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*Research Article*

## **The changing role of employment status in marriage formation among young Korean adults**

**Keuntae Kim**

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## **The changing role of employment status in marriage formation among young Korean adults**

**Keuntae Kim<sup>1</sup>**

### **Abstract**

#### **BACKGROUND**

Despite a persistent decline in Korea's marriage rates over the past three decades, there is a striking lack of research on the transition to marriage among young Koreans. Similarly, few studies have examined how economic determinants have evolved over the past several decades, even as the Korean social and socioeconomic structure has undergone substantial transformation.

#### **METHODS**

This paper examines changes over time in the determinants of marriage formation in Korea, using employment history data from the Korean Labor and Income Panel Study (KLIPS) on three cohorts of young adults born in the 1950s–1970s.

#### **RESULTS**

Results indicate that, for women, the marital implications of being employed reversed over the three decades examined. While working decreased the odds of getting married for women born in the 1950s, it had no statistically significant effect for those born in the 1960s, and it strongly increased the odds of marriage for the most recent (1970s) cohort of women. For their part, men's employment not only continued to positively predict getting married over the three decades, but its impact became stronger with each cohort, so that a man's odds of transition to first marriage was most strongly tied to his employment status for those born in the 1970s, as compared to earlier cohorts.

#### **CONTRIBUTION**

This study contributes to the literature by addressing the relationship between marriage timing and economic resources using more direct measures, examining the association between mandatory military service and marriage formation, and testing if determinants of marriage timing may evolve over time in Korea.

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## 1. Introduction

A large body of research in the United States and Europe has examined the effect of economic resources, such as income and employment status, on the timing of entry into marriage and cohabitation among young adults (Oppenheimer, Kalmijn, and Lim 1997; Sweeney 2002; Xie et al. 2003; Domínguez-Folgueras and Castro-Martín 2008; Bracher and Santow 1998; Jalovaara 2012). These studies show that young adults' economic resources have a significant impact on the likelihood of union formation, and extend our understanding of marriage divergence between those with higher and lower levels of these resources. Furthermore, comparative studies (Blossfeld 1995; Ono 2003) have demonstrated that cross-national variations in social institutions, such as the education system and labor market, are significantly associated with differing patterns in the process of transition to marital union.

Though a growing number of studies on this topic have looked beyond the Western world, still missing from the literature is an examination of marriage entry among the young population in Korea. Over the past several decades Korea has undergone remarkable economic development, and is now economically comparable to many countries in Europe and North America. Furthermore, as in many Western countries, younger Koreans' marriage formation has transformed significantly: between 1981 and 2014 the mean age at first marriage increased by 6 years for men (from 26.4 to 32.4) and 7 years for women (from 23.0 to 29.8), and between 1980 and 2010 the rate of those not marrying by age 40 increased from 4.7% to 37.9% for men and from 1.9% to 20.7% for women (Statistical Research Institute 2013). What makes these trends particularly interesting is the context in which they occur. Alongside the changes in marriage, women's educational attainment and labor force participation have increased rapidly, while young men's economic position has deteriorated. Furthermore, the labor market, education system, and cultural norms of Korea are distinctive. Taken together, these issues make the experience of young people in Korea interesting to compare with that elsewhere in the world. This paper provides this comparison by examining the determinants of marriage entry in Korea over three decade-long cohorts.

## 2. Background

Both economic and sociological theories of marriage have long emphasized the role of economic resources, such as education and labor market standing, on union formation. The independence theory of marriage (Becker 1981) emphasizes the concepts of specialization and exchange, postulating that marriage is a voluntary union of rational individuals with the aim of maximizing utility, and proffers that it can be formed only if

benefits outweigh costs. Becker's theoretical framework also assumes that men are generally better positioned in the labor market than women and that women tend to have relative advantages over men in the domestic sphere, because of a normative socialization process. Thus, according to the theory, benefits from marriage are maximized when the husband is specialized in market production and the wife in household tasks. This framework further predicts that women's increasing levels of educational attainment and labor force participation could substitute for the financial support or contribution of a husband and result in a decrease in the gains of marriage for each partner and the desirability of marriage. Becker's theory suggests that having a good position in the labor market will likely facilitate marriage among men but reduce marriage among women.

On the other hand, Oppenheimer's (1988) theory of marriage timing suggests that a woman's high earnings are potentially associated positively with her attractiveness as a marriage partner, particularly after each has completed school, started a job, and reduced uncertainty about their future work roles. Accordingly, in most industrialized countries young men's labor-market position has deteriorated substantially over the past several decades, largely owing to the shift toward a professionalized occupational structure, a decline in well-paying manufacturing jobs, and an increase in more precarious jobs. Men's deteriorating labor market position has reduced specialization gains and made it increasingly difficult to meet the minimally required economic standards for entering marriage (Oppenheimer 1994). Furthermore, Oppenheimer argues that, contrary to Becker's claim regarding the gendered division of labor, wives in the past always worked for pay when circumstances required, and specialization in marriage is an inflexible and risky strategy for a nuclear family in today's world (Oppenheimer 1997). Given the current labor market context in Korea, characterized by high rates of unemployment, underemployment, and precarious jobs (Kim and Shin 2008; Shin 2012), the dual-earner strategy has become the most rational option for young couples and can be seen as insurance against future risk of income loss. Alongside these societal transformations, women's earnings have become increasingly important for marriage, while men's earnings may have become somewhat less important.

Erosion in role differentiation by gender implies that the association between economic resources and union formation may have changed (Oppenheimer 1997; Ono 2003; Sweeney 2002). As the dual-earner family has become more widely accepted, people may prefer a higher standard of living or may value a wife's economic resources as a way to reduce the financial risks of specialization (Oppenheimer 1997). Meanwhile, the wife's economic contribution makes the husband's economic resources comparatively less crucial for the household's economic survival, thereby lessening the importance of men's economic resources to his attractiveness as a marriage candidate

(Sweeney and Cancian 2004). These shifts in partnership preferences imply that the positive effect of women's economic standing on the chances of marriage entry has strengthened over time.

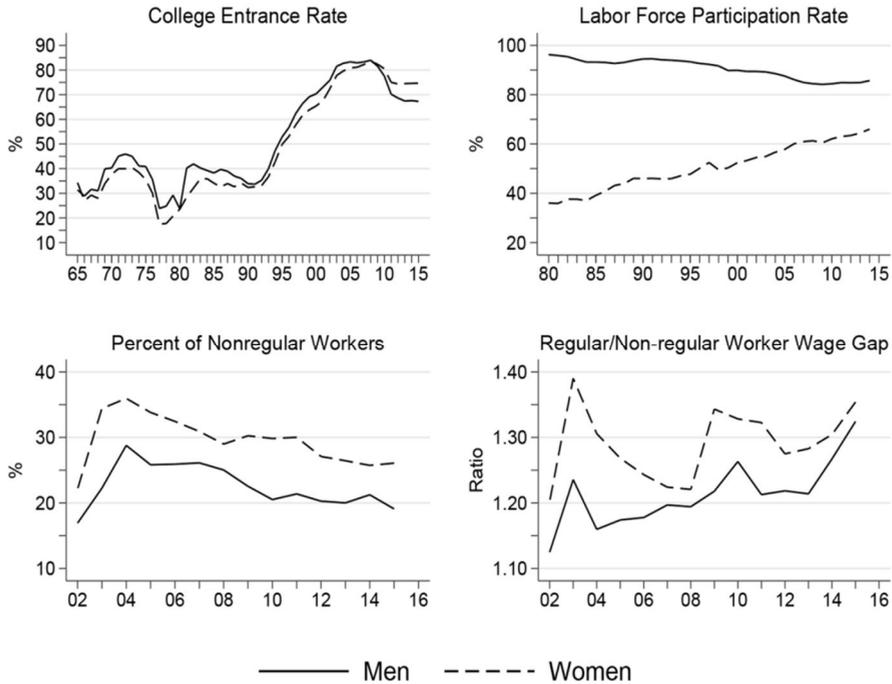
It is important to note that Oppenheimer believes that the independence theory is basically about non-marriage and not about delays in marriage. She maintains that a woman's greater economic resources increase her incentives and capacity to prolong her search for a spouse in order to find a more precise match (Oppenheimer 1988). A number of previous studies based on individual-level data have shown that women's increasing economic resources do not lead to a retreat from marriage, but to the postponement of it (Kalmijn 2011; Oppenheimer 1997; Park, Lee, and Jo 2013).

In sum, Becker's independence theory is based on a clearly defined and deeply entrenched gender division of labor within the family. Therefore, in a social setting where individuals and organizations operate assuming a gendered division of work within the family, women with higher earnings potential might be discouraged from entering marriage because their gains from marriage would decline. Conversely, Oppenheimer asserts that a strict gendered division of labor has never existed in reality and is becoming an increasingly risky strategy in modern society. She also suggests that both men and women will be positively evaluated by potential partners if they are able to contribute economically to the household.

### **3. Socioeconomic context of young adults in Korea**

The changing socioeconomic conditions faced by young Korean adults are illustrated in Figure 1. Over the past seven decades Korea has experienced a dramatic expansion of education at a rate unmatched by other Asian countries (Kim and Kim 2015). Both women and men have improved their rate of advancement to tertiary education, particularly since the early 1990s. The rate of advancement to college education reached its peak at 83.8% in 2008, and it appears that this trend is largely driven by the increasing number of students who graduated from vocational and technical high schools and entered junior colleges and universities, particularly after the financial crisis in the late 1990s. Regarding gender, men have historically had a higher rate of college entrance than their female counterparts but a crossover occurred in 2009. Since then women have entered college at a higher rate than men, and it appears that the crossover is largely due to a decline in men's matriculation. In 2015 the college entrance rate was 74.6% for females and 67.3% for males.

**Figure 1: Gender gap trends by year for Korean college entrance rate, labor force participation rate (aged 25–34), proportion of non-regular workers (aged 25–34), and ratio of regular to non-regular workers' wages (aged 25–34), 1965–2015**



Sources: Statistical Yearbook of Education (1965-2015), Korean Educational Development Institute; OECD Statistics; Economically Active Population Survey August Supplements, Korea Statistical Information Service.

Note: College entrance is measured as enrolling in a Korean accredited college or university at any point during the calendar year. Labor force participation is measured as being employed for pay or actively looking for work at least one day during the calendar year. The percentage of non-regular workers is measured as the share of the Korean labor force who are non-regular wage workers, which includes limited-term workers, part-time workers, and atypical workers, subcontractors, home workers, and daily workers, but excludes those who do not earn a wage, such as self-employed or unpaid family workers. The wage gap is measured as the difference in median monthly wage between regular workers and non-regular workers.

With the improvement in women's education and earnings potential, women's attachment to the labor force has changed dramatically. According to Organisation for Economic Co-operation and Development (OECD) statistics, in 1980 only one in three women of prime marriage age (i.e., between 25 and 34) was participating in the labor

market, compared to 96% of men (see the upper right panel in Figure 1). Since then, women's labor force participation rate has increased consistently, while the rate for men has declined. Even during the economic turbulence in the late 1990s women's labor force participation rate increased compared to men's declining rate. However, it should be noted that, despite this remarkable progress, Korean women still show a relatively low level of labor force participation compared to other industrialized countries: in 2014 the female labor force participation rate in Korea was the seventh lowest among OECD countries (OECD 2015). Furthermore, female labor force participation rate by age displays an M-shaped pattern in Korea, which suggests that a large fraction of women leave the labor market upon marriage and childbearing and then return after their children reach school age. This implies that a strongly gendered division of labor in work and family roles prevails (Lee, Jang, and Sarkar 2008).

Employment has a special place in the Korean ethos. Yet, as a number of past studies in other countries have found (Fukuda 2013; Kalmijn 2011; Ono 2003; Oppenheimer 1997; Piotrowski, Kalleberg, and Rindfuss, 2015), the instability of the youth labor market in Korea has increased considerably over the past several decades in comparison to other OECD countries. In particular, the magnitude of the increase in labor precariousness appears to be particularly pronounced in Korea since the economic crisis of the late 1990s. Precarious work refers to economic insecurity or unpredictability due to the changing nature of work itself or changing labor regulations. As illustrated in the lower left panel in Figure 1, the proportion of non-regular workers, which includes limited-term workers, part-time workers, and atypical workers such as dispatched workers, subcontract workers, special independent workers, home workers, and daily workers (Shin 2012), reached its peak in 2004 when 28.8% of men aged between 25 and 34 and 36.0% of women in the same age group fell into these categories.<sup>2</sup> From 2004 until recently, except during the 2008 economic recession, the proportion of non-regular workers decreased. Nonetheless, about one in five young men and one in four young women of prime marriage age were non-regular workers in 2015, possibly contributing to the significant instability of the economic foundation for marriage of young Koreans in recent years.

The substantial increase in the number of precarious workers resulted in increasing wage inequality and a rise in the number of working poor. The wage gap between regular and non-regular workers, among both young men and young women, has widened over time, despite the declining proportion of non-regular workers (see lower right panel in Figure 1). When the wage gap between regular and non-regular workers

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<sup>2</sup> Due to the economic and political significance of non-regular workers, there were serious and extended disputes between the government and labor organizations as to the definition of the term (Shin 2012). Only in July 2002 was a new definition of non-regular workers established, and official statistics for them are therefore only available after 2002. Here, the percentage of non-regular workers applies only to wage workers, leaving out non-wage workers such as the self-employed and unpaid family workers.

is adjusted for inflation to 2015 values, male regular workers earned, on average, 226,313 KRW (roughly 183 USD) more per month than their non-regular counterparts in 2002. Female regular workers earned 259,602 KRW (approximately 211 USD) more than their non-regular counterparts in the same year. In relative terms, male and female regular workers earned about 12.5% and 20.2% more, respectively, than their non-regular counterparts. However, the gap between these two groups of workers grew over time, and the discrepancy reached 610,517 KRW (» 495 USD) and 547,981 KRW (» 444 USD) per month for men and women, respectively, in 2015. The ratios between the two groups indicated that male and female regular workers earned 32.4% and 35.4% more, respectively, than their non-regular counterparts. The rate of increase appears to have been accelerating since the economic downturn in the late 2000s. Moreover, though males and females show similar trends over time, in the early 2000s the wage gap between non-regular and regular female workers was greater than that observed among their male counterparts, while in the later 2000s it became larger among males than females.

The negative effects of the transforming economic structure have also hit particularly hard those young adults who have not yet established themselves in the labor market. One recent study estimated that about 47.4% of young adults aged between 20 and 35 are on the verge of falling into the working-poor strata (Kim et al. 2012). The working-poor wage rate is defined as the combination of the incomes of those who earn below the median level among the employed, unemployed, jobseekers, and those who are precariously employed and likely to become poor in the near future, such as temporary workers, daily workers, and unpaid family workers. In short, this result implies that nearly half of Korean young adults, who are of prime marriageable age, are at risk of falling into poverty at any time. This is mainly related to the fact that many young people start their career with stopgap jobs (Oppenheimer and Kalmijn 1995) that are meant to be temporary and therefore pay low wages with little protection.

Past literature consistently suggests that young adults in such stopgap jobs are likely to postpone marriage and family-building because they are not yet settled in their careers and may not be able to find a suitable match in the marriage market. Indeed, there is ample evidence that in the context of the rapid expansion of higher education, the shift toward a knowledge-based economy, and increasing economic insecurity and inequality, the likelihood of transition to marital life for Korean men with low socioeconomic resources has increasingly deteriorated, relative to their counterparts with a regular job and college degree. “Sampo generation” (Hwang 2011), similar to the “Satori generation” (Lee 2016) in Japan, is a newly coined term that refers to a generation of people who forgo three things – dating, marriage, and childbearing – voluntarily and indefinitely, and is used to describe the economic desperation that many young Koreans experience today.

An empirical test of the two competing hypotheses – the independence theory and the theory of marriage timing – would be relevant to explaining mate-selection patterns in contemporary Korea. The current study examines two hypotheses derived from these two theories regarding the timing of transition to first marriage, derived from these two theories, are examined in the current study: among more recent cohorts a woman's higher economic resources are associated with an increase in her likelihood of first marriage, and among all cohorts a man's higher economic resources are correlated with higher odds of first marriage. These two competing hypotheses also provide an opportunity to examine whether the socioeconomic changes are affecting young adults' marriage behavior by increasing expectations about the wife's economic role in marriage. If the economic independence hypothesis is supported by the data, it suggests that Korean young couples still embrace the male-breadwinner family type. If the theory of marriage timing is supported, then it implies that the dual-earner family type is becoming the norm in recent Korean marriages.

## **4. Data and methods**

### **4.1 Data**

This study examines data from the Korean Labor and Income Panel Study (KLIPS), the first longitudinal survey of labor market and income activity for households located in urban areas in Korea. In 1998 the Korea Labor Institute (KLI) first surveyed 5,000 households in urban areas, identified through two-stage stratified cluster sampling. Since then the KLI have collected information on study participants, their offspring, and all current co-residents (including those not present at the start of the study) on an annual basis. Following the Panel Study of Income Dynamics (PSID) in the U.S., the KLI traces and surveys all members of original sample households, even if they later move out, form new families, or otherwise begin living with new people. The present study uses data from the 1<sup>st</sup> through 15<sup>th</sup> waves of the KLIPS (1998–2012), those available to date for public use. In 2009 the KLI expanded their sample to improve geographic representation, adding an additional 1,415 households from various areas in Korea, including Jeju Island, that were excluded from the original sampling frame. These households were followed annually starting in 2009, and they are included in the present study.

The analytic sample for the present study excludes observations for individuals when younger than 15 years – because they are not legally exposed to the risk of first marriage – and when older than 50 years – because few marriages are formed beyond that age. That is, the analysis censors all observations corresponding to age 14 and

younger and those corresponding to age 51 and older. The resultant analytic sample includes 3,668 males and 3,916 females.<sup>3</sup> Each year the KLI collects information from a questionnaire administered via personal interviews conducted by trained researchers. This analysis utilizes annual measures of sociodemographics, household income, and individual employment status.

## 4.2 Measures

The dependent variable in the analysis is transition to first marriage during a given two-year period. The variable is a dichotomous indicator of whether a respondent experienced a first marriage within an interval of two consecutive years, conditional on never having married at the beginning of the interval.<sup>4</sup> Once first married, individuals are no longer exposed to the risk of marriage and are removed from the risk set. Additionally, individuals who did not experience first marriage by 2012, the 15<sup>th</sup> wave of the KLIPS (the final time-point in the data), were treated as censored at that year. The key independent variables in the analysis are individuals' employment status and the decade in which they were born. The analysis also controls for men's military duty and men's and women's socioeconomic background, religious affiliation, and family size.

Men's and women's employment status was determined using the KLIPS' Work History Dataset, an individual-level file that compiles all jobs ever held by an

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<sup>3</sup> The date of first marriage was created by using self-reported data from the questionnaire; 71% of respondents provided this information in the first wave of the KLIPS in 2008. Given the typical significance of marriage in one's life course, it is unlikely that the reported date of first marriage is incorrect. Also, censoring in the event history analysis can adequately handle the people who did not marry until the last wave of the survey. Furthermore, beginning in the second wave, newly sampled respondents (e.g., children of the original sample who got married and formed an independent household) were asked about their marital status and dates. Hence, while there might be some recall bias on marriage date, it is unlikely to affect the main findings of this study. Nevertheless, inconsistent or missing values for the date of first marriage can occur, particularly in cases where lunar and solar calendar years are involved. For example, although there are no cases in which the date of birth precedes the date of marriage, 153 (1.6%) respondents reported that they got married before age 15, which is possible but highly unlikely. These cases were excluded from the analyses. Moreover, among the sample in the first two waves of the KLIPS, 4,352 (44.3%) individuals reported an age at first marriage that was inconsistent with the date of the marriage: this may be related to confusion regarding lunar and solar calendar years when reporting the age at marriage. To minimize these inconsistencies, this study transformed the date of birth reported in the lunar calendar into the solar calendar. Also, rather than using the reported age of marriage, this study employed the year and month of marriage, on the assumption that Koreans tend to refer to solar calendar dates except when calculating age or date of birth.

<sup>4</sup> Contrary to the US and European countries where unmarried cohabitation is widespread (Dykstra and Poortman 2010; Kalmijn 2011; Ono 2003), the prevalence of non-marital unions is very low in Korea (Raymo et al. 2015). For this reason, measuring union formation as the transition to first marriage is not expected to alter the main analysis results.

individual, including retrospective reports of jobs held in years prior to the first wave of data collection, up to the latest survey round. The analysis includes measures of whether individuals were currently employed and, if employed, whether the job was regular or non-regular work. Current employment was measured with a dichotomous indicator of whether an individual was working during the time-period, where working individuals are defined as: a) those who reported working for pay for at least one hour in the survey week for the purpose of earning income, b) those who reported working unpaid for at least 18 hours a week in a family business (i.e., a business operated at the household level) for the purpose of increasing business revenue, or c) those who reported being employed but on a temporary leave of absence during the survey week owing to illness, accident, vacation, annual leave, labor dispute, workplace shutdown, and the like (Korea Labor Institute 2015). Combining the current employment status and regular/non-regular distinction, employment status was divided into three categories: unemployed, employed with non-regular work, and employed with regular work. The employment status was lagged one year to ensure that the measure reflects work status prior to the marriage-transition outcome in the given period.<sup>5</sup>

Birth cohort was constructed from respondent's year of birth to distinguish those born within three ten-year periods: 1950–1959, 1960–1969, and 1970–1979.<sup>6</sup> Although any categorization of birth cohort would ultimately be arbitrary, this trichotomy provides a parsimonious and intuitive means of comparing cohort experiences across three decades. The social and economic contexts in which these cohorts reached marriage age differ considerably, likely producing unique marriage market dynamics. The 1950s cohort was born and raised during the Korean War (1950–1953) or the post-war period, an era of rebuilding the war-ravaged Korean economy and society. The 1960s baby-boomer cohort, by contrast, enjoyed new opportunities in a rapidly developing educational system and economy, and in early adulthood witnessed the nation's democratization. The 1970s cohort, although socialized in democratic values and witnesses of the country's advancement to being a member of the OECD, came of age during the economic crisis of the late 1990s.

The analysis also controls for whether men were on active military duty, because past research (Sweeney 2002) finds that military service significantly impacts marital transitions. In general, all Korean men over the age of 18 must serve in the military for

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<sup>5</sup> This precaution is taken because in Korea some people, especially women, may change their employment status in anticipation of marriage. To the extent that one's marriage in a given year affects employment status in the preceding year, assessing the influence of employment status in the concurrent year could introduce a reverse causation problem (Fukuda 2013; Liefbroer and Corijn 1999).

<sup>6</sup> KLIPS respondents reported information on the date of birth in one of two formats: lunar or solar calendar year. Roughly 38% of respondents reported their birth date according to the lunar calendar. Because all other variables were constructed based on the solar calendar, lunar dates of birth were converted to solar dates of birth.

21 to 36 months, depending on the branch of the armed forces. The KLIPS asked men in what year and month their mandatory military service started and ended, and the author used these dates to construct a time-varying dummy variable for active military service in each year. The respondent's educational attainment was measured as the highest grade completed as of the most recent interview date, and was therefore treated as a time-invariant covariate.<sup>7</sup>

The analysis included several additional control variables included in previous studies of marriage timing in Korea. These include three socioeconomic background measures: self-reported economic condition of the family at age 15 (lower, middle, and upper), parent's occupation (1 = professional/managerial, 0 = otherwise), and parent's educational attainment (1 = no formal schooling, 2 = elementary school, 3 = middle school, 4 = high school or above). These measures reflect not only availability of resources in the home environment but also the social orientation, values, and beliefs of the household, which have been shown to significantly impact children's family and career decisions (Blossfeld and Huinink 1991; Winkler-Dworak and Toulemon 2007). Parental education and occupation were determined by the father's attainments, except when that data was missing, in which case mother's education and occupation were used. The analysis also controls for religious affiliation, because religion is often the source of key relationship-related beliefs and has been shown to shape strategies of action that facilitate marriage formation (Wilcox and Wolfinger 2007). Religious affiliation is measured by a series of time-invariant dummy variables indicating Buddhism, Protestantism, Roman Catholicism, and 'Other' religious affiliation at first interview, where the 'None' category indicates respondents with no religious affiliation. Finally, the analysis controls for family size and birth order, because prior research finds that individuals from larger households and first-born children tend to enter first marriage earlier (Kim 2015a; Raymo 2003; Winkler-Dworak and Toulemon 2007). Family size is measured as sibship size (continuous variable), and birth order is measured with a dichotomous variable indicating whether respondents were the firstborn child in their families.

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<sup>7</sup> Unlike the respondent's educational attainment, a parent's education was measured with a categorical variable. Given the substantial increase in education over the past several decades in Korea, parent's education and child's education had vastly different distributions, which prevented the use of identical categories for both parents and children. Results of categorical educational attainment variable analysis are available upon request.

Table 1 presents the means and standard deviations of the independent and control variables, separately by birth cohort and gender.<sup>8</sup> Consistent with national trends in employment, KLIPS cohorts demonstrate considerable growth over time in the proportion of currently employed women either in non-regular work or regular work, while men's employment rates remained more or less stable over the three cohorts. In addition, the proportion of men and women currently enrolled in school and their educational attainment increased substantially across cohorts, though this pattern was more pronounced for women than men. These patterns are consistent with the rapid expansion of higher education in Korea over these three decades, which in particular improved access for women (Park 2013). Number of siblings also substantially declined across cohorts, consistent with declining fertility rates in Korea over the past several decades.

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<sup>8</sup> Ma, Andersson, and Neyer (2014) suggest that premarital pregnancy can be a significant determinant of first marriage in Korea. The effect of premarital conception was examined by using the year and month of birth of the first child. Following prior research (England, Shafer, and Wu 2012; Iwasawa and Kamata 2014; Lee et al. 2014; Raymo and Iwasawa 2008), it is assumed that all conceptions occur 9 months prior to the birth, and premaritally conceived first birth is defined as a first birth occurring less than 7 months after a first marriage. Preliminary results (not presented here due to space constraints but available upon request) indicated that our main findings on the trends in the effect of employment status are barely affected by inclusion of premarital pregnancy in the models. Results suggested that premarital pregnancy elevates the odds of first marriage among both men and women in all cohorts. Also, it appears that the positive effect of premarital pregnancy grew over the periods under consideration. For instance, premarital pregnancy increased the odds of first marriage by 29.2% among women born in the 1950s, whereas it raised the same odds 2.86 times among women in the 1970s cohort. Similar patterns were observed among men who were born in the same periods. However, it should be noted that, in this case, individuals who did not experience premarital pregnancy included those who had experienced no pregnancy at all. Roughly half (49.7%) of the sample had not experienced first childbirth. When the sample was limited to persons who had ever experienced the transition to parenthood, however, the effect of premarital pregnancy lost statistical significance in all cohorts of men and women, except females in the youngest cohort. This may reflect the tendency that premarital pregnancy is accepted only if the couple and their parents agreed on the marriage, because nearly 90% of premarital pregnancies to single women ended in induced abortions in Korea (Kim Choe and Kim 2007). Certainly, premarital pregnancy has a significant impact on the odds of marriage among young Koreans, and is an important avenue for future research. Yet ultimately we need information on the full history of pregnancies throughout the life course, not just dates of birth for each child, in order to measure the effect of premarital conception on marriage. With the data to hand we can only infer whether a person experienced premarital pregnancy based on conceptions taken to term, despite the fact that the vast majority of pregnancies to never-married women in Korea end in induced abortions.

**Table 1: Sample means and standard deviations by gender and cohort for variables used in analysis of transition to first marriage: Korean labor and income panel study (KLIPS)**

	Male					
	1950–1959		1960–1969		1970–1979	
<i>Employment status</i>						
Unemployed	0.65		0.64		0.64	
Employed (non-regular work)	0.02		0.03		0.03	
Employed (regular work)	0.33		0.33		0.32	
Enrolled in school	0.27		0.36		0.44	
Serving in military	0.16		0.14		0.14	
Highest grade completed	4.92	1.35	5.66	1.26	6.17	1.08
<i>Religious affiliation</i>						
None	0.53		0.63		0.68	
Buddhist	0.22		0.16		0.11	
Protestant	0.17		0.16		0.16	
Roman Catholic	0.06		0.04		0.04	
Other	0.01		0.01		0.00	
Parent's job is professional/managerial	0.21		0.26		0.27	
<i>Parent's education</i>						
No schooling	0.62		0.39		0.12	
Elementary school	0.30		0.42		0.40	
Middle school	0.04		0.12		0.24	
High school or above	0.03		0.06		0.24	
<i>Economic condition of family at age 15</i>						
Lower	0.47		0.43		0.33	
Middle	0.39		0.44		0.54	
Upper	0.14		0.14		0.13	
Number of siblings	5.26	1.88	4.51	1.66	3.17	1.37
First child in the family	0.31		0.27		0.36	
<i>N</i>	1,014		1,272		1,382	

**Table 1: (Continued)**

	Female					
	1950–1959		1960–1969		1970–1979	
<i>Employment status</i>						
Unemployed	0.79		0.70		0.63	
Employed (non-regular work)	0.01		0.01		0.03	
Employed (regular work)	0.20		0.29		0.34	
Enrolled in school	0.22		0.34		0.43	
Serving in military	---		---		---	
Highest grade completed	4.32	1.21	5.19	1.12	5.99	1.01
<i>Religious affiliation</i>						
None	0.34		0.48		0.58	
Buddhist	0.33		0.22		0.13	
Protestant	0.23		0.22		0.22	
Roman Catholic	0.09		0.08		0.06	
Other	0.01		0.01		0.01	
Parent's job is professional/managerial	0.19		0.25		0.36	
<i>Parent's education</i>						
No schooling	0.37		0.19		0.05	
Elementary school	0.39		0.44		0.24	
Middle school	0.12		0.15		0.27	
High school or above	0.12		0.22		0.44	
<i>Economic condition of family at age 15</i>						
Lower	0.43		0.38		0.27	
Middle	0.41		0.48		0.57	
Upper	0.15		0.15		0.16	
Number of siblings	5.39	1.75	4.96	1.67	3.56	1.43
First child in the family	0.27		0.24		0.31	
<i>N</i>	1,089		1,309		1,518	

Note: Sample means are unweighted. Due to rounding, some proportions do not add up to one.

### 4.3 Analyses

This study employed logistic regression to estimate discrete-time hazard models of entry into first marriage. The discrete-time event history technique produces results almost identical to those of continuous-time hazard models (Allison 1982), but the discrete-time approach is more straightforward when incorporating time-varying covariates and age dependence into the model. The effect of time, which is measured in years since age 15, is included in the model to capture the time dependence of transition to first marriage. The model includes both linear and quadratic terms to allow the hazard to change over time because marriage formation rates usually show a bell-shaped pattern as respondents age (Blossfeld and Huinink 1991).

Rather than including interaction terms between independent variables and birth cohort, the analysis fits separate models by cohort and gender, examining associations between socioeconomic resources and marriage formation. The results focus on comparing the differential patterns of estimated coefficients for each birth cohort as a means of examining how these effects changed over time, rather than focusing only on the statistical significance of each coefficient.<sup>9</sup>

## 5. Results

Results of the logistic regressions predicting the transition to first marriage among women are presented in Table 2. Results for marriage among women born between 1950 and 1959, shown in the first column of Table 2, indicate that being employed at regular work is associated with a 19.9% decrease in the odds of marriage, an effect that is statistically significant. Although being employed at non-regular work also reduced the odds of first marriage, this was not statistically significant. In accordance with previous research (Blossfeld and Huinink 1991; Park, Lee, and Jo 2013), current school enrollment significantly delays the transition to first marriage among women born in the 1950s: student status is associated with a 70.7% decrease in the odds of marriage. This suggests that a delayed entry into the marriage market resulting from longer enrollment plays an important role in explaining later marriage among Korean women.

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<sup>9</sup> However, it should be noted that we cannot directly compare the magnitude of coefficients across cohorts, as each model has different constants: we can only interpret the patterns of relative differences, not absolute magnitudes, of two or multiple groups in each cohort.

**Table 2: Coefficients by birth cohort from the logistic regression of transition to first marriage among women: Korean labor and income panel study (KLIPS)**

	1950–1959		1960–1969		1970–1979	
	OR	SE	OR	SE	OR	SE
<i>Employment status</i>						
Unemployed	1.000		1.000		1.000	
Employed (non-regular work)	0.819	(0.755)	0.389*	(0.192)	1.059	(0.175)
Employed (regular work)	0.801**	(0.071)	0.948	(0.066)	1.173**	(0.079)
<i>Enrolled in school</i>						
No	1.000		1.000		1.000	
Yes	0.293***	(0.060)	0.297***	(0.052)	0.339***	(0.050)
Highest grade completed	0.884***	(0.041)	0.920**	(0.035)	0.894***	(0.034)
<i>Religious affiliation</i>						
None	1.000		1.000		1.000	
Buddhist	1.121	(0.108)	1.145	(0.103)	0.858	(0.087)
Protestant	1.107	(0.108)	0.966	(0.081)	0.975	(0.077)
Roman Catholic	0.879	(0.121)	0.911	(0.110)	0.967	(0.123)
Other	1.171	(0.206)	1.531	(0.562)	1.091	(0.555)
<i>Parent's job is professional/managerial</i>						
No	1.000		1.000		1.000	
Yes	0.973	(0.093)	1.074	(0.084)	0.847**	(0.061)
<i>Parent's education</i>						
No schooling	1.000		1.000		1.000	
Elementary school	1.024	(0.098)	0.908	(0.091)	1.277	(0.222)
Middle school	0.833	(0.098)	0.761**	(0.094)	1.160	(0.200)
High school or above	0.944	(0.129)	0.853	(0.100)	1.136	(0.192)
<i>Economic condition of family at age 15</i>						
Lower	1.000		1.000		1.000	
Middle	1.120	(0.097)	0.979	(0.073)	1.132	(0.090)
Upper	1.000	(0.117)	0.857	(0.091)	1.065	(0.112)
Number of siblings	1.043*	(0.024)	1.099***	(0.024)	1.118***	(0.030)
<i>First child in the family</i>						
No	1.000		1.000		1.000	
Yes	1.174*	(0.102)	1.258**	(0.115)	1.132*	(0.083)
Years since age 15	2.150***	(0.140)	2.040***	(0.098)	2.401***	(0.130)
(Years since age 15) <sup>2</sup>	0.974***	(0.003)	0.978***	(0.002)	0.973***	(0.002)
Constant	0.002***	(0.001)	0.001***	(0.000)	0.000***	(0.000)
Number of person-years	11,065		15,603		21,322	
Log-likelihood	-2,896		-3,613		-3,935	

Note: Robust standard errors of odds ratios in parentheses.

\*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

Aside from these descriptive trends, the primary focus of this analysis is to identify how these effects have changed over time. This can be accomplished by comparing coefficients for each variable across the cohorts in Table 2. Upon doing this, some interesting patterns emerge. For example, women's current employment in regular work was not significantly related to marriage in the 1960s cohort of women, yet significant and positive effects are observed among women in the 1970s cohort. Indeed, among the 1970s cohort, women currently employed in regular work were 17.3% more likely to experience the transition to first marriage than those who are not employed. This result not only lends support to Oppenheimer's (1997) theoretical claim, but also provides evidence that women's economic resources, such as employment, have become increasingly important in the likelihood of marriage formation, even in a society with asymmetrical gender roles.

On the other hand, women's educational attainment appeared to have a significant and negative effect on the likelihood of entering marriage throughout all three cohorts. This negative relationship between education and marriage has been well documented in East Asian countries (Park, Lee, and Jo 2013; Raymo et al. 2015) and may reflect the fact that in societies with a highly gendered division of labor in the family and strong patriarchal norms, highly educated women would not gain much from marriage. Thus, they tend to avoid it.

The effects of the remaining background variables are consistent with those reported in previous literature. Growing up in a large family appears to significantly increase the odds of entering a marriage, and the impact grew across cohorts. One additional sibling was associated with a 4.3%, 9.9%, and 11.8% increase in the odds of women's first marriage for the 1950s, 1960s, and 1970s cohorts, respectively. In addition, being the oldest child in the family of origin significantly elevates the likelihood of marriage in all three cohorts. One possible reason is that children from larger families take their own family size as their model and start marital life early to achieve that goal, and another is that growing up in a family with fewer resources per child may hamper the educational or occupational success that could otherwise serve as a barrier to early marriage entry (Kim 2014). Contrary to research in other countries (Blossfeld and Huinink 1991; Domínguez-Folgueras and Castro-Martín 2008), however, the current study did not find that the parent's socioeconomic resources are significantly influential. This could be because Korea did not experience its dramatic expansion of education until recent decades, and without the social-stratifying effect of education there might not be much variation in educational attainment or occupational prestige among the parents who produced these cohorts of women.

The results for men are displayed in Table 3. In line with the theoretical expectation, male's employment status in the 1950s cohort shows a positive relationship to marriage formation, as being currently employed in regular work is

associated with 44.3% higher odds of marriage. Among the same cohort of men, however, school enrollment is associated with a 46.2% decrease in the odds of marriage. As found in other countries such as the United States (Sweeney 2002), Israel (Raz-Yurovich 2010), and Finland (Jalovaara 2012), military service has a significant effect on the likelihood of marriage, decreasing the odds of marriage by 41.0%.

**Table 3: Coefficients by birth cohort from the logistic regression of transition to first marriage among men: Korean labor and income panel study (KLIPS)**

	1950–1959		1960–1969		1970–1979	
	OR	SE	OR	SE	OR	SE
<i>Employment status</i>						
Unemployed	1.000		1.000		1.000	
Employed (non-regular work)	0.614**	(0.142)	1.666***	(0.318)	1.386*	(0.246)
Employed (regular work)	1.443***	(0.117)	2.070***	(0.161)	2.401***	(0.207)
<i>Enrolled in school</i>						
No	1.000		1.000		1.000	
Yes	0.538***	(0.080)	0.445***	(0.058)	0.477***	(0.075)
<i>Serving in military</i>						
No	1.000		1.000		1.000	
Yes	0.590***	(0.081)	0.503***	(0.083)	0.406***	(0.108)
Highest grade completed	1.054	(0.041)	1.215***	(0.042)	1.134***	(0.043)
<i>Religious affiliation</i>						
None	1.000		1.000		1.000	
Buddhist	1.342***	(0.132)	1.159	(0.111)	1.009	(0.119)
Protestant	1.166	(0.127)	1.092	(0.100)	1.283***	(0.117)
Roman Catholic	1.176	(0.156)	0.757	(0.131)	1.072	(0.187)
Other	1.955***	(0.357)	2.758**	(1.299)	1.002	(0.502)
<i>Parent's job is professional/managerial</i>						
No	1.000		1.000		1.000	
Yes	0.961	(0.083)	0.952	(0.075)	0.774***	(0.068)
<i>Parent's education</i>						
No schooling	1.000		1.000		1.000	
Elementary school	0.936	(0.081)	1.106	(0.085)	1.026	(0.127)
Middle school	0.899	(0.178)	1.118	(0.132)	1.095	(0.147)
High school or above	0.793	(0.154)	0.991	(0.163)	1.066	(0.147)

**Table 3: (Continued)**

	1950–1959		1960–1969		1970–1979	
	OR	SE	OR	SE	OR	SE
<i>Economic condition of family at age 15</i>						
Lower	1.000		1.000		1.000	
Middle	1.077	(0.090)	1.073	(0.080)	1.355***	(0.113)
Upper	0.822	(0.103)	1.078	(0.115)	1.352***	(0.158)
Number of siblings	1.035	(0.024)	1.079***	(0.026)	1.079**	(0.034)
First child in the family	1.119	(0.100)	1.202**	(0.094)	1.079	(0.086)
Years since age 15	2.306***	(0.129)	2.000***	(0.096)	2.238***	(0.138)
(Years since age 15) <sup>2</sup>	0.977***	(0.002)	0.981***	(0.001)	0.978***	(0.002)
Constant	0.000***	(0.000)	0.000***	(0.000)	0.000***	(0.000)
Number of person-years	14,508		20,780		23,860	
Log-likelihood	-2,806		-3,559		-3,292	

Note: Robust standard errors of odds ratios in parentheses.

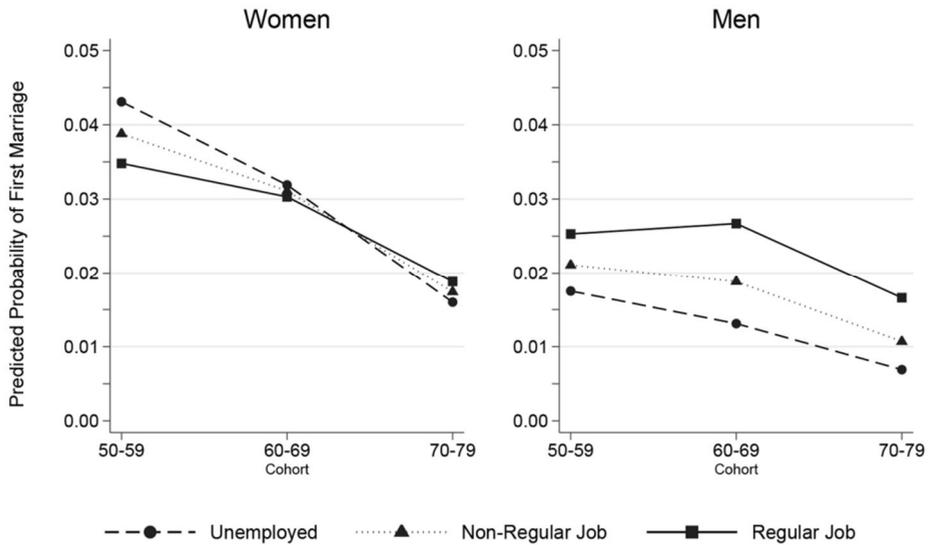
\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Similar to the results for women, parallel models were estimated for men in the 1960s and 1970s cohorts in order to investigate how the process of marriage has changed over time. The results indicate that the importance to marriage of male employment status increased over time, with currently employed men being significantly more likely to marry than unemployed men. Men currently employed in regular work in the 1960s and 1970s cohorts were about 2.1 and 2.4 times more likely to marry than their unemployed counterparts in the corresponding cohorts. In addition, men employed in non-regular work in the oldest cohort were significantly less likely to get married, whereas men in the same condition in the younger cohorts were more likely to experience the transition to first marriage. This may reflect the increased importance of employment, either regular or non-regular, for determining men's overall marriage prospects in the later cohort. Furthermore, the marriage-delaying effect of military service also grew over time. Military service reduced the odds of marriage by 49.7% and 59.4% among the 1960s and 1970s cohorts, respectively. It should be noted that, compared with women's transition to first marriage, parent's socioeconomic status exerts a stronger influence on men's marriage formation, particularly among the most recent cohort. Given the longstanding tradition that, upon marriage, a groom gets a house or an apartment while a bride pays a dowry, along with the skyrocketing Korean housing prices in recent years, the economic resources of a male's parents would play an increasingly decisive role in marriage formation.

Figure 2 illustrates the predicted probabilities of transition to first marriage by gender and employment status, delineated by birth cohort. This graph is derived from the estimated coefficients in Tables 2 and 3, with all covariates except employment status calibrated to their mean. The graph shows, for both men and women, an overall decreasing probability of first marriage across the three birth cohorts, reflecting the trend of later and fewer marriages in Korea over the past several decades. The graph also shows that, all else being equal, the probability of transition to first marriage for women employed in either regular or non-regular work is lower than that of unemployed women among the 1950-1959 cohort. However, the longitudinal trend moved away from this initial difference: the same deficit remained as for employed women in the 1960s cohort but was considerably decreased, and the probability of first marriage for women with a regular job in the 1970s cohort is higher than that for unemployed women. Even women with a non-regular job had a higher probability of marriage than unemployed peers in the 1970s cohort. For men, however, a different pattern emerges. As prior research has reported, the probability of marriage for men employed either in a regular or non-regular job is considerably higher than that for unemployed men throughout all cohorts, yet the probability for employed men changed little between the 1950s and 1960s cohorts while the probability for unemployed men decreased over the same periods. As a result, the gap in the probability of first marriage by employment status has widened, and the discrepancy was most pronounced among the 1960s cohort. This pattern implies that the employment-status gap in the probability of men's first marriage was largely driven by the decreasing likelihood of marriage for unemployed men, rather than by an increasing probability for employed men. This further suggests that, as Park and Lee (2014) observed, men with low economic resources have been increasingly marginalized over time in the Korean marriage market.

It should be noted that, although event-history analysis technique properly deals with the right-censoring problem (Allison 1982), the youngest cohorts in the KLIPS, born in 1970 through 1979, were exposed to the risk of first marriage for 18 to 27 years by the end of observation period, a shorter period than for older cohorts. To address this concern the age of the respondents in all models was capped at 42, which is the maximum age that the youngest cohort could have reached by the end of 2012. For both men and women, as expected, the results were virtually the same.

**Figure 2: Gender comparison of employment gap trends by birth cohort for predicted probability of transition to first marriage: Korea labor and income panel study (KLIPS)**



## 6. Discussion and conclusion

Despite the substantial interest in fertility decline and rapid population aging in recent years, there has been little empirical research on the determinants of first marriage among young men and women in Korea. An even smaller number of studies has examined how these determinants have evolved over time, despite the substantial economic and socioeconomic developments of the past several decades. Using a direct measure of employment history in the KLIPS for the first extensive longitudinal survey of labor market experiences in Korea, this paper examined how the determinants of marriage formation in Korea changed over three birth cohorts.

Discrete-time event history analysis yielded results that are consistent with economic independence theory and Oppenheimer's sociological theory. First, consistent with economic independence theory, the present study found that educational attainment significantly reduces the odds of women's first marriage in all three cohorts, while it enhanced the likelihood of men's marriage formation. Although past studies unequivocally documented the positive effect of men's educational attainment on the likelihood of marriage, results for the effect of women's education have been mixed. This may be related to the fact that women's education has an income effect and an independence effect simultaneously.

In addition, the effect of women's employment status reversed over the three cohorts. Among the oldest cohort it was significantly and negatively associated with the odds of first marriage, in the 1960s cohort it was negative but lost its statistical significance, and for the 1970s cohort it ultimately becomes strong and positive. This result not only provides empirical support for Oppenheimer's theoretical claim, but also implies that the economic foundation of marriage is shifting in Korea, as it is in other societies (Domínguez-Folgueras and Castro-Martín 2008; Fukuda 2013; Sweeney 2002). First, the oldest cohort of women in this study, who were born and raised in the aftermath of the Korean War, in general had very limited educational and occupational opportunities when they grow up. Then, when they reached marriageable age in the 1970s and 1980s, the male-breadwinner model prevailed despite expansion of the Korean economy. In the context of this expansion, in which blue collar workers could earn enough to support a family, women who could fully devote themselves to homemaking and childrearing might be favored, and employed women might be considered too ambitious to form a family. The second oldest cohort, the majority of whom in Korea are baby boomers, witnessed their country become one of the more economically advanced countries in the world during their early adult years and experienced a remarkable expansion of higher education and employment opportunities. Though the economic structure was changing rapidly into knowledge-based industries when this cohort entered the marriage market, the male breadwinner model still prevailed, but employed women were not significantly disadvantaged. By contrast, the youngest cohort faced a substantially different labor and marriage market when they became of marriageable age. As numerous scholars have pointed out (Shin 2012), the economic crisis of 1997 exerted a profound impact on Korean society, so much so that despite higher education expanding significantly in the late 1990s and early 2000s (Kim and Kim 2015), baccalaureate and even doctoral degrees no longer guarantee access to high-paying professional occupations. Hence, the dual-earner model was preferred, and in the recent Korean marriage market women with higher earnings potential might be at an advantage.

On the other hand, the effect of men's employment grew stronger over the same three cohorts. This may reflect the substantial growth of contingent or non-regular work in recent years, such as temporary, contract, and part-time work that offers low wages and benefits with few opportunities for career advancement (Shin 2012). Because of the decreasing number of marriageable men, employed young men would be regarded as more qualified candidates for marriage than in the past.

As with any research, the current study is not without limitations. First, due to data limitations, the present study was unable to examine the direct effect of income on the likelihood of transition to first marriage. Given the significant and increasing variation in earnings, not only between regular and non-regular workers but also between big companies and small or mid-sized companies, wage differentials may have an impact on the odds of first marriage in Korea. However, a large body of empirical research in other countries (Domínguez-Folgueras and Castro-Martín 2008; Fukuda 2013; Sweeney and Cancian 2004) generally reports that the effect of employment status is not substantially different from that of earnings, making it less likely that a direct measure of earnings would have changed the overall findings of the current study. Second, individuals may decide to marry not only by observing the current and past economic resources of their mate, but also by considering their future economic well-being, which is not yet observable. To account for these effects, future research should refine the measure of economic potential, as reported by Xie et al. (2003), who construct five variables of economic potential based on information about earnings and education. Finally, owing to imperfect information on cohabitation, this study was unable to distinguish between cohabitation and marriage. However, a number of past studies in other countries have found that the determinants of first marriage have a similar impact on the formation of cohabiting relationships, albeit to a somewhat lesser extent (Jalovaara 2012). The current rate of cohabitation as an alternative to marriage is low in Korea, but it appears that cohabitation as a transition step toward marriage has increased in recent years (Raymo et al. 2015). Hence, an important avenue for future research is to include both marriage and cohabitation when assessing the determinants of interpersonal unions.

In sum, the present study has shown that women's increasing economic autonomy has had a significant impact on the patterns of marriage formation in Korea, and that the main drivers of the changes in marital behavior are much more complex than originally suggested by the classical independence hypothesis. Though changes in marital behavior in Korea are not substantially different from in most industrialized countries (Raymo et al. 2015), in Korea the implications of later and fewer marriages are particularly important. With little societal acceptance of alternative forms of family such as cohabitation and single parenthood, in Korea the relationship between the timing of marriage and the timing of fertility is much stronger than in the U.S. and

Western European countries, where increases in nontraditional ways of family formation have offset declining rates of marriage (Manning, Brown, and Payne 2014). In fact, in Korea the rising age at first marriage and the decreasing share of married women who are of childbearing age are largely responsible for the rapidly declining fertility rate (Eun 2007). With vastly insufficient social security measures, later and fewer marriages also increase concerns about the well-being of the rapidly aging population, because of their significant reliance on care provided by married children and their spouses (Kim 2015b). Perhaps more importantly, as McLanahan (2004) claims, a growing family behavior discrepancy between those at the lower and higher ends of the socioeconomic spectrum may lead to an increase in social inequality. Given the strong tendency for socioeconomic homogamy in Korea, the marriage trends observed here among young men and women with (stable) jobs may lead to increasing socioeconomic stratification among families and children over the long term.

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