

Discussion Paper No.368

Gender Difference in the Effect of Never  
Married on SWB

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April 2022



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# Gender Difference in the Effect of Never Married on SWB

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## Abstract

This article explores the effect of never-married on certain key aspects of Subjective Well-Being (SWB) such as life satisfaction, happiness, financial satisfaction, and health condition, using the European Values Survey (EVS) and the World Values Survey (WVS). It also examines the gender difference in the effect of one's marital status on SWB that depends on age, country, and era. Our estimates show the following. First, the negative effect of never-married on SWB is stronger in males than in females. Second, the gender difference in the negative effect of never-married on SWB grows as one ages. While there is no gender difference in the effect of never-married on SWB before 40 years of age, males feel more unsatisfied with life by never having married than females, after 60 years of age. Third, in countries with a GDP per capita of \$30,000 and more, the negative effect of never-married on SWB is greater in males than in females aged 40 and above. In countries with a GDP per capita between \$5,000 and \$30,000, the negative effect of never-married for males is observed only for individuals aged 60 and above. In countries with a GDP per capita of less than \$5,000, the gender difference in the negative effect of never-married on SWB is not observed. Fourth, after 2010, the negative effect of never married in males is observed only for individuals aged 60 and above in countries with a GDP per capita of \$30,000 and above.

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## 1. Introduction

Populations across the world, including those of developing countries, are aging rapidly. In 1950, France faced the highest rate of aging in the world. From the 1970s to the 1990s, Sweden faced the highest rate of aging, as shown in Figure 1. Since 1990, the rate of aging in Japan has risen rapidly and is at its peak at present. Not only in these countries, but also in East Asian regions such as South Korea, China, and Taiwan, is aging progressing rapidly due to the decline in TFR. Put plainly, aging is a global phenomenon.

In addition, the rise in the never-married rate is a phenomenon common in many countries around the world. Figures 2-1 and Figure 2-2 show the changes in average age at the time of one's first marriage. Although this average declined in Ukraine during the turmoil following the collapse of the former Soviet Union, it rose for both genders in other regions. Focusing on the gender difference, the average age at the time of one's first marriage is lower for females than males in all countries. While it is relatively high in Sweden, it is lower in Ukraine and the United States.

As the average age at the time of one's first marriage increases, the rate of never-married also increases. Figure 3 shows the rate of never-married among individuals aged between 30 and 34 and 50 and 54, by gender. For males, it increases by 30% in Sweden and by 20% in other most countries, while for females, it is lower than that of males in all countries for both ages. It also increases by 20% for both genders in Sweden and Norway, while it falls by 10% in individuals aged between 50 and 54 years for both genders in South Korea. In terms of gender difference, there is a large difference between the never-married rate in Japan and South Korea. Therefore, aging and unmarried seem to go hand in hand.

A never-married status does not always lead to single-person households. Children conceived out of marriage are common in Western European countries, though it is rare in developing and East Asian countries. However, most never-married older people are likely to have single-person households in countries where nuclear families are more common. Under these circumstances, many of the never-married are likely to remain in single-person households as they age. Therefore, this study explores the effect of never-married on SWB, focusing on the gender difference. In addition, we examine how the difference in the effect varies by age, country, era, and the reasons for the same.

In sum, this paper studies the effect of never-married on certain key aspects of SWB

such as life satisfaction, happiness, financial satisfaction, and subjective health status using the European Value Survey (EVS) and the World Value Survey (WVS). This paper also analyzes whether the effect of one's marital status on SWB differs by gender and whether this difference varies by age, country, and era.

This research has four features. First, it explores the gender difference in the effect of marital status on SWB. Second, it examines whether the difference in the effect of marital status on SWB is between genders. Third, it focuses on the gender difference in the negative effects of never-married on SWB by age and economic development, using the EVS-WVS data. Fourth, we use a survey conducted over long periods, for almost 40 years, from 1981 to 1984, which makes it possible to analyze long-term trends. In other words, this study is a multifaceted analysis of the gender difference in the negative effect of never-married on SWB according to age, stages of development, and era, while making use of data surveying the long-term SWB trends in countries.

This study has also the following policy implications. Single older people have traditionally been related to poverty. However, some researchers have focused on the positive aspects of the single life for older people, as Klinenberg (2012) insists. Therefore, it is possible to discuss the effect of the household setup on individual well-being, while analyzing the SWB of single older people, who are closely related to poverty, from the perspectives of gender, age, country, and era. Further, the increase in the never-married rates is closely linked to lower fertility rates in many countries. Through an analysis of the gender difference in the impact of never-married individuals on SWB, we attempt to consider the factors behind the rise in never-married rates worldwide.

## 2. Previous Studies

Previous studies exploring the effects of marital status on SWB have been accumulated. Coombs (1991) surveys the effects of marriage on drinking, suicide, and mortality in the 1970s and 1980s and proves that marriage benefits males more than females. Post the 90s, studies have shown that the benefits of improving SWB through marriage are greater for males than for females (Stack, 1998; Horwitz et al., 1996; Sonnenberg et al., 2000; Kohler et al., 2005; Sonnenberg et al., 2013; Mikucka, 2016). However, some studies show that the effect of marriage on SWB is similar between the genders (Stack, 1990; Stack and Eshleman, 1998; Williams, 2003). Thus, the gender differences in the impact of marriage

on the SWB are also controversial. For East Asian countries, the majority of studies show that the benefits of marriage measured by SWB are far more applicable to males than to females (Kaufman and Taniguchi, 2010; Raymo, 2015; Lee et al., 2016; Fu and Noguchi, 2018; Hori and Kamo, 2018; Sato, 2020; Matsuura and Ma, 2021).

In western countries, there is an accumulation of previous studies on the effects of marriage and cohabitation on life satisfaction and happiness (Waite and Gallagher, 2000; Stutzer and Frey 2006; Clark et al. 2008; Musick and Bumpass, 2012; Lee and Ono, 2012; Verbakel, 2012; Mikucka, 2016; Perelli-Harris et al., 2019). Some previous studies explore the effect of marriage on objective and subjective health conditions (Ross et al, 1990; Horwitz et al., 1996; Simon and Marcussen, 1999; Barrett, 2000; Murray, 2000; Hughes and Waite, 2002; Simon, 2002; Liu and Umberson, 2008; Lindström, 2009; Chen et al., 2015; Lawrence et al., 2019).

Compared to studies on western countries, there are relatively few studies focusing on other regions. Some studies analyze the effects of marital status and household structure on the SWB for older people in East Asian countries (Brown, 2002; Chou et al., 2006; Chen and Short, 2008; Raymo et al., 2008; Chyi and Mao, 2012; Oshio, 2012; Zhou et al., 2018; Miao and Wu, 2019; Matsuura and Ma, 2021) and not focusing the older populations (Lim and Raymo, 2016; Fu and Noguchi, 2016; Lee et al, 2016; Fu and Noguchi, 2018; Sato, 2019; Kim and Nam, 2021).

These previous studies delineate the following findings. Although research on the relationship between marital status and SWB, using various indicators, have been accumulated and these studies focus on gender differences or specific age groups such as young and old as well, few studies focus on specific countries without conducting a transnational analysis. The ones that do carry out such an analysis compare very few countries and rarely does a transnational comparison include developing countries (Stack, 1990; Stack and Eshleman, 1998; Diener et al., 2000; Lee and Ono, 2012; Lee et al., 2016; Mikucka, 2016; Hori and Kamo, 2019; Perelli-Harris et al., 2019; Matsuura and Ma, 2021). Further, few studies focus on change in time (Liu and Umberson, 2008; Mikucka, 2016). In addition, few studies examine the gender difference of the effect of never-married on SWB depending on age, country, and era.

Mikucka (2016) is closely related to our research as we use the WVS-EVS to examine

marital status on SWB. She posits that females are less likely to increase their life satisfaction through marriage than males and further examines the differing effects of marriage according to countries. The differences between Mikucka and our study are as follow: we use recent data from 2010 onwards; she does not focus on the age effect on the gender differences of never married; we also use various kinds of SWB measures such as happiness, financial satisfaction, and subjective health<sup>2</sup>; further, we use propensity scores matching for robustness check.

### 3. Hypothesis, Model, Data

#### 3.1 Hypothesis

In this section, we explain the hypothesis, the model, and the data. At first, we present hypotheses on how the gender difference of the utility and disutility from never married depends on age and time, after having discussed utility and disutility from never married differs according to gender.

The never-married have two advantages; (a1) they can spend their time according to their own will and (b1) they can spend their money on themselves. However, although never married, they have utility and disutility from living with their parents. These utility and disutility depend on their age.

The never-married suffer four disadvantages; (a2) they cannot share household tasks with their spouse and children, (b2) they cannot rely on their spouse and children financially. Marriage can improve living standards by the economy of scale (Rogers, 1995; Joung et al., 1997), (c2) The psychological cost against the norm of marriage is desirable and (d2) they cannot be supported by their spouse psychologically. In this regard, Joung et al. (1997) analyze the effect of mutual support in marriage.

Such utility and disutility depend on gender, age, the stage of development of the countries, and era. Generally, males contribute less to household chores than females. This tendency is observed in developed countries as well. Bertland (2015) demonstrates that the wife undertakes more household tasks than the husband, conforming to gender norms, even if she earns more than him. It leads to the household burden being heavier

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<sup>2</sup> Mikucka (2016) use multi-level analysis considering country level's and individual level's error, while we use clustered robust standard error at country level.

for females than males. This implies that net utility from household chores for never married ((a1) -(a2)) is lower for males than for females. However, it is rare for the wife to earn more than the husband in the United States, as Berland (2015) shows, implying that the financial net utility from never married ((b1) -(b2)) is higher for males than females. The gender difference in psychological disutility against the norm to get married (c2) depends on time and country. The disutility of never-married by (d2) for females is lower than for males because females are more socially outgoing and tend to interact with the community more. Kawachi and Berkman (2001) show that males are more likely to rely for psychological support on their wives, while females are more likely to rely on relatives, children, and friends for the same. Thus, the shock of losing a spouse is greater in the case of males than females. These results indicate it is only financially advantageous for males in terms of the negative effect of never being married on SWB, which leads to the following hypothesis.

#### Hypothesis 1

Males face a greater negative effect on SWB of never being married than females. However, the gender difference in the negative effects of never-married on financial satisfaction is not as pronounced as in other aspects of SWB, such as life satisfaction, happiness, and subjective health conditions.

The age-related effects of the gender difference of never-married on SWB can be considered as the following. As age increases, males' disadvantage of never being married, in terms of household tasks, is expected to increase. The reason is that as people grow older, they must manage such tasks by themselves without their parents' help. Although they can rely on their parents in their youth to carry out household tasks, they are faced with taking care of their parents as they age. After the death of the parents, they cannot be supported by them. In addition, the more profound the gender difference of disutility for never married by lack of interaction with others (d2), the older they are. The reason is that males are likely to lose interaction with others as they retire or following their parents' deaths. Kawachi and Berkman (2001) insist that the psychological shock of losing a spouse is greater in males than in females, because females are likely to form more intimate bonds with their relatives and friends. The same may be applied to never-

married, which leads us to the following hypothesis.

#### Hypothesis 2

The gender difference in the negative effects of never-married on SWB increases with age and is more pronounced in older people.

The relation between the effect of never-married on SWB and economic development is a point of consideration. The gender wage gap is likely to decrease with an increase in the GDP per capita. As the economy develops and social security is enhanced, female's pensions in their old age also expand. Therefore, the gender difference in the net financial utility ((b1) -(b2)) of being never married lessens, as the economy develops, leading us to the following hypothesis.

#### Hypothesis 3

As the economy develops, the gender difference in the negative effects of never-married in old age becomes more pronounced.

In terms of time, two changes affect the relationship between never married and SWB in recent years. First, the rise in the never-married rate reduced the feeling of being a minority within the same generation than before, leading to a decrease in the psychological cost of never married. As Figure 3 shows, the percentage of never-married in individuals aged between 50 to 54 is over 20% for males and over 10% for females in many developed countries. For this reason, the middle-aged and older populations of the never-married are not minorities. Moreover, in most countries, males are older than females at the time of their first marriage. The age at the psychological cost of being never married (c1) has increased. Second, the use of SNS makes it easier to interact with people beyond their families, especially for younger people. It leads to a decrease in the disutility of never-married (d1) for middle-aged males. In contrast, as there are few never-married older people in many countries and they are less likely to interact with people beyond family members, the gender difference of the negative impact of never-married on SWB is more remarkable for the older people than middle-aged even now. This leads us to the following hypothesis.



#### Hypothesis 4

In recent years, the gender gap in the negative effects of never-married for the middle-aged has narrowed, but the negative effects are still greater for males in their old age.

### 3.2 Model and Data

We examine four hypotheses using the following equations by the ordered probit model with cluster-robust standard error at the country level, controlling the correlation among countries.

$$Y_{ict} = \beta_{10} + \beta_{11}Male + \beta_{12}Single + \beta_{13}Male \times Single + \beta_{15}Age + X\beta_{14} + \varepsilon_{ict} \quad (1)$$

$$Y_{ict} = \beta_{20} + \beta_{21}Male + \beta_{22}Single + \beta_{23}Age + \beta_{24}Male \times Single + \beta_{25}Male \times Age + \beta_{26}Age \times Single + \beta_{27}Male \times Single \times Age + X\beta_{28} + \varepsilon_{ict} \quad (2)$$

$Y_{ict}$  is SWB of individual  $i$ , country  $c$ , and time  $t$ . We use life satisfaction, happiness, financial satisfaction, and subjective health status as dependent variables. We focus on the coefficient  $\beta_{13}$ , which identifies gender difference of never-married on SWB.  $\beta_{13} < 0$  indicates that the negative effect of never-married is larger for males than for females. Further, we examine whether gender differences in the impact of never-married on SWB differ by age, country, and era, dividing the sample by them. The coefficient  $\beta_{27}$  identifies whether the gender difference in the impact of never-married on SWB is different by their age. We also divide the sample by country and era to verify whether the age effect is different among countries and eras.

We use the WVS and EVS started in 1981. They comprehensively ask about subjective well-being such as life satisfaction and happiness along with demographic variables. These surveys are conducted once every several years and have been conducted seven times until now.

First, it is possible to analyze long-term trends because the surveys have been conducted seven times once every several years until now. Second, it is possible to consider differences depending on the stage of economic development, since the survey is conducted in many countries around the world. However, it has also a limitation that

the fixed effect model cannot remove unobserved time consistent effects, as it is not panel data.

Table 1 shows descriptive statistics. Life satisfaction, happiness, financial satisfaction, and subjective health condition are measured at 10, 4, 10, and 5 levels for each. These variables are denoted to refer to SWB positively, as the number is high. The mean values of all SWB's measures are higher after 2010. The percentage of never-married is 24.1% in all samples, which is almost the same as 25% after 2010. The average age is 42.9 years in all samples, 44.9 years after 2010, and slightly higher after 2010. The percentage of men is 46.8% overall, which is almost the same as 46.4% after 2010.

## 4. Results

### 4.1 Basic Model

In this section, we examine the hypotheses. Table 2 shows the results of the gender differences in the effects of never-married on SWB. The interaction term “Male  $\times$  Never Married” is negatively significant except in column (3). It means the negative effect of never-married on SWB is greater for males than females. Males are likely to feel more unsatisfied, unhappy, and unhealthy being never married than females, though there is no gender difference of never-married on financial satisfaction.

These results suggest that the negative impact of never-married on SWB is greater for males than for females. However, such negative effects may vary with age; the effects and the gender difference are likely to be lesser for the younger generation than for the older people.

We focus on the effect of age on the gender difference, dividing the sample by age. The results are shown in Table 3. Columns (1) – (3) show the result for life satisfaction. The coefficient of “Never Married” for life satisfaction is negatively significant for all ages. It indicates that never married lowers life satisfaction in both genders. The interaction term “Male  $\times$  Never Married” for life satisfaction is negatively significant for people aged between 40 and 60 and for those aged above 60, though it is not significant for those aged below 40. It suggests that the negative effect of never-married grows larger for males when they are more than 40 years old.

Columns (4) – (6) show the results for happiness. The coefficient of “Never Married” and the interaction term “Male  $\times$  Never Married” for happiness is negatively significant

for all ages. It suggests that never-married lowers happiness and that the negative effect is larger for males than for females of all ages. Columns (7) – (9) tabulate the results for financial satisfaction. The coefficients of “Never Married” are negatively significant for all ages. The interaction term “Never Married” is negatively significant for those aged above 60 and insignificant for those aged between 40 and 60. In addition, it is positively significant for those aged below 40. It indicates that never married lowers financial satisfaction and the negative effect for males is greater than for females aged above 60 years and lesser for those aged below 40 years.

Columns (10) – (12) show the results for the subjective health condition. The coefficients of “Never Married” are insignificant and “Male  $\times$  Never Married” are negatively significant for subjective health at all ages. It suggests males feel unhealthier being never married than females. These results show that never-married affects certain aspects of SWB and the negative effect is larger for males than females. Further, the negative effect of never-married on SWB is profound in the case of males as they are aged above 60 years.

Next, we examine whether the negative effect of never-married increases for males as they get older. Table 4 shows the results. The interaction terms “Male  $\times$  Never Married  $\times$  Age” are negatively significant in all columns. It suggests that the gender difference in the negative effect for never married grow more profound with age.

Further, we examine whether the gender differences in the impact of never-married older people on SWB depend on economic development, dividing the sample by the GDP per capita. Columns (1) – (3) in Table 5 show the results for those aged between 40 and more and less than 60 years old by the stage of economic development. The interaction term “Male  $\times$  Never Married” is negatively significant only for countries where the GDP per capita is \$30,000 or more. Columns (4) – (6) in Table 5 show the results for those aged 60 and above by the stage of economic development. The interaction terms “Male  $\times$  Never Married” are negatively significant for the countries where the GDP per capita is between \$5,000 and \$30,000, and \$30,000 and more, while it is not significant in countries with a GDP per capita of less than \$5,000. These results indicate that in developing countries, there is no gender difference in the negative impact of never-married on SWB at any age, while the negative effect of never-married on SWB is greater for males than females aged 40 and up in countries with a GDP per capita of \$30,000 or

more.

These results can be summarized as the following. First, the negative effect of never-married on SWB is greater for males than for females. Second, the gender difference in the effect of never-married on SWB increases with an increase in age. Especially for those over 40 years old, the negative effect of never-married on SWB is more pronounced in males than in females. Third, the negative effect of never-married on SWB is greater for males than females aged 40 and above in countries where the GDP per capita is more than \$30,000, while there is no gender difference in the negative effect on SWB at any age in countries with GDP per capita of less than \$5,000.

#### 4.2 After 2010

In section 4.1, we examine four hypotheses using the full sample since 1981. Next, we focus on the recent changes. The following are the three major changes that have occurred in recent years. First, the rapid economic growth of the developing countries has made it possible for many services, which previously relied on women-centric domestic labor, to be outsourced or mechanized. Second, the rise in the never-married rate has reduced the pressure on marriage by the increase in the number of individuals with diverse lifestyles. Third, the Internet has activated the use of SNS, easing one's interaction with people beyond their families. Thus, focusing on recent data, we will examine whether the gender difference in the effect of never-married on SWB and the age-related effect of the gender difference has changed recently.

Table 6 shows these results. The coefficient of "Male  $\times$  Never Married" in Column (1) is insignificant, which indicates that the gender difference in the negative effect of never married is not observed after 2010. Column (2) - (4) show the coefficients of "Male  $\times$  Never Married" is significant for those aged between 40 and 60, and 60 and over, but insignificant for those aged below 40. These results show that even after 2010, the negative effect of never married is greater for males than for females aged 40 and above. Further, the difference between all periods and after 2010 is that after 2010, the coefficient of the interaction term changes from negative to positive for those aged below 40 years, though it is insignificant. This result is consistent with the hypothesis presented by Mikucka (2016) i.e., the benefits of marital measured by male life satisfaction have declined in recent years. However, we posit that the decline in marital benefits depends

on age. Never married males are less satisfied with life than females aged 40 and up even after 2010. Column (5) shows the result of whether the gender difference in the effect of never-married on SWB changes with age. The interaction term “Age  $\times$  Male  $\times$  Never Married” is negatively significant. It means the same tendency is still observed even after 2010.

Finally, we divided the samples by economic development for those aged between 40 and 60 and above to verify whether the gender difference in the effect of never-married on SWB varies with economic development. Table 7 tabulates the results by the GDP per capita. For the middle-aged group, the gender differences of the negative effects of never-married on SWB are not observed at all stages of economic development, as columns (1) - (3) in Table 7 show. Columns (4) – (6) show the negative effect of never-married on SWB as being greater for males than for females aged 60 and above only in countries where the GDP is \$30,000 or more, which indicates that the gender difference is still observed for the older people in developed countries after 2010.

#### 4.3 Robustness Check

We estimate using an ordered probit model. However, the model can only examine correlation without identifying the causal relation. Instead, for robustness check, we use the propensity score matching to identify the causal relation, since transnational panel data is not available.

The columns (1) - (4) of Tables 8-1 are the results for females, and columns (5) - (8) show the results of males using the full sample since 1981. The coefficients of the unmatched indicate the difference in the mean value of life satisfaction by marital status. Focusing on all ages, columns (1) and (5) indicate that never married results in higher life satisfaction for females and lower one for males, comparing the sample means for life satisfaction. The coefficients of ATT are the results controlling for self-selection bias through propensity score matching. The coefficients of never-married are significantly negative for both genders, after controlling for self-selection bias. The negative effects of never-married are slightly greater in males than females.

Next, we divide the sample by age. As columns (2) – (4) and (6) – (8) show, coefficients of ATT indicate never married decreases life satisfaction for both genders, and the negative effect is much greater for males than females aged 60 and above. The

coefficients of never-married are negatively significant for both genders aged between 40 and 60 years. The negative effect is greater for males than for females, though the difference is smaller for those aged 60 and up. For those aged below 40, the coefficient is negatively significant, though there is no gender difference in the effects. These results indicate never married has negative effects on SWB and the gender difference in the negative effect increases with an increase in age.

Further, we use the data set after 2010 to analyze recent trends. The coefficients of never married in ATT are insignificant for females and negatively significant for males, as columns (1) and (5) of Tables 8-2 show. It means that females do not feel unsatisfied with their life due to never married, while males feel unsatisfied even after 2010. Dividing the sample by age, the coefficients of never married in ATT are negatively significant for those aged between 40 and 60 years for females while these coefficients are negatively significant at all ages for males. The gender difference is large for those aged below 40 years and 60 and above. The negative effect of never married is greater for males aged 60 and above even after 2010, though we cannot confirm that the gender difference in the negative effects changes linearly by age.

## 5. Conclusion

We present the benefits and costs of never married and explore how it affects the benefits and costs of SWB by gender. We also examine whether the negative effect of never-married, especially for the older people, is influenced by economic development and era. Thus, presenting four hypotheses about the gender difference in the impact of never-married on SWB. Then, using the WVS-EVS data for the seven periods since 1981, we examine the gender difference in the effects of never-married on certain key aspects of SWB, such as life satisfaction and happiness from various perspectives such as age, economic development stage, and changes in the times.

As a result, we show the following. First, the negative effect of never-married on SWB is greater for males than for females. Second, the gender difference in the effect of never-married on SWB becomes larger as they age. For those over 40 years of age, the effect of lowering SWB by never married is more pronounced in males than in females. Third, the gender difference in the negative effect of never-married on SWB for the older people is observed in developed countries, while it is not observed in developing countries. Fourth,

since 2010, the negative effect of never married is greater for males than for females, only for those aged above 60 years in countries with a GDP of \$30,000 or more.

Our research has the following limitations. First, due to limitations of data availability, we cannot deal with problems of endogeneity sufficiently, though we use propensity score matching to conduct a robustness check. In other words, this study analyzes only the correlation between never married and SWB, while Stutzer and Frey (2006) examine the causal relationship between marital status and SWB, using panel data. Second, we do not consider differences in religion and culture, although we classify countries by the stage of their economic development. Future research is required to identify causal relationships using long-term, transnational panel data including cultural differences.

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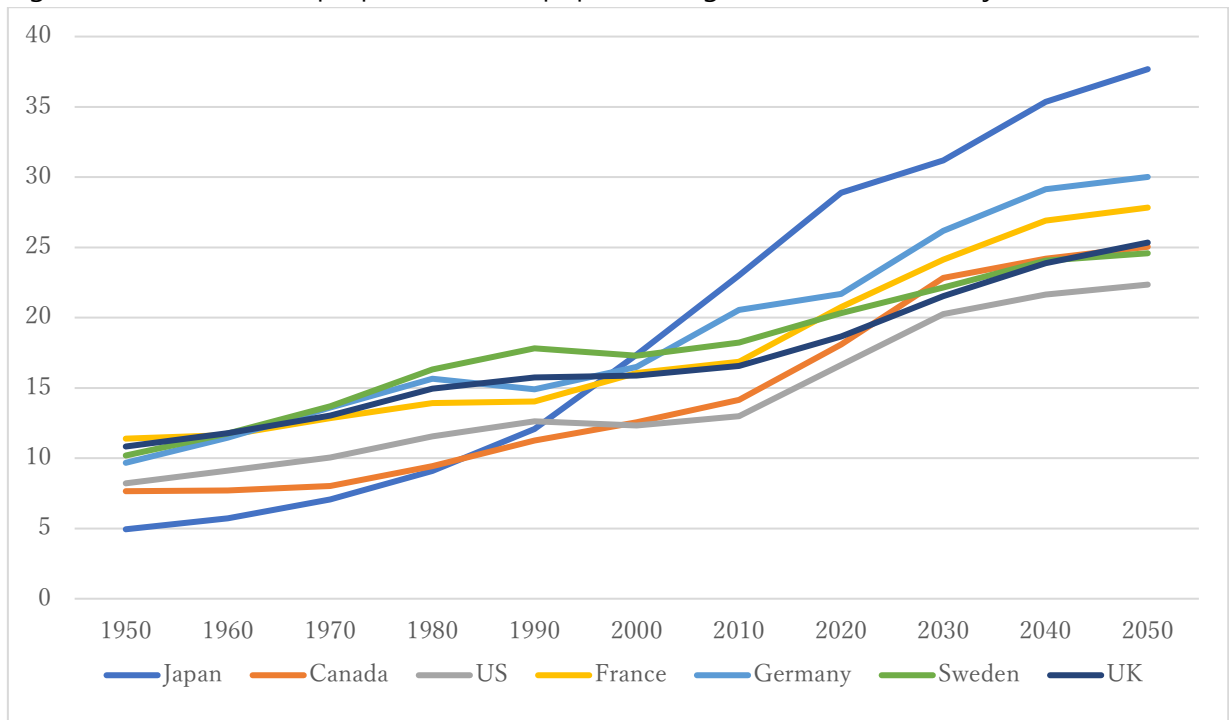
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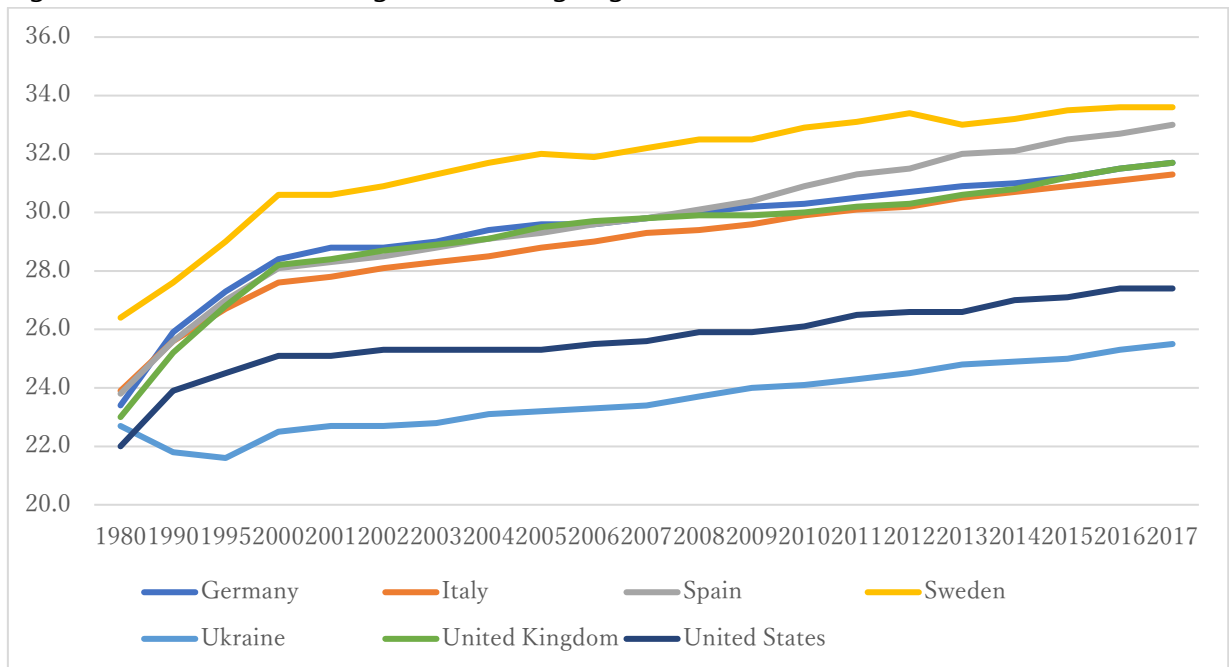
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Figure 1 Trends in the proportion of the population aged 65 and over in major countries



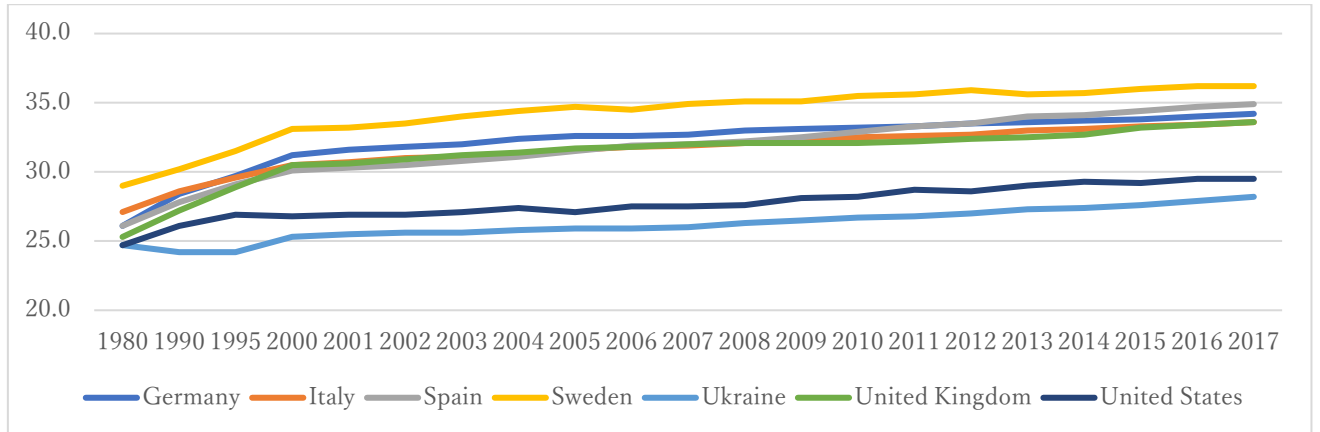
Source: UN, World Population Prospects: The 2019 Revision

Figure 2-1 Trends in average first marriage age Females



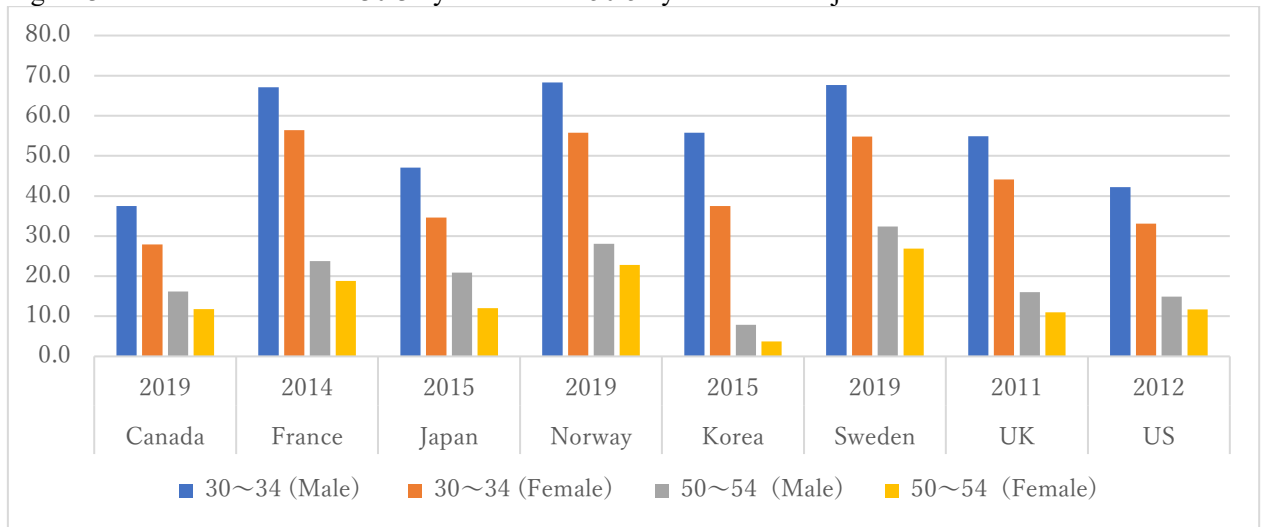
Source: UNECE Statistical Database

Figure 2-2 Trends in average first marriage age Males



Source: UNECE Statistical Database

Figure 3 Never-married rate of 30-34 years old and 50-54 years old in major countries



Source: UN, Population Censuses' Datasets

Table 1 Descriptive Statistics

	Obs	Mean	Std. dev.	Obs	Mean	Std. dev.
	Full			After 2010		
Life Satisfaction	637,783	6.825	2.367	146,770	7.049	2.214
Happiness	631,592	3.066	0.727	146,205	3.134	0.710
Financial Satisfaction	465,009	5.823	2.568	88,917	5.903	2.483
Subjective Health	592,195	3.785	0.906	147,208	3.835	0.890
Never-Married	646,418	0.241	0.428	147,668	0.250	0.433
Age	639,775	42.887	16.892	147,163	44.938	17.414
Male	646,418	0.468	0.499	147,668	0.464	0.499

Table 2 Gender differences in the impact of Never-married on SWB

VARIABLES	(1) Life	(2) Happiness	(3) Financial	(4) Health
Never-Married	-0.0629*** (0.0124)	-0.123*** (0.0146)	0.0107 (0.0133)	0.00286 (0.0134)
Male	-0.00748 (0.00867)	0.00922 (0.00997)	-0.00374 (0.00934)	0.110*** (0.0137)
Male × Never-Married	-0.0307*** (0.00952)	-0.0772*** (0.0112)	0.0111 (0.0123)	-0.0332** (0.0146)
Age	-0.00258*** (0.000568)	-0.00727*** (0.000665)	0.000553 (0.000727)	-0.0176*** (0.000862)
Income	0.259*** (0.0124)	0.232*** (0.0109)	0.501*** (0.0215)	0.202*** (0.00728)
Education, Job, Country, Year	Yes	Yes	Yes	Yes
Observations	486,321	483,227	345,259	448,990

Clustered robust standard errors by countries in parentheses

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

Table 3 Gender difference in the effect of never-married on SWB: by age

VARIABLES	(1) Life >=60	(2) Life 40-60	(3) Life <40	(4) Happiness >=60	(5) Happiness 40-60	(6) Happiness <40	(7) Financial >=60	(8) Financial 40-60	(9) Financial <40	(10) Health >=60	(11) Health 40-60	(12) Health <40
Never-Married	-0.0568** (0.0268)	-0.102*** (0.0159)	-0.129*** (0.0161)	-0.132*** (0.0354)	-0.183*** (0.0176)	-0.179*** (0.0183)	-0.0690** (0.0335)	-0.0738*** (0.0171)	-0.0524*** (0.0151)	0.0301 (0.0286)	-0.0141 (0.0168)	0.00463 (0.0142)
Male	0.0192* (0.0103)	-0.0274*** (0.00870)	-0.0301*** (0.0116)	0.0481*** (0.0137)	-0.0154 (0.0114)	-0.0203* (0.0117)	0.0206 (0.0156)	-0.00257 (0.00912)	-0.0334*** (0.0125)	0.0852*** (0.0193)	0.0869*** (0.0147)	0.125*** (0.0127)
Male × Never-Married	-0.125*** (0.0405)	-0.0568*** (0.0193)	-0.00232 (0.0120)	-0.155*** (0.0406)	-0.0765*** (0.0228)	-0.0454*** (0.0127)	-0.0932* (0.0514)	0.0260 (0.0226)	0.0315** (0.0137)	-0.102*** (0.0315)	-0.0720*** (0.0218)	-0.0331** (0.0136)
Age	0.00295*** (0.000857)	0.00104 (0.000688)	-0.0126*** (0.00106)	-0.000316 (0.00107)	-0.00557*** (0.000845)	-0.0159*** (0.000950)	0.0114*** (0.00157)	0.00342*** (0.000977)	-0.0107*** (0.000907)	-0.0146*** (0.00142)	-0.0175*** (0.00112)	-0.0186*** (0.00109)
Income	0.226*** (0.0105)	0.277*** (0.0124)	0.257*** (0.0154)	0.229*** (0.0101)	0.247*** (0.0110)	0.217*** (0.0133)	0.485*** (0.0226)	0.529*** (0.0209)	0.496*** (0.0237)	0.204*** (0.00983)	0.214*** (0.00804)	0.183*** (0.00806)
Education, Job ,Country, Year	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	93,663	163,830	228,828	93,114	162,937	227,176	54,662	114,521	176,076	85,429	151,243	212,318

Clustered robust standard errors by countries in parentheses

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

Table 4 Age effect of gender difference in the effect of never-married on SWB

VARIABLES	(1) Life	(2) Happiness	(3) Financial	(4) Health
Never-Married	0.00518 (0.0238)	-0.0542** (0.0275)	0.187*** (0.0282)	-0.0106 (0.0250)
Male	-0.119*** (0.0243)	-0.137*** (0.0238)	-0.0939*** (0.0253)	0.0492*** (0.0186)
Male × Never-Married	0.152*** (0.0279)	0.0987*** (0.0285)	0.135*** (0.0285)	0.105*** (0.0316)
Age	-0.00273*** (0.000657)	-0.00774*** (0.000740)	0.000918 (0.000897)	-0.0178*** (0.000981)
Age × Never-Married	-0.00225*** (0.000523)	-0.00246*** (0.000644)	-0.00571*** (0.000724)	0.000348 (0.000672)
Age × Male	0.00227*** (0.000444)	0.00299*** (0.000454)	0.00189*** (0.000529)	0.00123*** (0.000460)
Age × Male × Never-Married	-0.00492*** (0.000680)	-0.00419*** (0.000734)	-0.00336*** (0.000820)	-0.00395*** (0.000808)
Income, Education, Job, Country, Year	Yes	Yes	Yes	Yes
Observations	486,321	483,227	345,259	448,990

Clustered robust standard errors by countries in parentheses

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

Table 5 Gender differences in the impact of never-married on Life Satisfaction: by age and by GDP per capita

VARIABLES	(1) GDP>=30	(2) 40=<Age<60 5=<GDP<30	(3) GDP<5	(4) GDP>=30	(5) Age>=60 5=<GDP<30	(6) GDP<5
Never-Married	-0.123*** (0.0231)	-0.106*** (0.0305)	-0.0727*** (0.0255)	-0.0463 (0.0458)	-0.0223 (0.0414)	-0.121** (0.0542)
Male	-0.0656*** (0.0169)	-0.0374*** (0.0117)	0.00467 (0.0112)	-0.0179 (0.0206)	0.0401*** (0.0128)	0.0450** (0.0189)
Male × Never-Married	-0.0867*** (0.0293)	-0.000674 (0.0336)	-0.0536 (0.0412)	-0.181*** (0.0555)	-0.152** (0.0701)	0.0691 (0.0825)
Age	0.00321** (0.00151)	-0.000239 (0.00107)	0.00115 (0.00102)	0.00256 (0.00172)	0.00187 (0.00124)	0.00178 (0.00139)
Income	0.293*** (0.0242)	0.250*** (0.0177)	0.302*** (0.0177)	0.233*** (0.0162)	0.204*** (0.0175)	0.303*** (0.0164)
Education, Job, Country, Year	Yes	Yes	Yes	Yes	Yes	Yes
Observations	40,731	60,676	62,423	31,340	37,405	24,918

Clustered robust standard errors by countries in parentheses

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



Table 6 Gender differences in the impact of never-married on SWB: after 2010

VARIABLES	(1) full	(2) Age $\geq$ 60	(3) 40= $\leq$ Age $<$ 60	(4) Age $<$ 40	(5) full
Never-Married	-0.0728*** (0.0161)	-0.0311 (0.0314)	-0.102*** (0.0223)	-0.121*** (0.0191)	-0.0360 (0.0305)
Male	-0.0210** (0.00953)	-0.00861 (0.0145)	-0.0487*** (0.0115)	-0.0314** (0.0136)	-0.113*** (0.0288)
Male $\times$ Never-Married	-0.0131 (0.0119)	-0.134*** (0.0434)	-0.0545** (0.0274)	0.00553 (0.0154)	0.189*** (0.0338)
Age	-0.00199*** (0.000667)	0.00384*** (0.00117)	-0.000467 (0.000949)	-0.0113*** (0.00115)	-0.00204** (0.000825)
Age $\times$ Never-Married					-0.00110 (0.000701)
Age $\times$ Male					0.00185*** (0.000559)
Age $\times$ Male $\times$ Never-Married					-0.00565*** (0.000856)
Income, Education, Job, Country, Year	Yes	Yes	Yes	Yes	Yes
Observations	206,134	43,784	70,615	91,735	206,134

Clustered robust standard errors by countries in parentheses

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

Table 7 Gender differences in the impact of never-married on SWB: by age and by GDP per capita

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
	40=<Age<60			Age>=60		
	GDP>=30	5=<GDP<30	GDP<5	GDP>=30	5=<GDP<30	GDP<5
Never-Married	-0.142*** (0.0279)	-0.0995** (0.0394)	-0.0643 (0.0482)	-0.0465 (0.0363)	0.00142 (0.0517)	-0.149 (0.108)
Male	-0.0933*** (0.0194)	-0.0308* (0.0178)	-0.0366* (0.0192)	-0.0565*** (0.0198)	0.0210 (0.0194)	0.0370 (0.0341)
Male × Never-Married	-0.0706 (0.0452)	-0.0107 (0.0459)	-0.0629 (0.0704)	-0.175*** (0.0545)	-0.112 (0.0750)	0.126 (0.133)
Age	0.00229 (0.00204)	-0.00302** (0.00134)	4.67e-05 (0.00167)	0.00404* (0.00231)	0.00383** (0.00156)	-0.000930 (0.00233)
Income, Education, Job, Country, Year	Yes	Yes	Yes	Yes	Yes	Yes
Observations	20,942	30,648	19,025	17,893	18,210	7,681

Clustered robust standard errors by countries in parentheses

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

Table 8-1 Propensity Score Matching

	Female				Male			
	full (1)	>=60 (2)	60-40 (3)	<40 (4)	full (5)	>=60 (6)	60-40 (7)	<40 (8)
Unmatched	0.090*** (0.012)	0.169** (0.052)	-0.025 (0.031)	0.009 (0.014)	-0.048*** (0.011)	-0.053 (0.058)	-0.151*** (0.031)	-0.023 (0.014)
ATT	-0.173*** (0.005)	-0.126* (0.074)	-0.205*** (0.046)	-0.178*** (0.045)	-0.196*** (0.036)	-0.302*** (0.080)	-0.260*** (0.045)	-0.178*** (0.010)
N	255268	48826	86160	119727	230902	43733	77304	109024

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

Table 8-2 Propensity Score Matching: After 2010

	Female				Male			
	full (1)	>=60 (2)	60-40 (3)	<40 (4)	full (5)	>=60 (6)	60-40 (7)	<40 (8)
Unmatched	-0.001 (0.017)	0.115 (0.069)	-0.167*** (0.040)	-0.047* (0.021)	-0.140*** (0.016)	-0.234** (0.073)	-0.328*** (0.040)	-0.095*** (0.021)
ATT	-0.008 (0.044)	-0.091 (0.096)	-0.214*** (0.060)	0.017 (0.067)	-0.167*** (0.049)	-0.220** (0.106)	-0.288*** (0.061)	-0.172** (0.072)
N	108977	22514	37519	48225	97110	19787	32655	43489

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

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