Marry for Money or Time? Explaining New Marriage Trends in the U.S.

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Abstract

This paper documents new stylized facts on marriage rates in the United States from 2000 to 2021, emphasizing both the role of wage gaps and work hours. Using data from IPUMS-USA, individuals are divided into income groups based on median wages for each gender. The study finds that while marriage rates have dropped for most groups, high-income women have seen an increase in marriage rates, a new and surprising finding. To understand these patterns, a marriage model that accounts for different wage levels and work hours is developed and calibrated using data from the year 2000. The model is tested with 2021 data, and the impacts of wage and work hours changes are examined separately. The results show that changes in work hours, especially reductions in men's work hours, better explain both the overall decline in marriage rates and the rise in marriage rates among high-income women.

Jel classification: D31, J12, J16.

Keywords: Marriage, Income groups, working hours, wage structure.

1 Introduction

Over the past several decades, aggregate marriage rates have been declining worldwide, a trend with far-reaching social and economic implications for household formations, fertility rates, labor market dynamics, and inequality. Understanding the factors driving changes in marriage patterns is crucial for policymakers and researchers alike. Recently, Moro et al. (2017), using cross-country panel data on marital statistics from 1900 to 2000 for 16 OECD countries, document that the fraction of married individuals follows a hump-shaped pattern. The peak in marriage rates, occurring between 1960 and 1980, underscores a turning point after which marriage rates began their steady decline. Many other economists highlighted the same trend.

It has been understood now that the decline in marriage has been accompanied by several stylized facts. First, the literature emphasizes that marriage patterns are not homogeneous across groups, particularly among different education levels (Chiappori et al., 2018; Chiappori et al.,2020) and racial groups (Caucutt et al., 2021). In the United States for example, the decline in marriage rates has been most apparent among non-college-educated and Black Americans (Greenwood et al.,2016; Caucutt et al.,2021). Another established stylized fact is the rise in assortative mating, particularly an increase in the fraction of marriages in which both partners share the same educational level (Greenwood et al.,2016).

The two main underlying forces considered by the literature are technological progress in household production and changes in the labor market that began in the 1960s, such as educational attainment and female labor force participation. (Stevenson and Wolfers, 2007; Greenwood and Guner, 2009; Greenwood et al., 2014; Greenwood et al., 2016). Some other drivers include technological improvement in contraceptives and changed social perception towards sex outside wedlock (Greenwood and Guner, 2010).

The purpose of this paper is to investigate the impact of two specific economic factors on recent marriage patterns in the United States; factors that have not been extensively explored by the existing literature, specifically the effects of changes in the wage structure and work hours on household formation. To this end, I utilize data from the U.S. Census and the American Community Survey (ACS) from 2000 to 2021, including the 1% ACS and 5% Census samples provided through IPUMS-USA (Ruggles et al., 2024). I divide my data into two income groups for each gender, using the median income specific to each gender as the threshold to separate the groups. For example, men are divided into those falling below and those above the median income for men, and the same approach is applied to women. This method ensures that individuals are compared to their gender. I then compute the median wage, the average hours worked, and the marriage fraction for each group.

This paper offers two main contributions. First, it presents new stylized facts about marriage patterns in the United States, highlighting how different income groups within each gender experienced divergent marriage trends. Second, it develops a general equilibrium model of marriage that incorporates exogenous changes in the wage structure and working hours. This model allows us to assess the extent to which these economic factors influence the observed new marriage patterns.

I document a new stylized fact on marriage patterns and relate it to three other patterns established by previous literature. First, I show a reduction in the gender wage gap and an increase in wage inequality within gender. Second, I observe a decrease in men's work hours accompanied by an increase in women's work hours. Third, I document an increase in couples in which both partners are high earners, indicative of positive assortative mating in income. Fourth, I show that the income groups do not all experience the same decline in marriage rates. Notably, and contrary to existing literature, while the fractions of married individuals for all income groups of men and for low-income women are declining, the fraction of high-income women who are married is increasing. This finding is a novelty that becomes even more apparent when I divide the population into more income groups.

I then build a model of marriage featuring agents with different wage and hour levels. I calibrate the model to replicate the observed marriage fraction and marital sorting in the baseline year 2000. Subsequently, I test the model's performance in accounting for changes in the marriage rates of the different groups in the year 2021, explained by two channels: changes in wages and hours worked. Then, I run a decomposition exercise to assess the two channels. I find that although changes in the wage structure contribute to the declining marriage rates across groups, only the changes in hours worked can generate the observed increase in the marriage rates experienced by high-income women.

This paper is broadly connected to the economic literature on marriage, which has gained significant traction since Becker's seminal works (Becker, 1973 and Becker, 1974). More specifically, it is closely related to research focusing on marriage trends and their respective driving factors. A particularly relevant study in this field is Greenwood et al. (2016), which develops a model to explain how technological advancements in home production and shifts in wage structure explain the drop in marriage rates from 1960 to 2005. As technology reduces household labor needs, more married women enter the workforce. This, accompanied by rising education returns and a narrowing gender wage gap, promotes higher education, results in an increase of positive assortative mating, and reduces the incentive for marriage. However, our analysis argues that while this mechanism successfully explains most marriage patterns from 1960 to 2005, it falls short of explaining why high-income women are marrying more today. Technological progress in home production, rather than increasing the incentive to marry, may instead enhance the appeal of remaining single.

Several studies have also identified shifts in the wage structure as a mechanism to explain the decline in marriage rates. Regalia and Ríos-Rull (2019), for instance, attributes a significant portion of this trend to changing relative wages both within and between sexes. Specifically, the study estimates that wage shifts account for roughly one-third of the rise in the share of single women and over half of the increase in single mothers from the mid-1970s to the early 2010s. This shift is largely driven by the reduction in the male-female wage gap, which diminished the financial benefits of marriage, especially for low-wage women.

Contrary to changes in wages, changes in work hours have not received serious attention when analyzing factors that shape marriage patterns.[1] Conversely, several recent papers suggest the potential impact that the decline in marriage rates might have on the reduction of hours worked by men. A recent hypothesis proposed by Binder and Bound (2019) postulates that declining marriage rates may contribute to the decrease in male work rates. Based on this, Blandin et al. (2023) suggests that recent declines in marriage rates, if exogenous, can account for a sizable share of the overall decline in prime-age male hours over recent decades. In contrast to their hypothesis, my analysis delves into how shifts in the quantity of work hours influence marriage formation in the last two decades, rather than how marriage formation affects work hours. To the best of my knowledge, this paper is the first to emphasize the critical role of work hours in such a context.

Additionally, other papers link structural change to declining marriage rates, suggesting that these shifts alter labor market stability and income expectations, which in turn influence marriage decisions. Anelli et al. (2021) find that in regions where the gender gaps in income and labor force participation are reduced due to exposure to robots, the relative economic status of men declines, as does the number of marriages. Autor et al. (2019) argue that rising international manufacturing competition has reduced employment and earnings of young adult males (in comparison to young adult females), consequently having a negative impact on marriages. These studies are among the few that emphasize the impact of men's economic outlook on marriage, which aligns with the narrative developed in this paper. I contribute to this line of research by demonstrating how a reduction in men's working hours positively impacts the marriage rates of high-income women.

One notable paper by Newman (2018) documents the reversal in U.S. divorce rates, showing a negative correlation between female labor force participation and divorce rates. They argue that this trend is driven by high-income women forming more stable mar-

[1] Among papers focusing on the intersection of research on marriage and time allocation are Knowles (2012) and Jones et al. (2015). Knowles (2012) examines intra-household bargaining and its effect on U.S. married men's labor supply from the mid-1970s to 2001. Using U.S. time-use data shows that bargaining slightly increased married men's weekly labor supply by 2.1 hours and decreased married women's by 2.7 hours. Jones et al. (2015) suggest that even slight decreases in gender wage disparities largely explain the increased work hours for married women, while technological gains in home production were less impactful.

riages, as dual-earner couples can compensate each other with *money and kind* (a balanced basket of market-procured and household-produced goods) an option less available to single earners or low-income couples. Building on this idea, I introduce the dimension of time, proposing that the time available to men, alongside financial stability, makes marriage more attractive to high-income women, thus reinforcing the trend of increased marriage rates within this group.

The remainder of the paper is structured as follows. The second section presents the empirical findings, the third sets the model, the fourth discusses the calibration, the fifth details the counterfactual exercises, and the sixth concludes the discussion.

2 Empirical findings

In this section, I present the empirical facts alongside a discussion of their relevance, specifically focusing on aspects overlooked in previous research. One missing piece in the literature on marriage trends relates to changes in the wage structure and work hours. Indeed, while many studies consider the reduction in the gender wage gap and its impact on marriage decisions, they overlook that this reduction was due not only to the sharp increase in female labor participation and subsequent gains in female wages but also to widening inequality among men.

I demonstrate this using IPUMS data from 2000 to 2021.[2] I divide my data into two income groups by gender. I define the aggregate median wage separately for men and women, using it as a threshold to categorize each gender into two distinct income groups: those earning below the median and those earning above it. For each income group, I calculate the median wage, providing a central measure of income for individuals within each category. I then compute the wage ratio for each income group, which is calculated as the group's respective median wage divided by the aggregate median wage of the gender. This approach allows for a meaningful comparison of wage dynamics within each gender over time, revealing variations in income growth or decline across different income groups of the male and female populations. Table 1 displays the ratio between the median wage of the income of the group and the aggregate median wage by gender for 2000 and 2021. Note that the only group performing slightly well for men is the second, with a 0.07% increase and a negative fall of 12% for group 1. For women, however, changes were positive with the highest increase of more than 5% corresponding to group 2.

In Table 2, I compute the female-to-male wage ratio using the median wage of each income group. I observe contrasting reductions in the wage gap, which suggests that women have fared well in the labor market between 2000 and 2021.

Using IPUMS data, I plot the married fractions (Figure 1) for two income groups for

[2] I use the 1% American Community Survey and 5% samples from 2000 to 2021.

Table 1: Wage Ratio for Men and Women by Income Group

	2000	2021	Change (%)
Men			
Group 1 (poor)	0.647	0.567	**-12.36%**
Group 2 (rich)	1.416	1.417	**+0.07%**
Women			
Group 1 (poor)	0.546	0.548	**+0.36%**
Group 2 (rich)	1.512	1.595	**+5.89%**

Note: The wage ratio is computed as the median wage of each income group divided by the total median wage of each gender. Percent changes are calculated between the years 2000 and 2021.

Table 2: Female-to-Male Wage Ratio for Income Quartiles

	2000	2021	Change (%)
α_1	0.558	0.676	**+21.15%**
α_2	0.706	0.788	**+11.61%**

Note: α_1 and α_2 represent the wage ratio between poor women to poor men, and rich women to rich men, respectively. Percent changes are calculated between the years 2000 and 2021.

each gender.[3] It should be noted that the married fraction in Figure 1 and Figure 2 are for the population between 25 and 55 years of age.[4]

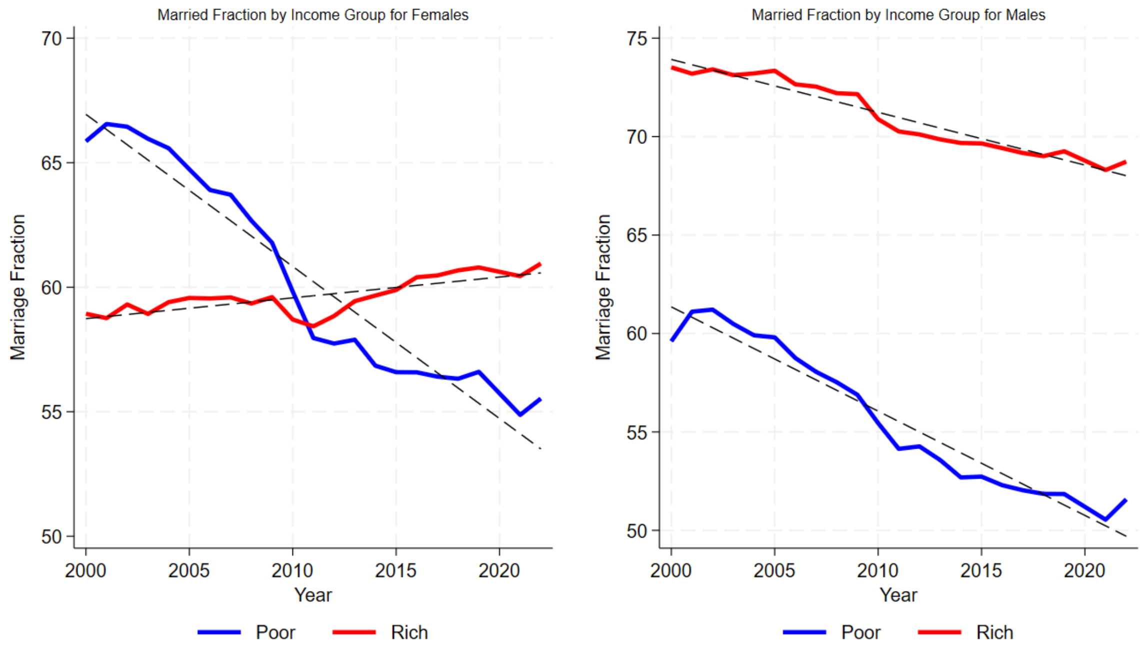
As can be seen in Figure 1, the results are striking. Initially, richer men married more in 2000 while poorer men married less. By 2021, the ranking remained similar although the marriage rates decreased for both groups, with a higher decline for the poorest. Conversely, for women, the opposite trend was observed; poorer women married more in 2000 while richer women married less. By 2021, this pattern reversed, with poorer women experiencing a decrease in marriage rates contrary to richer women, who had a marriage rate in 2021 higher than that in the first period. I add another graph with the same analysis with four quartiles of income for each gender. The output in Figure 2 is even clearer. The married fraction of the top quartile of women has been increasing from 2000 to 2021 while the married fraction of all remaining groups has been declining. For men, the richer the group the lower the decline. This observation represents a novel contribution to the existing body of literature.

I also analyze the patterns of sorting with the data since it includes unique identifiers

[3] I add as well, singlehood and cohabitation rates for four groups representing quartiles of income from the year 1960 to 2021 (Figures A3 and A4 respectively)See Appendix

[4] In the Appendix, for the graphs with four groups of income for each gender and longer period 1960-2021, I follow Chiappori et al. (2020) in selecting a sub-sample of individuals observed at or past 35 years of age and capping the age range at 44. This procedure minimizes the bias stemming from the fact that marriage takes place over a long age period and is most likely in later years of life, and I consider this as a robustness check.

Figure 1: Married Fraction for two Income Groups by gender



Note: Poor and rich are defined based on the median income for each gender. The married fraction represents the ratio of married individuals to the total population aged between 25 and 55 that is not married. Among all marital categories, only those who are married with a spouse present are considered married. The remaining categories (including married with spouse absent, separated, divorced, widowed, and never married/single) are classified as single.

for individuals and their spouses, which allows me to link married couples. Table 3 contains the percentage of each combination possible in the economy based on respective gender income groups.[5]

Table 3: Fraction of Couples

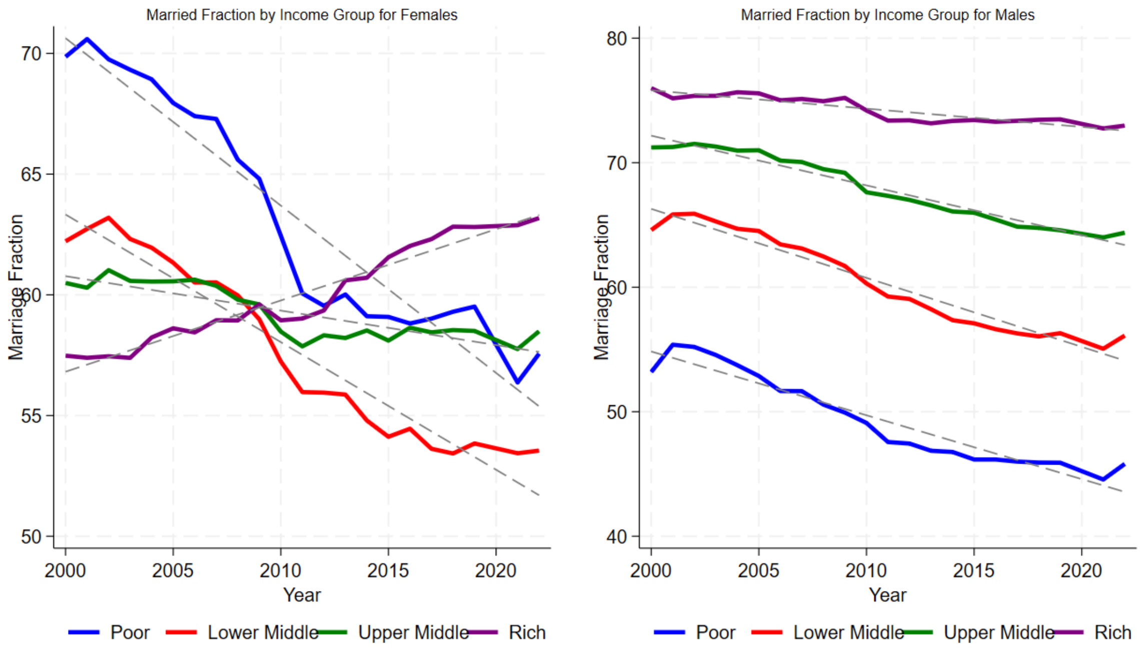
Year	(poor F,poor M)	(rich F, poor M)	(poor F,rich M)	(rich F,rich M)
2000	0.2612	0.1826	0.2528	0.3034
2021	0.2129	0.1733	0.2363	0.3775

Note: Each group (i,j) represents the pairing of individuals from income groups i and j in a given year. Poor and rich are defined based on the median income for each gender. Fractions of couples for each year sum to 1.

What is clear from Table 3 is that in the 2000s, marriages in which both husband is rich and the wife is poor accounted for 25 percent, whereas marriages with both rich husbands and wives represented 30 percent of the couples formed. In 2021, the first rate decreased by almost 5 percentage points and the second rate increased by almost 7 percentage points. To demonstrate that this trend started well before the 2000s, I include

[5]The sum of all numbers in each year equals one.

Figure 2: Married fraction for four income groups by gender



Note: The income groups (poor, lower middle class, upper middle class, and rich) are defined based on income quartiles for each gender. The married fraction represents the ratio of married individuals to the total population aged between 25 and 55 that is not married. Among all marital categories, only those who are married with a spouse present are considered married. The remaining categories (including married with spouse absent, separated, divorced, widowed, and never married/single) are classified as single.

in the Appendix a contingency table of couple formation for the years 1960 and 2021 by income quartiles.[6]

The literature primarily focuses on educational levels to define assortative mating and study changes in marriage, but there may be more nuanced factors at play. Notably, while educational attainment is closely related to income levels, relying solely on education can be misleading. Over the last few decades, women have surpassed men in educational attainment, which has led to a larger share of women marrying men with lower education levels but higher incomes. Qian (2017) finds that educational assortative mating has reversed from a tendency for women to marry up in terms of education to a tendency for women to marry down, while the trend for women to marry men with higher incomes has persisted.

[6]Tables A1 and A2 show that in 1960, marriages in which the husband earns a higher income and the wife is a stay-at-home wife were the most prevalent, representing 19.8 percent of all couples that year. It should also be noted that groups 3 and 2 of men, who were predominantly married to non-working wives, represented 15.2 and 12.7 percent respectively. However, in 2021, the sorting patterns changed drastically with a more prevalent positive assortative mating in income. The highest percentage of couples involves rich men marrying rich women, comprising 11.6 percent of the total marriages, which is almost five times the rate in 1960. There is also an increase in the percentage of marriages on the diagonal. However, this table only indicates and does not prove assortative mating

This is evident in the data from 1960, 2000, and 2021, showing that women indeed marry men with similar or higher incomes (see Tables 3 and A2). [7]

Table 4: Average Hours Worked Per Week by Income Quartile and Gender, 2000 and 2021

	2000	2021	Change (hours)
Men			
Group 1 (poor)	43.02	40.80	**-2.22**
Group 2 (rich)	46.92	45.25	**-1.67**
Women			
Group 1 (poor)	33.02	33.20	**+0.18**
Group 2 (rich)	41.55	41.99	**+0.44**

Note: This variable is defined in the census as the number of hours per week that the respondent usually worked if the person worked during the previous year.

In Table 4, I list the average hours worked per week for each gender and income group. A surprising result is the reduction in work hours for men from the year 2000 to 2021.[8] This reduction is substantial, given the short time period. Figure 3 illustrates how this variable changes for both men and women, with an increase in the average hours worked for both poor and rich men, and a slight increase for women from the year 2000 to 2021. This variation could impact marital decisions, as time is a crucial component of household utility.

Consider this scenario: a man and a woman, both active in the labor market, decide whether to marry. If one partner reduces their work hours, it could significantly increase their likelihood of marrying, as the partner working less can contribute more to household duties or childcare, thereby offering more time to the family. If it is the man who reduces his work hours, then the likelihood of the woman wanting to marry him increases, and similarly, if the woman works less, the likelihood of the man wanting to marry her increases, assuming that wage levels remain constant.[9]

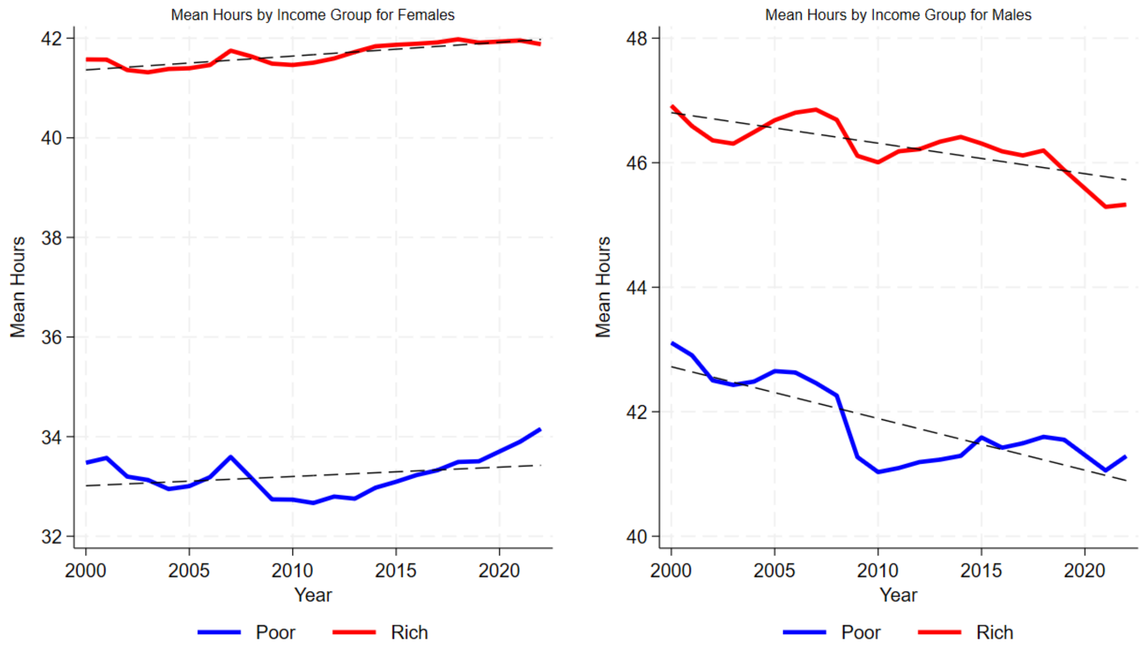
In this context, and reflecting the observations in the data, a reduction in men's work hours could lead to an increased probability of women desiring to marry. This explanation is supported by Doepke et al. (2022) which asserts that traditional notions about fertility

[7] Based on these results, it is not unreasonable to suggest that the wage gap between these groups is a crucial determinant of marriage. This lends more credibility to the structural change narrative. Between 1950 and 1960, manufacturing served as the driving engine of growth and a major employer for men, especially those in the middle-income bracket. In contrast, women's participation in the labor force was relatively modest. With the decline of manufacturing and the rise of the service sector, a polarization of the labor force began (Autor and Dorn, 2013; Cerina et al., 2019), which disadvantaged men in manufacturing industries relative to women in the service sector.

[8] To put these numbers in perspective, the yearly reduction is more pronounced. Since the year comprises almost 52 weeks, I can observe that poorer and richer men are working 115.44 and 86.84 fewer hours, respectively, in 2021 than in 2000.

[9] I add the same graph for four quartiles in the Appendix (Figure A1)

Figure 3: Mean Hours for two income groups by gender



Note: Poor and rich are defined based on the median income for each gender. The mean hours variable represents the number of hours per week usually worked in the previous year for each group. The variable covers the total population aged between 25 and 55 in each group.

are evolving, with the negative relationship between women's labor force participation and fertility becoming positive in the developed world. They identify cooperative fatherhood as a likely factor in this shift. This aligns closely with our argument that men working fewer hours could be more appealing to women in the marriage market, assuming that a reduction in work does not equate to lower earnings.

As the main purpose of this paper is to determine which of these two channels, wage and time, better explains the recent marriage trends observed in the US over the last 22 years, in the next section I construct a marriage model that incorporates wage and time as the principal components influencing the decision to marry.

3 Model

I focus on two economic factors: wage disparities within and between genders, and changes in working hours. For wages, the notable shifts are the reduction of the wage gap between men and women and the widening wage gap between rich and poor men. These shifts lead to two significant outcomes. First, the reduction in the gender wage gap makes women less likely to pursue marriage, as the value of remaining single increases. Second, the increasing wage gap between rich and poor men negatively impacts the marriage prospects of poorer men. Consequently, I observe fewer marriages and more assortative matching, where richer men are more likely to marry richer women. Additionally, a reduction in working hours for men makes them more attractive to women, as it allows for more time for activities both within and outside the household.

Two key components are needed to formalize the discussion above. First, a model of marriage is essential. Second, there must be heterogeneity in wages and working hours among individuals. This forms the basis for the following setup.

Let us assume an economy with a unitary mass of male and female agents. I also assume that men and women belong to two income groups (rich and poor). In this model, a person can only get married or remain single as I assume "happy-ever-after" marriages without divorce. Every individual faces a constant probability of dying, δ, each period. Following Greenwood et al. (2016), any dead individual is replaced by a single doppelganger of the same type. I include the probability of dying, in each period to ensure a stationary distribution of agents over time. This simplifies the analysis by allowing us to focus on steady-state equilibrium without worrying about population growth or decline.

Agents search for partners while being single, and a couple is only formed if both parties mutually agree to marry. I assume that couples derive utility solely from pooled income and non-working time. The significance of non-working time in marriage decisions is supported by the findings of Aguiar et al. (2013), which demonstrates that adjustments in time use in response to changes in market work differ significantly between married individuals and singles. Specifically, within the married group, approximately 42 percent of the hours not spent on market work are redirected to non-market activities and child care. This indicates that married individuals place substantial value on non-market time, utilizing it for home production and family-related activities. Although our model does not explicitly include fertility decisions or child-rearing activities, incorporating non-working hours into the utility function effectively captures their impact on marriage decisions. By valuing non-market time, I acknowledge that individuals derive utility not only from consumption but also from activities outside of market work, such as leisure, home production, and family care. This inclusion allows the model to reflect observed behaviors where reductions in working hours can increase the attractiveness of marriage for women (or otherwise for men), by enabling partners to allocate more time to shared non-market activities. Therefore, the utility derived from non-working time plays a crucial role in influencing individuals' decisions to marry, as it encompasses the benefits of spending time together, raising children, and engaging in household production.

I base the model on some elements of Greenwood et al. (2016). Mainly, I assume that the total non-working time available for non-market activities is given by:

$$n = \begin{cases} 1 - h^s_{g,i}, & \text{for } singles, \\ 2 - h^m_{g,i} - h^m_{g*,i*}, & \text{for } married, \end{cases} \tag{1}$$

where $h^k_{g,i}$ and $h^k_{g*,i*}$ are the total amount of time spent on the labor market for gender $g(g*)$ with income level $i(i*)$ and marital status $k = \{s, m\}$. It is important to note that labor market participation is treated as an exogenous variable in this model. Each group is assigned the corresponding hours based on marital status. The variable n represents everything that can be produced by non-worked time, including home production, leisure, child care, and other non-market activities.

I depart from Greenwood et al. (2016) by abstracting from the home goods production function and focusing solely on non-working hours in the market. This simplification is intentional, as I argue that the impact of household durables prices on marriage dynamics has diminished since the 2000s.[10]

The following equations describe the instantaneous utility of both singles, u_s, and married individuals, u_m:

$$u_s(c, n) = \frac{1}{1-\zeta}(c - \mathfrak{c})^{1-\zeta} + \frac{\alpha}{1-\xi} n^{1-\xi}, \tag{2}$$

$$u_m(c, n) = \frac{1}{1-\zeta}\left(\frac{c - \mathfrak{c}}{\chi}\right)^{1-\zeta} + \frac{\alpha}{1-\xi}\left(\frac{n}{\chi}\right)^{1-\xi}, \tag{3}$$

with

$$c = \begin{cases} w^s_{g,i}, & \text{for } \textit{singles}, \\ w^m_{g,i} + w^m_{g*,i*}, & \text{for } \textit{married}, \end{cases} \tag{4}$$

where $\mathfrak{c}$ is the minimum consumption requirement and χ is the household equivalence scale. The parameter $\zeta > 0$ determines the curvature of the utility function with respect to market goods consumption (c). Similarly, the parameter $\xi > 0$ determines the curvature of the utility function with respect to non-market time (n).

Next, I denote the value of being single as $V_{g,s}(w^s_{gi})$, and the value of being married with the assumption of no divorce as $V_{g,m}(w_{gi}, w_{g^*i^*})$. Note that the values $V_{g,s}$ and $V_{g,m}$ also depend on hours worked. Since these hours are group-specific and linked to specific wages, the functions are written here as depending primarily on wages for simplicity. Each

[10] Greenwood et al. (2016) found that the price of household durables relative to other goods decreased by about 60 percent between 1960 and 2005, significantly influencing marriage decisions during that period. However, this trend has not continued at the same pace in recent decades. Specifically, in the National Income and Product Accounts (NIPA), the price index for "furnishings and durable household equipment" relative to the price index for "personal consumption expenditures" dropped by about 35 percent between 2000 and 2020, which is still significant but a smaller decline compared to earlier periods. Moreover, as highlighted by Church (2014), over the last three decades, consumer expenditures have shifted from commodities, including durable goods, to services, particularly housing. The analysis shows a significant increase in the quantity of housing due to factors such as higher homeownership rates and larger home sizes, while the quantity of durable goods has increased modestly. This shift indicates that the role of household durables in influencing marriage decisions might have become less significant in the modern context. I do not explore the role of services or the potential impact of rising service prices on marriage dynamics within this model. However, the increase in service prices could help explain positive assortative matching in income, as couples may require a high combined income to afford these services, especially housing.

agent draws a match-specific shock ϵ_k drawn from cumulative density function (CDF) F^{ϵ} which has a continuous domain and is a Type I extreme value distribution. If a couple $(w_{g,i}, w_{g^*,i^*})$ meets, and given the extreme value shocks, the probability of that agent g wants to marry is:[11]

$$D_g(w_{gi}, w_{g^*i^*}) = \frac{\exp\left(\frac{V_{g,m}(w_{gi}, w_{g^*i^*})}{\sigma_\epsilon}\right)}{\exp\left(\frac{V_{g,m}(w_{gi}, w_{g^*i^*})}{\sigma_\epsilon}\right) + \exp\left(\frac{V_{g,s}(w_{gi})}{\sigma_\epsilon}\right)} \tag{5}$$

where σ_ϵ is the scale parameter of the extreme value shock. This can be seen as the love parameter.[12] The expression in 5 represents the probability of the utility from marrying exceeds the utility from remaining single.

A couple is formed if both individuals want to do it. That is, two individuals will get married only if their corresponding utilities when married are higher than when single. Hence, the probability of a couple marrying is given by the product of both probabilities D_g and D_g^*. I denote this product by:

$$\Lambda_{gg^*}(.) = \text{Probability of marriage} = D_g(.) \times D_{g^*}(.) \tag{6}$$

Using the matching rule Λ_{gg^*}, I derive the value of being single as:

$$\begin{aligned} V_{g,s}(w_{gi}^s) = u_s(w_{gi}^s) + \beta \Bigg\{ p \Bigg[\sum_{w^s_{g^*i^*} \in W} \frac{M_{g^*,s}(w_{g^*i^*})}{M_{g^*,s}} \tilde{V}_{g,m}(w_{gi}, w_{g^*i^*}) \Bigg] \\ + (1-p) V_{g,s}(w_{gi}) \} \end{aligned} \tag{7}$$

with

$$\begin{aligned} \tilde{V}_{g,m}(w^m_{gi}, w^m_{g^*i^*}, w^s_{gi}) = [\Lambda_{gg^*}(w_{gi}, w_{g^*i^*})] V_{g,m}(w^m_{gi}, w^m_{g^*i^*}) \\ + [1 - \Lambda_{gg^*}(w_{gi}, w_{g^*i^*})] V_{g,s}(w^s_{gi}) \end{aligned} \tag{8}$$

with β representing the discount factor, p representing the probability of a single individual meeting a potential partner in a given period, $M_{g^*,s}(w_{g^*,i^*})$ representing the measure of single agents of the opposite gender g with wage w_{g^*,i^*} and $M_{g^*,s}$ representing the total measure of single agents of the other agents g^*. Thus, the ratio between $M_{g^*,s}(w_{g^*,i^*})$ and $M_{g^*,s}$ is the probability that a potential partner from the opposite gender has a wage (w_{g^*,i^*}).

Equation 8 is the expected value of transitioning from being single to being married,

[11] The derivation of D_g can be found in Appendix A.

[12] Note that when σ goes to 0, D goes to 1 if $V_{g,m} > V_{g,s}$ and zero otherwise, translating purely the models power. On the other hand, when σ goes to 1, the probability goes to 0.5.

accounting for the probability of marrying Λ_{gg^*}. The intuition behind 7 mirrors the timing of events in the model. A single individual goes to the marriage market, he remains single with a probability of $(1-p)$, as such the expected value if the individual does not meet a potential partner is $(1-p)V_{g,s}(w_{gi})$. There is a probability p that he finds a potential partner. Moreover, since partners of the opposite gender could either be rich or poor, the probability of finding anyone of them will depend on the measures of these groups. For the sake of simplicity, let us assume that the individual is a poor woman, she finds a poor man. This does not necessarily mean they will end up marrying. Depending on the matching rule, she might marry, with probability $\Lambda_{fm}(w_{fp}, w_{mp})$, or choose to remain single with probability, $1 - \Lambda_{fm}(w_{fp}, w_{mp})$.

As for the value of being married, I have:

$$V_{g,m}(w^m_{gi}, w^m_{g^*i^*}) = u_m\left(w_{gi}, w_{g^*i^*}\right) + \mu^g_{i*} + \beta V_{g,m}(w_{gi}, w_{g^*i^*}) \tag{9}$$

where μ^g_{i*} is a parameter that represents the preference of agents of the same gender towards the income group i of the opposite gender. It can be interpreted as a preference parameter capturing the additional utility or disutility that an individual of gender g derives from being married to a partner of income group i of the other gender. This might reflect social preferences and can be interpreted as status consideration.

Solving the single's problem requires knowing the steady-state single and married population. The measure of singles is defined by:

$$\begin{aligned} M_{g,s}(w_{gi}) = (1-\delta)M_{g,s}(w_{gi}) &\left\{ p \left[\sum_{w_{g^*i^*} \in W} \frac{M_{g^*,s}(w_{g^*i^*})}{M_{g^*,s}} [1 - \Lambda_{gg^*}(w_{gi}, w_{g^*i^*})] \right] + (1-p) \right\} \\ &+ \delta(M_{g,s}(w_{gi}) + M_{g,m}(w_{gi}, w_{g^*i^*})) \end{aligned} \tag{10}$$

As equation (10) describes, the number of singles today depends on surviving singles from the previous period who did not marry, doppelgangers replacing dead married and single individuals.

Similarly, the measure of married agents is defined by:

$$\begin{aligned} M_{g,m}(w_{gi}, w_{g^*i^*}) = (1-\delta)M_{g,s}(w_{gi})p &\frac{M_{g^*,s}(w_{g^*i^*})}{M_{g^*,s}} \Lambda_{gg^*}(w_{gi}, w_{g^*i^*}) \\ &+ (1-\delta)M_{g,m}(w_{gi}, w_{g^*i^*}) \end{aligned} \tag{11}$$

equation (11) describes the dynamics of the married population. The number of married individuals today depends on the surviving married individuals and surviving singles who get married.

A stationary matching equilibrium is a set comprising the value function for single agents $V_{g,s}(w^s_{gi})$, the value function for married agents $V_{g,m}(w^m_{gi}, w^m_{g^*i^*})$, a decision rule $D_g(w_{gi}, w_{g^*i^*})$, a matching rule $\Lambda_g(w_{gi}, w_{g^*i^*})$, and stationary distributions for the measures of singles and married couples $M_{g,s}(w_{gi})$ and $M_{g,m}(w_{gi}, w_{g^*i^*})$, for each gender $g = \{f, m\}$ and income group $i = \{poor, rich\}$.

(I) The value function $V_{g,s}(w^s_{gi})$ solves the single's recursion (Equation 7), taking as given the instantaneous utility function for singles $u_s(w^s_{gi})$ from Equation 2, the value function for married individuals $V_{g,m}(w^m_{gi}, w^m_{g^*i^*})$ from 9, the matching rule $\Lambda_g(w_{gi}, w_{g^*i^*})$ 6, and the stationary distribution for the measure of singles $M_{g,s}(w_{gi})$ in 10.

(II) The value function $V_{g,m}(w^m_{gi}, w^m_{g^*i^*})$ solves Equation (9), taking as given the indirect instantaneous utility function for married individuals $u_m(w^m_{gi}, w^m_{g^*i^*})$ from Equation 3.

(III) The decision rule $D_g(w_{gi}, w_{g^*i^*})$ solves the marriage decision problem (Equation 5), taking as given the value functions $V_{g,s}(w^s_{gi})$ and $V_{g,m}(w^m_{gi}, w^m_{g^*i^*})$.

(IV) The matching rule $\Lambda_g(w_{gi}, w_{g^*i^*})$ is solved based on Equation 6, taking as given the decision rules $D_g(\cdot)$ and $D_{g^*}(\cdot)$.

(V) The stationary distributions $M_{g,s}(w_{gi})$ and $M_{g,m}(w_{gi}, w_{g^*i^*})$ solve Equations 10 and 11, taking as given the matching rule $\Lambda_g(\cdot)$.

4 Calibration

I calibrate the parameters of the model to the 2000 US data. Some parameters are chosen and assigned based on a priori information. In particular, I assume that a period is one year and I set delta $\delta = 0.033$, which matches the death probability of individuals aged 25 to 55. Consequently, the discount factor satisfies $\beta = 0.960 \times (1 - 0.033)$. I assign the value for the work week by taking the average hours worked for each group from the data and dividing it by 112, which represents non-sleeping hours in a week. The equivalence scale is set at $X = 0.70$ from the (OECD). Finally,$\{\zeta, \bar{c}\}$ are taken from Greenwood et al. (2016). Table 5 summarizes these parameters.

The parameters to calibrate are $\{\mu^m_p, \mu^m_r, \mu^f_p, \mu^f_r, \sigma, \alpha, \xi\}$. These parameters are estimated such that the model matches 8 data moments for the year 2000. The data targets are the fraction of the population that has been married by gender and income group,

$$\frac{M_{g,m}(w, w^*)}{M_{g,m}}$$

and the fraction of couples for each combination of the income types for both the husband and wife.

$$\frac{\sum M_{g,m}(w, w^*)}{\sum M_{g,s}(w^*) + M_{g,m}(w, w^*)}$$

Table 5: Parameters: A Priori Information

Category	**Parameter values**	**Criteria**
Preferences	$X = 0.70$	OECD scale
	$\beta = 0.96$	Prescott (1986)
	$\zeta = 1.782$	Greenwood et al. (2016)
	$\bar{c} = 0.068$	Greenwood et al. (2016)
Death probability	$\delta = 1/30$	A 30-year lifespan
Hours	$h_{m1,m,2000} = 0.3842$	Data
	$h_{m2,m,2000} = 0.4209$	Data
	$h_{f1,m,2000} = 0.2969$	Data
	$h_{f2,m,2000} = 0.3713$	Data
	$h_{m1,s,2000} = 0.3669$	Data
	$h_{m2,s,2000} = 0.4131$	Data
	$h_{f1,s,2000} = 0.3286$	Data
	$h_{f2,s,2000} = 0.3810$	Data
Wages	$w_{f2,s,2000} = 1$	(normalization)
	$w_{m1,m,2000} = 1.000$	Data
	$w_{m2,m,2000} = 2.114$	Data
	$w_{f1,m,2000} = 0.512$	Data
	$w_{f2,m,2000} = 1.463$	Data
	$w_{m1,s,2000} = 0.858$	Data
	$w_{m2,s,2000} = 2.033$	Data
	$w_{f1,s,2000} = 0.569$	Data
	$w_{f2,s,2000} = 1.455$	Data

Note: The table displays the median wages for each income group, normalized by the median wage of high-income women. This wage data, sourced from the IPUMS ACS, represents pre-tax wages and salary income received as an employee during the previous year. The hours listed indicate the number of hours worked per week and are drawn from the same source as the wage data. In the subscripts for wages and hours, the first letter denotes the gender, and the second letter represents their marital status (married or single).

Table 6 reports the parameter estimates. The set of moments and the corresponding results for the benchmark model for the year 2000 are displayed in Table 7. The fitted parameter values match the data very closely.

Nonmarket time is calibrated to have a weight of $\alpha = 2$ in the utility. This is equivalent to a weight of leisure amounting to 0.9, in a typical macro model with a consumption weight equal to 0.45 ($0.9/0.45 = 2$). In Greenwood et al. (2016) α is 1.20, which in this context translates to a weight of 0.55 being applied to leisure. Note that our estimate is higher and this is consistent with the idea that couples care more about leisure in the 2000s than they did in 1960, and thus it is not unreasonable. The utility function for "nonmarket

Table 6: Parameters: Estimated

Category	Parameter	Value
Preferences	μ_{m1}	-0.354754119334353
	μ_{m2}	-0.212772033060683
	μ_{f1}	-0.453297033494276
	μ_{f2}	-0.526434406793840
	σ	1.300231463477392
	α	2.100429049320298
	ξ	2.065317083422249

time" is less concave than Greenwood et al. (2016) ($\xi_{our} = 2.06 < \xi_{2016} = 3.11$) but still greater than the utility's degree of curvature of market goods ($\zeta = 1.78$). This implies that more household wealth leads to more allocation toward market goods, though with a lesser degree than it is in the estimate ofGreenwood et al. (2016). The type preferences μ capture gender's heterogeneity with respect to marriage.

Going back to Table 7, the model matches most of the targets with ease. It is worth noting, however, that the model is less effective in matching two moments: The fraction of rich husbands married to poor wives and the fraction of poor husbands married to rich wives. The data sets the first moment at 25.62 percent whereas the model predicts it to be 27.49 percent. For the second moment, the data has it at 18.26 percent, whereas the model underestimates it at 16.05 percent.

Table 7: Data and Benchmark Model, year 2000

Category	**Income groups**	**Data**	**Model**
Marriage Rates	Females (poor)	0.6582	0.6564
	Females (rich)	0.5894	0.5937
	Males (poor)	0.5951	0.5976
	Males (rich)	0.7348	0.7307
Sorting	Poor Wife - Poor Husband	0.2612	0.2562
	Poor Wife - Rich Husband	0.2562	0.2749
	Rich Wife - Poor Husband	0.1826	0.1605
	Rich Wife - Rich Husband	0.3033	0.3083

Note: Poor and rich are defined based on the median income for each gender. The married rates represent the ratio of married individuals to the total population aged between 25 and 55 that is not married. Among all marital categories, only those who are married with a spouse present are considered married. The remaining categories (including married with spouse absent, separated, divorced, widowed, and never married/single) are classified as single. Sorting indicates the income pairing between wives and husbands of the different income groups.

5 Moving to 2021

For the purpose of simulating the model for the year 2021, I use the 2021 wages and hours worked.[13] In this section I assess the model‘s fit to the US data for the year 2021. In the next section, I execute a decomposition exercise to assess the importance of the two mechanisms at hand: the change in the wage structure and the change in the hours worked. Running the model with the wage structure and hourly work of the year 2021, I get the result in Table 8.

The main result is that the model successfully reproduces the trends observed in the data, specifically a decrease in marriage rates for all groups except for rich women. This is a new and relevant finding. To the best of my knowledge, this is the first paper to provide a model that manages to explain the contrasting differences in marriage trends across different groups.

With regards to marriage rates, the model manages to capture a sizable fraction of the change from the year 2000 to 2021. The model explains 47 percent of the decrease in the marriage rate of poor men, 74 of the decrease in the marriage rates of poor women, and 34 percent of the decrease in the marriage rates of rich men. As for rich women, the model overestimates slightly the marriage rates explaining 131 percent of the change.

Looking at the sorting contingency tables, two noticeable conclusions arise. First, the model does poorly when it comes to predicting the fraction of rich husbands to poor wives. This moment decreases in the data from 0.2562 in 2000 to 0.2410 in 2021, whereas it increases in the model from 0.2749 in 2000 to 0.2931 in 2021. The second is the fact that the model overestimates to some extent the fraction of poor husbands to poor wives. This moment decreases in the data from 0.2612 in 2000 to 0.2131 in 2021, whereas it decreases in the model from 0.2562 in 2000 to 0.1569 in 2021. This is due to the strength of the wage mechanism. Poor men had a decline in their wage from 2000 to 2021 in comparison, which reduced their value function and the value function of women who marry with their type.

6 Decomposition

In this section, I will inspect our two main mechanisms. The change in the wage structure and the change in the hours worked. In this context, I consider two experiments. First, I attempt to see the impact of the change in the wage structure while keeping hours worked at the 2000 level. Second, I turn off the shifts in the wage structure and apply

[13] 2021 Wages are deflated to be comparable to the 2000 dollar values. Wages are divided by the 2021 consumer price index and then multiplied by the 2000 consumer price index. I normalize by the wage of poor men in 2000. After this process, we note a decrease in the wage of poor married and single men and a growth for the rest of the groups. I also notice a widening gap between married and single rich women in 2021 compared to 2000.

Table 8: Data and Benchmark Model, Year 2000 and 2021

Category	**Income groups**	**Year**	**Data**	**Model**
Marriage Rates	Females (poor)	2000	0.6582	0.6562
	Females (rich)	2000	0.5894	0.5937
	Males (poor)	2000	0.5951	0.5976
	Males (rich)	2000	0.7348	0.7307
	Females (poor)	2021	0.5487	0.6070
	Females (rich)	2021	0.6045	0.6093
	Males (poor)	2021	0.5055	0.5291
	Males (rich)	2021	0.6829	0.7172
Sorting	Poor Wife - Poor Husband	2000	0.2612	0.2562
	Poor Wife - Rich Husband	2000	0.2562	0.2749
	Rich Wife - Poor Husband	2000	0.1826	0.1605
	Rich Wife - Rich Husband	2000	0.3033	0.3083
	Poor Wife - Poor Husband	2021	0.2131	0.1569
	Poor Wife - Rich Husband	2021	0.1808	0.1841
	Rich Wife - Poor Husband	2021	0.2410	0.2931
	Rich Wife - Rich Husband	2021	0.3649	0.3657

Notes: Data and Model columns represent empirical data and the corresponding benchmark model values for the years 2000 and 2021. Poor and rich are defined based on the median income for each gender. The married fraction represents the ratio of married individuals to the total population aged between 25 and 55 that is not married. Among all marital categories, only those who are married with a spouse present are considered married. The remaining categories (including married with spouse absent, separated, divorced, widowed, and never married/single) are classified as single. Sorting indicates the income pairing between wives and husbands of the different income groups.

the changes in the hours worked. For this purpose, I use the results in Table 8 as the benchmark for the experiments. First, I consider the situation in which wages by gender and marital status are fixed to the 2000 levels and change only hours worked.[14] I see the results of this exercise in Table 9 under the column of experiment 1. I can clearly distinguish that the marital rate for rich women increases compared to the 2000 levels. On the other hand, I get a modest decrease in the rate of poor women and a weak decrease in the marital rates of poor men. Rich men also had a very small decrease.

Second, I consider the situation in which the hours by gender and marital status are fixed to the 2000 levels and apply the wage structure corresponding to the year 2021. I see the results of this exercise in Table 9 under the column of experiment 2. Interestingly, I get a decrease in the marital rate of rich women (0.5937 in the benchmark versus 0.5875 when only wage is changing). This outcome is expected, as the reduction in the wage gap between high-income men and women diminishes the financial benefits of marriage for women, according to this mechanism. One noteworthy point is that the impact of the closing gap between rich men and women is not offset by the widening gap between rich and poor women. As for the other marital rates, we see a sharper decrease for poor men and women and a weak decrease for rich men.

Table 9: Data and Benchmark Model, 2000 and 2021

	Benchmark		Experiments (2021)	
	2000	2021	Exp 1	Exp 2
Females (poor)	0.6562	0.6070	0.6279	0.6329
Females (rich)	0.5937	0.6093	0.6049	0.5794
Males (poor)	0.5937	0.5291	0.5767	0.5593
Males (rich)	0.7307	0.7172	0.7296	0.7262

Notes: Benchmark columns represent model values for the years 2000 and 2021. The numbers are the fractions of married. Exp 1 is the counterfactual with hours changes only, and Exp 2 is the counterfactual with wage changes only. Poor and rich are defined based on the median income for each gender. The married fraction represents the ratio of married individuals to the total population aged between 25 and 55 that is not married. Among all marital categories, only those who are married with a spouse present are considered married. The remaining categories (including married with spouse absent, separated, divorced, widowed, and never married/single) are classified as single.

These two experiments suggest that while the reduction in the wage gap negatively impacts marital rates across all groups, changes in hours worked do not. This indicates that time allocation makes marriage more appealing for higher-income women, possibly because husbands with more time can help with household production.

[14]Note that I only change the wage structure and hours in this counterfactual exercise. I keep population counts for each group at their 2000 level. Although this paper is not concerned with explaining the increase in assortative matching, changing the population distribution across the different groups can indeed explain the phenomenon. This mirrors the increase of the stock of educated and working females in other papers of the literature

7 Conclusion

This paper investigates the recent trends in marriage rates in the United States from 2000 to 2021, focusing on the roles of wage structure and work hours. Utilizing IPUMS data, the study highlights that while changes in the wage structure can explain the decrease in marital fractions, a significant reduction in work hours for men across all income groups, contrasted with a slight increase for women, played a crucial role in influencing marriage trends.

The analysis reveals that reductions in male work hours may increase the probability of marriage, underscoring the importance of time availability in household dynamics. A calibrated marriage model tested with 2021 data supports the hypothesis that changes in work hours better explain recent marriage trends than changes in wages.

Through counterfactual exercises, the study demonstrates that the 2021 wage structure does not align with observed trends in marriage rates, particularly for rich women. In contrast, the model incorporating 2021 hours worked explains why high-income women marry more.

These findings help us better understand the economic factors that influence marriage, especially highlighting the importance of work hours alongside wages. They suggest that policies focused on improving work-life balance could significantly impact marriage trends, particularly as the job market continues to evolve. For example, introducing flexible work schedules or promoting remote work options could enable people to better juggle their professional and personal lives. These changes might reduce the stress and time constraints associated with long work hours, making marriage a more appealing and achievable option for those who might otherwise delay or forgo it due to work commitments. Additionally, enhancing parental leave policies could support couples in balancing family responsibilities with their careers, potentially leading to higher marriage rates and more stable family structures.

The model can be extended to incorporate a work-life balance policy. I expect that such policies would positively influence marriage rates by easing the economic and time pressures that often deter individuals from getting married and, hence, strengthen the mechanism in the model. By providing greater time flexibility, these policies could encourage earlier and more stable marital commitments, thereby shifting existing marriage trends. Moving forward, I plan to integrate specific work-life balance policies into my economic models to thoroughly assess their impact on marriage patterns. This includes evaluating how different policy measures perform and understanding their interactions with changes in the wage structure and other factors. Addressing these areas is a key part of my agenda, as I aim to develop a more comprehensive and nuanced understanding of the factors driving marriage trends in today's society.

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Appendices

Appendix A Utility Maximization and Choice Probabilities

In this section, I explain how an agent's probability of marrying arises from utility maximization within the discrete choice framework. I derive the expression for D_g by modeling agents' decision-making processes under uncertainty due to unobserved preference shocks.

Each agent g faces a choice between two alternatives, marrying a potential partner denoted by m) or remaining single(denoted by s).

The utility associated with each choice has two components represented by the deterministic utility component which depends on observable characteristics such as (w_{gi}) and work hours (h_{gi}) in our model, as well as a random utility component which captures unobserved factors affecting the agent's preferences such as *love*.

The utility functions that the agent g seeks to maximize are specified as:

$$U_{g,m} = V_{g,m}(w_{gi}, w_{g^*i^*}, h_{gi}, h_{g^*i^*}) + \epsilon_{g,m}, \tag{A1}$$

$$U_{g,s} = V_{g,s}(w_{gi}, h_{gi}) + \epsilon_{g,s}, \tag{A2}$$

where $V_{g,m}$ is the deterministic utility of marrying. $V_{g,s}$ is the deterministic utility of remaining single. $\epsilon_{g,m}$ and $\epsilon_{g,s}$ are the random utility components (preference shocks).

I assume that the preference shocks $\epsilon_{g,m}$ and $\epsilon_{g,s}$ are independently and identically distributed (i.i.d.) according to a Type I Extreme Value distribution (Gumbel distribution):

$$\epsilon_{g,m} \sim \text{Type I Extreme Value}, \tag{A3}$$

$$\epsilon_{g,s} \sim \text{Type I Extreme Value}. \tag{A4}$$

This assumption facilitates the derivation of a closed-form expression for the choice probabilities.

Agent g will choose to marry if the utility from marrying exceeds the utility from remaining single $U_{g,m} > U_{g,s}$. The probability that agent g chooses to marry is then:

$$D_g = \Pr(U_{g,m} > U_{g,s}). \tag{A5}$$

Substituting the utility functions:

$$\begin{aligned} D_g &= \Pr\left(V_{g,m} + \epsilon_{g,m} > V_{g,s} + \epsilon_{g,s}\right), \\ &= \Pr\left(\epsilon_{g,s} - \epsilon_{g,m} < V_{g,m} - V_{g,s}\right). \end{aligned} \tag{A6}$$

Since $\epsilon_{g,m}$ and $\epsilon_{g,s}$ are i.i.d. Type I Extreme Value, the difference $\epsilon_{g,s} - \epsilon_{g,m}$ follows a logistic distribution. The cumulative distribution function (CDF) of the logistic distribution is:

$$F(z) = \frac{1}{1 + \exp\left(-\frac{z}{\sigma_\epsilon}\right)}, \tag{A7}$$

where σ_ϵ is a scale parameter.

Therefore, the probability that agent g chooses to marry is:

$$\begin{aligned} D_g &= \Pr\left(\epsilon_{g,s} - \epsilon_{g,m} < V_{g,m} - V_{g,s}\right), \\ &= F\left(V_{g,m} - V_{g,s}\right), \\ &= \frac{1}{1 + \exp\left(-\frac{V_{g,m} - V_{g,s}}{\sigma_\epsilon}\right)}, \\ D_g &= \frac{\exp\left(\frac{V_{g,m}}{\sigma_\epsilon}\right)}{\exp\left(\frac{V_{g,m}}{\sigma_\epsilon}\right) + \exp\left(\frac{V_{g,s}}{\sigma_\epsilon}\right)}. \end{aligned} \tag{A8}$$

The choice probabilities reflect the likelihood that the utility of marrying exceeds that of remaining single. An increase in the deterministic utility of marrying ($V_{g,m}$) relative to remaining single ($V_{g,s}$) increases the probability D_g that the agent chooses to marry. As for the scale parameter σ_ϵ influences the impact of the random utility components. A smaller σ_ϵ implies less variance in the unobserved preference shocks, making choices more deterministic. Whereas, a larger σ_ϵ increases the randomness in choices due to greater influence from unobserved factors.

Appendix B Additional: Model

$$m(M_{ms}, M_{fs}) = \frac{M_{ms} \cdot M_{fs}}{\left(M_{ms}^p + M_{fs}^p\right)^{\left(\frac{1}{p}\right)}} \tag{A9}$$

where M_{ms} is the mass of single males in the marriage market, and M_{fs} is the mass of single females in the marriage market. The matching function, $m(M_{ms}, M_{fs})$, represents the effective or "matched" mass when single males and females interact in the marriage market. The numerator, $M_{ms} * M_{fs}$, suggests that the matched mass increases with both the mass of single males and single females. The denominator introduces a non-linearity, controlled by the parameter p. This parameter determines the sensitivity of the matching function to changes in the masses of single males and females. If $p = 1$, the matching function simplifies to the geometric mean of M_{ms} and M_{fs}. p increases, the function becomes more sensitive to the smaller of the two masses, emphasizing the importance of balance in the market

$$p_m(M_{ms}, M_{fs}) = \frac{m(M_{ms}, M_{fs})}{M_{ms}} \tag{A10}$$

This function calculates the proportion of the matched mass attributed to single males. It provides insight into the relative "influence" or "contribution" of single males to the overall matched mass in the marriage market.

$$p_f(M_{ms}, M_{fs}) = \frac{m(M_{ms}, M_{fs})}{M_{fs}} \tag{A11}$$

Similarly, this function calculates the proportion of the matched mass attributed to single females. It offers a perspective on the relative "influence" or "contribution" of single females to the overall matched mass in the marriage market.

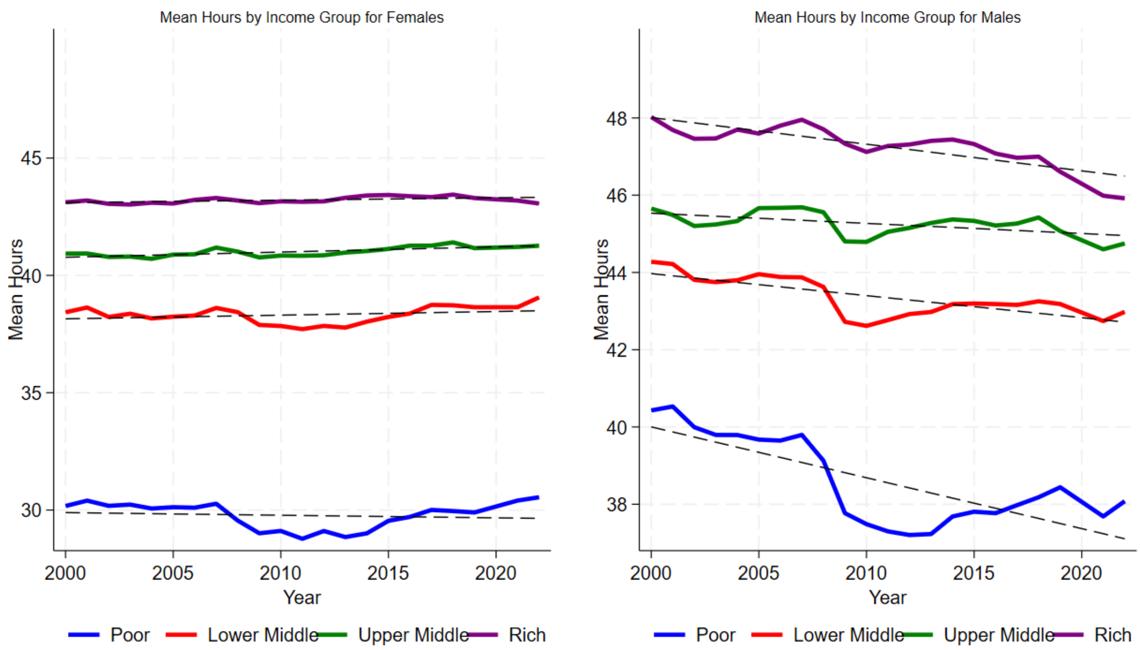
Appendix C Data

Variables as defined in IPUMS-USA (Ruggles et al. (2024)):

- **MARST** indicates each person's marital status (Married, spouse present; Married, spouse absent; Separated; Divorced; Widowed; Never married/single).
- **UHRSWORK** reports the number of hours per week the respondent usually worked in the previous year, based on different reference periods in census surveys. It's a two-digit variable, with codes for missing, edited, or not applicable data, adjusted per census year and sample.
- **SEX**: Indicates the respondent's gender (male or female).
- **INCWAGE**: Reports total pre-tax wages and salary income from the previous year, excluding payments-in-kind or reimbursements.
- **HHINCOME**: Total income of household members aged 15+ from the previous year, expressed in contemporary dollars. Household income includes all members, while family income (FTOTINC) includes only related members.
- **PERWT**: Weights each person to represent the U.S. population for accurate person-level analysis.
- **SERIAL**: A unique household identifier; combines with SAMPLE and PERNUM to uniquely identify each person in the database.

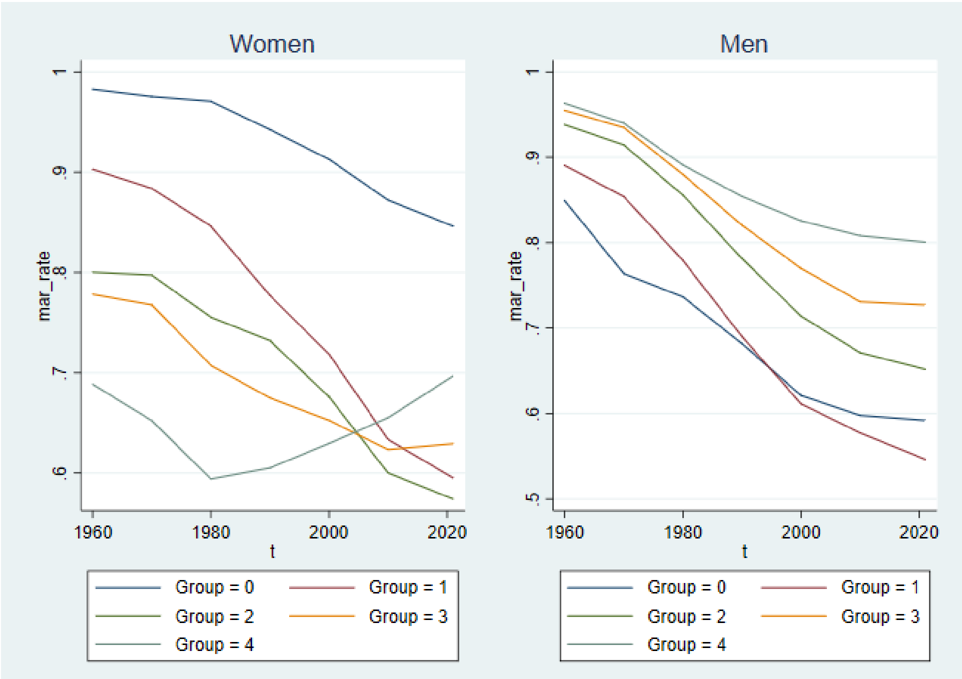
Appendix D Additional statistics

Figure A1: Mean hours for four income groups by gender



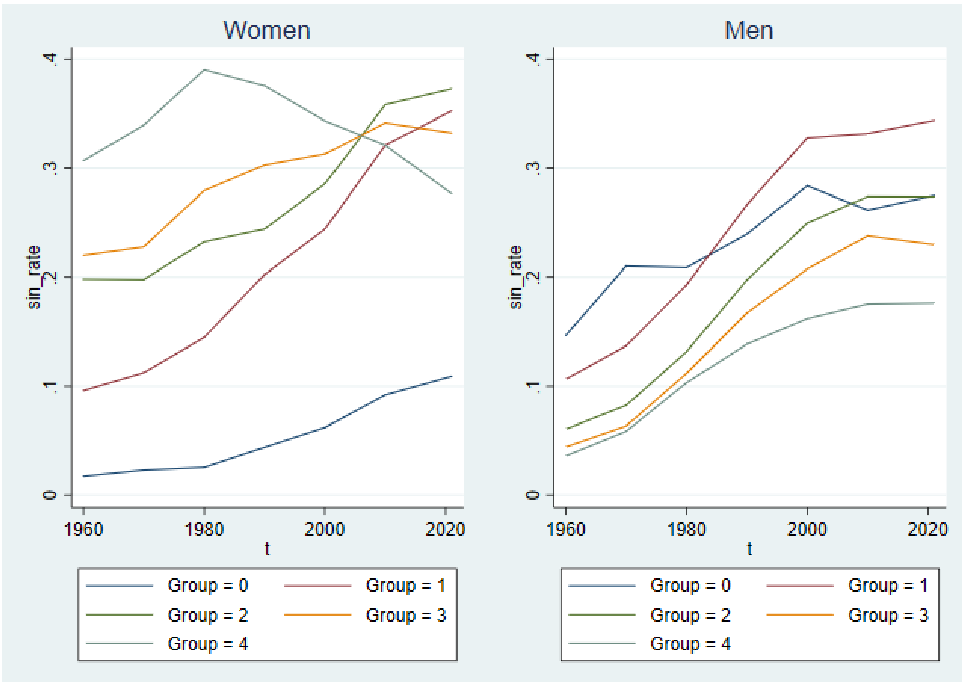
Note: The income groups (poor, lower middle class, upper middle class, and rich) are defined based on income quartiles for each gender. The mean hours represent the number of hours per week usually worked in the previous year for each group. The variable covers the total population aged between 25 and 55 in each group.

Figure A2: Marital rates among 35-44 years old over time by income group.



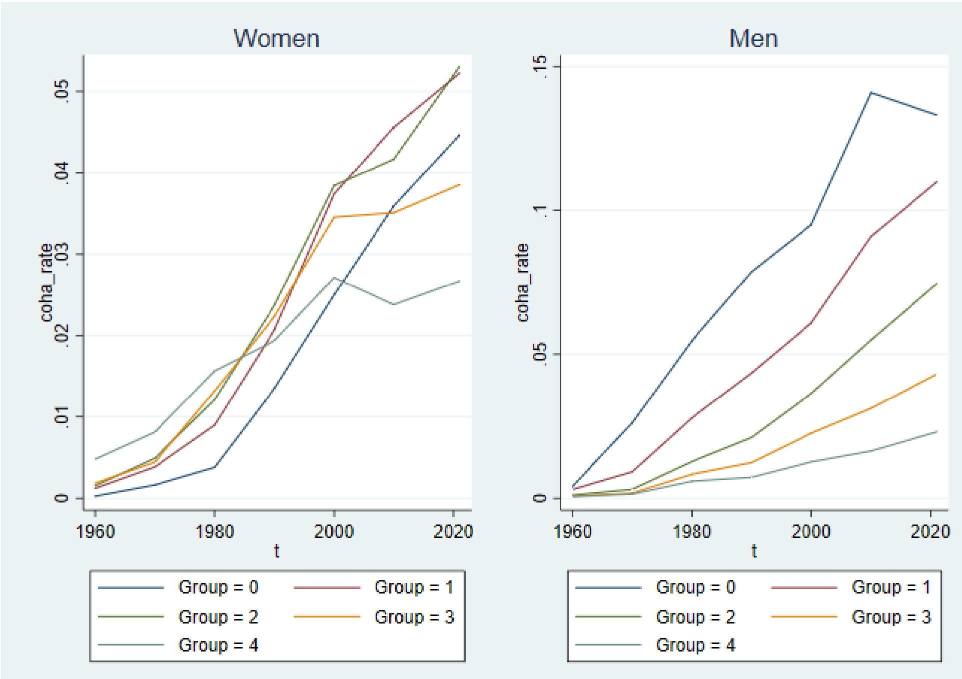
Note: Group 0 represents non-working individuals. Groups 1, 2, 3, and 4 represent the first, second, third, and fourth quartiles, respectively, by gender. The married fraction represents the ratio of married individuals to the total population aged between 35 and 44 (a la (Chiappori et al., 2020))that is not married. Among all marital categories, only those who are married with a spouse present are considered married. The remaining categories (including married with spouse absent, separated, divorced, widowed, and never married/single) are classified as single.

Figure A3: Singlehood rates among 35-44 years old over time by income group.



Note: Group 0 represents non-working individuals. Groups 1, 2, 3, and 4 represent the first, second, third, and fourth quartiles, respectively, by gender. The singles fraction represents the ratio of single individuals to the total population aged between 35 and 44 (a la (Chiappori et al., 2020)).

Figure A4: Cohabitation rates among 35-44 years old over time by income group.



Note: Group 0 represents non-working individuals. Groups 1, 2, 3, and 4 represent the first, second, third, and fourth quartiles, respectively, by gender. The cohabitation fraction represents the ratio of cohabitating individuals to the total population aged between 35 and 44 (a la (Chiappori et al., 2020)).

	husband´s income group			
Wife´s income group	Group 1	Group 2	Group 3	Group 4
	Age cohort 35-44 in 1960			
Group 1	**0.140**	0.063	0.044	0.027
Group 2	0.566	**0.300**	0.214	0.130
Group 3	1	0.600	**0.443**	0.300
Group 4	1.748	0.913	0.701	**0.500**
	Age cohort 35-44 in 2021			
Group 1	**0.649**	0.239	0.138	0.049
Group 2	1.44	**0.745**	0.441	0.235
Group 3	2.765	1.155	**0.758**	0.428
Group 4	6.666	2.075	1.271	**0.795**

Table A1: Wife‘s to husband wage gap by income groups and age cohort - Years 1960 and 2021

	husband´s income group				
wife´s income group	Group 0	Group 1	Group 2	Group 3	Group 4
	Age cohort 35-44 in 1960				
Group 0	0.5	9.5	12.7	15.2	19.8
Group 1	0.09	2.8	2.9	3.3	3.5
Group 2	0.1	2.8	3.2	2.9	2.1
Group 3	0.1	2.1	3.0	2.5	1.4
Group 4	0.1	1.1	2.4	2.7	2.1
	Age cohort 35-44 in 2021				
Group 0	0.3	2.9	3.9	4.1	7.04
Group 1	0.5	4.25	4.34	4.35	5.1
Group 2	0.5	3.5	5.5	4.7	3.9
Group 3	0.5	2.5	5.1	6.6	5.3
Group 4	0.7	2.1	3.5	6.4	11.6

Table A2: Sorting patterns by income group and Age cohorts - Years 1960 and 2021

Gender	Income Group	Mean
1	1	43.02973247397176
1	2	47.14369023493617
2	1	33.24870552543015
2	2	41.58751660956846

Table A3: Average hours worked for married by gender and Income groups - Year 2000

Gender	Income Group	Mean
1	1	41.09009027007127
1	2	46.26401800772462
2	1	36.80292590089455
2	2	42.66683717226666

Table A4: Average hours worked for singles by gender and Income groups - Year 2000

	Income Group 1	Income Group 2
Married Male	1.000	2.183
Married Female	0.516	1.429
Single Male	0.905	2.024
Single Female	0.556	1.429

Table A5: Wage Rates by marital status and income group - Year 2000

Gender	Income Group	Mean
1	1	38.89426246884116
1	2	44.92787574329627
2	1	35.61329658168626
2	2	42.42494547195188

Table A7: Average hours worked for singles by gender and Income groups - Year 2021

Gender	Income Group	Mean
1	1	40.82876601205336
1	2	45.477141640055
2	1	33.48136521995662
2	2	41.99393929212777

Table A6: Average hours worked married by gender and Income groups - Year 2021

	Income Group 1	Income Group 2
Married Male	0.917	2.324
Married Female	0.594	1.808
Single Male	0.806	2.067
Single Female	0.607	1.653

Table A8: Wage Rates by marital status and income group- Year 2021