My Mother Was a Suffragette: The Intergenerational Effects of Women's Right to Vote*

Preliminary, do not circulate

Gabriel Cruz Fernández Fernanda Rojas Ampuero

December 8, 2025

Abstract

This paper examines the long-term effects of women's enfranchisement on their labor market and demographic outcomes, as well as those of their children. We study the case of Boston after the ratification of the Nineteenth Amendment in 1919, which allowed women to vote for the first time in a U.S. presidential election. We combine historical registration records from the Mary Eliza Project, which include more than 50,000 women who registered to vote, with historical census data. We compare the outcomes of registered and non-registered women with similar propensities to register and estimate an inverse-propensity-score difference-in-differences estimator. We find that registered women are more likely to be employed in the following twenty years and have lower marriage rates. These effects are driven by single women, not married women. However, for the children of married women, we compare siblings within the same household and find that teenage daughters of first-time voters have higher employment and wages twenty and thirty years after their mothers exercise their right to vote, with no effects for sons.

*Cruz Fernández, University of Maryland email gjcruz@umd.edu; Rojas Ampuero, University of Wisconsin-Madison, email rojasampuero@wisc.edu. Rojas Ampuero gracefully acknowledges funding from the Wisconsin Alumni Research Foundation provided by the U. Wisconsin - Madison Office of the Vice Chancellor for Research and Graduate Education.

1 Introduction

American women gained fundamental rights during the late nineteenth and twentieth centuries, a period of profound structural and social transformation (Goldin, 2023). Women fought not only for their own rights but also for those of future generations. A salient example is the expansion of political rights with the Nineteenth Amendment: women across age groups mobilized for suffrage after decades of activism. Previous work has focused on the aggregate effects of women's enfranchisement on public goods spending and its effects on children (Miller, 2008; Kose et al., 2021). However, we know less about the effect of women's enfranchisement on their own outcomes. This is empirically challenging because registering to vote is not a random decision, as more motivated or activist women may be the first to register. Additionally, enfranchisement leads to concurrent social and economic changes that may impact all women, not just those who decide to vote.

This paper aims to fill this gap by studying the effects of women's voter registration on their own outcomes and those of their children. The objective of the paper is twofold. First, we characterize the first women who registered to vote and compare them with those who chose not to register initially. Second, we estimate the causal effect of registration on women's socioeconomic outcomes and on their children's long-term outcomes.

To address these questions, we study the case of Boston in 1920, where 28% of eligible women registered to vote for the first time after the ratification of the Nineteenth Amendment. We combine individual voter-registration records from the Mary Eliza Project—a detailed compilation of the 1920 Women's Voter Register in Boston—with historical U.S. census data. Our matching algorithm produces candidate links for about 98% of registrants; applying a conservative score and keeping only unique matches, we identify roughly 75% of the women in the census. We then follow registered and unregistered women between the 1910 and 1950 censuses to create an individual-level panel dataset that allows us to track women, their children, their husbands, and their socioeconomic outcomes across years.

Using our matched data, we find that registration patterns vary by age and marital

status. On average, 28% of women in Boston registered in 1920. This number is higher among married women, who have a registration rate of 32%, and it increases with age. The pattern is the opposite for single women: registration is around 30% among younger women but decreases with age. The lowest registration rate is among widowed women (6%), with almost no variation by age. These results contradict the claims of anti-suffrage movements, which argued that suffragists were a small group of young, "unmarriageable" or "anti-family" women.[1]

Next, we perform a descriptive analysis and find that women voters are quite different. They are 6.4 percentage points more likely to participate in the labor force and 4.5 percentage points more likely to be employed. This is driven by single women who are more likely to register by 7.6 percentage points, and are more likely to be employed before marriage. At baseline, first-time voters have higher occupational scores, they come from families of higher socioeconomic status, and among those we link to the 1940 census, they have more years of education.

Because voter registration is non-random, we construct a propensity score that characterizes women's likelihood of registering. We include women's demographic characteristics in 1920, as well as variables that proxy for the cost of registering. We find that, within wards of residence, having a registration location one mile farther from one's home reduces the likelihood of registering by 4 percentage points.

We use these estimates to implement an inverse–propensity-score difference-in-differences model, comparing the outcomes of registered and unregistered women before and after 1920. We find that registered women have higher employment probabilities in the twenty years following enfranchisement and are also less likely to be married in the long run. These results are driven by single women at baseline, who are 6 percentage points more likely to be employed and 1.7% less likely to marry in the next thirty years. Given the low rate of female labor market participation during this period, the employment effects are economically meaningful, whereas the marriage effects are small. For this reason, we examine the characteristics of the husbands whom single women chose to marry after 1920. Our results suggest that, among those who registered and married by 1940, they selected husbands with higher levels of education compared with women

[1]See, for example, the discussion of the anti-suffrage movement in Massachusetts here.

who did not register.

We find that married women who registered to vote do not experience changes in their employment levels, likely because women typically exited the labor force upon marriage. However, while registration may not affect women's own labor market outcomes, it may influence their children's outcomes as a consequence of increased maternal empowerment. Therefore, we examine the long-term outcomes of children whose mothers registered to vote in 1920.

As a first step, we explore whether children's long-term outcomes differ between registered and non-registered mothers by estimating inverse-probability-weighted regressions for children's long-run outcomes. We find that children of registered mothers attain 0.364 more years of education. For labor market outcomes, we find significant differences for daughters but not for sons. The daughters of registered women were more likely to be employed, had higher earnings, and delayed marriage by 1940.

To obtain a more causal interpretation of the impact of registration on children, we exploit differences in children's ages at the time their mother registered to vote in 1920, under the assumption that a child's age is not correlated with the likelihood that a mother decides to register. We therefore compare siblings within the same family who experienced different lengths of exposure to their mother's political enfranchisement. For females, we find that older sisters, relative to their younger sisters, experience positive effects on wages and employment; however, when we examine the likelihood of being married and the number of their own children in the household, we do not find significant differences between sisters. Interestingly, for males, we find no within-household differences between brothers. Our results suggest that the intergenerational transmission of attitudes derived from a mother's registration is more likely to affect teenage daughters, but not other children in the household.

This paper contributes to several strands of the literature. The extension of voting rights marked a turning point in U.S. history, expanding the electorate and paving the way for broader social change. Prior work shows that early eligibility to vote can have persistent effects on individual participation (Meredith et al. 2009; Coppock and Green 2016) and that exposure to women's suffrage laws reduced child mortality, improved educational outcomes for disadvantaged children, and increased earnings in

some regions (Miller, 2008; Kose et al. 2021). We contribute to this literature by examining the direct effect of women's enfranchisement on their own outcomes and on those of their children, leveraging the ability to identify which women exercised their right to vote in 1920.

This paper also contributes to research on the intergenerational transmission of values and attitudes, which emphasizes the role of mothers and female relatives in passing on behaviors and norms, particularly regarding labor market participation (Gay 2023; Fernández 2013). Our results suggest that voter registration, as a form of women's empowerment, directly impacts single women by increasing their long-term employment. Intergenerationally, the effects appear to be transmitted primarily to the adolescent daughters of mothers who registered to vote for the first time after the ratification of the Nineteenth Amendment.

The rest of this paper is organized as follows. Section 2 describes the context in Massachusetts and Boston in 1920. Section 3 describes the data, matching process, and determinants of women's registration. Section 4 describes the empirical methodology to estimate the causal effects of registration. Section 5 presents results on women and children, and finally section 6 concludes.

2 Background

The Nineteenth Amendment, ratified in 1920, granted American women the right to vote after decades of suffragist activism. Adoption was uneven: by 1914, most Western states (e.g., California, Arizona, Kansas, Oregon, Montana, Nevada) had already enfranchised women, while many Southern states waited until the federal proclamation.

2.1 Massachussets and Boston

Suffragists' movements in Massachusetts started early in the 1840s, and in 1879, the Massachusetts Legislature voted in favor of allowing women to vote in school board elections. Suffragettes in Massachusetts fought for the right to vote, believing their choices were not represented by those of men, and this was especially relevant as suffragists claimed women outnumbered men in the state (Merk, 1961). For example,

Carrie Chapman Catt, a women's suffrage leader who campaigned for the Nineteenth Amendment, wrote in the Women's Journal on December 23, 1893: "I believe the greatest objection to woman suffrage in Massachusetts is that you have more women than men ... . If some of you women would only leave Massachussets, so that men could not say equal suffrage would give more power to women than to men, that question might be carried."

Women kept fighting for their right to vote in municipal elections, but they were defeated twice in 1884 and 1915. Women's anti-suffrage organizations in Massachusetts—led by Boston's Committee of Remonstrants and the Massachusetts Association Opposed to the Further Extension of Suffrage to Women—mounted one of the nation's most organized opposition campaigns, using petitions, pamphlets, and mass meetings. They argued that married women did not need to vote because they were represented by their husbands' choices. Those efforts helped defeat the 1915 state referendum and continued to discourage registration in 1920.[2]

In 1920, after Tennessee ratified the Nineteenth Amendment on August 18—the final state needed—Boston women began lining up to register, even before federal ratification on August 26. Voter registration records show that the first woman to register in Boston did so on July 13, 1920, at City Hall. When the amendment was federally ratified, city officials opened registration locations in twenty-seven different places, one in each of the 26 wards plus Boston City Hall, to allow new women voters to register for the first time. The registration locations included schools, municipal buildings, and booth areas. The map in panel (a) of Figure 1 shows the city of Boston divided into wards, each ward had one registration location that opened between August and November, 1920. Women could register at any location regardless of their ward of residence. Registration records show that almost 80% of new voters registered in their ward of residence.

As the registration locations opened, activity increased substantially, many women enrolled, and the city extended registration hours until 10 pm. Thousands of women

[2]"Anti-Suffrage in Massachusetts," National Park Service, https://www.nps.gov/articles/anti-suffrage-in-massachusetts.htm; "The 1915 Suffrage Referendum in Massachusetts," National Park Service, https://www.nps.gov/articles/000/1915-ma-suffrage-referendum.htm; "Women's Suffrage at Faneuil Hall," National Park Service, https://www.nps.gov/articles/000/women-s-suffrage-at-faneuil-hall.htm.

were on the rolls by the October 13 deadline to register for the 1920 presidential election.[3] As more women demanded to register, locations were opened until November, leading to a total of more than 54,000 women registering to vote for the first time in 1920, representing 29% of eligible women in Boston.

The map in panel (b) of Figure 1 shows women's registration rates by district of residence (smaller geography than ward). The registration rates ranged widely from less than 4% to a high of 42%. Registration was higher in the western neighborhoods, but as the map shows, there is considerable variation within wards.

3 Data and linking strategy

We combine records from the Mary Eliza Project with historical U.S. Census data to build a novel, individual-level dataset that identifies which women registered to vote in Boston in 1920 and links them to their descendants. The Mary Eliza Project is a collective effort between researchers and the Boston City Archives to digitize voter registration records for approximately 52,000 first-time women registrants following ratification of the Nineteenth Amendment.

The Voter Register Dataset was created from Election Department registers used to register women voters. One of the reasons why this was possible is that the city of Boston kept register books separated by gender, which helps in identifying who the first women to register were. The dataset contains information about newly registered women voters, including name, address, place of birth, occupation, place of work, naturalization information, and closest male relative. Our first step matches these women to the 1910, 1920, 1930, 1940, and 1950 U.S. Censuses. The census files provide rich information on household composition, education, literacy, occupation (and occupational scores), and—uniquely in 1940 and 1950— income. These linkages allow us to construct a multi-generational dataset to study the long-run effects of women's political participation on their descendants' social and economic outcomes.

[3]Mary Eliza Project (City of Boston Archives), Laura R. Prieto, "It's in the books: Boston's new women voters in 1920," *Boston.gov*, updated October 13, 2021, https://www.boston.gov/news/its-books-bostons-new-women-voters-1920.

3.1 Linking to the census

To examine the effects of registration on women's outcomes and their children, we link the Mary Eliza records to the 1920 Census and, subsequently, to the 1910, 1930, and 1940 Censuses using the Census Tree Project (Buckles et al., 2024), and to 1950 using hik's developed by the Multigenerational Longitudinal Panel (MLP) project.[4]

To link records with the 1920 Census, we block the data by ward and employ a matching algorithm within wards using first and last initials, marital status, husband's first initial, and age in a range of $+/-$ 3 years. Our matching algorithm produces at leaste one match for 98% of the women in the Mary Eliza records, but we restrict matches to be unique and to have an estimated probability of a true match equal to 0.99 or higher. By doing this, we achieve a 75.46% linkage rate. This matching rate is higher than that reported in the previous literature (Eriksson et al., 2024), especially among women, mainly because we observe residential locations.

Table 1 presents summary statistics for women who registered to vote present in the Mary Eliza records. Column (1) presents summary statistics for the full sample of women, and columns (2) and (3) split the sample between women we matched to the census (column (2)) and women we did not match to the census (column (3). Column (4) reports the simple mean difference between matched and unmatched observations. We observe that matched voters are significantly younger by 2.53 years; they are 2.5 percentage points more likely to be single and 1.1 percentage points less likely to be widowed. Matched women are also more likely to report being a housewife (no occupation), and they are significantly more likely to be born in the US by 8.2 percentage points. In column (5), we report mean differences conditional on ward fixed effects, and find very similar results.

Figure 2 panel (a) shows registration rates by age. Based on our data, first-time voters represent 27.7% of the total number of women eligible to vote in the city of Boston in 1920. The blue line corresponds to the ratio between the number of women who registered to vote and the number of women in each age group in the 1920 census. The red line represents the number of women who registered to vote and were matched

[4]See details about the MLP in this link.

to the 1920 census, as a fraction of the total number of women of that age in the 1920 census.

Registration rates are higher for younger women, especially among women in their thirties and forties. Registration rates decrease with age after 60, and we observe similar patterns among women we find in the census (red line). The age difference between matched and unmatched women is likely driven by women between 25 and 60, for whom we have the largest difference in matching rates.

Panels (b) and (c) of Figure 2 show the previous results by marital status. The average registration rate is 32% for married women, and 29.2% for single women. These numbers are larger than for the whole population, because widowed women registered at much lower rates (6% on average). Interestingly, among married women, registration rates increase with age. For single women, they are stable at around 29% and decrease after age fifty. The most likely to register to vote are young single women and married women after the age of thirty.

3.2 Differences between first-time voters and other women in Boston

We now turn to investigate how women voters differ from other women in Boston. Table 2 reports summary statistics for all women eligible to register in 1920 who we observe in the census. A woman who is eligible to register is a US citizen or a naturalized immigrant aged 21 years or older. Importantly, the 1920 census was conducted in January of 1920, while registration records are dated between August and November of 1920. Hence, there is likely a discrepancy between the total number of women who were eligible to register in January versus August, especially among women who were 20 years old who might be eligible to register because they turned 21 by the time of the election, or among immigrant women who are in the process of becoming naturalized citizens. Unfortunately, in our data, we do not observe the month of birth, so we do not know the exact number of women eligible to register when they were 20 years old.

Table 2 has a similar structure to the previous table. In column (1), we report summary statistics for all women eligible to register to vote based on their age and citizenship status in the 1920 Census. Then, we split the sample between registered

women in column (2), who correspond to women in the registration records that we matched to the census, and non-registered women in column (3), who include either women who did not register to vote or the small number of registered women we did not match to the census. Column (4) reports the simple mean difference between the previous two columns, and column (5) reports mean differences within wards.

The numbers in column (5) in the table show that registered women are almost 3 years younger than non-registered women; they are much more likely to be US-born, 7.2 percentage points more likely to be single, and 6.5 percentage points less likely to be widowed, but we do not observe differences among married women. Additionally, registered women are 5.7 percentage points less likely to report no occupation, which is a proxy for the variable "housewife" in the previous table. These differences are unlikely to be driven by women that we do not match to the 1920 Census because they are larger than in Table 1, and unmatched women represent only 6.8% of the total number of women eligible to vote in Boston in 1920.

Importantly, the results in Table 2 show that the first women voters are positively selected. They are 6.0 percentage points more likely to participate in the labor force, and among those who work, they have higher occupational scores and are more likely to have professional or clerical occupations, as opposed to being operatives or working in service. Registered women come from families of higher socioeconomic status, as measured by the socioeconomic index SEI and home ownership status. Importantly, registered women are also more likely to be found in other censuses in 1910, 1930, and 1940. We will address these differential matching rates in our future analyses.

3.3 Determinants of registration

In this section, we study the observable characteristics that predict a woman's likelihood of registration for the first time. Table 3 shows the estimates of a linear probability model where the dependent variable is a dummy that takes the value of 1 if a woman is in the 1920 registration records, and 0 otherwise. The sample includes citizen women in Boston older than 20, for whom we observe their district of residence.[5]

[5]We observe enumeration district for all women in the census; however, we do not have location information for people in Ward 25 because the map has been lost, and we could not digitize it. This

We begin our analysis by examining variables that proxy for the cost to attend a registration place. Registration locations were opened immediately after the ratification of the 19th Amendment. There was one location designated per ward, for each of the 26 wards in the city, but women could register at any of these locations, or the City Hall in Downtown Boston. Registration locations included schools, municipal buildings, and public spaces that were adapted to receive new voters. Thus, our first proxy is the distance from a woman's district of residence to the closest registration place, regardless of their ward of residence. Column (1) in Table 3 shows the unconditional correlation between the probability of registration to vote and distance to the closest registration location. The estimate indicates that women living farther away from a registration place are more likely to register. However, conditional on distance to Boston's City Hall, the relationship between registration and distance to a registration location is negative. Column (3) adds as a control the distance from the district of residence and the closest streetcar, obtained from You (2021), to proxy for access to transportation, and column (4) adds the gender ratio by enumeration district. Including these variables makes the relationship between distance and registration more negative.

Column (5) adds baseline demographics as covariates. The inclusion of these does not substantially reduce the coefficient on distance. We find the patterns established in Table 2 before. For example, age reduces registration, as consistent with Figure 2. Women who are born in the US are more likely to register, consistent with the increased cost imposed on naturalized women, who needed to show proof of naturalization based on their husband's or father's naturalization status. Literacy is an important predictor of registration; even though literacy rates in Boston were above 98%, historians document that at the time of registration, voters were mandated to read out loud a couple of sentences to prove that they could write and read on the spot. This was not explicitly written in the Constitution, but it has been documented to prevent women and minorities from registering to vote during this time period.[6] Women who participate in the

means we do not have information on district centroids, which are relevant to computing our distance variables.

[6]City of Boston. "Traversing New Terrain: Registering Boston's Women Voters in 1920." Boston.gov, September 15, 2020. https://www.boston.gov/news/traversing-new-terrain-registering-bostons-women-voters-1920

labor force are more likely to register, and those with children reduce their likelihood of registration, but the correlation is small. Married and single women register more than widowed women (omitted category). Women in households that are homeowners have a higher propensity to register, and housewives are also more likely to register to vote. Finally, column (5) adds ward fixed effects, and the relationship between distance and registration becomes stronger.

4 Empirical strategy

Our approach to estimating the effect of registration on women's outcomes is to compare first-time voters with the rest of the women in Boston before and after 1920 using a difference-in-difference design. The main concern in identifying the causal effect of registration is that women voters are selected based on their observables. Additionally, we only observe women in the census every 10 years, which reduces the number of pre-periods with low attrition rates; hence, testing the parallel trends assumption before 1910 reduces our sample size substantially; thus, to make our treated and control groups more comparable to each other, we compare women voters and non-voters with similar propensities to register in 1920. That is, we estimate the effect of registration using a propensity score difference-in-difference design using the following equation:

$$y_{iot} = \alpha + \sum_{\tau=1910, \tau \neq 1920}^{1950} \beta_\tau \cdot registered_i \cdot 1[\tau = t] + \gamma_t + \psi_o + X'_{i,1920}\theta + u_{iot}, \quad (1)$$

where y_{ito} is an outcome for woman i living in ward o in 1920, measured in year t; $registered$ is a variable equal to 1 if a woman is in the voters' records, and 0 otherwise; γ_t are calendar year fixed effects between 1910 and 1950, and ψ_o are ward of residence fixed effects; $X_{i,1920}$ is a set of baseline demographics in 1920 including age, US born dummy, black dummy, family size, marital status, family's homeownership and socioeconomic index SEI. Finally, we cluster the standard errors by enumeration district of residence.

The coefficients of interest are β_τ's that measure the difference in outcomes between voters and non-voters for women with similar propensities to register to vote in 1920. We estimate equation 1 for women's outcomes that we can track between 1910 and

1950, including employment status and the likelihood of being married. To do this, we create a panel dataset that links all women from Boston in 1920 to other census years in 1910, 1930, 1940, and 1950. Appendix Figure 2 shows the raw series for employment and marriage for the women in our sample. Employment series are fairly parallel, but women who do not register to vote have higher marriage rates than women voters before 1920; hence, this justifies the use of a propensity score re-weighting to guarantee parallel trends before treatment.

To estimate the propensity score, we use the covariates of column (5) in Table 3, but instead of a linear model, we use a LASSO-logit regression to prevent overfitting. Figure 1 shows the distribution of propensity scores by treatment status, and Table A1 shows the LASSO-logit estimates. We keep women with propensity score values between 0.05 and 0.45, which is the range where there is common support. We estimate propensity scores separately by marital status, which will be used in our heterogeneity analysis.

5 Results

5.1 Women's outcomes

The results of estimating the model in equation (1) are in Figure 3. Panel (a) shows the employment trajectories of registered and non-registered women re-weighted by the inverse probability of registration, and panel (b) plots the diff-in-diff β_τ estimates on employment. The results show no significant differences prior to 1920. The post-treatment estimates show employment is higher by 2.4 and 1.9 percentage points among registered women in 1930 and 1940, respectively, which is on average 10% higher relative to non-registered women. By 1950, the difference in employment between treated and control women becomes small and not significant. This last result is consistent with women being out of the labor force in their sixties, because the average woman in our sample is 68 years old by 1950.

Panels (c) and (d) repeat the previous exercise on the probability of being married. The results show that registered women have a lower likelihood of being married after 1920. The average effect is -1 percentage points, or 1.7% lower, compared to non-

registered women. This effect is small in economic terms.

The previous results show that employment among registered women is higher after 1920 for 20 years in 10% compared to non-registered, but their likelihood of being married is lower in 1.7%. During this time in the US, the employment decisions of women were significantly influenced by their marital status (Goldin (1980)); hence, we study the effects of registration by women's marital status in 1920. The results are in Figure 4. Panel (a) shows that the employment effects are driven by single women. Registered single women increase their employment by 6 percentage points in the next thirty years after 1920, while for married women, there is no difference in employment between treated and control women. Likewise, in panel (b), the reduction in the likelihood of being married is driven by single women, who among the registered, are 4 percentage points less likely to get married after 1920, compared to non-registered women.

Registered single women work more than non-registered women for the next twenty years, and they marry at lower rates. Registration may impact the partners that single women choose as a consequence of their increased empowerment. In Table 4, we explore whether the future husbands of these women are different between registered and non-registered women. We estimate inverse propensity score regressions on the outcomes of husbands in 1930 and 1940. We find that for single women who are married in 1930, their husbands are 0.5 years older than their wives, compared to the husbands of non-registered women, and they have higher occupational scores, though this result is not significant and our sample is small. By 1940, the age difference among partners and husbands' occupational scores are not different between treated and control women, but husbands of registered women have 0.25 more years of education. These results, while noisy, suggest that registered women marry men who are positively selected based on their level of education.

In general, our results indicate that registering to vote for the first time impacts the results of single women, but not those of married women. However, as we will show in the next section, registering to vote may impact the outcomes of children of married women at baseline, who are exposed to their mother's decision to register for the first time.

5.2 Children's outcomes

One of our objectives is to estimate how a mother's voter registration affected her children's long-term outcomes. As a first step, we follow the same approach used to compare the future husbands of registered and non-registered single women, but now we study differences in future outcomes for children younger than 18 in 1920, depending on whether their mother registered to vote or not.

Panel A of Table 5 shows that, on average, children whose mother registered to vote in 1920 experienced substantially better outcomes by 1940. Children of registered mothers have higher occupational scores (0.44 points), significantly higher wages (about $57), and complete 0.36 more years of schooling. They also have slightly fewer children by 1940 (–0.017).

We then split the estimates by gender and find that the results are driven primarily by girls. Panel B shows that daughters of registered mothers have much higher occupational scores (0.82 points), earn roughly $74 more, complete 0.38 more years of schooling, and have fewer children (–0.045). Girls whose mothers registered are also less likely to be married in 1940, suggesting delayed family formation, while there is no corresponding effect for boys. Daughters are more likely to be employed, whereas for sons, there is no meaningful difference in employment between those whose mothers registered and those whose mothers did not.

These results provide suggestive evidence that women's political empowerment may have long-run effects on their children, particularly for daughters, improving educational attainment and labor market outcomes, and shaping later-life demographic behaviors.

5.2.1 Children's outcomes within households

Our previous results suggest the existence of positive effects on children's outcomes after comparing children of mothers with similar propensities to register. However, the propensity score approach only takes care of selection in observables; thus, to provide more evidence on a more causal interpretation of the previous results, we use differences in children's ages at the time their mother registered to vote in 1920, by comparing siblings within the same family who experienced different lengths of exposure to their

mother's political enfranchisement.

Because women had been mobilizing and organizing for suffrage for several decades before 1920, we hypothesize that older children were more directly exposed to this political struggle, while their younger siblings spent more of their childhood in a period when many of these rights had already been secured. This within-household design helps us identify the impact of growing up in a household where the mother became politically empowered. Specifically, we run the following regression:

$$y_{iht} = \sum_{a \neq 0} \beta_a \Big(\text{MotherRegistered}_h \times \mathbb{1}\{\text{AgeBin}_i = a\} \Big) + \alpha_h + \text{AgeBin}_i + \gamma_t + \varepsilon_{iht}. \quad (2)$$

Here, y_{iht} is the long-run outcome for child i who belonged to household h in 1920, observed in year t (1940 or 1950); $\text{MotherRegistered}_h$ is an indicator equal to 1 if the mother in household h was registered; $\mathbb{1}\text{AgeBin}_i = a$ is an indicator for whether the child's age falls into age bin a, where each bin covers a two-year interval (0–1 years old, 2–3 years old, and so on);[7] α_h is a household fixed effect; and ε_{iht} is an idiosyncratic error term. We also include age-bin fixed effects, AgeBin_i, and year fixed effects, γ_t. The coefficients β_a are interpreted relative to the omitted age bin $a = 0$, which corresponds to ages 0–1. Standard errors are clustered at the household level. As in previous analyses, we weight our sample by the inverse probability of the mother's registration at the household level to account for selection.

While the decision to register to vote when women obtained the right to vote is endogenous across families, once we include household fixed effects, we assume that a mother's decision to register is orthogonal to the relative ages of her children, or on how those ages relate to the children's potential outcomes.

Figure 5 shows the results of equation 2 separately for female and male siblings. Panels (a) and (b) report labor-market outcomes. For male siblings, there are no significant differences in employment or wages. For female siblings, we observe that older sisters experience a positive and statistically significant effect of about 200 dollars higher wages for those aged 12–18. For employment, we observe an increase for older

[7] Because the average age difference between siblings is 2.8 years, using one-year age bins does not substantially reduce the within-household variation we exploit.

sisters relative to the youngest cohort, with a statistically significant effect at ages 14–15. For boys, the coefficients remain close to zero across all age bins, indicating no within-household differences by age. For marriage and the number of own children, we do not find any significant differences across sisters.

On the other hand, the level of exposure may also be affected by neighborhood effects. How common it was for women to be registered within a neighborhood could further increase a child's exposure to their mother's political participation. In this line, Figure 6 shows the results for children living in neighborhoods with high versus low rates of women's voter registration, defined as being above or below the median registration rate of 0.14, meaning that 14% of households in the census district had a registered woman (recall map in Figure 1). The results show that the within-household effects are driven primarily by neighborhoods with high rates of registered households, suggesting that collective participation may also play a role in influencing children's future outcomes.

6 Conclusions and Next Steps

This paper uses records of first-time women voters in Boston in 1920 to study the effects of enfranchisement on women's outcomes and those of their children. We use records digitized by the Mary Eliza Project, which we combine with historical census data, to construct a sample that follows women and their children across time.

The data show that women voters differ from non-voters. Women voters are younger, are more likely to be single, and participate more in the labor market. However, married women registered at higher rates, and their registration probability increases with age.

Because women voters are quite different, to estimate the causal impact of registration on outcomes, we compute a propensity score measure that includes proxy variables for the cost of registering, such as distance to registration locations. Then we estimate an inverse propensity score difference-in-difference model that compares registered and unregistered women before and after 1920. Our results indicate that registered women have 10% higher employment probabilities over the next twenty years. We also find

they are less likely to be married in the long run, but the effect is economically small. Our results show these results are driven by single women at baseline.

While married women do not experience changes in their outcomes as a consequence of registering to vote, we find evidence that their adolescent daughters experience an increase in employment and wages in their adulthood, compared to their younger sisters.

We are currently working on digitizing new voter registration records to study whether the children of registered women are more likely to vote. We are also working on understanding the mechanisms behind the intergenerational transmission of values from mothers to daughters as a consequence of voting registration.

References

Buckles, K., Haws, A., Price, J., and Wilbert, H. E. (2024). Breakthroughs in historical record linking using genealogy data: The census tree project. Technical report, National Bureau of Economic Research.

Coppock, A. and Green, D. P. (2016). Is voting habit forming? new evidence from experiments and regression discontinuities. *American Journal of Political Science*, 60(4):1044–1062.

Eriksson, K., Niemesh, G., Rashid, M., and Craig, J. (2024). Marriage and the intergenerational mobility of women: Evidence from marriage certificates 1850-1920. Technical report, Working Paper.

Fernández, R. (2013). Cultural change as learning: The evolution of female labor force participation over a century. *American Economic Review*, 103(1):472–500.

Gay, V. (2023). The intergenerational transmission of world war i on female labour. *The Economic Journal*, 133(654):2303–2333.

Goldin, C. (1980). The work and wages of single women, 1870 to 1920. *The Journal of Economic History*, 40(1):81–88.

Goldin, C. (2023). Why women won. Technical report, National Bureau of Economic Research.

Kose, E., Kuka, E., and Shenhav, N. (2021). Women's suffrage and children's education. *American Economic Journal: Economic Policy*, 13(3):374–405.

Meredith, M. et al. (2009). Persistence in political participation. *Quarterly Journal of Political Science*, 4(3):187–209.

Merk, L. B. (1961). *Massachusetts and the Woman-Suffrage Movement*. PhD thesis, Schlesinger Library, Radcliffe College.

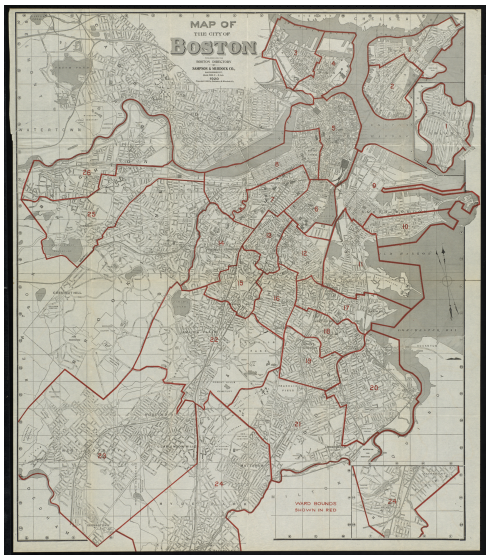
Miller, G. (2008). Women's suffrage, political responsiveness, and child survival in american history. *Quarterly Journal of Economics*, 123(3):1287–1327.

You, W. (2021). The economics of speed: The electrification of the streetcar system and the decline of mom-and-pop stores in boston, 1885–1905. *American Economic Journal: Applied Economics*, 13(4):285–324.

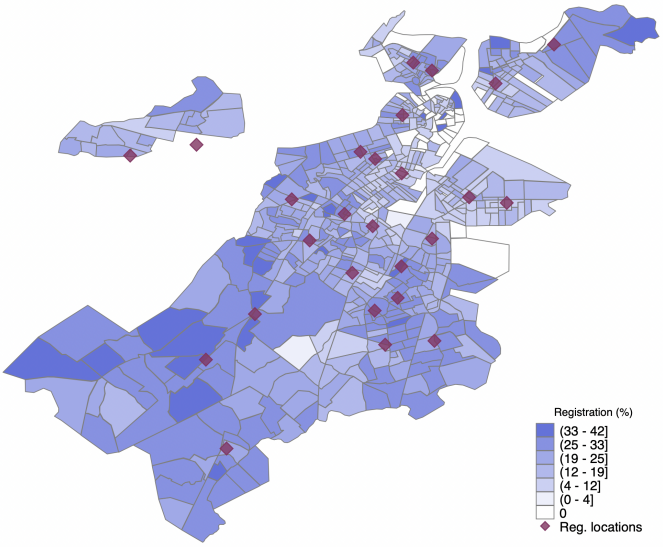
Figures and Tables

Figure 1: City of Boston in 1920

(a) Boston wards

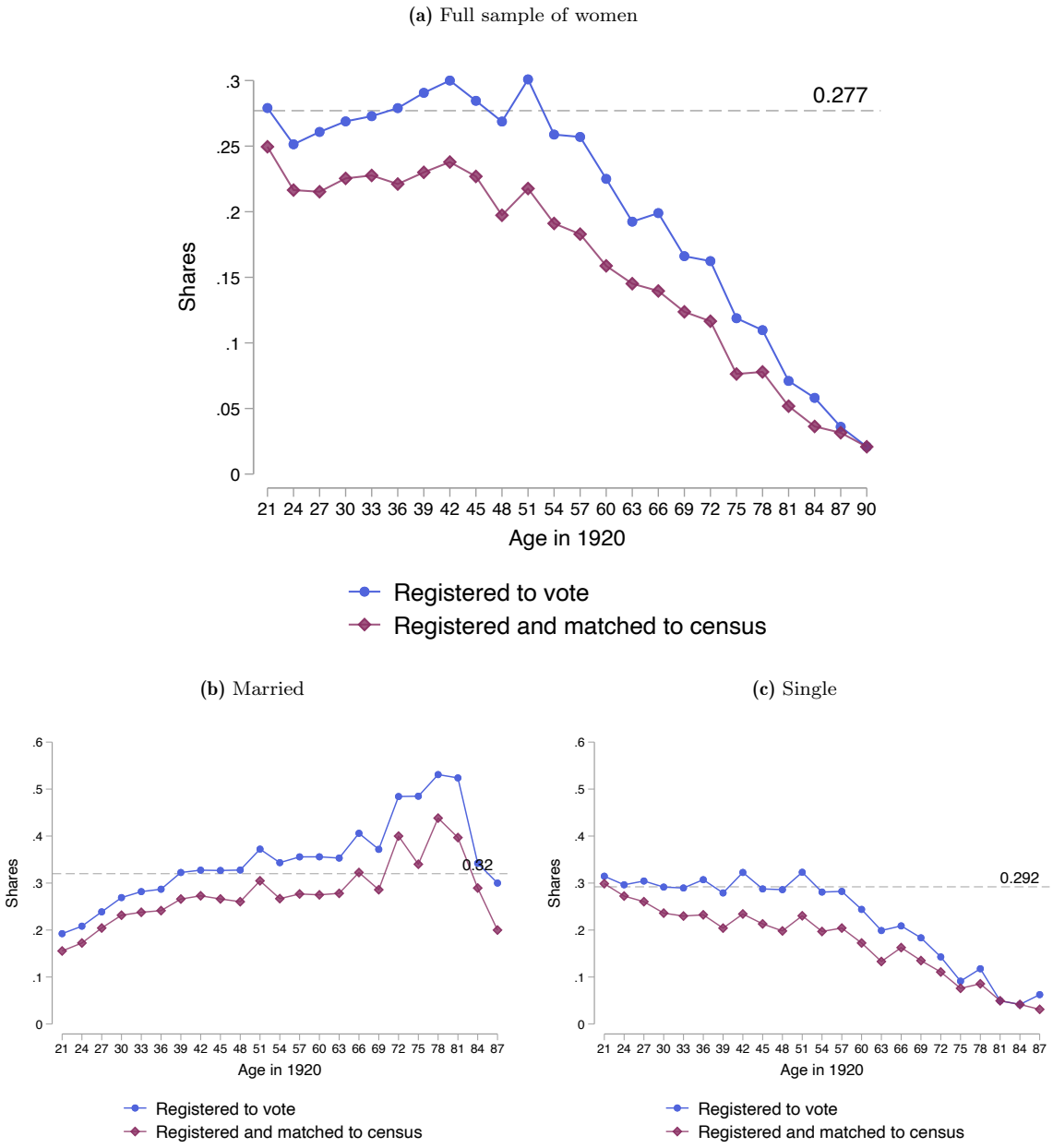


(b) Registration rates by district of residence



Notes: The map in panel (a) shows the city of Boston in 1920, divided into 26 electoral wards, with ward bounds shown in red (source here). The map in panel (b) shows the city of Boston divided into census enumeration districts colored by the rate of women's registration in 1920. Purple diamonds represent the location of registration places in each ward. This map does not include enumeration districts from Ward 25, because the historical map has been lost, and we could not digitize it.

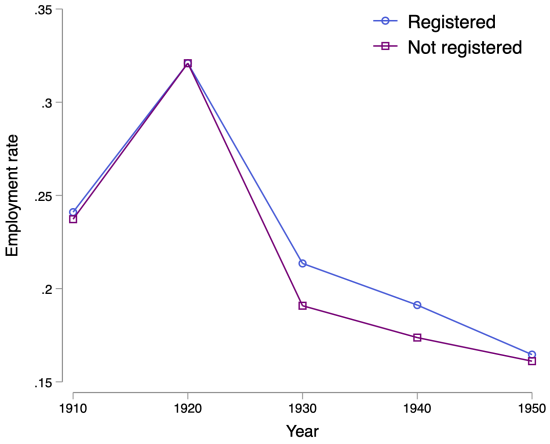
Figure 2: Registration and matching rates by age and marital status



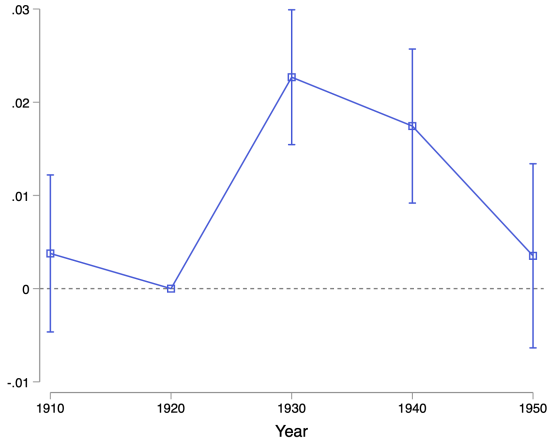
Notes: These figures show women's registration rates by age. Registration rates in blue report the ratio between the number of women in the Mary Eliza records and the total number of women in the 1920 Census for each age group. The red line uses as enumerator the number of women in each age group in the Mary Eliza records that we find in the 1920 census. Dashed gray lines report the average registration rates in each sample.

Figure 3: Registration effects on women's outcomes

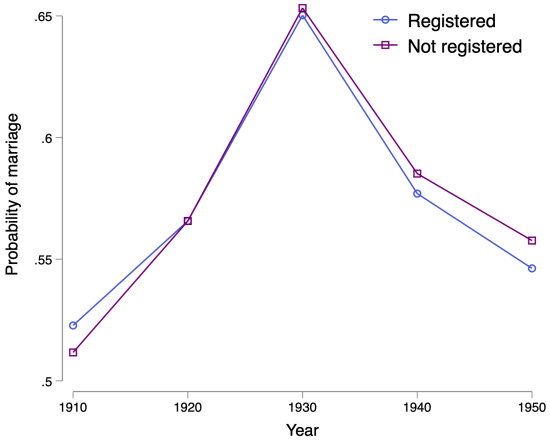
(a) Employment



(b) Registration effect



(c) Probability of married



(d) Registration effect

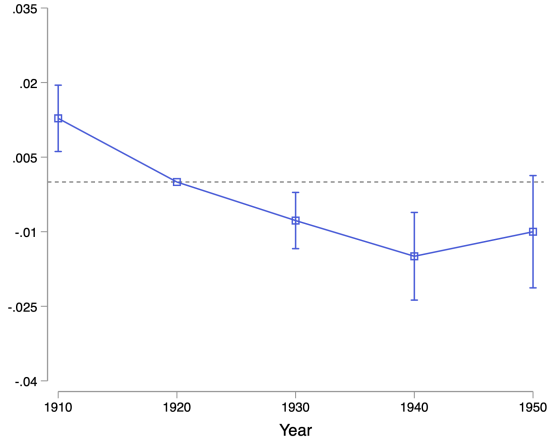


Figure 4: Registration effects on women's outcomes by marital status in 1920

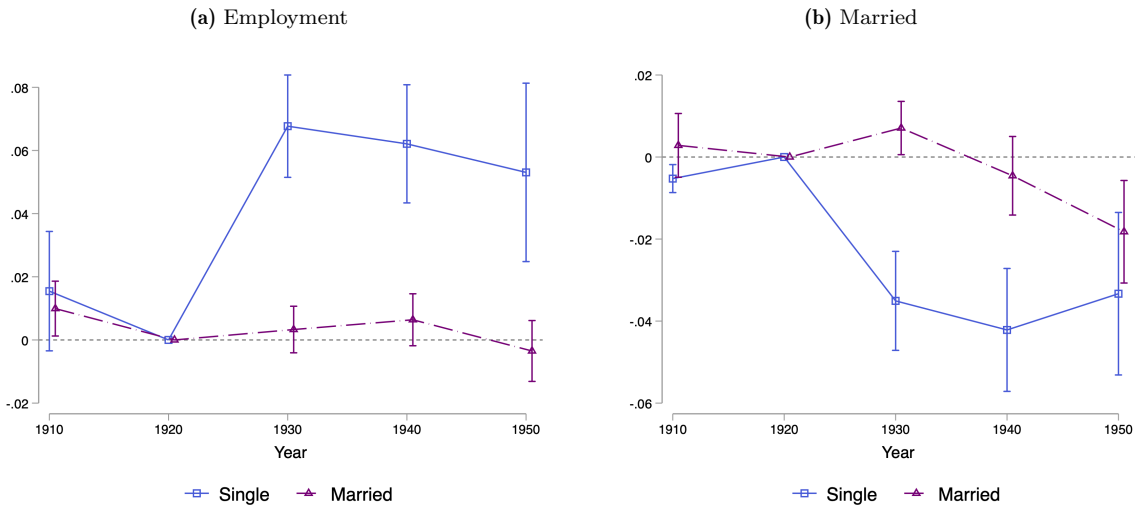
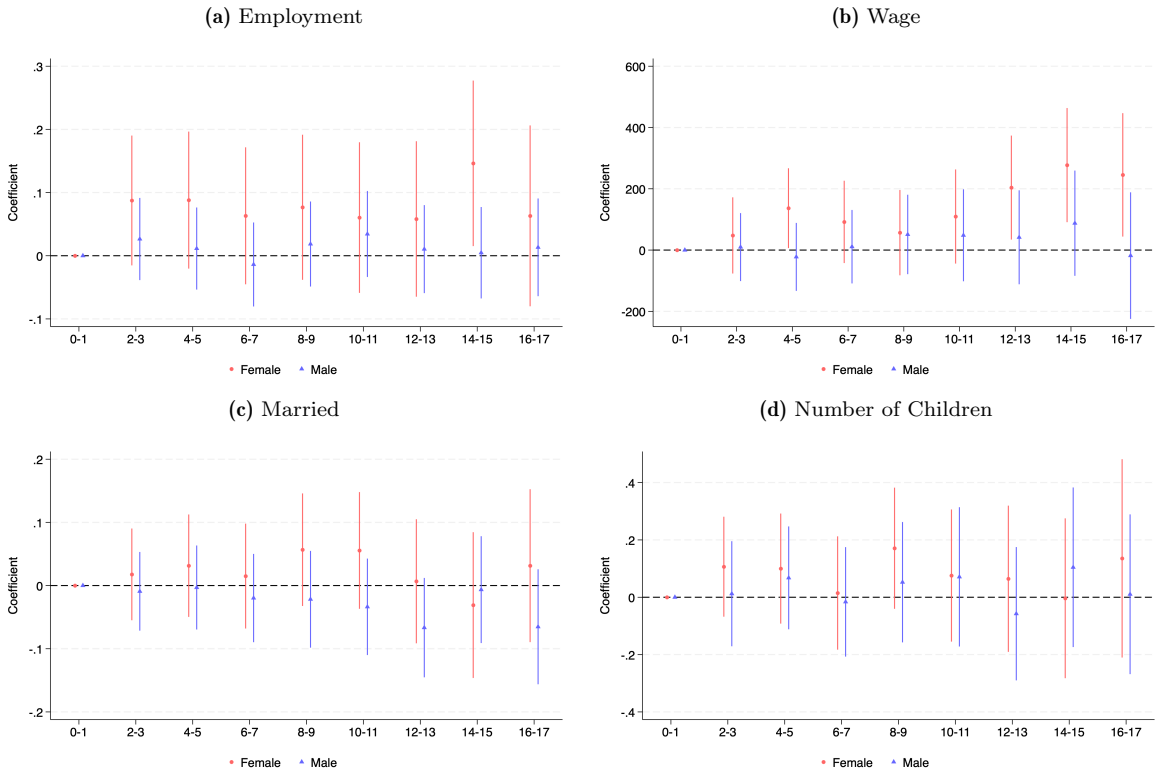


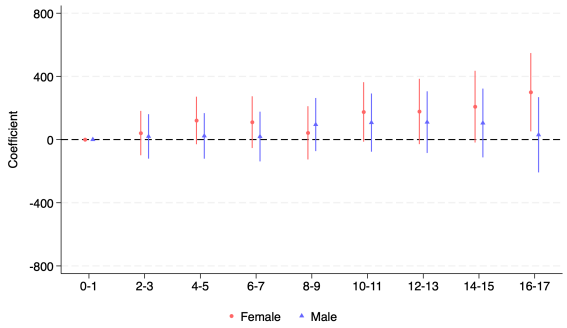
Figure 5: Long-term Children's outcomes within households



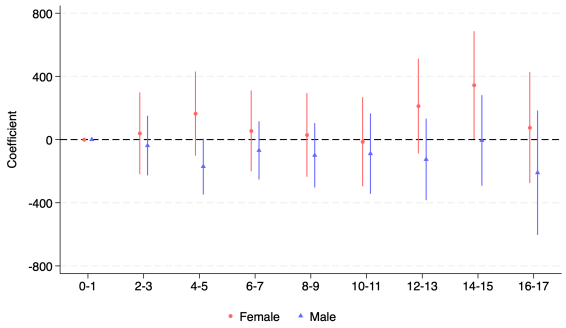
Notes: This figure reports estimates from equation 2. The coefficients β_a are interpreted relative to the omitted age bin. Standard errors are clustered at the household level. For the employment, marriage, and number of children outcomes, the sample includes 22,852 observations for female siblings and 50,852 for male siblings. For the wage outcome, the sample includes 10,153 observations for females and 20,374 for males.

Figure 6: Long-Term Children's Outcomes Within Households by High- vs. Low-Registration Neighborhoods

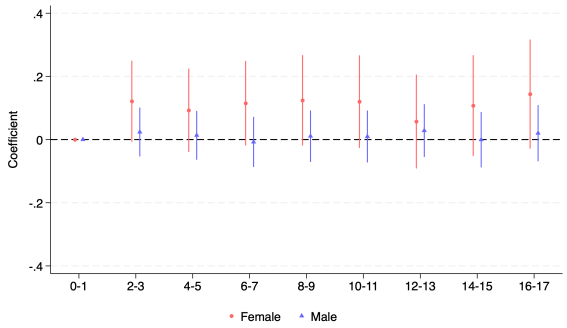
(a) Wage, High-Registration Neighborhoods



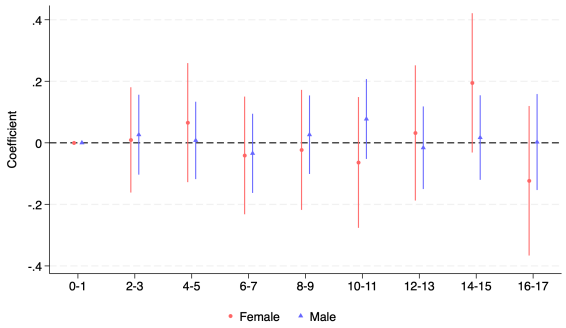
(b) Wage, Low-Registration Neighborhoods



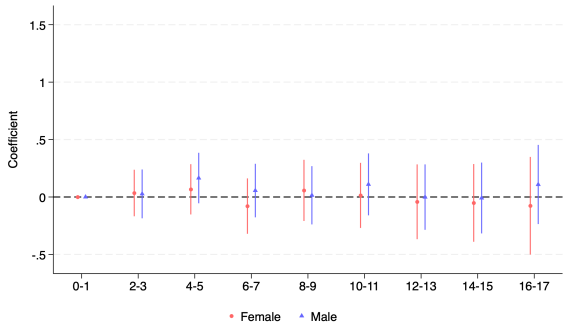
(c) Employment, High-Registration Neighborhoods



(d) Employment, Low-Registration Neighborhoods



(e) Number of Children, High-Registration Neighborhoods



(f) Number of Children, Low-Registration Neighborhoods

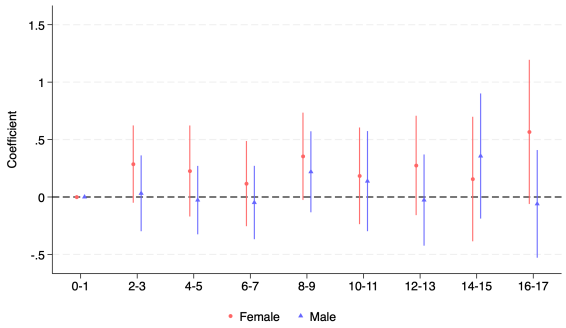


Table 1: Summary statistics of women who registered to vote in 1920 by matching status

	Full sample	Matched	Unmatched	Difference	Diff. w/ward
	(1)	(2)	(3)	(4)	(5)
Age	39.792	39.173	41.699	-2.525	-2.261
	[13.145]	[13.131]	[13.002]	(0.218)	(0.346)
Married	0.633	0.632	0.638	-0.006	-0.023
	[0.482]	[0.482]	[0.481]	(0.011)	(0.007)
Single	0.324	0.330	0.305	0.025	0.035
	[0.468]	[0.470]	[0.460]	(0.010)	(0.008)
Divorced	0.001	0.001	0.002	-0.001	-0.000
	[0.036]	[0.033]	[0.043]	(0.000)	(0.000)
Widowed	0.029	0.027	0.038	-0.011	-0.005
	[0.169]	[0.161]	[0.190]	(0.002)	(0.002)
Housewife	0.600	0.607	0.575	0.032	0.008
	[0.490]	[0.488]	[0.494]	(0.012)	(0.008)
US born	0.787	0.807	0.725	0.082	0.093
	[0.410]	[0.395]	[0.447]	(0.018)	(0.016)
Canadian	0.068	0.058	0.097	-0.039	-0.043
	[0.251]	[0.234]	[0.296]	(0.007)	(0.007)
European	0.144	0.135	0.172	-0.038	-0.045
	[0.351]	[0.341]	[0.378]	(0.015)	(0.013)
Observations	52,843	39,874	12,969	52,843	52,843
Wards	26	26	26	26	26
%		75.46	24.54		

Notes: This table shows summary statistics for women in the Mary Eliza Project that correspond to women who registered to vote for the first time in 1920 in Boston. Column (2) includes women who registered to vote who we find the in 1920 census, and column (3) includes women we do not match to the census. Column (4) reports mean differences between groups in columns (2) and (3), and column (5) reports mean difference within ward of residence. Standard errors clustered by ward are in parenthesis, and standard deviations are in brackets.

Table 2: Summary statistics of eligible women by registration status

	Full sample (1)	Registered & matched (2)	Not registered (3)	Mean difference (4)	Difference w/ward (5)
Panel A. Baseline demographics					
Age	41.091	38.972	41.652	-2.680	-2.872
	[14.598]	[12.990]	[14.945]	(0.077)	(0.077)
White	0.973	0.974	0.972	0.001	-0.001
	[0.163]	[0.160]	[0.164]	(0.001)	(0.001)
Black	0.027	0.026	0.027	-0.001	0.001
	[0.163]	[0.159]	[0.163]	(0.001)	(0.001)
US born (US parents)	0.325	0.376	0.312	0.065	0.058
	[0.468]	[0.484]	[0.463]	(0.003)	(0.003)
US born (imm. parents)	0.388	0.427	0.377	0.049	0.051
	[0.487]	[0.495]	[0.485]	(0.003)	(0.003)
Literate	0.986	0.999	0.983	0.016	0.013
	[0.117]	[0.036]	[0.130]	(0.000)	(0.000)
In labor force	0.345	0.382	0.335	0.047	0.060
	[0.475]	[0.486]	[0.472]	(0.003)	(0.003)
Family size	3.904	4.045	3.866	0.179	0.148
	[2.408]	[2.267]	[2.443]	(0.013)	(0.013)
# children	1.188	1.083	1.216	-0.133	-0.134
	[1.722]	[1.648]	[1.740]	(0.010)	(0.009)
Married	0.558	0.557	0.559	-0.001	-0.007
	[0.497]	[0.497]	[0.497]	(0.003)	(0.003)
Single	0.292	0.346	0.277	0.068	0.072
	[0.455]	[0.476]	[0.448]	(0.003)	(0.003)
Widowed	0.143	0.091	0.156	-0.066	-0.065
	[0.350]	[0.287]	[0.363]	(0.002)	(0.002)
In school	0.013	0.013	0.013	-0.000	0.001
	[0.115]	[0.115]	[0.115]	(0.001)	(0.001)
SEI	12.559	15.969	11.655	4.314	4.569
	[21.580]	[24.267]	[20.715]	(0.135)	(0.135)
Homeowner	0.228	0.257	0.220	0.036	0.014
	[0.420]	[0.437]	[0.414]	(0.002)	(0.002)
Schooling (in 1940)	9.278	10.012	9.009	1.002	0.868
	[3.214]	[2.904]	[3.279]	(0.025)	(0.025)
Occupations					
Professionals	0.041	0.049	0.039	0.011	0.010
	[0.198]	[0.217]	[0.193]	(0.001)	(0.001)
Clericals	0.109	0.169	0.094	0.075	0.075
	[0.312]	[0.374]	[0.291]	(0.002)	(0.002)
Services	0.069	0.044	0.076	-0.032	-0.026
	[0.254]	[0.205]	[0.265]	(0.001)	(0.001)
Operatives	0.070	0.061	0.072	-0.011	-0.005
	[0.255]	[0.239]	[0.258]	(0.001)	(0.001)
Sales	0.038	0.038	0.038	-0.000	0.002
	[0.192]	[0.191]	[0.192]	(0.001)	(0.001)
Other occ.	0.024	0.025	0.024	0.001	0.001
	[0.154]	[0.156]	[0.153]	(0.001)	(0.001)
No occupation	0.648	0.614	0.657	-0.043	-0.057
(or housewife)	[0.477]	[0.487]	[0.475]	(0.003)	(0.003)
Panel B. Matching rates across censuses					
Census tree 1930	0.562	0.682	0.530	0.152	0.140
	[0.496]	[0.466]	[0.499]	(0.003)	(0.003)
Census tree 1940	0.420	0.532	0.391	0.141	0.133
	[0.494]	[0.499]	[0.488]	(0.003)	(0.003)
Observations	184,679	38,706	145,973	184,679	184,679
Wards	26	26	26	26	26
%		21.00	79.00		

Notes: This table shows summary statistics for women age 21 or more in the 1920 census who were eligible to register to vote. Column [2] includes women who registered to vote and matched to the 1920 census, and column [3] includes all other women in Boston. Column [4] reports mean differences between groups in columns [2] and [3], and column [5] reports mean difference within ward of residence. Robust standard errors are in parenthesis, and standard deviations are in brackets.

Table 3: Predictors of registration

	1[Registered]					
	(1)	(2)	(3)	(4)	(5)	(6)
Distance registration loc.	0.037	-0.030	-0.032	-0.037	-0.033	-0.042
	(0.012)	(0.014)	(0.014)	(0.013)	(0.012)	(0.010)
Distance to City Hall		0.023	0.024	0.025	0.022	0.023
		(0.003)	(0.002)	(0.002)	(0.002)	(0.006)
Distance to streetcar			-0.003	-0.005	-0.005	0.002
			(0.003)	(0.003)	(0.003)	(0.002)
Gender ratio by district				0.004	0.003	0.003
				(0.000)	(0.001)	(0.000)
Age					-0.001	-0.001
					(0.000)	(0.000)
Black					0.030	0.020
					(0.015)	(0.015)
US born					0.069	0.068
					(0.004)	(0.003)
Literate					0.106	0.105
					(0.006)	(0.005)
In labor force					0.031	0.013
					(0.031)	(0.022)
Family size					0.005	0.004
					(0.002)	(0.001)
# children					-0.002	-0.002
					(0.001)	(0.001)
Married					0.059	0.059
					(0.003)	(0.003)
Single					0.037	0.038
					(0.005)	(0.004)
In school					-0.019	-0.019
					(0.010)	(0.013)
SEI					0.002	0.002
					(0.000)	(0.000)
Homeowner					0.017	0.014
					(0.004)	(0.003)
No occ./housewife					0.067	0.049
					(0.029)	(0.021)
Adj. R^2	0.001	0.008	0.008	0.011	0.032	0.041
Reg. mean	0.209	0.209	0.209	0.209	0.209	0.209
Observations	175,162	175,162	175,162	175,162	175,162	175,162
Ward FE						✓

Table 4: Outcomes of husbands in 1930-1940

	Husbands' outcomes in 1930		Husbands' outcomes in 1940		
	Age difference	Occscore	Age difference	Occscore	Schooling
	(1)	(2)	(3)	(4)	(5)
Wife registered in 1920	0.509*	0.577	-0.024	-0.077	0.253*
	(0.295)	(0.667)	(0.253)	(0.577)	(0.144)
Adj. R^2	0.000	0.022	0.021	0.036	0.102
Non-reg. mean	2.442	29.510	2.480	29.833	10.706
Observations	1,605	1,601	1,776	1,930	1,822

Table 5: Children's outcomes in 1940

	In labor force	Employed	Occscore	Wage	Married	Schooling	# children	Age marriage
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Panel A: All children 0–17 at baseline								
Registered	0.002	0.009	0.440***	57.436***	-0.007	0.364***	-0.017*	0.042
	(0.004)	(0.007)	(0.144)	(11.652)	(0.007)	(0.044)	(0.010)	(0.125)
Adj. R^2	0.059	0.035	0.121	0.105	0.188	0.109	0.135	0.352
Non-reg. mean	0.841	0.713	20.392	759.144	0.329	11.591	0.427	21.291
Observations	39,046	39,046	38,923	39,046	39,046	37,988	39,046	2,198
Panel B: Girls								
Registered	0.012	0.029**	0.815**	74.239***	-0.020*	0.380***	-0.045**	0.172
	(0.011)	(0.014)	(0.309)	(16.320)	(0.010)	(0.058)	(0.017)	(0.192)
Adj. R^2	0.026	0.007	0.009	0.028	0.092	0.110	0.097	0.249
Non-reg. mean	0.719	0.610	15.233	511.203	0.226	11.745	0.356	19.809
Observations	15,729	15,729	15,698	15,729	15,729	15,379	15,729	809
Panel C: Boys								
Registered	-0.004	-0.004	0.193	47.072**	0.003	0.350***	0.003	-0.063
	(0.004)	(0.009)	(0.203)	(18.294)	(0.009)	(0.051)	(0.012)	(0.176)
Adj. R^2	0.036	0.051	0.107	0.100	0.220	0.109	0.155	0.226
Non-reg. mean	0.916	0.775	23.545	910.356	0.391	11.497	0.470	22.133
Observations	23,317	23,317	23,225	23,317	23,317	22,609	23,317	1,389
Wards	26	26	26	26	26	26	26	26

Notes: Sample includes children aged 0–17 living in Boston in 1920 and linked to the 1940 census. Registered corresponds to a dummy equal to 1 if an adult woman in the child's household registered to vote in 1920. All regressions control for baseline demographics including a child's age, and women's demographic at baseline: woman's age, US born dummy, white dummy, in labor force dummy, family size, marital status, household's homeownership status, and SEI socioeconomic index. Standard errors clustered at ward of residence in 1920 are in parentheses. 10%*, 5%**, 1%***.

A Additional Figures and Tables

Figure 1: Estimated propensity score

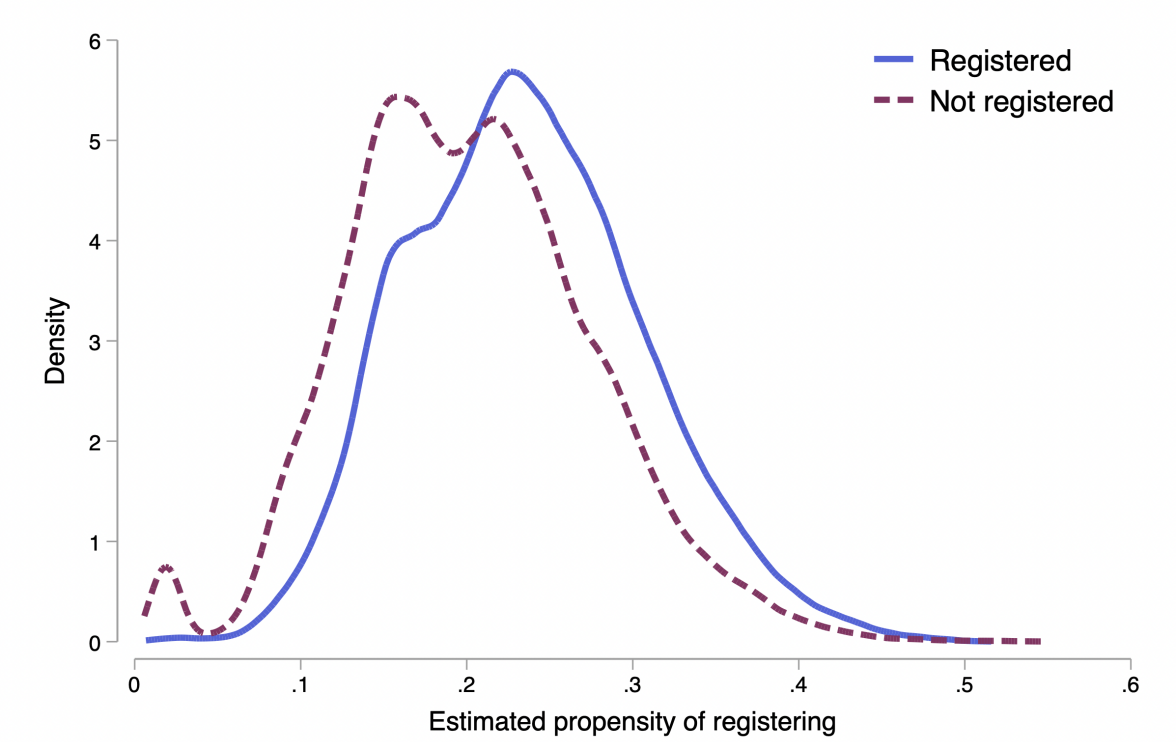
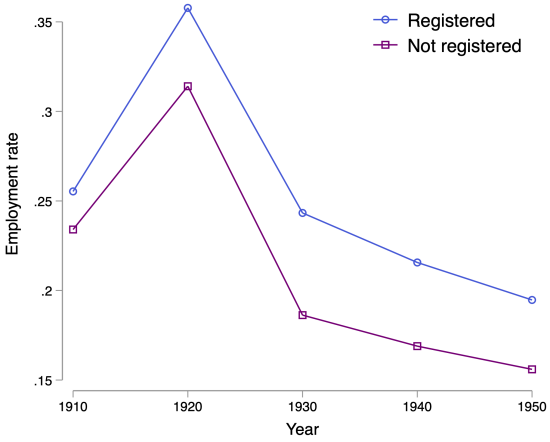


Figure 2: Raw series for women's outcomes

(a) Employment



(b) Probability of being married

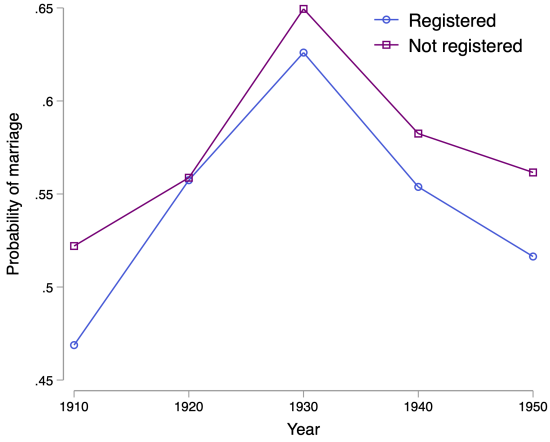


Table A1: Predictors of registration: Penalized LASSO-logit regressions

	1[Registered]			
	Full sample	Married	Single	Widowed
	(1)	(2)	(3)	(4)
Age	-0.005	-0.000	-0.008	-0.016
Black	0.202	0.342	-0.020	-0.015
US born	0.470	0.399	0.711	0.815
Literate	2.011	2.017	0.969	2.153
In labor force	0.225	-0.121	0.418	0.730
Family size	0.026	0.011	0.030	-0.022
# children	-0.007	-0.005	-0.070	0.060
Married	0.442			
Single	0.302			
In school	-0.129	-0.179	-0.005	-0.474
SEI	0.011	0.007	0.010	0.011
Homeowner	0.099	0.124	0.037	0.083
No occ./housewife	0.444	0.205	0.505	0.894
Dist. registration loc.	-0.184	-0.240	-0.101	-0.076
Distance to City Hall	0.152	0.178	0.104	0.127
Distance to streetcar	-0.028	-0.017	-0.054	-0.014
Registration is a school	0.028	0.047	0.007	0.009
a municipal building	-0.140	-0.211	-0.025	-0.069
a booth	-0.005	-0.071	0.069	0.103
Gender ratio	0.022	0.031	0.013	0.026
Observations	175,162	98,122	50,975	24,863