1297.00	4423	1162.68
m13: m1+C*Gender+C*Class4	3130.28	16.00	1302.93	4423	1168.62
m14: m1+C*Gender+C*Local	3132.16	16.00	1301.04	4423	1166.73

Note: BIC = Model  $^{-2}$  - (Model d.f. \* LN(Number))

A-table 2. BIC Test for Multinomial Logit Models in Transition 1

Model	-2LL	d.f.	Chi.	N	BIC
m1: Fedu+Medu+Class+Local+Gender+Cohort	2971.31	20.00	1457.06	4423	1289.17
m2: m1+C*Fedu	2937.58	26.00	1490.80	4423	1272.54
m3: m1+C*Medu	2952.71	26.00	1475.67	4423	1257.41
m4: m1+C*Class2	2964.76	26.00	1463.62	4423	1245.36
m5: m1+C*Class3	2967.81	26.00	1460.56	4423	1242.30
m6: m1+C*Class4	2959.12	26.00	1469.26	4423	1251.00
m7: m1+C*Local	2957.43	26.00	1470.95	4423	1252.69
<b>m8: m1+C*Gender</b>	<b>2916.08</b>	<b>26.00</b>	<b>1512.30</b>	<b>4423</b>	<b>1294.04</b>
m9: m1+C*Gender+C*Fedu	2875.54	32.00	1552.84	4423	1284.21
m10: m1+C*Gender+C*Medu	2897.30	32.00	1531.08	4423	1262.45
m11: m1+C*Gender+C*Class2	2908.53	32.00	1519.85	4423	1251.23
m12: m1+C*Gender+C*Class3	2912.23	32.00	1516.15	4423	1247.52
m13: m1+C*Gender+C*Class4	2903.06	32.00	1525.32	4423	1256.70
m14: m1+C*Gender+C*Local	2902.37	32.00	1526.01	4423	1257.38

Note: BIC = Model  $^{-2}$  - (Model d.f. \* LN(Number))



A-table 3. BIC Tests for Binary Logit Models in Transition 2

Model	-2LL	d.f.	Chi.	N	BIC
m1: Fedu+Medu+Class+Local+Gender+Cohort	4077.41	10.00	687.43	3536	605.72
m2: m1+MT1	3816.43	11.00	948.41	3536	858.53
m3: m2+C*Fedu	3808.40	14.00	956.44	3536	842.04
m4: m2+C*Medu	3818.35	14.00	951.49	3536	837.10
m5: m2+C*Class2	3807.28	14.00	957.56	3536	843.17
m6: m2+C*Class3	3813.08	14.00	951.76	3536	837.37
m7: m2+C*Class4	3806.90	14.00	957.94	3536	843.55
m8: m2+C*Local	3813.35	14.00	951.49	3536	837.10
<b>m9: m2+C*Gender</b>	<b>3783.85</b>	<b>14.00</b>	<b>980.99</b>	<b>3536</b>	<b>866.60</b>
m10: m9+C*Fedu	3775.63	17.00	989.21	3536	850.31
m11: m9+C*Medu	3782.25	17.00	982.59	3536	843.69
m12: m9+C*Class2	3774.76	17.00	990.08	3536	851.18
m13: m9+C*Class3	3780.74	17.00	984.10	3536	845.20
m14: m9+C*Class4	3773.33	17.00	991.51	3536	852.61
m15: m9+C*Local	3780.23	17.00	984.61	3536	845.70
m16: m9+C*MT1	3768.39	17.00	996.45	3536	857.55

Note: BIC = Model  $^{-2}$  - (Model d.f. \* LN(Number))

A-table 4. BIC Test for Multinomial Logit Models in Transition 2

Model	-2LL	d.f.	Chi.	N	BIC
m1: Fedu+Medu+Class+Local+Gender+Cohort	3585.86	20.00	802.98	3536	639.56
<b>m2: m1+MT1</b>	<b>3265.27</b>	<b>22.00</b>	<b>1123.57</b>	<b>3536</b>	<b>943.81</b>
m3: m2+C*Fedu	3252.76	28.00	1136.07	3536	907.29
m4: m2+C*Medu	3257.83	28.00	1131.01	3536	902.23
m5: m2+C*Class2	3254.20	28.00	1134.63	3536	905.85
m6: m2+C*Class3	3257.80	28.00	1131.03	3536	902.25
m7: m2+C*Class4	3253.24	28.00	1135.59	3536	906.81
m8: m2+C*Local	3256.07	28.00	1132.76	3536	903.98
<b>m9: m2+C*Gender</b>	<b>3231.28</b>	<b>28.00</b>	<b>1157.55</b>	<b>3536</b>	<b>928.77</b>
m10: m2+C*MT1	3224.24	28.00	1164.59	3536	935.81
m11: m10+C*Gender	3193.11	34.00	1195.73	3536	917.92

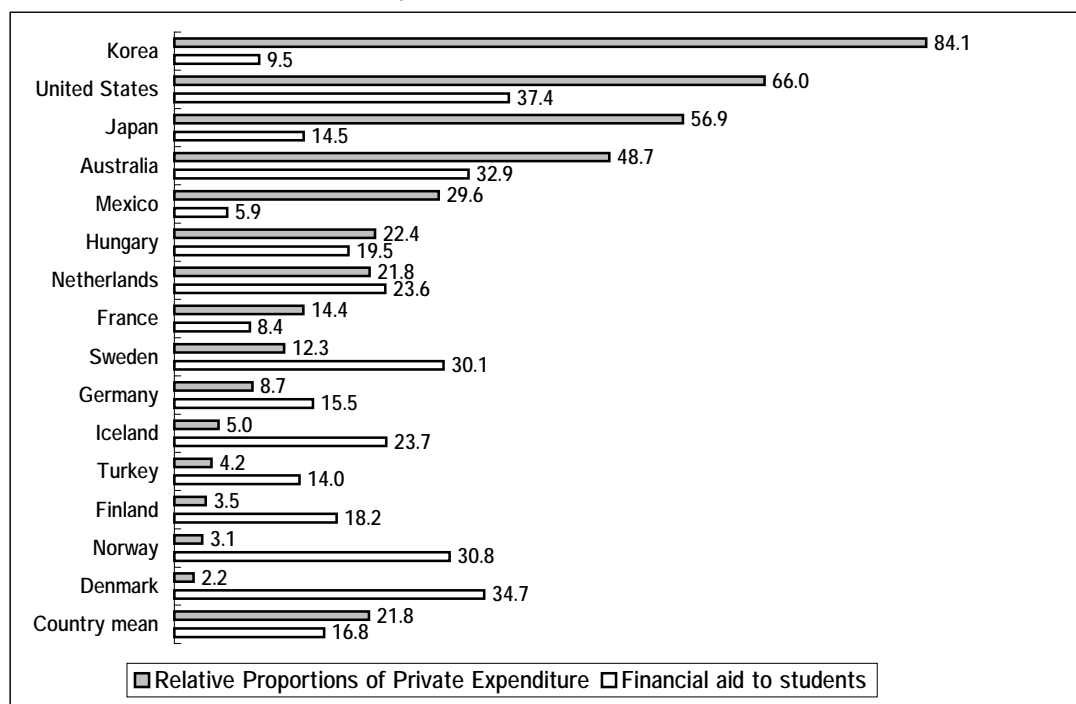
Note: BIC = Model  $^{-2}$  - (Model d.f. \* LN(Number))

A-table 5. BIC Test for Binary Logit Models in Transition 3

Model	-2LL	d.f.	Chi.	N	BIC
<b>m1: Fedu+Medu+Class+Local+Gender+Cohort</b>	<b>756.42</b>	<b>12</b>	<b>33.18</b>	<b>935</b>	<b>-48.91</b>
m2: m1+C*Fedu	756.23	13	33.37	935	-55.56
m3: m1+C*Medu	755.48	13	34.12	935	-54.81
m4: m1+C*Class	750.92	17	38.68	935	-77.61
m5: m1+C*Local	754.06	13	35.54	935	-53.39
m6: m1+C*Gender	756.13	13	33.47	935	-55.46
m7: m1+Gender*Fedu	755.50	13	34.10	935	-54.83
m8: m1+Gender*Medu	754.28	13	35.31	935	-53.61
m9: m1+Gender*Class	751.73	17	37.87	935	-78.42
m10: m1+Gender*Local	756.39	13	33.21	935	-55.72

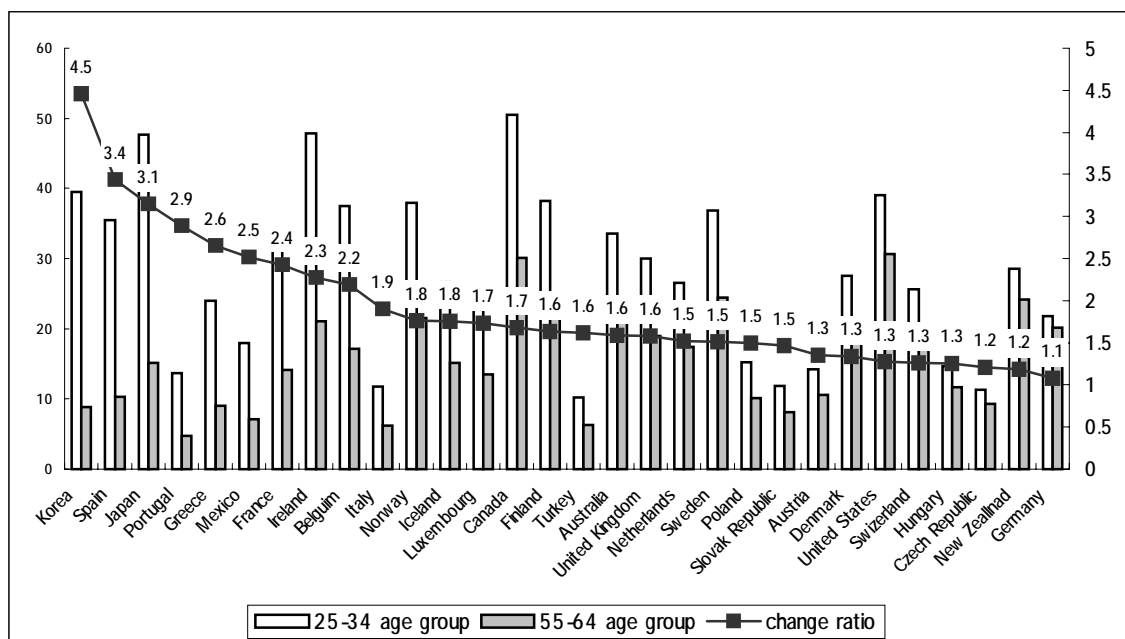
Note: BIC = Model <sup>-2</sup> - (Model d.f. \* LN(Number))

A-Figure 1. Relative Proportions of Private Expenditure on Educational Institutes and Public Subsidies for Students as a Percentage of Total Public Expenditure on Education in Tertiary Education (2001)



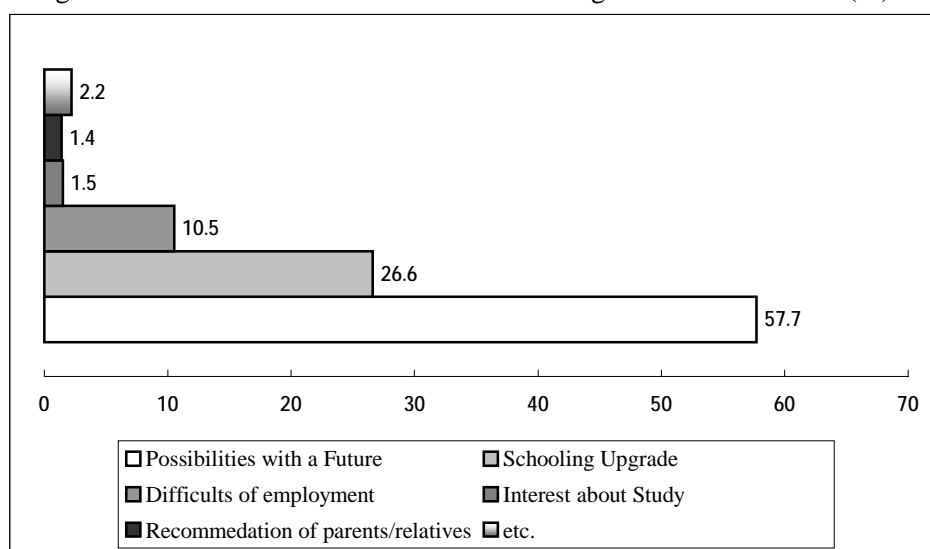
Source: OECD, 2004 *Education at a Glance: OECD Indicators*. See Table B3.2b and Table B 5.2

A-Figure 2. Percentages of the population that has attained tertiary education (type A+B) and change ratio of percentages between 25-34 age group and 55-64 age group in 2001



Source: OECD, 2003. *Education at a Glance, OECD Indicators*. Table A2.3

A-Figure 3. Distribution of Main Motivation Going to Graduate School (%)



Source: *the Graduate Students Survey (2002)*. Korea Research Institute for Vocational Education & Training (KRIVET)