



## An East–West dichotomy?

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### Abstract

Age at marriage varies greatly over time and between places. This study examines changes in age differences between spouses, as well as age at marriage, over 200 years in Taiwan and Sweden. Changes across vastly different socioeconomic and demographic contexts are explored in these two different kinship and marriage systems. Five different data sources are used to create micro-level data on spousal age differences for Swedish marriages formed between 1830 and 2006 and for Taiwanese ones that occurred between 1870 and 2015. The findings reveal two clearly distinct marriage systems that converge in some ways over time but remain divergent in other aspects. While age at marriage varied greatly over the two centuries, this study puts particular emphasis on how age at marriage for both men and women interacts with age differences between spouses and how this has changed over time. In contrast to shrinking age differences in Taiwan over one and a half centuries, average age differences in Sweden remained relatively constant, with the dispersion of age differences following a U-shaped pattern and reaching a minimum in around 1970.

**Keywords:** age at marriage, spousal age difference, East–West family systems, European marriage pattern, Taiwan, Sweden.

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## 1. Introduction

In many societies, spousal age preferences are changing. In the past, age hypergamous marriages where the husbands are older (often much older) than the wives have been a common practice in traditional settings around the world. In times when women are not as educated as men, and when women rely on men for economic support, a man's older age is often equivalent to more socioeconomic resources as a provider. However, with economic development and educational expansion, a trend toward later marriage and more age homogamy and hypogamy (where wives are older than husbands) has emerged in many Western and Asian countries over the past half a century. These changes often result in a shrinking age gap between the spouses in many countries (Esteve et al., 2009; Jones, 2017; Kolk, 2015; Van Poppel et al., 2001).

Social heterogamy is one of the key topics in research on marriage patterns. Homogamous unions where "*like marries like*" are common, yet many others are involved in heterogamous marriages where spouses differ in traits, such as age, education, race/ethnicity, or income level. While heterogamy in terms of education, race, and income is considered positive because it signals an open society, spousal age differences are often interpreted differently. A large spousal age difference, particularly when the husband is much older than the wife, has been interpreted as related to gender inequality in power relations (Bozon, 1991; Shorter, 1975; Van de Putte et al., 2009). Women in such unions tend to be more dependent on their husbands economically than those in similar-age unions. Despite the social meanings of age pairing between spouses, the age patterns of marriage are relatively less studied in sociological or demographic research (Skopek et al., 2011) when compared to assortative mating with regard to education and race.

Previous research on marriage age patterns is not only limited but also tends to focus on contemporary and, to some extent, historical Western populations. The broad demographic patterns of age differences have been demonstrated in a large number of different countries, and some studies have focused on how the differences have evolved over time (Esteve et al., 2009; Hancock et al., 2003; Kolk, 2015; Van Poppel et al., 2001), differences in terms of union order (Ní Bhrolcháin, 2005), and a gendered perspective on age differences (the overall extent to which women are younger), as compared to the relative age differences in unions (Kolk, 2015). Related literature has examined age differences in the context of so-called marriage squeezes and whether age preferences may impact marriage markets when cohort sizes fluctuate over the years (Akers, 1967; Ní Bhrolcháin, 2001; Veevers, 1988). However, topics relating to how age differences change with age at marriage or union formation, and how this has changed

over time and across social contexts, have largely been ignored in the literature (see Ní Bhrolcháin, 2004 though).

This paper aims to explore marriage age patterns from an East–West comparative perspective across two centuries of immense social changes in Taiwan and Sweden. We examine in detail how mean ages at marriage evolve over time and how marital age differences are related to the age of the involved spouses in two contrasting social contexts. We put particular emphasis on how age differences interact with age at marriage for men and women and study how age differences change when a woman or a man is much older at the time of marriage, as well as how this has changed over time. Links between age at marriage and spousal age differences may be closely related to gendered attitudes toward acceptable and preferred ages of spouses (Ní Bhrolcháin, 1992; Ní Bhrolcháin & Sigle-Rushton, 2005), and these norms may be changing due to economic development and female empowerment. We also study these changes in a context where ages at marriage have changed dramatically over time. We contribute to the literature on age differences by using a long time framework that includes periods both before and after the demographic transition, and we achieve this by pooling five different data sources, which we analyze using a similar methodology.

## **2. A comparative approach to studying age patterns of marriage**

While men-older marriages seem to prevail at different times and in distinct contexts (Hajnal, 1965; Hopkins, 1965; Liu, 1985; Saller, 1987; Shaw, 1987), age patterns of marriage vary in different marriage systems. Taiwan and Sweden provide an interesting contrast for historical and geo-cultural reasons. Historically, Taiwan is a typical example of an Eastern family system, similar to that in China and Japan (Therborn, 2014), whereas Sweden in the 19<sup>th</sup> century was a typical example of what has been called the Northwest European marriage pattern (Hendrickx, 2005). While historically distinct, these two countries also exemplify two examples of rapid development, with Sweden evolving from a typical European agricultural society, through rapid industrial growth, to a society characterized by high gender equality and strong governmental support for a dual earner-carer family model. Taiwan also saw very rapid industrial change over the period but followed a different trajectory with less government involvement in family life. While some family demographic changes such as long premarital cohabitation and non-marital childbearing remain rare, the kinship system has evolved towards more nuclear families and marriages are postponed until later in life in Taiwan. The macro-level context of a globalized

economy has diversified family patterns in Taiwan and Sweden, causing marriage age patterns in both societies to converge and more closely resemble each other in the post-industrial era.

### *2.1 Two contrasting historical marriage systems*

While there are many different family systems in the world (Therborn, 2014), the Sinic-Confucian and the Northwest European marriage systems are two notable ones, representing models that can be referred to as the “East” and the “West”, respectively (Engelen & Wolf, 2005; Hajnal, 1965). The Sinic civilization is the social context that gives rise to the former, where extended family structure is normative and parental authority dominates major life course decisions among the younger generations. Early and universal marriages and low celibacy rates, coupled with virilocal living arrangements, are some of the key characteristics of this marriage system, at least since the 17<sup>th</sup> and 18<sup>th</sup> centuries (Liu, 1985; Wolf & Huang, 1980). The mean ages at marriage appeared to be about 21 and 16 for men and women, respectively, and the share of men remaining single by the age of 50 was often lower than 5% in 18<sup>th</sup> century China (Liu, 1985; Lundh & Kurosu, 2014). Lee and Wang (1999) also showed low female and male ages at marriage for a large number of regions in China in the 18<sup>th</sup>, 19<sup>th</sup> and 20<sup>th</sup> centuries. In addition, there are sex disparities in human capital investment, so low literacy rates among women persisted until the first half of the 20<sup>th</sup> century (Yu, 1988). Moreover, in the early 20<sup>th</sup> century Taiwan had a variety of marriage forms. Aside from the normative patrilocal marriage in which a woman moved into a husband family at the time of marriage, there was also a so-called minor marriage<sup>1</sup> in which an infant girl from a different family was adopted into a household to eventually marry a son in the adopting family. This latter form of marriage was nearly as common as the former one in some regions, and uxorilocal marriages where a man moved into a woman’s family were also not uncommon (Li et. al, 2020; Wolf & Huang, 1980). Neolocal marriages in which newlyweds formed a nuclear household were very rare. In general, parents exercised considerable authority over their children’s marriages, including partner selection (Li et. al, 2020; Wolf & Huang, 1980; Wolf 1968).

The Swedish kinship pattern shares many similarities with other Northwest European populations and originates in the Germanic groups that lived in Northwestern Europe two thousand years ago (Kolk, 2014; Murray, 1983). Compared to other regions of the world, marriage has typically taken place late for both men and women (i.e., around their mid- to late

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<sup>1</sup> Also referred to as little daughter-in-law marriages. It is called sim-pua marriages in the Hokkien language, or tongyangxi in Mandarin.

twenties), and there has been a substantial share of never-married adults in their late forties, representing as much as one fifth of a given population (Hajnal, 1965). In pre-industrial Sweden, both men and women were exposed to extended premarital employment before forming a neolocal marriage (Dribe, 2000). Most marriages were based on the individual's own desires with limited parental authority over marital decisions.

Some empirical research has revealed an East–West difference with historical data in comparative studies, as hypothesized by researchers such as Hajnal (1965). Using historical Taiwanese household registers, Engelen and Hsieh (2007) largely confirmed a clear difference in marriage systems between historical Taiwan and the Northwestern European pattern observed in the Netherlands. In addition, Lundh and Kurosu (2014) and other authors in the Eurasia project compared marriage patterns across Southern Sweden, Belgium, Southern Italy, Japan, and Manchuria and reported strong differences in age at marriage across Europe and East Asia in the 17<sup>th</sup>, 18<sup>th</sup> and 19<sup>th</sup> centuries. The industrial revolution and modern development likely further delay the timing and shift age patterns regarding marriage from the late modern era to contemporary times, yet little has been explored.

## ***2.2 Social and demographic changes in Taiwan and Sweden since the 19<sup>th</sup> century***

Demographic behaviors are often closely tied to the changing social and economic milieu in a given society (Davis, 1963; Goode, 1963). In particular, economic transformations that bring about advancements in productivity are often accompanied by large-scale behavioral changes at the individual level. Modern Taiwan and Sweden also represent two contexts with very different gender and demographic regimes, though age patterns in terms of marriage have become more similar over time in both societies. Modern and contemporary Taiwan has sustained a relatively patriarchal social milieu compared to Sweden, even though women's socioeconomic attainment has improved tremendously over the past decades. Marriage rates have been declining in Taiwan since the 1980s, along with a rapid drop in fertility to ultra-low levels of around one child and relatively low rates of cohabitation (when compared with Sweden) in recent years. These patterns in Taiwan are in stark contrast with Sweden, where the prevalence of cohabitation has sustained rates of union formation, and period and cohort total fertility rates have remained close to the replacement level. Such differences in family behaviors have been partly caused by relatively rigid and inflexible family values and gender relations during times of rapid social changes in Taiwan (Cheng, 2020).

In the case of Taiwan, the shift from an agrarian to an industrialized society took place during Japanese colonial rule (1895–1945) and the ensuing government of the Republic of China (ROC). The colonial government laid the infrastructure for modernization, and the ROC government continued to develop export-oriented industrialization that led to rapid economic growth from the 1960s to 1980s. Meanwhile, tremendous changes in women’s status are key to changing family behaviors in the 20<sup>th</sup> century (Thornton & Lin, 1994). In the 19<sup>th</sup> and early 20<sup>th</sup> century, female literacy rates were quite low (Yu, 1988), and women often married at very young ages (Barclay, 1954) in agrarian Taiwan. Women’s enrollment in primary education rose from less than 2% in 1908 to over 60% in 1943 (Yu, 1988). Later on, in the 1970s, educational expansion that made up for the shortage of skilled labor during the process of industrialization substantially raised the status of women. The proportion of female college students rose from 21% to 36% between 1960 and 1970 and further to 50% in 2010 (Ministry of Education, 2012). The improvement in human capital among women also propelled a surge in labor force participation rates at prime working ages, with a tremendous increase from 56% to 84% for those aged 25 to 29 between 1987 and 2010 (DGBAS, 1987–2010), and improved the earning capacity of women. Prolonged education and female economic independence have been associated with delayed or even foregone marriages, as the mean age at marriage rose and the proportions of those who were never married increased for the cohorts born after the 1950s (Ministry of the Interior, 1975–2015; Thornton & Lin, 1994).

As for Sweden, social changes since the 19<sup>th</sup> century have been characterized by increasing gender equality and two waves of industrialization. Comparatively high gender equality in Sweden can be dated back to as early as the 17<sup>th</sup> century, and marriages in Sweden have been described as comparatively equal with large agency in choosing a partner (Lundh, 2003; Rotering & Bras, 2019). In 1842, women began to be included in the compulsory primary education school system, and in 1866, women were given rights to attend universities. In pre-industrial Sweden, both men and women typically worked outside their family of origin for an extended period of time before marriage (Dribe, 2000). The first wave of industrialization took place in the second half of the 19<sup>th</sup> century, which was followed by another phase of industrial upgrading that lasted until the 1950s. With two waves of industrialization from the second half of the 19<sup>th</sup> century until the 1950s, ages at marriage declined in the middle of the 20<sup>th</sup> century but have steadily increased since the 1970s. In contemporary Sweden, marriage increasingly takes place quite late in the family formation process, often several years after the birth of joint children for cohabiting couples (Holland, 2013). Premarital cohabitation is nearly universal.

Mean spousal age differences as indicated by mean age at marriage statistics are quite typical for Western countries (Ortega, 2014).

### **3. Theories on age-matching patterns**

The predominance of age hypergamy observed in many societies around the globe has attracted scholarly interest. In general, the main explanations are based on evolutionary and economic reasons (Bergstrom & Bagnoli, 1993; Buss, 1989). That is, men seek out younger women to maximize reproductive success, and women look for older men who tend to be more economically established to play the provider role. Given that procreation and earning capacities are both related to age, though in different directions, a strong selection of men-older marriages is inevitable. However, critics have pointed out how these explanations are losing explanatory power in contemporary societies where women have become much better educated and economically independent, largely increasing their bargaining power and choices prior to forming marital unions.

Social exchange theory underlies the evolutionary-economic explanations for the prevalence of age hypergamy observed across human societies. In other words, men and women exchange desirable traits that are valued by the opposite sex when forming unions within a given socio-cultural context. In pre-industrial societies, women generally rely on men for economic support, and hence, men's provider role is preferred. The expansion of educational opportunities in industrialized societies alters the life chances of women and couple dynamics. As more women have become tertiary educated and economically independent, their preferences for future spouses undoubtedly change with their rising social statuses. For instance, when a woman can provide for herself, she may value other non-economic characteristics in her future spouse, such as youth, appearance, or desirable personality traits. On the other hand, the high living costs commonly observed in modern societies could further reinforce the importance of men's economic standing because women's expectations of an ideal living standard could also rise with their social statuses. In turn, the former could cause age hypergamy to rise, while the latter would cause age hypergamy to persist.



## 4. Past research

### 4.1 *Age differences in marriage over time*

Research on Western developed societies has reported shifting age preferences over the past century (Atkinson & Glass, 1985; Esteve et al., 2009; Kolk, 2015; Ní Bhrolcháin, 2001; Van Poppel et al., 2001), and the literature in Asia is relatively scanty. The rise of age homogamous marriages and the decline of age hypergamy have been documented in several European countries with long time-series data (Atkinson & Glass, 1985; Esteve et al., 2009; Kolk, 2015; Van Poppel et al., 2001). For instance, a study on the Netherlands has shown by far the longest historical data on age-pairing patterns of marriages from 1850 to 1993 (Van Poppel et al., 2001). The findings indicate that a gradual decline in spousal age gaps was observed between 1850 and 1970 and that it increased a bit afterward. Over nearly 150 years, age homogamy increased steadily, and hypergamy, with large age differences, showed a stable decline over time. Another study on Spain for the period between 1922 and 2006 also reveals similar patterns of increasing age homogamy and decreasing hypergamy (Esteve et al., 2009). Similar shifts in age preferences were also reported for Sweden between 1932 and 2007 with marriage register data (Kolk, 2015) and in the United States between 1900 and 1980 with census data (Atkinson & Glass, 1985). That is, increasingly more unions, be it marital or childbearing ones, were formed between similar-age partners, and fewer involved age-disparate husbands. In an attempt to explain this changing trend, scholars have pointed out that educational expansion, changing socio-cultural preferences, and the decreasing impact of parental authority have led to behavioral changes toward shrinking age gaps among married couples over the past century in Europe (Kalmijn, 1991). In Asia, Lee and Campbell (1997) examined age differences in Manchuria for men born between 1774 and 1840, and found an average age difference of around 1.8 years, with quite a wide distribution of age differences and a high share of both male-older and female-older marriages. Wolf and Huang (1980) examined age differences by marriage type in colonial Taiwan and found that age differences were the smallest and less dispersed in minor marriages, where the husband was usually a few years older than his wife. Uxorilocal marriages had the largest age differences, with patrilocal marriages somewhere in between. Minor marriages took place comparatively early in the life course and uxori-local marriages comparatively late. A recent study on contemporary China showed a declining trend with regard to age hypergamy from 1960 to 1990 and then a reversal to more age hypergamy afterwards (Mu & Xie, 2014). The authors have attributed such a reversal to high living costs and housing prices, which reinforce men's earning capacity in post-reform China.

In Taiwan, age preferences in terms of partners also changed in recent decades, as more people hold non-traditional, liberal views on gender roles and norms regarding family formation, with a rising female status (Cheng, 2020; Cheng & Yang, 2016). In the past, men and women married early. Pasternak (1989) reported on age at marriage in a village in Southern Taiwan in 1916–1945 and found that men married at around the age of 22–23 and women at around the age of 19–20, with slightly decreasing age differences with regard to gender over time. By the mid-1970s, the mean age for a first marriage had risen to 26.6 and 22.3 for men and women, respectively (Ministry of the Interior, 1975–2015), and this rising trend meant that these ages reached 32.6 and 30.4 in 2019. Meanwhile, with rising ages at marriage, women's increased earning capacity has changed their preferences in terms of mates, resulting in a decreasing trend of traditional men-older marriages and a rising share of age homogamous unions. In particular, the share of Taiwanese marriages involving older wives and younger husbands increased from less than 9% in 1975 to over 20% in 2015 (Ministry of the Interior, 1975–2015).

In Sweden, a stable pattern where men are about 2 to 2½ years older than women has persisted in the 20<sup>th</sup> century, though there has been a minor decline in the prevalence of men-older relationships over time (Kolk, 2015). Very large age gaps with both older women and older men were more common before the 1950s but have increased somewhat since the 1990s. Little is known about age gaps in pre-industrial Sweden, though statistics on the mean age of marriages indicate that the pattern was quite similar to the post-industrial pattern (yet the mean age at marriage was much higher for both men and women in the 1960s and 1970s than historical or contemporary Sweden). When examining how age differences affect fertility in Northern Sweden, Rotering and Bras (2019) found a slight increase in male-older marriages (and a decrease in female-older marriages) during the 19<sup>th</sup> century. Lundh and Kurosu (2014) observed mean ages at marriage for Manchuria, Japan, and Southern Sweden, where spousal mean age differences at marriage was around three years in Southern Sweden and larger in Japan and Manchuria. Dribe and Stanfors (2017) examined age differences in the 1880, 1890, and 1900 Swedish censuses and found largely stable age differences, with a modal age difference of men being around 2–3 years older and a mean age difference of men being about 4 years older. Spatial differences were modest (though smaller age differences were found in the cities), and elites had larger age differences than other groups.

In general, relatively small age gaps have been theoretically described as being typical for a Northwestern European marriage pattern, but few studies have studied when this emerged and

the extent to which it is similar to contemporary partner-pairing patterns in Northwestern Europe (see Van Poppel et al., 2001 and Van de Putte et al., 2009 for the lowlands though). The theoretical prediction of lower age differences in historic Northwestern Europe, as compared to other parts of the world, has ambiguous empirical support from directly comparable data, and research remains scarce (though see, Lundh & Kurosu, 2014).

#### ***4.2 Gendered Spousal Age Preferences***

In addition to regional differences in age patterns of marriage, past research noted age preferences in the mate-searching process as being highly gendered (England & McClintock, 2009; Skopek et al., 2011). That is, women and men show distinct age preferences for their partners over the entire life course. Scholars have explained such a pattern from the perspective of a cultural “double standard of aging” and using evolutionary reasons (England & McClintock, 2009; Sontag, 1979). Indeed, a study by Skopek et al. (2011) shows that while men increasingly prefer younger women as they age, women’s mating age preferences become more heterogeneous over the life course. In addition, a recent U.S. study also indicated that the older men are when they marry, the more years they marry down (England & McClintock, 2009). In particular, highly educated men marry down further in age than their less educated peers when marrying later in life, though the difference is not large. Such a gendered age preference has often created a marriage squeeze against older women and resulting in a higher share of them remaining single in the U.S. Gender variations in age preferences across the life course can further diverge in contexts with different gender equality regimes. Countries with more egalitarian gender relations likely have more toned-down gendered age preferences than those with more unequal gender roles.

Previous research has primarily focused on changes in average age gaps between spouses. We extend this focus to examine shifting mean ages at marriage and the distribution of ages at marriage over time and between spaces. We also explore how spousal age gaps change in terms of the ages at marriage of the wife and the husband over the long term in two distinct social settings. Our study is unique in its use of high-quality contemporary and historical micro-level data, including dates of marriages and dates of births, which allow us to follow marital histories with monthly precision.

## 5. Data and Methods

We use 5 sets of data sources for studying spousal age preferences from the 19<sup>th</sup> to 21<sup>st</sup> centuries in Taiwan and Sweden. We study all marriages between men and women, including unions where one or both spouses have previous marital histories. Remarriages are characterized by larger age differences in general, and the inclusion of higher-order marriages is, in general, more impactful when we look at marriages at older ages where a larger share of marriages are remarriages.

The Taiwanese data used for this study come from historical Taiwanese colonial register data (1905–1946); multiple waves of the Women’s Marriage, Fertility, and Employment (WMFE) Survey; and marriage registration data (1998–2015). The historical registers are administrative data collected by the Japanese colonial authorities in the first half of the 20<sup>th</sup> century when Taiwan was administrated as a colony of Japan. The household registration system records all demographic events and household information, as well as migration histories of the inhabitants (Wolf & Huang, 1980). The Taiwan Historical Household Registers Database, 1906–1945 (THHRD) is administrated by the Program of Historical Demography at the Research Center for Humanities and Social Sciences in Academia Sinica. We use data from the following 10 areas: Anping (Tainan), Dadaocheng (Taipei), Mengjia (Taipei), Zhubei, Ermei, Dajia, Lugang, Zhushan, Shengang, and Donggang in different parts of Taiwan. The population in the Historical Household Registers consists almost entirely of ethnic Han-Chinese men and women, with very small numbers of Taiwanese indigenous people and Japanese settlers.

The WMFE is a repeated cross-sectional government survey that can be dated back to 1979 and has since collected 18 waves of data up to 2016. It contains data on large nationally representative female respondents aged 15 and above. The sample size in each round of the survey has been around 25,000 respondents. The source dataset, which is harmonized across the 18 waves, contains 484,979 respondents, among which 263,466 women who married during the years between 1895 and 1999 reported information about their current husbands. One data limitation is that we do not know whether their husbands, at the time of the survey, were from their first marriages, which could cause the miscategorization of some remarried husbands as first husbands. Given that divorce rates were particularly low in the decades between 1940 and 1975 (see Barclay, 1966), the potential bias could be less severe in parts of our sample. We further restrict our analytical sample to women who married at age 15 and above and their male partners and exclude invalid cases with unreasonable reporting on their ages at first marriage. The final dataset contains information for 262,747 couples who married during the years between 1895 and 1999.

Finally, the marriage registration data are acquired from the Department of Household Registration in the Ministry of the Interior in Taiwan. These marriage records have been

available in digital format since 1998 for all marriages registered each year in Taiwan. The data offer information on the husband's and wife's dates of birth, the date of marriage, education, marital history (first marriage or remarriage), and nationality (from 2001 onward). We analyzed 145,176 and 151,253 marriages formed in 2005 and 2015, respectively, to show the most recent age-pairing patterns in Taiwan. In Appendix 1, we show the overlap across marriage cohorts for the Japanese colonial registers and the WMFE survey. Due to the larger sample size from the former source, we show the results based on the colonial registers when cohorts overlap.

For Sweden, we use a combination of parish data from Northern Sweden (1800–1955) and contemporary register data for the complete Swedish population (1968–2006). Both sources contain registers of all marriages that took place within the administrative area and include information both on the order of marriage and the birth year and month of both spouses. The historical data are collected from the demographic database at Umeå University and are a selection of parish registers from adjacent parishes around the town of Skellefteå (Alm Stenflo, 1994; Westberg et al., 2016). Modern registers contain the complete population of Sweden. As the population size of the historical registers is much smaller, we pool a large number of marriage cohorts when presenting results for historical periods. For the years between 1955 and 1968, we do not have digitized marriage records.

Throughout this study, the spousal age difference is defined by subtracting the wife's age at marriage from the husband's age at marriage. Thus, a positive age difference indicates a men-older marriage (i.e., age hypergamy) and a negative one, a wife-older marriage (i.e., age hypogamy). Finally, the absolute age difference (which we show in Appendix 2) refers to the absolute value of the spousal age gap, regardless of who is older in a marriage. This allows us to include female-older marriages with a positive instead of a negative sign, assessing the change in marriages with an age difference that deviates from 0.

This paper will start by offering descriptive graphs that show the mean age at marriage and the percentage distribution of age at marriage for men and women, along with the percentage distribution of spousal age differences by marriage cohort. Next, we present mean spousal age differences based on the bride's and groom's ages at marriage.

## 6. Results

### 6.1 Mean age at marriage

Table 1 offers an overview of the data analyzed for Taiwan and Sweden. The analytical timeframe spans more than a century for Taiwan and nearly two centuries for Sweden. From the statistics regarding mean ages at marriage, Sweden appears to have a population that marries much later than that in Taiwan in all the comparable periods, ranging from a difference in mean age at marriage of slightly less than 1 year (between Taiwanese and Swedish grooms in 1970) to as many as 6 years (between Taiwanese and Swedish brides at the turn of the 20<sup>th</sup> century). One notable phenomenon is the larger scope and faster speed of the increase in mean age at marriage in Taiwan compared to in Sweden from the historical to the contemporary period. Unlike the continuous rise in mean age at marriage in Taiwan since the late 19<sup>th</sup> century, mean ages at marriage have stayed at around the mid-twenties for women and at the late-twenties for men for nearly one and a half centuries in Sweden. According to the latest observations (in 2015 for Taiwan and in 2004–2006 for Sweden), men and women have become equally late at marrying in both societies. In Appendix 3, we show more detailed corresponding figures for more cohorts in both countries.

### 6.2 Distribution of age at marriage

Figure 1 presents the percentage distribution of age at marriage from the perspectives of brides and grooms across three marriage cohorts in Taiwan and Sweden from the 19<sup>th</sup> to the 21<sup>st</sup> century. The patterns for Taiwan and Sweden are quite distinct, and both show great changes over time, although men's patterns seem more similar for the two countries than those of women. Norms for women to marry at certain ages appear to be stronger in Taiwan than in Sweden, as the share of modal ages at marriage in Taiwan is much larger than that in Sweden in all comparable periods.

For women in Taiwan, the age patterns indicate that marriages formed in the late 19<sup>th</sup> and early 20<sup>th</sup> centuries were mostly clustered around their late teens and early twenties, with smaller variations in terms of age distribution than later periods. Very few marriages took place after the age of 30 in historical Taiwan. Modal ages at marriage gradually moved from the early to late twenties for the marriage cohorts between 1965 and 2005 and increasingly became more dispersed in terms of age distribution. Variations in age at marriage are particularly wide for those who married after 2000, when many marriages were formed at the age of 35 and beyond. The changes between 2005 and 2015 are quite notable in that many of the marriages previously

formed in people's twenties have now been replaced by those observed in their thirties and even their forties. Although the mean age at marriage in Sweden was quite stable for over a century, the distribution of ages at marriage was particularly concentrated in the years circa 1970 and appeared more dispersed before and after 1970. In recent years, the much higher incidences of marrying at ages beyond 37 in Sweden, compared to in Taiwan, likely partly reflect those unions resulting from long-term cohabitations in Sweden.

For men, the shifts in modal ages at marriage somewhat resemble those observed for women across marriage cohorts, but the changes in terms of age variances were slower than for women. For Taiwanese men, modal ages at marriage shifted from their early twenties to their late twenties and early thirties over the one-and-a-half-century period. The distribution of marriage ages in the years circa 1970 appeared to be particularly concentrated and showed the highest resemblance to the patterns found in Sweden. The age patterns after the new millennium continued to be more dispersed, like those observed for women, with a substantial share of marriages formed after the age of 35. In Sweden, the distribution of age at marriage also changed across marriage cohorts, but the 1970s cohort stands out with unusually young ages at marriage, and the latest observations from 2004–2006 show the oldest ages at marriage. The Swedish age at marriage distribution is consistently later than the Taiwanese pattern. The distribution of ages at marriage for Swedish men is quite similar to that of Swedish women, though a shift can be observed a few years later. In the last cohort, there is evidence of a digit preference for marriages formed at ages with round numbers (see also Ohlsson-Wijk, 2014).

### ***6.3 Distribution of spousal age differences over time***

Next, the percentage distribution of spousal age differences by marriage cohort for Taiwan and Sweden is shown in Figure 2. In Taiwan, modal spousal age differences have lingered around 2 to 4 years for a long time, roughly since the marriage cohorts of the late 19<sup>th</sup> century to that of the 1970s. For the marriage cohorts of 1990 and later, the distributions of mean age differences have substantially moved toward 0 to 2 years, with a clear increase in wife-older marriages after the new millennium. The overall shift is characterized by a pattern of increasingly smaller age differences at marriage. In Sweden, there is a consistent pattern of a peak in the distribution for men who are around 2 to 3 years older than their spouses, and this is quite stable over time. During the historical periods, the overall distribution is more evenly distributed, while the narrowest distribution is found in the 1970s. The 2000s pattern is slightly more age homogamous than that of the 1970s. Unlike the recent surge in age hypogamous

unions in Taiwan, women-older marriages were most common in the 19<sup>th</sup> century in Sweden. In Appendix 2, we additionally show absolute age differences over time. In both Taiwan and Sweden, we find the largest absolute age differences during the historical periods. In Taiwan the absolute age differences are smallest in 2015; whereas the smallest absolute age differences in Sweden are found in the 1970s.

#### ***6.4 Spousal age gap by sex***

The graphs in Figure 3 showcase the mean spousal age gaps from late adolescence to advanced age, conditional on the bride's and groom's ages at marriage. The findings reveal that patterns of age difference are gendered and vary between the two countries. Overall, age differences vary strongly with the age of the husband and wife in Taiwan, while in Sweden the directions of covariation with the age of either spouse are somewhat similar (a negative slope for women and a positive one for men) but much smaller in scope. The U-shaped pattern of the spousal age gap for women in Taiwan is particularly notable, even though the concave shape is more muted in 2015.

For women, very contrasting patterns were found in these two societies. In Taiwan, the trend in spousal age gaps over the life course remained quite stable (mostly between 4–6 years) in the historical era. However, an intriguing U-shaped pattern is observed for contemporary women, in which high levels of age hypergamy are found both when a woman marries at a relatively young or at a more advanced age. The average spousal age differences are also much larger in Taiwan than in Sweden in the 20<sup>th</sup> century. For Sweden, a negative-slope pattern of age gaps, with high levels of age hypergamy for younger women and age hypogamy for older women, is observed in the 19<sup>th</sup> century. Such a negative-slope association between female age at marriage and age hypergamy is less obvious in contemporary Sweden, although there is a consistent pattern of men being on average a couple of years older.

For men, we find that mean age gap for hypergamy (where the man is older) increases with male age at marriage, particularly for men aged between 40 and 60 in both societies. In Sweden, very young men typically marry women who are a few years older than themselves (which is also true to a much smaller extent in Taiwan). However, spousal age gaps based on men's ages at marriage increase much faster as men become older in contemporary Taiwan, when compared to Sweden, which is likely due to the more patriarchal social relations observed in the former. In both countries, we find that the tendency of men to marry much younger women as they get older was much stronger in the past and that the latest marriage cohorts show



smaller age differences with regard to the husband's age at marriage. The different gender regimes in the two countries likely contribute to the diverging patterns found for both men and women. The overall delaying of marriage until later in life for both genders in the past few decades is also likely to be related to the increasing rarity of very large age differences between the ages of 40 and 50 in both societies.

## **7. Conclusion and Discussion**

This study set out to examine spousal age differences in Taiwan and Sweden from the 19<sup>th</sup> to the 21<sup>st</sup> century. The overall trend suggests that since the 19<sup>th</sup> century Sweden has had a population that marries much later in life, when compared to Taiwan, though the pace of marriage postponement in Taiwan has made the age profiles of contemporary married couples appear more similar to those of their counterparts in Sweden. Mean ages at marriage in both countries are now in the early to mid-thirties. In addition, not only have ages at marriage for both sexes been delayed, but the distribution of ages at marriage has also become more dispersed in the contemporary period, compared to in the historical one, for both countries. The age patterns of marriage for Taiwanese and Swedish adults resemble each other more in the 21<sup>st</sup> century than in the late 19<sup>th</sup> century.

As ages at marriage become more dispersed with delayed marriage, there is a tendency for spousal age differences to decrease over time with rising economic development level. The share of traditional men-older marriages has gradually decreased, and unions involving similar-age spouses have become more prevalent in both countries nowadays. These findings resonate with recent time-trend analyses conducted in a few other Western countries, such as Spain (Esteve et al., 2009), the Netherlands (Van Poppel et al., 2001), and Sweden (Kolk, 2015). In these European societies, a trend toward more similar-age and fewer men-older marriages has been observed over a period of eight decades or longer. Such a phenomenon has been interpreted as a sign of greater gender equality.

Indeed, the findings are likely related to the fact that educational expansion has improved women's socioeconomic status. Extended years of schooling and higher labor force participation rates tend to increase the chances of a woman meeting her future partner in more diverse social settings, meaning that he is more likely to possess similar sociodemographic traits to herself. In a similar vein, a recent Taiwanese study that analyzed a nationally representative adult sample shows that while about a third (32.1%) of the respondents in older cohorts (those

born before 1956) met their current spouse through friends/colleagues, the comparable figure for the younger cohorts (born in 1956 or later) increased to 53.5% (Wu et al., 2014). In other words, more than half of the young Taiwanese who came of age during an era of rapid industrialization are less likely to have met their current spouse through parents or relatives, which tends to decrease the likelihood of traditional age hypergamous marriages. This weakening of parental authority in terms of imposing preferences on their offspring's mating processes and the rise of romantic love are very likely to lead to a decline in large age differences between spouses among the younger generations.

In addition, the current study also explores the patterns of spousal age differences from the perspectives of wife's and husband's ages at marriage. Such an approach has revealed substantial variations in the age gap across the life course for both sexes. When compared between countries, the age patterns are particularly different for women: a U-shaped pattern across the life course for Taiwan and a slightly negative slope for Sweden. For men, spousal age gaps increase monotonically with age at marriage, with larger age gaps observed in Taiwan than in Sweden at most ages. These findings correspond to the "double standard of aging" thesis (England & McClintock, 2009; Sontag, 1979), where women's physical attractiveness are judged to decline with age and thus their lowered marriage prospect at an advanced age tends to be "compensated" by partnering with an older man. In contrast, older men with higher earnings are usually able to marry further down in age. While such a gendered age preference seems to hold in both Taiwan and Sweden, the patterns for both sexes appear to be more toned-down in gender-egalitarian Sweden than in Taiwan throughout all analytical periods.

Finally, while the Taiwanese and Swedish patterns of age differences vary in historical periods, the contemporary age gap patterns suggest a convergence in these two countries. Socio-cultural and value changes during the modernization process are likely key factors affecting the shifts in age patterns of marriage. Societal changes have likely influenced age preferences for partners but have also affected the overall ages at which people get married, which are also related to age differences. These findings resonate with prior research that shows that increasing mean age at first marriage often correlates with decreasing spousal age gaps in various populations (Carmichael, 2011). On the one hand, economic restructuring during the modernization process has prompted educational expansion, which has led to a rising socioeconomic status among women. Economically independent women also have more incentives to look for love-based intimate relationships, which draw them closer to similar-age partners with whom they share more common cohort experiences and memories. On the other

hand, modernization is often accompanied by a declining impact of parental authority and the rising influence of peers. Hence, while a large share of all marriages was arranged in the middle of the 20<sup>th</sup> century, it is now a very uncommon custom. This could interrupt the inter-generational transmission of parental preferences for older-men marriages and undoubtedly contributes to deviations from traditional age hypergamy. Shifting post-marital living arrangements away from patrilocality and toward neolocality in contemporary Taiwan have also delayed marriages to later in life and contributed to shrinking spousal age gap.

Overall, in a more constrained socioeconomic environment (such as 19<sup>th</sup> century Sweden and early 20<sup>th</sup> century Taiwan), where marriage was strongly related to household production, marriage may have taken place more often for pragmatic reasons. In such circumstances, pure personal age preferences for partners may have been less prevalent for both men and women, given the other aspects they had to consider. Men and women may thus be more likely to enter age heterogamous marriages in the past than in contemporary open societies that value more freedom and personal autonomy. However, it is also possible that the further individualization of societies at a later stage may once again reduce previous restrictive social norms regarding suitable age differences. Spousal age differences may therefore once again increase (Kolk, 2015; Van de Kaa, 2001) in both the East and the West, though this may be reflected only in increasing absolute age differences.

One thing to be noted is that while long-term cohabitation and non-marital births remain relatively rare in contemporary Taiwan, they have become quite normative in Sweden (Holland, 2013; Matovic, 1986). Hence, Swedish patterns with regard to the age gap in marriage have become less representative of age preferences at first union, as a non-trivial minority of couples have lifelong stable cohabiting unions with joint children. Swedish ages at marriage are also increasingly less reflective of very early stages of a union formation, but marriage may instead be something a couple chooses after 10 or even 15 years together. This does not affect the age differences between spouses but does affect their ages at marriage. Also, in the Taiwanese context, older ages at marriage may not be associated with long periods of premarital cohabitation, but still often represent a romantic union for a long period before the couple's marriage, which is in sharp contrast to mid-20<sup>th</sup>-century marriage formation.

As Taiwan has progressed from an agriculture-based society at the turn of the 20<sup>th</sup> century to a post-industrial society in the 21<sup>st</sup> century, patterns of age at marriage and spousal age differences increasingly resemble those observed in Sweden. While Taiwan and Sweden

appeared to be two exemplary countries representing the East–West family systems in the 19<sup>th</sup> century, after more than a century, the evolution in age at marriage and marriage age differences in both countries has blurred the difference between the two systems. That is, the mean age at marriage has risen considerably, along with the number of both men and women who never marry in contemporary Taiwan—both were features found in 19<sup>th</sup>-century Northwestern European countries. Thus, while the East–West marriage pattern posited by Hajnal (1965) was initially a geographical demarcation of family systems, it is intriguing to ask why such an East–West contrast diminishes with levels of development, particularly in a post-industrial context. This is consistent with family demographic theories that suggest that some aspects of contemporary families reflect functional needs of industrial societies (e.g. Goody 1963), but it could also show how values and preferences have changed and converged over the 20<sup>th</sup> century. The fact that the East–West marriage differences fade away with development and declining parental controls shows that at present any purposeful demarcation of the Orient from the Occident might not lead to a better understanding of either world (Goode, 1996).

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## References

- Akers, D. S. (1967). On measuring the marriage squeeze. *Demography*, 4(2), 907–924.
- Alm Stenflo, G. (1994). Demographic description of the Skellefteå and Sundsvall regions during the 19th century. Umeå, Sweden: Demographic Data Base [Demografiska databasen].
- Atkinson, M. P., & Glass, B. L. (1985). Marital age heterogamy and homogamy, 1900 to 1980. *Journal of Marriage and the Family*, 47(3), 685–691.
- Barclay, G. W. (1954). *Colonial development and population in Taiwan*. Princeton, New Jersey: Princeton University Press.
- Bergstrom, T. C., & Bagnoli, M. (1993). Courtship as a waiting game. *Journal of Political Economy*, 101(1), 185–202.
- Bozon, M. (1991). Women and the age gap between spouses: An accepted domination? *Population (English edition)*, 3, 113–148.
- Buss, D. M. (1989). Sex differences in human mate preferences: Evolutionary hypotheses tested in 37 cultures. *Behavioral and Brain Sciences*, 12(1), 1–14.
- Carmichael, S. (2011). Marriage and power: Age at first marriage and spousal age gap in lesser developed countries. *The History of the Family*, 16(4), 416–436.
- Cheng, Y.-h. A. (2020). Ultra-low fertility in East Asia: Confucianism and its discontents. *Vienna Yearbook of Population Research*, 18.
- Cheng, Y.-h. A., & Yang, C.-L. W. (2016, November 3–4). Continuity and changes in attitudes toward marriage in Taiwan, 1985–2015. [Paper presentation]. The Taiwan Social Change Survey 30th Anniversary Meeting, Taipei, Taiwan.
- Davis, K. (1963). The theory of change and response in modern demographic history. *Population Index*, 29(4), 345–366.
- DGBAS. (1987–2010). Yearbook of Manpower Survey Statistics: 1987–2010. Taipei, Taiwan: Directorate General of Budget, Accounting and Statistics, Executive Yuan.
- Dribe, M. (2000). Leaving home in a peasant society. Economic fluctuations, household dynamics and youth migration in Southern Sweden. Södertälje, Sweden: Almqvist & Wiksell International.
- Dribe, M., & Stanfors, M. (2017). Age homogamy and modernization: Evidence from turn-of-the-twentieth-century Sweden. *Essays in Economic & Business History*, 35(1), 265–289.
- Westberg, A., Engberg, E., & Edvinsson, S. (2016). A unique source for innovative longitudinal research: The POPLINK database. *Historical Life Course Studies*, 3, 20–31.
- Engelen, T., & Wolf, A. P. (2005). *Marriage and the family in Eurasia: Perspectives on the Hajnal hypothesis*. Amsterdam, the Netherlands: Aksant Academic Publishers.
- Engelen, T. L., & Hsieh, Y.-H. (2007). Nuptiality: One concept, two realities. In T. Engelen & Y.-H. Hsieh (Eds.), *Two cities, one life: Marriage and fertility in Lugang and Nijmegen* (pp. 53–80). Amsterdam, the Netherlands: Akstant.
- England, P., & McClintock, E. A. (2009). The gendered double standard of aging in US

- marriage markets. *Population and Development Review*, 35(4), 797–816.
- Esteve, A., Cortina, C., & Cabré, A. (2009). Long term trends in marital age homogamy patterns: Spain, 1922–2006. *Population*, 64(1), 173–201.
- Goode, W. J. (1963). *World revolution and family patterns*. London: Free press of Glencoe.
- Goody, J. (1996). *The East in the West*. Cambridge, UK: Cambridge University Press.
- Hajnal, J. (1965). European marriage patterns in perspective. In D. V. Glass & D. E. C. Eversley (Eds.), *Population in history* (pp. 101–144). London, UK: Edward Arnold.
- Hancock, R., Stuchbury, R., & Tomassini, C. (2003). Changes in the distribution of marital age differences in England and Wales, 1963 to 1998. *Population Trends*, 114, 19–25.
- Hendrickx, F. (2005). West of the Hajnal line: North-western Europe. In E. A. Wolf (Ed.), *Marriage and the family in Eurasia* (pp. 73–103). Amsterdam, the Netherlands: Aksant.
- Holland, J. A. (2013). Love, marriage, then the baby carriage? Marriage timing and childbearing in Sweden. *Demographic research*, 29, 275–306.
- Hopkins, M. K. (1965). The age of Roman girls at marriage. *Population Studies*, 18(3), 309–327. <http://doi.org/10.1080/00324728.1965.10405456>
- Jones, G. W. (2017). Changing marriage patterns in Asia. In Z. Zhao & A. C. Hayes (Eds.), *Routledge handbook of Asian demography* (pp. 351–369). New York, NY: Routledge.
- Kalmijn, M. (1991). Shifting boundaries: Trends in religious and educational homogamy. *American Sociological Review*, 56(6), 786–800.
- Kolk, M. (2014). *Multigenerational processes in demography*. [Doctoral dissertation]. Stockholm University, Stockholm, Sweden.
- Kolk, M. (2015). Age differences in unions: Continuity and divergence among Swedish couples between 1932 and 2007. *European Journal of Population*, 31(4), 365–382.
- Lee, J. Z., and Campbell, C. D. (2007). *Fate and fortune in rural China: social organization and population behavior in Liaoning 1774-1873*. Cambridge, UK: Cambridge University Press.
- Lee, J. Z. and Wang, F. (2001). *One quarter of humanity: Malthusian mythology and Chinese realities, 1700–2000*. Cambridge, MA: Harvard University Press.
- Liu, T.-j. (1985). The demography of two Chinese clans in Hsiao-shan, Cheking, 1650–1850. In S. B. Hanley & A. P. Wolf (Eds.), *Family and population in East Asian history*. Redwood City, CA: Stanford University Press.
- Lundh, C. (2003). Swedish marriages. Customs, legislation and demography in the eighteenth and nineteenth centuries. *Lund Papers in Economic History* (88).
- Lundh, C., & Kurosu, S. (2014). Nuptiality: Local populations, sources, and models. In C. Lundh & S. Kurosu (Eds.), *Similarity in difference: Marriage in Europe and Asia, 1700–1900* (pp. 47–86). Cambridge, MA: The MIT Press.
- Matovic, M. R. (1986). The Stockholm marriage: Extra-legal family formation in Stockholm 1860–1890. *Continuity and Change*, 1(3), 385–413.
- Ministry of Education. (2012). *Number of students at all educational levels by sex*.

- <http://www.edu.tw/pages/detail.aspx?Node=1731&Page=5314&Index=4&WID=31d75a44-4eff-4c44-a075-15a9eb7aecdf>. Retrieved from Taipei, Taiwan.
- Ministry of the Interior. (1975–2015). Statistical yearbook of the Republic of China, 1975–2015. Taipei, Taiwan: Ministry of the Interior.
- Mu, Z., & Xie, Y. (2014). Marital age homogamy in China: A reversal of trend in the reform era? *Social Science Research*, *44*, 141–157.  
<http://dx.doi.org/10.1016/j.ssresearch.2013.11.005>
- Murray, A. C. (1983). Germanic kinship structure. Studies in law and society in antiquity and the early Middle Ages. Toronto, Canada: Pontifical Institute of Mediaeval Studies.
- Ní Bhrolcháin, M. (1992). Age difference asymmetry and a two-sex perspective. *Revue européenne de Démographie [European Journal of Population]*, *8*(1), 23–45.  
<http://doi.org/10.1007/bf01797120>
- Ní Bhrolcháin, M. (2001). Flexibility in the marriage market. *Population*, *13*(2), 9–47.
- Ní Bhrolcháin, M. (2004). Validating age preferences for marriage market analysis *Applications and Policy Working Paper A04/08*. Southampton, UK: Southampton Statistical Sciences Research Institute, University of Southampton.
- Ní Bhrolcháin, M. (2005). The age difference at marriage in England and Wales: A century of patterns and trends. *Population Trends*, *120*, 7–14.
- Ní Bhrolcháin, M., & Sigle-Rushton, W. (2005). Partner supply in Britain and the US. *Population (English edition)*, *60*(1), 37–64.
- Ohlsson-Wijk, S. (2014). Digit preferences in marriage formation in Sweden: Millennium marriages and birthday peaks. *Demographic Research*, *30*, 739–752.
- Ortega, J. A. (2014). A characterization of world union patterns at the national and regional level. *Population Research and Policy Review*, *33*(2), 161–188.
- Pasternak, B. (1989). Age at first marriage in a Taiwanese locality 1916–1945. *Journal of Family History*, *14*(2), 91–117. <http://doi.org/10.1177/036319908901400201>
- Roterling, P., & Bras, H. (2019). The age difference between spouses and reproduction in 19th century Sweden. *Demographic Research*, *41*, 1059–1090.
- Saller, R. P. (1987). Men's age at marriage and its consequences in the Roman family. *Classical Philology*, *82*(1), 21–34.
- Shaw, B. D. (1987). The age of Roman girls at marriage: Some reconsiderations. *The Journal of Roman Studies*, *77*, 30–46.
- Shorter, E. (1975). The making of the modern family. New York, NY: Basic Books.
- Skopek, J., Schmitz, A., & Blossfeld, H.-P. (2011). The gendered dynamics of age preferences – Empirical evidence from online dating. *ZfF–Zeitschrift für Familienforschung [Journal of Family Research]*, *23*(3), 267–290.
- Sontag, S. (1979). The double standard of aging. In J. H. Williams (Ed.), *Psychology of women: Selected reading* (pp. 462–478). New York, NY: W. W. Norton.
- Therborn, G. (2014). Family systems of the world: Are they converging? In J. Treas, J. Scott,

- & M. Richards (Eds.), *The Wiley Blackwell companion to the sociology of families* (pp. 1–19). West Sussex, UK: John Wiley & Sons.
- Thornton, A., & Lin, H.-S. (1994). *Social change and the family in Taiwan*. Chicago, IL: University of Chicago Press.
- Van de Kaa, D. J. (2001). Postmodern fertility preferences: From changing value orientation to new behavior. *Population and Development Review*, 27, 290–331.
- Van de Putte, B., Van Poppel, F., Vanassche, S., Sanchez, M., Jidkova, S., Eeckhaut, M., Oris, M., & Matthijs, K. (2009). The rise of age homogamy in 19th century Western Europe. *Journal of Marriage and Family*, 71(5), 1234–1253.
- Van Poppel, F., Liefbroer, A. C., Vermunt, J. K., & Smeenk, W. (2001). Love, necessity and opportunity: Changing patterns of marital age homogamy in the Netherlands, 1850–1993. *Population Studies*, 55(1), 1–13.
- Veevers, J. E. (1988). The "real" marriage squeeze: Mate selection, mortality, and the mating gradient. *Sociological Perspectives*, 31(2), 169–189.
- Wolf, A. P., & Huang, C.-s. (1980). *Marriage and adoption in China, 1845–1945*. Redwood City, CA: Stanford University Press.
- Wolf, M. (1968). *The house of Lim: A study of a Chinese farm family*. New York, NY: Appleton-Century-Crofts.
- Wu, L.-H., Yeh, H.-J., & Tsay, R.-m. (2014). Meeting the other half: Matchmakers and Settings of contact in educational assortative mating (in Chinese). *Taiwanese Sociology*, 26, 147–190.
- Yu, C.-M. (1988). *The women education in Taiwan under Japanese rule, 1895–1945* (in Chinese). Taipei, Taiwan: National Taiwan Normal University.



**Table 1. Descriptive statistics from surveys and register data for marriages of all orders in Taiwan and Sweden**

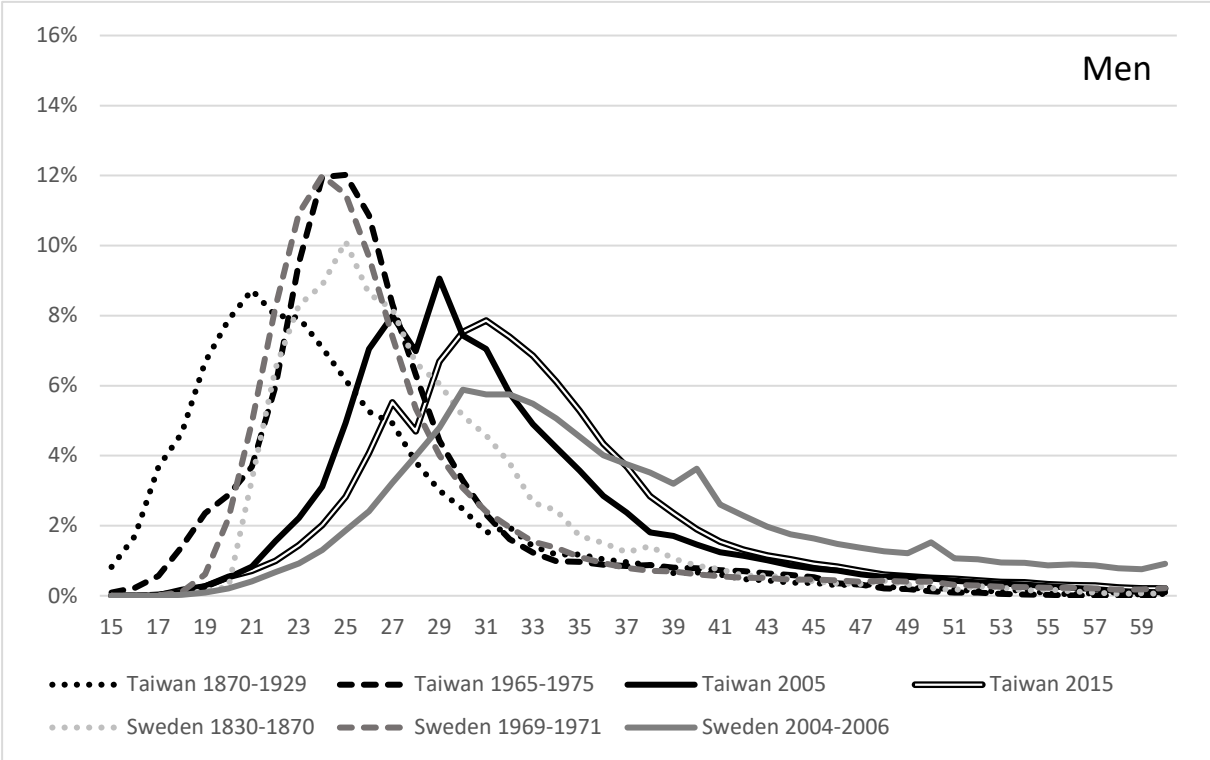
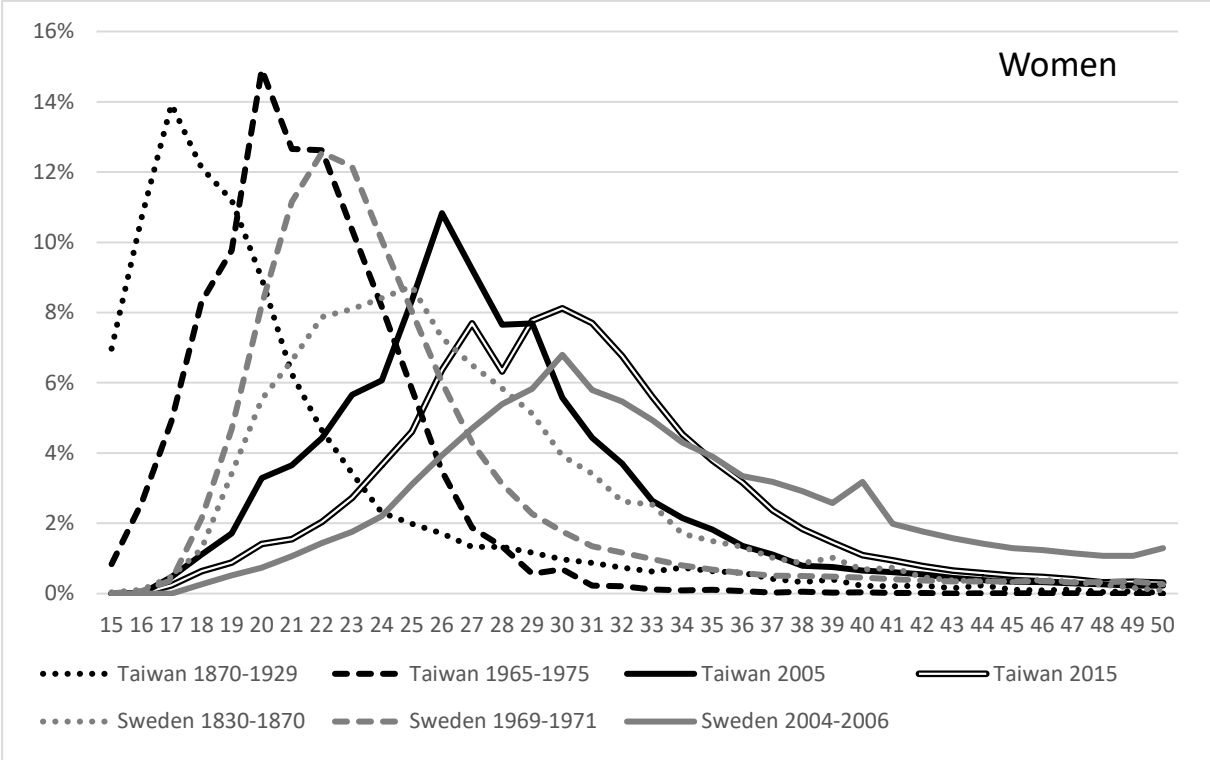
Taiwan

Marriage cohort	1870–1910	1911–1929	1930–1946	1965–1975	1980–1990	2005	2015
Data source	Historic registers			WMFE		Marriage registers	
Sample size N	8,889	10,994	9,420	76,510	61,205	145,176	151,253
mean age at marriage (brides aged 15–50)	19.28	20.19	20.05	21.46	23.20	27.73	30.27
mean age at marriage (grooms aged 15–60)	23.97	24.70	24.70	26.73	26.45	31.62	33.16
MAM (aged 10+ brides)	19.28	20.19	20.05	21.46	23.20	28.06	30.90
MAM (aged 10+ grooms)	24.36	24.80	24.03	26.73	26.49	32.30	33.66

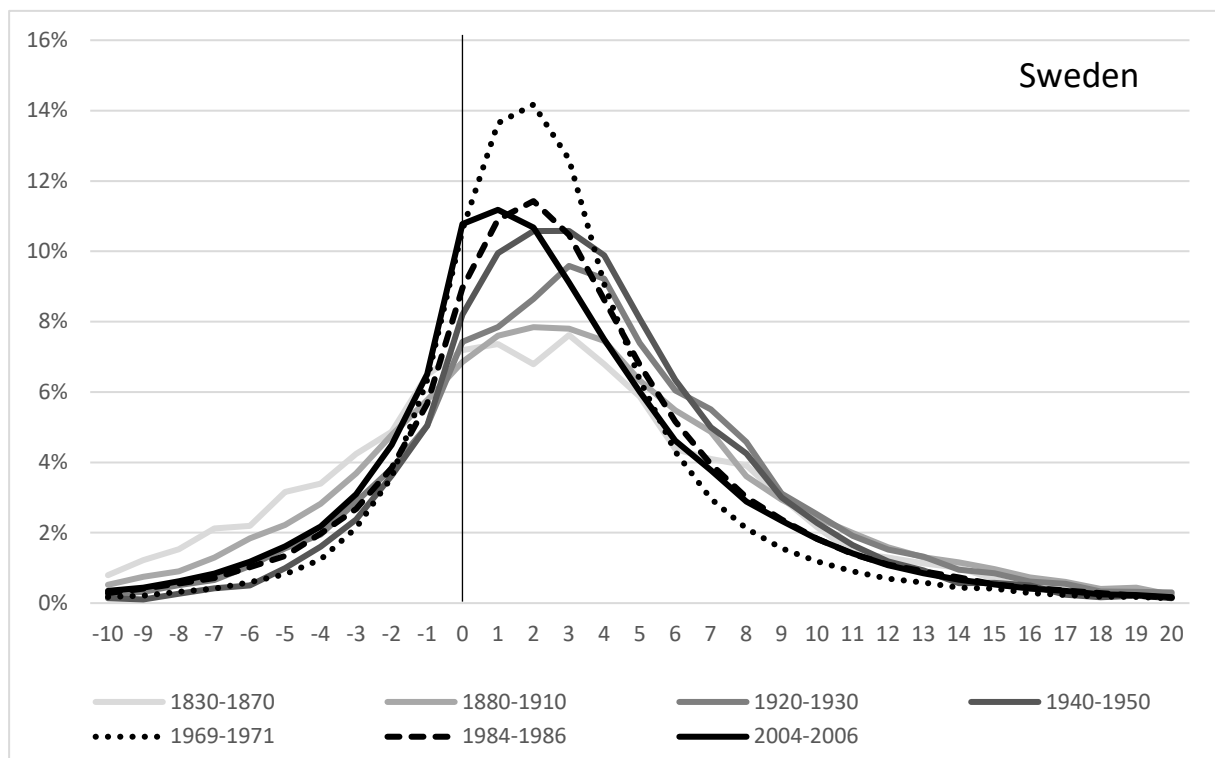
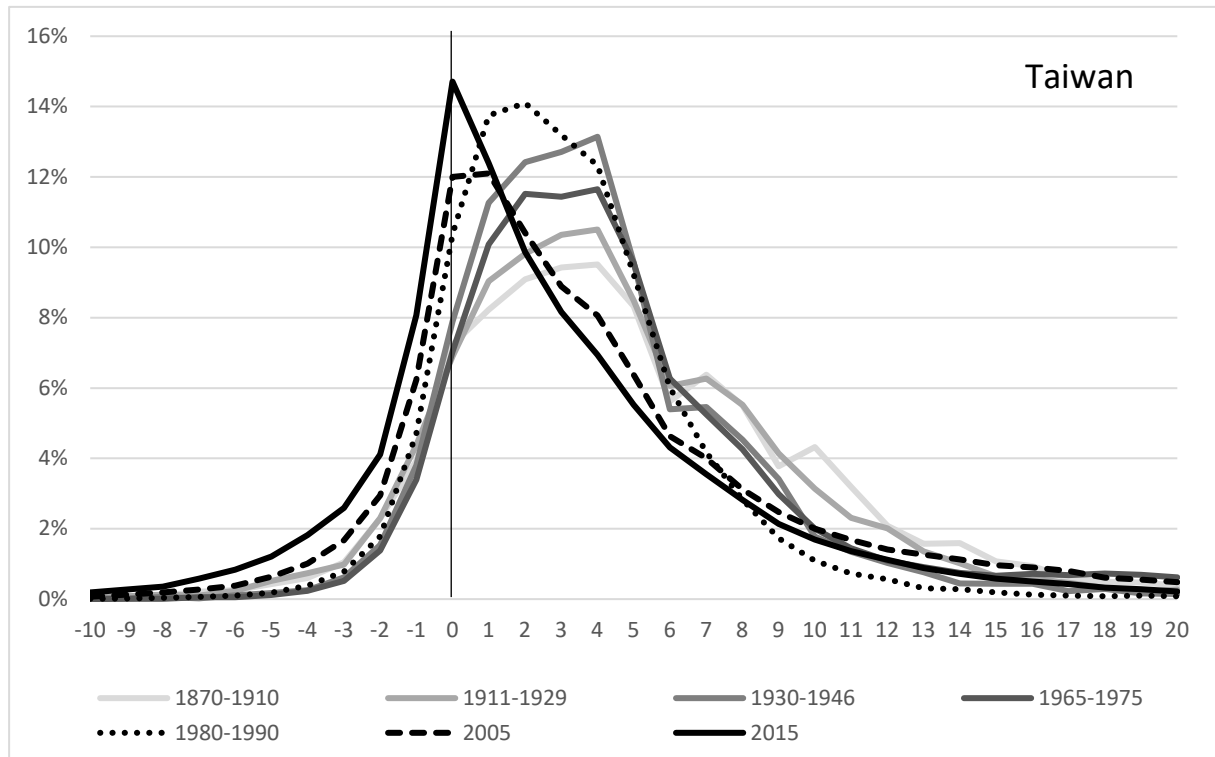
Sweden

Marriage cohort	1830–1870	1880–1910	1920–1930	1940–1950	1969–1971	1984–1986	2004–2006
Data source	Parish registers from the Skellefteå region				Swedish national population registers		
Sample size N	5,566	17,020	16,296	38,499	130,339	110,214	123,068
MAM (brides aged 15–50)	26.09	25.38	25.01	24.27	24.31	29.08	32.63
MAM (grooms aged 15–60)	28.06	28.38	28.69	27.74	27.06	32.20	36.20
MAM (aged 15+ brides)	26.22	25.54	25.13	24.37	24.93	29.91	34.58
MAM (aged 15+ grooms)	28.27	28.54	28.80	27.83	27.37	32.61	36.97

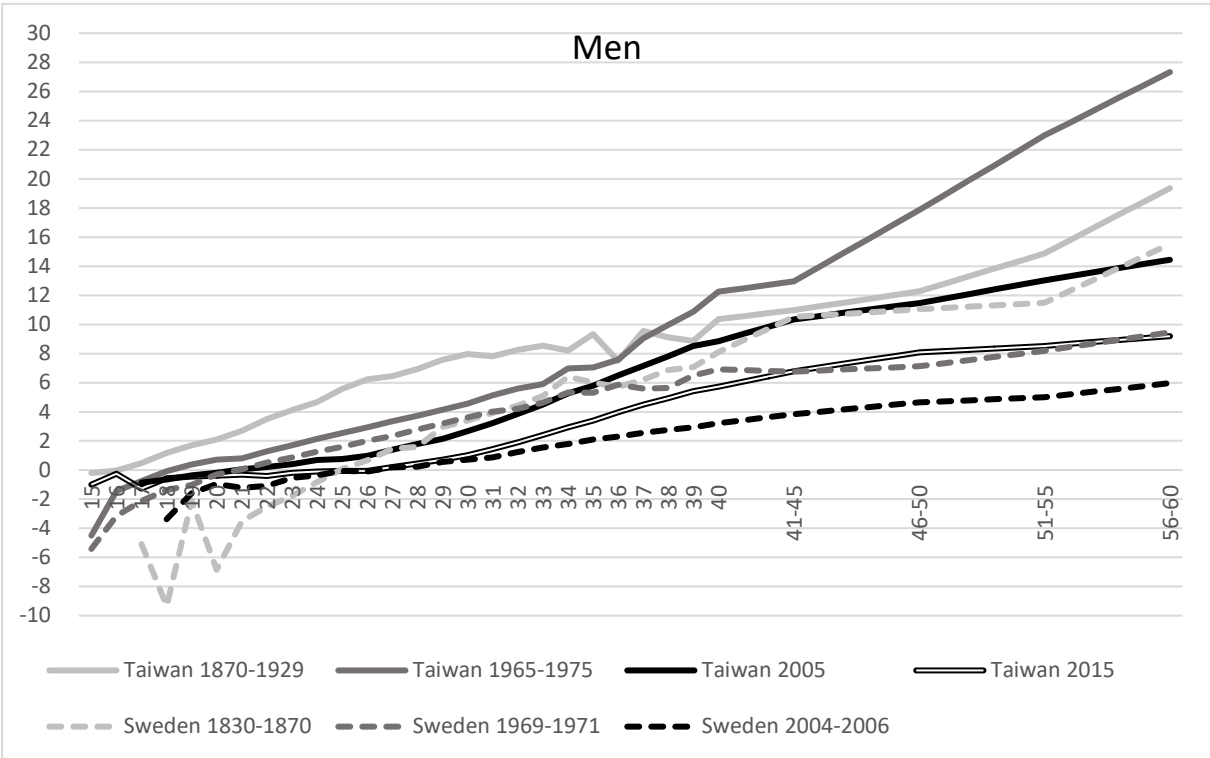
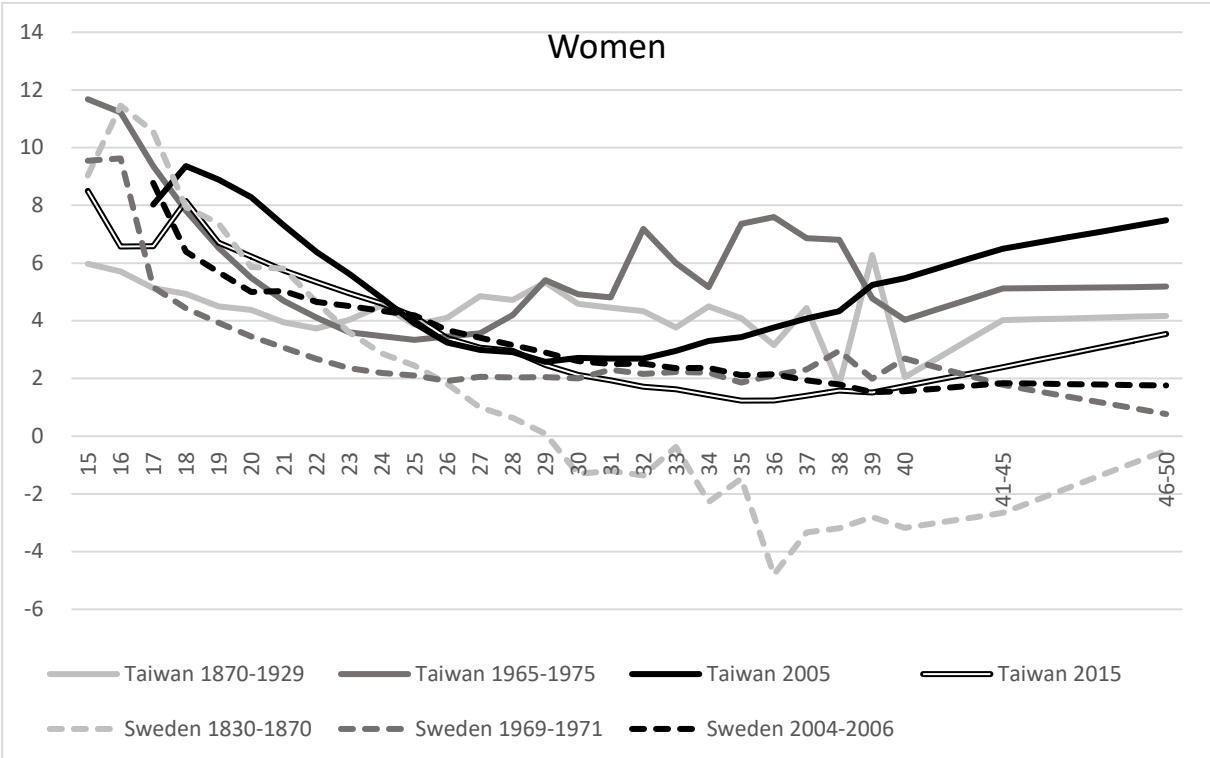
**Figure 1. Percentage distribution of ages at marriage by sex and by marriage cohort in Taiwan and Sweden**



**Figure 2. Distribution of spousal age differences (husband-wife) by marriage cohort in Taiwan and Sweden**



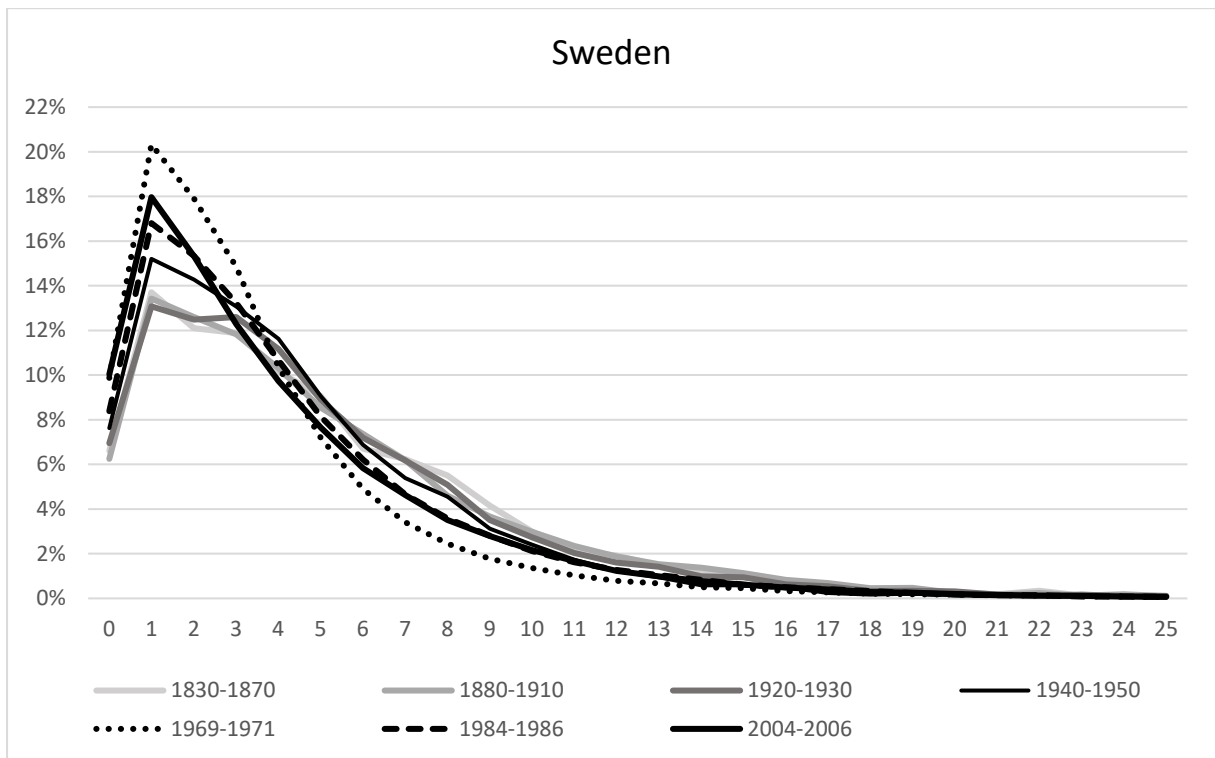
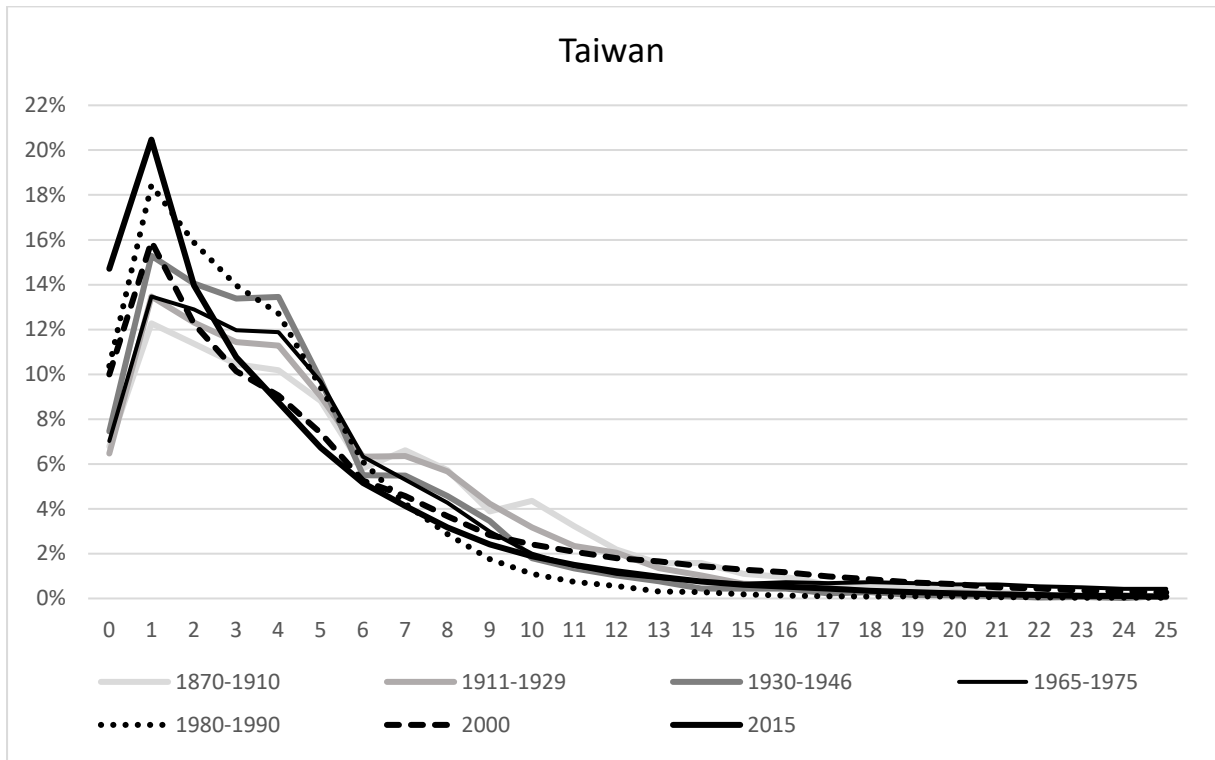
**Figure 3. Mean spousal age differences by bride's age or groom's age and by marriage cohort in Taiwan and Sweden**



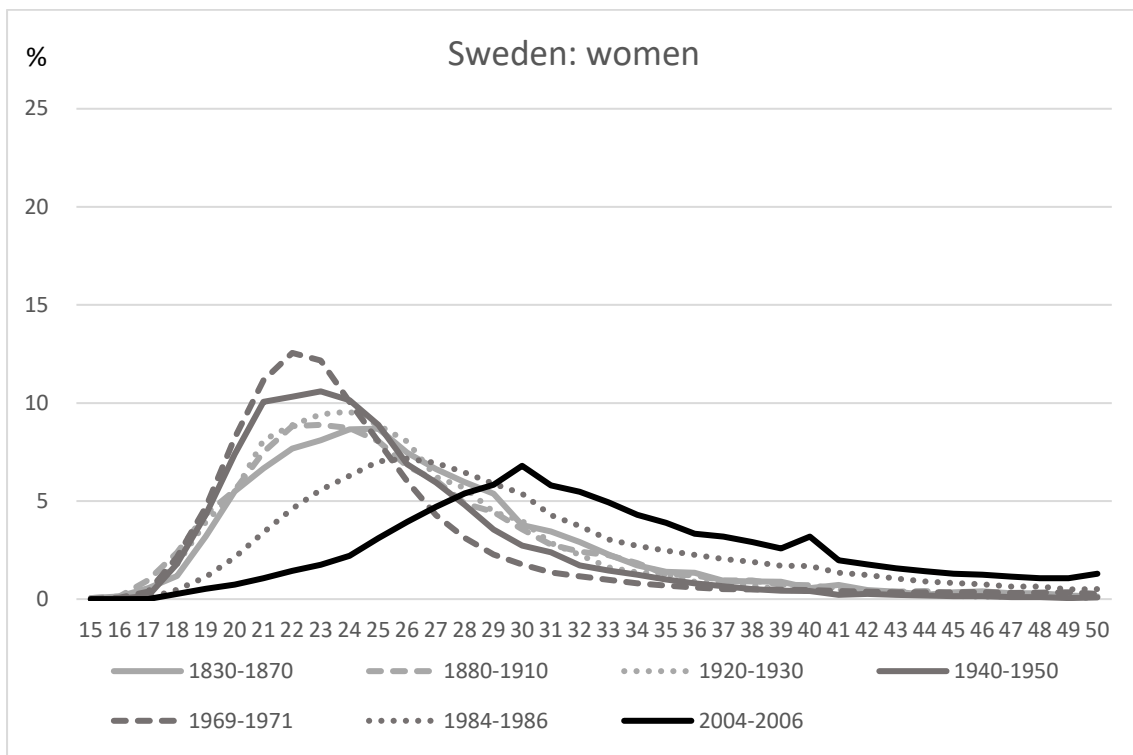
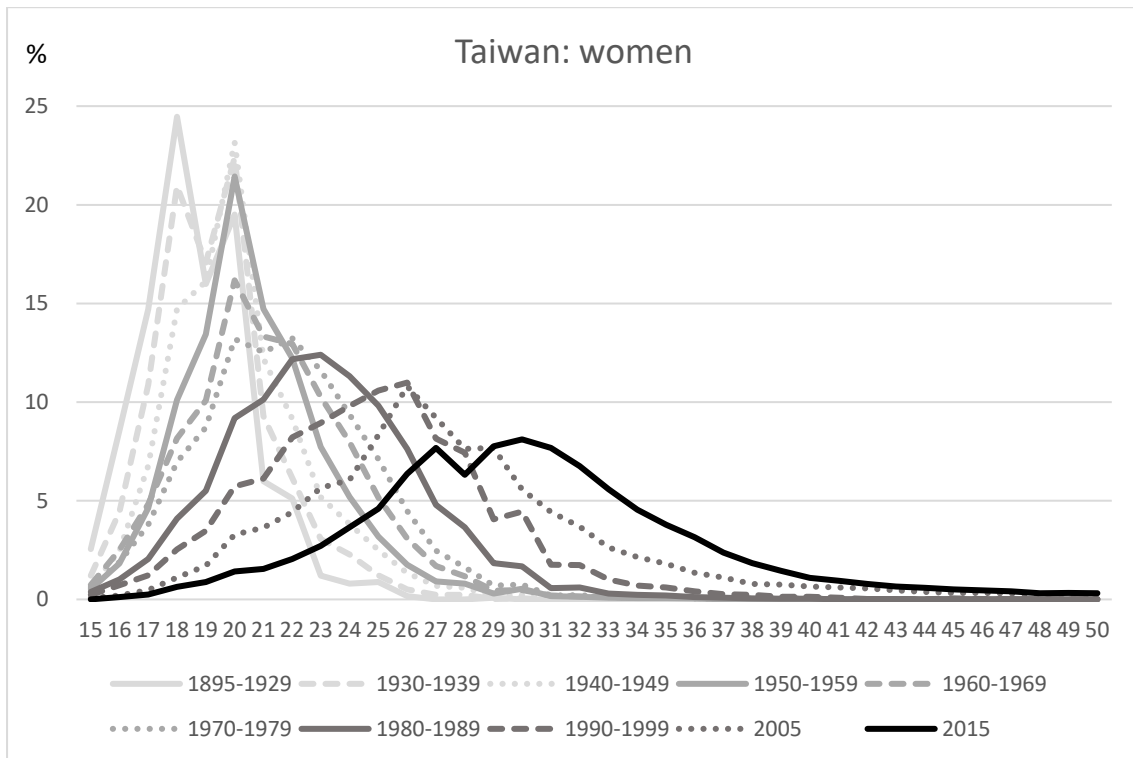
**Appendix 1. Graphs comparing historical and WMFE age difference patterns (\*expanded Table 1)**

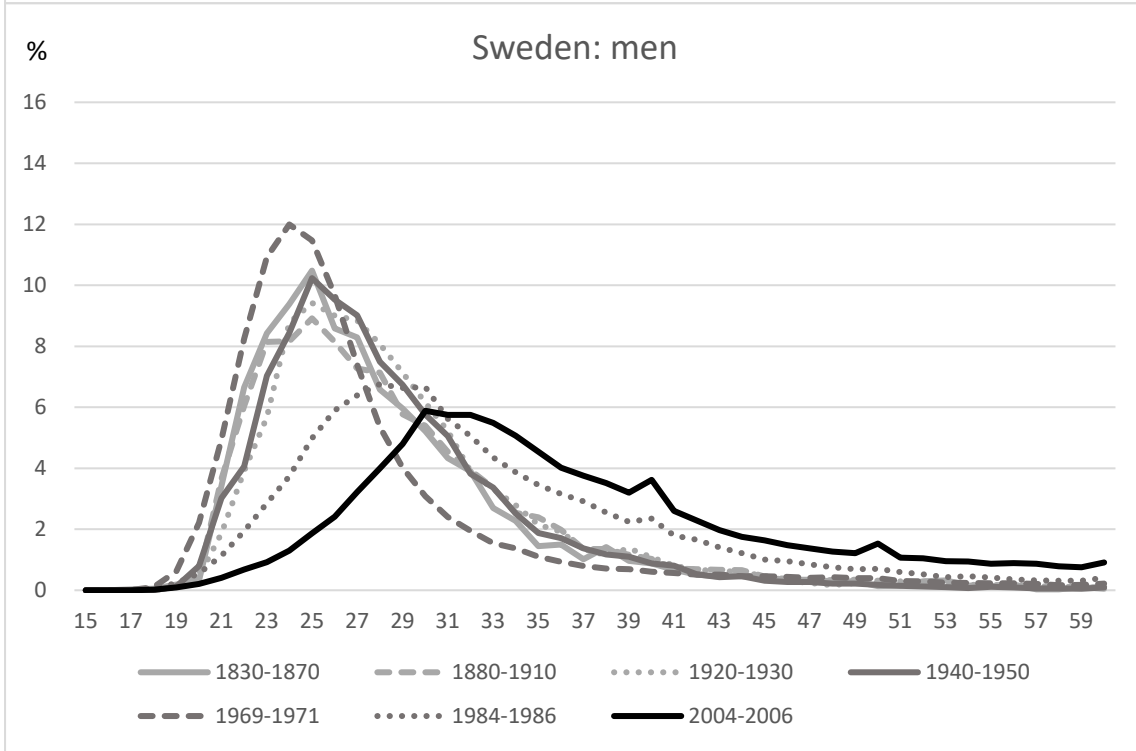
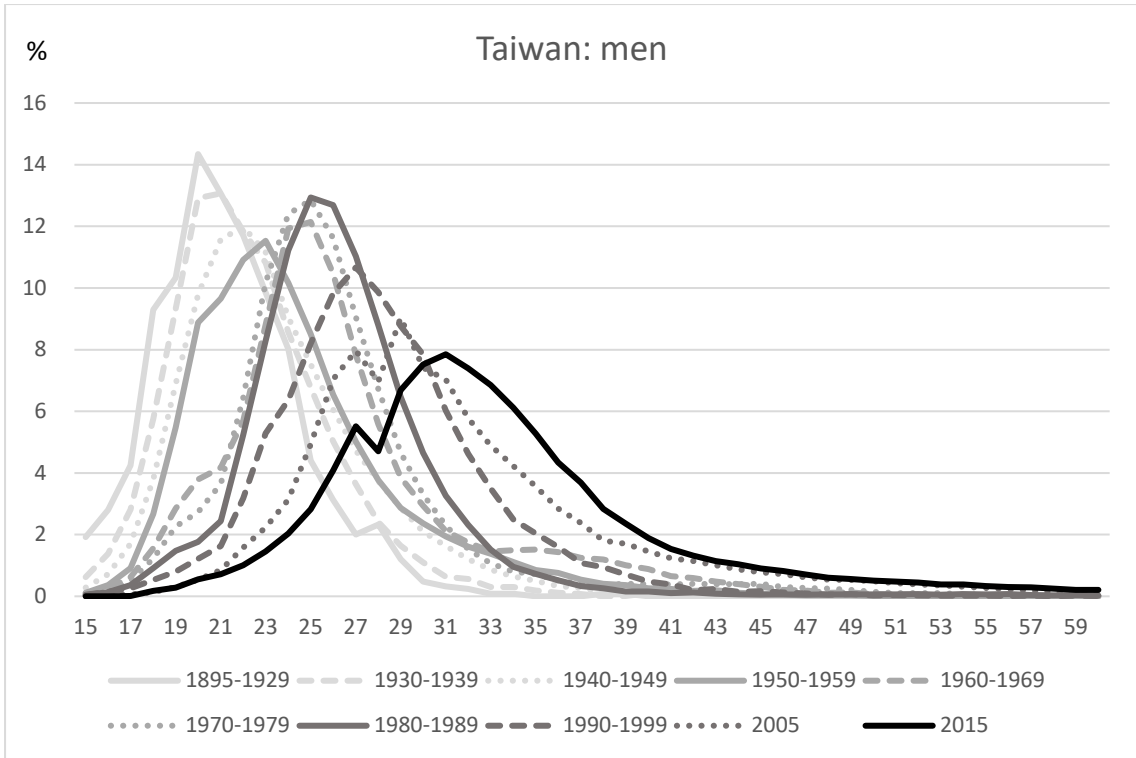
	1870–1910	1911–1929	1930–1946	1911–1929	1930–1946	1965–1975	1980–1990	1995–2005
	Historic registers			WMFE				
brides aged 15–50	19.28	20.19	20.05	18.73	19.77	21.46	23.20	25.61
grooms aged 15–60	23.97	24.70	24.70	21.37	22.92	26.73	26.45	29.23
all brides aged 15+	19.28	20.19	20.05	18.73	19.77	21.46	23.20	25.63
all grooms aged 15+	24.36	24.80	24.03	21.37	22.92	26.73	26.49	29.34

**Appendix 2. Distribution of absolute spousal age differences by marriage cohort**



**Appendix 3. Percentage distribution of ages at marriage by sex and marriage cohort in Taiwan and Sweden over two decades**







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