"The May-December relationship since 1850: Age homogamy in the U.S."

Karen Rolf, UNIVERSITY OF NEBRASKA, and
Joseph P. Ferrie, NORTHWESTERN UNIVERSITY and NBER

March 7, 2008

Abstract

The gap between the ages of husbands and wives in the U.S. fell in each decade from 1900 to 2000. We explore whether this trend was present as well in the second half of the nineteenth century. We find that age homogamy (similarity in the ages of spouses) actually decreased after 1850 before beginning its twentieth century decline. We examine this divergence between the nineteenth and twentieth century patterns in light of the westward expansion of the U.S. frontier, the withdrawal of women from the paid labor force, and the impact of the Civil War. The nineteenth century rise in the age gap has implications for the welfare of wives and children.

Introduction

The discrepancy between the ages of husbands and wives in the U.S. has fallen continuously throughout the twentieth century: husbands were on average nearly five years older than their wives in 1900, but were just over two years older in 2000. This pattern was noted more than twenty years ago and has been associated with increasing female employment and rising levels of education.[1] Though the extent and causes of marital heterogamy before the twentieth century have been examined in the European context, these issues have received much less attention for the U.S.[2]

---

[1] Maxine P. Atkinson and Becky L. Glass, "Marital Age Heterogamy and Homogamy, 1900 to 1980," *Journal of Marriage and the Family*, 47 (August, 1985): 685-691.

[2] For Europe, see, for Marco H.D. van Leeuwen and Ineke Maas, "Partner Choice and Homogamy in the Nineteenth Century: Was There a Sexual Revolution in Europe?" *Journal of Social History* 36.1 (2002)

Differences between the ages of husbands wives are of interest for two reasons: (1) they reveal the operation of the marriage market and the range of choices available to participants in that market (for example, greater age discrepancies may reflect preferences for a spouse older or younger than oneself or a lack of potential partners similar in age); and (2) they can have substantial impacts on the internal dynamics of families (for example, if they reflect differences in the leverage with which partners enter the union that are later manifested in how family resources are allocated, or if they are more likely to result in earlier death of one spouse than marriages of similarly-aged husbands and wives).

The availability of large samples from the pre-1900 U.S. population censuses allows us to trace this evolution back into the second half of the nineteenth century. We find that the gap between husbands' and wives' ages actually rose from 1850 until 1880 (Figures 1 and 2), before it began its twentieth century decline.[3] This is true for both the entire population (Figure 1) and for the native-born white population (Figure 2). The pattern for the second half of the nineteenth century also persists is we look at birth cohorts rather than census years, and if we consider new marriages in the year preceding the census rather than the

101-123; Frans van Poppel; Aart C. Liefbroer; Jeroen K. Vermunt; Wilma Smeenk, "Love, Necessity and Opportunity: Changing Patterns of Marital Age Homogamy in the Netherlands, 1850-1993," *Population Studies*, Vol. 55, No. 1. (Mar., 2001), pp. 1-13; Bart Van de Putte and Koen Matthijs, "Romantic Love and Marriage. A Study of Age Homogamy in Nineteenth Century Leuven," in Isabelle Devos and Muriel Neven (eds), *Revue Belge d'Histoire Contemporaine / Belgisch Tijdschrift voor Nieuwste Geschiedenis* 31, 3 647. 34.

[3] Before 1880, the census did not explicitly identify relationships within households, but the location of the husband and wife could generally be inferred based on their positions on the manuscript (heads of households were conventionally listed first, followed by spouses) and their ages relative to other family members (both parents generally being 15 or more years older than the next individual who was presumably the first child). For 1880 and 1910, the age gaps for both the actual and imputed husband-wife pairs are shown in Figures 1 and 2. The differences are insignificant, so we feel confident that the pre-1880 trend is not the result of an inconsistency in how household relationships are being identified. In the following analysis, we use imputed relationship for 1850-70, and reported relationship for 1880-2000.
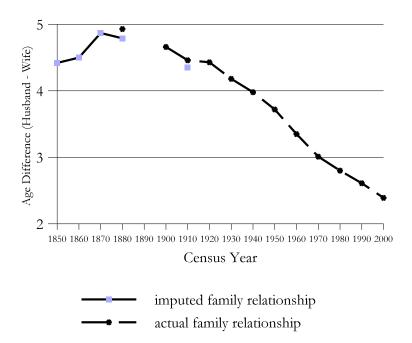
Figure 1. Average Difference Between Husbands' and Wives' Ages By Census Year, All Races and Origins.
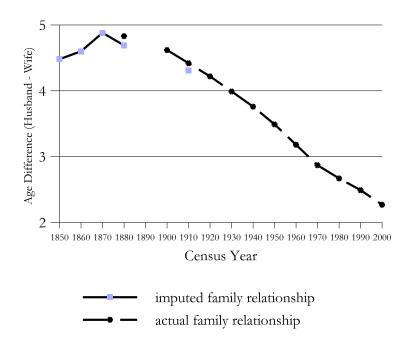

Figure 2. Average Difference Between Husbands' and Wives' Ages By Census Year, White Native-Born Only.

entire stock of marriages in existence at the time of the census. We explore this previously

unknown increase in age heterogamy, assessing the role of the Civil War, the changing role

of women in the economy, and the westward expansion of the U.S.

Measuring Age Homogamy

Figures 1 and 2 both employ the simplest measure of age homogamy: the average gap

between the ages of husbands and wives. Before proceeding to assess why homogamy rose

over the late nineteenth century, we briefly consider whether alternative measures of

homogamy produce similar trends. We consider three additional measures: age homogamy

distinguished by whether it is the husband or the wife who is the older partner, age

homogamy by birth cohort (for either the husband or the wife), and age homogamy among

marriages that occurred within 12 months of the census.

When age homogamy if distinguished by whether the husband or the wife is the older

partner in Table 1, the pattern of overall homogamy (which appears in the last column and is

reproduced in Figure 2) follows that of husband-older homogamy from 1870 to 2000: both

series are continuously declining.[4] In the 1860s, both series rise. The wife-older series is

somewhat more erratic (in part because of smaller cell sizes, as these marriages account for

between 12 and 21 percent of all marriages, with the fraction increasing over time), but

seems to drive the overall age homogamy measure up in the 1850s, while the husband-older

---

[4] If $G_{H>W}$ is the gap for the N_1 couples where the husband is older than the wife, $G_{W>H}$ is the gap for the N_2 couples where the wife is older than the husband, and the ages of the both spouses are identical in the remaining N_3 couples the overall gap is

$$G_{Total} = (N_1/(N_1+N_2+N_3))(G_{H>W}) + (N_2/(N_1+N_2+N_3))(G_{W>H})$$

rate remains essentially unchanged. So even within the nineteenth century, two distinct developments account for the rise in the overall age gap between husbands and wives through 1870: (1) in the 1850s, the age gap between spouses rises in wife-older couples; (2) in the 1860s, the gap rises in husband-older couples. Finally, in the 1870s, the gap in wife-older couples rises again, even as the overall gap has started its long-term decline.

Census Year	Obs.	$Age_H - AgeH_W$ if $Age_H > Age_W$		$Age_W - AgeH_H$ if $Age_W > Age_H$		$Age_H - AgeH_W$
		Gap	Share	Gap	Share	Gap
1850	23,495	6.41	0.78	3.52	0.13	4.55
1860	30,404	6.38	0.80	3.60	0.12	4.67
1870	36,766	6.67	0.81	3.48	0.12	4.96
1880	49,095	6.60	0.80	3.58	0.12	4.87
1900	78,757	6.38	0.80	3.33	0.12	4.68
1910	147,779	6.17	0.79	3.28	0.12	4.48
1920	124,387	6.05	0.78	3.37	0.13	4.28
1930	159,245	5.72	0.77	3.27	0.13	4.00
1940	195,410	5.57	0.77	3.42	0.14	3.81
1950	291,111	5.21	0.77	3.16	0.13	3.52
1960	313,706	4.96	0.74	3.31	0.15	3.19
1970	339,267	4.60	0.74	3.62	0.15	2.88
1980	396,113	4.37	0.73	3.21	0.15	2.69
1990	425,300	4.39	0.71	3.50	0.17	2.51
2000	417,333	4.56	0.67	3.49	0.21	2.30

Table 1. Average Difference Between Husbands' and Wives Ages By Sex of Older Spouse and Census Year.

Figure 3 plots the gap between husbands' and wives' ages by birth decade. For males, the trend in monotonically decreasing: moving forward from 1780, it was increasingly likely that successive male birth cohorts would marry women closer to their own age. The pattern for females is quite different for all cohorts born before 1830: for nearly five decades after 1780, it was increasingly likely that successive female birth cohorts would marry men farther
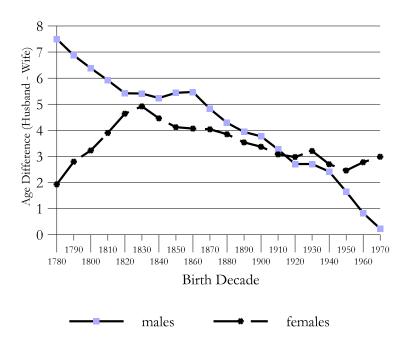
Figure 3. Average Difference Between Husbands' and Wives' Ages By Sex and Birth Cohort.

from their own age. Like the trends in age homogamy by the sex of the oldest spouse, this

trend suggests that there are developments early in the second half of the nineteenth century

that are very different from later developments.[5]

---

[5] Moving backward to earlier birth cohorts from the 1830s, the gap between the age difference measured for male birth cohorts and the age difference measured for female birth cohorts grows progressively wider, going form only 0.49 years for births in the 1830s to 3.15 years for births in the 1800s to 5.57 years for births in the 1780s. This pattern could result if in second marriages (whether due to spousal death or divorce), males were more likely than females to marry a new partner younger than the previous partner. If Figure 3 is reproduced separately for each census year 1850-2000, the same general pattern emerges (a widening of the difference between the age gap for male birth cohorts and the age difference for female birth cohorts as progressively earlier birth cohorts are considered), though the rate at which the series diverge diminishes as progressively more recent censuses are examined, suggesting that either (1) differences by sex in the propensity to marry a younger spouse in a second marriage or (2) differences in the probability of experiencing a second marriage have diminished over time. Since we know that divorce has risen steadily, at least since 1925, spousal mortality would need to have fallen substantially for the probability of second marriages to have fallen on net.

Finally, we can examine the "flow" of new marriages, rather than the "stock" of existing unions present in each census year: in the four censuses 1850-80, respondents were asked whether they had married in the twelve months preceding the census reference date, while in 1900, 1910, and 1950, it is possible to identify couples whose marital duration is one year or less. The "stock" figure we have employed up to this point – the average age gap in any census year – reflects not just the tendency of couples with a particular age gap to marry in the years preceding the census date but also the probability that such unions would survive to the date of the census. This may be particularly problematic for unions in which one partner is considerably older than the other. Table 2 presents the average gap between husbands' and wives' ages for the subset of the population that married in the twelve month prior to the census. Though the cell sizes for the nineteenth century censuses are small (the small number of affirmative answers suggests that many respondents or the census takers simply ignored this question), the age gap again rises between 1849 marriages and 1859 marriages, then falls between 1859 marriages and 1869 marriages, then rises again between 1879 marriages and 1899 marriages, before falling by 1909.

Census Year	Obs.	$Age_H - AgeH_W$
1850	529	4.84
1860	655	5.13
1870	489	4.65
1880	798	4.84
1900	5,562	4.91
1910	10,265	4.46

Table 2. Average Difference Between Husbands' and Wives Ages
By Census Year, Married in 12 Months Prior to Census Only.

Explaining Trends in Age Homogamy

A simple framework to understand the interplay of forces that shape changes in observed rates of age homogamy has been offered by Kalmijn.[6] He suggests that rates of homogamy are the result of the interaction of three forces: the preferences of potential marriage partners, the strength of the pressure exerted by social groups, and the areas within which potential marriage partners can interact. As the preferences of potential marriage partners shift toward a desire for more age-similar marriages (because of economic, social, or cultural forces), greater homogamy results. If the influence of social groups wanes, the rate of homogamy will reflect more closely the underlying preference of potential marriage partners. Finally, if opportunities for interacting socially with more age-similar potential marriage partners increase, in the absence of a countervailing change in preferences or in social group pressure, greater homogamy will also result.

---

[6] Matthijs Kalmijn, "Shifting Boundaries: Trends in Religious and Educational Homogamy," *American Sociological Review*, Vol. 56, No. 6. (Dec., 1991), pp. 786-800.

This framework does not explicitly address the question of availability of eligible marriage partners, even if there are strong preferences for age-similar unions. The assumption underlying most research on age homogamy since Shorter has been that age-similar unions are more likely to reflect sentimental rather than instrumental concerns – in the absence of compelling economic or social needs to marry a partner substantially different in age, people would choose partners more similar, as greater sentimental attachment or romantic love "means conversation, and the experience of belonging to the same age cohort contributes powerfully to conversational possibilities."[7] But what if the set of available partner that meet these criteria is limited by either geography (residence in a region with a severe age or sex imbalance) or a recent demographic catastrophe that has generated a transitory age or sex imbalance? Recent work for the post-1970 period by Qian that tries to account for both preferences and availability finds concludes that "The force of attraction, rather than availability was the dominant influence on trends in marriage rates."[8] The possibility remains, however, that availability played a role at other times in the past.

Demographic Events

The easiest to address of the explanations for the trend in age homogamy before 1900 is the last mentioned above: the unavailability of suitably-aged marriage partners as a result of cataclysmic demographic events. The U.S. Civil War resulted directly in the deaths of 600,000 prime-age males (Figure 4), which by itself would have substantially reduced the pool of

---

[7] Van Poppel at al., p. 1.

[8] Zhenchao Qian, "Changes in American Marriage, 1970-1990: Forces of Attraction, Assortative Mating, and Interracial Marriage," Ph.D. dissertation, University of Pennsylvania (1994).
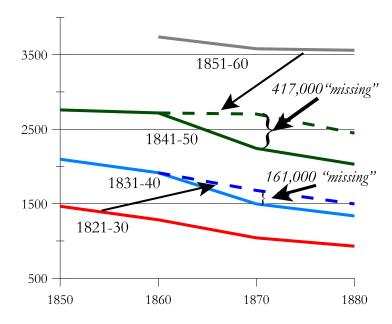
Figure 4. White Native-Born Males By Census Year and Birth Cohort.

same-age male marriage partners for females born between 1835 and 1845.[9] A comparable

number of males were permanently disabled as a result of their military service, leaving them

with poor labor market prospects, further reducing the population of attractive marriage

partners in these birth cohorts.[10] Both Figures 1 and 2 reveal, however, that the gap between

the ages of husbands and wives was already rising between 1850 and 1860.

---

[9] The data are from the IPUMS 1850-2000 samples (Steven Ruggles et al., Integrated Public Use Microdata Series: Version 3.0 [Machine-readable database]. Minneapolis, MN: Minnesota Population Center [producer and distributor], 2004). The "missing" members of the 1831-40 birth cohort assume this group had the same mortality rate 1860-70 as the 1821-30 cohort had 1850-60 but its own actual mortality 1870-80; the "missing" members of the 1841-50 birth cohort assume this group had the same mortality rate 1860-70 as the 1851-60 cohort had experienced 1870-80, but its own actual mortality 1870-80. This exercise understates the number of members of the 1831-40 and 1841-50 birth cohorts "missing" by 1880 if mortality rates 1870-80 were higher than they would have been in the absence of the war.

[10] Chulhee Lee, "Wealth Accumulation and the Health of Union Army Veterans, 1860-1870," *Journal of Economic History* 65 (June 2005), 352-385.

The observed rise in the age gap after 1850 also cannot be the direct result of the other signature mid-nineteenth century demographic event: substantial immigration into the U.S. (the immigration rate – immigrants per U.S. resident – was higher in the 1850s than in any decade since). The discrepancy emerges for the native-born population as well (Figure 2).

Preferences

A second possible explanation for the observed pattern of increasing age heterogamy in the last half of the nineteenth century follows from the hypothesis that greater homogamy reflects stronger female leverage in the search for a marriage partner. Greater heterogamy would then reflect a worsening of the woman's bargaining position. We will explore this possibility with data on female employment throughout the nineteenth century. The most noteworthy developments in second half of the nineteenth century are a decline in the fraction of females working outside the home, as industries such as textiles that had employed large numbers of women and children early in the century switched to male workers by the 1840s and 1850s. To the extent that this reduces the independent incomes available to females, it may have led to less desirable (i.e. more age-heterogamous) unions.

The most significant changes in female participation in the paid labor force in the middle of the nineteenth century occurred in the industrializing Northeast, where several industries – particularly textiles – took advantage of low female (and child) productivity in Northern agriculture by locating factories where these workers could be employed. In Massachusetts, for example, the share of females age 10-29 employed in manufacturing rose

11

from 27% in 1832 to 40% in 1837, before falling to 28% in 1860.[11] The decline in female

employment outside the home could have led to greater age homogamy if it diminished the

bargaining power of females in the marriage market. The change in labor force participation,

however, was largely confined to the Northeast. As we will see below, this was the region

that exhibited the greatest age homogamy throughout the second half of the nineteenth

century.

A final source of difference we can exploit to explain the change in age homogamy

before 1870 is variation across regions. Table 3 shows the average gap between husbands'

and wives' ages for three eras and 9 regions. Note first that the regions with the lowest gap

between husbands' and wives' ages throughout the 150 years we examine was the Northeast.

Region	1850-80		1900-40		1950-2000	
	Obs.	Gap	Obs.	Gap	Obs.	Gap
New England	16,359	4.18	36,793	3.57	117,162	2.49
Middle Atlantic	32,271	4.36	125,593	3.45	340,193	2.69
East North Central	33,857	4.83	158,522	3.79	426,604	2.66
West North Central	13,421	5.08	94,387	4.28	199,287	2.82
South Atlantic	19,479	4.93	87,421	4.58	331,982	2.90
East South Central	15,743	5.18	61,697	4.85	142,576	3.17
West South Central	6,288	5.68	73,897	4.95	220,802	3.00
Mountain	900	6.78	24,637	4.65	108,536	2.76
Pacific	1,442	7.22	42,616	4.30	244,143	2.71

Table **3**. Average Difference Between Husbands' and Wives' Ages By Region and Period.

---

[11] Claudia Goldin; Kenneth Sokoloff, "The Relative Productivity Hypothesis of Industrialization: The American Case, 1820 to 1850," *The Quarterly Journal of Economics*, Vol. 99, No. 3. (Aug., 1984), p. 475.

This suggests that even if diminished female prospects for employment in manufacturing reduced their bargaining position and led to more age-dissimlar marriages, this can be at most only a very minor part of the story of age homogamy nationally.

Throughout the second half of the nineteenth century, the U.S. frontier was moving westward. The regions with lower age homogamy were consistently farther to the west. This sharp east-west gradient in age homogamy may reflect a desire for younger spouses on the frontier where the physical demands on all household members were greater than in less recently settled regions. The large IPUMS samples also make it possible for us to calculate separate rates of age heterogamy by region and occupation. Our preliminary analysis suggests
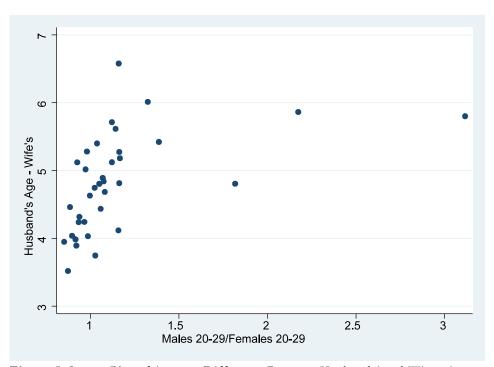

Figure 5. Scatter Plot of Average Difference Between Husbands' and Wives Ages and Ratio of Males Age 20-29 to Females Age 20-29 By State, 1860.
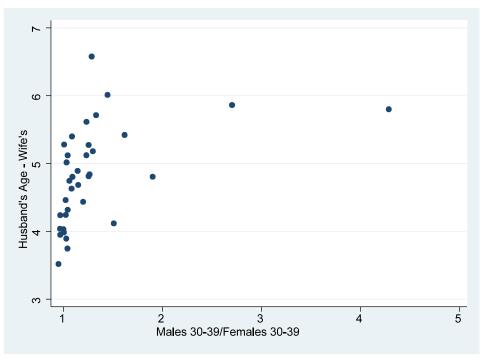
Figure 6. Scatter Plot of Average Difference Between Husbands' and Wives Ages and Ratio of Males Age 30-39 to Females Age 30-39 By State, 1860.

that farmers on the frontier were those most likely to have wives who were considerably younger than they were. To examine whether this pattern reflects the availability of same-age partners, Figures 5 and 6 show scatter plots of the age gap in 1860 and the ratio of males to females age 20-29 and 30-39. In both cases, there is a strong positive relationship between the sex ratio and the age gap at the state level. In fact, a simple linear regression using the sex ratio as the only explanatory variable accounts for roughly a fifth of the variance in the age gap.

The Implications of Age Heterogamy for Families [in progress]

The recent creation of large samples of households who have been followed from census to census for the late nineteenth and early twentieth centuries allows us to go farther

14

than simply identifying the prevalence of age-heterogamous marriages in the past and the factors that made them more or less likely.[12] We can now examine the consequences for the family of such marriages, by comparing rates of widowhood among females as a function of their proximity in age to their husbands, and the school attendance and labor market activities of their children.

Conclusions

Though we have know for some time that husbands and wives became increasingly similar in age from 1900 to 2000, we have know little about how the ages of spouses compared in the nineteenth century. Our analysis suggests that age homogamy, measured in a variety of ways, actually decreased in the last half of the nineteenth century before beginning its twentieth century decline. The increase in the gap between husbands' and wives' ages before 1900 cannot be accounted for by the impact of the U.S. Civil War, by substantial immigration to the U.S. in this period, or by the diminished prospects for female employment outside the home. Rather, age homogamy was greater in the west than in the east, a difference that narrowed only in the early twentieth century and was not erased until the second half of the twentieth century. Lower levels of age homogamy in the west, in turn, are associated with imbalanced sex ratios that constrained partner choice, but may also be a product of preferences for younger wives on a frontier where conditions remained often inhospitable through the end of the nineteenth century. Subsequent research will assess the implications of large gaps between husbands' and wives' ages for the welfare of families.

---

[12] Joseph P. Ferrie, "Linked data for the analysis of occupational and geographic mobility in the U.S., 1850-1920," unpublished, Northwestern University Department of Economics, 2005.