Trends in Lifetime Years Married and in Other Marital Statuses from 1880 to 2019

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January 11, 2023

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Abstract

Trends in life expectancy and marriage patterns work together to determine lifetime years married. In 1880, life expectancy was short and marriages were more likely to end by death than divorce. Since then, although there have been substantial life expectancy gains, marriage has been increasingly delayed or forgone and cohabitation and divorce are far more prevalent. Whether adults today can expect to spend more or fewer years married than in the past depends on the relative magnitude of changes in life expectancy and marriage. Prior research has shown that trends in lifetime years married can be surprising given reductions in marriage, but no study has examined trends beyond 1980. We estimate trends in men's expected lifetime years married (and in other marital statuses) from 1880 to 2019 and by BA-status from 1960 to 2019. Our results show a rise in men's lifetime years married between 1880 and the Baby Boom era and a subsequent fall. There are large and growing differences by BA status. Men with BAs have had high and relatively stable lifetime years married since the 1960s. For men without BAs, lifetime years married plummeted to lows not seen among men since 1900. Cohabitation accounts for a substantial fraction but not all these declines, and BA-status differences when cohabitation is included are as large as for marriage alone. Our results show how growing inequality in life expectancy and marriage patterns amplify BA-differences in cumulative experiences of marriage and co-residential partnerships.

Introduction

Increased life expectancy and changes in marriage have had major consequences for American life. In 1880, life expectancy for men was short and marriages were more likely to end by death than divorce. Since then, life expectancy has increased substantially, increasing the potential number of years available to spend married. But high rates of separation and divorce, record-high ages at first marriage, and increased nonmarital cohabitation work in the other direction—reducing the number of years adults spend married. Whether adults spend more or fewer years married today than in the past depends on the relative magnitude of these two forces. If gains from life expectancy have outpaced reductions in marriage, then expected lifetime years married will have increased. If gains from life expectancy have lagged behind reductions in marriage, then expected lifetime years married will have declined.

Past research has shown surprising results about the combined effects of changes in life expectancy and marriage patterns between 1800 and 1980 (Watkins, Menken, and Bongaarts 1987). Although there has been much concern at various times from the public and in academia about reductions in marriage, the expected number of years married was greater in 1980 than it was in earlier eras with the exception of the heyday of marriage during the Baby Boom era. This finding represents an important counterpoint to claims about marriage decline. As Watkins et al. (1987:353) argue, "If number of years spent in these family statuses is taken as a rough measure of investment in the family, clearly this investment has increased, not decreased."

Watkins et al.'s (1987) and others' research has demonstrated that the post-war Baby Boom era was an exceptional period relative to what came before and what came after (e.g., Cherlin 2014; Ruggles 2015), but are we now living through an equally exceptional period? Since 1980, there have been further gains to life expectancy, age at marriage is at a record high,

and cohabitation and divorce remain common. Thus, it is an open question whether lifetime years married is at a record high, low, or somewhere in between. A long-run view of family and demographic change is necessary to put what is currently happening in family life into perspective. In this article, we estimate trends in expected lifetime years married (and in other marital statuses) from 1880 to 2019. We are the first to do so since Watkins et al., whose last data point was in 1980—a very different context than the present day.

Another unanswered question is how years married varies by socioeconomic status. Scholars have compared the extreme level of current U.S. inequality to the Gilded Age of the late 1880s. Not only is income inequality very high but marked inequality in life expectancy and diverging family patterns characterize the last several decades (Case and Deaton 2021a; McLanahan 2004). The dividing line appears to be a bachelor's degree (BA), with those with a BA or more having better health and longer lives, higher marriage rates, and more stable marriages than those without a BA (Case and Deaton 2021a; Lundberg, Pollak, and Stearns 2016). Thus, in addition to long-run trends in lifetime years married since 1880, we estimate shorter-run trends for those with and without a BA from 1960, the earliest historical point for which we have BA-status data and an era in which obtaining a college degree was relatively rare, through 2019.

In this paper, we focus on men because of the health crisis and increased mortality especially among men at the bottom of the class structure and concomitant declines in marriage for this group in recent decades.[1] Referred to as "deaths of despair," the higher mortality rate of men without a BA has been described as part of a cluster of trends associated with economic dislocation and stress including declining wages and fractured family and community ties (e.g.,

[1] Results for women are broadly similar and are presented in the appendix.

Case and Deaton 2021a; King, Scheiring, and Nosrati 2022). Estimates of the widening gulf in life expectancy by education have not been combined with changes in marriage to estimate divergence in lifetime years married. Thus, a key contribution of this paper is that it brings together research on education differences in mortality and marriage to estimate lifetime experience in various marital statuses.

Lifetime years married and in other marital states may have substantial consequences for individuals' lives. For example, marriage is associated with a host of positive outcomes, but many are likely not causal, and research is ongoing. We primarily view trends in lifetime years married as an indicator or outcome of larger structural socio-economic shifts. It is well-known that the likelihood of marriage and other relationship transitions depends heavily on individuals' economic position. But in addition, recent research using rigorous methodology to identify causal effects shows that marriage may have positive effects in some areas. Particularly among men, marriage has been found to improve physical health, reduce drug and alcohol consumption, and protect against criminal behavior (Horn et al. 2013; King, Massoglia, and MacMillan 2007; Salvatore, Gardner, and Kendler 2020; Van den Berg and Gupta 2015). There is less research on the effects of cohabitation but the evidence suggests that it too may have positive, albeit weaker, effects on health behaviors (Horn et al. 2013). Because the potential effects of marital statuses likely compound over time, longer exposure may be more consequential than shorter exposure (Dupre, Beck, and Meadows 2009; O'Rand 1996). Given the connection to duration of exposure, our focus is on lifetime years married and in other marital statuses. We present trends in the proportion of life for comparison in the appendix.[2]

[2] Schoen (2016) and Schoen and Standish (2001) reported trends in the proportion of life married from 1970 to 2010. We expand their time series to 1880 to 2019.

Methods

We use two types of data to estimate expected lifetime years married and in other marital statuses: (1) age- and year-specific mortality rates from period life tables for U.S. men, which are used by demographers to calculate life expectancy, and (2) age- and year-specific estimates of the distribution of adult men's marital status. Our estimates of age-and year-specific full-population male mortality from 1880 to 2019 are from published life tables from a variety of sources (1880, 1900: Haines 1998, Series I pp. 157, Series III pp. 165; 1910, 1920, 1930: Bell and Miller 2005, Table 6; 1940-2019: Human Mortality Database). We use unabridged life tables (those that contain age-specific mortality for single years of age) for all years except 1880 and 1900, for which only life tables for age groups are available.

Our estimates of age-specific marital status distributions are from the 1880-2010 U.S. decennial census and the 2001-2019 American Community Survey (Ruggles et al. 2022). Our time series begins in 1880 because this is the first year that the census included information about marital status. We differentiate five, mutually exclusive marital statuses: never married, cohabiting (includes never and previously married cohabitors), married (includes first and later marriages), divorced/separated, and widowed. Same-sex married and cohabiting couples are included in these estimates. Cohabitors are not separately identified until 1990 because direct measures were not collected until then. Marital status distributions by age and year are weighted using census/ACS-provided person weights so that estimates are representative of the population.

Our measure of expected years lived married and in other marital statuses is conceptually similar to demographers' typical measure of life expectancy. Period estimates of life expectancy are calculated using age-specific mortality rates for each year. Period life expectancy represents life expectancy under the assumption that people born in that year experience the age-specific

mortality conditions that exist in that year throughout their life. This is unrealistic because age-specific mortality rates change across birth cohorts' lifetimes, but life expectancy is nevertheless a useful summary measure of prevailing mortality conditions. Moreover, long-run trends in period measures of life expectancy track those estimated from real cohorts closely, albeit with a lag (Goldstein and Wachter 2006). The benefits and limitations of our period estimates of expected years spent married are the same as those for life expectancy.

We use the Sullivan method to estimate expected years lived married and in other marital states (Sullivan 1971). The Sullivan method has been commonly used to estimate healthy life expectancy and, increasingly, other kinds of life expectancy (Crimmins and Saito 2001; Imai and Soneji 2007; Ophir and Polos 2022; Raymo and Wang 2022), but it has not been applied to marriage to our knowledge. Unlike multistate life table methods (Schoen 2016), the Sullivan method does not require age- and year-specific data on entry and exit rates from the marital states of interest, a difficult requirement given the limitations of both historical and current data. In a comprehensive statistical and conceptual review of the Sullivan method, Imai and Soneji (2007) found that the Sullivan method allows for unbiased and consistent estimation, performs well relative to multistate life table methods, and requires only the assumptions inherent in analyses using period life table methods. Indeed, our estimates using the Sullivan method replicate others' using multistate life table methods well (Schoen and Standish 2001; Watkins et al. 1987).

The Sullivan method allocates expected years lived from period life tables to marital states based on the proportion of the population in a given marital status by age and year. For instance, if a life table for year *y* indicates that there were 100,000 person-years lived among men at age 25 and census/ACS data indicate that 10% of men were married at age 25 in year *y*, then

we estimate that 10,000 person-years were spent married at age 25. Lifetime expected adult years married in year *y* is the sum of person-years married at each age, divided by the total number of men who survived to adulthood. For this analysis, we define adulthood as beginning at age 15 as this is roughly the youngest age men married across this historical period. The calculation of average expected years lived in these five marital states includes all men, even those who never experienced the marital status.

We present trends by BA/non-BA status beginning in 1960. Life table data by BA status is not available prior to this time. In 1960, these data are from Kitagawa and Hauser (1973: Table 2.1). For 1979-1985, they are from Rogot et al. (1992), and for simplicity, we assume these data represent conditions in 1980. From 1990 to 2019, we use death certificate data available through the Mortality Multiple Cause Files database following the method outlined Case and Deaton (2021b). Only a small portion of men received a college degree in 1960 and before (9% of men aged 25-54 in 1960) and thus the results for the male population before 1960 are likely very similar to those for men without a BA.

Scholars often present estimates by BA status for those age 25 and older because education is still in-progress at younger ages. Following this convention is not ideal for our analysis, however, because of the importance of years spent married prior to age 25. In the 1950s and 1960s, for example, it was not uncommon for men to marry in their late teen years. Beginning the analysis at age 25 would thus substantially underestimate lifetime years married in this era. To address this, we assume that all men share the same age-specific mortality rates and marital status distributions prior to age 25, regardless of their current or ultimate education. This assumption will tend to underestimate BA-status differences in lifetime years married and in

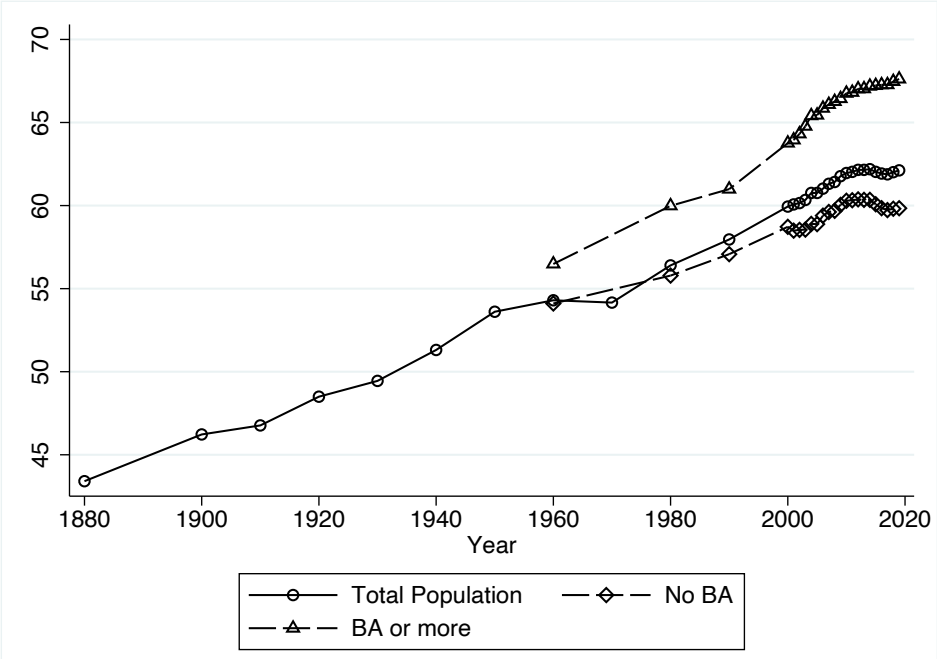
other marital statuses. As an alternative, we present trends for a men aged 25 and older in the appendix.

Results

Trends in Life Expectancy

Figure 1 shows trends in male life expectancy at age 15 (e_{15}) since 1880. Male adult life expectancy has increased and men with BAs have higher life expectancy than those without BAs. This education difference grew to a 7-year difference in 2019, as also reported for 2018 by Case and Deaton (2021b). It is remarkable that men without a BA have experienced a decline in life expectancy since 2012. A decline has also occurred for the total male population since 2014 but did not occur for men with a BA. Increases in U.S. life expectancy have been slower over the past several decades than other countries. American men's life expectancy lags behind other high-income countries, for example, Britain, Germany, France, and Japan (World Bank 2022).

Figure 1. Male Life Expectancy at Age 15: Total Population and by BA Status



Despite the troubling lack of improvement and recent decline in life expectancy among adult men without BAs, in comparison with earlier eras, men in 2019 had more potential adult years (age 15+) to spend married than in the past (62 years vs. 43 years in 1880). Men with BAs had, in particular, a large number of potential adult years to spend married (68 years).

Change in Marriage and Other Marital Statuses

The expected number of years lived in the five marital statuses we differentiate is determined by (1) changes in life expectancy (shown in Figure 1) and (2) marital status trends. Figure 2 shows trends in the second component.[3] The notable decline in the percent married since roughly 1980 is clear. Compared with 1980 when 67% of men aged 15 and older were married, 49% were married in 2019. Figure 2 shows that the decline since 1980 is accounted for primarily by increases in the percentage of men never married, followed by cohabitation, and then by divorce/separation (1980 to 2019 percentage point increase: 11, 6, and 2, respectively).[4]

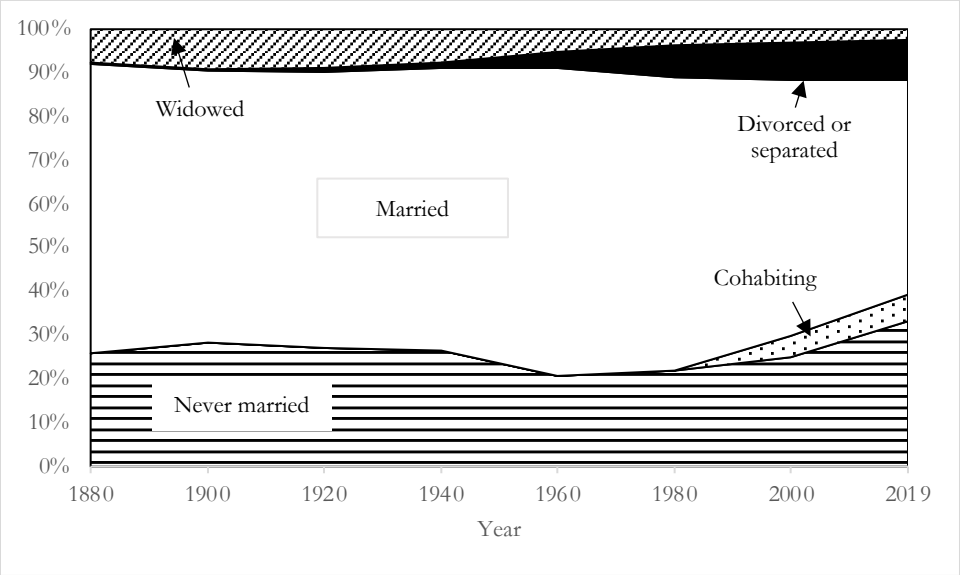
Variation in the intensity and timing of entry and exit from marriage and the other marital statuses underly these trends. For example, trends in the percentage of the population never married are the result of variation in marriage timing and the prevalence of lifelong bachelorhood. Between 1880 and 1940, the percentage of the male population never married remained relatively stable due to offsetting trends of a one-year decline in age at first marriage among young men (from about 25.5 to 24.5 years of age) along with an increase in the prevalence of older bachelors (Fitch and Ruggles 2000). The percentage of men never married

[3]Figure 2 is age standardized to its 2019 distribution to facilitate comparisons across years in marriage behavior controlling for changes in the population age composition. Because the U.S. population has aged, a larger percentage of the population in the past was young and never married. Age standardization allows us to compare trends in marital statuses holding constant changes in the age distribution of the population. See Preston, Heuveline, and Guillot (2000) for a description of this method.

[4] Indirect estimates of cohabitation suggest that cohabitors comprised about 1% of all couple households in 1970 and about 3% in 1980 (Fitch, Goeken, and Ruggles 2005). Using these estimates suggests the percentage of men cohabiting increased by 4 percentage points between 1980 and 2019 (versus 6 when only direct measures are used).

hit at an all-time low during the Baby Boom era of the 1950s and 1960s both because of early and near universal marriage. Since then, the percentage of men never married has grown due to very high median ages at first marriage (over 30 years of age in 2019) and increases in marriage foregone (Fitch and Ruggles 2000; U.S. Census Bureau 2021b; authors' calculations based on U.S. decennial census and ACS data). Although the majority of adults now cohabit prior to marriage (76% of marriages formed in 2015-19) the typical cohabiting union is short-lived and thus, as Figure 2 shows, only a small proportion of men are in cohabiting unions at any given time (Manning and Carlson 2021; Mernitz 2018).

Figure 2. Percentage Distribution of Male Population Age 15+ by Marital Status (Age Standardized to 2019)

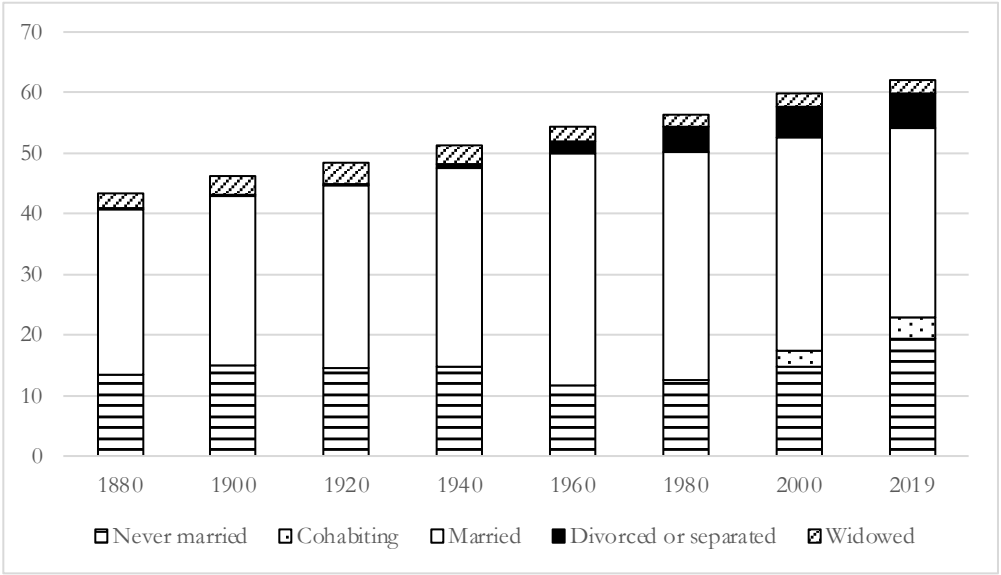


Although divorce rates overall have declined since the late-1970s, the percentage of men divorced/separated has remained relatively constant. The likely cause is a substantial decline in remarriage rates. Men's remarriage rates declined from 117 per 1,000 previously married men in 1970 to just 39 per 1,000 in 2017 (Schweizer 2019). Thus, while fewer men were divorced/separated over this period, fewer were also getting remarried, resulting in little change in the percentage of men aged 15 and over who were divorce/separated.

Expected Lifetime Years Married and in Other Marital Statuses

How have changes in life expectancy and marital status combined to produce expected lifetime years spent married and in other marital statutes? Figure 3 shows our estimates of men's adult life expectancy by marital status. The total height of the bars is life expectancy at age 15 among men surviving to age 15 (e_{15}), also presented in Figure 1. Expected lifetime years never married has fluctuated since 1880 but was at a record high of almost 20 years in 2019. The number of expected lifetime years cohabiting has increased, rising from 1.7 years in 1990 (not shown) to 3.7 in 2019. Time spent in the divorced/separated state has also increased from about 2 years in 1960 to almost 6 years in 2019. The expected number of years widowed has stayed relatively constant for men at around 2 years since 1880.

Figure 3. Distribution of Men's Adult Life Expectancy by Marital Status (Aged 15+)

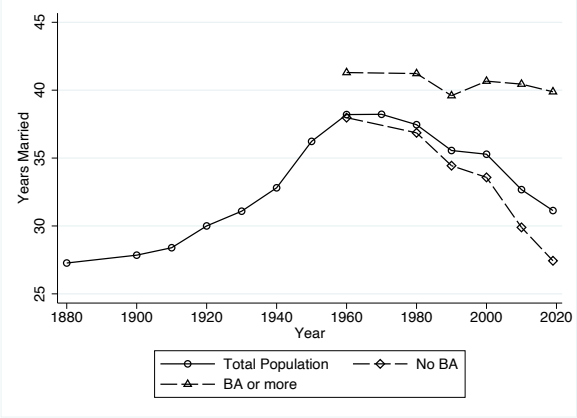


To home in on trends in the number of years married, Panel A of Figure 4 plots expected lifetime years married for the total male population, and from 1960 by BA status. Several results stand out. Among all men, expected lifetime years married increased from 27 in 1880, peaking at 38 years in 1960 and 1970 before declining thereafter to 31 years. Expected lifetime years

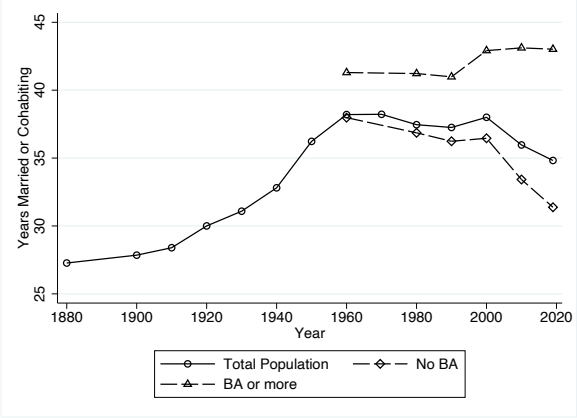
married in 2019 was at its lowest level for the male population since 1930. Thus, despite increasing life expectancy, changes in marriage behavior have been large enough to completely offset this, cutting 7 years from expected lifetime years married for men since 1960.

Figure 4. Men's Expected Lifetime Years Married and Cohabiting (Age 15+)

Panel A. Expected Total Years Married



Panel B. Expected Total Years Married or Cohabiting



Panel C. Expected Total Years Married Holding Mortality Constant at 1960 Levels

Panel A also shows striking education differences. Expected lifetime years married in 1960 for men with BAs was about 3 years greater than for those without BAs, but the difference has grown much larger. Remarkably, expected lifetime years married for men with BAs has declined little since the golden age of marriage in the Baby Boom era. In 2019, expected lifetime years married for men with BAs was 40 years compared with 41 years in 1960. By contrast, the number of years married for non-BA men declined precipitously from 38 years in 1960 to 27

years in 2019. In 2019, the difference in expected lifetime years married between BA and non-BA men was about 12 years. Lifetime years married for men without BAs in 2019 was as low as it was for the male population in 1900 when life expectancy was short and marriages were much more likely to end by death rather than divorce.[5]

Panel B shows that increases in non-marital cohabitation have offset a large portion of the decline in years married for the total population of men and non-BA men, but not all. If we consider cohabiting unions as marriages and examine all co-residential unions (Panel B), expected lifetime years married for men would have declined by 3.4 years (instead of 7) since 1960, thus accounting for slightly over half (52%) of the decline. For BA men, there is an increase in years spent partnered when including cohabitation. Educational differences remain as large (12 years) as for marriage alone.

To what extent do changes in mortality account for these trends? To assess this, we estimate counterfactual trends holding age-specific mortality rates constant at their 1960 levels but allowing marriage patterns to vary as observed. Panel C of Figure 1 suggests that the increased longevity of BA men is responsible for a large portion of the observed stability in their lifetime years married. When we hold mortality constant at its 1960 values, lifetime years married for BA men fall from 41 years in 1960 to 32 years in 2019, rather than the observed 1-year drop. Differences in years married by BA status are also narrower under this counterfactual, a 33% reduction from 12 years in the observed data to 8 years. This illustrates how changes in marriage patterns and life expectancy combine to magnify BA differences in expected lifetime years married.

[5] Because very few men in 1900 were college graduates (<1%), it is reasonable to assume that the expected lifetime number of years married in 1900 for all men is virtually identical to the estimate for men without BAs (U.S. Census Bureau 1975, 2021a), although the nature and meaning of a BA degree has changed substantially since then.

Although the total number of years BA men spend married has stayed relatively stable since 1960, delayed marriage and to a lesser extent increased divorce/separation and cohabitation mean that these years are a smaller proportion of men's total lifetime (see appendix). The potential outcomes of marriage and cohabitation are generally measured in terms of years of exposure, but it is possible that perceptions of the proportion of one's life spent in various marital states also affects behavior. Future research should investigate how perceptions and experiences of time horizons affect key outcomes of interest.

Discussion

We have shown that men's expected lifetime years married peaked in the U.S. in 1960 and 1970 and has declined since then to levels comparable to 1930. In addition, very different patterns characterize men with and without BAs. For men with BAs, expected lifetime years married has remained relatively stable since the heyday of marriage in the Baby Boom era, decreasing by just one year (from 41 to 40 years) between 1960 and 2019. By contrast, expected lifetime years married for men without BAs has declined precipitously to 27 years, a level not seen among men in the U.S. since 1900. In 2019, men without BAs could expect to spend about 12 fewer years of their lives married than men with BAs if these age-specific marriage and mortality rates remain constant. Cohabitation accounts for a substantial fraction of this decline (about half) and BA-status differences when cohabiting unions are included are as large as for marriage alone.

These results tell a different story than past research. Watkin et al. (1987) examined trends for women through 1980 and found that, despite much public and academic commentary about changes in marriage and family life in this era (e.g., Popenoe 1993; Stacey 1993), time spent married was quite high relative to what had come before. They speculated that increased

life expectancy itself may have redefined people's expectations about marriage and family, stating, "it is as if having approached the full potential for family life inherent in low mortality [in the Baby Boom era], subsequent cohorts trimmed the sails sharply" (354).

Although perceptions about life expectancy may indeed affect marital behavior and be an important part of the explanation for the trends we presented here, we see the evidence as more consistent with an economic inequality and instability explanation. Men with BAs do not appear to have substantially trimmed the sails on lifetime years married since 1960. By contrast, lifetime years married for men without BAs has declined far more than a return to their pre-Baby Boom 1940s levels. Growing inequality and the declining economic fortunes of less educated men have made it increasingly difficult to achieve the economic security many people desire to have in marriage (Karney 2021; Randles 2016).

Our estimates share the same limitations as period measures of life expectancy; that is, they assume that a cohort born in a given year will experience the same mortality and marriage rates by age throughout their lives as are observed in that year. Given the inevitability of social change, this is not plausible. However, past research has shown that period life expectancy measures are good estimates of cohort life expectancy, but are lagging indicators. Goldstein and Wachter (2006) estimate that the length of this lag is about 40 years in recent data. If this relationship holds for expected lifetime years married, then our estimates from age 15+ would be most applicable to the lifetime experiences of men roughly age 65 in 2019. Given that younger cohorts with and without BAs alike are marrying later and cohabiting more, we might expect to see further declines in years spent married as these cohorts age.

Future research should seek to better understand the implications of these shifts by continuing to tease out the (possibly changing) causal effects of marriage and cohabitation and

the extent to which these effects compound with duration. Regardless of their effects, however, our results show that the combination of changes in life expectancy and marriage behavior has resulted in high and relatively stable lifetime years married for men with BAs and rapidly declining lifetime years married for men without BAs. Increasing inequality in both life expectancy and marriage patterns amplify differences in lifetime experiences of co-residential partnerships.

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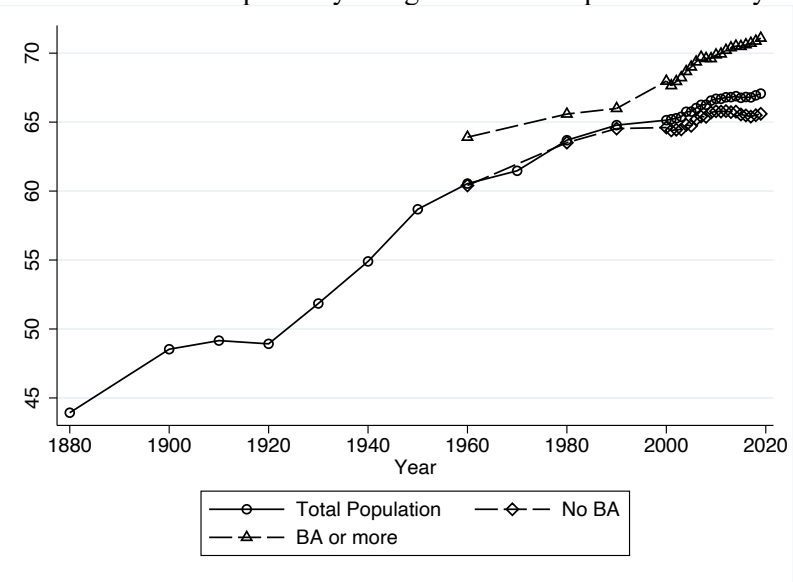
Appendix:
Trends in Lifetime Years Married and in Other Marital Statuses from 1880 to 2019

SF1. Men's Expected Percentage of Lifetime Married and Cohabiting (Age 15+)

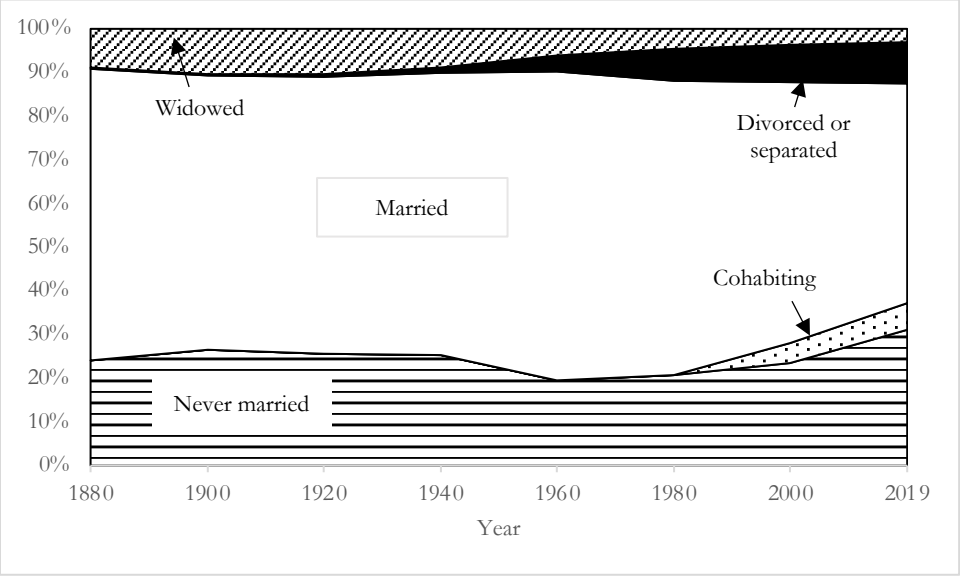
Panel A. Percentage of Adult Lifetime Married

Panel B. Percentage of Adult Lifetime Married or Cohabiting

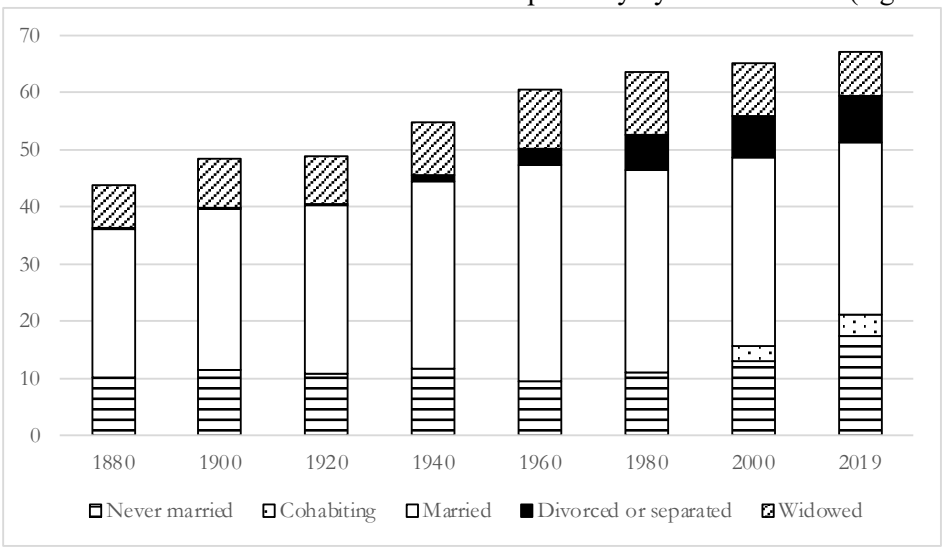
SF2. Female Life Expectancy at Age 15: Total Population and by BA Status



SF3. Percentage Distribution of Female Population Age 15+ by Marital Status (Age Standardized to 2019)



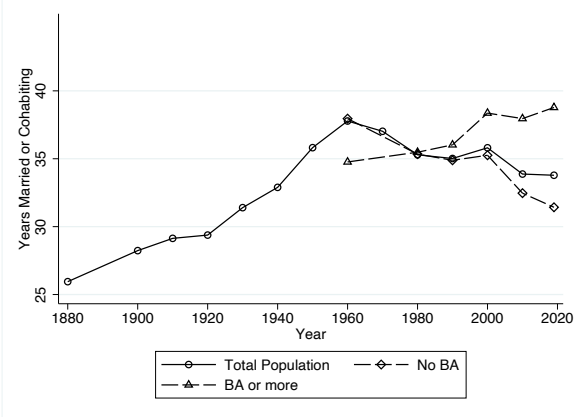
SF4. Distribution of Women's Adult Life Expectancy by Marital Status (Aged 15+)



SF5. Women's Expected Lifetime Years Married and Cohabiting (Age 15+)

Panel A. Expected Total Years Married

Panel B. Expected Total Years Married or Cohabiting

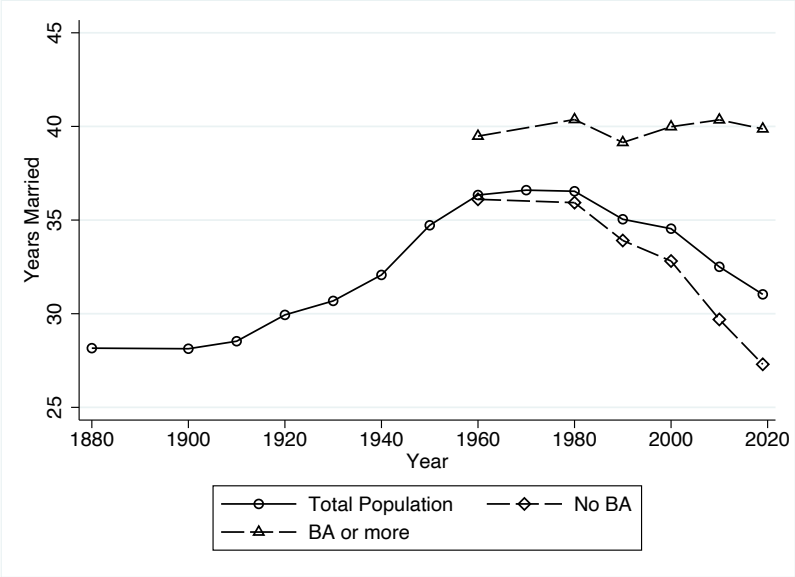


Panel C. Percentage of Adult Lifetime Married

Panel D. Percentage of Adult Lifetime Married or Cohabiting

SF6. Men's Total Expected Lifetime Years Married and Cohabiting (Age 25+)

Panel A. Expected Total Years Married



Panel B. Expected Total Years Married and Cohabiting