WWII, fear of the draft, and women's marriage in colonial Korea*

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ABSTRACT

During World War II, many women in Japanese colonies, mostly young and unmarried, were reportedly abducted, drafted, lured, recruited for sexual slavery, and forced into prostitution corps. The Japanese military sexual slavery not only devastated enslaved women's life but also significantly changed general women's behaviors in the colonies. A widespread fear of being drafted for sexual slavery stimulated early marriage, which they believed would reduce the risk of being drafted for sexual slavery considerably. An analysis of the 1975 Korea Census data reveals that the threat of sexual slavery reduced Korean women's average age at first marriage by about 1.11 years in the late colonial period. Using the colonial threat as an instrument for age at first marriage, a causal effect of the age at first marriage on women's childbirth and schooling can be estimated. Indeed, the resurgence of early marriage raised a woman's average lifetime childbirths by 0.31 and reduced her average years of schooling by 0.29.

Keywords: WWII, sexual slavery, early marriage, women's education, childbirth

JEL Classification Code: N35, O15, J12

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1. Motivation

During World War II, women in the Japanese colonies, such as Korea, China, the Philippines, and Indonesia, were enslaved, and sexually exploited at the so-called “comfort stations” of the Japanese armed forces in foreign lands. Many women in Japanese colonies, mostly young and unmarried, were reportedly abducted, drafted, lured, recruited for sexual slavery, and forced into prostitution corps. Though today the Japanese government is reluctant to admit that the Japanese military sexual slavery system was controlled and operated by the Japanese military and colonial governments, many scholars in the world have a consensus that the Japanese military sexual slavery was a serious war crime that should not be repeated in history again (Chung, 1997; Korean Council for the Women Drafted for Military Sexual Slavery by Japan, 2013).

Previous literature on the Japanese military sexual slavery mostly focused on the making and operation of the system and the involvement of the Japanese government (Chung, 2004; Howard, 1995; Soh, 2008; Tanaka, 2001; Yoon, 2010; Yoshimi, 2002). Instead, this paper targets at the impact of the sexual slavery on women’s behavior in general in the Japanese colonies. The key channel was the widespread threat to be drafted for sexual slavery. In the late colonial period, especially in Korea, it was popular to believe that the Japanese colonial government drafted young unmarried women for sex slavery. A widespread fear of being drafted for sexual slavery stimulated females to be married early, which they believed would reduce the risk of being drafted.

[Figure 1. The marriage rate by sex, 1914-1974]

The figure above shows the marriage rate of Korean males and females from 1914 to 1974, calculated by the 1975 census micro sample data. The marriage rate of each sex is calculated by dividing the number of marriages in each year by the number of 15-24 population, the prime age group of marriage in pre-industrial Korea. If there had been no exceptional behavioral changes in female’s marital decisions, we expect that the marriage rate would have been declining due to industrialization and urbanization or at least constant. This was generally true between 1914 and 1974, except the late colonial period from 1939 to 1945. Both the marriage rates of Korean males and females increased during the late colonial period, and the rate precipitated and returned to the pre-1939 trend right after the independence of Korea from Japanese rule and the end of World War II.

The high marriage rate in the late colonial period was partly related to the reemergence of the early marriage boom. The age at first marriage in Korea had been rising since the early 20th century, thus the late-colonial early marriage boom was irregular and exceptional (Cha, 2009; Park, 2006; Park and Kim, 2012). Without no significant progress in contemporary

contraception technology, early marriage may have also raised the total number of childbirths and consequently deprived young women of the opportunity of formal schooling that has been expanding fast in colonial Korea. This could be useful in explaining why the dramatic growth of the Korean economy was delayed until the 1960s, and understanding the impact of undesirable institutions of long-term economic growth that has been investigated by economists and economic historians (Field and Ambrus, 2008; Nunn, 2008; Nunn, 2011).

The rest of the paper is organized as follows. Historical background about the Japanese military sexual slavery is briefly introduced in the section. The next section explains the data set and empirical strategy to identify the effect of sexual slavery threat on women's behavioral changes. The result of the data analysis is reported in the following section with detailed discussion. The final section summarizes key findings and discusses the future research agenda.

2. Historical background

The Japanese military sexual slavery existed as early as in 1932, when 17 naval comfort stations were officially opened. At the comfort station, enslaved young women from Japan, Korea, and other colonies were forced into prostitution for Japanese servicemen. The military comfort station system started to be systemically expanded after 1937 when the second Sino-Japanese War began. All the comfort stations were strictly under the control, protection, and assistance of the Japanese military. The military comfort stations were located all across the Japanese empire and war frontiers, including Burma, China, Indonesia, Indochina, the Philippines, Manchuria, as well as mainland Japan and Korea. The comfort station system continued until 1945 when Japan finally surrendered in WWII.

Because most of the legal and official documents are still missing, no basic statistics of the Japanese military sexual slavery are available. The estimated size of the Japanese military sexual slaves ranges from 20,000 to 200,000 (Yoshimi, 2002). The sexual slaves were from the Japanese colonies, such as Korea, Taiwan, and the Philippines, while some were also recruited from mainland Japan. Sexual slaves were also drafted in the occupied land, such as Burma, the Dutch East Indies, and Portuguese Timor. Most of the survivors testified that they were either abducted to be sexual slaves or lured by the promise of employment at the factory. The sexual slaves were incarcerated in the comfort station and forced into prostitution.

Besides the devastation of enslaved women, the Japanese military sexual slavery also significantly affected colonial women in general. The key channel was the threat to be drafted for sexual slavery, and its direct consequence was the boom of early marriage, which at that time was believed to considerably reduce the risk of being drafted. Today, it is not difficult to find female survivors testifying that she was married early in the late colonial period because

her family worried about the forced draft of young unmarried females. For example, Soon-Nam Kim was married at age 18 when she and her family members heard that the Japanese colonial government forcibly drafted single women. She was married earlier than her two elder brothers, even though it was quite irregular at that time under the traditional Confucian tradition. (National Research Institute of Cultural Properties, 2010)

Though the origin of the sexual slavery was earlier, the threat of the involuntary draft began to spread in 1939, when Japan started to actively draft Koreans forcibly. With the onset of WWII in 1939, the Japanese colonial government started to forcibly draft Korean males and females for servicemen and workers at the munition factory. The draft of young women for factory workers was later organized in the name of *Jeongsindae*, after the resolution on the recruitment of unmarried women over age 14 was passed in March 1944 and the related law was enacted in August 1944. However, the worries about being drafted were indeed earlier than the introduction of *Jeongsindae*. Thus, in this paper, the seven years between 1939 and 1945 will be regarded as the period in which the threat of the forced draft for sexual slavery was widely spread in the Korean population.

In the next section, we investigate statistical evidence of women's behavioral change in the timing of marriage during the period of sexual slavery. Korean historians point out that early marriage had been popular in the 13th and 14th century, when the Goryeo government was forced to draft unmarried women and send them to China, after defeated by Yuan dynasty. The practice of the Japanese military sexual slavery and the wide spread of the threat to be drafted for sexual slavery were also likely to have caused the resurgence of early marriage in the similar way. In fact, kidnapping a female child for human trafficking had been also existed far before the era of sexual slavery. Colonial newspapers frequently reported an abduction of a female kid, especially by Chinese criminals (Kim, 2012). A thorough analysis of the micro-level data will again help to determine whether the sexual slavery really caused a consequence significantly different from the real world before the sexual slavery.

3. Data and Empirical Strategy

The 1975 Korean Population and Housing Semi-decennial Census was accompanied by the 5% sample survey on childbirth, economic activities, and migration. The sample is the earliest cross-sectional data that record the respondents' age at first marriage. The sample data consists of 333,918 individuals from 67,757 households, and contains demographic, social, and economic variables. The survey was officially conducted for ten days from October 1st to 10th in 1975.

Though the majority of the variables in the 1975 census sample conveys contemporaneous information, the dataset also includes variables on the individual history of

childbirth. The 1975 sample survey also asked the individual age at first marriage for the first time. The analysis of the long-run impact of the colonial event using data collected thirty years later possible thanks to those retrospective variables.

The sample consists of 77,643 women aged 15 or above in 1975. Married women in the sample were matched with their husbands' data if available. The number of the matched wife-husband pairs is 56,783. The descriptive statistics of the variables are reported in Table 1.

[Table 1. Descriptive statistics]

The proxy variable for the threat of the sexual slavery draft to colonial young women is the indicator variable that takes one if the woman was married in 1939-45, when the Japanese military sexual slavery was in practice, and zero otherwise. 8.3% of the women in the sample were married during this period. A direct concern regarding the use of the period indicator as a proxy for sexual slavery is its possible correlation with time trend. To deal with the time trend problem, the regression specification will include the yearly trend variable in the right-hand side. Additionally, the results using the pre- and post-sexual-slavery indicators will be provided for comparison with the original results. The indicators for the period 1931-37 and before 1939 are used to capture the trend effect before the era of sexual slavery, and the indicators for the period 1950-53 and after 1946 are used to capture the post-sexual-slavery trend. The 1931-37 period indicator and the 1950-53 indicator are also meaningful as they represent the Japanese invasion of Manchuria and the Korean War periods. Thus, the comparison of the 1939-45 effect with the 1931-37 or 1950-53 effect will provide extra information to identify the sexual slavery effect from the general war effect.

Indeed, age at first marriage shows a clear upward trend over time. The average age at first marriage in each calendar has been rising for both female and male, as illustrated in Figure 2. The male's age at first marriage looks having constantly grown from the colonial period to the 1970s, while the rise of the female's age at first marriage has been a bit staggering during 1939-1945 but accelerated soon after the independence in 1945. The average age at first marriage by birth cohort, illustrated in Figure 3, also shows continuous growth from those born in the early 20th century to the cohorts born after the Korean War. The upward trend over generation is clear for the males, though the female cohort trend was staggering until the rapid growth of the cohort's born after 1930.

[Figure 2. Age at first marriage by marriage year]

[Figure 3. Age at first marriage by birth year]

4. Results

The previous graphs show that the upward trend of Korean women's age at first marriage was abated between 1939 and 1945, when Japanese military sexual slavery was in practice and colonial people were frightened that unmarried young women could be drafted for military sexual slaves. The unexpected increase of the marriage rate, illustrated in Figure 1, as well as the change in the trend, also support that Japanese military sexual slavery might have influenced colonial women and their family members to change the women's marriage behavior so that they got married earlier than when there were no threat of draft for sexual slavery.

To examine the effect of the sexual slavery threat on women's marriage timing, we first use duration analysis. The duration of interest is the time from birth to marriage, which is equivalent to individual age at first marriage. Then, the hazard rate is defined as the likelihood to get married. Figure 4 shows the Kaplan-Meier estimates of the survival function mapping the probability of survival, which is staying in the never-married status, into the time horizon. According to the estimate for all the women illustrated in the upper panel of Figure 4, the survival rate begins to drop in the late teenage years and continues to decrease until age 30. However, the survival rate for women who were married in 1939-45 rapidly precipitates in the teenage years and approaches to zero in their twenties.

[Figure 4. The Kaplan-Meier estimate of the survival function]

Following the specification of the Weibull proportional hazard model, the hazard function $\mathrm{h}(\mathrm{t})$ is defined as follows.[3]

$$\mathrm{h}(t, x, S) = \exp(\alpha + \beta x + \delta S x)\, p t^{p-1} \cdots\cdots\cdots\cdots\cdots\cdots (1)$$

Here, t is the years since birth, which is the same as individual age, and x is the years since 1900. S is the indicator of the treated period, and the baseline period to proxy for sexual

[3] The Weibull model is used here as it can be easily converted into the accelerated failure time model of which the coefficient estimates can be intuitively interpreted as the percentage change in time to fail. The overall results are robust to the choice of the alternative specifications, such as the exponential, log-logistic, and cox proportional hazard models.

slavery is 1939-45. Thus, β represents the calendar-year trend of age at first marriage, and δ captures any shift of the yearly trend β during the treated period. p is the shape parameter, which is expected to be greater than one if the hazard increases as a woman's age rises. The parameters can be estimated by the maximum likelihood method for censored data.[4]

The result of the hazard regression in the accelerated failure time form is reported in Table 2. In the accelerated failure time model, the dependent variable becomes natural logarithm of age at first marriage. Hence, the coefficient estimates can be intuitively interpreted the percentage change in age at first marriage in response to a unit increase in the regressor. That is, β is the yearly trend effect representing the percentage change in age at first marriage associated with an increase of one calendar year. The baseline estimate of β is 0.0067, which means that age at first marriage had increased by 0.67% every year on average.[5] As the average age at first marriage in the sample is 20.14, the estimate implies that age at first marriage had been increased by about 0.135 years, or 1.62months. The yearly trends estimated in other models show similar magnitudes.

The shift of the trend effect during the sexual slavery period of 1939-45 is presented in the first column of Table 2. The yearly trend was reduced by 0.09 percentage points, or 13.4 percent, during the period of sexual slavery. That is, while age at first marriage had been annually increasing 0.135 years on average, the upward annual trend was reduced to 0.117 years. In the next two columns, other alternative proxies of the 1939-44 and 1940-44 indicators, which capture the period of active sexual slavery in a more conservative way, show a similar fall in the yearly trend.

The remaining columns in Table 2 report the effect of placebo treatments on the female age at first marriage. If the estimated effect of the 1939-45 period was driven by the war in general rather than the sexual slavery, a similar effect should be found in other war periods. Two placebo proxies of the 1931-37 and 1950-53 periods, which cover the Japanese invasion of Manchuria and the Korean War periods, respectively, show negative, but very moderate effects of reducing the annual upward trend in women's age at first marriage. The magnitude of the placebo effects is at most one fourth of the main treatment effect estimated by using the 1939-45 period indicator. The war might have increased the female's likelihood of getting married, but the effect of the sexual slavery period during 1939-45 was far above the estimated war effects in the other periods.

The last two columns of Table 2 reconfirms the irregular hike of women's likelihood of marriage during the sexual slavery period. When the pre-1939 period indicator is used to check any change in the linear yearly trend, the coefficient estimate is turned out to be

[4] The data is censored because a small number of women in the sample had never married by 1975. The likelihood function is defined following the specification in Kiefer (1988), and also Krozner and Strahan (1999).
[5] The average age at first marriage in the sample is 20.144, thus β=0.0067 implies that age at first marriage had increased by 1.35 years evey decade.

positive. The use of the post-1946 indicator also provides a significant jump in age at first marriage. These two estimates support that there was a considerable increase in women's marriage hazard during the sexual slavery period of 1939-45, which led to a drop in age at first marriage.

[Table 2. Hazard regressions: the effect of the sexual slavery period on the timing of marriage]

Figure 5.

The timing of marriage in women's life is important as it also affects women's childbirth and schooling. Early marriage is likely to offer women to an extended reproductive period, thus possibly causing an increase in the total lifetime childbirth. In the meantime, early marriage can interrupt women's schooling. Reduced schooling and having more children may also prevent women from participating in the labor market.

Table 3. The trend shift in the husband-wife age gap

Table 4. The trend shift in total lifetime childbirth

Table 5. The trend shift in women's years of schooling

The effect of early marriage on women's childbirth and schooling can be estimated by the linear regression model when a valid instrumental variable is available. The sexual slavery period of 1939-45 indicator is a good candidate for the instrument, as it might have affected women's marriage behavior exogenously. Also the 1939-45 period indicator is not likely to affect women's childbirth and schooling directly rather than through the channel of the reduced age at marriage, if the model is correctly controlled for the cohort effect or the yearly trend. The first stage equation takes the following form.

$$x_i = \alpha + \gamma z_i + W_i\delta + \mu_i \quad \cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots \quad (2)$$

In the first stage, the dependent variable x_i is the age at first marriage of individual *i*. W_i is other covariates that also used in the second stage estimation. The covariates include husband's age at first marriage, husband's years of schooling, birth year fixed effects, and husband's birth year fixed effects. Alternatively, the first stage can be also estimated using equation (3) following the specification of the hazard model capturing the effect of the sexual slavery period on the yearly trend effect.[6] In this equation, t_i is calculated by the difference between 1900 and the individual year of marriage.

$$x_i = \alpha + \tau t_i + \gamma z_i t_i + W_i \delta + \mu_i \cdots\cdots\cdots\cdots\cdots\cdots (3)$$

The first stage regression results are reported in Table 6. The age at first marriage of the women who married during the sexual slavery period of 1939-45 was lower by than that of other women's by 2.17 years without the covariates, and 1.11~1.44 years with the covariates or fixed effects. In the yearly trend form, the increasing trend of age at first marriage was reduced by 0.013~0.019 years, or 14.85~15.68%, during the sexual slavery period. The F statistics in the first stage regressions are sufficiently large, ruling out the possibility of the weak instrument problem.

[Table 6. First stage regressions]

Using the sexual slavery period as an instrumental variable, the effect of age at first marriage on women's total lifetime childbirth and years of schooling is estimated. As the source of variation in age at first marriage here is the sexual slavery period, the estimated effect is also thought to be caused by sexual slavery. The second stage regression is estimated by equation (4), where $\hat{x}_i$ is the individual age at first marriage predicted from the first stage regression, y_i is the dependent variable, and W_i is the matrix of the covariates.

$$y_i = \alpha + \beta \hat{x}_i + W_i \theta + \varepsilon_i \cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots (4)$$

6 In this specification, the covariance of $z_i t_i$ and ε_i, the idiosyncratic errors in the second stage equation, should be zero for the validity of the instrument.

The decrease in age at first marriage during the sexual slavery period led to a clear increase in the total childbirth. The ordinary-least-square and two-stage regression results using total lifetime births as a dependent variable are presented in Table 7. In the OLS models, the increase of a year in age at first marriage is associated with the decrease of total lifetime births by about 0.17, which implies that a woman tended to have one more child when she had been married about 5.89 years earlier. Compared to the moderate effect estimated by the OLS regressions, the 2SLS regression results show a greater magnitude of the effect. When the sexual slavery period of 1939-45 period indicator is used as an instrument variable, one year increase in age at first marriage leads to a decrease of total lifetime births by 0.2765 when own and husband's years of birth fixed effects are included in the regression. The IV estimate implies that a woman who got married about 3.62 years earlier is likely to have one more extra child in her lifetime. The estimated effects are greater in the model without the fixed effects, or in the specification of the yearly trend shift.

[Table 7. The effect of age at first marriage on child birth]

The intensification of the effect when using the instrumental variable method is due to the proper elimination of endogeneity, rather than the weak instrument problem. The instrument shows a significant explanatory power in the first stage regressions. When there are unobservable factors that affect age at first marriage and lifetime childbirth in the same direction, the pure causal effect estimated by the IV method can be greater than other estimators. For example, if children are normal goods, higher income is associated with both more children and delayed marriage. However, there is a caveat in interpreting the estimated effect. Because of the nature of the time-specific instrument of late-colonial sexual slavery, the estimated effect is a local treatment effect confined to the behavioral responses in the 1940s and 1950s. Then, the effect of age at first marriage on lifetime childbirth could have been greater in the period, compared to the peaceful early and mid-colonial period or the later period of rapid economic growth.

Women's years of schooling were also significantly impacted by the lowered age at first marriage during the sexual slavery period. The instrumental variable regression results in Table 8 report that the decrease in age at first marriage shortened women's years of schooling. The 2SLS estimate with the year-of-birth fixed effects show that a year's decrease in age at first marriage led to a reduction in the years of schooling by 0.26, which is slightly greater than the ordinary least squares estimator. The use of the yearly trend shift specification or the regression without the fixed effect returns a greater effect of age at first marriage on the years of schooling.

[Table 8. The effect of age at first marriage on years of schooling]

The estimated negative effect of early marriage on women's schooling is consistent with the historical facts. The threat to be drafted for sexual slavery caused a significant negative shock to the expansion of women's schooling in colonial Korea since the 1920s. Marriage per se meant a woman that she had to stay at home rather than going to school. Childbirth following marriage also hindered women's schooling. Another channel that sexual slavery impacted women's schooling in a negative way was the frequent draft of women at the school. Many records show that the Japanese colonial government used schools as an intermediary of drafting women for *Jeongsindae*, who usually served as a worker at the munition factories. While there remains no official records showing that the Japanese colonial authority utilized schools for forcibly recruiting sexual slaves, the frequent draft of women at school for factory workers or other purposes would have likely to provide colonial people with a negative conception of the school, thus preventing parents from sending their female children to school.

5. Discussion

Today, the resurgence of early marriage in the war is not uncommon. Armed conflicts put female children and young women in danger of sexual crimes, which makes the family members force women to get married in early marriage. However, Korea had never been a battlefield during WWII, thus there was no reason for colonial Koreans to worry about sexual assaults and rapes by armed forces except the forced draft of sexual slaves.

The behavioral response of colonial Koreans to the threat of being drafted for Japanese military sexual slavery was immediate. The likelihood of Korean women to get married was significantly increased during the sexual slavery period of 1939-1945, reducing the average age at first marriage by about 1.11 years. Early marriage again impacted women's childbirth and schooling. The instrumental variable analysis with the birth-of-year fixed effects shows that the average decrease of 1.11 in Korean women's age at first marriage led to an increase of 0.31 in their total lifetime births and a reduction of 0.29 in the years of schooling.

The magnitude of the estimated effect does not look dramatically large. However, the threat of being drafted for sexual slavery might have been uneven in the population. The relatively poor, disadvantaged people might have suffered more from the risk of sexual slavery, and the actual impact of sexual slavery on the behavioral changes of those people could have been far greater. Unfortunately, the 1975 census sample does not provide any information about the economic and social status of women at the time of marriage that are

required for further investigation

Age at first marriage in Korea has increased since the early 1900s, but the long-run trend was considerably interrupted by the practice of sexual slavery in the late colonial period. The distortion in the long run trend of age at first marriage accompanied some long-term impacts on the development of the Korean economy, such as the increase in population due to the rise in women's average lifetime births, and the decrease in women's schooling. The unexpected population increase and the interruption in human capital accumulation might have influenced economic development in the negative way. Furthermore, more births and less schooling could have hindered women from active labor market participation. The thorough investigation of the long-run impact of women's behavioral change on Korean economic development is left to further research.

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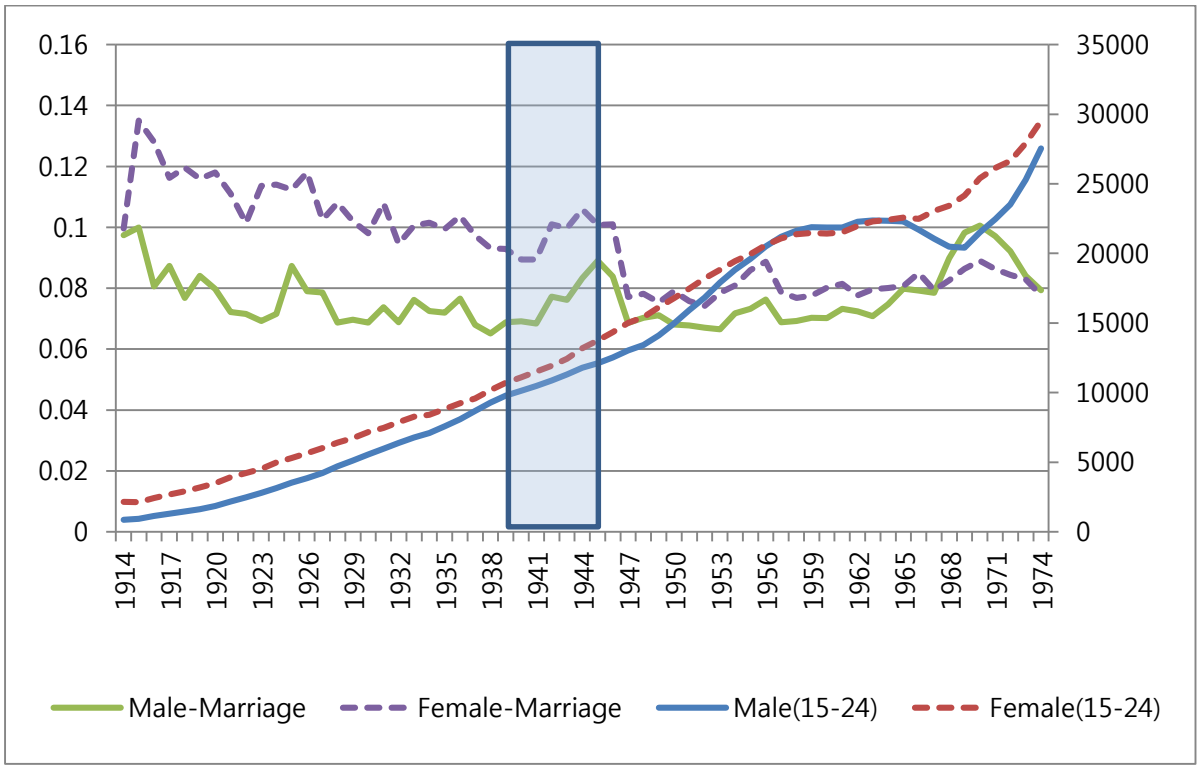
Figure 1. The marriage rate by sex, 1914-1974



The marriage rate = total marriage in the year / the 15-24 population

Figure 2. Age at first marriage by marriage year

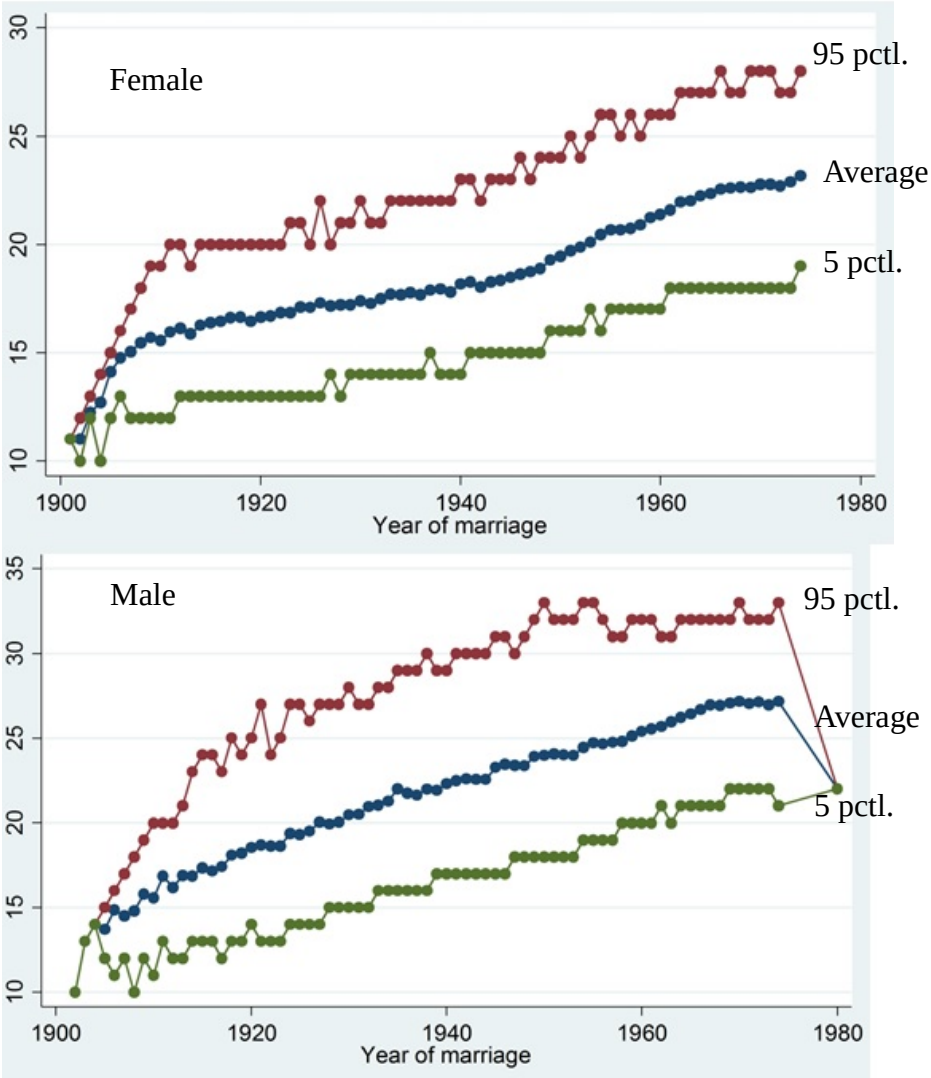


Figure 3. Age at first marriage by birth year

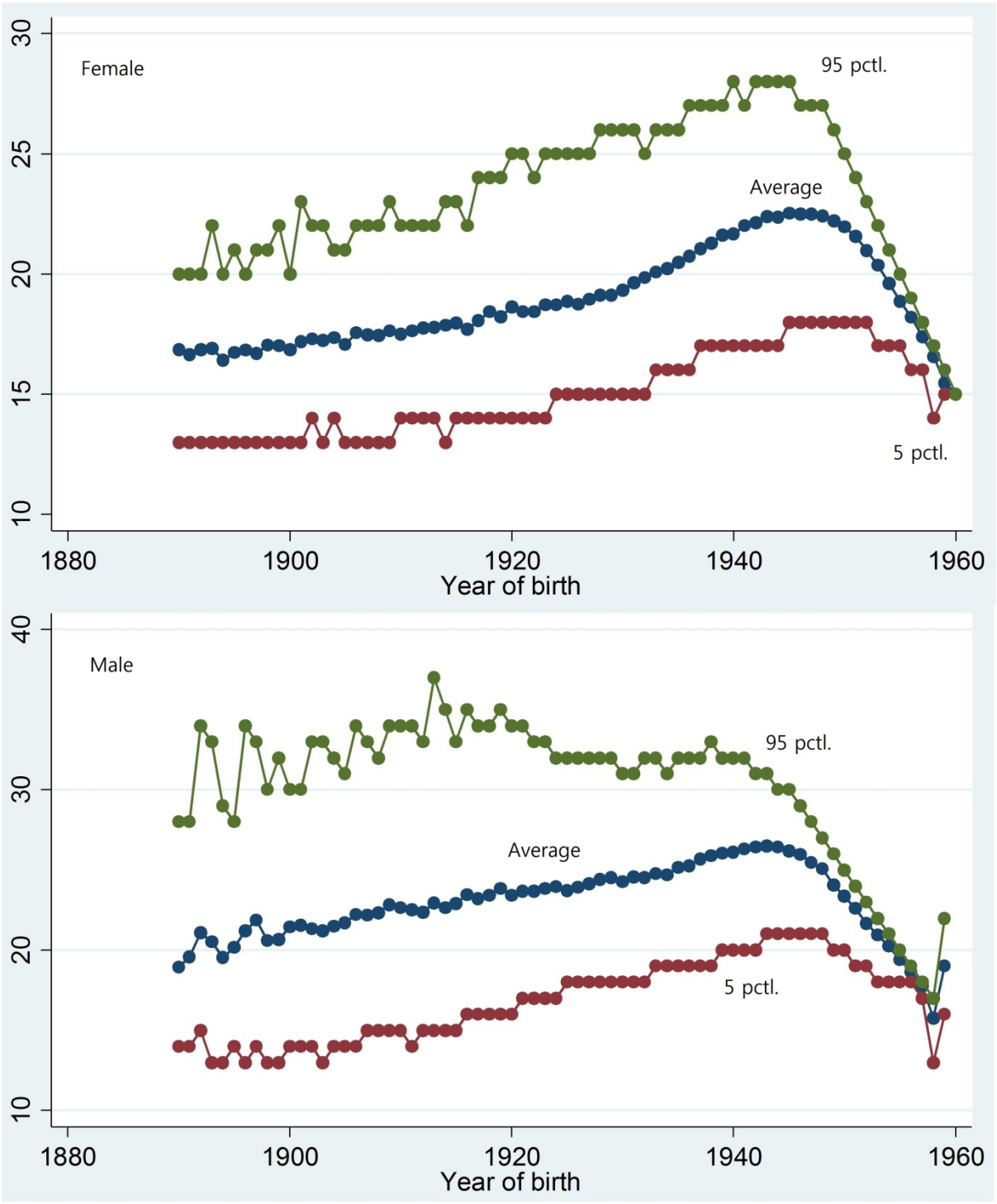


Figure 4. The Kaplan-Meier estimate of the survival function

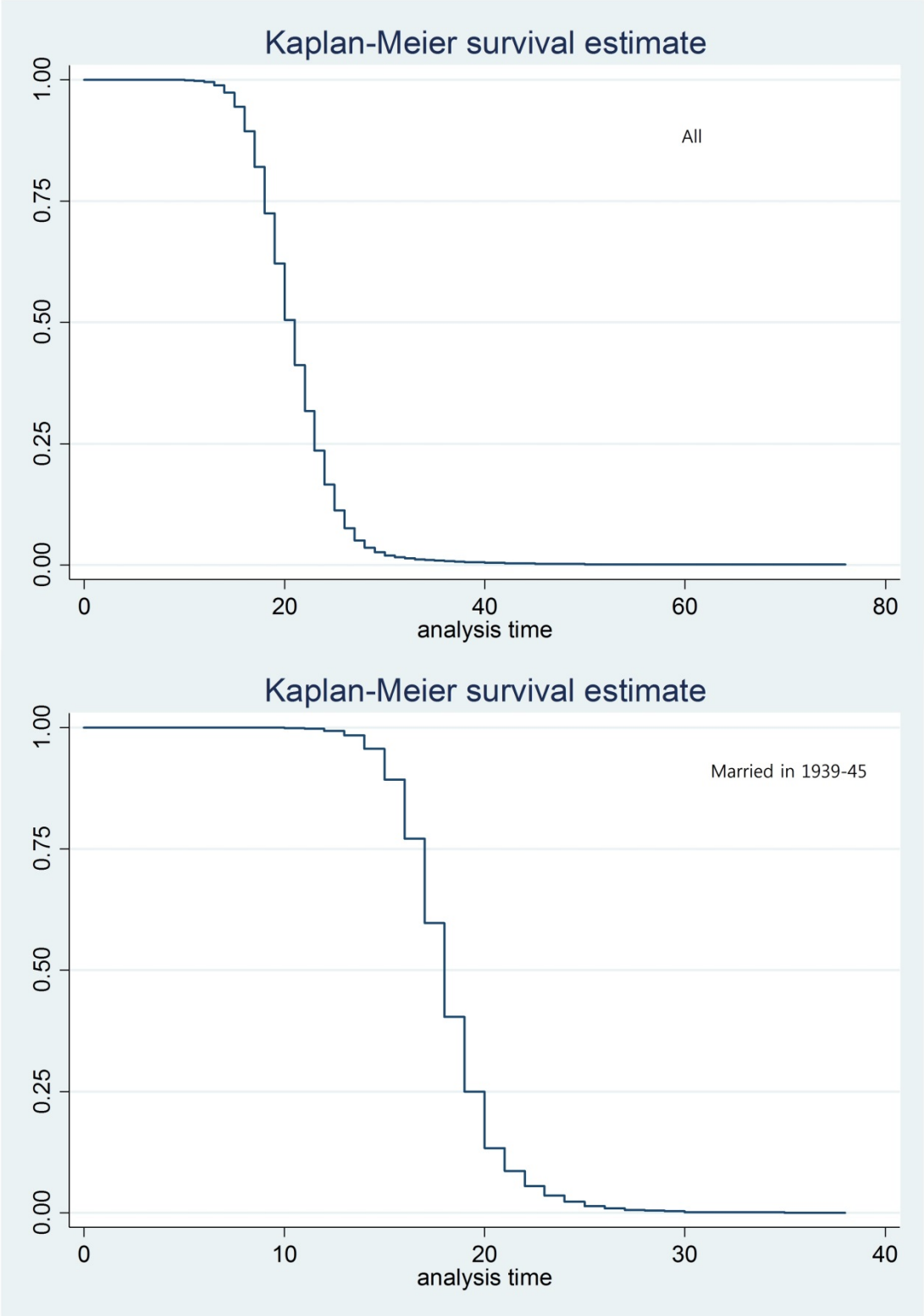
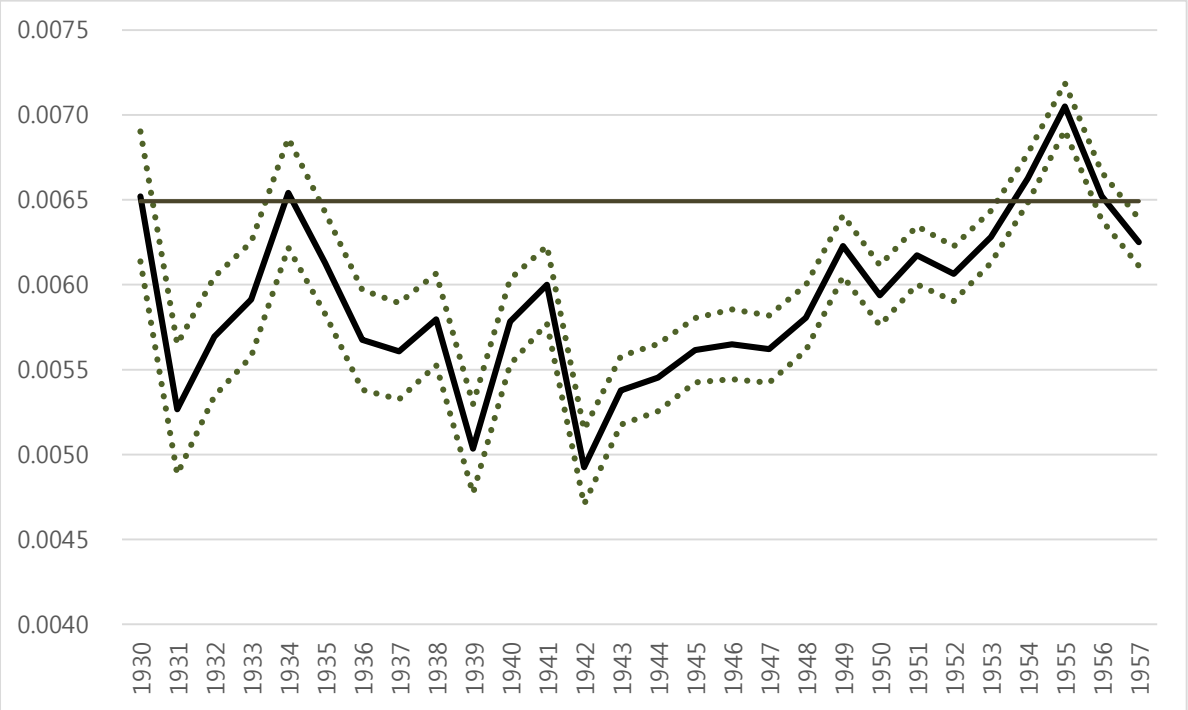


Figure 5. The shift of the yearly trend effect, 1930-1957 (%)



Note: The black bold line shows the shift of the yearly trend effect, estimated by the Weibull proportional hazard regression. The average yearly trend effect of the decreasing time to get married is 0.65%. The dotted lines show the 95% confidential interval of the yearly trend shift.

Table 1. Descriptive statistics

Variable	Average	St. Dev.	Max	Min	Median
Females					
Age in 1975	36.469	16.590	85	15	34
Age at first marriage	20.144	3.569	50	10	20
Year of marriage	1951.795	16.447	1974	1901	1955
Years of schooling	5.906	4.148	16	0	6
Husbands					
Age in 1975	42.678	12.095	85	15	40
Age at first marriage	24.785	4.430	50	10	25
Years of schooling	7.498	4.558	16	0	6
Treatment indicators					
Married in 1939-45	0.083	0.276	1	0	0
Married in 1939-44	0.069	0.254	1	0	0
Married in 1940-44	0.060	0.237	1	0	0
Married in 1931-37	0.059	0.235	1	0	0
Married in 1950-53	0.055	0.228	1	0	0
Married before 1939	0.164	0.371	1	0	0
Married after 1946	0.752	0.432	1	0	1

Table 2. Hazard regressions: the effect of the sexual slavery period on the timing of marriage

Dependent Variable = log age at first marriage							
Treatment	Married in 1939-45	Married in 1939-44	Married in 1940-44	Married in 1931-37	Married in 1950-53	Married before 1939	Married after 1946
Trend Effect	0.0067**	0.0067**	0.0067**	0.0068**	0.0068**	0.0069**	0.0054**
	[0.0000]	[0.0000]	[0.0000]	[0.0000]	[0.0000]	[0.0000]	[0.0001]
Δ in Trend Effect by the treatment	-0.0009**	-0.0009**	-0.0008**	-0.0002**	-0.0002**	0.0003**	0.0008**
	[0.0000]	[0.0000]	[0.0001]	[0.0001]	[0.0000]	[0.0001]	[0.0000]
Constant	2.7148**	2.7134**	2.7115**	2.7073**	2.7053**	2.6955**	2.7419**
	[0.0020]	[0.0020]	[0.0020]	[0.0021]	[0.0019]	[0.0029]	[0.0029]
ln(p)	1.8199**	1.8197**	1.8192**	1.8182**	1.8182**	1.8182**	1.8197**
	[0.0022]	[0.0022]	[0.0022]	[0.0022]	[0.0022]	[0.0022]	[0.0022]
Observations	77,263	77,263	77,263	77,263	77,263	77,263	77,263
Log Likelihood	30748.34	30721.7	30686.82	30581.95	30586.43	30583.454	30719.32

Standard errors in brackets. ** p<0.01, * p<0.05, + p<0.1. Coefficients are estimated by the Weibull regression in the accelerated failure-time form.

Table 3. The trend shift in the husband-wife age gap

Dependent Variable = Husband's age – Wife's age					
VARIABLES	Married in 1939-45	Married in 1939-44	Married in 1940-44	Married in 1931-37	Married in 1950-53
Trend Effect	-0.2491**	-0.2485**	-0.2471**	-0.2433**	-0.2429**
	[0.0078]	[0.0078]	[0.0078]	[0.0078]	[0.0078]
Δ in Trend Effect by the treatment	-0.0160**	-0.0178**	-0.0152**	-0.0015	0.0013
	[0.0026]	[0.0027]	[0.0027]	[0.0042]	[0.0018]
Constant	1.6799	1.6744	1.6617	1.6292	1.6250
	[1.2697]	[1.2700]	[1.2709]	[1.2731]	[1.2734]
YOB FE	Yes	Yes	Yes	Yes	Yes
Observations	56,820	56,820	56,820	56,820	56,820
R-squared	0.0609	0.0610	0.0607	0.0599	0.0599
F	40.47	40.64	40.35	39.94	39.87

Robust standard errors in brackets. ** p<0.01, * p<0.05, + p<0.1.

Table 4. The trend shift in total lifetime childbirth

Dependent variable = total lifetime childbirth					
VARIABLES	Married in 1939-45	Married in 1939-44	Married in 1940-44	Married in 1931-37	Married in 1950-53
Trend Effect	-0.1871**	-0.1869**	-0.1870**	-0.1877**	-0.1870**
	[0.0025]	[0.0024]	[0.0024]	[0.0024]	[0.0024]
Δ in Trend Effect by the treatment	-0.0006	-0.0003	-0.0005	-0.0043**	-0.0008
	[0.0008]	[0.0009]	[0.0009]	[0.0014]	[0.0006]
Age	0.1979**	0.1976**	0.1977**	0.1970**	0.1985**
	[0.0067]	[0.0067]	[0.0067]	[0.0067]	[0.0068]
Age(squared)	-0.0031**	-0.0031**	-0.0031**	-0.0031**	-0.0031**
	[0.0001]	[0.0001]	[0.0001]	[0.0001]	[0.0001]
Husband's Age	0.1121**	0.1121**	0.1121**	0.1106**	0.1125**
	[0.0074]	[0.0074]	[0.0074]	[0.0074]	[0.0074]
Husband's Age (squared)	-0.0014**	-0.0014**	-0.0014**	-0.0014**	-0.0014**
	[0.0001]	[0.0001]	[0.0001]	[0.0001]	[0.0001]
Constant	9.8363**	9.8269**	9.8302**	9.9213**	9.8115**
	[0.2493]	[0.2488]	[0.2485]	[0.2483]	[0.2465]
Observations	56,105	56,105	56,105	56,105	56,105
R-squared	0.5273	0.5273	0.5273	0.5275	0.5273
F	11577	11579	11516	11618	11378

Robust standard errors in brackets. ** p<0.01, * p<0.05, + p<0.1.

Table 5. The trend shift in women's years of schooling

Dependent variable = years of schooling					
VARIABLES	Married in 1939-45	Married in 1939-44	Married in 1940-44	Married in 1931-37	Married in 1950-53
Trend Effect	0.0875**	0.0875**	0.0878**	0.0879**	0.0882**
	[0.0035]	[0.0035]	[0.0035]	[0.0035]	[0.0035]
Δ in Trend Effect by the treatment	-0.0011	-0.0015	-0.0008	-0.0013	0.0002
	[0.0009]	[0.0009]	[0.0010]	[0.0013]	[0.0008]
Age	-0.0372**	-0.0371**	-0.0376**	-0.0386**	-0.0385**
	[0.0057]	[0.0057]	[0.0056]	[0.0056]	[0.0057]
Age(squared)	0.0007**	0.0007**	0.0007**	0.0007**	0.0007**
	[0.0001]	[0.0001]	[0.0001]	[0.0001]	[0.0001]
Husbands Years of Schooling	0.5515**	0.5515**	0.5516**	0.5516**	0.5516**
	[0.0028]	[0.0028]	[0.0028]	[0.0028]	[0.0028]
Constant	-3.0498**	-3.0457**	-3.0627**	-3.0535**	-3.0773**
	[0.3380]	[0.3379]	[0.3378]	[0.3377]	[0.3374]
Observations	56,820	56,820	56,820	56,820	56,820
R-squared	0.6523	0.6523	0.6523	0.6523	0.6523
F	25706	25702	25695	25684	25700

Robust standard errors in brackets. ** p<0.01, * p<0.05, + p<0.1.

Table 6. First stage regressions

y = age at first marriage						
VARIABLES	OLS	OLS	OLS	OLS	OLS	OLS
Married in 1939-45	-2.1662**	-1.3601**	-1.4363**	-1.1127**		
	[0.0307]	[0.0368]	[0.0830]	[0.0755]		
Δ in the yearly trend					-0.0191**	-0.0131**
if married in 1939-45					[0.0008]	[0.0009]
Husband's age at		0.3752**	0.3530**	0.5413**		0.2867**
first marriage		[0.0040]	[0.0045]	[0.0073]		[0.0028]
Husband's years		0.2116**	0.1856**	0.0980**		0.1195**
of schooling		[0.0029]	[0.0030]	[0.0030]		[0.0028]
Yearly trend					0.1286**	0.0835**
					[0.0006]	[0.0011]
Years of Birth FE			○	○		
Husband's years of birth FE				○		
Constant	20.3864**	9.8911**	10.8655**	24.2371**	13.5921**	7.9651**
	[0.0137]	[0.0931]	[1.3338]	[4.3679]	[0.0351]	[0.0695]
Observations	77,643	56,783	56,783	56,783	77263	56059
R-squared	0.0366	0.3989	0.4265	0.5826	0.3741	0.4538
F	4971	9819	538.1	518.2	23084.69	11642.43

Robust standard errors in brackets. ** p<0.01, * p<0.05, + p<0.1.

Table 7. The effect of age at first marriage on child birth

VARIABLES	OLS	2SLS	OLS	2SLS	2SLS
Instrument		Period		Period	Period*Trend
(y = total lifetime births)					
Age at first marriage	-0.1699**	-1.1138**	-0.1699**	-0.2765**	-0.8827**
	[0.0034]	[0.0400]	[0.0039]	[0.0520]	[0.0783]
Husband's age at first marriage	-0.0855**	0.2789**	-0.0170**	0.0414	0.2219**
	[0.0026]	[0.0164]	[0.0036]	[0.0286]	[0.0228]
Husband's years of schooling	-0.1144**	0.1011**	-0.0373**	-0.0268**	0.0834**
	[0.0021]	[0.0098]	[0.0019]	[0.0055]	[0.0100]
Yearly trend					-0.0285**
					[0.0071]
Constant	10.3922**	19.2179**	3.4700	3.7389**	17.6081**
	[0.0636]	[0.3795]	[2,266.2778]	[0.2435]	[0.6013]
Years of Birth FE			○	○	
Husband's years of birth FE			○	○	
Observations	56,069	56,069	56,069	56,069	56,059
R-squared	0.2506	0.2443	0.5363	0.5254	0.4316

Robust standard errors in brackets
** p<0.01, * p<0.05, + p<0.1

Table 8. The effect of age at first marriage on years of schooling

VARIABLES	OLS	2SLS	OLS	2SLS	2SLS
Instrument		Period		Period	Period*Trend
(y = years of schooling)					
Age at first marriage	0.5319**	1.0439**	0.2515**	0.2611**	0.7369**
	[0.0053]	[0.0183]	[0.0047]	[0.0464]	[0.0531]
Yearly trend					0.0622**
					[0.0069]
Constant	-5.8352**	-16.1494**	-0.0042	3.5833**	-13.1755**
	[0.1051]	[0.3671]	[15,992.3981]	[1.2686]	[0.7153]
Year of birth FE			○	○	
Observations	77,643	77,643	77,643	77,643	77,263
R-squared	0.2195	0.031	0.4408	0.4407	0.2478

Robust standard errors in brackets

** p<0.01, * p<0.05, + p<0.1