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Young Men's Employment and Their Marriage: A Comparison among Japan, South Korea, Singapore, the UK, France, and Sweden

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Abstract

In Europe, falling fertility rates are regarded as part of a second demographic transition precipitated by changing values. Low fertility rates in developed Asian countries, however, are thought to be due to decreasing marriage rates, as a result of worsening young men's employment. This study proposes the hypothesis that men in non-regular employment – those with low incomes and those who are unemployed – have lower probabilities of getting married. Male employment was analyzed using a logistic regression of micro data for 20- to 49-year-old men in Japan, South Korea, Singapore, the UK, France, and Sweden. The study's findings generally supported the hypothesis and clearly confirmed that there is a relationship between employment and marriage in Asian countries, and especially in Japan.

Keywords

low fertility – marriage – cohabitation – employment

1 Introduction

Fertility rates in Asia are declining. Japan's total fertility rate (TFR) has been below replacement level since the 1970s, and dropped to 1.45 in 2015. In South Korea and Singapore, the rate has declined to 1.19. Some southern and eastern European countries, where the TFR has fallen below 1.3, have the "lowest-low fertility" (Kohler, Billari, and Ortega 2002). Japan also experienced

lowest-low fertility from 2003 to 2005, and the TFRs of South Korea and Singapore are currently below that level.

In Europe, the phenomenon of low fertility is regarded as one component of a series of demographic changes called “the second demographic transition” (SDT) (van de Kaa 1987) that began in the latter half of the 1960s. The SDT started with an accelerating spread of efficient contraception, the gender revolution, a rejection of traditional authority, and an overhaul of normative structures and institutions such as parents, educators, and churches (Lesthaeghe 2010). One critical factor driving these demographic changes was a shift in the desire to satisfy material needs (such as economic security) to a desire to satisfy post-material needs (such as freedom of expression, self-realization, and autonomy).

There is the perspective that the SDT has been spreading to Asian countries, but Asia's demographic features are somewhat different from those described in this theory. The institution of marriage appears to be stable in Asia, despite declining birth and marriage rates (Ochiai 2013). This means that marriage and childbirth are strongly linked. The likelihood of young adults cohabitating is increasing, but the rate remains very low (Kojima 2010), and few children are born to single mothers. These features are different from those of the SDT. Therefore, this study posits that the declining birth rates observed in Asian countries are directly linked to delayed marriage, which has been termed the “flight from marriage” (Jones 2005). To confirm the reasons for low fertility in Asian countries, it is therefore necessary to determine what factors have precipitated the decreasing marriage rates.

1.1 *Factors of Low Fertility in Asia*

The factors contributing to low fertility in Asia are also somewhat different from those that have driven the SDT in Europe, and there are two primary theoretical perspectives on these factors. First, the gender equity hypothesis proposes that women's difficulties in balancing work and childcare have encouraged them to delay marriage. This is representative of Asian countries, which offer less gender equality than Western countries, and consequently Asian women bear relatively greater familial responsibilities (McDonald 2000, 2009). It has recently been found that birth rates are higher in countries where women's labor force participation rates are higher; where the Gender Inequality Index (GII) is higher, and the TFR is lower (Ahn and Mira 2002; Suzuki 2013). The second theoretical perspective is exemplified in a hypothesis proposed by Rindfuss and Choe (2015) that birth rates are high in countries where parents (particularly mothers) can easily balance parenting with their other roles (not

limited to work roles). Regarding these hypotheses, it has been observed that countries in which women have reproductive rights and ideals that support gender equality also have high birthrates (Esping-Andersen 2009).

In addition to these two hypotheses, other factors might relate to low fertility in Asia. For example, Suzuki (2013) suggested that multiple factors that related to low fertility in Asian countries included increased educational costs, employment insecurity related to economic recessions, and an increase in women's labor force participation.

Of these, employment is one of the major factors contributing to decreasing rates of marriage that in turn result in Asia's low fertility rates. Some studies on low fertility that focused on young adult employment in southern European countries – where the TFR is below the “lowest-low fertility” rate – have argued that employment problems, such as increasing unemployment, exacerbate fertility declines (Goldstein, Sobotka, and Jasilioniene 2009; Kohler et al. 2002). Ahn and Mira (2001) explored the relationship between increased unemployment, non-regular employment, and the declining TFR in Spain. To date, however, few studies have empirically analyzed the negative effects of increased non-regular employment and increased income disparity on marriage at the individual level using international comparisons that include Asian countries.

1.2 *Worsening Young Male Employment in Asia*

Employment situations for young adults have recently deteriorated in some developed Asian countries. In Japan, since the collapse of the bubble economy in 1991, non-regular employment (i.e., part-time work, temporary work, contract labor) as a proportion of all employment has increased dramatically. In 1990, the rate among 15- to 24-year-olds was 21%; by 2000 it was 41%, and by 2016 it was 48%. Among 25- to 34-year-olds, non-regular employment accounted for 12% of the workforce in 1990, 14% in 2000, and 26% in 2016. In addition, the number of unemployed young adults increased, and incomes from regular employment (i.e., permanent and full-time work with regular pay) decreased, which in turn created financial problems for young adults. Prior to the collapse of the bubble economy in Japan, most young people were able to secure regular jobs after graduating from their final school, but thereafter smooth transitions became difficult; this phenomenon has been referred to as “Lost in Transition” (Brinton 2011). Some studies have found that young adults with non-regular employment – particularly men – are likely to postpone marriage (see Piotrowski, Kalleberg, and Rindfuss 2015). Since it is difficult to justify marriage and children when employment is unstable, low incomes may have been related to Japan's low fertility for the past 20 years (Matsuda 2013).

In South Korea, the International Monetary Fund crisis and the 2008 recession followed the global financial crisis of the late 1990s, and the number of non-regular employed and unemployed young adults increased rapidly. Since 2008, the proportion of non-regular employment has been around 33% (Kim 2015), and President Moon Jae-in, elected in 2017, has prioritized the task of addressing increasing non-regular employment. In contrast, the employment situation in Singapore – characterized by steady economic growth and a resident unemployment rate of only 3.0% in 2016 – has been relatively stable, despite a large wage gap.

Increased non-regular employment is a global phenomenon related to intensified international competition, which has led many industries to introduce cost-cutting measures. In addition, the trend toward the industrialization of service increases non-regular employment characterized by low wages and irregular working hours. This problem also influences more highly-educated people, because economic growth has slowed, and as educational attainment increases, the supply of these workers exceeds the demand for them (Bae 2015; Hirata 2015). These factors create a context in which underemployment is a significant problem for young adults.

Female labor force participation in Asian countries has also generally been lower than that in European countries (Suzuki 2013), which means that the rate of dual earners in Asia was lower than that in Europe. According to a comparative study, there is a tendency to expect that Asian men are responsible for the entire household income when they get married (Matsuda 2017). In Japan, women's labor force participation has been rising, but the attitude that they are economically dependent on men has continued (Raymo and Iwasawa 2005). Considering these situations, if men have unstable employment or low incomes, it becomes difficult for men and women to marry.

1.3 *Hypothesis*

This study utilized the employment deterioration hypothesis, which posits that employment deterioration coupled with increased education and cost of living expenses result in lower marriage rates. It assumes that non-regular employment, low incomes, and unemployment due to industrial sophistication, globalization, and service industrialization lower the probability of getting married. This study tested this hypothesis to verify the extent to which it is a supportable background determinant of the increase in unmarried young adult males in select Asian and European countries. It is assumed that the employment deterioration hypothesis is more strongly supported in Asia than in Europe and is stronger among men than women for two reasons. First, in Asian countries there are higher demands on men than women to generate income

to support their families; therefore, unstable employment is a bigger problem for men than for women, and a bigger problem for men in Asia than for men in Europe. In Europe, because of women's advancing economic status, couples are easily able to meet their household needs because they have dual incomes, even when husbands have non-regular employment.

The second reason the employment deterioration hypothesis is stronger in Asia than Europe is that their labor markets are different. Previous studies on Japan's declining birth rate have not focused on the labor market, yet the wage gap between regular and non-regular employment is smaller in European Union countries than in Japan, because of the European Union policy of "equal pay for equivalent work" (Naikakuhu 2015).¹ Many European countries have made more improvements to social security and vocational training for non-regularly employed and unemployed people than Japan (Miyamoto 2004). Due to the "membership" type of work and existing labor contracts in Japanese companies, it is also difficult for non-regular workers in Japan to transition to regular employment (Hamaguchi 2013). The "membership" type is an employment system in which employees become members of a company's community. Employment covers duties, work hours, and workplaces that are not limited by a contract, and workers have adapted to the employers as much as possible.

In South Korea, the differences between how regular employment and non-regular employment are handled are as significant as in Japan; however, a wider age range of young adults are hired by Korean companies as regular employees, because Korean companies hire them directly after they have completed their education or their compulsory military service (Arita 2017). Thus, young adults in Korea have more opportunities for regular employment than young adults in Japan.

The employment deterioration hypothesis, which argues that employment deterioration coupled with increased education and cost of living expenses delay marriage, seems to be better supported in Japan and South Korea than in Singapore for the following reasons. First, as economic growth has slowed, young adults' increased rates of non-regular employment have become a problem in Japan and South Korea; in contrast, the economic growth rate in Singapore has been high, and resident employment has been relatively stable.

1 Although the definitions of non-regular employment differ by country in Europe, income levels and the stability of non-regular employment are commonly lower than for regular employment. (See *Nihon roudou seisaku kenk, kenshu kikou* [The Japanese Institute for Labour Policy and Training] 2011. "Tokushu ousei wo chusin toshita hiseikikoyou no doukou: Nihon tonon hikaku no shitenkara [Feature Non-regular Employment Trends with a Focus on Europe and the United States: From the Point of View of the Comparison with Japan] *Business Labor Trend* 2011.4: 2-33).

Second, the likelihood of a mismatch between labor supply and demand is low; a mismatch is associated with an increase in higher educational enrollment, which in turn is linked to Singapore's educational and employment policies (Sim 2009). Last, social norms that compel husbands to fulfill the breadwinner role are weaker in Singapore than in Japan or South Korea, because of higher female labor force participation.

A comparison of the increase in the rates of unmarried young adults in Asia and Europe must consider that cohabitation is a widespread alternative to marriage in Europe. Increases in cohabitation rates relate to shifts in individual values from materialism to post-materialism, and the idea that an individual can be released from societal demands (van de Kaa 1987). Some European countries legally protect cohabitation, such as France's civil solidarity pact (PACS) and Sambolagen (the Cohabitees Act) in Sweden. Cohabitation is much less likely in Asian countries.

2 Methods

2.1 Data

The data used in the analyses were derived from the International Opinion Survey on a Low Birthrate Society conducted by the Cabinet Office of Japan, in Japan, the UK, France, and Sweden in 2015, and in South Korea in 2010 (Naikakuhu 2011, 2016), and the Opinion Survey on Marriage, Family, and Work conducted in Singapore. The latter survey was designed to be as comparable to the Cabinet Office survey as possible and was conducted by the Research Association on Declining Birth Rates, Education, and Employment in Asia. These surveys focused on the status of the study's countries with regard to birth rates, marital status, cohabitation, employment status, and income.

Data were collected through interviews with men and women aged 20 to 49 years. The sampling method used depended on the country; a stratified two-stage random sampling method was employed in Japan, and quota sampling was used in South Korea, the UK, France, and Sweden. This method extracted cases from the field proportionally with respect to sex, age, and occupation of head of household. Systematic sampling was used in Singapore. The surveys were administered using the official languages of the countries in which they were fielded.² The number of participants in the original sample were as follows: Japan = 754, South Korea = 1,005, Singapore = 803, UK = 729, France = 715, and Sweden = 700. The study focused on the men's employment experiences

² The survey in Singapore was conducted in English, Chinese, and Malay.

relative to their marital status, because a preliminary analysis showed a clear relationship between employment and marital status in the male study participants described below. On the other hand, it was difficult to interpret the results of the preliminary analysis for Asian women, because many women became unemployed (full-time housewives) after marriage. This study analyzed only the data provided by male participants, and for this reason, the study's sample size unfortunately became relatively small: Japan = 336, South Korea = 511, Singapore = 319, UK = 349, France = 340, and Sweden = 353.

2.2 Variables

2.2.1 Dependent Variable

For the Asian samples, the dependent variable was a dichotomous indicator of ever married where 1 = *ever married* and 0 = *otherwise*, and for the European samples, it was a dichotomous indicator where 1 = *ever married or ever cohabited* and 0 = *otherwise*. Cohabitation was not included in the Asian samples variable because the reported rate of cohabitation was very low in the Asian data. Moreover, this study's underlying interest was verifying the hypothesized link between marriage and fertility, and it is important to analyze marriage in Asia as the precursor to childbirth. In European countries, however, marriage and cohabitation seem to be interchangeable with respect to childbirth, because the proportion of children born to cohabiters is high. Therefore, it is necessary to include cohabitation as a type of marriage in Europe. Because of the low rate of cohabitation, in the preliminary analysis (not shown) of Asian countries, ever married or ever cohabited were jointly assessed and found to be almost identical to the results of the analysis without ever having cohabited. In the preliminary analysis, this study used another dichotomous indicator of currently married where 1 = *currently married* and 0 = *otherwise* (for the European samples, a dichotomous indicator where 1 = *currently married or cohabited* and 0 = *otherwise*), but the findings produced by using the indicator of currently married were almost the same as those of ever married.

2.2.2 Independent Variables

Eight independent variables were analyzed. Age was measured in years in the three Asian samples. However, because of data constraints, it was categorized into units of ten years in the three European samples.³ Educational attainment

3 There are no data in yearly increments for the UK and Sweden. Consequently, data for the three European countries were combined into 10-year age categories.

was categorized as follows: (1) high school or less, (2) junior technical college, (3) university and graduate school.⁴

Considering the temporal importance of occupation to marriage, the ideal approach would have been to use indicators of the respondent's first job held after graduating from the last educational institution attended. However, the data offered little information on the first job, and there were no data at all on first jobs in the South Korean data. Therefore, the current job and the first job were used separately to indicate the following employment types: (1) regular employment, (2) non-regular employment, (3) self-employment, and (4) unemployment, including homemaker.⁵ Among them, the category of unemployment in the first job meant that a respondent had never worked after he/she left school.

In addition, the data included annual income as salaries, interest/dividends, social security benefits, and cash transfers from children. The units were in JPY millions for the Japanese, UK, France, and Swedish samples;⁶ SGD millions for the Singapore sample; and KRW millions in the South Korean sample. Using this income information, a binary variable with respect to the present job was created where 1 = *regular employment with low annual income*, defined as regular employment with an annual income less than one-half of that of all regular employees, and 0 = *regular employment with high annual income*.⁷ The current occupation was identified as (1) professional or management, (2) office worker (clerical, administrative), (3) sales or service (salesperson, service worker, welfare worker), and (4) skilled labor or others (transportation, telecommunications, and security workers, factory and construction workers, farming, others).

4 Educational attainment was categorized as follows: (1) Japan: high school or less, junior college or higher professional school, and university or graduate; (2) South Korea: high school or less, junior technical college, and university or graduate; (3) Singapore: post-secondary (non-tertiary), diploma or professional qualification, and university; (4) UK: less than sixth form college, further education college or technical college, and university; (5) France: *certificat d'études primaires* (Primary Education Certificate), BEPC, *brevet des collèges* (college) or BEP, CAP, and *Baccalauréat* (baccalaureate); (6) Sweden: *gymnasieskola* (upper secondary school) and *eftergymnasialyrkesutbildning* (Post-secondary education) or *högskola* (college).

5 The employment status categories are as follows: (1) regular full-time employee in the private sector; (2) regular full-time employee in the public sector, and (3) non-regular employment, such as part-time or contractor. From these categories, a variable was created to indicate (1) regular employment or (2) non-regular employment.

6 The survey researcher investigated respondents' income in local currency in the UK, France, and Sweden, and created data were converted into Japanese yen at the exchange rate at the time of the survey, which the author used.

7 Cutting lines that divide the annual income levels were as follows: (1) Japan: 4 million yen, (2) South Korea: 30 million won, (3) the UK: 5 million yen, (4) France: 4 million yen, (5) Sweden: 6 million yen. In Singapore, the cutting line was 3,500 Singapore dollars per month.

The respondents' ethnic backgrounds were identified only in the Singapore sample.

2.3 *Analytical Method*

The analytical method used to test the hypothesis was logistic regression, in which ever married (ever married or ever cohabited in the three European samples) was the dependent variable. The relationship between the employment type of the first job and that of the current job was strong. For example, in the Japanese sample, 81% of self-employed people were self-employed in their first job, and 85% of regular employees were regular employees in their first job. Two separate analyses were performed, one using the indicator of the first job type and the other using the indicator of the current job type. To explore the differences across the countries, analyses were performed by country, rather than on pooled data.

The limitations of this analysis were as follows. First, the datasets used were not longitudinal data, and age data were not included for some countries. This precluded conducting a hazard analysis. Second, regressing the present job to the ever married was a less than ideal type of analysis.

3 Results

3.1 *Descriptive Statistics*

Table 1 summarizes the proportions of all variables used in the multivariate logistic regression analysis. The ever married rate was highest in Japan (58.9%), followed by South Korea (54.1%) and Singapore (51.4%). When cohabitation was included, the rates were as follows: Japan (59.8%), South Korea (55.7%), and Singapore (55.2%). In the European samples, the ever married or ever cohabited rates were as follows: UK (62.7%), France (67.4%), and Sweden (74.2%). The mean of the ever married rate in the three Asian countries (54.8%) was lower than that of the ever married or ever cohabited rates in the three European countries (68.1%) ($\chi^2 = 41.289, p < .001$).

Regarding the respondents' first jobs, non-regular employment was lowest in Japan (7.4%). The three European samples had relatively high non-regular employment. Similarly, the unemployment rate in Japan was one of the lowest of the six countries. Based on the first job's employment type, young men's employment in Japan was relatively good, even when compared to Singapore, which had a much higher economic growth rate than Japan.

Regarding the present job, non-regular employment was highest in France (13.3%), followed by South Korea (11.1%) and Singapore (7.2%); the rate in Japan

TABLE 1 Distributions of the variables used in the multivariate analyses^[a]; Japan ($n = 336$), South Korea ($n = 511$), Singapore ($n = 319$), UK ($n = 349$), France ($n = 340$), and Sweden ($n = 353$)

Variable	Japan	South Korea	Singapore	UK	France	Sweden
Ever married / Ever married or ever cohabited ^[b]	0.589	0.541	0.514	0.627	0.674	0.742
<i>Age (mean)</i>	36.634	35.088	33.550			
Standard deviation	8.088	8.585	8.919			
30s				0.305	0.339	0.358
40s				0.296	0.345	0.324
<i>Education attainment (Ref: High school or less)</i>						
Junior technical colleges	0.241	0.170	0.294	0.332	0.205	0.271
Universities and graduate schools	0.384	0.384	0.381	0.241	0.219	0.425
<i>Employment status of first job (Ref: regular employment)</i>						
Self-employment	0.063		0.063	0.080	0.058	0.031
Non-regular employment	0.074		0.109	0.154	0.339	0.412
Unemployment	0.039		0.109	0.046	0.129	0.028
<i>Occupation of first job (Ref: office worker)</i>						
Professional and management	0.235		0.423	0.157	0.102	0.235
Sales and service	0.283		0.224	0.165	0.129	0.221
Skills and others	0.307		0.238	0.521	0.398	0.380
<i>Employment status of present job (Ref: regular employment)</i>						
Self-employment	0.147	0.405	0.094	0.149	0.115	0.112
Regular employment and annual income low	0.286	0.212	0.367	0.261	0.320	0.468
Non-regular employment	0.046	0.111	0.072	0.079	0.133	0.069
Unemployment	0.046	0.132	0.144	0.086	0.145	0.132
<i>Occupation of present job (Ref: Office worker)</i>						
Professional and management	0.262	0.074	0.562	0.279	0.178	0.366
Sales and service	0.232	0.481	0.157	0.080	0.073	0.148
Skills and others	0.313	0.131	0.204	0.345	0.333	0.212

TABLE 1 Distributions of the variables used in the multivariate analyses (*cont.*)

Variable	Japan	South Korea	Singapore	UK	France	Sweden
<i>Ethnicity (Ref: Chinese)</i>						
Malay			0.144			
India			0.175			
Others			0.041			

[a] Unless otherwise noted, the number is the average value, standard deviations of the binary variables are omitted. The reference category is in parentheses.

[b] Ever married is for the Asian countries; ever married / ever cohabited is for the European countries.

(4.6%) was again the lowest. Unemployment was also low in Japan (4.6%). Furthermore, in South Korea, self-employment – which was a unique aspect of Korea’s occupational structure – accounted for nearly 40% of all employment.

Though the data are not shown, the respondents’ annual incomes by present job category in quartiles indicate that self-employed respondents and those with regular employment had higher annual incomes than those in other employment types in all countries, with the exception of South Korea and Singapore, where self-employed respondents had higher incomes than those with regular employment. Comparing the annual incomes of those with regular employment to those with non-regular employment, the income levels for the third quartile of non-regular employment were less than the lowest income quartile of regular employment. Although the types of non-regular employment differed by country, this result suggests that non-regular employment was significantly less lucrative than regular employment in all the countries studied. However, the incomes of the non-regular employment respondents in Sweden and the UK were high, compared to the incomes reported by respondents from the other countries in this study.

3.2 *Logistic Regression Results*

Tables 2 through 4 present the results of the logistic regression analysis that predicted whether the respondent was ever married. Model 1a used the employment type of the present job as an independent variable, and controlled for the effects of the other independent variables such as age and educational attainment. Because annual income could vary significantly within an employment type (as described above), Model 2a added the indicator of “regular employment with low annual income” to Model 1a, to explore the effect of

TABLE 2 Logistic regression results of the effects of employment type on ever married among young adult males in Japan and South Korea, odds ratios

Variable	Japan						South Korea		
	Present job			First job			Present job		
	Model 1a	Model 2a	Model 3a	Model 1b	Model 2b	Model 1a	Model 2a	Model 3a	
Age	1.147***	1.122***	1.125***	1.124***	1.126***	1.294***	1.280***	1.276***	
<i>Education attainment (Ref: High school or less)</i>									
Junior technical colleges	0.524†	0.503†	0.619	0.521*	0.590	1.608	1.555	1.543	
Universities and graduate schools	0.883	0.767	1.046	1.068	1.168	1.243	1.130	1.203	
<i>Employment status (Ref: Regular employment)^[a]</i>									
Self-employment	0.317**	0.203***	0.193***	0.987	1.042	1.447	0.727	0.682	
Regular employment and annual income low		0.310***	0.302***				0.371*	0.370*	
Non-regular employment	0.076***	0.051***	0.049***	0.264**	0.246**	0.609	0.305*	0.339†	
Unemployment	0.134*	0.074**		0.000		0.406	0.192*		

TABLE 2 Logistic regression results of the effects of employment type on ever married (cont.)

Variable	Japan						South Korea		
	Present job			First job			Present job		
	Model 1a	Model 2a	Model 3a	Model 1b	Model 2b	Model 3b	Model 1a	Model 2a	Model 3a
<i>Occupation (Ref: Office worker)</i>									
Professional and management			1.441		0.650				1.205
Sales and service			1.089		0.888				1.135
Skills and others			2.074		0.954				1.047
-2LL	339.621	326.612	314.526	361.598	360.125	383.851	378.853	359.579	
χ^2	99.872***	112.881***	98.299***	93.425***	71.006***	321.252***	326.250***	226.529***	
Nagelkerke R2	0.356	0.395	0.368	0.327	0.268	0.624	0.631	0.547	
n	327	327	312	336	323	511	511	440	

[a] Ref. of Model 2 is "Regular employment and annual income high."

† = $p < .10$, * = $p < .05$, ** = $p < .01$, *** = $p < .001$.

TABLE 3 Logistic regression results of the effects of employment type (cont.)

Variables	Singapore						UK					
	Present job			First job			Present job			First job		
	Model 1a	Model 2a	Model 3a	Model 1b	Model 2b	Model 3a	Model 1a	Model 2a	Model 3a	Model 1b	Model 2b	Model 3b
<i>Occupation (Ref: Office worker)</i>												
Professional and management			1.929		1.380				2.580†			1.299
Sales and service			0.886		0.735				1.193			0.809
Skills and others			1.05		0.483				1.785			1.010
<i>Ethnicity (Ref: Chinese)</i>												
Malay	3.526**	4.197**	4.012*	2.824*	3.051*							
India	2.744*	2.234	2.311	2.622*	2.844*							
Others	1.578	1.529	1.355	1.417	1.771							
-2LL	249.533	209.09	195.417	257.676	240.36		321.321	321.276	283.253	390.962	373.829	
χ^2 [b]	192.441	181.788	126.833	184.298	143.185		72.195	72.239	59.061	69.906	60.012	
Nagelkerke R ²	0.604	0.634	0.558	0.585	0.536		0.292	0.292	0.269	0.248	0.226	
n	319	282	236	319	281		303	303	277	349	334	

[a] Ref. of Model 2 is "Regular employment and annual income high."

[b] All χ^2 statistics are statistically significant at $p < .001$.

† = $p < .10$, * = $p < .05$, ** = $p < .01$, *** = $p < .001$.

TABLE 4 Logistic regression results of the effects of employment type on ever married / ever cohabited among young adult males in France and Sweden, odds ratios

Variables	France						Sweden								
	Present job			First job			Present job			First job					
	Model 1a	Model 2a	Model 3a	Model 1b	Model 2b	Model 1a	Model 2a	Model 3a	Model 1b	Model 2b	Model 1a	Model 2a	Model 3a	Model 1b	Model 2b
<i>Age (Ref: 20s)</i>															
30s	3.672***	3.816***	2.658*	3.938***	3.616***	4.559***	4.251***	4.313***	5.305***	5.909***	19.632***	19.959***	19.632***	25.090***	19.632***
40s	10.681***	11.207***	8.049***	9.337***	9.961***	16.049***	14.492***	19.959***	19.632***	25.090***	19.632***	19.959***	19.632***	25.090***	19.632***
<i>Educational attainment (Ref: High school or less)</i>															
Junior technical colleges	2.066†	2.129†	3.463*	3.442**	3.226*	1.371	1.364	1.237	1.328	1.443	0.983	0.983	0.983	0.983	0.983
Universities and graduate schools	0.955	1.064	1.363	1.215	1.655	0.887	0.857	0.591	0.983	0.798	0.983	0.983	0.983	0.983	0.983
<i>Employment status (Ref: Regular employment)^[a]</i>															
Self-employment	1.277	1.502	1.566	0.410	0.352	0.687	0.507	0.497	0.404	0.432	0.687	0.507	0.497	0.404	0.432
Regular employment and annual income low		1.361	1.463				0.661	0.644				0.661	0.644		
Non-regular employment	0.374*	0.462	0.437	0.317***	0.296***	0.460	0.326†	0.337	1.139	1.130	0.460	0.326†	0.337	1.139	1.130
Unemployment	0.129***	0.154***		0.025***		0.240***	0.170**	1.600	0.159*		0.240***	0.170**	1.600	0.159*	

TABLE 4 Logistic regression results of the effects of employment type (cont.)

Variables	France						Sweden					
	Present job			First job			Present job			First job		
	Model 1a	Model 2a	Model 3a	Model 1b	Model 2b	Model 3a	Model 1a	Model 2a	Model 3a	Model 1b	Model 2b	Model 3b
<i>Occupation (Ref: Office worker)</i>												
Professional and management			1.547		1.441							1.162
Sales and service			0.992		1.089				2.020			1.528
Skills and others			1.232		2.074				1.033			0.565
-2LL	293.019	292.498	248.614	286.675	261.443	289.123	288.442	232.94	317.809	297.424		
χ^2 [b]	115.951	116.472	57.733	142.847	64.704	92.746	93.427	58.371	85.129	84.445		
Nagelkerke R ²	0.417	0.419	0.280	0.478	0.294	0.353	0.355	0.285	0.315	0.325		
n	329	329	281	340	298	343	343	299	353	343		

[a] Ref. of Model 2 is "Regular employment and annual income high."

[b] All χ^2 statistics are statistically significant at $p < .001$ except Sweden present job Model 3a.

† = $p < .10$, * = $p < .05$, ** = $p < .01$, *** = $p < .001$.

income. Model 3a dropped the respondents that were unemployed, and added current occupation. Models 1b and 2b used first job type instead of present job type. For reference information, a tabulation of the rates of ever married by employment type of both the present job and the first job was summarized in Table A.⁸

The relationships between present employment type on ever married were as follows. In Japan, the probabilities of ever married being among those who had non-regular employment or were unemployed were significantly lower (Model 1a) than for those who had regular employment. In Model 2a, the odds for "regular employment with low annual income" were .31, for non-regular employed only .05, and for unemployment .07, compared to "regular employment with high annual income." When occupation was controlled in Model 3a, the odds ratio of non-regular employment remained very low, at about 1/20 of "regular employment with high annual income." An odds ratio of self-employment as being much lower than regular employment is characteristic of Japan.

In the South Korean sample, when annual income was not included in Model 1a, there was no significant difference in the probability of ever married between those with regular employment and those with non-regular employment. However, with Model 2a, the odds ratio of "regular employment with low annual income" was .37, that of non-regular employment was .31, and that of unemployment was .19. Controlling for the effect of occupation, "regular employment with low annual income" and non-regular employment remained less than .40 in Model 3a. This finding implies a greater variation by annual income than by employment type among South Korean men in the ever married rate.

In Singapore, the likelihood of ever married was not significantly different between regular employment and non-regular employment, but the odds ratios of ever married for those with "regular employment and low annual income," non-regular employment, and unemployment were much lower than those of "regular employment with high annual income" (.34, .17, and .16, respectively, $p < .05$). This finding indicates that there is as large a variation in the ever married rate by annual income among young adult men in Singapore as in South Korea.

The results of the analysis of the three European samples (Tables 3 and 4 above) found that the ever married/cohabited rates of unemployed men were extremely low. The probability of ever married/cohabited or not depending on employment type was slightly different among the countries. In the UK,

⁸ This summary is provided in Table A.

there was no significant difference in ever married/cohabited by employment type among the employed respondents. However, those who were in the professional or management jobs that have the highest occupational status had a higher probability of ever married.

In France, the odds ratio of non-regular employment was significantly lower than that of regular employment in Model 1a, which is similar to the results for Japan. In Model 2a, the effect of non-regular employment on ever married/cohabited was not statistically significant, because the odds ratio of “regular employment with low annual income” was higher than that of “regular employment with high annual income.” In Sweden, the odds ratios of non-regular employment and unemployment were lower than those of “regular employment with high annual income,” but the differences were not statistically significant.

The effects of the type of first job on ever married were as follows. In South Korea, there were no data available on the respondents' first jobs. In Japan, those with a non-regular first job were about .26 as likely to be married as those whose first jobs were regular employment. The likelihood of ever married among those who were unemployed as a first job was very low, although it was not significantly different from those with regular employment, because the number of unemployed was small ($n = 13$).

Regarding the countries other than Japan, the likelihood of ever married/cohabited among those with non-regular employment was significantly different from those with regular employment in France, where the ever married/cohabited odds ratios of those whose first job was non-regular employment was .32 compared to those whose first job was in regular employment. In Singapore, the UK, and Sweden, there was no significant effect of a non-regular first job on the probability of the ever married/cohabited compared to a regular first job. In France and Sweden, those with unemployment as the first job had a significantly low probability of being married/cohabited at the time of the survey.

4 Discussion and Conclusions

This study tested the employment deterioration hypothesis, which posits that employment deterioration coupled with increased educational and cost of living expenses lower marriage rates. This hypothesis assumes a causal relationship in which non-regular employment, low incomes, and unemployment due to industrial sophistication, globalization, and service industrialization decrease the probability of ever being married. This study found differences

in the extent of the effects, but the employment deterioration hypothesis was generally supported with respect to the men in the six countries sampled. Men with low incomes at their present jobs and those who were unemployed at the time of the survey or at the time of their first job had very low probabilities of ever married/cohabited. Due to data constraints, the temporal context was strictly unclear in the analysis of the relationship between the present job and marriage, but it is strongly presumed that unstable employment and low incomes led to a low probability of male marriage, based on the results of the analysis of the first job, and the results of the analysis using the current marital status as a dependent variable described above in the text.

Regionally, the hypothesis was more strongly supported in the three Asian samples than in the three European samples. In the former, there was a strong relationship between marriage and low income, non-regular employment, and unemployment, and marriage was much less likely for them than for those with "regular employment and high annual income" as their present job. This finding suggests that widening income disparity and increasing non-regular employment, which are global phenomena, have contributed to the decreasing marriage rates in Asia.

This study further found that the odds of ever married/cohabited among unemployed men were very low in the three European samples. The odds of ever married/cohabited when non-regular employment was the first job or the present job were significantly lower in France, which are similar to the odds in Japan. The category of unemployment in the first job meant that a respondent had never worked after he left school. Therefore, this result suggests that men rarely got married before taking any job. These results imply that the deterioration of young adult employment is causing delayed marriages in European as well as in Asian countries.

Regarding Japan, men with non-regular employment apparently have difficulty getting married. First, there is a wide gap in the quality of treatment of employees between regular and non-regular employees. Moreover, those whose first jobs were non-regular employment could not easily transition to regular employment. These problems have caused a dramatic decline in marriage rates, which relates to declining birth rates.

This study proposed and tested a hypothesis to explain decreasing marriage rates. The results suggest that the increasing gaps in employment and income for young men in Asian countries decrease their likelihoods of marriage. Unfortunately, there were no data on the first job for the South Korean men, but it can be assumed that South Korean men in non-regular employment as their first jobs have the same difficulties getting married as their Japanese counterparts.

Employment deterioration among young adults has not been a major focus for explaining recent fertility changes in Europe. One reason for this omission is that the relationship between employment and marriage or cohabitation might be somewhat ambiguous in Europe, where labor markets are flexible, and disparities in the treatment of regular and non-regular employees appear minor. In support of this assessment, this study found little difference in the likelihoods of marriage or cohabitation by employment type and annual income level in the UK and Sweden.

Perhaps the lack of differences in Europe has influenced previous studies of low fertility in Asia, which have mainly cited studies regarding fertility in European countries, and have not focused on young adult employment. However, labor markets differ between Europe and Japan and other Asian countries. As this study found, a more detailed study of young adult employment deterioration, which is lowering the marriage rate, should be conducted in Asia.

The results of this study suggest the importance of their countries' employment conditions to governments, who should be encouraged to take measures regarding young adults' employment. When economic growth rates slow down, unstable and low-wage employment tends to increase among young adults. Therefore, it is necessary that Asian governments strengthen their policies with the objective of supporting regular employment for young adults, and increase their investments in human capital, to counter their declining birth rates. In Japan, it is further necessary to improve the treatment of non-regular employees, and to increase the flexibility of its labor market, to allow young adults who start out in non-regular employment to transition to regular employment when they want to do so. "Abenomics" has helped Japan become a booming economy, making it easier for young adults to get regular jobs, but that might temporarily hide the problem of the poor treatment of young non-regular workers. The fundamental problem associated with poor treatment of non-regular employees and inflexibility in the labor market has yet to be solved, and if the economic growth rate were to drop, the problems of non-regular employment might re-emerge in Japan in the near future. In South Korea and Singapore, it is necessary to implement measures similar to those undertaken in Japan, before their economic growth rates slow.

This study has some limitations. First, the data were retrospective and could be susceptible to recall error. Fortunately, the variables of the major life events used in the analysis, such as first job, marriage, and cohabitation, are easy for respondents to remember (Piotrowski, Kalleberg, and Rindfuss 2015). Hence, the results of this study might capture the actual situations of the countries under observation. However, the results should be verified using longitudinal

data with information to test the hypothesis for Asian and European countries. Second, with regard to the above points, due to data limitations, the analysis of the relationship between present job and ever married has a problem of temporal context. An event history analysis using suitable longitudinal data would clarify the temporal context of young adult employment and marriage. Third, it is common that the treatment of non-regular employment in the labor market is inferior to that of regular employment between countries, but the definition and detail of the treatment of non-regular employment is slightly different between countries. It is necessary to explore the disadvantages related to men's non-regular employment that influence their likelihood of marriage in each country.

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Appendix

TABLE A1 Percentages of ever married / ever cohabited^[a] by employment type

	Japan	South Korea	Singapore	UK	France	Sweden
<i>First Job</i>						
Self-employment	61.9	–	50.0	71.4	80.0	54.5
Regular Employment	64.3	–	62.9	67.6	86.3	79.0
Non-regular Employment	28.0	–	22.9	48.1	60.9	72.6
Unemployment	0.0	–	5.7	18.8	9.1	30.0
<i>Present Job</i>						
Self-employment	52.1	72.0	70.0	80.0	86.8	84.6
Regular Employment	67.1	55.6	61.8	66.8	81.5	83.1
Non-regular Employment	20.0	40.4	13.0	58.3	44.2	54.2
Unemployment	13.3	7.4	8.7	26.9	22.9	38.6

[a] Ever married is for the Asian countries; ever married / ever cohabited is for the European countries.