

Temporal Change in Early Labor Market Outcomes of Young College Graduates in South Korea

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Abstract

Unemployment rate among youths (age 20-29) in South Korea increased sharply from 6.6 percent in 2002 to 9.8 percent in 2016. At the same time, the college entrance rate remains around 70 percent, and skill mismatch in the Korean labor market is a critical policy concern. However, little attention has been paid to the temporal change in early labor market outcomes among college graduates or the characteristics of those who experience particular difficulties in the labor market. In this study, we investigate how labor market experiences for young college graduates have changed over time using data from nine different graduating cohorts of the Graduate Occupational Mobility Survey (GOMS) from 2006 to 2015. We first examine temporal changes in labor market outcomes after 18-24 months after college graduation. We also identify characteristics of the most vulnerable group in this difficult time of increasing labor market uncertainty. The results reveal that the proportion of those searching for a job, rather than working or staying in school, has increased over time. Even among those who were employed, job quality has deteriorated. We also find a growing gap in labor market outcomes by reputation of the graduating universities and college major.

Keywords: College graduates, South Korea, labor market outcome, college major, GOMS

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Introduction

Youth (age 20-29) unemployment rate in South Korea increased sharply, from 6.6 percent in 2000 to 9.8 percent in 2016. As presented in Figure 1, the increase is especially striking from 2011 to 2016 and depicts a dramatic contrast with the overall trend for the entire population. Examining the trend by education level reveals that the greatest increase in unemployment is among young people with a college degree or above, in contrast to the pattern in the first decade after 2000 when the unemployment rate was higher among those with a high school degree or less (KOSIS 2017).

FIGURE 1 ABOUT HERE

Another key feature of the youth labor market in Korea is that the labor force participation rate is higher than that of the overall population, but the employment rate is lower than that of the overall population, by 2.1 percentage point in 2016 (Figure 1). The youth employment rate was higher than that of the overall population until 2007, but the gap has since reversed and widened. In short, labor market conditions for youth in Korea are poor compared to other age groups, particularly for youths with a college degree or above. Despite the worsened labor market condition for Korean youth, especially for college graduates, the college entrance rate remains around 70 percent, indicating that skill mismatch and the “education bubble” in the labor market are critical policy concerns (Lee et al. 2014).

There has been wide academic discussion on the determinants of labor market outcomes among young college graduates. The literature on the transition from school to work, especially for college graduates, can be classified into two streams (Lee et al. 2015). The first stream focuses on the supply side of the labor market. Human capital theory (Becker 1975) emphasizes that the knowledge and skills accumulated through higher education

increase a worker's productivity in the labor market. The status attainment model (Blau and Duncan 1967) maintains that socioeconomic backgrounds such as parental education and household income can affect the labor market outcomes of college graduates by way of educational and occupational aspirations, in addition to their academic and mental abilities.

The other stream of research focuses on the demand side of the labor market. In the signaling model, both quantity and quality of applicant education signals their ability to a potential employer in the case of information asymmetry between applicants and employers (Spence 1973). In a similar setting of incomplete information, a worker's observable characteristics can provide useful information to potential employers who use the group average as a proxy for a worker's unobserved ability—a practice called statistical discrimination (Aigner and Cain 1977; Phelps 1972). In those models, the reputation of the university graduated from and the gender and age of a worker can inform employers and be important factors in determining labor market outcomes.

Based on such theoretical discussions, empirical research has examined the transition from school to work for college graduates in Korea (i.e., Lee et al. (2015) and Shim and Kim (2015) summarize earlier studies of Korean college graduates). However, most previous studies were based on a single cohort at a specific time point. To date, little attention has been paid to temporal changes in the labor market transitions of college graduates or the characteristics of those who experience particular difficulties in the labor market. In this study, we use data from the Graduate Occupational Mobility Survey (GOMS) to investigate how labor market experiences for Korean college graduates have changed over time and to identify the characteristics of the most vulnerable group in this difficult time of increasing labor market uncertainty. The rest of the paper proceeds as follows. In Section 2, we describe the data and our empirical strategy. In Section 3, we present our estimation results, and in Section 4, we discuss the implications of our findings and suggest future research.

Data and Empirical Strategy

Data

In this study, we use data from the Graduate Occupational Mobility Survey (GOMS), a nationally representative survey of college graduates in South Korea who graduated from either a two-year or four-year college. The GOMS records demographic characteristics of individuals and their labor market outcomes 18-24 months after college graduation.

Our sample consists of nine waves of the GOMS. The first cohort, the GOMS2005 cohort, graduated from college in August 2004 or February 2005. In a similar manner, we analyzed the GOMS2007 (second), GOMS2008, GOMS2009, GOMS2010, GOMS2011, GOMS2012, GOMS2013, and GOMS2014 (ninth) cohorts. The last cohort, GOMS2014, graduated from college in August 2013 or February 2014. For GOMS2014, the survey was conducted in September 2015; thus, surveys were conducted from September 2006 for GOMS2005 to September 2015 for GOMS2014, 18-24 months after the college graduation of each cohort.

We restricted our analytic sample to only four-year college graduates (72 percent of the survey participants). Two-year colleges in Korea mostly focus on vocational training, and the curriculum and contents of two-year (vocational) and four-year (academic) colleges are not comparable to each other even if they offer the same majors. Therefore, the students who enter each type of institution differ in their motivations and goals for attending. The most important reason for this restriction is that those who graduate from four-year colleges, especially those who major in the humanities and social sciences, face particular challenges in the current labor market and receive more policy attention because of their increasing unemployment rate.

We further restricted our analytic sample to those who graduated from a college within three to eight years of matriculating. The three-year restriction is to exclude transfer students who re-entered a college after attending another college for more than two years. Transfer students usually have different characteristics from those who enter a college as their first experience. We also excluded those who stayed in college for more than eight years in order to prevent possible selection bias by excluding those who greatly exceeded the normal length of college enrollment, which is up to 6 years, including 2 years of military service for males. We excluded those who attended a university of theology because, in many cases, it is not the main goal of those students to pursue a career in the labor market after college graduation. After dropping observations with missing values for the main variables in our analysis, our final analysis sample includes 98,245 college graduates from 9 different graduating cohorts.

Measures

Outcome Variable

To examine temporal changes in the early labor market outcomes of young college graduates in Korea, we use labor market status and working conditions at the time of survey as our main outcome variables. In each wave of the survey, respondents were asked to describe their main activities in the preceding week. Based on their answers, we classified respondents into four categories: 1) working (72.8 percent), 2) schooling (10.8 percent), 3) job searching (13.3 percent), and 4) other activities (3.1 percent). The other activities category contains those who declared that their main activities were being a full-time caregiver, housekeeping, preparing for a marriage, taking a break, etc. However, only 3.1 percent of our analytic sample belongs to this fourth category, 4.3 percent of female graduates and 2.1 percent of male graduates.

For those who worked last week, we noted whether they worked in a large establishment (more than 300 employees). If respondents declared that they worked as an employee, we also noted whether they were hired with a stable contract for more than one year. These two job characteristics are generally regarded as a good proxy for a preferable workplace that provides better working conditions, fringe benefits, and social insurance than smaller establishments.

Covariates

To identify differences in labor market outcomes depending on observable characteristics of respondents and to identify the most vulnerable groups over time, we considered demographic characteristics and socioeconomic backgrounds as well as university characteristics. In the analyses, we controlled for respondent age and gender at the time of the survey.

Parental education level is the higher of the mother's and father's level of education. In the GOMS, parental education level is divided into seven distinct levels: (1) no formal education; (2) graduated from elementary school; (3) graduated from middle school; (4) graduated from high school; (5) graduated from two-year college; (6) graduated from four-year university; (7) completed graduate program. For our analysis, we collapsed these seven levels into five by combining (1), (2), and (3) as a middle school graduate or below.

As another socioeconomic indicator during college, we used information on household income at the time of college entrance. In the GOMS, household income is composed of nine distinct levels in units of 10,000 Korean Won (approximately \$8.8): (1) none; (2) 100 or less; (3) 100-200; (4) 200-300; (5) 300-400; (6) 400-500; (7) 500-700; (8) 700-1000; (9) 1000 or more. For our analysis, we combined the levels of household income into seven levels by combining (1), (2), and (3) into an income level of 200 or below. (Please

note that in the GOMS2005, income category questionnaire was slightly different. Two income levels of (7) and (8) was combined into a level of 500-1000. We treated this income category in the GOMS2005 as comparable to the level (7) in other graduating cohorts. Even if we assume that the income category is comparable to the level (8), our results are almost the same.)

Using university names in the GOMS data and relevant statistics from the 2015 evaluation report of Korean universities conducted annually by the news company Joongang Ilbo, we categorized universities included in the GOMS data into five types. Type 1 contains top tier universities in Seoul, those consistently ranked 1 to 6 by the evaluation report since 2000. Graduates from those universities scored around the top two percent in the national college entrance examination. Type 2 includes the next five universities in Joongang Ilbo's 2015 evaluation report, which are also in Seoul. These universities belong to the top 40 among the 100 ranked universities across the nation. Type 3 includes the remaining 31 universities in Seoul. The 39 public universities outside Seoul are Type 4. Type 5 contains the 129 private universities outside Seoul. Among the universities outside Seoul, public universities are generally preferred to private ones.

Regarding college major, the GOMS provides seven broad categories: (1) humanities; (2) social sciences; (3) education; (4) engineering; (5) natural sciences; (6) medical sciences; (7) arts, music, and physical education.

Summary Statistics

Descriptive statistics for the sociodemographic characteristics of our sample are presented in Table 1. We first present the mean of each variable based on the pooled sample (GOMS2005–GOMS2014) and then present statistics for the individual graduating cohorts from 2005, 2010, and 2014 to show changes in the covariates over time. Because we

restricted the age of the sample to younger than 30 years, the average age of the pooled sample was 26.1 years at the time of the survey. Consistently across the graduating cohorts, about 55 percent of graduates were male and 45 percent were female.

For the entire sample, the proportion of parents with a four-year university degree or above was 36 percent. Due to educational expansion in Korea, that percentage grew from 31 percent in GOMS2005 to 45 percent in GOMS2014. Overall, 37 percent of respondents had a household income below 300, and the proportion of respondents whose household income was above 700 was about 9 percent of the entire sample. However, the income distribution varied across cohorts.

Of all respondents, 8-10 percent graduated from the top six universities in Seoul (Type 1), and about half graduated from private universities outside Seoul (Type 5). As to the distribution of college major, graduates who majored in engineering formed the largest group (27 percent), followed by social sciences majors (23 percent). The largest number of respondents was in GOMS2005; the remaining cohorts were all of a similar proportion.

TABLE 1 ABOUT HERE

Analysis Plan

Our goal is to analyze the labor market status and job quality of respondents about two years after graduation. Because labor market status is classified into three categories (1 – working; 2 – schooling; 3 – job searching), We use multinomial logit models to predict the likelihood of staying in school after college graduation and the likelihood of conducting a job search, relative to working in the labor market, by respondent demographics and family and university characteristics across graduating cohorts, as specified below.

$$Y_{it} = \beta_0 + \beta_1 Age_{it} + \beta_2 Male_{it} + \sum_{j=1}^4 \beta_{3j} 1 (PEdu_{it} = j) + \sum_{k=1}^6 \beta_{4k} 1 (Income_{it} = k) \\ + \sum_{m=1}^4 \beta_{5m} 1 (CollegeType_{it} = m) + \sum_{n=1}^6 \beta_{6n} 1 (Major_{it} = n) + \mu_t + e_{it}$$

where Y_{it} is the current activity among the three categories of respondent i from graduating cohort t . In the estimation, we include four dummy variables for parental education, using parents with a middle school degree or below as the reference group. We include six dummy variables for household income at the time of college entrance, with a household monthly income of 200 or below as the reference group. As mentioned earlier, we distinguished five types of universities, so we include four dummy variables, with Type 1 as the reference group. Regarding college major, we set humanities as the reference group and include six dummy variables. μ_t is a graduating cohort fixed effect to capture differences from the reference group, the 2005 graduating cohort. By including the cohort fixed effects, we try to account for varying economic conditions which is common to each graduating cohort. We first pooled the sample across all nine graduating cohorts and performed the multinomial regression model. Then we estimated this regression model separately for each graduating cohort to allow for differential degrees of relationship between the outcome variables and covariates.

To analyze whether a respondent worked with a stable contract for more than one year or worked in a large establishment, we applied a logit model to the dichotomous variable with the same specification as in the multinomial logit model above.

We first present coefficients and standard errors from the multinomial logit regressions as our main results. Then we consider the marginal effect for each control variable at the sample mean to assess the magnitude of the effect using the MARGINS post-estimation command in Stata. We also present the results by covariate as a figure for easier understanding.

Results

Current Labor Market Status

To investigate temporal changes in labor market outcomes in the medium term, we analyzed the labor market status of respondents at the time of the survey, 18-24 months after graduation, using the multinomial logit model. The temporal change in the proportion of graduates conducting a job search, in contrast to currently working, could reveal the difficulty of each graduating cohort in the labor market during the first two years after college graduation (Table 2). To make it easier to understand the estimation results, we calculated the marginal effect across different observable characteristics, presenting the results in Figure 2.

First, after controlling for other variables, the predictive margin for conducting a job search increased consistently over time, as shown in Panel A of Figure 2. For GOMS2007 cohort, the difference from the GOMS2005 cohort, the reference group, was less than 1.4 percentage points. For the GOMS2014 cohort, however, the difference from the GOMS2005 cohort had widened to about 5.0 percentage points. This result clearly shows the increasing difficulty for the most recent cohort in the deteriorating labor market conditions.

To determine who was most vulnerable in the worsening labor market environment, we provide the predictive margins for conducting a job search across several key characteristics. As presented in Panel D of Figure 2, we find a consistent difference in the probability of conducting a job search 18-24 months after college graduation by type of university. Compared to those who graduated from a Type 1 university, those who graduated from Type 2 universities experienced 2.5 percentage points greater chance of conducting a job search at the time of the survey. Graduates from a college outside Seoul experienced 5.7 percentage points greater chance of conducting a job search for both public universities (Type 4) and private universities (Type 5).

Although parental education does not show a systematic relationship with conducting a job search at the time of the survey (Panel B of Figure 2), monthly household income at the time of college entrance does show a meaningful correlation with conducting a job search. As household income increases, the marginal probability of conducting a job search monotonically decreases, with a reduced magnitude of about 5 percentage points for graduates in the top income category of 1000 or above compared to graduates with household income below 200 (Panel C of Figure 2).

In terms of college major (Panel E of Figure 2), those who majored in humanities, social sciences, or education had a higher probability of conducting a job search than those with majors such as engineering or medical sciences. The gap in the marginal probability of conducting a job search between a humanities major and a medical sciences major was 10.5 percentage points.

TABLE 2 ABOUT HERE

FIGURE 2 ABOUT HERE

Quality of Current Job

To examine temporal changes in the job quality of respondents' current jobs, we present estimation results from the logit model in columns (3) and (4) of Table 2. Compared with the graduating cohort of 2005, the GOMS2011, GOMS2012, and GOMS2014 cohorts show a significantly negative correlation with possession of a stable contract for more than one year. To better understand the economic meaning of these coefficients, we calculated the marginal effects of each covariate, and we present them in Table 3. As presented in column (4) of Table 3, household income is positively related with having a stable contract. College graduates from wealthy background with household income above 1,000 are more likely to have a stable job by 5.4 percentage points compared to their counterparts from household income lower than 200. Similar positive relationship was also found regarding college type. Compared to those who graduated from most prestigious universities (Type 1), those who graduated from private universities outside Seoul (Type 5) showed 3.6 percentage points lower chance to have a stable contract. In terms of college major, those who majored in humanities were found to have most difficulty in finding a stable job. Those who majored in engineering were more likely to have a stable contract by 8.5 percentage points compared to those who majored in humanities. There are also difference across graduating cohorts. For instance, the probability to work with a stable contract was lower by 3.6 percentage points for the GOMS2011 cohort and 3.7 percentage points for the GOMS2014 cohort compared with GOMS2005 cohort.

A similar association exists in terms of establishment size where a graduate worked. As household income increases, the marginal probability of working at a large establishment monotonically increases, reaching 5.1 percentage points for graduates in the top income category of 1000 or above compared to graduates with household income below 200. The difference in working at a large establishment is quite substantial across graduates from

different types of universities. Compared to those who graduated from a Type 1 university, those who graduated from Type 2 universities experienced 13.3 percentage points lower chance of working at a large establishment at the time of the survey. Graduates from a private universities outside Seoul (Type 5) experienced even 32.8 percentage points lower chance of working at a large establishment. Although fluctuated over time, recent graduating cohorts showed a lower chance of working at a large establishment. The marginal effects shows that the GOMS2013 cohort and GOMS2014 cohort were 3.0 percentage points and 3.9 percentage points, respectively, less likely to work at a large establishment than the GOMS2005 cohort.

In sum, the proportion of those who were searching for a job at the time of the survey, instead of working or staying in school for additional education, increased over time. In addition, even those who were employed 18-24 months after their college graduation experienced deteriorating job quality in terms of job stability and establishment size.

Variation by Graduating Cohort

To this point, we have presented estimation results based on the pooled sample, including dummy variables to distinguish each graduating cohort and examining temporal changes in labor market outcomes. Those analyses assume that the degree of correlation between each outcome variable and covariate is common across graduating cohorts. In other words, we have estimated the average effect across years. In Table 4, we present a multinomial regression for each cohort separately in order to assess potentially different magnitudes of correlation between labor market status and each covariate over time. We calculated the marginal effects, which we present in Table 4, and plot the marginal effects for each covariate in a separate panel in Figure 3.

TABLE 3 ABOUT HERE

TABLE 4 ABOUT HERE

FIGURE 3 ABOUT HERE

As seen in Panels B, C, and D of Figure 3, despite variations in the degree of association between each covariate and the marginal probability of conducting a job search, each level within the same covariate follows a similar trend and maintains the gap between levels. In terms of household income, the gap in the probability of conducting a job search was 5.7 percentage points lower in 2005 for graduates whose household income was above 1000 compared to those from households with incomes below 200, and that gap narrowed to 3.5 percentage points in 2014. Similar patterns are observed for other levels of household income. Regarding parental education, no systematic pattern emerges (Panel A of Figure 3).

However, as shown in Panel C of Figure 3, the gap between university types generally increased. Compared to those who graduated from a Type 1 university, graduates from a Type 5 university faced 5.3 percentage points higher marginal probability of conducting a job search in 2005, which increased to 8 percentage points in 2014. Although there was a fluctuation due to the business cycle, the gap between graduates from Type 2 (also Type 3 and Type 4) universities and those who graduated from Type 1 universities also widened.

Lastly, a growing gap between groups is also observed based on college major. In GOMS2014, those who majored in humanities were the highest proportion conducting a job search (23.1 percent) (Please see Appendix Table 1 for details). In contrast, the proportion conducting a job search was 6.8 percent among those who majored in medical sciences and 12.3 percent among those who majored in engineering. Overall, the ranking based on the proportion of respondents conducting a job search has been stable, but the gap widened unfavorably for those who majored in the humanities. The gap in the marginal probability of conducting a job search between a humanities major and a medical sciences major was 16.1

percentage points for GOMS2014 cohort, growing from 8.5 percentage points for GOMS2005 cohort.

Conclusion

In this study, we investigated how the labor market experiences of Korean college graduates have changed over time and identified characteristics of the group most vulnerable in this difficult time of increasing labor market uncertainty using nine different graduating cohorts from the GOMS collected from 2006 to 2015, 18-24 months after college graduation.

The proportion of those who were searching for a job, rather than working or staying in school, increased over time. Even among those who were employed at the time of the survey, job quality deteriorated in terms of job stability and establishment size. Comparing results separately by year shows a growing gap in the labor market outcomes by type of graduating university and college major. Those who graduated from less preferred universities in the hierarchical structure of Korean higher education and those who majored in the humanities, social sciences, or education faced particularly significant difficulties over time.

Although this study carefully describes temporal changes in several important labor market outcomes among young graduates from four-year universities according to demographic, family, and university background, it has several limitations. First, in thinking about the transition from school to work, it is important to examine the process of obtaining a first job and its quality right after college graduation. Unfortunately, in the GOMS survey, a graduate who maintained their first job until the survey reported job conditions that were potentially 18-24 months after their first day at their workplace. In that time, they might have experienced significant changes, even in the same workplace. Therefore, we focused directly on temporal changes in labor market outcomes 18-24 months after graduation.

Second, we narrowed our focus to those graduating from four-year universities in order to produce a homogeneous and comparable analytic sample. However, a more comprehensive understanding of the overall situation of the youth labor market will require an analysis of those who graduated from two-year colleges and those who chose not to go to college.

Lastly, future research with better data is warranted to examine more long-term labor market transitions and accompanying outcomes. With regard to this point, in November 2015, GOMS conducted a long-term follow-up survey for the cohorts from 2005, 2007, and 2008 the data will be available to the public in due course. This will provide an opportunity to better understand the labor market transitions and outcomes of young college graduates within a 10-year window of college graduation.

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Table 1 Summary Statistics of the Respondents

Variable	G2005~G2014	G2005	G2010	G2014
Age	26.10	25.84	26.31	25.79
Male	0.55	0.54	0.55	0.55
Parental education				
Middle school or below	0.14	0.23	0.15	0.06
High school	0.44	0.43	0.44	0.43
2-year college	0.05	0.03	0.05	0.05
University	0.27	0.22	0.25	0.35
Graduate school	0.09	0.09	0.10	0.10
Household income				
~200	0.14	0.20	0.13	0.09
200~300	0.23	0.31	0.23	0.16
300~400	0.24	0.20	0.25	0.23
400~500	0.18	0.14	0.18	0.28
500~700	0.12	0.12	0.13	0.14
700~1000	0.05		0.06	0.07
1000~	0.04	0.03	0.04	0.04
College type				
Type 1	0.09	0.10	0.09	0.08
Type 2	0.05	0.08	0.05	0.05
Type 3	0.13	0.14	0.12	0.11
Type 4	0.23	0.20	0.24	0.26
Type 5	0.50	0.49	0.49	0.49
College major				
Humanities	0.13	0.12	0.12	0.12
Social sciences	0.23	0.25	0.26	0.18
Education	0.09	0.09	0.09	0.10
Engineering	0.27	0.29	0.25	0.28
Natural sciences	0.15	0.14	0.14	0.17
Medical sciences	0.04	0.03	0.04	0.05
Arts, music & physical	0.10	0.07	0.09	0.11
Graduating cohort				
2005	0.14	1.00	0.00	0.00
2007	0.11	0.00	0.00	0.00
2008	0.11	0.00	0.00	0.00
2009	0.10	0.00	0.00	0.00
2010	0.11	0.00	1.00	0.00
2011	0.11	0.00	0.00	0.00
2012	0.10	0.00	0.00	0.00
2013	0.11	0.00	0.00	0.00
2014	0.11	0.00	0.00	1.00
Observation	98,245	13,613	10,735	11,141

Table 2 Current Status and Job Quality 18–24 Months After College Graduation

	School (1)		Search (2)		Stable Job (3)		Large Establishment (4)	
	Coefficient	S.E.	Coefficient	S.E.	Coefficient	S.E.	Coefficient	S.E.
Age	-0.284***	(0.008)	-0.020***	(0.007)	0.088***	(0.009)	-0.031***	(0.007)
Male	0.684***	(0.030)	-0.045*	(0.027)	0.254***	(0.034)	0.331***	(0.026)
Parental education (Reference: Middle school or below)								
High school	0.130***	(0.037)	0.002	(0.029)	0.098***	(0.036)	0.055*	(0.028)
2-year college	0.189***	(0.061)	0.073	(0.049)	0.079	(0.063)	0.149***	(0.048)
University	0.435***	(0.039)	0.013	(0.033)	0.111***	(0.041)	0.233***	(0.031)
Graduate school	0.835***	(0.046)	0.083*	(0.043)	-0.047	(0.053)	0.249***	(0.040)
Household income (Reference: Less than 200)								
200~300	0.039	(0.039)	0.060*	(0.032)	0.189***	(0.038)	0.055*	(0.031)
300~400	0.042	(0.039)	-0.024	(0.032)	0.257***	(0.039)	0.095***	(0.032)
400~500	0.079*	(0.041)	-0.094***	(0.035)	0.378***	(0.043)	0.145***	(0.034)
500~700	0.093**	(0.044)	-0.313***	(0.040)	0.453***	(0.048)	0.194***	(0.037)
700~1000	0.152***	(0.056)	-0.316***	(0.056)	0.457***	(0.067)	0.316***	(0.049)
1000~	0.218***	(0.058)	-0.446***	(0.063)	0.533***	(0.075)	0.295***	(0.051)
College type (Reference: Type 1 - Top 6 universities in Seoul)								
Type 2	-0.325***	(0.049)	0.224***	(0.060)	-0.172**	(0.074)	-0.594***	(0.044)
Type 3	-0.660***	(0.040)	0.339***	(0.048)	-0.351***	(0.060)	-1.052***	(0.037)
Type 4	-0.846***	(0.036)	0.438***	(0.045)	-0.248***	(0.058)	-1.443***	(0.035)
Type 5	-1.055***	(0.033)	0.417***	(0.043)	-0.382***	(0.054)	-1.613***	(0.031)
College major (Reference: Humanities)								
Social sciences	-0.840***	(0.043)	-0.055*	(0.031)	0.599***	(0.040)	0.124***	(0.032)
Education	-1.271***	(0.061)	-0.003	(0.038)	0.343***	(0.048)	-1.407***	(0.056)
Engineering	0.144***	(0.036)	-0.538***	(0.034)	0.850***	(0.043)	0.787***	(0.032)
Natural sciences	0.652***	(0.037)	-0.160***	(0.035)	0.181***	(0.042)	0.177***	(0.036)
Medical sciences	-0.607***	(0.066)	-1.193***	(0.073)	0.647***	(0.066)	0.974***	(0.046)
Arts, music & physical	-0.221***	(0.046)	-0.443***	(0.041)	-0.311***	(0.042)	-0.610***	(0.045)
Graduation cohort (Reference: 2005)								
2007	0.066	(0.042)	0.144***	(0.041)	0.120**	(0.050)	-0.166***	(0.036)
2008	-0.010	(0.043)	0.092**	(0.041)	-0.028	(0.048)	-0.269***	(0.036)
2009	0.081*	(0.044)	0.263***	(0.041)	0.189***	(0.053)	-0.226***	(0.037)
2010	-0.074*	(0.044)	0.149***	(0.040)	-0.002	(0.049)	-0.134***	(0.036)
2011	-0.171***	(0.045)	0.181***	(0.040)	-0.336***	(0.046)	0.054	(0.035)
2012	0.050	(0.045)	0.410***	(0.040)	-0.241***	(0.049)	-0.097**	(0.038)
2013	0.024	(0.042)	0.432***	(0.039)	-0.001	(0.050)	-0.173***	(0.037)
2014	-0.049	(0.042)	0.428***	(0.039)	-0.337***	(0.047)	-0.227***	(0.037)
Constant	5.608***	(0.216)	-1.472***	(0.195)	-0.728***	(0.247)	0.551***	(0.186)
Observation	98,245				70,770		72,549	

Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table 3 Marginal Probability (Pooled Sample)

	Work	School	Search	Stable Job	Large Establishment
Parental education (Reference: Middle school or below)					
High school	-0.009	0.010	-0.001	0.010	0.009
2-year college	-0.021	0.014	0.006	0.008	0.025
University	-0.034	0.038	-0.004	0.011	0.040
Graduate school	-0.081	0.084	-0.003	-0.005	0.043
Household income (Reference: Less than 200)					
200~300	-0.010	0.003	0.007	0.022	0.009
300~400	-0.001	0.004	-0.003	0.029	0.016
400~500	0.004	0.008	-0.012	0.041	0.025
500~700	0.023	0.012	-0.035	0.047	0.033
700~1000	0.018	0.018	-0.036	0.048	0.055
1000~	0.023	0.027	-0.049	0.054	0.051
College type (Reference: Type 1 - Top 6 universities in Seoul)					
Type 2	0.024	-0.050	0.025	-0.015	-0.133
Type 3	0.047	-0.090	0.043	-0.032	-0.228
Type 4	0.052	-0.109	0.057	-0.022	-0.300
Type 5	0.069	-0.126	0.057	-0.036	-0.328
College major (Reference: Humanity)					
Social science	0.058	-0.061	0.003	0.065	0.021
Education	0.066	-0.080	0.014	0.041	-0.156
Engineering	0.039	0.024	-0.063	0.085	0.153
Natural science	-0.051	0.085	-0.034	0.023	0.030
Medical	0.144	-0.039	-0.105	0.069	0.195
Arts, music & physical	0.064	-0.014	-0.049	-0.046	-0.085
Graduating cohort (Reference: 2005)					
2007	-0.019	0.005	0.014	0.011	-0.029
2008	-0.007	-0.002	0.009	-0.003	-0.046
2009	-0.032	0.004	0.027	0.017	-0.039
2010	-0.008	-0.009	0.016	-0.000	-0.024
2011	-0.004	-0.017	0.021	-0.036	0.010
2012	-0.045	-0.001	0.046	-0.025	-0.017
2013	-0.046	-0.003	0.049	-0.000	-0.030
2014	-0.040	-0.010	0.050	-0.037	-0.039
Observations		98,245		70,770	72,549

Table 4 Marginal Probability of Conducting a Job Search by Graduating Cohort

	G2005	G2007	G2008	G2009	G2010	G2011	G2012	G2013	G2014
Parental education (Reference: Middle school or below)									
High school	-0.005	0.006	-0.001	-0.013	0.012	-0.002	0.003	-0.005	-0.007
2-year college	-0.034	0.023	-0.020	-0.019	0.004	0.025	0.025	0.021	0.012
University	-0.003	0.003	-0.012	-0.008	0.026	0.001	0.014	-0.018	-0.026
Graduate school	-0.012	-0.010	0.014	0.007	0.021	-0.004	-0.008	-0.022	-0.001
Household income (Reference: Less than 200)									
200~300	0.007	-0.010	-0.001	-0.005	0.018	0.000	0.035	0.026	0.001
300~400	-0.018	-0.008	-0.005	0.001	0.010	-0.022	0.019	0.002	0.007
400~500	-0.026	-0.021	-0.015	-0.014	0.006	-0.030	0.002	0.007	-0.004
500~700	-0.036	-0.050	-0.034	-0.054	-0.018	-0.049	-0.030	-0.025	-0.019
700~1000		-0.064	-0.055	-0.045	-0.036	-0.026	-0.027	-0.008	-0.030
1000~	-0.057	-0.070	-0.035	-0.061	-0.063	-0.054	-0.042	-0.024	-0.035
College type (Reference: Type 1 - Top 6 universities in Seoul)									
Type 2	0.019	0.033	0.018	0.020	-0.012	0.048	0.043	0.025	0.034
Type 3	0.028	0.040	0.032	0.060	0.016	0.038	0.057	0.063	0.055
Type 4	0.043	0.088	0.041	0.060	0.033	0.063	0.071	0.062	0.063
Type 5	0.053	0.070	0.049	0.049	0.028	0.051	0.062	0.073	0.080
College major (Reference: Humanities)									
Social sciences	0.017	0.025	0.015	0.006	0.028	0.003	0.004	-0.021	-0.048
Education	-0.013	0.062	0.029	0.052	0.082	0.026	0.022	-0.031	-0.069
Engineering	-0.055	-0.053	-0.058	-0.052	-0.039	-0.054	-0.062	-0.096	-0.099
Natural sciences	-0.022	-0.032	-0.024	-0.033	-0.014	-0.029	-0.022	-0.065	-0.064
Medical sciences	-0.085	-0.091	-0.096	-0.120	-0.084	-0.103	-0.096	-0.112	-0.161
Arts, music & physical	-0.053	-0.015	-0.038	-0.021	-0.026	-0.047	-0.058	-0.090	-0.090
Observations	13,613	10,361	10,961	9,828	10,735	11,285	9,533	10,788	11,141

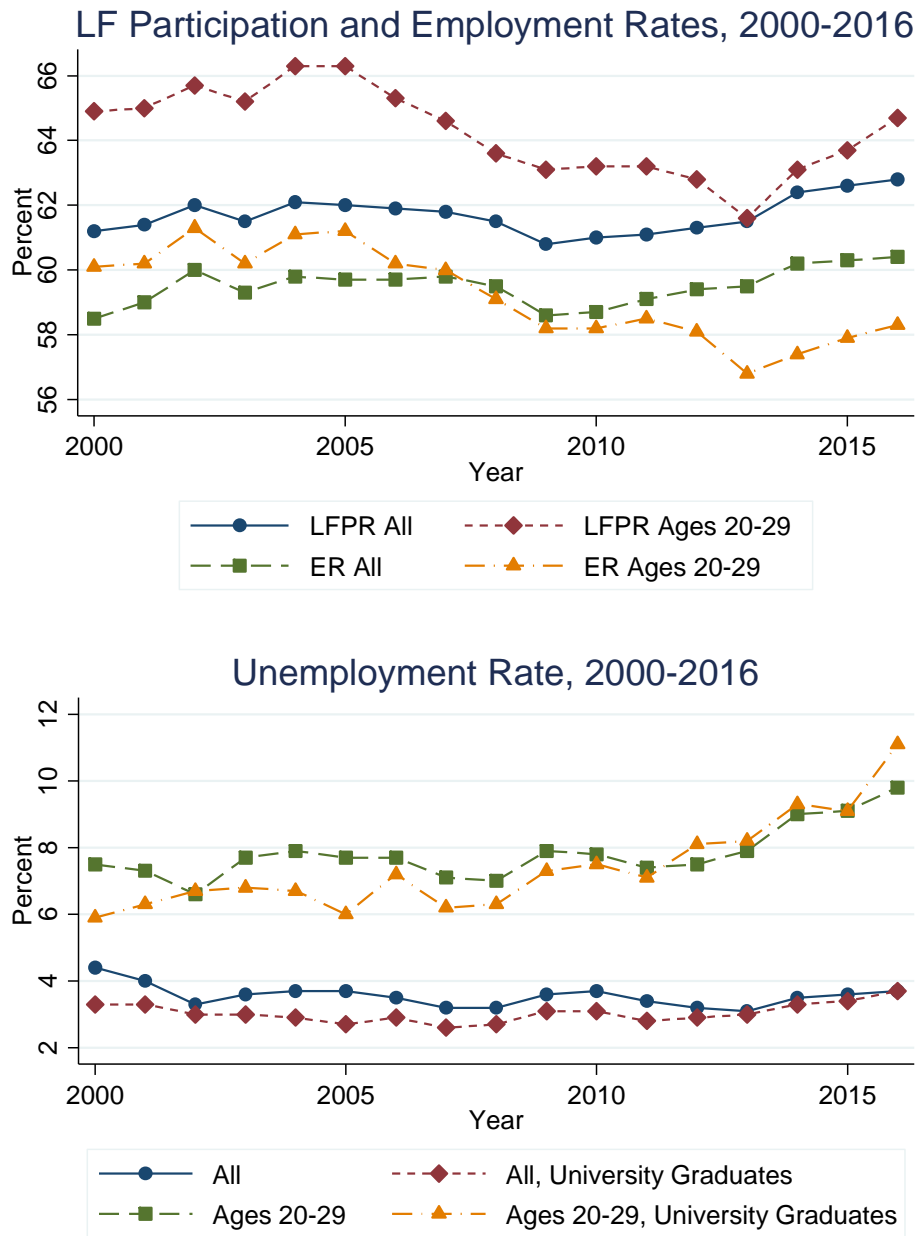


Figure 1 Labor Market Statistics in Korea, 2000–2016

Contrasts of Predictive Margins

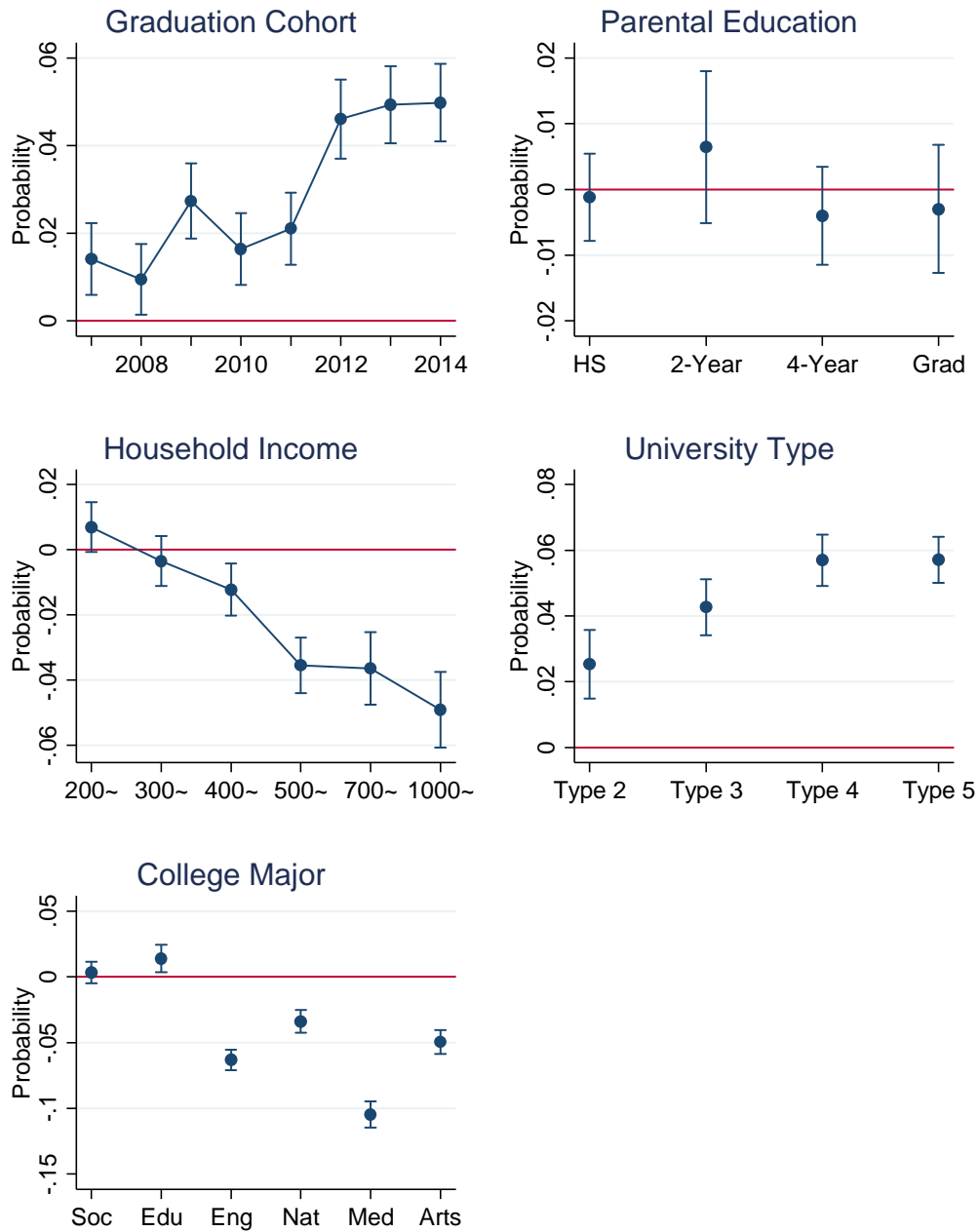


Figure 2 Predictive Margins of Conducting a Job Search at the Time of the Survey (Pooled Sample from GOMS2005–GOMS2014)

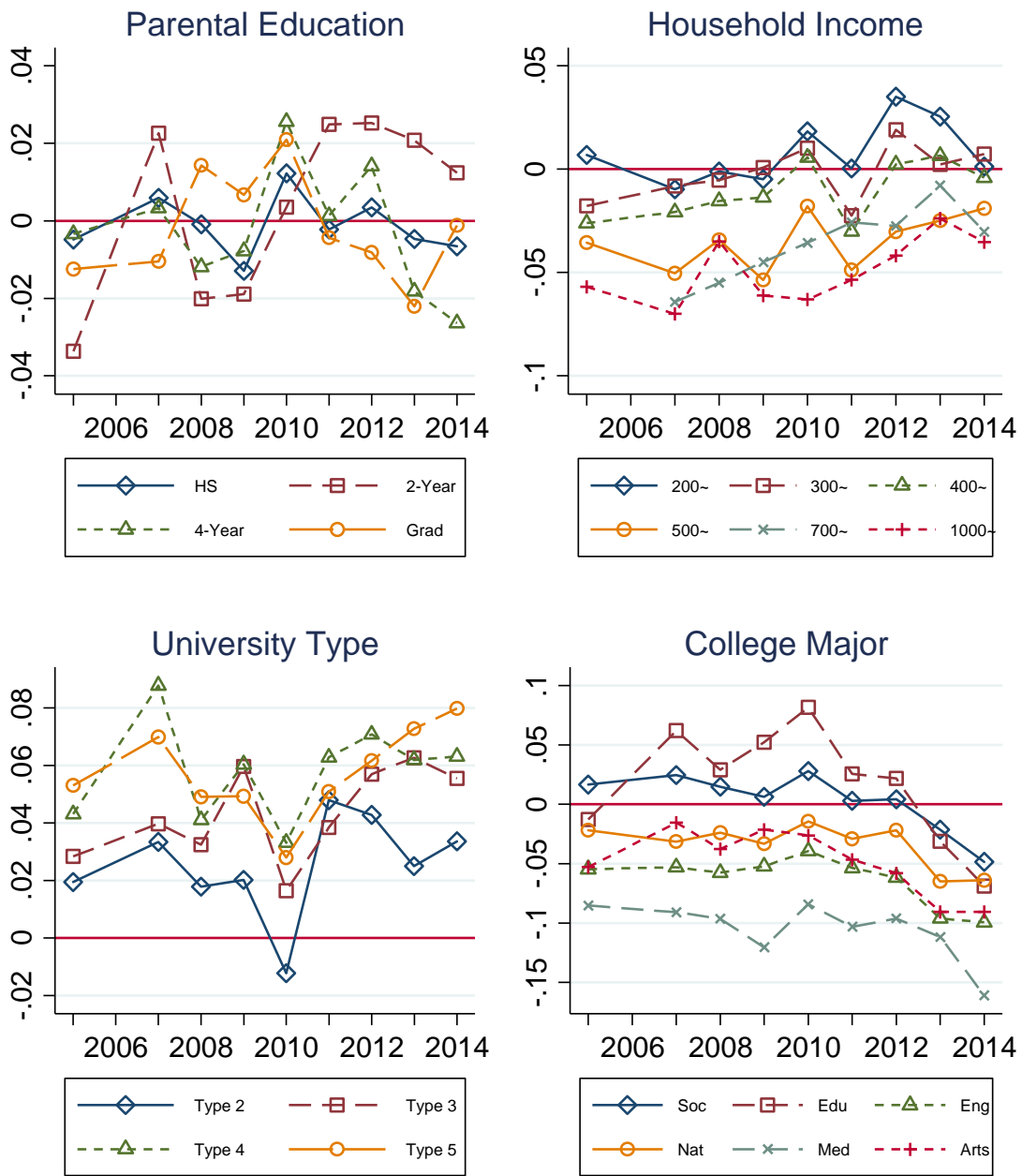


Figure 3 Predictive Margins of Conducting a Job Search by Graduating Cohort

Appendix

Table A1 Distribution of Current Status at the Survey by Characteristics

	All			G2005			G2010			G2014		
	Work	School	Search	Work	School	Search	Work	School	Search	Work	School	Search
Parental education												
Middle school or below	77.9	8.2	13.9	78.7	8.6	12.7	81.0	6.9	12.1	76.2	6.7	17.1
High school	76.4	9.3	14.2	77.3	10.8	11.8	78.1	8.5	13.4	74.0	9.4	16.6
2-year college	75.0	10.0	15.0	80.4	10.8	8.8	77.9	10.2	11.9	71.2	10.2	18.6
University	73.7	13.4	13.0	75.2	14.3	10.5	74.6	12.0	13.4	72.7	13.7	13.6
Graduate school	68.9	19.1	12.0	72.0	18.9	9.1	71.6	16.7	11.8	62.5	22.6	14.9
Household income												
~200	76.2	9.5	14.3	77.7	9.7	12.6	79.5	7.9	12.6	72.0	11.4	16.7
200~300	75.0	9.9	15.2	75.3	11.3	13.4	77.0	8.4	14.6	73.5	10.1	16.4
300~400	75.0	10.6	14.5	77.2	12.1	10.7	76.8	9.1	14.1	72.6	10.6	16.8
400~500	74.6	11.7	13.7	77.3	12.9	9.8	74.8	11.8	13.5	72.5	11.7	15.8
500~700	75.8	13.3	10.9	77.5	13.8	8.7	76.4	12.4	11.2	71.7	14.6	13.7
700~1000	74.0	15.1	10.9				77.5	13.4	9.1	70.8	17.1	12.1
1000~	75.0	15.8	9.2	79.0	14.6	6.4	80.4	13.2	6.4	71.7	16.4	11.9
College type												
Type 1	68.0	23.8	8.1	71.5	21.5	7.0	70.0	20.1	9.9	61.3	30.0	8.6
Type 2	73.2	15.3	11.5	76.0	14.6	9.4	77.0	13.4	9.6	67.2	19.6	13.2
Type 3	75.2	11.8	13.0	76.9	13.0	10.0	77.3	10.4	12.3	70.0	14.5	15.5
Type 4	74.0	10.8	15.2	77.2	10.3	12.5	74.3	11.1	14.6	73.7	10.8	15.5
Type 5	77.1	8.6	14.3	77.8	9.7	12.5	79.5	7.3	13.2	74.5	8.7	16.8
College major												
Humanities	72.0	11.5	16.5	73.6	12.9	13.5	75.7	11.1	13.2	66.0	11.0	23.1
Social sciences	78.3	5.2	16.5	80.0	5.1	14.9	78.7	5.6	15.8	76.4	5.7	17.9
Education	76.9	4.3	18.8	83.1	3.8	13.2	72.4	5.1	22.5	80.0	4.2	15.9
Engineering	76.0	13.9	10.1	76.0	15.7	8.3	78.7	12.0	9.2	72.7	14.9	12.3
Natural sciences	65.7	21.2	13.1	67.0	21.2	11.8	69.9	18.3	11.7	61.1	23.1	15.8
Medical sciences	85.2	8.7	6.1	86.6	8.2	5.3	84.0	11.2	4.8	87.3	5.9	6.8
Arts, music & physical	78.1	10.0	11.9	81.2	10.3	8.5	81.5	7.7	10.8	75.9	9.9	14.2
Overall	75.1	11.2	13.7	76.8	11.8	11.4	77.0	10.1	12.9	72.4	12.1	15.5