War and the Political Zeitgeist:
Evidence from the History of Female Suffrage

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Abstract:

Despite the great social upheaval associated with state warfare, empirical evidence linking conflict with institutional development is limited. This paper examines the hypothesis that international wars accelerated democratization by fostering political inclusion. Employing survival analysis, I find that during the 20th century, nations which engaged in external conflict were more than twice as likely to extend the franchise to women in the post-conflict period, even after controlling for other commonly cited determinants of suffrage adoption. I explore several potential mechanisms for this association and find evidence consistent with stories which connect war with increased national unity, ideological fervor, and international posturing. Finally, examining conflict-induced changes in sex ratios and female labor force participation suggests that the underlying determinants of suffrage expansion at the national and sub-national level differ, implying that distinct theory may be needed to explain institutional change in each setting.

I. Introduction

The 20th century witnessed a remarkable expansion of voting rights, with 187 of the 192 countries recognized by the United Nations granting female suffrage. While by all accounts this represents one of the most rapid and dramatic advancements in democracy and human rights in recorded history, the underlying determinants of women's suffrage expansion are not well established. This issue is challenging to address empirically, particularly in cross-sectional analysis. Apart from isolated cases such as the United States and the United Kingdom, relevant historical data are largely non-existent and the prevailing wisdom contends that successful national suffrage campaigns contain too many idiosyncrasies for generalization. The present analysis seeks to overcome these obstacles by focusing on one major catalyst of suffrage expansion for which detailed historical records do exist: inter-state warfare.

Recent research suggests that many female suffrage extensions occurred during periods of political turmoil, such as in the years ensuing independence from colonial rule or in those following international conflicts (Aidt and Dallal, 2008; Przeworski, 2008; Ticchi and Vindigni, 2009; Bertocchi, 2011; Braun and Kvasnicka, 2011).[1] Using survival analysis, I show that participation in external conflict by a nation previously lacking female suffrage more than doubles the probability of female enfranchisement in the immediate post-conflict period, even after controlling for other commonly theorized determinants of suffrage expansion. Furthermore, this effect persists, with nations experiencing an elevated hazard rate of suffrage adoption over the subsequent decade post conflict. Despite the strength of this connection, the causal mechanisms underlying this association have been the focus of limited empirical examination, although some attention has been paid to this subject in theoretical exercises such as those in Ticchi and Vindigni (2005, 2009). This paper provides a detailed exploration of these underlying channels.

The evidence presented here suggests that participation in an external war likely increased the benefit of enfranchisement from the perspective of the existing elite. Using observable characteristics of the international conflicts themselves to discern the channels through which this relationship operates suggests that war brings to the forefront issues of ideology and democracy on the international stage and facilitates national unity and political cooperation on the home front. I show that these factors appear to have a larger impact on suffrage expansion at the national level

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[1] In the case of conflict, Przeworski (2008) and Bertocchi (2011) suggest that suffrage extensions were more common during post-war years than during pre-war periods. Similarly, Aidt and Dallal (2008) and Braun and Kvasnicka (2011) argue that the timing of the World Wars matches that of suffrage expansion for a number of states.

than conflict induced changes in sex ratios and in female labor force participation. These results also suggest that factors which have been identified as important for sub-national suffrage expansion are different than those at the national level, implying that distinct theory may be needed to explain institutional change in each setting.

A closely related strand of literature examines the determinants of female suffrage expansion empirically.[2] Braun and Kvasnika (2011) evaluate this decision among US states and show that states with sex ratios skewed in favor of men were more likely to extend suffrage, suggesting an important role for the relative size of a population in influencing the cost of enfranchisement. The authors also find that states with larger manufacturing sectors and higher levels of Catholicism were less likely to extend suffrage. In a cross-country setting, Bertocchi (2011) studies female suffrage expansions among a sample of 22 countries over the period 1870 to 1930 and shows that richer countries were more likely to extend female suffrage earlier while more Catholic countries and countries where women already had the ability to divorce were less likely to do so.[3] She also finds that the inclusion of a dummy for 1920 is positive and significant, suggesting that World War I might have accelerated the timing of suffrage, but finds no statistical significance to the interaction between this variable and other regressors. Perhaps the clearest empirical effort connecting suffrage and war is that of Przeworski (2008) individually includes covariates in a set of probit models to evaluate existing theories of democritization across multiple types of suffrage expansion (e.g. gender, class, universal). The author documents a positive connection between the removal of class requirements on suffrage and unrest, between all types of suffrage expansion (male, female, universal) and war, and a negative association between level of Catholicism and female suffrage.

This research also builds on an existing literature examining the role of war in effecting institutional change more broadly. In their analysis of civil war, Blattman and Miguel (2010, p. 42) argue that "the social and institutional legacies of conflict are arguably the most important but least understood of all war impacts." Conflict is disruptive to the established social order and the historical genesis of numerous economic and political institutions has been shown to be fundamentally intertwined with warfare. For instance, conflict has been associated with the development of the nation state itself (Lane, 1958; Bean, 1973). Similarly, economists have suggested that the need to raise revenue to fund war coffers spurred the development of constitutions, capital markets, and taxation capacity (North and Weingast, 1989; Besley and Persson, 2008), and that the

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[2] Outside economics empirical examinations of suffrage expansion can be found in Ramirez, Soysal, and Shanahan (1997), McCammon *et al.* (2001) and Przeworski (2008).
[3] Restricting her sample to this set of countries allows for the inclusion of a very rich set of covariates.

vacuum created by conscription on the factory floor positively influenced female labor force participation and relative wages (Abbot, 1917; Goldin, 1991; Duby and Perrot, 1998; Acemoglu *et al.*, 2004).

Related studies have shown that underlying economic conditions can have an important impact on gender equality, with the relative value of male and female labor being used to explain skewed sex ratios, differences in female labor force participation across countries, and attitudes toward women in the workplace (Qian, 2008; Alesina *et al.,* 2011). In the same vein, periods of war present a plausibly exogenous shock to labor market opportunities for women, to existing institutions, and to social norms governing acceptable behavior. War could promote gender equality and thus foster suffrage through many channels, such as by changing relative wages, by altering the sex ratio through the disproportionate loss of males in combat, or by creating political upheaval and opportunities for constitutional reform (for example, following regime change or the creation of a new state).

While expanded suffrage can be viewed as an important constitutive component of development in and of itself, the inclusion of female voters into the electorate has also been shown to influence political and economic outcomes. Lott and Kenny (1999), Abrams and Settle (1999), and Aidt and Dallal (2008) argue that female suffrage marked a political turning point because median female preferences helped expand the size and role of government in the US, Switzerland, and Western Europe, respectively. This conclusion is echoed in Bertocchi (2011) who builds a model in which women display stronger preference for public goods, and in Braun and Kvansnicka (2011) who suggest that US states with larger manufacturing bases initially resisted female suffrage because female voters were more likely to push for labor laws. Similarly, Grier and Maldonado (2012), in an analysis of Latin American economies, argue that suffrage expansions and the corresponding accumulation of experience with electoral participation have a strong positive influence on subsequent institutional development.

The remainder of this paper is organized as follows. Section II describes data construction and presents summary statistics on suffrage and war. Section III documents a robust association between war and suffrage expansion using hazard analysis. Section IV considers historical evidence linking female suffrage and war and explores potential mechanisms through which war could have influenced suffrage extension. Section V concludes.

II. Conflict and Suffrage Data

This section describes the construction of a panel data set of conflict participation, suffrage expansion, and other country characteristics. Data on female suffrage are compiled primarily from the International Parliamentary Union (2005).[4] Table 1 presents summary statistics on the timing of female suffrage expansion. 154 nations are included in the primary analysis. There appear to be some regional patterns with North America and Europe granting female suffrage earlier during the century on average, but with a larger spread in the timing of enfranchisement. Sub-Saharan Africa and Oceania have the latest suffrage extensions, but many of these nations did not gain independence from colonial rule until mid-century or later. Panel A of Figure 1 plots the number of countries granting women suffrage in a given year. It is clear from this figure that extensions are clustered temporally, with a large grouping of suffrage events occurring over the period 1918-1922 and a second set of expansions beginning in the mid 1940s and continuing through the mid 1960s. Because of the one-off nature of suffrage expansion, as would be expected, these occurrences taper down in the latter half of the century.

Information on conflict is drawn from the Correlates of War (COW) Database 4.0. I initially restrict the analysis to inter-state wars.[5] Table 2 presents summary statistics on international conflicts, overall and by geographic region. There are 64 unique international conflicts contained in the COW database and involving a country included in the sample during the 20th century. Of these, 34 are included in the analysis and account for the majority of warfare during the first half of the century, providing a sizeable amount of temporal and cross-country variation in the data.[6] In the analysis sample, conflicts lasted about 16.6 months and involved 4.7 states on average. Taken together, these wars provide 218 country-years of conflict in the sample. It is perhaps worthwhile at this juncture to mention the bellicose nature of the early European states. Roughly half of the wars involved at least one European power both in terms of unique conflicts and in terms of participant years.

On average, conflict claimed 128,000 lives per participant per year in which nations were

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[4] This information is supplemented with data from Nohlen (2005), Ramirez *et al.,* (1997), and Nohlen and Stover (2010). A complete list of suffrage dates is included in Appendix Table 1. Where possible I am concerned with the initial date of suffrage expansion, not the date when female suffrage was initially exercised (the first election). This difference in definition accounts for many of the discrepancies in reported dates across sources.

[5] Conflicts are defined by incidents which involve "sustained combat, involving organized armed forces, resulting in a minimum of 1,000 battle-related fatalities" (Sarkees; p1, 2011).

[6] Because countries drop out of the sample once they grant suffrage, the wars included in my analysis are skewed in favor of those that occurred earlier during the 20th century.

involved in a war, although there is considerable variation across conflicts.[7] This likely overstates the average size of altercations because wars with less than 1000 combat-related deaths are not included in the COW database. Both the total number of conflicts and the total number of war deaths are thus likely understated as a result of these omissions as well.

Panel B of Figure 1 depicts the timing of war, displaying the number of nations engaged in international conflict by year. When compared to Panel A, the pattern of warfare is clearly consistent with a scenario in which the World Wars play a pivotal role in facilitating female suffrage. It is worth keeping in mind that countries only adopt suffrage once, so despite large amounts of conflict in the latter half of the century, significantly fewer countries lacked female suffrage, and thus might be expected to grant it during this period. This concept is perhaps best captured in Panel C of Figure 1, which plots the share of nations lacking female suffrage over time. Two breaks in adoption growth rates are observable, with accelerations in the rate of suffrage expansion beginning around 1918 and around 1945.

There are several empirical challenges in evaluating national female suffrage extensions over a large period of time, not the least of which is classifying which units comprise nation states. Only a subset of nations existed over the full century under study; many countries trace their origin to the drawing of lines on maps in war rooms or gained independence from colonial powers during the 20th century; some existing nations split while yet others merged. There is no straightforward way to address sample selection concerns, so I employ multiple samples as robustness checks on my analysis, described in further detail below.

154 fully independent nation states are included in the primary sample. There are a number of notable exclusions owing to the historical nature of the exercise, such as states that were split apart after extending female suffrage. An example is the former Yugoslavia, which is included, while its respective modern day constituent nations are not. I focus on the contemporaneous entity rather than on the current states, because including the latter would serve to overweight the actions of one particular government or nation in the exercise.[8]

Each country appears in the data set for years between 1900 and 2000 during which the nation exists as a sovereign state but has not yet granted suffrage. This means that many countries

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[7] Only the total number of battle deaths per participant is recorded over the course of a conflict, so for wars lasting multiple years, I estimate when casualties take place and choose to do so simply by treating them as occurring evenly across the years of each conflict.

[8] Many such nations granted suffrage at the time of independence and following a period of warfare. Counting these regions as multiple states would overstate the relationship between conflict and suffrage extension.

which had not already obtained independence or sovereignty by the turn of the 20th century enter the analysis at a later date. Within the framework of survival analysis, nations become "at risk" of granting suffrage when they first gain sovereign status. The analogous setup in an epidemiological study would be patient birth dates (country gains sovereign status), occurring across various points in time, with subsequent patient deaths (female suffrage expansions) occurring with higher likelihood after cardiac events (wars). Due to the nature of hazard analysis, countries drop out of the sample after female suffrage is granted.

With this type of setup, one concern is that we may be implicitly placing too much emphasis on certain country groups, perhaps because the timing of country births are clustered or because of time-variant international pressure from the global community. Specifically, it is not clear that the first ten observation-years of France, the UK, and the US in the sample, which begin in 1900, should share the same suffrage determinants as the first ten years of newly independent African nations during mid century. For example, the scale of pressure from the international community may be much larger in the latter case, or early suffrage granting nations may provide a demonstration effect to their lagging neighbors. Coefficient estimates are therefore likely to vary with regard to historical time as well as to analysis time.

While the principal effect of this variation should be to change the precise interpretation of the findings, a plausible argument can also be made that the inclusion of so many disparate time periods could muddle the results, for many of the reasons just mentioned. There are a number of avenues available to address this concern. These are discussed in greater detail in the analysis and include directly controlling for time by including decadal controls, as well as incrementally restricting the sample to omit nations which enter the sample at later dates, to omit countries which emerge from colonial rule, and to omit countries which always exist throughout the sample.[9] As a general rule, I define country birth as the first country year observation in the Polity IV database.[10]

In the construction of the dataset, I supplement information on conflict and suffrage over the period 1900 - 2000 with covariates from several sources. I draw information on population and GDP from Maddison's (2010) dataset "Historical Statistics of the World Economy: 1-2008 AD," because of its broad coverage. Information on population is available for nearly 80% of country-

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[9] The appendix further explores the sensitivity of the results to the selection of alternative time periods, samples, and time controls.

[10] An example of these restrictions is illustrative. The nation state of Albania enters the Polity database when it gains independence from the Ottoman Empire in 1912. This assumption means that for the period 1900-1911, in the primary dataset, there is no possibility of female suffrage for the region of land today comprising Albania despite the fact that the Ottoman Empire could theoretically have granted women the right to vote during this period.

years, while GDP information is available for roughly 60%. Population density is calculated using Maddison's population estimates and values for land area in 1950 from the FAO Statistics Division. This may introduce some measurement error because country land areas have varied over time, and have likely done so to a larger degree for warring nations. It is unclear however, that this would systematically bias the results in either direction and the precise magnitude of the coefficient on population density is not the primary concern of this analysis. Information on religious affiliation is taken from Barro and McCleary (2003). With countries and governments as units of observation, the Barro and McCleary dataset provides a reflection of the pattern of religion on a per country basis, and contains information for the years 1900, 1970 and 2000.[11] In practice, religious affiliation varies significantly less over time than across countries, and I take advantage of this by interpolating intervening years with missing values. The results are largely unaffected if I instead control only for the 1900 distribution of faiths.

Controls for the general level of democracy are taken from the Polity IV dataset (2010), with the Polity II Score ranging from -10 (most autocratic) to +10 (most democratic). The sample is slightly autocratic on average, with a mean score of -1.8, although there is considerable variation.[12] The Polity II variable is coded to contain data even during events of foreign interruption, although the exclusion of these observations does little to alter the primary results. Summary statistics for these variables included in the main analysis are listed in Table 3, Panel A. Additional controls displayed in Panel B are described in further detail below.

III. Conflict and Suffrage Analysis

A. Specification

An examination of the relationship between female suffrage and conflict lends itself to survival analysis for several reasons. One reason is that the time to suffrage from country birth is always positive. Furthermore, countries face various levels of exposure to conflict, so we can estimate the impact of external wars on the likelihood of granting female suffrage, as some countries avoided conflict while others engaged in numerous wars over the period. Finally, because we are interested primarily in the determinants of suffrage, once a country adopts the policy, subsequent

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[11] Because the sample is based on country-years and not population weighted, the summary statistics, which portray the sample as predominantly Christian, provide a misleading representation of world population as a whole.
[12] The use of an arbitrary scale imposes an identical interpretation of a change along all points of this scale, i.e. from -2 to -1 and from 4 to 5. For this reason, many of the results have been run simply with a democracy dummy variable, taking on the value of 1 for scores 1 or greater.

information for a given nation should not influence the analysis. In this regard, there is no reverse causality concern in this framework, because the post-suffrage experience of countries has no bearing on the results. At the same time, there are many challenges to a survival analysis approach, such as defining countries as "at risk" of adopting suffrage. These concerns are highlighted throughout the following analysis.

As an initial approach, I employ semi-parametric regression analysis in the form of a Cox proportional hazards model. The Cox regression model does not require the baseline hazard function $h_O(t)$ to be specified. Instead, the key assumption is that covariates multiplicatively shift the baseline hazard. Specifically, the regression takes the form:

$$h(t|\mathbf{X}_K) = h_O(t)e^{(B_1 x_1 + B_2 x_2 + \cdots + B_k x_k)} \qquad (1)$$

where, $h(t)$ is the hazard rate, t indexes analysis time, and X_K is a vector of covariates. While it is possible for a baseline hazard to be estimated, the regression coefficients on the covariates, denoted by B_k, are the primary focus of the following analysis.[13]

As a starting point for this study, it is useful to first examine the relationship between war and female suffrage expansion without any controls. This is reported in column 1 of Table 4, which presents results from a regression of the form in equation (1) with an indicator variable taking the value of 1 for country-years in which the nation was involved in an international war during the previous year. Naively interpreting the association between war and subsequent suffrage as causal, the coefficient of 3.088 would imply that countries involved in an international war are over three times more likely to adopt female suffrage during the year immediately following the international conflict (a 208.8% increase in the baseline hazard rate of female suffrage adoption). Columns 2 and 3 include region and decadal fixed effects respectively. In both cases, war still dramatically raises the hazard of female suffrage adoption, albeit to a slightly smaller degree.

A principal concern is that omitted variables may be driving the observed association. For instance, richer countries, by virtue of their greater resources, may be more likely to both have fought wars and to have extended suffrage. Alternatively, Braun and Kvansnicka (2011) suggest that US states with larger manufacturing bases initially resisted female suffrage, on the grounds that women were thought to be more in favor of labor laws and unions. Thus, another possible determinant of the decision to enfranchise women is the size of the manufacturing sector. In order to capture these effects, I include as controls the log of population density and the log of gross

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[13] For in depth discussion of the Cox proportional hazard model see (Cox, 1972) and for hazard models in general, see Cleves *et al.* (2010).

domestic product per capita. GDP provides a direct measure of income but has limited coverage over time in the analysis dataset. Historical population density data may provide only a rough approximation to income levels, but has the advantage of better coverage (and possibly better reliability) than historical GDP data. Because both of these measures are likely related to the share of women in the workforce, the share of the workforce involved in manufacturing, and the share of the population in cities (which tended to house suffrage movements), there are numerous reasons to think they might be related to the pattern of suffrage expansion.

These controls are added in to the regression separately in columns 4 and 5. The estimated magnitude of the coefficient on international conflict decreases, but remains sizeable and highly significant. Nonetheless, it should be noted that the inclusion of these control variables alters the sample in several ways which may affect the results. First, because data coverage is better for the later portions of the century this disproportionately reduces the sample size for earlier years, effectively overweighting later suffrage expansions and wars. Second, because these sources are generally more accurate and complete for richer countries, their addition may reduce the influence of smaller, poorer and post-colonial nations. This effect is more pronounced for the inclusion of GDP than for that of population density, which has broader coverage in the sample.

The observed decrease in magnitude on the conflict coefficient once GDP and population density are included could be due to the importance of the added covariates or to the change in sample. In order to examine the role of sample selection, I rerun the results in column 1 without the controls but restrict the sample to match that of columns 4 and 5. This yields coefficients of 2.474 (0.670) and 2.658 (0.696) respectively, suggesting that in both cases a significant share of the reduction in magnitude can be attributed solely to the change in sample.[14] For this reason, I present the results both with and without these controls in subsequent analysis, although given that these covariates are considered important determinants of female suffrage, I will principally focus on the results with these variables included.

Another frequently cited factor influencing gender rights is the degree of religiosity in society. A number of authors have argued that areas with a larger share of Catholic population had more rigid gender roles and were hence less likely to grant female suffrage at an early date (Przeworski, 2008; Bertocci, 2011; Braun and Kvasnika, 2011). This argument appears to hold in this sample as well - column 6 of Table 4 suggests that higher levels of religious affiliation are associated with a lower likelihood of female suffrage expansion. The inclusion of controls for the percentage of

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[14] Both coefficients are significant at the 99% level. Regressions not presented but available from author upon request.

the population within several broad religion categories has little impact on the robustness of the relationship between external war and female suffrage, other than a decrease in the size of the association.

It is possible that the type of government existing in the nation state is a key omitted variable. For instance, countries which are more autocratic may be simultaneously more likely to engage in warfare and less likely to grant suffrage. In order to control for this possibility, I include the Polity II score in column 7 of Table 4. The Polity data exists for a large portion of the sample, so the addition does not dramatically change sample size (although again coverage in this instance is less likely for small newly independent post-colonial states). Results suggest that more democratic nations are only slightly more likely to grant suffrage; a one point improvement in the polity score is associated with a 2.8% increase in the hazard of female suffrage adoption.

Columns 8 and 9 include a combination of the aforementioned controls; in column 8 those that do not affect the sample size (region and decade fixed effects and religion controls) and in column 9, all of the aforementioned covariates together. In both of these columns, inter-state warfare remains strongly associated with suffrage adoption. The estimates imply that in the aftermath of war, nation states are 126% to 163% more likely to grant suffrage during the following year. Interestingly, once the full set of controls is included, the economic and religion controls remain important determinants of suffrage adoption, while the control for the level of democracy, the Polity score, appears to have little bearing on franchise extension.

It is entirely plausible that conflict could affect the likelihood of suffrage expansion for a longer period of time than the first year after a war occurred. In order to examine this possibility, I estimate the hazard of suffrage adoption for additional subsequent years in Table 6. Columns 1 through 4 present this exercise with varying degrees of the controls in the primary analysis. In all cases, the hazard rate of suffrage adoption is significantly higher during the first five years post conflict, although when all controls are included in column 4, not all of the estimates are significant at traditional levels of significance. A decade after war, the association between prior conflict and female suffrage expansion is no longer significant, although the hazard estimates are still elevated. These results suggest that the findings of Table 5 and the subsequent analysis which focus on the immediate post conflict year should be interpreted as lower bounds on the total impact of conflict on suffrage expansion.

B. Robustness

Given the many concerns already mentioned relating to sample selection, it is important to explore the robustness of these results. Table 5 displays the results of regressions in Table 4, columns 8 and 9 but limiting the sample in various ways.[15] Results from Table 4, column 9 are reproduced in the first column of Panel A for ease of comparison.

One concern is that the relationship between external conflict and franchise may look very different for once-colonized nations, where suffrage extension often occurred through external influence (i.e. by colonial decree). There exist in the data a number of colonized nations where the colonial power extended female suffrage prior to the nation gaining independence, for example following the French 1956 Overseas Reform Act (also known as *Loi-Cadre*), which granted a degree of political autonomy to French colonies and expanded suffrage rights for women in Burkina Faso, Benin, Comoros, Mauritius, Mali, and Somalia. Column 2 of Table 5 excludes any nation granting suffrage before attaining independence and includes all controls which do not otherwise reduce the baseline sample (region, religion, and decade). Column 3 repeats this exercise but includes the full set of controls. In both instances, the exclusion of these states from the sample does not alter the statistical significance of the relationship between suffrage and war, and actually increases the estimated magnitude of the association.

Similarly, many newly independent nations (for example, those created through war or with borders redrawn at the end of colonial rule) wrote new constitutions and granted universal suffrage within a year of gaining sovereignty. Columns 4 and 5 of Table 5 exclude these nations in addition to the pre-independence suffrage granting nations. Including only those controls which do not reduce sample size (column 4) maintains significance and slightly increases the magnitude, while including the full set of controls reduces the sample size enough that the observed relationship is no longer significant (column 5). Nonetheless, it is worth mentioning that although the latter coefficient is not significant at standard confidence levels, the p-value for this coefficient is .128, implying that this variable is significant at an 87.2% confidence level. Furthermore, the magnitude is similar to that of the original estimate in column 1.

Another sample selection issue relates to the definition of statehood. So far, the analysis has been restricted to fully autonomous nation states. This excludes semi-autonomous regions such as Grenada, Hong Kong, Iceland, and Puerto Rico, despite the fact that some of these territories granted female suffrage of their own volition and have been involved in international wars. Column

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[15] For a full list of the samples in columns 3, 5, and 6, see Appendix Table 1.

6 presents the results including this sample of quasi-country entities. By their nature, these regions lack reasonable coverage in both the Polity and the Maddison datasets, so these results are presented using the smaller subset of controls only. The estimated relationship between external conflict and suffrage using this broader sample remains large and significant.

As Figure 1 showed, there were a large number of female suffrage expansions following each of the World Wars. One possibility is that the relationship observed in regression analysis could be driven solely by these large waves of democratization. Columns 8 and 9 exclude nations involved in either WWI or WWII respectively who had not previously granted suffrage. Reassuringly, the results remain significant and of similar magnitude to the results employing the main analysis sample.

A final concern is that some regions of the world (for example, Europe with its many wars, or Africa with its colonial history) could be driving the observed relationship. Panel B of Table 5 addresses this concern by excluding each major regional group in turn. In every case except one, the observed association between war and suffrage is robust to this exercise, with the exception being the exclusion of Europe. This is not entirely surprising. Europe is home to both the largest number of countries in the sample (24%), and to the largest number of conflicts, both in terms of involvement in individual wars and in terms of state-years at war.

IV. Underlying Causal Mechanisms

This section divides theories connecting war and franchise expansion into two categories. The first set of theories focus on war's impact on the *cost* of enfranchising female voters. This includes an examination of war's impact on the relative size of the female population and on the level of women's involvement in industry. The second set of theories examines how conflict may have altered the *benefit* to the existing elite of expanding suffrage. This could have occurred through changes in popular opinion or politician's attitudes, through potential support garnered by political parties after backing suffrage movements, or through the desire to improve a nations international reputation.

A. Sex Ratios and Female Labor Force Participation

Economic studies often model the expansion of rights across groups within society using a standard cost-benefit framework (see for instance, Doepke and Tertilt, 2009). Braun and Kvasnicka (2011) show that skewed sex ratios in male-dominated US settler states were a principal determinant

of state level decisions regarding expansion of female suffrage, with most of the western states granting female suffrage decades earlier than eastern states.[16] The authors note that this pattern has "bewildered historians" because it contrasted with the geographic concentration of the women's suffrage movement in the east, a region which was traditionally more progressive and which housed both the National Women's Suffrage Association (NWSA) in New York and the American Woman Suffrage Association (AWSA) in Boston (Braun and Kvasnicka, 2011, p.6). They attribute this west to east pattern to the relative cost faced by the existing electorate of male voters (the dilution of their votes) being smaller in the predominantly male western states and to a desire among these frontier states to attract female settlers.[17]

This line of reasoning, in which policymakers focus on the cost of enfranchisement, can be traced to anecdotes from early politicians. Pugh (1977, p. 364) notes that this was a principle concern behind the imposition of an age restriction on a 1918 female suffrage bill in the United Kingdom, with members in Britain's House of Commons openly tallying the number of women who would be enfranchised and electing to impose an age limit of 30 years in order to allow for only a "safe minority" of women voters and to "avoid the possibility of women voters rivalling (*sic*) men in numbers." Influential ex-Prime Minister Herbert Asquith noted that age qualifications were "prompted partly by a desire to prevent a preponderance of female as compared with male voters, and partly by a feeling that a discrimination by way of age was fairer than the setting up of any special class or business qualification" (HMSO, 1917).[18]

Intuition regarding the decision to enfranchise women can also be found in the writings and speeches of contemporaneous policy makers and agitators. Woodrow Wilson, who initially openly opposed extending franchise, changed views during his presidency and began actively campaigning for the extension of female suffrage in the US through the passage of the 19th Amendment. In his address to the Senate on September 30th, 1918, Wilson argued that women deserved to vote on the grounds that female involvement during WWI merited reward, noting "we have made partners of the women in this war; shall we admit them only to a partnership of suffering and sacrifice and toil and not to a partnership of privilege and right? This war could not have been fought, either by the

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[16] Indeed, a number of eastern states only granted suffrage when required to do so by the 19th Amendment to the US Constitution in 1920.

[17] Similar to Doepke and Tertilt (2009), granting female suffrage could be represented as a cost to the male electorate. The size of this cost would be lower for states such as Wyoming, which had sex ratios as high as 5.5 males per female at that time.

[18] Pugh (1977, p. 370) notes that these feelings were pacified when a member of the central office commented that "granting of the vote to the wives of duly qualified male electors would as a rule increase the majority of the opinions of the male voters."

other nations engaged or by America, if it had not been for the services of the women."

Wilson's argument lends credence to a popular belief among scholars of suffrage, that through increased involvement with the economy and the war effort, the expansion of suffrage occurred because, in the eyes of contemporaries, women had *earned* the right to vote. Przeworski (2008, p. 303) argues that throughout history involvement in war was a common justification for extending the vote to men, noting "justification of suffrage in terms of conscription was indeed a frequent argument in the nineteenth century: a slogan in Sweden was 'one man, one vote, one gun'." Similarly, he notes that the French revolution extended the right to vote to "every Frenchman *qui aura fait la guerre de la libertée* [who would have fought in the war] (*sic*)."

Historically, wars have exerted an influence on the social conventions regarding gender roles, by increasing opportunities for women in the workforce and by skewing the ratio of males to females in society. To the extent that wars reduce the number of men relative to women, we might expect this to decrease the incentive for men to extend suffrage to women (because the cost would be higher as male votes are more diluted by this change). Similarly, to the extent that the reallocation of males into the armed forces creates opportunities for women in the workplace we might expect wars with more casualties to provide even more of such opportunities. Empirical studies of changes in the sex ratio affirm a relationship between the sex ratio and gender specific labor market outcomes (Angrist, 2002; Acemoglu *et al.* 2004).[19]

It is possible to arrive at a rough approximation of the sex ratio under a set of reasonable assumptions because reliable aggregate population data exists and can be coupled with relatively good information on total war casualties. The majority of wars during the 20th century involved militaries that were predominantly composed of men and thus non-civilian battle-related casualties were primarily, though by no means exclusively, of men. These deaths can be used to calculate the extent to which historical sex ratios have been skewed by war. Unfortunately, theories connecting conflict severity and the sex ratio or those tying conflict severity to the level of female labor force participation (FLFP) are observationally equivalent when only examining the level of deaths.

To study the link between changes in the cost of franchise and the likelihood of extension, I first include a measure of war deaths as a rough approximation of the extent to which war induced changes in the sex ratio and in the level of FLFP may be driving the observed association. In particular, I employ as an estimating equation, a Cox proportional hazard regression, as in (1), with

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[19] Angrist (2002) examines skewed sex ratios as a result of immigration. Acemoglu *et al.* (2004) examine the effect of war on women's wages and labor market opportunities.

new principal covariates of interest intended to capture the effect of war on the relative numbers of men and women in society, the cumulative number war deaths over the past 20 and 30 years, respectively. Results from this exercise are presented in the first two columns of Table 7, which vary only in terms of which controls are included. Each cell represents a separate regression. The first row assumes war deaths skew the population for 20 years, and the second assumes the effect lasts for 30 years. In both situations, the estimated relationship is positive and significant. Each additional million war deaths is associated with over a doubling in the hazard rate. It should be noted that the average number of conflict deaths during a combat year is 128,000 per participant country, implying that the effect of this channel for a typical war is more modest, while the effect for history's largest combats should have been quite sizeable.

As an alternative proxy for the sex ratio, I include the fraction of the male population killed in war over the previous 20 or 30 years, respectively, in columns 3 and 4. Under the 20 year assumption, a one percentage point increase in the fraction of the male population killed in war is associated with an increase in the hazard of female suffrage of 22.1%. An increase of similar magnitude is found once the full set of controls is included as well as under the 30 year assumption. The advantage of these two measures is that war deaths are measured with little error and the results are very clear to interpret. In both cases, larger numbers of male war deaths are associated with increases in the hazard of female suffrage adoption.

An ideal way to sort between these two mechanisms would be to directly measure the sex ratio and the degree of FLFP. However, the majority of female suffrage expansions at the national level occur in the first half of the 20th century, and these events largely predate reliable cross country estimates for the sex ratio and FLFP.[20] Nonetheless, where country specific estimates do exist, they suggest that war had dramatic effects. For instance, Abramitzky *et al.* (2011) finds that in France during WWI, the aggregate ratio of men aged 18-59 to women aged 15-49 changed from 108.7 males per 100 females in 1911 to 99.2 males per 100 females in 1921. The auhtors show that in some regions this sex ratio dipped as low as 86.4 males per 100 females. Similar estimates exist for Bavarian Germany, post WWII, where Bethmann and Kvasnicka (2011) estimate that sex ratios among the cohort of 20-40 year olds, declined from 95.5 males per 100 females to 61.5, and for the USSR where Brainerd (2008) estimates the sex ratio among 20-29 year olds changed from 91 males per 100 females in 1941 to 65 in 1946. Although some degree of sex selection likely occurred in

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[20] With the notable exception of the US and some European nations for which some scattered data exists and for which some case studies have been done, e.g. Goldin (1991).

many societies during the 20th century either directly or indirectly (for example through an unequal allocation of household resources), it is likely that that variation across countries in this form of selection would be significantly smaller in comparison to gender-induced changes in the sex ratio resulting from male war deaths given the estimates presented above. [21]

The advantage of estimating a ratio, rather than collecting a set piecemeal statistics from existing studies, is that this method provides a consistently calculated measure which is available across many countries and without breaks over time. In order to calculate a sex ratio several additional assumptions are necessary. First, I assume a country with population of size N is evenly divided between males and females.[22] Next, I assume all war casualties are male, although this share likely varied, principally as a result of the level of civilian casualties. Furthermore, I assume that these casualties were generally younger men whose absence from the population distribution would skew the sex ratio for a reasonably large period such as 20-30 years, denoted by the parameter τ. We can then back out a sex ratio (F/M) in country i at time t using the following formula: [23]

$$SR(\frac{F}{M})_{i,t} = \left[\frac{0.5N_{i,t}+0.5\sum_{t-\tau}^{t} wardeaths}{0.5N_{i,t}-0.5\sum_{t-\tau}^{t} wardeaths}\right] (2)$$

This is measured as the inverse of the traditional sex ratio, that is, in terms of females relative to males, so that the coefficient interpretation is consistent with those from the previous two exercises.[24] The values produced are reasonable in historical context. For instance, Abramitzky *et al.* (2011) estimate approximately an 8.7% change in favor of females in the sex ratio from 1911 to 1921 using French Census data. The exercise undertaken here estimates a 7.3% change over the same period. The estimates are likely closer than suggested by this comparison as equation 2 estimates the sex ratio for the entire population while the Abramitzky *et al.* (2011) estimate only covers 18-59 year olds, and the sex ratio for children and elderly were likely the least impacted by war.

I then estimate the hazard model including this estimate of the sex ratio assuming (i) $\tau = 20$ and (ii) $\tau = 30$. Columns 5 and 6 present these results. Assuming deaths skew the sex ratio for 30

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[21] It is entirely plausible that through neglect of females, sex ratios could have been skewed for many countries during much of the 20th century. It is likely however, that societies which were more unfavorable to women should also have been less likely to extend suffrage for similar reasons. In this case, the current exercise would actually overstate the true number of women in places unfavorable to them, so that the bias should be towards not finding a relationship between war and the cost of franchise (i.e. it should attenuate any effect we do observe).

[22] The current global sex ratio of 101 males per 100 females is often taken as a biological baseline. I assume an even split for simplicity.

[23] A set of regressions (1) assuming skewed baseline sex ratios, (2) allowing for a range of values for the share of casualties which are male, and (3) allowing the fraction τ to vary, are omitted for brevity, but the basic findings are largely insensitive to reasonable values for these choices.

[24] Summary statistics on this estimate of the sex ratio are available in Table 3.

years, the estimate from column 5 suggests that a one percentage point swing in favor of females in the population is associated with a 21% increase in the baseline hazard. These estimates suggest skewed sex ratios are associated with rather large changes in the likelihood of female suffrage adoption, as a one standard deviation increase in the sex ratio would then net a roughly 30.6% increase in the hazard rate.

Finally, I construct a second measure of the sex ratio as in equation 2, but assume that deaths are evenly distributed across combat age cohorts. In this respect, as society ages, war deaths should be thought of as slowly being replaced by younger, balanced cohorts, such that the share of war deaths is reduced over time. I thus calculate the sex ratio allowing for continual replacement (assuming a 5% depreciation rate for cumulative historical war deaths for the 20 year assumption and a 3% depreciation rate for the 30 year regression). The results are presented in columns 7 and 8 of Table 7 and are larger in magnitude and consistent with those from the previous two columns. This suggests that the impact of war deaths on female suffrage expansion is likely more important during the immediate aftermath of war than that during the later portions of the full 2 to 3 decades after conflict ends.

All of the exercises presented in Table 7 suggest that higher levels of inter-state war casualties are associated with a greater probability of female suffrage expansion. These results are inconsistent with Braun and Kvasnika (2011), who examine the expansion of female suffrage across US states. The estimated coefficients on the sex ratio in the present analysis imply that having relatively fewer men in society actually *increases* the likelihood of suffrage expansion, which is inconsistent with existing stories in which the cost of suffrage expansion is dependent upon the size of the group to be enfranchised, but consistent with one where the relative bargaining power of a group may depend upon group size.

The evidence suggests that the determinants of the success of suffrage movements at the sub-national level (such as for states or provinces) may be quite different than those which operate at the national level. In this setting, a skewed sex ratio occurs only when an international war has been fought and a plausible way to reconcile these findings with those in the literature is that this cost still matters, but that the estimated change in the benefit of enfranchisement during the period surrounding warfare was larger in magnitude than the increased cost implied by the skewed sex ratio. I now turn to an exploration of changes in the benefit of franchise expansion.

While conflict increased the size of the female population relative to that of male, and may have increased female participation in the workforce, the findings of the previous section were inconsistent with a story in which these demographic and labor force changes raised the cost of enfranchisement. Instead, the results suggest that it was the most severe conflicts which galvanized support for women's rights in society. An alternative explanation is needed. A number of potential stories are consistent with these results, many of which center on the possibility that war raised the benefit to the existing elite of granting suffrage to women. For instance, female involvement with industry and support for the war effort could have fostered a spirit of national unity, influenced public opinion, or swayed influential politicians to support franchise. Broadly, these effects can be thought of representing a changing domestic political zeitgeist.

Historical records suggest a rapid evolution of sentiment. Although a few notable suffragettes were vocal pacifists, the majority of women's suffrage movements became ardently patriotic during major conflicts, doing so with the shrewd calculation that their backing of the war effort would yield dividends in the form of subsequent political support (Pugh, 1977; Byles, 1985).[25] In Britain, at the onset of World War I, key suffrage institutions underwent a metamorphosis. In 1914, the largest organization, the National Union of Women's Suffrage Societies (NUWSS) temporarily restructured into the Women's Active Service Movement, while the Women's Social and Political Union (WSPU), a group previously known for overt civil disobedience and militant demonstrations, suspended most operations. In addition to a reduction in protest, many groups directly supported the military by organizing recruitment drives, supporting political unity, and promoting involvement in Voluntary Aid Detachments (organizations which provided nurses and orderlies to Her Majesty's Armed Forces).[26] This change in tone was also reflected in the retooling of affiliated media outlets. For instance, in October 1915, activist newspaper *The Suffragette* transformed into a new circular, *The Brittania,* which advocated "military conscription, internment of aliens, and a war of attrition against Germany" (Pugh, 1977, p. 380).

For its part, the British government echoed the nationalist sentiment, releasing a number of imprisoned suffragist dissidents. Among British politicians a marked shift in view could be seen after

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[25] Byles (1985, p.474), discussing the UK, notes that "when in 1916, it became clear that some kind of franchise bill was inevitable, suffrage societies all around the country mobilized the expressions of public support that were rising spontaneously on all sides so that Parliament should be well aware of their public support."

[26] McCammon *et al.* (2001, p.55) cite similar changes in the US during WWI, as suffrage movements "raised funds for overseas hospitals, and helped organize student nurses."

the First World War as well, with a number of prominent lawmakers swinging in support of female suffrage at the conclusion of hostilities. The influential Lord Balfour, who had previously served as Prime Minister and would later serve as Foreign Secretary, noted "I think what really happened was that the War gave a very good excuse to a large number of excellent people, who had up to that time been on the wrong side, to change their minds" (quoted in Byles, 1985, p.475).

These changes in attitude manifested themselves in tangible advances for the cause of female suffrage in the political arena, both in terms of legislative initiatives and in terms of voting outcomes. In Britain, for instance, despite a series of failed votes on the subject in 1911 and 1913 on the subject of suffrage expansion, the age-restricted female suffrage bill put forward in 1918 passed with an overwhelming 7 to 1 ratio in favor (Pugh, 1977). Regardless of whether they arise in the minds of the public or among politicians in office, changes in nationalist sentiment and in attitudes concerning the definition and role of citizenry provide a plausible alternative explanation for the association between war and suffrage expansion.

In order to test this theory empirically, I simultaneously include indicators both for having fought in an external war and for having fought in a civil war in the previous year. The rationale behind this test is as follows. Both forms of war share some commonalities, such as mobilization of the armed forces and loss of life. Crucially however, civil and international war also differ in meaningful ways. For instance, whereas inter-state war tends to promote feelings of national unity or patriotism, civil conflicts instead polarize groups within society. Thus, if the theory that international war induced political sentiment changes led to suffrage expansion is correct, then when included jointly with civil war in the regression, international wars should be expected to have a larger impact than civil war on female suffrage.

Summary statistics for civil conflicts are presented in Table 8. The COW Intra-State Warfare database records 142 distinct civil conflicts over the 20th century. Conflicts are classified in a similar manner to international wars, with inclusion requiring at least 1000 battle related deaths. Because countries drop out of the sample after suffrage is granted, only 51 of these conflicts are included in my analysis. Unlike international wars, Europe does not comprise the lion's share of civil warfare over the period, with pre-suffrage civil wars distributed relatively evenly across regions.[27]

A potential concern would arise if civil conflicts are shorter than international wars, because

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[27] Probabilistically, one would expect to observe a similar pattern to that present in Table 8, as more civil conflicts are likely to occur in regions with more total states such as Europe, SSA, and Asia. There are still a sizeable number of civil wars in Europe, which is reassuring for the exercise, given the influential nature of the European continent in the previous findings.

they may provide a shorter window for conflict associated societal changes to occur. Fortunately, civil wars during this period appear to have been slightly more protracted than international conflicts on average, with the typical conflict lasting just over two years. In this regard, duration of conflict would likely bias the results in favor of finding an effect for civil war.

Regressions of the form in equation 1, this time including both international and civil war as controls are presented in the first three columns of Panel A of Table 9. The results are striking. In all cases, international conflict remains statistically significant and meaningful in magnitude, and in no cases do instances of civil war significantly increase the hazard of suffrage adoption. This contrast suggests that something specific to external conflict, not simply to war itself, is driving the increased likelihood of suffrage extensions. These results are consistent with the hypothesis that changes in the existing political climate are important for the association between war and suffrage. Including civil war alone yields very similar results, with instances of civil war never being significantly related to female suffrage.[28]

A caveat is in order. The finding that institutional development is more robustly associated with external war as opposed to civil conflicts should not be interpreted as definitive evidence that only international wars matter for institutional change. An alternative and entirely plausible explanation for the results of Panel A is that all types of war may increase the likelihood of suffrage expansion, but that some other characteristic specific to civil wars simply attenuates the effect. For instance, even if norms and attitudes have changed in both settings, civil conflict may degrade political capital, limiting the state's ability to enact major reform in the post-war period.

Existing research supports this claim. For example, Blattman and Miguel (2010) argue that institutional developments occurring with large international conflicts are less likely following a civil war because governments themselves may lose legitimacy and previously warring factions may sustain lasting divisions in the political and social arena. Similarly, Besley and Torsten (2008) build a model of state capacity, in which they argue that theoretically the two types of war should have different impacts on a state's ability to levy taxes. They show empirically that nations involved in external war are able to extract significantly higher levels of taxes than those involved in civil conflict, suggesting a reduction in state capacity after civil wars.

Other tests can also help discern this effect. Columns 4-6 of Table 9 include the level of civil war deaths in lieu of the civil war indicator term. When restricted not to war events, but to the number of battle deaths, we again observe a discrepancy across war type. Unlike the results

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[28] Results not shown, but available from the author upon request.

presented in Table 7 for international conflicts, more severe civil wars (as measured by casualties) are not robustly associated with higher levels of suffrage expansion once the full set of controls is included. The fact that only loss of life during international warfare is robustly significant is consistent with a story in which national sentiment is an important determinant of institutional change and inconsistent with one in which war deaths altered the sex ratio and relative cost and were the principal determinant.

C. The International Zeitgeist - Demonstration Effects and Pressure

Another possibility is that wars force nations into engaging with the international community and elevate the importance of interactions with one another. To the extent that this involvement facilitates international spillovers, this may provide another channel which could generate some of the observed pattern of suffrage expansion. There are a number of reasons to think that many aspects of democratization are contagious. For example, such a relationship could occur either through the international cooperation of suffrage movements or through demonstration effects, a sort of international zeitgeist, in which adopting nations set a precedent which debating nations can observe. Two factors lend credence to this hypothesis.

First, contemporary writings of influential suffragettes and politicians suggest an important role both for the international nature of suffrage movements and for the argument that successful female suffrage in other nations provided to domestic endeavors. Returning to Wilson's (1918) address to Congress concerning the 19th amendment suggests that the prospect of the US as a standard bearer for democracy was on politician's minds:

> "We shall not only be distrusted but shall deserve to be distrusted if we do not enfranchise them with the fullest possible enfranchisement, as it is now certain that the other great free nations will enfranchise them. We cannot isolate our thought or our action in such a matter from the thought of the rest of the world. We must either conform or deliberately reject what they propose and resign the leadership of liberal minds to others."

Wilson appeals to contemporary arguments in favor of enfranchising women, concerning international pressure to extend suffrage and the opportunity female enfranchisement afforded the US to set a precedent in the global community. Indeed Wilson noted of other nations that "they are looking to the great, powerful Democracy of the West to lead them to the new day for which they have so long waited; and they think in their simplicity, that democracy means that women shall play

their part in affairs alongside men...." In an age during which international conflicts were often motivated by clear ideological differences over the future course of governmental institutions, granting women the right to vote could then be seen as a way to distance democratic societies from those of their ideological opponents in the eyes of the international community at pivotal moments in history.

Second, the temporal pattern of suffrage expansions, as depicted in Figure 1, suggests a rising hazard of suffrage adoption over time. While this could be due to correlation across nations in other factors such as income, structural change more favorable to services, or an increasing rate of conflict over time, an equally plausible explanation for this pattern is that of growing international pressure coupled with a demonstration effect. If anything however, conflicts appear to abate over time, which would limit the extent to which this might drive the association between war and suffrage.

Failing to account for spillovers may be problematic for interpretation of the previous exercises if the magnitude of the impact of war across countries is heterogeneous. Consider the case of a large war where the participants are geographically concentrated. Suppose that the conflict only increases the likelihood of suffrage in one participant nation, perhaps because some omitted factor specific to the country makes them particularly susceptible to the conflict-suffrage association. For instance, one participating nation may have a different government structure, which can more easily enact constitutional reform. In this situation, if geographic spillovers exist and are sizeable, the previous estimates may overstate the true connection between war and suffrage, because the adoption by one participant nation after the conflict may drive numerous neighboring nations to adopt as well, exaggerating the initial effect.

There are several ways to get at these effects using the available data. Consider an augmented version of equation (1) where the vector of covariates X_K is expanded to include a subset of variables intended to capture the average effect of peer pressure from relevant neighbor nations. In particular, the regression is expanded to include (i) the % of bordering nations having adopted female suffrage, (ii) the % of the world nations having adopted suffrage and (iii) the % of the world population having adopted suffrage.

The first covariate examines the possibility that bordering nations have a disproportionately larger impact on domestic politics and attitudes, and indeed, columns 1 through 3 of Table 10 suggest that when a neighboring nation grants female suffrage, the likelihood of domestic suffrage adoption increases dramatically. The estimate from column 1 suggests that for a nation with four

contiguous neighbors, expansion of suffrage by an additional neighbor would represent a 25% point increase in the percent of bordering nations with suffrage and a 45% (1.8%*25) increase in the hazard rate of suffrage adoption domestically. This association disappears with the introduction of additional controls. In all three specifications, external war remains significant.

It is also possible that this effect comes from the international community at large. To capture this, columns 4-6 examine the proportional hazard when more nations in the world grant female suffrage. The effect is not robust to the inclusion of the full set of controls, but the pattern is generally consistent, with increased domestic likelihood of suffrage expansion occurring when a larger share of the world's countries have already adopted suffrage.

Large and powerful countries may be more influential in international affairs than smaller neighbors. For this reason, I also run regressions including the percent of the total world population with female suffrage.[29] Expanded suffrage among the international community, as measured by the share of the world population with suffrage, is associated with a rise in the hazard of suffrage adoption as can be seen in columns 7 through 9. This percentage appears to modestly increase the hazard of suffrage adoption, but again becomes insignificantly different from no effect once decadal controls are included in column 9.

The loss of significance in columns 3, 6, and 9 is in some ways reassuring. If pressure to grant female suffrage from the international community grows over time, then decadal fixed effects should capture some of the same effect as these controls. This suggests that the inclusion of decadal fixed effects in the previous analysis can be seen as controlling for growing international pressure over time.

VI. Conclusion

This research makes several contributions. First, this paper provides empirical evidence that involvement by nation states in international conflict is robustly associated with a higher likelihood of expanding voting rights to women in the post-conflict period. In this regard, this work builds on a growing body of research attempting to empirically discern the determinants of a critical component of democratization, franchise. In addition, the evidence provided here reaffirms the

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[29] Because population data is incomplete for a substantial subset of nations, a bit of accounting sleight of hand has to be done in order to calculate this covariate. I assume that countries have the same population share in the period 1900-1949 as they have in the year 1950, the first year in which there is ubiquitous coverage in the Maddison dataset. Although by no means perfect, this should still give a reasonable estimate of the relative distribution of nation size in the first half of the century.

sizeable role for factors such as religiosity and the level of economic development as important determinants of female suffrage suggested in the literature.

Second, the results shed light on the underlying mechanism driving this association. Participation in an external war likely increased the benefit of enfranchisement from the perspective of the existing elite. The association is strongest for large international conflicts and these findings are consistent with anecdotal evidence suggesting a role for a changing zeitgeist with popular sentiment swinging in favor of women's rights as a reward for involvement in the war effort. The analysis demonstrated that the increased hazard persisted for a sizeable period of time following war, indicating that war is associated with lasting change in the underlying determinants of suffrage. The evidence also appears consistent with a powerful demonstration effect as nations experience a growing level of international pressure over the 20th century.

Furthermore, an examination of changes in the sex ratio and in female labor force participation induced by war suggested that the disproportionate loss of males in combat increased the likelihood of female suffrage expansion. This contrasts with existing research suggesting such a change would increase the relative cost of suffrage expansion and suggests that the underlying determinants of suffrage expansion at the national and the municipal level differ, implying that distinct theory may be needed to explain institutional change in each setting.

Finally, this research contributes to an existing literature examining the connection between war and institutional change. In the context of civil wars, existing research has documented the destruction of social capital and political fractionalization. This analysis suggests that inter-state conflicts have forged national identities, fostered patriotism, and transplanted men from domestic shores to foreign battlefields while drafting women from the home to the workplace in their stead. For all the tragedy history's great wars have exerted on the human race, these events can be seen as having a silver lining, transforming social institutions for the better. In this regard, inter-state wars have exerted positive externalities on society by accelerating democratization and improving gender equality.

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Figure 1: Conflict and Suffrage Expansion

Panel A: Nations Granting Female Suffrage
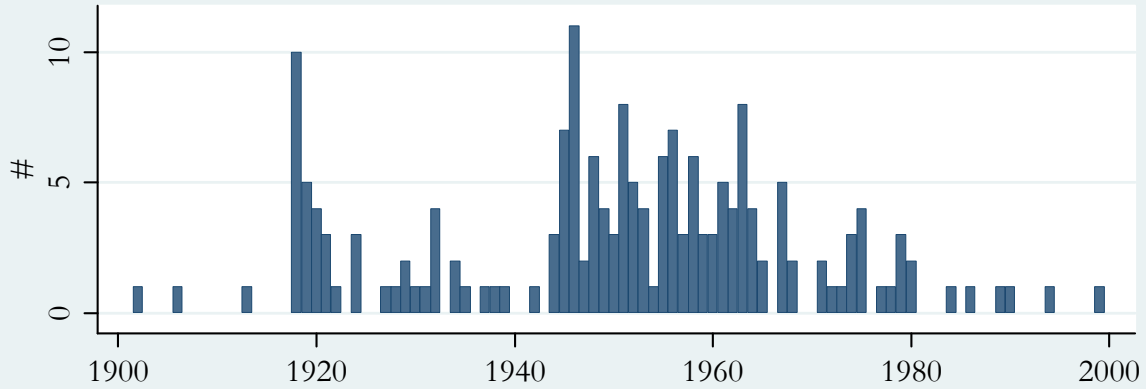
Panel B: Nations Engaged in External Wars
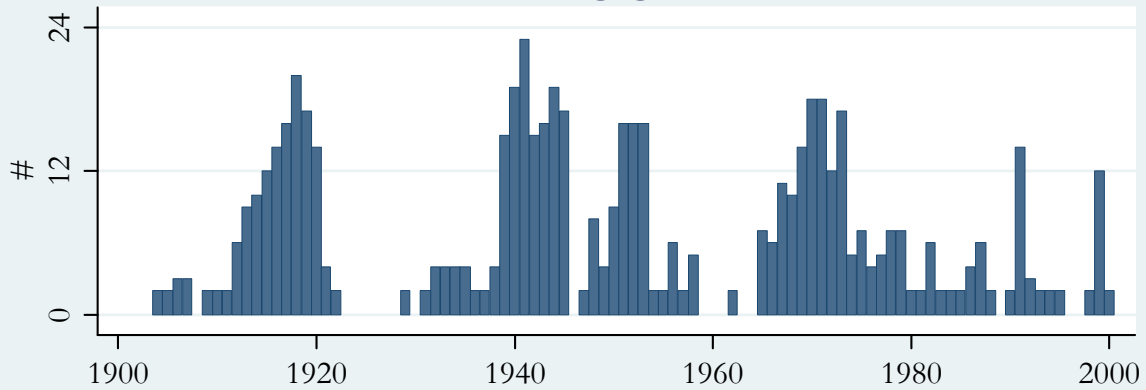
Panel C: % of Nations Lacking Female Suffrage
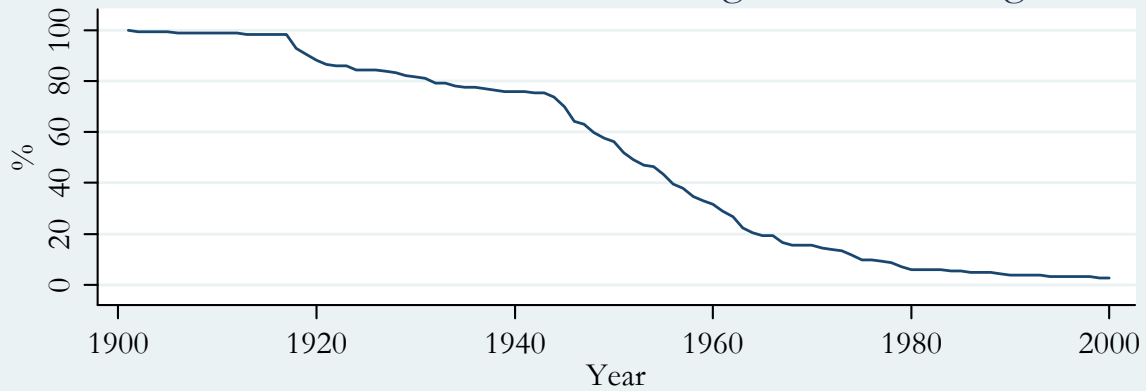
Table 1: Female Suffrage during the 20th Century

Full Sample	Nations	Average Date	Std. Dev	Earliest	Latest
Suffrage extended during 19th Century*	1	1893	-	-	-
Suffrage extended during 20th Century	150	1948	19	1902	1999
Suffrage not yet extended as of 2000	4	-	-	-	-
By Region, 20th Century					
Asia	24	1942	13	1918	1972
Australia and Oceania	4	1951	33	1902	1974
Central America and the Caribbean	11	1946	6	1934	1955
Europe	34	1933	19	1906	1978
Middle East and North Africa	19	1959	17	1921	1999
North America	3	1930	20	1918	1953
South America	11	1947	11	1929	1963
Sub-Saharan Africa	44	1961	11	1945	1994

Notes: Countries included in the data used to produce this table are listed in column (1) of Appendix Table 1. Sources for information on female suffrage are described in the text. *New Zealand is not included in the analysis sample since it adopted suffrage prior to the start of the 20th century.

Table 2: International Conflicts during the 20th Century

Conflict Counts	By Conflict		By State-Year	
	Count	Share	Count	Share
Overall	35	100%	218	100%
By Participant Location				
Asia	10	29%	34	16%
Australia and Oceania	0	0%	0	0%
Central America and the Caribbean	2	6%	6	3%
Europe	17	49%	111	51%
Middle East and North Africa	16	46%	37	17%
North America	2	6%	3	1%
South America	2	6%	11	5%
Sub-Saharan Africa	4	11%	16	7%
Conflict Characteristics	**Mean**	**Std. Dev.**	**Min**	**Max**
States Involved, per conflict	4.69	5.13	2	25
Duration of Conflict (days)	505	703	5	2889
Battle Deaths, per conflict (1000s)	830.41	3102.94	1.00	16566.91

Notes: Data for this table was drawn from the Corrleates of War (COW) database, but includes conflicts fought by countries in the analysis sample only. Of the 64 distinct conflicts defined in COW database during the period 1900-2000, 35 are included in the analysis due to countries dropping out after they grant female suffrage. Conflict-level region counts should be interpreted as the number of these unique wars which involved a participant from a given region - since there are multiple participants involved in a given combat, these values sum to greater than the overall number of wars.

Table 3: Summary Statistics

Variable	Observations	Mean	Standard Deviation	Minimum	Maximum
Panel A: Main Analysis Controls					
Indicator for External War in Previous Year	2,969	0.07	0.25	0.00	1.00
Indicator for External War in Previous 5 Years	2,969	0.15	0.36	0.00	1.00
Log Population Density	2,320	2.90	1.44	-0.71	7.77
Log GDP Per Capita	1,804	7.81	0.79	5.88	10.67
Polity II Score	2,922	-1.81	6.27	-10.00	10.00
Fraction Catholic	2,969	0.42	0.43	0.00	1.00
Fraction Protestant and Other Christian	2,969	0.13	0.24	0.00	0.99
Fraction Jewish (incl. Orthodox)	2,969	0.07	0.20	0.00	0.93
Fraction Muslim	2,969	0.24	0.39	0.00	1.00
Fraction Hindu, Buddist, and Other Eastern	2,969	0.08	0.25	0.00	1.00
Fraction Other	2,969	0.05	0.12	0.00	0.87
Fraction Non-Religious	2,969	0.02	0.06	0.00	0.45
Panel B: Additional Covariates and Constructed Variables					
Number of External War Deaths (millions, 30 year assumption)	2,969	0.05	0.21	0.00	2.15
Fraction of Male Population Killed in War (30 year assumption)	1,359	0.61	1.72	0.00	14.09
Sex Ratio (F/M) using Cumulative Battle Deaths Cohort (30 year assumption)	2,320	100.49	1.46	100.00	115.37
Sex Ratio (F/M) using Cumulative Battle Deaths Cohort (30 year assumption, depreciated)	2,320	100.31	1.02	100.00	114.63
Indicator for Civil War in Previous Year	2,969	0.05	0.21	0.00	1.00
Civil War Deaths in Previous Year (000s)	2,969	0.75	9.00	0.00	250.00
Fraction of Bordering Nations with Female Suffrage in Previous Year	2,872	0.03	0.10	0.00	1.00
Fraction of World Nations with Female Suffrage in Previous Year	2,969	0.35	0.31	0.02	0.97
Fraction of World Population with Female Suffrage in Previous Year	2,969	0.32	0.34	0.00	1.00

Notes: Main analysis sample, 1900-2000. Sources for information on covariates are described in the text. Religion shares are interpolated and may not sum to 1.

Table 4: The Relationship Between External War and Female Suffrage

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
External War in the Previous Year	3.088***	2.582***	2.812***	2.109***	2.516***	2.484***	2.969***	2.625***	2.260**
	(0.727)	(0.727)	(0.666)	(0.608)	(0.656)	(0.746)	(0.721)	(0.704)	(0.840)
Economic and Demographic Controls									
Log Population Density				1.132**					1.260***
				(0.065)					(0.089)
Log GDP Per Capita					0.796**				0.636***
					(0.087)				(0.096)
Religion Controls									
% Catholic						0.024***		0.281	0.033***
						(0.016)		(0.218)	(0.036)
% Protestant and Other Christian						0.054***		0.422	0.065**
						(0.039)		(0.336)	(0.072)
% Jewish (incl. Orthodox)						0.029***		0.318	0.017***
						(0.023)		(0.268)	(0.020)
% Muslim						0.034***		0.394	0.065**
						(0.024)		(0.299)	(0.072)
% Hindu, Buddist, and Other Eastern						0.032***		0.194**	0.016***
						(0.021)		(0.149)	(0.020)
% Other Religion						0.139**		0.433	0.055**
						(0.119)		(0.416)	(0.069)
Political Controls									
Polity Score							1.028**		1.023
							(0.014)		(0.015)
Region Fixed Effects	N	Y	N	N	N	N	N	Y	Y
Decade Fixed Effects	N	N	Y	N	N	N	N	Y	Y
Number of observations	2,969	2,969	2,969	2,320	1,804	2,969	2,861	2,969	1,773
Log-Likelihood	-615.83	-598.32	-543.36	-531.04	-444.40	-600.94	-603.03	-526.69	-372.83

Note: Main analysis sample, 1900-2000. Sources for information on covariates are described in the text. Coefficients should be interpreted as the ratio of the hazards for a unit change in the independent variable. Time variant religious percentages calculated by linear interpolation of the Barro 1900, 1970, and 2000 values. Omitted religion category is 'no religion'. Efron approximation used to handle tied failure events. Robust standard errors in parenthesis. *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

Table 5: The Relationship Between External War and Female Suffrage, Robustness Checks

Panel A	(1) Main Analysis Sample	(2) R1: Excl. Pre-Sovereign Nation Suffrage	(3) R1: Excl. Pre-Sovereign Nation Suffrage	(4) R1 + Excl. Immediate Suffrage States	(5) R1 + Excl. Immediate Suffrage States	(6) Including Quasi-Country Entities	(7) Excluding WWI Combatants	(8) Excluding WWII Combatants
External War in the Previous Year	2.260**	2.718***	2.745**	2.714**	2.318	2.884***	2.313**	2.170*
	(0.840)	(0.977)	(1.365)	(1.075)	(1.280)	(0.795)	(0.901)	(0.868)
Pol., Econ. and Demog. Controls	Y	N	Y	N	Y	N	Y	Y
Religion Controls	Y	Y	Y	Y	Y	Y	Y	Y
Decadal Fixed Effects	Y	Y	Y	Y	Y	Y	Y	Y
Region Fixed Effects	Y	Y	Y	Y	Y	Y	Y	Y
Number of observations	1,773	2,914	1,727	2,894	1,713	4,573	1,727	1,737

Panel B	Excluding Asia	Excluding Australia and Oceania	Excluding C. America and Carribean	Excluding Europe	Excluding Middle East and North Africa	Excluding North America	Excluding South America	Excluding Sub-Saharan Africa
External War in the Previous Year	3.503***	2.249**	2.518**	0.848	2.188**	2.573**	2.115*	2.205*
	(1.611)	(0.834)	(0.989)	(0.453)	(0.826)	(0.966)	(0.846)	(0.983)
Pol., Econ. and Demog. Controls	Y	Y	Y	Y	Y	Y	Y	Y
Religion Controls	Y	Y	Y	Y	Y	Y	Y	Y
Decadal Fixed Effects	Y	Y	Y	Y	Y	Y	Y	Y
Region Fixed Effects	Y	Y	Y	Y	Y	Y	Y	Y
Number of observations	1,690	1,770	1,613	1,174	1,437	1,679	1,409	1,639

Note: Each column contains a different sample, as described in the column header. Sources for information on covariates are described in the text. Coefficients should be interpreted as the ratio of the hazards for a unit change in the independent variable. Time variant religious percentages calculated by linear interpolation of the Barro 1900, 1970, and 2000 values. Efron approximation used to handle tied failure events. Robust standard errors in parenthesis. *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

Table 6: The Lasting Hazard of External War on Female Suffrage Expansion

	(1)	(2)	(3)	(4)
External War in the Previous Year	3.088***	2.812***	2.625***	2.260**
	(0.727)	(0.666)	(0.704)	(0.840)
External War in the Previous 2 Years	2.175***	2.764***	2.530***	1.849*
	(0.516)	(0.637)	(0.631)	(0.685)
External War in the Previous 3 Years	2.064**	2.716***	2.370***	1.648
	(0.639)	(0.732)	(0.730)	(0.639)
External War in the Previous 4 Years	3.363***	3.275***	3.096***	1.619
	(0.807)	(0.794)	(0.865)	(0.567)
External War in the Previous 5 Years	1.825**	2.374***	2.189**	2.105**
	(0.533)	(0.645)	(0.720)	(0.698)
External War in the Previous 10 Years	1.547	1.706	1.394	2.010
	(0.663)	(0.708)	(0.596)	(0.976)
Political, Economic and Demographic Controls	N	N	N	Y
Religion Controls	N	N	Y	Y
Region Fixed Effects	N	N	Y	Y
Decade Fixed Effects	N	Y	Y	Y
Number of observations	2,969	2,969	2,969	1,773

Note: Each cell represents a unique regression. Main analysis sample, 1900-2000. Sources for information on covariates are described in the text. Coefficients should be interpreted as the ratio of the hazards for a unit change in the independent variable. Time variant religious percentages calculated by linear interpolation of the Barro 1900, 1970, and 2000 values. Efron approximation used to handle tied failure events. Robust standard errors in parenthesis. *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

Table 7: Underlying Motivations for Female Suffrage Expansion
Sex Ratio and Female Labor Force Participation

Covariate of Interest:	Cumulative External War Deaths (Millions)		Fraction of Male Population Killed in War		Sex Ratio (F/M)		Sex Ratio (F/M) (with replacement)	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Duration Assumption:	2.734***	2.341**	1.221**	1.196**	1.214**	1.190**	1.374***	1.312***
τ = 20 Years	(0.906)	(0.995)	(0.100)	(0.100)	(0.093)	(0.092)	(0.096)	(0.093)
Duration Assumption:	2.842***	2.473**	1.217***	1.200**	1.210***	1.194**	1.311***	1.266***
τ = 30 Years	(0.863)	(0.916)	(0.085)	(0.089)	(0.079)	(0.082)	(0.090)	(0.092)
Pol., Econ., & Demog. Controls	N	Y	N	Y	N	Y	N	Y
Religion Controls	Y	Y	Y	Y	Y	Y	Y	Y
Region Fixed Effects	Y	Y	Y	Y	Y	Y	Y	Y
Decade Fixed Effects	Y	Y	Y	Y	Y	Y	Y	Y
Number of obs	2,969	1,773	2,320	1,773	2,320	1,773	2,320	1,773

Note: Each cell represents a unique regression. Main analysis sample, 1900-2000. Sources for information on covariates, and description of construction of covariates, are described in the text. Coefficients should be interpreted as the ratio of the hazards for a unit change in the independent variable. Time variant religious percentages calculated by linear interpolation of the Barro 1900, 1970, and 2000 values. Efron approximation used to handle tied failure events. Robust standard errors in parenthesis. *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

Table 8: Civil Conflicts during the 20th Century

Conflict Counts	By Conflict		By State-Year	
	Count	Share	Count	Share
Overall	51	100%	156	100%
By Participant Location				
Asia	12	24%	28	18%
Australia and Oceania	0	0%	0	0%
Central America and the Caribbean	3	6%	3	2%
Europe	12	24%	33	21%
Middle East and North Africa	13	25%	21	13%
North America	5	10%	22	14%
South America	9	18%	25	16%
Sub-Saharan Africa	3	6%	24	15%
Conflict Characteristics	**Mean**	**Std. Dev.**	**Min**	**Max**
Duration of Conflict (days)	779	1217	2	5680
Battle Deaths, per conflict (1000s)	72.63	180.05	0.50	1000.00

Notes: Data for this table was drawn from the Corrleates of War (COW) database. Of the 142 distinct civil conflicts defined in that database, 51 are included in the analysis due to countries dropping out after they grant female suffrage. Conflict-level region counts should be interpreted as the number of these unique wars which involved a participant from a given region. Since there are multiple participants involved in a given combat, these values will sum to greater than the overall number of wars.

Table 9: Underlying Motivations for Female Suffrage Expansion
National Sentiment

	(1)	(2)	(3)	(4)	(5)	(6)
Fought in External War in Previous Year	3.087***	2.664***	2.751**	3.036***	2.675***	2.502**
	(0.763)	(0.767)	(1.194)	(0.738)	(0.689)	(0.971)
Civil War in Previous Year (Indicator)	1.003	0.904	0.517			
	(0.376)	(0.353)	(0.261)			
Civil War Deaths in Previous Year (000s)				1.008***	1.007**	0.966
				(0.002)	(0.004)	(0.026)
Political, Economic and Demog. Controls	N	N	Y	N	N	Y
Religion Controls and Region FE	N	Y	Y	N	Y	Y
Decade FE	N	Y	Y	N	Y	Y
Number of observations	2,969	2,969	1,773	2,969	2,969	1,773

Note: Main analysis sample, 1900-2000. Sources for information on covariates, and description of construction of covariates, are described in the text. Coefficients should be interpreted as the ratio of the hazards for a unit change in the independent variable. Time variant religious percentages calculated by linear interpolation of the Barro 1900, 1970, and 2000 values. Efron approximation used to handle tied failure events. Robust standard errors in parenthesis. *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

Table 10: Underlying Motivations for Female Suffrage Expansion
International Pressure

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Fought in External War in Previous Year	2.323***	2.250**	2.795**	2.938***	2.568**	2.113*	2.897***	2.516**	2.492**
	(0.738)	(0.826)	(1.155)	(0.847)	(0.969)	(0.821)	(0.840)	(0.951)	(0.928)
% of Bordering Nations with Female Suffrage in Previous Year	1.018***	1.006	1.001						
	(0.004)	(0.005)	(0.006)						
% of World Nations with Female Suffrage in Previous Year				1.035***	1.042***	1.037			
				(0.003)	(0.005)	(0.026)			
% of World Population with Female Suffrage in Previous Year							1.029***	1.035***	0.971
							(0.003)	(0.004)	(0.022)
Political, Economic and Demographic Controls	N	Y	Y	N	Y	Y	N	Y	Y
Religion Controls	Y	Y	Y	Y	Y	Y	Y	Y	Y
Region Fixed Effects	Y	Y	Y	Y	Y	Y	Y	Y	Y
Decade Fixed Effects	N	N	Y	N	N	Y	N	N	Y
Number of observations	2,872	1,720	1,720	2,969	1,787	1,787	2,969	1,787	1,787

Note: Main analysis sample, 1900-2000. Sources for information on covariates, and description of construction of covariates, are described in the text. Coefficients should be interpreted as the ratio of the hazards for a unit change in the independent variable. Time variant religious percentages calculated by linear interpolation of the Barro 1900, 1970, and 2000 values. Efron approximation used to handle tied failure events. Robust standard errors in parenthesis. *** p<0.01, ** p<0.05, * p<0.1.

Country Name	Female Suffrage Date	1: Main Sample	2: Main Sample	3: Including Quasi-Country Entities	4: Including Quasi-Country Entities	5: Excl. Pre-Soverign Nation Suffrage	6: Sample (5) + Excl. Immediate Suffrage States
Full Set of Controls		N	Y	N	Y	Y	Y
Afghanistan	1963	X	X	X	X	X	X
Albania	1944	X	X	X	X	X	X
Algeria	1962	X	X	X	X	X	
Andorra	1971				X		
Angola	1975	X	X	X	X	X	
Antigua and Barbuda	1951				X		
Argentina	1951	X	X	X	X	X	X
Armenia	1921	X	X	X	X		
Australia	1902	X	X	X	X	X	X
Austria	1918	X	X	X	X	X	X
Azerbaijan	1921	X	X	X	X		
Bahamas	1967				X		
Bahrain	1973	X	X	X	X	X	X
Bangladesh	1972	X	X	X	X	X	
Barbados	1950				X		
Belarus	1919	X	X	X	X		
Belgium	1948	X	X	X	X	X	X
Belize	1964				X		
Benin	1956	X	X	X	X		
Bhutan	1953	X			X		
Bolivia	1952	X	X	X	X	X	X
Botswana	1965	X	X	X	X		
Brazil	1932	X	X	X	X	X	X
Bulgaria	1944	X	X	X	X	X	X
Burkina Faso	1958	X	X	X	X		
Burundi	1961	X	X	X	X		
Cambodia	1955	X	X	X	X	X	X
Cameroon	1946	X	X	X	X		
Canada	1918	X	X	X	X	X	X
Cape Verde	1975				X		
Central African Republic	1986	X	X	X	X	X	X
Chad	1958	X	X	X	X		
Chile	1949	X	X	X	X	X	X
China	1949	X	X	X	X	X	X
Colombia	1957	X	X	X	X	X	X
Comoros	1956	X	X	X	X		
Congo, Republic of the	1963	X	X	X	X	X	X
Costa Rica	1949	X	X	X	X	X	X
Côte d'Ivoire	1952	X	X	X	X		
Cuba	1934	X	X	X	X	X	X
Cyprus	1960	X			X		
Czech Republic	1920	X			X		
Dem. Rep. of the Congo	1967	X	X	X	X	X	X
Denmark	1951	X	X	X	X	X	X
Djibouti	1946	X	X	X	X		

Country Name	Female Suffrage Date	1: Main Sample	2: Main Sample	3: Including Quasi-Country Entities	4: Including Quasi-Country Entities	5: Excl. Pre-Soverign Nation Suffrage	6: Sample (5) + Excl. Immediate Suffrage States
Full Set of Controls		**N**	**Y**	**N**	**Y**	**Y**	**Y**
Dominica	1951			X			
Dominican Republic	1942	X	X	X	X	X	X
Ecuador	1929	X	X	X	X	X	X
Egypt	1956	X	X	X	X	X	X
El Salvador	1939	X	X	X	X	X	X
Equatorial Guinea	1963	X	X	X	X		
Eritrea	1955	X		X			
Estonia	1918	X		X			
Ethiopia	1955	X		X			
Fiji	1963	X		X			
Finland	1906	X	X	X	X		
France	1946	X	X	X	X	X	X
Gabon	1956	X	X	X	X		
Gambia	1960	X	X	X	X		
Georgia	1918	X	X	X	X		
Germany	1919	X	X	X	X	X	X
Ghana	1954	X	X	X	X		
Greece	1952	X	X	X	X	X	X
Grenada	1951			X			
Guatemala	1945	X	X	X	X	X	X
Guinea	1958	X	X	X	X	X	
Guinea-Bissau	1977	X	X	X	X	X	X
Guyana	1953	X		X			
Haiti	1950	X	X	X	X	X	X
Honduras	1955	X	X	X	X	X	X
Hong Kong	1949			X			
Hungary	1918	X	X	X	X	X	X
Iceland	1920			X			
India	1950	X	X	X	X	X	
Indonesia	1945	X	X	X	X	X	
Iran (Islamic Republic of)	1963	X	X	X	X	X	X
Iraq	1980	X	X	X	X	X	X
Ireland	1922	X	X	X	X	X	X
Israel	1948	X	X	X	X	X	
Italy	1946	X	X	X	X	X	X
Jamaica	1944	X	X	X	X		
Japan	1945	X	X	X	X	X	X
Jordan	1974	X	X	X	X	X	X
Kazakhstan	1924	X	X	X	X		
Kenya	1963	X	X	X	X	X	
Kiribati	1967			X			
Kuwait	--	X	X	X	X	X	X
Kyrgyzstan	1918	X	X	X	X		
Laos	1958	X	X	X	X	X	X
Latvia	1918	X		X			
Lebanon	1952	X	X	X	X	X	X
Lesotho	1965	X	X	X	X		
Liberia	1946	X	X	X	X	X	X

Country Name	Female Suffrage Date	1: Main Sample	2: Main Sample	3: Including Quasi-Country Entities	4: Including Quasi-Country Entities	5: Excl. Pre-Soverign Nation Suffrage	6: Sample (5) + Excl. Immediate Suffrage States
Full Set of Controls		**N**	**Y**	**N**	**Y**	**Y**	**Y**
Libya	1964	X	X	X	X	X	X
Liechtenstein	1984			X			
Lithuania	1918	X		X			
Luxembourg	1919			X			
Madagascar	1959	X	X	X	X		
Malawi	1961	X	X	X	X		
Malaysia	1957	X	X	X	X	X	
Maldives	1932			X			
Mali	1956	X	X	X	X		
Malta	1947			X			
Marshall Islands	1979			X			
Mauritania	1961	X	X	X	X	X	X
Mauritius	1956	X	X	X	X		
Mexico	1953	X	X	X	X	X	X
Micronesia (Federated States)	1979			X			
Monaco	1962			X			
Mongolia	1924	X	X	X	X	X	
Morocco	1963	X	X	X	X	X	X
Mozambique	1975	X	X	X	X	X	
Myanmar (Burma)	1935	X	X	X	X		
Namibia	1989	X	X	X	X		
Nepal	1951	X	X	X	X	X	X
Netherlands	1919	X	X	X	X	X	X
New Zealand	1893	X	X	X	X	X	X
Nicaragua	1955	X	X	X	X	X	X
Niger	1948	X	X	X	X		
Nigeria	1958	X	X	X	X		
North Korea	1946	X	X	X	X		
Norway	1913	X	X	X	X	X	X
Oman	2003	X	X	X	X	X	X
Pakistan	1946	X	X	X	X		
Palau	1979			X			
Panama	1945	X	X	X	X	X	X
Papua New Guinea	1964	X		X			
Paraguay	1963	X	X	X	X	X	X
Peru	1955	X	X	X	X	X	X
Philippines	1937	X	X	X	X	X	X
Poland	1918	X	X	X	X	X	
Portugal	1974	X	X	X	X	X	X
Puerto Rico*	1929			X			
Qatar	1999	X	X	X	X	X	X
Republic of Korea	1948	X	X	X	X	X	
Republic of Moldova	1978	X	X	X	X		
Romania	1946	X	X	X	X	X	X
Russian Federation	1918	X		X			
Rwanda	1961	X	X	X	X	X	
Saint Kitts and Nevis	1952			X			
Saint Lucia	1951			X			

Country Name	Female Suffrage Date	1: Main Sample	2: Main Sample	3: Including Quasi-Country Entities	4: Including Quasi-Country Entities	5: Excl. Pre-Soverign Nation Suffrage	6: Sample (5) + Excl. Immediate Suffrage States
Full Set of Controls		N	Y	N	Y	Y	Y
Saint Vincent & Grenadines	1951			X			
Samoa	1990			X			
San Marino	1958			X			
Sao Tome and Principe	1975			X			
Saudi Arabia	--	X	X	X	X	X	X
Senegal	1945	X	X	X	X		
Seychelles	1948			X			
Sierra Leone	1961	X	X	X	X	X	
Singapore	1947	X	X	X	X		
Slovakia	1920	X	X	X	X		
Solomon Islands	1974	X		X			
Somalia	1956	X	X	X	X		
South Africa	1994	X	X	X	X	X	X
Spain	1932	X	X	X	X	X	X
Sri Lanka	1931	X	X	X	X		
Sudan	1964	X	X	X	X	X	X
Suriname	1948			X			
Swaziland	1968	X	X	X	X	X	
Sweden	1921	X	X	X	X	X	X
Switzerland	1971	X	X	X	X	X	X
Syria	1953	X	X	X	X	X	X
Tajikistan	1924	X	X	X	X		
Tanzania	1959	X	X	X	X		
Thailand	1932	X	X	X	X	X	X
Togo	1945	X	X	X	X		
Tonga	1960			X			
Trinidad and Tobago	1946	X	X	X	X		
Tunisia	1959	X	X	X	X	X	
Turkey	1930	X	X	X	X	X	X
Turkmenistan	1927	X	X	X	X		
Uganda	1962	X	X	X	X	X	
Ukraine	1919	X	X	X	X		
United Arab Emirates	--	X	X	X	X	X	X
United Kingdom	1928	X	X	X	X	X	X
United States	1920	X	X	X	X	X	X
Uruguay	1934	X	X	X	X	X	X
Uzbekistan	1938	X	X	X	X		
Vanuatu	1980			X			
Venezuela	1946	X	X	X	X	X	X
Viet Nam	1946	X	X	X	X		
Yemen	1967	X	X	X	X		
Yugoslavia	1945	X	X	X	X	X	X
Zambia	1962	X	X	X	X		
Zimbabwe	1957	X	X	X	X		

Appendix Table 2: Data Sources and Information

Country Boundaries
Source: CEPII; Thierry Mayer, Soledad Zignago (2006)

Conflict Data (Events, Deaths)
Intra-State War, Correlates of War Database 4.0; Civil War, Correlates of War Database 3.0
Sarkees, Meredith Reid and Frank Wayman (2010). Resort to War: 1816 - 2007. CQ Press.

Country Land Area
FAOStat, 1950 values

Population, GDP
Source: Angus Maddison, Historical Statistics of the World Economy: 1-2008 AD

Polity Data
Source: Polity IV dataset version 2010
Marshall, Monty, Keith Jaggers and Ted Gurr. (2010). "Polity IV Project: Political Regime Characteristics and
    Transitions, 1800-2010. Dataset Users Manual" *Center for Systemic Peace*, Nov 12. 2010

Religion Data
Barro and McCleary (2003) Religion and Economic Growth

Suffrage Data
IPU, Nohlen; P1 Dates of Female Suffrage (source codes)
Note: IPU has exact value for some countries can check to see if after war for exact year matches...