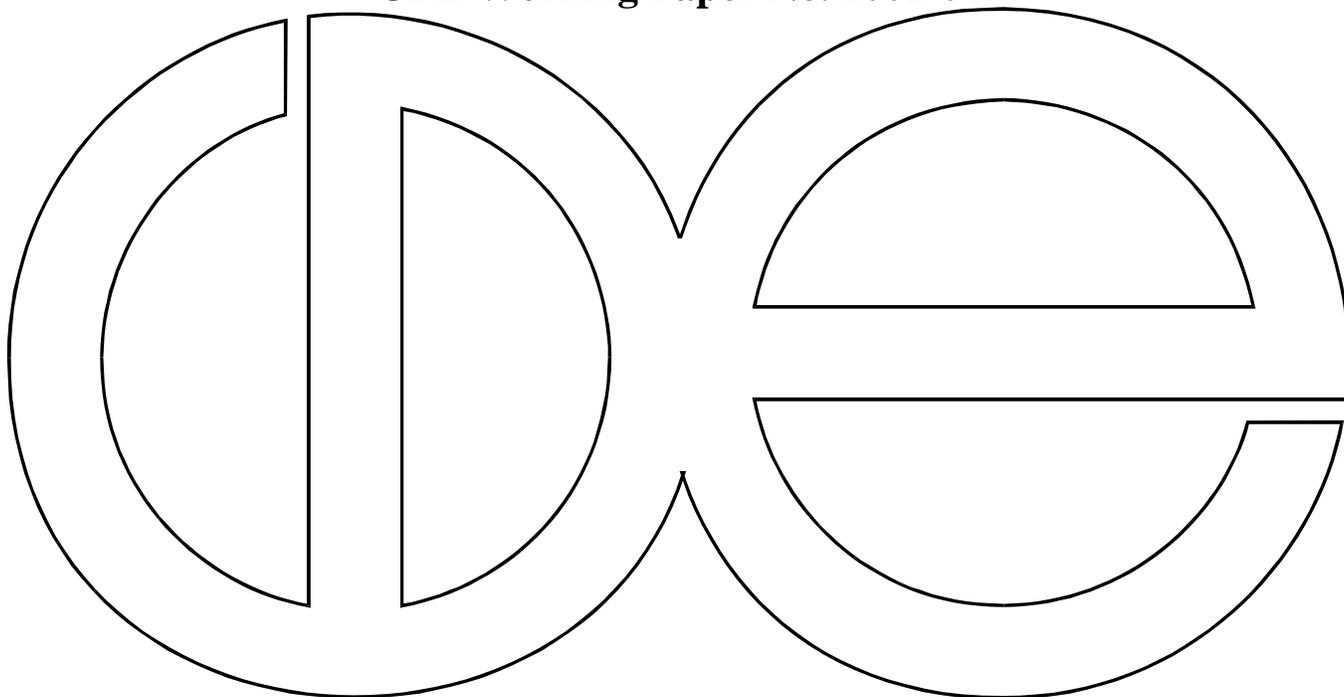


Center for Demography and Ecology
University of Wisconsin-Madison

Educational Expansion and Inequality in Korea

Hyunjoon Park

CDE Working Paper No. 2001-04



EDUCATIONAL EXPANSION AND INEQUALITY IN KOREA

Hyunjoon Park

University of Wisconsin-Madison

November 2001

An early version of this paper was presented at the annual meeting of Research Committee 28, International Sociological Association, Mannheim Germany, April 2001.

I thank Adam Gamoran, Robert Hauser, and Gary Sandefur for their valuable comments on an early draft. Please direct correspondence to Hyunjoon Park, Department of Sociology, University of Wisconsin-Madison, 1180 Observatory Drive, Madison, WI 53706. Email: hypark@ssc.wisc.edu.

EDUCATIONAL EXPANSION AND INEQUALITY IN KOREA

ABSTRACT

During the past few decades South Korea has experienced a remarkable expansion in its educational system, distinctive that there has been an extraordinary increase in both quantity and quality of education. Along with dramatic differences between the educational attainment of recent and older cohorts, educational policies that have emphasized competition and growth rather than equality of educational opportunity make Korea an excellent case by which to examine the effects of educational expansion on inequality in educational opportunity. Using 1990 data from the Social Inequality Study in Korea, the study examines trends in the influence of social background on educational attainment across three birth cohorts born between 1921 and 1970. Empirical findings suggest that despite massive expansion of the educational system, the impacts of social origin on educational transitions have not decreased over the period, though there is some evidence of narrowing gaps between persons who grew up in metropolitan areas and others. In particular, father's education appears to have a significant effect on the likelihood of university entry for the youngest cohort.

INTRODUCTION

During the past few decades South Korea has experienced a remarkable expansion in its educational system along with tremendous growth of its economy, as have many other industrial societies. The extent of Korea's educational expansion, however, is so dramatic that few other countries have achieved a comparable increase in the last thirty years.

Even more impressive is the fact that this educational expansion occurred not only at the primary level but also the secondary and even tertiary levels. Table 1, which shows the percentage of population that has attained a specific level of education by age across 26 Organization for Economic Cooperation and Development (OECD) countries, reveals the magnitude of change in educational attainment in Korea over one generation across all levels of education. Within just three decades Korea has shifted from the lowest to the highest country in the proportion of population that has attained upper secondary or university-level education. For the cohort of age 25-34, only Czech Republic and Norway exceed Korea in the proportion of population that has obtained at least upper secondary level of education, and a more surprising finding is that Korea has the highest proportion of university graduates for the same young cohort. The percentage of people having attained university-level education is higher even than that of the United States as well as Western welfare states and Eastern socialist countries. Given the low proportions for the oldest cohort in Korea, the extent of educational expansion that occurred over the period is striking.

It is not merely the increase in quantity of education but also improvement in the quality of education that distinguishes educational development in Korea from those in other countries. In the international comparative tests of mathematics and science

administered by International Association for the Evaluation of Educational Achievement (IEA) during the school year 1994/5, Korean 4th- and 8th-graders scored significantly higher than students from any other country. Except only in science performance of 8th graders where they ranked third, Korean students showed the highest average scores for both subjects (OECD 1997). Not only are mean scores significantly high, but Korea's interquartile ranges in both subjects are narrow relative to those of other countries. Korea also shows a narrow distribution at the bottom end of the achievement distribution. These results indicate that in Korea high educational achievement occurred concomitantly with less variation in achievement.

This rapid educational development in both of quantity and quality of education in Korea has been praised as one of the most important factors contributing to the remarkable economic growth, which accompanied the low level of income inequality as well. Compared to the experiences of Latin America where slower rate of educational expansion along with declining educational quality has not led to economic growth, educational achievement in Korea has been considered a key to the production of a highly skilled labor force, which in turn enabled rapid industrial development and a relatively low level of inequality in income distribution (Birdsall, Ross, and Sabot 1997).¹

In addition to impressively rapid industrial growth, a relatively equal income distribution is another important context for understanding educational development. In many comparative studies of income distribution, Korea had greater equality in its 1970s income distribution than most developing countries and even similar levels of inequality to fully industrialized societies such as Japan and the United States (Chenery et al. 1974). It is generally accepted that distribution of income in Korea remained virtually

unchanged from the 1960s through the late 1980s, maintaining a relatively high level of equality (Park 2001; World Bank 1993).²

Considering the expansion of Korea's educational system, its effect on economic development, and the low level of income inequality, it is interesting to ask whether inequality in educational attainment between people with different social background has declined over the same period. A large body of literature has documented trends in educational opportunities across a variety of societies. The consistent conclusion drawn from these studies is the persistent inequality in educational attainment despite a massive expansion of educational system during the twentieth century (Shavit and Blossfeld 1993; Erikson and Jonsson 1996).³ In other words, it has been revealed that educational expansion per se does not necessarily cause more equality in educational opportunity. Expansion of the educational system may not work to reduce the association between social origins and educational attainment if only higher social classes, who want academic education for their children, utilize extended opportunities for their educational advancement (Raftery and Hout 1993).

Despite common findings of persistent inequality, however, this may not hold true in every context. For instance, in human capital theory, Birdsall, Ross, and Sabot (1997) emphasize a feedback effect: increases in labor forces with high productivity contribute to the lower income inequality as well as economic growth by weakening the scarcity of more educated workers in the labor market;⁴ this low level of income inequality, in turn, brings more demand for education across all different social groups. Furthermore, Park (2001) demonstrates that the effect of social origins on destinations among Korean men is significantly lower than in some European countries. Given the mediating role of

education between origin and destination, this finding may suggest that in Korea educational expansion has increased the importance of educational attainment for occupational attainment, while influences of social background on education have become substantially weaker. In short, taking into account that the remarkable expansion of education might make barriers to higher education weaker for disadvantaged students by broadening entrance of students, and furthermore that low levels of income inequality between social groups might enhance the possibility of students from disadvantaged social origins to continue their education, we may expect wider educational opportunities for younger Korean cohorts.

In this context, this paper intends to detect the extent to which the dependence of educational outcomes on social background has changed in Korea during this period of remarkable educational expansion. Specifically, the study examines trends in the influence of social origins on educational attainment across three birth cohorts born between 1921 and 1970. Applying methods similar to those used by other studies to investigate this issue, this research adds a comparative insight to the discussion of educational expansion and inequality.

Korea is an excellent case by which to examine the effects of educational expansion on inequality in educational attainment. As shown in Table 1, the Korean case displays the largest variation in educational attainment between old and young cohorts, which is desirable for assessing the genuine effects of expansion on the educational system. Moreover, as we will explain in more detail later, the Korean government has intentionally pursued educational policies that emphasize competition and quantitative increases in the education of its population rather than equality of educational

opportunities (Cheng 1992). The efficiency-oriented educational policies that the Korean government has adopted make the Korean case the prototype of the “expansion” model, in contrast to the Swedish case, which has paid more attention to the reduction of social differentials in educational opportunity (Hout and Dohan 1996).

The paper is organized as follows: the next section briefly describes the basic structure of the Korean education system and examines governmental education policies regarding educational expansion. I then introduce the data and methods which enable the examination of temporal trends in inequality of educational opportunities. Finally, I present the results of an empirical analysis of changes in the association between social origins and educational opportunity over the last few decades, and the implications for understanding the relationship between educational expansion and equality.

FEATURES OF THE KOREAN EDUCATIONAL SYSTEM

In comparison to systems in other countries, the structure of the educational system in Korea is relatively simple. It basically consists of six years of compulsory elementary school, three years of middle school, and three years of academic or vocational high school. After graduating from high school, students may proceed to two years of junior college or four years of university. Since middle school entrance exams were abolished in 1969, elementary graduates have been assigned to middle schools within their districts by lotteries. Admission into high school is determined primarily by performance on entrance examinations. There are, however, some differences in the admission process between academic and vocational high schools. Whereas applicants for vocational schools have the opportunity to choose their school, students who apply for academic high schools do

not have this opportunity and are assigned to schools within their districts by lotteries, once they pass the entrance examinations (Cheng 1992). Although there are examinations for entrance to high school, they do not function as a determining sorting mechanism in the educational process. For example, in 1996, 98.9 percent of middle school graduates attended high school. The most important branching point in the Korean educational system is, thus, the transition from high school to college. Because of the importance of the college graduation for life chances in Korea, competition and pressure for getting high scores on the national entrance examination is extremely intense.

Some features of the Korean educational system are distinctive compared to other systems, particularly those in countries where vocational education has developed. First, Korea's academic-oriented educational policy has prevented vocational education from developing as a substantial alternative educational process. Vocational schooling is not provided until the high school stage, and vocational programs offered in vocational high school tend to emphasize general skills rather than improving students' specific skills for corresponding occupations. Because of a Korean cultural tradition to despise manual work and the substantial disadvantages in life chances for non-college graduates, vocational education is considered less prestigious, and successful students attend the academic programs if they possibly can. During the 1980s, the ratio of academic and vocational high school students remained quite stable around 5.5:4.5, whereas the ratio in Taiwan approached 3:7 in 1980 (Cheng 1992: 61).

Second, limited development in vocational education has been an important factor in making the Korean educational system less stratified. Institutional differentiation and the variation of curriculum are modest in the Korean educational system, relative to those

of other societies. Compared to countries such as Germany, Switzerland, or the Netherlands, where students are separated into very different tracks at an earlier age, tracking does not occur until the high school level in Korea. Until middle school, there is no track to assign students to different educational paths, and the same standardized curriculum and ways of teaching are offered. While it is evident that there are significant differences between vocational and academic high schools in terms of their curriculum and the possibility of enabling students to continue to college-level education, it must be noted that there is no further track and differentiation within each type of Korean high school.

Standardization is another dimension, along with the extent of stratification, by which we can distinguish educational systems (Allmendinger 1989; Shavit and Müller 1998). Korea shows a high level of standardization of its educational system. Under the direct control of the government, teachers' training, school budgets, and even the number of college students are constrained by government guidelines. A nationwide entrance examination for high schools and colleges, and a common curriculum designed to prepare students for the entrance examination show the high level of standardization of the Korean educational system.

EDUCATIONAL POLICIES

One highly praised educational policy which has been successfully implemented by the Korean government is its effort to concentrate public expenditure on the basic or primary level of education rather than higher education (Birdsall et al. 1997). As a successful example of the World Bank model which requires developing countries to allocate

schooling budgets largely to primary schooling (see Brint 1998: 83-85),⁵ the Korean government has given priority to expanding the quantity and improving the quality of primary education, leaving demand for higher education to the private sector.

“Letting the market decide” -- that is, letting people pay for the schooling they want -- for schooling above the primary level, and concentrating public expenditure on primary education, however, has increased the burden on the private sector for higher education. As is clearly shown in Figure 1, the extent of total expenditure on the tertiary level of education in Korea is comparatively high. Only Canada and the United States exceed Korea with respect to the total expenditure on the tertiary level as a percentage of GDP, with Australia similar to Korea. On the other hand, Korea also shows the largest proportion of expenditure on tertiary educational institutions that is funded by the private sector. The percentage of GDP spent by private sources on the tertiary level of education in Korea is more than two times the average of the OECD countries in 1994 (1.48 vs 0.64). The situation is the same when private payments to all levels of educational institutions are considered. In Korea, the proportion to which expenditures on all levels of educational institutions is shared by the beneficiaries of education amounts to 2.51 percent of GDP, which is also more than two times the mean (1.17 per cent) of OECD as a whole. In fact, among the 26 countries included in the report there is no country except Korea where private payments to all levels of educational institution are beyond 2 percent of GDP. Moreover, in Korea most private expenditures come from households, whereas in Germany business enterprises provide a large amount of this private expenditure. Thus, considering Korea’s large total expenditure based on the relatively large share of private funds without the support of business enterprises and government, it is easy to understand

the extent of the burden borne by students and their families in order to pay for higher education.

Finally, the educational policies which have been adopted by the Korean government can be characterized as an expansion strategy, noted by Hout and Dohan (1996) as the typical path that the United States has followed. In other words, educational policy in Korea has been strongly oriented towards increasing the quantity of education available, rather than improving equality of opportunity across social groups. Over the past few decades, no explicit effort to reduce social differentials in educational opportunity has been implemented. National-wide compulsory education at the level of middle school is supposed to be introduced only in 2004 and a major focus of the government's policy for college education was to manipulate the number of students admitted rather than attempting to directly reduce high tuition and fees or increase government subsidies. Indeed, it is demand by individuals and a willingness to pay for higher education without a substantial government effort reducing barriers to higher education that has shaped the dramatic expansion of higher education in Korea. The high demand for education among Koreans, the aspirations and efforts of parents to provide support for their childrens' educational success, and competition for college entrance in an effort to avoid disadvantage and stigma suffered by non-college graduates have been important driving forces for educational expansion in Korea, where the government "lets the market decide" at higher levels of education.

These characteristics of the Korean educational policy have an important implication for educational inequality. Given that cost is an essential element of educational decisions, the high proportion of private expenditure on education might

discourage school continuation by students from disadvantaged families and thus preserve social inequality in educational attainment, particularly at the tertiary level (Chang 2000). While it is generally accepted that inequality in the distribution of income is not as great in Korea as other countries, the large financial burden placed on individuals who must fund higher education pay without substantial government subsidies may help to maintain the effects of family economic background on educational attainment.⁶

DATA AND METHODS

The data for this research come from the Social Inequality Study (SIS) in Korea, conducted in 1990. Designed especially for the study of the extent and perception of inequality across various dimensions, the survey includes information about the education and occupation of respondents and their fathers, which are the basic variables used in this research. The survey sampled only males and females who were economically active at the time of survey using a multistage sampling method. Information was collected through individual interview.⁷ The total sample size is 1,976 and the ratio of male to female is about 4:1. Because of the small female sample size, this research focuses on only males aged 20-69 in 1990.⁸

The main aim of this empirical analysis is to investigate changes in the effects of social background such as father's education and occupation on respondent's educational attainment. As Mare elaborated in his influential papers (1980, 1981), the traditional linear regression model of family background effects on highest completed years of education does not distinguish between the effect of social background and the impact of

the expansion of the educational system. Instead of linear regression models, logit models permit an analytical distinction between schooling distribution that reflects the marginal differences, and schooling allocation that indicates the association between background and school decisions by examining the school continuation probabilities that denote the chances to continue to a next level of schooling given the previous level completed. Stated differently, logit parameters for each transition in the educational system are appropriate for detecting the genuine impacts of social origins on school continuation and their temporal changes because these estimates are not contaminated by variation in the schooling distribution across cohorts.

This study applies logit models for each transition in the educational system to three different birth cohorts in order to explore the trend in the association between social background and educational attainment. In the analysis three transitions are differentiated and examined:⁹

- Completes middle school given elementary completion;
- Completes high school given middle school completion;
- Attends junior college or university given high school completion.

The analysis includes father's education, occupation, and community of origin (metropolitan area/non-metropolitan area) as independent variables. These variables represent the impacts of social background. Father's education is measured by the number of years of completed schooling. Father's occupation, which refers to the occupation when the respondent was an adolescent, is measured by the International Socio-Economic Index of occupational status (ISEI) provided by Ganzeboom, De Graaf and Treiman (1992).¹⁰ Finally the community of origin variable, which indicates the

place in which the respondent grew up, is obtained by distinguishing five metropolitan areas including Seoul, the capital of Korea, from other areas. A dummy variable is coded 1 if the respondent grew up in one of the metropolitan areas, 0 otherwise. The degree of the effect of this variable describes how residence in one of the five metropolitan areas may provide advantages for schooling continuation, controlling other independent variables. Considering the extreme concentration of educational and cultural institutions in these metropolitan areas, this effect is expected to be substantial.

To analyze variation in social origin effects over time, three birth cohorts are constructed, reflecting historical change in Korean educational policy and systems over the last few decades. The oldest cohort in the samples was born between 1921 and 1942; members of this cohort mostly completed their educational process before the systemic educational system had been established in Korea. The next cohort consists of people born between 1943 and 1954 who attended school during the formation of the modern educational system and policies. The youngest people, aged 20-35 in 1990, experienced their school careers during the period of rapid educational and economic expansion observed since the late 1960s, thus their experiences show sharp contrasts to those of previous cohorts. Individuals in the youngest cohort mostly entered middle school after middle school examinations were abolished in 1969 and continued to high school by taking the national common examination, whereas older cohorts had to take individual high school entrance exams. In addition, since 1973 the Korean government extended the quota on the number of college students in order to meet increasing social demand for higher education. This is one of the most important differences in the educational experiences of the youngest and oldest cohorts. Thus particular attention will be paid to

inter-cohort comparison of impacts of family background on the likelihood of entering the tertiary level of education in order to examine the extent to which the expansion in tertiary education since 1973 has increased chances of entering college for students from poor families.

TRENDS IN SOCIAL ORIGIN EFFECTS ON TRANSITION RATES

Before systematically examining changes in the effects of social origins on educational attainment, it is relevant to look at the extent of educational expansion over time. Panel A in Table 2, which reports the distribution of the highest level of educational attainment across three cohorts, reveals clearly how sharp the change in educational attainment was over the last few decades. Comparison of the oldest with the youngest cohort clearly shows the improvement in educational chances for younger generation. Compared to 41 percent in oldest cohort, only 2 percent among the youngest people achieved a highest level of education of elementary school or less. On the other hand, the proportion of people who completed the tertiary level of education (junior college and university) dramatically increased from 12 percent to 36 percent.

Panel B in Table 2 presents descriptive statistics for various variables used in the analysis. Educational expansion in Korea is confirmed by a significant increase over time in the mean years of education completed by fathers.¹¹ In addition, the table shows an increase for the younger cohort in the percentage of people who grew up in the five metropolitan areas. More than 40 percent of the youngest cohort grew up in the metropolitan areas, while only 18 percent of the oldest did.

Table 3 presents transition rates to the next level of education by cohorts and provides another way to recognize the trend in level of educational attainment over time. There is a clear pattern of increasing educational attainment across cohorts at the middle and high school levels. Of the youngest cohort, 96 percent completed middle school, whereas only half of oldest cohort graduated from middle school. The youngest birth cohort is advantaged again at the transition to high school completion. The probability of completing high school education given the completion of middle school has monotonically risen from 61 percent to 86 percent across cohorts.

The picture is very different at the transition to tertiary education. While there is slight variation in favor of the youngest cohort in the rates of entering tertiary level, which indicates both junior college and university, there is little difference among cohorts in the proportion of entering four-year university given completion of high school. That is, when only four-year university entry is considered, gains that younger generations have achieved in terms of educational attainment disappear.¹² This pattern may reflect still existing barriers to the university level of education despite growth in higher education, which was not revealed in the simple evidence of an increasing proportion of people who have any college education.

At the current stage of the analysis it is, however, unclear what this pattern implies for inequality in educational opportunity. Thus, we conduct a logistic regression analysis to assess the effects of social background on each transition probability in the educational attainment process. Since almost all of youngest cohort completed elementary school, this transition is combined with the next transition, completing middle school. This yields three distinct transitions; complete middle school, complete high

school given the completion of middle school, and enter university for high school graduates. Here only the transition to four-year university is considered, treating two-year college attendees the same as high school graduates who do not proceed to the next level of education.¹³

Rather than presenting coefficients for transition-specific regressions, the results of the preferred model, which constrains many of the effects to be constant across all or some of the transitions and cohorts, are reported, following the strategy of Raftery and Hout (1993). The preferred model is selected by model comparisons among alternative specifications of constraining the effects of social background, using the conventional likelihood-ratio tests. Table 4 presents the results of logit models of the transition rates.

The null model (Model 1), which postulates that conditional continuation probabilities are the same for all cohorts, transition, and social origins, fits the data poorly. Model 2, which allows transition rates to be variant across transitions but not for cohorts, significantly improves upon the null model, implying substantial difference in the likelihood of continuation among the three stages of transition. Moreover, Model 3 and Model 4, which free the assumption of the same transition rates across birth cohorts, are better than Model 2. A model contrast between Model 3 and Model 4 suggests interactions between transitions and cohorts.

Father's education, occupation, and community of origin are included in Model 5. The better fit of Model 6 over Model 5 -- with Model 6 reducing log-likelihood by 20 points with three more parameters ($p < .001$) -- implies that the effect of father's education is different at each transition but that the impact of father's occupation varies only at the second transition (complete high school given completion of middle school).¹⁴ Model 7,

which allows varying effects of community of origin variable for each transition, do not achieve improvement upon Model 6 (contrast between Model 7 and Model 6; $p > .05$). In Model 8, the effect of father's education not only differs for each transition but the effect at the third transition (entering university) operates differently for the youngest cohort (cohort 3). This model fits slightly better than Model 6, suggesting changes in the influence of father's education on the likelihood of entering university for the youngest cohort. Further explorations of temporal trends in the effects of father's occupation and community of origin reveal that there is no evidence of change in the impact of father's occupation (Model 9). But there is evidence of change in the advantage that growing up in metropolitan areas provides (Model 10).¹⁵ The effect of community of origin has sharply a contrasting influence between the oldest and other two cohorts, while remaining constant across transitions (model contrast between Model 10 and Model 11; $p > .05$). Thus, Model 10 is the preferred model.

Table 5 displays the estimated effects in the preferred model, Model 10. Since the effects of social origin are the main focus of this study, this discussion concentrates on changes in the impacts of father's education, father's occupation (SEI), and community of origin across transitions and cohorts. The effect of father's education is strongest at the first transition toward completion of middle school and then declines at later stages of educational transitions (the coefficients of $FE * T_2$ and $FE * T_3$ are -0.106 and -0.226 , respectively), similar to the pattern commonly found in other societies (Shavit and Blossfeld 1993).¹⁶ Father's SEI has also a weaker impact at the second transition (high school graduation) as indicated by a negative coefficient of interaction between father's SEI and transition to high school completion.

Regarding inter-cohort trends in the effects, we have already seen that the best model in Table 4 (Model 10) indicates no significant change in influence of father's occupation on educational attainment. In contrast, there is evidence that father's education becomes more important for university entry for the youngest cohort: a significantly positive coefficient of three-way interaction among father's education, transition, and cohort ($FE*T_3*C_3$). Interestingly, however, the advantage that growing up in metropolitan areas provides for educational success is substantially reduced for the two younger cohorts in comparison with the oldest cohort: there is a significantly negative coefficient of interaction between community and cohort ($COM*C_{23}$).

Figure 2 presents the log-odds (logit) of completing middle school by cohort, father's education and community of origin, fixed at father's SEI=35. First of all, it is evident that the log-odds of completing middle school significantly increased across cohorts, regardless of the level of father's education and community. In addition, the chance of middle school graduation rises with higher levels of father's education, though here the figure presents the pattern only for elementary and university levels of father's education for simplicity of presentation. The difference between the two types of communities suggests that students from metropolitan areas are more likely to complete middle school.

In respect to differentials by father's education in completing middle school, however, there is no evidence of a decline in the effect of father's education. Specifically, the difference in the odds of middle school completion between students whose fathers have different amounts of education has not changed across the three cohorts in either the metropolitan or other areas. For example, among students from metropolitan areas, the

educational gap in middle school completion between those whose fathers have a bachelor degree and those whose fathers have only an elementary education was constant across the three cohorts (2.9 points on the logit scale).

Turning to temporal changes in the educational gap between students in metropolitan and other areas, we find that the gap declined significantly between 1921-42 and 1943-54 cohorts in any of levels of father's education. For instance, among the oldest 1921-42 cohort, the difference in the log-odds of completing middle school between students who grew up in a metropolitan area and those who did not was 1.07 points on the logit scale, whereas the corresponding value among the recent two cohorts was only 0.52 points. This result is associated with larger gains in educational attainment among the two younger cohorts in non-metropolitan relative to metropolitan areas.

Figures 3a and 3b show the log- odds of completing high school given completion of middle school among those from metropolitan and other areas, respectively. These figures tell virtually the same story revealed by Figure 2. First, educational differentials between students with different levels of father's education have not changed. The difference in the log-odds of transition between students whose fathers have different levels of education remained constant across the three cohorts. Second, the figure shows a decline in the odds of completing high school among the second cohort, born in 1943-54, who grew up in a metropolitan area, while there is steady increase in the odds across cohorts among those from non-metropolitan areas. In short, the two figures provide evidence suggesting no significant temporal change in the effect of father's education on the odds of completing high school, as well as evidence of the relative educational gains achieved by younger cohorts from non-metropolitan areas.

With regard to the transition to university education given high school completion, Figures 4a and 4b clearly show an increase in the influence of father's education on the likelihood of entering university for the youngest cohort of 1955-70. In fact, father's education appears to have no significant impact on this transition for the first two cohorts, as demonstrated by the flat lines for the two cohorts. In other words, for the two older cohorts, once a student succeeded in completing high school education, father's education did not make a difference in the student's chance of proceeding to higher education. In contrast, the rising line for the youngest cohort suggests that the higher a father's educational attainment, the higher the student's probability of university entry. Thus, among the youngest cohort the amount of education the father attained became an important factor in determining his child's chance of receiving a university education. This finding of dependence on father's education for the transition to university education among the younger cohort is unique to Korea. There was no such case among 13 countries examined in a comparative study of educational attainment (Shavit and Blossfeld 1993).

Figure 4a also reveals that the odds of entering university was generally higher among the oldest cohort than the two younger who grew up in a metropolitan area, especially for students whose fathers do not have a university education. Raftery and Hout's (1993) explanation of Irish education provides an insight about the finding that, despite educational expansion across all levels of education in Korea over the last few decades, the odds of entering university given high school completion has not increased or even has decreased over time. They attributed a decline in the odds for recent cohorts to modest increases in higher education relative to massive growth in the number of high

school graduates. Although their hypothesis cannot be examined in this study, it may be a potential guide for future research.

In sum, logit models of educational transition in Korea provide empirical evidence that, in general, social origins have maintained their impact on educational attainment over the last few decades despite a dramatic expansion in the Korean educational system. It is interesting to find that there is an emerging influence of father's education on the chance of university education for the youngest cohort. However, it should be also emphasized that regional inequalities in educational attainment have significantly declined over the same period.

DISCUSSION

The data clearly show that there has been a great increase in educational attainment in Korea over the last few decades, and the extent of change is remarkable. The mean years of schooling achieved by younger people has dramatically increased and the distribution of educational attainment by cohorts shows rapid growth in the proportion of completing secondary and tertiary education as well as primary schooling.

This expansion has occurred in a context in which academic education is emphasized over vocational education, relatively low levels of educational stratification are seen because students are not assigned to different tracks until high school, and the nationwide entrance examination and similar curricula across schools have yielded a high degree of standardization.

Educational policy that has enabled striking growth was also examined in this study. Leaving higher education to the market, the Korean government has emphasized

efficiency and increase in quantity of education rather than direct intervention to reduce inequality of educational opportunity. A high proportion of private expenditure on higher education and scarce public support for it are reflections of this policy.

The main issue this study addressed was to examine whether a drop in the impact of social background on educational opportunity occurred during the same time of expansion of the Korean educational system. Given remarkable educational growth and a particularly low level of income inequality, a declining effect of social origin on educational attainment was expected.

Analysis of the transitions in the schooling process based on logit models provides empirical findings of changes in the impact of social background over time. To begin with, there appears to be a significant effect of father's education on the transition to university entry for the youngest cohort of 1955-70, which implies widening differentials between persons who have fathers with different levels of education. In addition, there has been no significant change in the effect of father's occupation (SEI) over time. In general, analyses of logit models of educational transition rates confirm the previous conclusion that educational inequality persists despite tremendous educational expansion during the 20th century (Shavit and Blossfeld 1993).

The persistent dependence of educational attainment on social origin, especially at the university level of education, may be in part due to the relatively high private burden for education. With the lack of government subsidies or supports for higher education, a high proportion of educational expenditure attributable to household payment may discourage students from disadvantaged backgrounds to proceed to the next stage of the schooling process. However, the substantial impact of father's education on university

education for the youngest cohort seems to suggest that in the Korean educational system, not only economic resources but also cultural capital may become important in producing inequalities in educational attainment, given that parental education is often understood as a crude measure of cultural origin (Hout and Dohan 1996). An interesting future project would be to create the more refined measures of cultural capital which would be needed in order to test the hypothesis of increasing importance of family cultural resources for educational attainment.

In contrast to the effects of father's education or occupation, however, there have been substantial gains in educational success over time for students from non-metropolitan areas. Compared to the oldest cohort, educational gaps for the two younger cohorts between those from non-metropolitan and metropolitan areas have significantly declined. This raises the need for further inquiry to explain the underlying factors that account for this narrowing gap in educational attainment, thereby shedding light on the central issue -- the underlying causes of the persistent impacts of social background on educational success. New studies asking what caused the decline in regional inequalities and why these factors failed to reduce other socioeconomic differentials in educational opportunity may provide an insight into how educational inequality associated with social origins should be reduced.

ENDNOTES

¹ Based on human capital theory, Birdsall et al. (1997) claim that the accumulation of human capital represented by education in the East Asian countries including Korea has facilitated the productivity of labor, and export-oriented development strategy adopted by these countries has increased the impact of education on growth by generating a strong demand of skilled labor. Moreover, educational expansion in Korea has contributed to substantial declines in the inequality of pay by attenuating the scarcity of education in the labor market, which was in turn a stimulus to growth in Korea.

² The trend in the Gini index, a rough indicator of income inequality, is not linear in Korea. According to a report, the coefficient that had declined slightly from 0.34 in 1965 to 0.33 in 1970 increased substantially between 1970 and 1975 (0.39). After that, the Gini index remained constant, showing 0.389 in 1980 (Koo 1985). Another study also reports that there has been no linear trend in the Gini coefficient; it was 0.34 in 1965, 0.39 in 1976, and 0.36 in 1982 (see Table 1-5 in Leipziger, Dollar, Shorrocks, and Song 1992). Here it should be remembered that over the period, the Gini index in Korea mostly remained in the 0.3-0.4 range, which indicates a relatively low level of income inequality by international standards (Barrett and Chin 1987).

³ Among the East Asian countries, Japan and Taiwan were examined in a comparative work of educational attainment across 13 nations and it was revealed that there have been persistent inequalities in educational opportunity over time despite educational expansion after World War II (see Tsai and Chiu for Taiwan, and Treiman and Yamaguchi for Japan in Shavit and Blossfeld 1993). Although it is true that the three East Asian countries have similar cultural traditions and educational systems, it must also be emphasized that Korea

has adopted educational policies which contrast sharply with those of the other two countries (see Cheng 1992). Thus, the experiences of Japan and Taiwan cannot be directly generalized to Korea.

⁴ They illustrated that the wage premium earned by educated workers in Korea declined as numbers of highly educated workers in the labor force sharply increased, consistent with the traditional economic prediction that returns to a factor decrease as its relative supply increases. According to them, in 1976 Korean workers with a high school education earned 47 percent more than primary school graduates, while that premium became 30 percent by 1986. The premium related to tertiary schooling declined from 97 percent to 66 percent during the same period (Birdsall et al. 1997: 105).

⁵ As well as concentration of schooling budgets on primary schooling, emphasis on general education over vocational education is another element that the World Bank consider conclusive to educational expansion. The World Bank has taken a strong stand against vocational education as an inefficient and ineffective means for economic development. In this regard, the educational policy the Korean government has followed is close to the model of the World Bank.

⁶ It should be also noted that wealth in Korea is considerably more unequal than income, as is common in other countries. In particular, most of wealth is cumulated by landownership and real estate (Leipziger et al. 1992). Thus, despite relatively equal income distribution, more unequal distribution of wealth along with an inefficient tax system may yield substantial differences between social groups in the extent of financial support available for continuation of higher education.

⁷ See Whang (1992) for detailed information on the survey.

⁸ The total sample between ages of 20 and 69 is 1,552. Among them, 80 cases having missing information on father's education or occupation are excluded from the study, which yields 1,472 cases as the final sample.

⁹ The effects of socioeconomic origin on the completion of elementary school are not estimated. Most of the oldest cohort as well as the youngest cohort completed elementary school, so the number of the cases that failed to make the transition is too small to be analyzed.

¹⁰ Originally the index was constructed by utilizing comparably coded data on education, occupation, and income for 73,901 full-time employed men from 16 countries.

Ganzeboom, De Graaf, and Treiman found that the index is favorably comparable with other competing measures of occupational status such as Treiman's international prestige scores or EGP occupational class categories. For more details, refer to Ganzeboom, De Graaf, and Treiman (1992).

¹¹ However, the mean years of father's schooling completed are just 7 years even for the youngest cohort. The very low mean years of father's education reflect the fact that the fathers were mainly farmers who did not need formal schooling. In the data, the proportion of occupations related to farming, including fishing and forestry work, in the father's generation is 68 percent.

¹² For the most recent cohort, the increase in the probability of obtaining tertiary levels of education, when a broad definition of higher education including two-year junior college is applied, indicates that in Korea the rapid growth in some two-year technical and junior colleges during the recent period is one important factor leading to a massive expansion in tertiary education.

¹³ As revealed in Table 2, there has been a dramatic increase in junior-college education. In order to avoid potential misrepresentation of family effects at this level of education by including junior-college education, which was virtually negligible for older cohorts, only entry to four-year universities is considered.

¹⁴ I compared Model 6, which postulates different effects of father's occupation only at the second transition, with other models that allow different impacts at the first or third transitions. The results show that Model 6 is preferred over other models.

¹⁵ Using the same data pooled with another data source, Chang (2000) presented contrasting findings of no temporal change in the effects of father's class, education and community of origin on any educational transition. But his study -- based on separate analyses by educational transition and an inappropriate treatment of the cohort effect -- is not as sensitive as this study to detecting temporal trends in the effects of social origins on specific transitions or cohorts.

¹⁶ One hypothesis to explain this pattern emphasizes the selection process for the decline in the effects of social origin on successive transitions. Since candidates for later transitions have already overcome barriers at the earlier transitions, students' own characteristics such as motivation and ability should be more important for further continuation of education than social origins (Mare 1981; Shavit and Blossfeld 1993). Compare Chang (2000)'s analysis claiming that in Korea the effect of father's education did not decline across transitions.

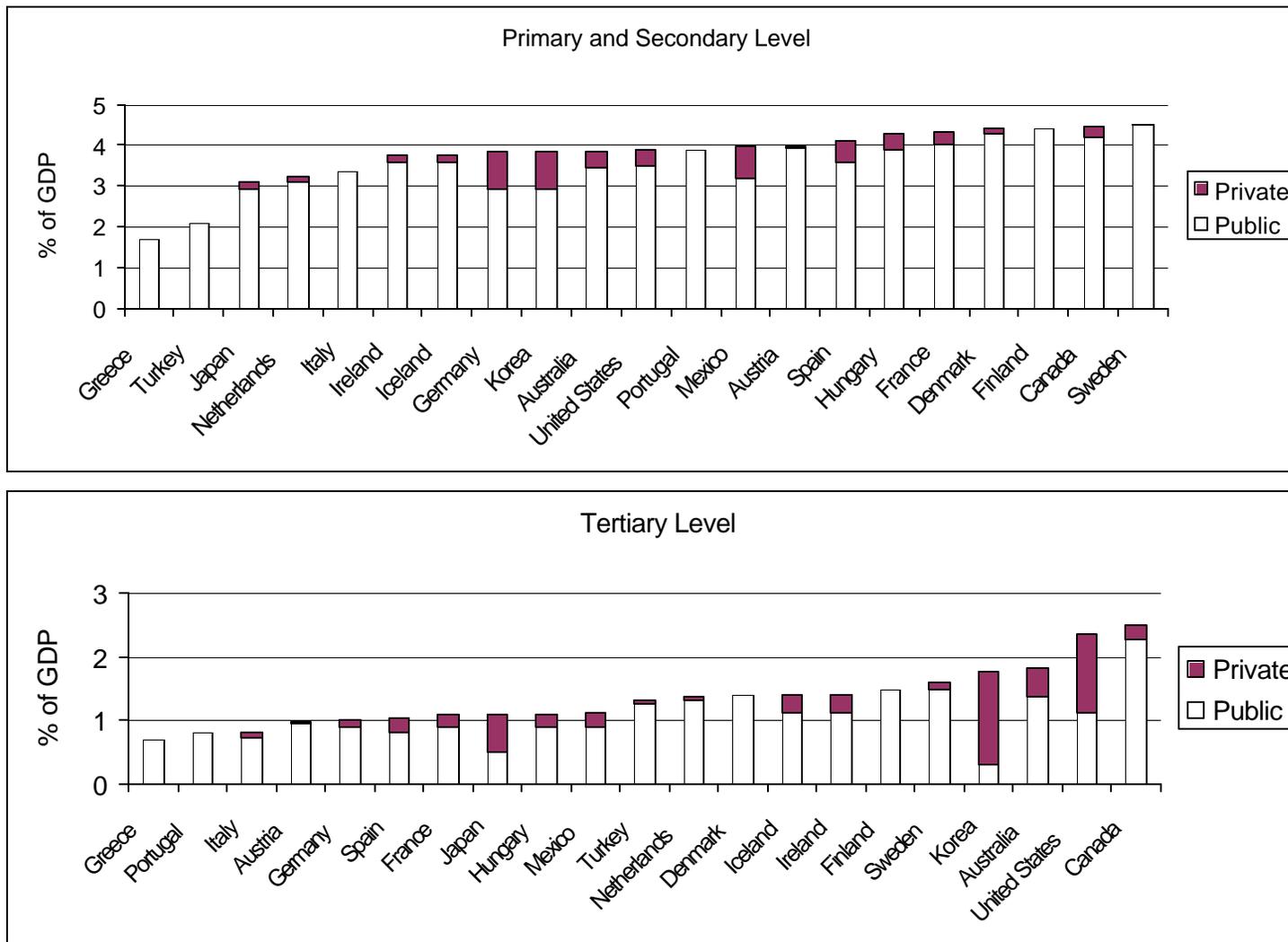
REFERENCES

- Allmendinger, J. 1989. "Educational System and Labor Market Outcomes." *European Sociological Review* 5: 231-50.
- Barrett, R.E. and S. Chin. 1987. "Export-oriented Industrializing States in the Capitalist World System: Similarities and Differences." In F.C. Deyo (ed.), *The Political Economy of the New Asian Industrialism*, pp. 23-43. Ithaca, NY: Cornell University Press.
- Birdsall, N., D. Ross, and R. H. Sabot. 1997. "Education, Growth, and Inequality." In N. Birdsall and F. Jaspersen (eds.), *Pathways To Growth*, pp. 93-127 Washington, D.C.: Inter-American Development Bank
- Brint, S. 1998. *Schools and Societies*. Pine Forge Press.
- Chenery, H., M.S. Ahluwalia, C.L.G. Bell, H.H. Duloy and R. Jolly (ed.). 1974. *Redistribution with Growth*. London: Oxford University Press.
- Chang, S.S. 2000. "Inequality of Educational Opportunity: Effects of Family Background on Educational attainment." *Korean Journal of Sociology* 34: 671-708 (in Korean).
- Cheng, T. -J. 1992. "Dilemmas and Choices in Educational Policies: The Case of South Korea and Taiwan." *Studies in Comparative International Development*, Winter 27(4): 54-79.
- Erikson, R. and J. O. Jonsson (eds.). 1996. *Can Education Be Equalized? The Swedish Case in Comparative Perspective*. Westview Press.
- Ganzeboom, Harry B. G., Paul de Graaf, and Donald J. Treiman. 1992. "An International Scale of Occupational Status." *Social Science Research* 21:1-56.
- Hout, M. and D. P. Dohan. 1996. "Two Paths to Educational Opportunity: Class and

- Educational Selection in Sweden and the United States.” In R. Erikson and J. O. Jonsson (eds.), *Can Education Be Equalized? The Swedish Case in Comparative Perspective*, pp. 207-31. Westview Press.
- Koo, H. 1985. “The Transformation of the Korean Class Structure: the Impact of Dependent Development.” *Research in Social Stratification and Mobility* 4: 129-48.
- Leipziger, D. M, D. Dollar, A. F. Shorrocks, and S. Y. Song. 1992. *The Distribution of Income and Wealth in Korea*. The World Bank: Washington, D.C.
- Mare, R. D. 1980. “Social Background and School Continuation Decisions.” *Journal of the American Statistical Association* 75: 295-305.
- . 1981. “Change and Stability in Educational Stratification.” *American Sociological Review* 46: 72-87.
- . 1993. “Educational Stratification on Observed and Unobserved Components of Family Background.” In Y. Shavit and Hans-Peter Blossfeld (eds.), *Persistent Inequality: Changing Educational Attainment in Thirteen Countries*, 351-76. pp. 229-49. Westview Press.
- OECD. 1997. *Education at a Glance: OECD Indicators*.
- Park, Hyunjoon. 2001 (forthcoming). “Intergenerational Social Mobility among Korean Men.” *Research in Social Stratification and Mobility*.
- Raftery, A. E. and M. Hout. 1993. “Maximally Maintained Inequality: Expansion, Reform, and Opportunity in Irish Education, 1921-1975.” *Sociology of Education* 66: 22-39.
- Shavit, Y. and Hans-Peter Blossfeld (eds.). 1993. *Persistent Inequality: Changing Educational Attainment in Thirteen Countries*. Westview Press.

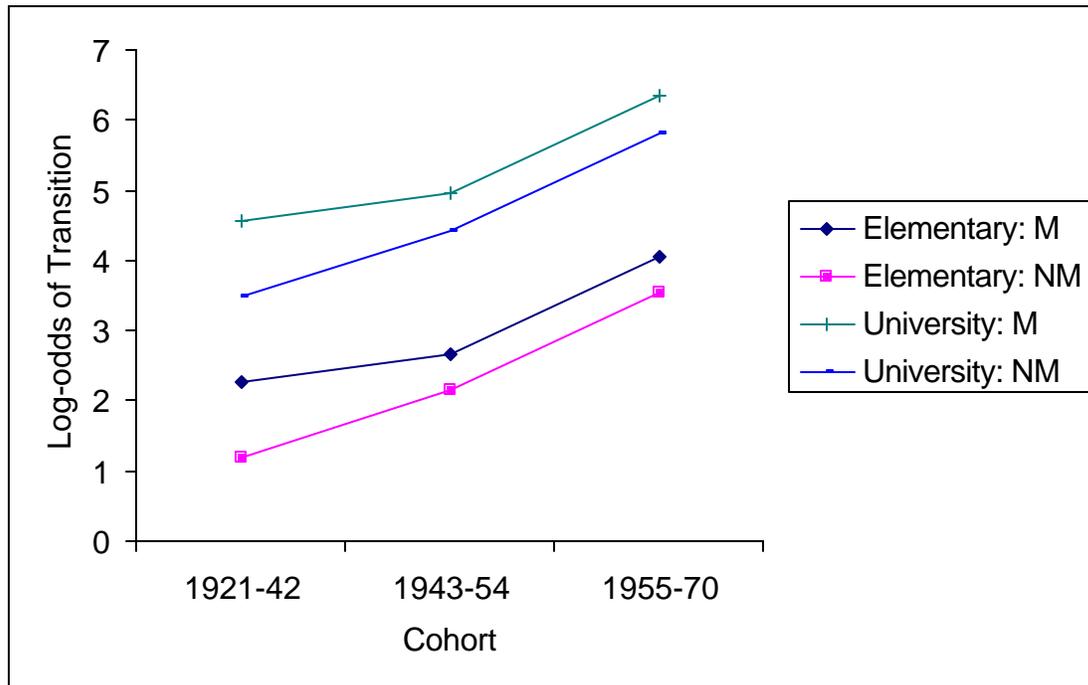
- Shavit, Y. and W. Muller. 1998. *From School to Work*. Oxford: Oxford University Press.
- Treiman, D. J. and K. Yamaguchi. 1993. "Trends in Educational Attainment in Japan." In Y. Shavit and Hans-Peter Blossfeld (eds.), *Persistent Inequality: Changing Educational Attainment in Thirteen Countries*, pp. 229-49. Westview Press.
- Tsai, S.-L. and H.-Y. Chiu. 1993. "Changes in Educational Stratification in Taiwan." In Y. Shavit and Hans-Peter Blossfeld (eds.), *Persistent Inequality: Changing Educational Attainment in Thirteen Countries*, pp. 229-49. Westview Press.
- Whang, I.-C (eds.). 1992. *Inequality and Equity in Korean Society*. Seoul: Nanam Publishing House. (in Korean).
- World Bank. 1993. *The East Asian Miracle: Economic Growth and Public Policy*. New York: Oxford University Press.

Figure 1. Expenditure on Educational Institutions as a Percentage of GDP, by source of funds (1994)



Source: Education at A Glance OECD Indicators (1997: Chart B1.1)

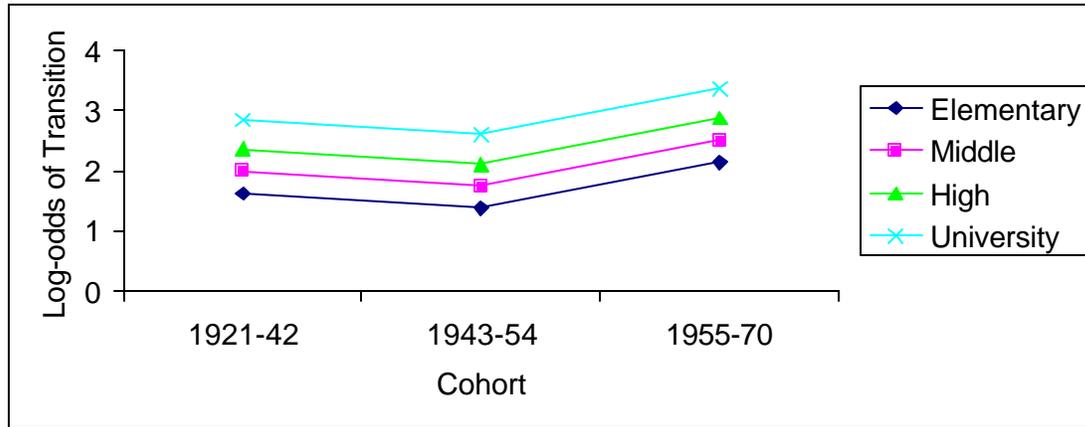
Figure 2. Log-odds of Completing Middle School by Father's Education, Cohort, and Community of Origin (Father's prestige = 35)



Note: Elementary – 6 years of father's education, University – 16 years of father's education
M – Metropolitan area, NM – Non-metropolitan area

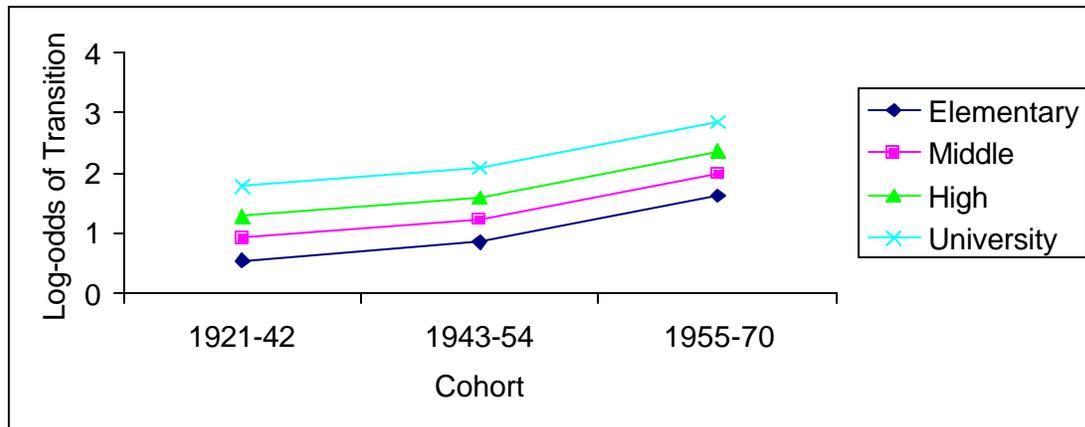
Figure 3. Log-odds of Completing High School by Father's Education, Cohort, and Community of Origin (Father's prestige = 35)

A. Metropolitan Area



Note: Elementary – 6 years of father's education, Middle – 9 years of father's education
 High – 12 years of father's education, University – 16 years of father's education

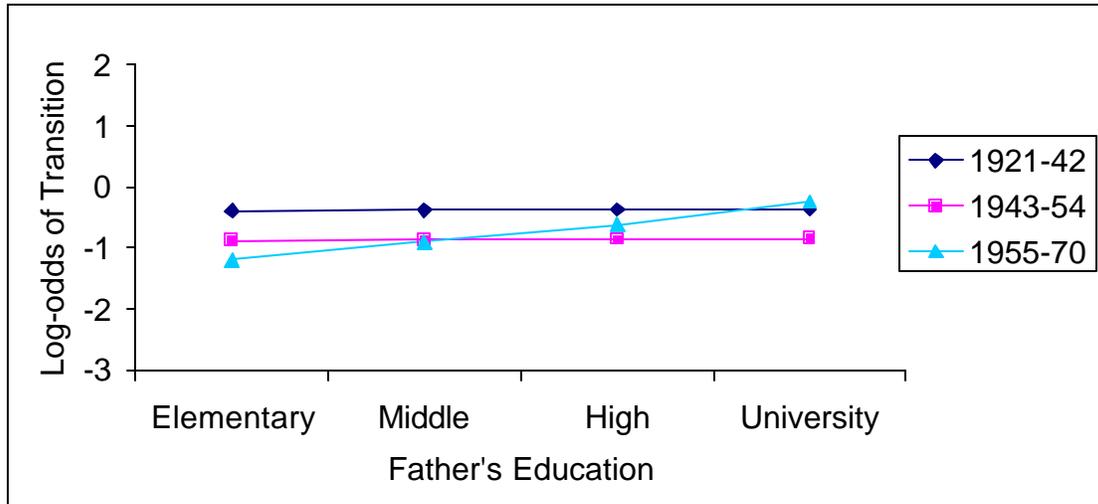
B. Non-Metropolitan Area



Note: Elementary – 6 years of father's education, Middle – 9 years of father's education
 High – 12 years of father's education, University – 16 years of father's education

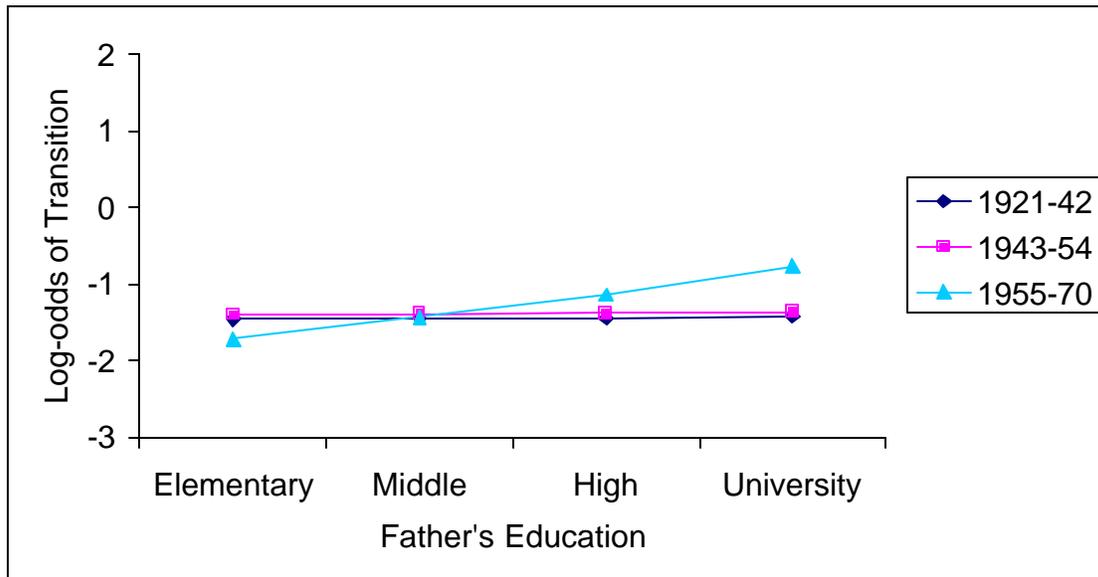
Figure 4. Log-odds of Entering University by Father's Education, Cohort, and Community of Origin (Father's prestige = 35)

A. Metropolitan Area



Note: Elementary – 6 years of father's education, Middle – 9 years of father's education
 High – 12 years of father's education, University – 16 years of father's education

B. Non-Metropolitan Area



Note: Elementary – 6 years of father's education, Middle – 9 years of father's education
 High – 12 years of father's education, University – 16 years of father's education

Table 1. Percentage of the population that has attained a specific level of education, by age group (1996)

	At least university-level education					At least upper secondary education				
	Age 25-34	Age 35-44	Age 45-54	Age 55-64	Age 25-64	Age 25-34	Age 35-44	Age 45-54	Age 55-64	Age 25-64
Korea	30	18	11	7	19	88	63	41	25	61
United States	26	26	28	20	26	87	88	86	77	86
Netherlands	25	25	21	16	23	72	66	57	47	63
Canada	20	18	17	11	17	85	81	73	56	76
Norway	19	17	14	8	16	91	87	78	62	82
Spain	19	15	10	6	13	50	34	20	11	30
Australia	16	18	14	8	15	62	60	54	46	57
Denmark	16	17	16	11	15	74	70	65	50	66
Greece	16	14	11	6	12	66	52	36	22	44
United Kingdom	15	15	12	8	13	87	81	71	60	76
Belgium	14	11	10	6	11	70	58	47	31	53
Hungary	14	15	15	9	13	80	75	62	28	63
Ireland	14	11	9	6	11	66	54	38	30	50
New Zealand	14	13	10	6	11	65	64	56	49	60
Finland	13	13	12	7	12	83	76	60	40	67
Germany	13	16	14	9	13	86	85	81	71	81
France	12	10	10	5	10	74	64	56	38	60
Czech Republic	11	12	10	8	10	92	87	84	71	84
Luxembourg	11	14	12	6	11	32	33	28	20	29
Portugal	11	9	6	4	7	32	24	15	9	20
Sweden	11	15	16	10	13	87	80	70	53	74
Switzerland	11	10	9	6	10	87	82	78	71	80
Poland	10	10	12	8	10	88	82	68	47	74
Italy	8	11	8	5	8	52	46	31	17	38
Austria	7	7	5	4	6	82	75	67	53	71
Turkey	7	7	7	3	6	23	19	14	7	17

Note: The reference years for Poland and Turkey are 1995 and 1997, respectively

Source: Education at a Glance OECD Indicators (1999)

Table 2. Descriptive statistics

Variable	Total	1921-42	1943-54	1955-70
A.				
Educational attainment (%)				
Elementary	19.57	41.21	14.63	2.30
Middle	19.77	22.42	24.05	12.55
High	38.52	24.44	42.48	48.95
Junior college	6.05	2.02	3.41	12.97
University	16.10	9.90	15.43	23.22
B.				
Father's years of education	4.75	2.51	4.75	7.09
	(4.71)	(3.79)	(4.54)	(4.62)
Father's occupation (SEI)	34.29	30.77	34.31	37.91
	(14.02)	(11.93)	(14.16)	(14.96)
Type of community: metropolitan (%)	30.37	17.58	31.46	42.55
Cases	1472	495	499	478

Table 3. Educational transition rates by cohort

Birth cohort	Complete Middle School	Complete High School	Enter Tertiary Level ^a	Enter University ^b
Total	77.2%	74.4%	38.6%	28.1%
1921-42	55.2	61.2	35.3	29.3
1943-54	80.8	70.0	33.3	27.3
1955-70	96.2	86.1	43.7	28.0

^a This category includes both junior college and university entrants

^b This category includes only university entrants. Entrants to junior colleges are treated as high school graduates

Table 4. Comparisons of logit models of social background effects on school continuation

Model	# of Parameters	Log-likelihood
1 Null	1	-2251.56
2 T	3	-1938.52
3 C + T	5	-1833.43
4 CT	9	-1776.99
5 CT + FE + FS + COM	12	-1571.01
6 CT + FE + FS + COM + FE*T + FS*T ₂	15	-1550.56
7 CT + FE + FS + COM + FE*T + FS*T ₂ + COM*T	17	-1550.38
8 CT + FE + FS + COM + FE*T + FS*T ₂ + FE*T ₃ *C ₃	16	-1547.83
9 CT + FE + FS + COM + FE*T + FS*T ₂ + FE*T ₃ *C ₃ + FS*T ₂ *C	18	-1547.32
10 CT + FE + FS + COM + FE*T + FS*T₂ + FE*T₃*C₃ + COM*C₂₃	17	-1544.96
11 CT + FE + FS + COM + FE*T + FS*T ₂ + FE*T ₃ *C ₂₃ + COM*C ₂₃ *T	19	-1544.68
12 FE*T*C + FS*T*C + COM*T*C	36	-1534.19

Model Comparisons	# of Parameters	Log-likelihood	P
Model 2 - Model 1	2	313.04	<.001
Model 3 - Model 2	2	105.09	<.001
Model 4 - Model 3	4	56.44	<.001
Model 5 - Model 4	3	205.98	<.001
Model 6 - Model 5	3	20.45	<.001
Model 7 - Model 6	2	0.18	n.s.
Model 8 - Model 6	1	2.73	<.05
Model 9 - Model 8	2	0.51	n.s.
Model 10 - Model 8	1	2.87	<.05
Model 11 - Model 10	2	0.28	n.s.

n.s. = not significant at .05 level

Note: C = birth cohort (3 categories) C₃ = birth cohort with the youngest (third) cohort coded differently from the first two cohorts C₂₃ = birth cohort with the second and third cohorts the same against the first (oldest) cohort T = educational transition (3 categories) T₂ = educational transition with the second transition (complete high school) coded differently from other two transitions T₃ = educational transition with the third transition (enter university) coded differently from other two transitions COM = Community of origin FE=father's years of education FS=father's SEI

Table 5. Parameter estimates of the preferred logit model of social background effects on school continuation

Parameter	B	SE	t
Origin			
Father's education (FE)	0.229	0.025	9.13
Father's SEI (FS)	0.041	0.005	8.21
Community (COM)	1.073	0.197	5.45
Father's education X complete high school (FE*T ₂)	-0.106	0.032	-3.34
Father's education X enter college (FE*T ₃)	-0.226	0.036	-6.33
Father's SEI X complete high school (FS*T ₂)	-0.020	0.008	-2.39
Father's education X enter college X cohort3 (FE*T ₃ *C ₃)	0.092	0.039	2.37
Community X cohort23 (COM*C ₂₃)	-0.551	0.232	-2.37
Cohort			
1921-42 (Omitted category)			
1943-54	0.950	0.164	5.80
1955-70	2.337	0.271	8.61
Transition			
Complete middle school (Omitted Category)			
Complete high school	0.691	0.299	2.31
Enter college	-1.301	0.255	-5.10
Transition X Cohort			
Complete high school X 1943-54	-0.642	0.240	-2.68
Complete high school X 1955-70	-1.267	0.334	-3.79
Enter college X 1943-54	-0.888	0.294	-3.02
Enter college X 1955-70	-3.139	0.459	-6.84
Constant	-1.616	0.177	-9.15

Center for Demography and Ecology
University of Wisconsin
1180 Observatory Drive Rm. 4412
Madison, WI 53706-1393
U.S.A.
608/262-2182
FAX 608/262-8400
comments to: hyark@ssc.wisc.edu
requests to: cdepubs@ssc.wisc.edu