



Transition from School to Work before and after the '97 Korean Economic Crisis: Macroeconomic Context and Differential Impacts of Education*

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Using the Korean Labor and Income Panel Study, this study examined the impact of the 1997 Korean economic crisis on the transition from school to work among young Koreans. More specifically, this study analyzed the duration to the first-job after school and the type of work arrangements and occupational status of the first job before and after the economic crisis. Results show that the effect of labor-market transition timing varied across education levels. Highly educated young Koreans who entered the labor market since the crisis were at greater risk of first-job attainment compared to their pre-crisis counterparts but this was not the case for poorly educated young Koreans. Also, results show that educational differences in the risk of first-job attainment were much larger for males than for females since the crisis. Finally, regarding the quality of first jobs, the post-crisis cohort was significantly associated with nonstandard work and lower occupational status, regardless of the educational level.

Keywords: transition from school to work, the 1997 Korean economic crisis, educational attainment, labor market outcomes

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INTRODUCTION

The transition from school to work is a critical period that has important implications for subsequent successful life over the life course. Stable employment provides not only a place to work for steady income, but also a coherent organization to daily life. Therefore, research on the transition from school to work has attracted substantial attention among social scientists (e.g., Biggeri, Bini, and Grilli 2001; Caspi, Eckstein, and Wolpin 1995; Kerckhoff and Jackson 1982; Müller and Shavit 2003; Wiesner et al. 2003). In particular, sociological research on occupational stratification has carefully documented relationships among family background, education, and occupational standing. The literature suggests that family background plays an important role in educational and occupational attainment among young adults (Blau and Duncan 1967; Hallinan 1988; Hauser and Featherman 1976; Schill, McCartin, and Meyer 1985; Sewell, Haller, and Portes 1969).

Blau and Duncan (1967) developed the first status attainment model, which attempts to explain social mobility patterns by identifying those attributes (e.g., father's occupation and respondent's education) that facilitate the movement of individuals into desirable occupational outcomes. In attempting to further enhance Blau and Duncan's model, various additions to the basic model were also presented. In particular, the social psychological model (Sewell et al. 1969) related the family background and ascribed characteristics of individuals to their occupational status via the mediation of ability as well as educational attainment. Despite various approaches to the status attainment process, the general agreement is that educational attainment is the primary determinant linking family background to occupational achievement, even though education also introduces substantial variation in socioeconomic attainment that cannot merely be reduced to variation in family backgrounds (Mare 2001).

Although prior research showed the importance of family background and education in the process of occupational stratification, relatively far less is known about the manner in which these effects interact with wider institutional arrangements. This study extends previous research by analyzing how institutional change affects the association between education and occupational stratification. Given that the school-to-work transition is the point where educational differentials are most immediately translated into labor-market inequalities (Gerber 2003),¹ this study takes a closer look at the moderating effect of macroeconomic context on the association between education and labor-market outcomes when one completes his or her formal schooling and enters the labor market.

To investigate how institutional change regulates the association between education and

¹ Once one enters the workforce, the effects of work experience and job performance increase. Thus, it is more difficult to measure the direct effect of education in the process of occupational stratification.

occupational stratification, the study borrows the insights from the life course perspective. Basically, the life course perspective looks at how chronological age, relationships, life transitions, and social change affect the individual experience of each life stage. Based on five basic concepts of the life course perspective: cohorts, transitions, trajectories, life events, and turning points, Elder (1994) identified four central themes of the life course perspective: interplay of human lives and historical time, timing of lives, linked or interdependent lives, and human agency in making choices. Compared to traditional theories of human development, the life course perspective encourages greater attention to the impact of social change on human behavior, which is particularly important in a rapidly changing society (Hutchison 2005).

Traditionally, early life experiences have been believed to have pervasive and long-lasting repercussions on individuals' later lives. That is, the variability in the transition to adulthood among young people can be explained mainly by their early life experiences (e.g., family background). However, the life course perspective emphasizes that human development takes place in a social context and is therefore influenced by a person's interactions within that context (Elder 1998; Schoon et al. 2002). For example, Elder (1999) demonstrated the crucial impact of the Great Depression on the developmental trajectories of two cohorts of children in the United States: those who were adolescents and those who were young children. Compared to the older cohort, he found that the younger cohort was more adversely affected by the Great Depression, suggesting that the impact of a life event depends on when it occurred during a person's life. He also found that the negative impact of the Great Depression was stronger for lower-class families than for middle-class families. Following Elder's seminal work, a growing body of literature also suggests that early experiences do not absolutely determine invariant trajectories over the life course (Alexander and Entwisle 1988; Clausen 1991; Dornbusch 1989; Masten and Coatsworth 1998; Shanahan, Elder, and Miech 1997; Werner 1992; Zhou and Hou 1999).

Although the life course perspective is an emerging paradigm in the study of human development, relatively little prior research in occupational stratification has taken such a life course perspective. This study extends prior research by investigating how the effect of education on the school-to-work transition differs before and after the 1997 Korean economic crisis. Prior sociological research in the process of occupational stratification also investigated institutional contexts in explaining occupational outcomes of individuals. For example, Müller and Shavit (2003) compared 13 industrialized countries and found that educational systems differ greatly cross-nationally and institutional characteristics of educational systems (e.g., stratification, standardization, the occupational specificity of vocational education, and the size of the tertiary educational sector) had significant influences on the association between educational qualifications and occupational outcomes. However, in general institutional change is slow and gradual, which makes it difficult to take a closer look at the nature of the resulting change in stratification processes. In this respect, the Korean case provides an especially useful

opportunity to examine the role of macroeconomic context because the 1997 economic crisis had rapid and far-reaching changes in Korea.

The Korean economy showed remarkable growth over the past 35 years from the early '60s and produced an average annual growth rate of more than 8 percent between 1960 and 1997 (Lee 1997). On Dec. 3, 1997, following the sudden outbreak of the economic crisis during late November, the Korean government and the International Monetary Fund (IMF) agreed on a financial-aid package under the condition of a wide range of restructuring measures. Although the interpretation of the cause of the crisis remains highly controversial, in general, it is known that the currency crisis in the Southeast Asian economies in the summer of 1997, weak economic fundamentals, and corporate business strategy, which mainly focused on increasing market share and diversification at the expense of profitability and specialization, were the most important causes of the crisis.

The economic crisis led to a record low -5.8 percent real GDP growth rate in 1998. The unemployment rate also rose sharply between 1997 and 1998 from 2.6 percent to 7.0 percent. The Korean economy had maintained a very low unemployment rate before the crisis, which generally did not exceed 3 percent (considered to be full employment) since 1988. The rate peaked in the first quarter of 1999 at 8.5 percent and then began to improve, responding to the economic recovery in 1999, and has averaged 5.5 percent in the first quarter of 2000.

Although the overall unemployment rate significantly dropped since 2000, this was possible through a proliferation of various types of nonstandard employment, such as temporary workers and daily hires. For the first time since labor statistics were compiled in Korea, the proportion of nonstandard workers exceeded that of regular workers in early 1999 and nonstandard workers consisted of 51.6% of the total workforce in 2002 (Statistics Korea 2003). Further, recent workforce recruitment practices prefer experienced workers to new labor-market entrants in order to immediately place workers at workplace.² Lee and Chung (2003) note that corporations do not view training new labor-market entrants as a rewarding investment since the 1997 crisis in Korea. In addition to recruiting experienced workers, employers also prefer to hire new recruits on a temporary basis rather than on permanent terms (Kim and Park 2004). Further, economic restructuring towards more technology-intensive industries enables Korean firms to do business with fewer workers. All these factors above contribute to the high rate of joblessness among young Koreans.

Despite educational differences in occupational status, lower educational attainment presented relatively no significant barrier to stable employment in the past because the expanding Korean economy provided sufficient stable jobs for new labor-market entrants. However, the transformation of the labor market after the crisis imposed real difficulties in

² Evidence indicates that more than 30% of university graduates employed in the latter half of 2000 were temporary workers (Korean Ministry of Employment and Labor 2001).

finding employment opportunities for new labor-market. Further, educational credentials are most influential early in the occupational career due to the lack of more precise indicators of whether new labor-market entrants possess desired skills and knowledge (see Blau and Duncan 1967; Sewell, Hauser, and Wolf 1980; Warren, Hauser, and Sheridan 2002).³ This suggests that the negative impact of the crisis on job attainment may be stronger for young Koreans with lower education levels.

However, to date, various data limitations have restricted systematic research on young Koreans' job attainment patterns since the crisis. Further, little is known about the quality of the first-jobs obtained by the post-crisis cohort compared to the pre-crisis cohort. It should be noted that analyzing job attainment itself does not provide a complete picture of the impact of the crisis on the transition from school to work. For example, individuals may have better jobs if they spend more time searching for jobs (i.e., a longer period of non-employment). Thus, it is more useful for investigating simultaneously the non-employment duration and quality of first jobs to gain a better understanding of the impact of the crisis on labor-market outcomes among young Koreans.

In sum, this study examines the impact of the 1997 Korean economic crisis on first-job attainment and the quality of first jobs among young Koreans. By comparing labor-market outcomes of two labor-market transition cohorts before and after the crisis, this study gauges how the effect of education on the school-to-work transition is dependent upon wider socioeconomic context. Specifically, first, this study investigates in detail how pre- and post-crisis cohort members show different first-job attainment patterns after leaving school. Second, in addition to first-job attainment, this study also investigates whether post-crisis cohort members experienced disadvantages in terms of work stability and occupational status. Particular emphasis will be placed on whether the first-job attainment patterns and job quality of pre- and post-crisis members are dependent upon individual characteristics in terms of education and gender.⁴

DATA AND METHODS

Sample

This study used the Korean Labor and Income Panel Study (KLIPS) to examine the transition from school to work among young Koreans. KLIPS is a nationally representative, longitudinal survey of households and individual members of these households on their labor market and

³ However, as individuals progress through their occupational careers, in addition to educational credentials, employers can use other job performance indicators such as work experience and job performance evaluations.

⁴ Although it is desirable to use gender-specific models, we examine the interaction effects between labor-market transition timing, education, and gender within a single model due to sample restrictions.

income activities in Korea. More specifically, KLIPS is a probability sample of households from seven metropolitan cities and urban areas in eight provinces and was designed to yield data from 5,000 households and their household members aged 15 or older.

Although KLIPS is a longitudinal survey on labor market and income activities, it does not provide true longitudinal information regarding the transition from school to work among young Koreans before and after the crisis since the first wave of KLIPS was launched in 1998. This study therefore obtained such information around the time of the crisis from the supplementary data file at wave 3 (2000). In 2000, in addition to the core survey, KLIPS conducted a supplementary survey to investigate young Koreans' job seeking behaviors and labor-market outcomes. Despite the cross-sectional nature of the survey, it nevertheless contains valuable retrospective information on labor market activities of young Koreans around the time of the economic crisis.

The analytical sample consisted of respondents who left school at any level of educational attainment from February 1989 and August 2000. However, this study excluded those individuals who obtained their first job more than 12 months earlier before they graduated or dropped out from the original sample ($n = 78$), in order to better capture the effect of the economic crisis on labor-market outcomes. Although students can obtain their job before graduation, it is suspected that those individuals who obtained their first job more than one year earlier before graduation returned to school by combining full-time work with schooling. Since their experiences of the economic crisis could have been substantially different from others, this study excluded them in order to better capture the impact of the economic crisis on labor-market outcomes. The final sample consisted of 1,569 young Koreans, including dropouts ($n = 66$), who were born between May 1, 1970 and April 30, 1985.

Measures

Labor-market outcomes

The first labor market outcome was first-job attainment (defined as lasting 2 months or longer). This study distinguished between employment and non-employment in the analysis of first-job attainment. Although unemployment is a more popular measure, identifying unemployment status was not possible in the supplementary KLIPS data file. The second labor market outcome was work arrangements. Work arrangements were categorized into two groups: regular (or standard) wage work (reference) versus temporary (or nonstandard) wage work. In KLIPS, regular workers refer to individuals working in the same workplace for more than one year or working in the workplace as long as they want to work. With respect to the type of work arrangements, although KLIPS contains additional categories (employers, self-employees, and unpaid family business workers), this study excluded these categories in the analysis of the quality of first jobs because these categories did not provide sufficient data

points ($n = 21$). The third labor market outcome was occupational status, ranging from 15 to 85. Occupational status was measured by the International Socio-Economic Index of Occupational Status (ISEI) (Ganzeboom, De Graaf, and Treiman 1992), which provides internationally comparable measures of occupational status from the International Standard Classification of Occupation 1988 (ISCO88) of the International Labor Office. The ISCO is the international standard classification of occupations, on which the Korean Standard Classification of Occupations (KSCO) was also closely modeled. ISEI measures the attributes of occupations that convert a person's education into income and is recognized as a superior way to measure occupational status from the standpoint of status attainment analysis (see Ganzeboom and Treiman (1996) for more details).

Labor-market transition cohort

This study defined two labor-market transition cohorts in terms of young Koreans' changing labor-market opportunities: pre-crisis and post-crisis cohorts. Specifically, post-crisis cohort members were defined as those individuals who left school since 1998. As pointed out earlier, unemployment was never an important issue in the expanding Korean economy and the labor market environment underwent substantial change after the crisis. This decision in cohort construction was also supplemented with heuristic analysis of the data. For example, although there were no significantly changed indicators in the labor market by the end of 1997 (e.g., the official unemployment rate for the fourth quarter of 1997 was 2.6 percent), the domestic market had been somewhat liberalized under international market pressures since the Korean government joined the WTO in 1995 and the OECD in 1996. To examine whether young Koreans who entered the labor market during the transition period (1995-1997) showed a distinct labor-market transition pattern, additional analyses were carried out based on a more detailed classification of labor-market transition cohorts: 1989-1994, 1995-1997, and 1998-2000. This study also examined heterogeneity among individuals who entered the labor market since 1998. We found that the main difference was before and after the economic crisis. In the following analysis, we report results based on the comparison between the pre-crisis (1989-1997) and post-crisis (1998-2000) cohorts.

Family background

Family background characteristics were measured in terms of the education and social class of the respondent's father (or mother if father's information was absent). Father's education was treated as a continuous variable. Father's social class was classified into four mutually exclusive categories based on the occupation when the respondent was around the age of 14: working class (reference), middle class, employer, and self-employed. Except for employers and the self-employed, father's social class was categorized by the 1988 ISEI classification. A respondent's father was classified as middle-class if he belonged to one of the following

Table 1. Percentage Distributions of Selected Socio-Demographic and First-Job Related Variables

Variables	Pre-Crisis Cohort	Post-Crisis Cohort
Female	57.69	61.49
Education		
High School or Less	70.49	42.95
Junior College	17.57	25.06
University or More	11.94	31.99
Paid Job Experience (Yes)	18.62	24.52
Vocational Training (Yes)	23.50	22.41
Certification (Yes)	36.87	33.52
Father's Education		
Less than High School	67.97	53.10
High School	24.36	33.14
More than High School	7.68	13.75
Father's Social Class		
Working Class	36.98	39.27
Middle Class	6.34	10.61
Employer	10.68	15.82
Self-Employed	46.00	34.29
First-Job Attainment (Yes)	88.73	66.48
Non-Employment Duration		
0	20.56	32.85
1 to 3	33.05	36.89
4 to 6	6.14	8.07
7 to 12	7.32	12.10
13 to 24	8.50	9.80
25+	24.43	.29
Regular Wage Worker (Yes)	84.14	63.29
Mean Occupational Status (SD)	42.86(10.64)	44.91(11.62)
Sample Size	1,047	522

Note | Non-employment duration, work arrangements (regular wage worker), and occupational status were calculated for those who obtained the first job. Non-employment duration was measured in calendar months.

occupation groups: (1) legislators, senior officials, and managers, (2) professionals, and (3) technicians and associate professionals. The other occupational categories were classified into working-class.

Kin network

In addition to family background characteristics, this study also took into account the respondents' kin network. Kin networks may influence labor market transition outcomes through the allocation of roles, responsibilities, and resources. In 2000, KLIPS collected information on occupation-related kin networks in the following eight occupation groups: (1)

college professor, (2) government officer (senior level), (3) medical doctor, (4) journalist, (5) military person (star level), (6) assemblyman, (7) executive in a large company, and (8) judge/prosecutor/lawyer. Each item was measured in terms of the closeness of the relationship, ranging from 0 (not close) to 2 (very close). A composite kin network scale was constructed by adding up all eight items (range 0-16).

Socio-demographics

This study considered the respondent's gender, completed educational attainment, and health status. Gender was a dummy variable and women were coded 1. We collapsed complete years of schooling into three categories: high school (or less), two-year junior college (or some college), and four-year university (or more). The self-rated health status of the respondent when he or she graduated or dropped out was classified into two groups: excellent/healthy (coded 0) versus a little poor/very poor (coded 1). This study also took into account the respondent's job-related activities: paid-employment experiences during schooling, participation in a vocational training program, and certification (e.g., technician certification). All of these job-related activities were dummy variables and were coded 1 if the respondent said "yes." Vocational training and certification may measure the quality of education but it was not possible to identify in the survey whether they were integrated as regular school programs. In this study, education and these job-related variables were treated separately. Table 1 shows percentage distributions of selected socio-demographic and first-job related characteristics.

Analysis plan

First, this study fitted a series of discrete-time hazard models to examine the process of first-job attainment across labor-market transition cohorts. The time metric was measured as the number of calendar months between leaving school and obtaining first job (or the time of interview for censored cases). This study used a complementary log-log link instead of a logit link for the discrete-time hazard model. In general, fitted hazard models from logit and clog-log link functions are indistinguishable unless hazard is high. However, the underlying time metric was truly continuous in this study and discretized time values were only observed due to measurement difficulties (Singer and Willett 2003).

With respect to the representation of the main effect of time, although we can use a completely general specification for time by including temporal dummies, this approach to the baseline hazard lacks parsimony since it requires the inclusion of many temporal dummies in the model and results in fitted hazard functions that fluctuate erratically across consecutive time periods due to sampling variation resulting from small data points (Beck, Katz, and Tucker 1998; Efron 1988; Singer and Willett 2003). This study adopted a piecewise constant specification for time and split the non-employment duration into six temporal groups: 0, 1-3,

4–6, 7–12, 13–24, and 25 months or more. In additional analyses (data not shown), this study also ran several models using 101 original temporal dummies instead of 6 grouped temporal dummies to examine the robustness of this approach and found that this specification for time worked as well as the completely general one.

Specifically, we estimated the following series of discrete-time hazard models for the transition from school to work:

Model 1:

Model 2: Model 1 + $\beta_z(\text{COHORT} + \text{EDU} + \text{FEMALE}) + \beta_k X_{i,k}$

Model 3: Model 2 + $\beta_m(\text{COHORT} + \text{EDU} + \text{FEMALE})$

Model 4: Model 2 + $\beta_n(\text{COHORT} + \text{EDU} + \text{FEMALE}) \times \text{TIME}_j$

Model 5: Model 2 + $\beta_u(\text{COHORT} + \text{EDU} + \text{FEMALE})$
+ $\beta_v(\text{COHORT} + \text{EDU} + \text{FEMALE}) \times \text{TIME}_j$.

Model 1 represents the baseline hazard, which is specified as a linear spline with knots at 1, 4, 7, 13, and 25 months after leaving school. Model 2 examines the main effects of labor-market transition timing, education, and gender after controlling for other covariates (X). While Model 2 assumes that unit differences in the value of a predictor correspond to fixed differences in complementary log-log hazard, Model 3 allows the effect of labor-market transition timing on first-job attainment to change across education levels and gender. Further, by relaxing the assumption of proportionality, Model 4 examines whether the effects of labor-market transition timing, education, and gender vary over time (non-employment duration). Finally, in Model 5, we estimate all two- and three-way interactions between labor-market transition timing, education, gender, and time (non-employment duration). Given the complexity of the two- and three-way interaction terms estimated in Models 4-5, we specify that the effects of labor-market transition timing, education, and gender change linearly over time.⁵

Second, differences in work arrangements and occupational status before and after the economic crisis were examined among those respondents who obtained first jobs. For the statistical modeling of work arrangements and occupational status, the possibility of sample selection bias caused concern because those who were not working may have constituted a self-selected sample. One standard solution for sample selectivity is to use Heckman selection

⁵ A more general way of relaxing the proportionality assumption is to allow the effects of predictors to differ from period to period by including all interaction terms between each time dummy (D_1 through D_j) and predictors. We examined the pattern of estimates for the interaction with time dummies and found that the interactions systematically increase (labor-market transition cohort) or decrease (female) over time, indicating a smooth interaction with time specification. With regard to the specification of non-proportional hazard models, we also considered more complex models including three- and four-way interactions between time and predictors (labor-market transition cohort, education, and gender). Since those interaction terms are not significant, we only include two-way interactions between time and predictors.

models (Greene 2000; Heckman 1979; Van de Ven and Van Praag 1981). We fitted a series of Heckman selection models with continuous (occupational status) and binary (work arrangements) outcomes (data not shown) but there was no sufficient evidence that the correlations of the residuals in the selection and outcome equations were significantly different from zero, indicating that the effect of sample selectivity was not statistically significant. In the following section, we present normal regression (occupational status) / logit (work arrangements) model estimates since there is little basis for choice between the two methods and normal regression/logit models facilitate interpretation of our findings.

Finally, compared to other panel data, incomplete data problems remained minimal in this study because retrospective information was obtained on labor-market activities from the 2000 wave of KLIPS. However, the data indicated that the type of work arrangements had a high level of missing data (39.11 percent). This study dealt with incomplete data using multiple imputation instead of deleting cases with missing values. Multiple imputation (along with full information maximum likelihood estimation) is a recommended, modern, incomplete-data procedure (Allison 2002; Collins, Schafer, and Kam 2001; Little and Rubin 2002; Schafer 2003). Specifically, this study used the multivariate imputation by chained equations (MICE) (Van Buuren, Boshuizen, and Knook 1999; Van Buuren and Oudshoorn 2000). Multiple imputation with the MICE method fits regression models (e.g., normal linear regression, binary logistic regression, multinomial logistic regression, and ordered logistic regression) for each different type of variable with missing data instead of fitting a single comprehensive model under the assumption of multivariate normality.

The MICE method draws imputations from the posterior density of missing values of a variable conditional on other variables. Specifically, the MICE method repeats a sequence of Gibbs sampling iterations until all incomplete variables are imputed. In each iteration, each variable with missing values is regressed on all other variables using all imputed values created during previous steps (along with nonmissing data) and this process continues until stable imputed values are generated. This study created 5 imputed data sets and then subsequent analyses were performed using these multiply imputed data sets. Estimates for complete-data model parameters were averaged across the 5 imputed data sets and standard errors were computed according to Rubin's rule (Rubin 1987).

RESULTS

First-job Attainment

Table 2 shows the coefficients and standard errors of the discrete-time hazard models for first-job attainment. Model 1 included only the main effect of time. These parameter estimates together provide estimated values of the baseline clog-log hazard function. More specifically,

Table 2. Discrete-Time Hazard Model Estimates for First-Job Attainment

Predictors	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
D ₁	-1.532 ***	-1.592 ***	-1.954 ***	-2.069 ***	-2.032 ***	-2.233 ***
D ₂	-1.928 ***	-1.989 ***	-2.303 ***	-2.411 ***	-2.368 ***	-2.553 ***
D ₃	-3.262 ***	-3.317 ***	-3.600 ***	-3.706 ***	-3.657 ***	-3.830 ***
D ₄	-3.440 ***	-3.478 ***	-3.746 ***	-3.845 ***	-3.801 ***	-3.956 ***
D ₅	-3.812 ***	-3.836 ***	-4.073 ***	-4.144 ***	-4.127 ***	-4.239 ***
D ₆	-4.083 ***	-4.085 ***	-4.245 ***	-4.004 ***	-4.315 ***	-4.062 ***
Post-Crisis Cohort		.173 **	.132 †	-0.030	-0.088 †	-0.103
Education						
Junior College			.125 †	.123	.251 †	.315 *
University			.212 **	.070	.265	.083
Female			.313 ***	.576 ***	.482 ***	.887 ***
Paid Job Experience			.417 ***	.433 ***	.424 ***	.447 ***
Vocational Training			.103	.108	.110	.119 †
Certification			.392 ***	.393 ***	.400 ***	.405 ***
Poor Health			-.792 ***	-.748 ***	-.834 ***	-.795 ***
Father's Education			-.017 †	-.015 †	-.015 †	-.013
Father's Social Class						
Middle Class			.023	.027	.026	.024
Employer			-.004	-.008	.021	.015
Self-Employed			.021	.014	.014	-.001
Kin Network			-.017	-.018	-.017	-.018
Post-Crisis × TIME				.032 **		.028 **
Junior College × TIME				-.001		-.001
University × TIME				.017 **		.020 ***
Female × TIME				-.020 ***		-.023 ***
Junior College × Post-Crisis					.669 *	.669 *
University × Post-Crisis					.301	.382
Junior College × Female					-.426 *	-.531 **
University × Female					-.387 †	-.501 *
Female × Post-Crisis					-.091	-.351
Junior College × Female × Post-Crisis					-.234	-.186
University × Female × Post-Crisis					.385	.521

Note | 29,338 person-period records; † $p < .1$ * $p < .05$ ** $p < .01$ *** $p < .001$.

the amount and direction of variation in these values describe the shape of the baseline hazard function and indicate whether the risk of first-job attainment increases, decreases, or remains steady over time. Model 1 showed that the parameter estimates declined over time, indicating that the baseline hazard function decreased over time. We can derive a fitted baseline hazard

function by applying the appropriate inverse transformation to the parameter estimates ($\hat{h}(t_i) = 1 - \exp(-\exp(\text{clog-log}))$). Before graduation (D_1), Model 1 showed that the fitted hazard probability was .1943 and that it remained fairly high (.1354) until 3 months after graduation (D_2). However, the fitted hazard substantially decreased after 3 months to less than .04.

How did labor-market transition timing affect the hazard profile? Model 2 added the main effect of labor-market transition timing to the main effect of time. Contrary to our expectation, the estimated coefficient for the post-crisis cohort was .173 and was statistically significant ($p < .01$), indicating that the post-crisis cohort was at greater risk of first-job attainment over time. The positive coefficient estimates the vertical elevation of the fitted clog-log hazard function for the post-crisis cohort above that of the pre-crisis cohort in every time period. Antilogging the parameter estimate of .173 in the clog-log model (hazard ratio) yielded 1.19, indicating that the hazard of first-job attainment for the post-crisis cohort was 19 percent higher than that of the pre-crisis cohort in every time period.

Model 3 added the main effects of other covariates, including education and gender, to the main effects of time and labor-market transition cohort. With the introduction of other predictors, the risk of first-job attainment of the post-crisis cohort was 13 percent higher than that of the pre-crisis cohort, even though the coefficient was only marginally significant ($p = .054$). Model 3 also showed that the hazard of first-job attainment was roughly 24 percent higher for university graduates than for those with a high school education or less, after controlling for other predictors. Further, the data indicated that the hazard of first-job attainment was approximately 37 percent higher for females than for males.⁶

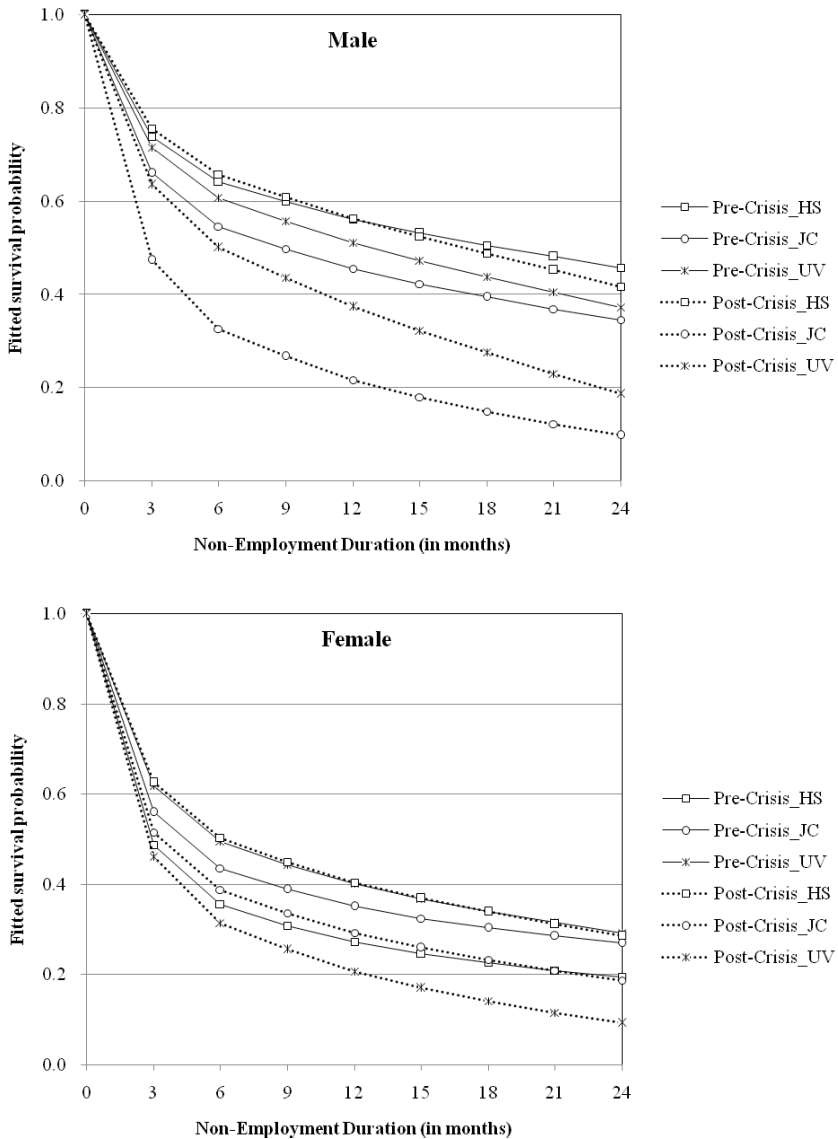
By relaxing the assumption of proportionality, Model 4 allowed the effects of education, gender, and labor-market transition cohort to differ over time. The data indicated that the post-crisis cohort was increasingly at greater risk of first-job attainment as the duration of non-employment lengthened. Likewise, the gap between university graduates and those with a high school education or less grew over time. However, Model 4 also showed that the gender gap in the risk of first-job attainment decreased as the duration of non-employment lengthened.

To examine whether unit differences in the value of a predictor correspond to fixed differences in complementary log-log hazard, Model 5 included the two- and three-way interactions between labor-market transition cohort, education, and gender. The results indicated that, compared to the pre-crisis cohort, the gap between junior college graduates and those with a high school education or less was greater for the post-crisis cohort. The data also showed that overall the effect of education on first-job attainment was weaker for females than for males.

In Model 6, we relaxed the additivity and proportionality assumptions simultaneously.

⁶ It should be noted that this study focuses only on the transition to *first* job. This result is consistent with the findings of Ahn and Hong (2002) and Chang (2008) that used the same data source in Korea. Using data from the Youth Panel, Woo and Yoon (2008) also found the same result.

Figure 1. Predicted Survival Curves by Education and Labor-Market Transition Cohort



Because the estimated interaction coefficients in Model 6 are difficult to interpret individually, we present the results in the form of predicted survival curves. Figure 1 presented life-table survival curves through 24 months based on the results of the full model (Model 6).⁷ Figure 1

⁷ For the sake of clarity, we present predicted survival curves by gender.

indicated that the effect of labor-market transition timing varied across education levels. For both males and females, junior college and university graduates who entered the labor market since the crisis were at greater risk of first-job attainment compared to their pre-crisis counterparts. However, for males with a high school education or less, it appears that the gap between the pre- and post-crisis cohorts is almost indistinguishable. Further, for females with a high school education or less, the post-crisis cohort showed a lower likelihood of obtaining a first-job compared to the pre-crisis cohort. Overall, these survival curves showed that educational differences in the risk of first-job attainment were much larger among post-crisis cohort members, suggesting that educational attainment assumes a much greater significance in first-job attainment after the crisis.

Finally, the data also showed some gender variations in first-job attainment. For the pre-crisis cohort, females with a junior college or university education were at lower risk of first-job attainment compared to females with a high school education or less, while highly educated males were more likely to obtain a first-job over time. However, for post-crisis cohort members, the risk of first-job attainment of females with a junior college or university education was substantially higher than that of females with a high school education or less. Further, the data also indicated that educational differences in the risk of first-job attainment were much larger for males than for females after the crisis.⁸

Work Arrangements and Occupational Status

The findings presented above on first-job attainment indicated that, except for females with a high school education or less, overall post-crisis cohort members did not suffer from the economic crisis in terms of first-job attainment compared to pre-crisis cohort members of similar socio-demographic characteristics. However, the data also showed that the impact of education became much stronger after the crisis (in particular, for males), indicating that lower levels of educational attainment became an important risk factor in the successful transition from school to work among post-crisis cohort members. This subsection investigates the quality of first jobs obtained by pre- and post-crisis cohort members.

Compared to the analysis of first-job attainment, Table 3 provides a substantially different picture overall. With respect to the type of work arrangements, Model 1 indicated that the post-crisis cohort was more likely than the pre-crisis cohort to be nonstandard wage earners. More specifically, the odds of obtaining nonstandard jobs were over 3-fold higher for post-crisis cohort members than for pre-crisis cohort members. Further, this pattern remained basically

⁸ Sandefur and Park (2007) found that the effects of education on first occupation declined across three labor-market transition cohorts (1960-1979, 1980-1989, and 1990-1998) for women but not for men. Our analysis also showed that females with a junior college or university education were at lower risk of first-job attainment compared to females with a high school education or less for the pre-crisis cohort. However, this was not true for the post-crisis cohort. The data showed that females with a junior college or university education were at greater risk of first-job attainment than females with a high school education or less for the post-crisis cohort.

Table 3. Logit/Regression Model Estimates for Work Arrangements and Occupational Status

Predictors	Work Arrangements			Occupational Status		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Constant	-1.670 ***	-.836 **	-.716 *	42.994 ***	35.532 ***	34.402 ***
Post-Crisis Cohort	1.125 ***	1.491 ***	1.466 **	1.915 **	-1.370 *	-3.566 †
Education						
Junior College		-.631 *	-.598		3.701 ***	6.300 ***
University		-.912 *	-1.218 *		10.635 ***	13.192 ***
Female		-.896 ***	-1.138 ***		5.336 ***	6.672 ***
Paid Job Experience		.533 *	.540 *		-.918	-.876
Vocational Training		-.190	-.198		1.518 *	1.572 *
Certification		-.448 *	-.448 *		1.987 ***	1.995 ***
Poor Health		.180	.215		.406	-.001
Father's Education		.017	.014		.099	.125
Father's Social Class						
Middle Class		-.238	-.191		-.157	-.412
Employer		-.529	-.538		.709	.644
Self-Employed		-.661 **	-.656 *		.065	.107
Kin Network		.100	.097		.355 †	.380 †
Non-employment Duration		.002	.001		.019	.023
Junior College × Post-Crisis			-.276			1.362
University × Post-Crisis			-.042			2.448
Female × Post-Crisis			.209			3.671 †
Junior College × Female			.107			-3.450 †
University × Female			.727			-4.678 *
Junior College × Female × Post-Crisis			.135			-4.383
University × Female × Post-Crisis			-.212			-3.144

Note | N = 1,257; † p < .1 * p < .05 ** p < .01 *** p < .001.

unchanged with the introduction of other predictors (including non-employment duration) in Model 2. More specifically, the odds of being nonstandard wage earners were over 4-fold higher for post-crisis cohort members than for pre-crisis cohort members, after controlling for other covariates. Finally, Model 3 shows that the result remains similar, even after including the interaction effects between labor-market transition timing, education, and gender.

Compared to the type of work arrangements, the analysis of occupational status showed that the post-crisis cohort members were more likely to obtain first jobs with higher status in Model 1. However, the opposite pattern was demonstrated in Model 2 following the inclusion of other predictors, i.e., post-crisis cohort members were more likely to obtain first jobs with low occupational status and the linear regression parameter estimate (-1.370) indicated that first jobs of post-crisis cohort members were an average of 1.37 points lower in status than

those of pre-crisis cohort members, after controlling for other variables. This observed divergence in pattern between Models 1 and 2 was largely explained in further analysis (data not shown) by the composition of education between pre- and post-crisis cohorts.

In Model 3, we added the corresponding interaction terms to investigate whether the effect of labor-market transition timing differs across education and gender. Compared to the analysis of first-job attainment, however, we did not find sufficient evidence that the impact of labor-market transition timing was contingent upon gender and education. In summary, our analysis indicated that post-crisis cohort members suffered from the economic crisis in terms of the quality of their first jobs, as measured by both work arrangements and occupational status, compared to their pre-crisis cohort members of similar socio-demographic characteristics.

DISCUSSION AND CONCLUSION

Using KLIPS, this study examined the impact of the 1997 Korean economic crisis on the transition from school to work among young Koreans. First, the data indicated that the effect of labor-market transition timing varied across education levels. Highly educated young Koreans who entered the labor market since the crisis were at greater risk of first-job attainment compared to their pre-crisis counterparts but this was not the case for poorly educated young Koreans. Therefore, educational variations in first-job attainment became larger since the crisis. In particular, educational differences in the risk of first-job attainment were much larger for males than for females after the crisis. Second, with respect to the type of work arrangements and occupational status of first jobs, this study found that post-crisis cohort members were significantly associated with nonstandard work and lower occupational status compared to the pre-crisis cohort, regardless of educational levels.

The evidence presented in this study indicates that, except for females with a high school education or less, overall post-crisis cohort members did not suffer from the crisis in terms of first-job attainment compared to pre-crisis cohort members with similar educational attainment. However, our work also showed that post-crisis cohort members did suffer from the crisis in terms of the quality of their first jobs. One possible explanation for the findings is that since the economic crisis, young Koreans have mainly focused on job attainment instead of the quality of first job.⁹ Given the scarcity of natural resources, such as oil and minerals, investment in the labor force (i.e., education) has been crucial to Korea's economic growth at the national level and the key to successful job attainment at the personal level. It should be emphasized that the delayed development of social welfare programs was compensated by the remarkable

⁹ This explanation is also consistent with some existing evidence of downgraded employment (or over-education) in the Korean labor market (Kim 2003).

economic growth and high employment rates (Goodman and Peng 1996), which tended to legitimize the ideologies of meritocracy so that individuals who did not find stable employment after leaving school were socially stigmatized. Further, in addition to recruiting experienced workers, firms preferred to hire new employees on a temporary basis since the crisis. Therefore, this labor market strategy focusing on job attainment at the expense of job quality (instead of spending more time on job search) during times of high unemployment seems plausible.¹⁰

Although overall post-crisis cohort members did not suffer from the crisis in terms of first-job attainment compared to their pre-crisis cohort counterparts with similar educational attainment, our analysis also showed that the likelihood of obtaining first job was much lower for young Koreans with a high school education or less compared to those with junior college or university education since the crisis. It appears that the prolonged duration of non-employment among high school graduates since the crisis can be explained in part by the collapse of the coordinated systems of high schools and employers in allocating students into stable jobs. Since 1960s, vocational high schools played a crucial role in matching new high school leavers and employers. Using informal contracts between schools and firms, employers could obtain new qualified labor-market entrants in return for making job offers on a regular basis. However, in contrast to the remarkable growth in the number of the general high school graduates, the number of vocational high school graduates continued to fall after 1985.¹¹ In Korea, while vocational high schools provide advanced vocational training in diverse areas including technology and commerce, general high schools comparatively emphasize academic preparation for college advancement. This educational transition pattern suggests that the general high school graduates who do not go to college are at greater risk of unemployment because they are unprepared for the labor market. In particular, with the reduced opportunities for employment after the economic crisis, competition for jobs would have grown intense and therefore poorly educated young Koreans would have faced much greater difficulty finding jobs.

It may be argued that the negative impact of non-employment was not substantial since the post-crisis cohort tended to obtain first jobs with nonstandard work arrangements and lower occupational status, even though young Koreans with lower education experienced disadvantages in terms of first-job attainment due to the economic crisis. Clearly, shorter

¹⁰ Despite existing national institutional differences, the results presented in this study are somewhat different from previous findings from Western societies. In particular, the literature suggests that young adults from southern Europe, such as Italy and Spain, tend to wait until they can find stable employment and that individuals of all education levels expect an extended period of unemployment to be normal (Biggart and Kovacheva 2006). However, no valid comparison can be made since the Korean economic crisis was relatively short-lived and was an extreme situation compared to high rates of long-term unemployment and underemployment among young adults in those countries.

¹¹ As of 2000, the general high school accounts for 61.0% of the total high schools (Korean Ministry of Education & Human Resources Development 2001).

durations to first job are not necessarily desirable because longer non-employment duration may lead to better labor market outcomes (Boheim and Taylor 2002; Burdett 1979; Gangl 2004). However, we also cannot exclude the possibility that the negative impact of longer non-employment duration could be much larger and long-lasting. Evidence suggests that longer past spells of unemployment could cause longer future spells of unemployment (Franzen and Kassman 2005). Furthermore, prolonged non-employment could cause serious human capital decay during the critical life stage (Mincer and Ofek 1982). In particular, the negative impact of non-employment could be substantial for those who are socially disadvantaged since individuals from a more privileged background could find alternative ways to avoid this problem, such as pursuing higher education. Young workers who are well matched remain on the job while those who are poorly matched are more likely to leave. Thus, we can expect higher turnover rates among the post-crisis cohort because the Korean labor market has stabilized around 2002. However, it is not certain that opportunities of upward mobility following the economic crisis were equally shared by young Koreans who experienced longer non-employment periods. Young people are resilient in the face of adversity but the timing of life transitions may exert enduring influences on later life trajectories.

Finally, our work also found some gender differences in the process of occupational stratification. It is well known that there are persistent gender differentials in earnings and that there are pervasive patterns of occupational segregation by sex. Our work shows that overall young Korean women hold an advantage in terms of first-job attainment and the quality of first-job.¹² Our findings suggest that the nature of gender differences in labor-market outcomes is a complex process, whereby women may be advantaged at certain stages and men at others. Our work indicates that women are advantaged with regard to some aspects of first job placement. Thus, the persistent gender differentials in labor-market outcomes are more likely to be due to the fact that women tend to frequently reenter the labor market after interruptions over the course of their work lives, whereas men are better able to build on their earlier occupational experience because of their more continuous work histories (Sewell and Hauser 1980).¹³

Although our work has made clear that our understanding of the process of occupational stratification is enhanced in important way by focusing on the interaction between individual biographies and macroeconomic context, several limitations of this study should be acknowledged. First, this study mainly focused on the short-term effects of a changed macroeconomic context and the properties of first jobs obtained by young Koreans. Therefore,

¹² In general, prior research shows that gender differences in occupational stratification are not significant in the transition from school to work (see Shavit and Müller (2003) for more details).

¹³ Sewell and Hauser (1980) found that women obtain first jobs whose occupational status is, on the average, six points higher on the Duncan SEI than those of men in the United States. However, men's mean occupational status is higher than women's at mid-life because men have significantly gained occupational status, while women have lost some ground over the course of their work lives.

this study was limited to capture the long-term trajectories of young Koreans who entered the labor market since the crisis. Second, this study is based on retrospective information on labor-market transition activities due to data limitations. Compared to true longitudinal data, respondents' recall of their previous labor market activities may be less reliable, resulting in estimates that are subject to large errors. Finally, this study only investigated the impact of an objective condition (economic crisis). We do not have available data on how young Koreans evaluated their life chances and formulated their future plans under the changed macroeconomic context. In addition to objective indicators of economic conditions, subjective indicators such as perceived employment prospects need to be considered to fully understand labor-market transition behaviors among young adults in the future. Further, although this study only covered young Koreans who left school at the time of interview, investigating perceived employment prospects among young adults also would shed light on the decision-making processes regarding pursuing higher education and entering the labor market under the economic crisis.

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