The Electoral Gender Gap: A Generational Perspective

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Paper prepared for presentation at the ECPR general conference,
Bordeaux, September 4-7, 2013

Abstract

Traditionally, women were more likely to vote for conservative parties than men. Studies have shown a convergence of this gender gap over the years, side by side with a new “modern” gender gap, whereby women are more leftwing than men. Looking at the overall gender gap over time misses an important point, since this phenomenon may depend strongly on generational differences. These differences occur because the circumstances of a certain period powerfully affect the young people of that time, and these effects persist over the lifecycle of this cohort’s members (Mannheim, 1952). If a social change affects the political preferences of women, this effect will be strongest and most persistent among those women who were young when the change took place. Consequently, the electoral gender gap is likely to vary among cohorts. While some scholars have recognized the importance of generational differences regarding the electoral gender gap (Inglehart and Norris, 2000), differences between cohorts cannot be inferred from age effects, and might be mistakenly interpreted as over-time trends. This study explores the electoral gender gap from a generational perspective on the US (1948-2008) and the UK (1974-2010), using descriptive analyses as well as a statistical methodology (Yang & Land, 2013) which offers an improved technique for distinguishing between age, period and cohort (APC) effects using data from repeated surveys. Findings suggest that while the inversion of the electoral gender gap in the US may result from period effects, the UK shows only little variation over time. However, the results show cohort effects in the UK, but surprisingly no evidence for this kind of effect in the US.

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1. Introduction

Studies on the electoral gender gap have documented a historical transition from women favoring conservative parties towards partisan convergence, side by side with a new “modern” gender gap, whereby women are more leftwing than men. While it is clearly evident in some western countries, this phenomenon varies between societies in terms of the gap size, how much it changed over the years, the time of the turning point etc.

Since the core question regards the change in the nature of this gender gap over the years, previous studies focused on sociopolitical and economic trends as potential theoretical explanations. Our central claim in this paper is that the changing electoral differences between men and women can be explained by a critical mechanism by which changing contextual conditions influence political behavior: the formation of new generational units, and their growing demographic ascendancy over previous generations (cohort replacement).

As Mannheim (1952) famously argued, the circumstances of each period powerfully affect the young people of that time, and these effects persist over the lifecycle of a cohort’s members. When new cohorts grow old and become a larger part of the population, a process of cohort replacement would produce a social (or political) change in a society as a whole (Ryder 1965).

This idea, that cohort effects may account for socio and political change in societies over time, is not new. Inglehart (1977) and Putnam (1995) have famously explained an aggregate socio-political change (in values or participation respectively) by generational replacement. While the theoretical role of generational formation and change has also sometimes been acknowledged in previous literature on the electoral gender gap (Inglehart & Norris 2000), it has never been appropriately tested. Any study of a single point in time necessarily confounds age and generational effects. The alternative “repeated cross-sections” design confronts the problem of distinguishing the marginal effects of age, generation and period, due to the exact linear dependency between these three variables (Mason & Fienberg, 1985). Over the years demographers and sociologists have developed various statistical techniques to overcome the problem of estimating age, period and cohort (APC) effects. To the best of our knowledge, however, these models have never been implemented in studies of the electoral gender gap. Moreover, the requirement for repeated surveys over a long period of time poses a further obstacle.

This paper utilizes two datasets covering substantial periods, the American National Election Survey (ANES) for the US and the British Election Survey (BES) for the UK, in order to explore whether generational replacement is one of the processes causing over-time variation in the electoral gender gap and how advanced statistical models may contribute to the study of gender gap in political science.

2. A generational explanation for the dynamics of the gender gap

Differences in voting preferences between men and women have been well documented in the political science literature over the years. During the 1950s, 1960s and 1970s a gender gap was found in Western Europe and the United States, according to which women were
more conservative than men and were more likely to support the right than men, while men tended more than women to vote for the left (Duverger 1955; Lipset 1960). Later studies showed an inversion in the direction of this gap in the US, where since the 1980s women consistently vote for the Democrats in higher proportions than men (Seltzer et al. 1997). In Europe, comparative studies which explored data from several points in time found mixed evidence. In some countries women became more leftwing (or at least less rightwing) during the 1990s, but in others (Ireland and Belgium, for example) female conservatism did not change much (Inglehart & Norris 2000). In a more recent study Giger (2009) found that although not all countries in a twelve-country European sample show a significant “modern” gender gap in 2000, none of them exhibit the “traditional” gap any more.

Since the electoral gender gap was acknowledged during the 1980s, scholars have tried to explain why women became more leftwing in their political preferences than men. Previous studies attributed the modern gender gap to factors like the decline in marriage and the higher risk of divorce (Edlund & Pande 2002, 2005), along with changes in women’s participation in labor market (Manza & Brooks 1998) and inequality in the gender division of household work (Iversen & Rosenbluth 2006). Often these studies acknowledge that structural, social or economic explanations like the ones they suggest are related to age, period or cohort effects, so that for example when environmental changes occur younger women might be affected differently than older ones. However, merely incorporating age, birth-cohorts or time as control variables in explanatory models (e.g. Iversen and Rosenbluth 2006, p. 6) cannot empirically support or reject generational explanations. In any case, a generational explanation for the electoral gender gap is usually only a side story in these studies.

A more comprehensive generational explanation was suggested by Inglehart and Norris (2000) in their "developmental theory". They lean on Inglehart’s classic notion of a post-materialist value shift led by younger generations (1977), arguing that gender roles in postindustrial countries have converged since the 1970s due to the increase of women’s participation in paid work, their higher levels of education and the general transformation of modern families. This process caused a cultural shift in values, including the rise of feminism, increased secularism of women etc., especially among the younger generations. According to their theory, older cohorts can be expected to show a traditional gender gap, while younger cohorts (influenced by the aforementioned socio-cultural changes) would demonstrate a modern gender gap. In addition, they expect to find an aggregate trend in favor of the modern gender gap in postindustrial countries due to generational replacement. Although Inglehart and Norris offered some evidence for gender gap differences between age groups, since they utilized only one point in time it is impossible to know whether this was an age or generational effect.

While previous studies have re-examined some aspects of Inglehart and Norris's theory (e.g. Giger, 2009), none have given systematic empirical attention to cohort differences or to the contribution of cohort replacement to aggregate change in the electoral gender gap. Thus, the generational part of Inglehart and Norris's developmental theory still lacks empirical support, which is where our study steps in.
3. Time, lifecycle and generational effects

Any type of differences between young and older people can always be explained in two different ways. The first explanation, age, refers to life-cycle effects. Every person goes through different phases in life, each of which has its own characteristics, including marital status, workplace, place of residence, life style and so on. These characteristics change from phase to phase as a person gets older. People also experience physical, emotional and cognitive maturational processes. All these changes might affect their way of thinking, and as a result change their perceptions and attitudes (Sears & Levy, 2003).

In contrast, what Mannheim (1952) referred to as a "sociological generation" is a group of people who were born in the same period, grew up in a specific social environment, were socialized in light of certain values, and shared the same constitutive events during their childhood and adolescence (Mannheim, 1952). The pivotal assumption here is that all of these factors are crucial to the formation of persistent world-views, beliefs and attitudes. This formative process takes place at certain years in a person's life (Mannheim mentions the ages of 17-25), so that significant events occurring at that time shape the person's world view in a way that later events in life will be interpreted according to these early formative experiences. The political psychology literature calls them the "impressionable years" (Sears, 1981; Alwin & Krisnick, 1991), when the individual is most susceptive to outside influences on the formation process of her attitudes and views.

The distinction between life-cycle and generational effects is important not only from a theoretical perspective, but also because each of them has different social implications. Since young people get older and change their attitudes in the same way as their parents, an age effect does not imply social change - whereas generational effects do. When younger generations hold different values from their predecessors, the attitudes of the society as a whole may change due to a process of "demographic metabolism", whereby older cohorts die out and younger ones replace them (Ryder, 1965). When we deal with political attitudes or voting behavior generational replacement implies a major change in the composition of the electorate. In our case, if historically-specific conditions have "modernized" the electoral gap between young men and women, this trend should intensify as the years go by.

However, as noted earlier, age and generational effects are easily confounded unless an appropriate research design is used. In order to separate generational effects from age and period effects we need to track each generation over a long period and see what happens in the course if its lifecycle and as a result of historical changes. For this purpose we must be able to examine as many generations as possible and also to have frequent observations of each generation along its life course. In theory, panel data for multiple successive generations could solve the problem by revisiting the same individuals over time. Since no such data exist in any country, repeated cross-sectional surveys are the only feasible design, aiming to identify "synthetic" cohorts (Mason & Fienberg, 1985). In this approach even though the same people are not sampled at each point-in-time, each respondent represents a specific birth cohort at the time each survey was carried out. In order to cope with the challenge of distinguish the marginal effects of age, period and cohort (APC), we utilize techniques recently proposed by Yang and Land (2008, 2013).
4. **Two case studies: the UK and the US**

This paper focuses on two cases: United States and Britain. Much of the literature on the electoral gender gap deals with the American case, where there has been a pronounced gender gap since the 1970s (Box-Steffensmeier et al. 2004; Norrander 2008). And, according to the results of the 2012 election, it looks like this gap is not going to vanish from the political system or academic discourse. The persistence of this gap over the years, and the fact that it even got larger, can reinforce the notion that it was a generational replacement process that took place, and that the gap between women and men who belong to cohorts now constitute the larger part of the American electorate will exist in the long run. In order to establish this proposition, an empirical analysis of generational effects should be performed.

But the electoral gender gap in Britain shows less consistent trends. Women in Britain were more conservative as in other countries, and no substantial change occurred during the 1970s or 1980s. In the 1997 elections women voted for Labour in higher numbers than ever before, but so did men. In any event, the success of the left among women did not last long. By the 2000s there was little difference in the aggregate vote of men or women. Still, the British case is an interesting one for our purposes. In one of the few studies dealing specifically with the gender-generation gap, Norris (1999) claimed to discern a generational difference in the discrepancy between men and women in the UK. Moreover, Hill (2003) has noted a gender gap on issue positions in Britain, according to which women tend to be more liberal on some issues such as welfare policies (see also Morgan 2013). Finally, several studies have shown that generational differences play a significant role in other aspects of British politics (e.g. Tilley 2002, Neundorf and Soroka unpublished).

Thus, the two cases were selected not only because each has an available large dataset, covering a large scope of years with frequent observations, but also because each one of them potentially illustrates a different contribution that can be made by a generational approach to the gender gap in voting. The US case is expected to show how generational replacement can explain a well-established transition to a “modern” gender gap, while Britain offers an opportunity for a generational approach to clarify what underlies apparently unclear gender gap trends.

5. **Empirical analysis**

For the US analysis we used the ANES surveys from 1948 to 2008. For the UK analysis the British Election Surveys (BES) from 1974 to 2010 were used. The dependent variable for the US is voting in presidential elections, considering only Republican or Democrat candidates. For the UK the dependent variable is the party a respondent voted for parliament—Labour, Conservative or Liberal. As in the U.S., other parties as well as non-voters were excluded.

Age was measured in years (18-96) with an average of 47.85 in the UK survey (SD=17.89), and 47.16 in the US (SD=16.45). In the models in section 5.2 age has been centered on its grand mean and divided by 10. Cohorts were divided into the intervals indicated in each
figure. In the models in section 5.2 cohorts were measured in five-year intervals. Period was determined by the year of the survey.\(^1\) Gender has been coded as female=1, male=0.

### 5.1 The electoral gender gap: A descriptive analysis

We begin our analysis with the US. Figure 1 presents the gender gap in voting for President over the years. As can be seen, women in the past had higher levels of support in Republican candidates compared to men, but in the 1960s-1970s this gap narrowed, and since 1980 women show lower levels of Republican support compared to men. While the size of this modern gender gap changes between election years, it steadily exists as a political phenomenon in the last three decades.

-- Figure 1 here --

The pattern of change in the electoral gender gap in the US can imply a process of cohort replacement. Younger cohorts with higher levels of Democrat support entered the electorate, which has gradually increased the differences between women and men.

One simple descriptive way to explore cohort effects is by synthetic cohorts, i.e. calculating the overall Republican support of different birth cohorts above all periods. Accordingly, Figure 2 shows the percentage of men and women voted for Republican candidates for presidency, by six birth cohorts over the period of 1948-2008. Note that the data for this figure derive from the actual election years each cohort participated in. The numbers for the youngest cohort, for example, are based on data from 1996 and later, since this is the year when the oldest members of this cohort (born in 1975) were entitled to vote for the first time in their lives.

The results show that among the oldest cohort, born before 1910, there was a traditional gender gap of men more leftwing then women, whereas the next cohort shows almost no difference between sexes. Interestingly, the next four younger cohorts show a clear modern gender gap. On average, support for Republicans is higher by 8 percentage points among men than women.\(^2\)

-- Figure 2 here --

These results support the generational replacement hypothesis of Inglehart and Norris, according to which the modern gender gap is an outcome of changes that especially affected younger generations. However, it must be noted that these rough numbers do not take into account period and age effects. It might be, for example, that the voting era of older cohorts was characterized in general by higher levels of Republican support compared to the period when younger cohorts started the political phase of their lives. Thus, we would have to use more sophisticated analyses in order to accurately estimate cohort effects.

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\(^1\) Both 1974 British election surveys (February and October) were considered as year=1974.  
\(^2\) Cohort effects where calculated in the same way for partisanship (by average score on a scale of 1-7, where 1 means strong Democrat and 7 – strong Republican) and for voting for Congress. The results showed a similar pattern, only that the shift among the younger four cohorts was more gradual along cohorts rather than abrupt like here. This kind of pattern may support even better the cohort replacement assumption.
As mentioned in the previous section, for the UK the purpose of our analysis is to examine whether unpacking cohort, period and age effects may help explain the lack of transition to a “modern” gender gap. Figure 3 confirms that the pattern of gender gap in the UK over the years is not similar to the US. A small traditional gender gap has existed in almost all periods

-- Figure 3 here --

As with the US, a simple analysis of the synthetic cohort effects was performed, showing the average support for Conservative among five cohorts in the period of 1974-2010 (see Figure 4). Unlike the US, none of the UK cohorts exhibits more than a very small gender gap. In some cohorts there is no difference at all between men and women in their levels of Conservative support, in others women tend more to the right and in still others a very small modern gender gap.

-- Figure 4 here --

These findings question the claim by Norris (1999) to have identified generational differences in the electoral gender gap in Britain. Based on data until 1997 she found that the youngest cohort of that time (born 1957-1966) was the least conservative. With three additional election years and more observations on the younger cohorts, we adopt the measure of the electoral gender gap utilized by Norris: the difference between Labour and Conservative support among women minus the same difference among men. A positive result would that women were relatively more supportive of Labour than men, but without necessarily implying that either gender supported Labour more than the Conservatives. A negative result can be interpreted as a traditional gender gap, with women more conservative than men, while a positive implies a modern gender gap.

While fluctuations between election years may cover up general trends, a closer look at the cohort-specific results in Figure 5 exposes some interesting findings. In most election years the two youngest cohorts show a positive (modern) gender gap or close to zero. The two exceptions are 2010 (the cohort of 1955-1969) and 2005 (the youngest 1970-1992 cohort). The oldest cohort and the third 1935-1954 cohort, on the other hand, show a negative (traditional) gender gap in most election years. The cohort born in 1921-1934 shows a unique pattern of a positive gap first (1974-1987), then a period of a negative gap (1992-2005), and last – a wide positive gap again in 2010. The results somewhat support Norris’s findings regarding cohort effects in Britain, whereby a modern gender gap can be found among the younger cohorts, while the gap among the older ones remained negative over time. However, while Norris focused on the 1997 elections as a turning point, our analysis, which includes three additional election years, reveals that the story is more complicated than that. Both youngest cohorts showed again a negative gap in one of these three election years, which implies that there is no clear trend of a generational replacement taking place.

-- Figure 5 here --

Still, the fact that generational differences can be tracked down suggests that generations has some role in the explanation of the gender gap in voting in Britain along the years. Further investigation should take into account other factors such as time specific events
(period effects), how different groups of women and men responded to changes in the political system, the supply side of parties etc. (more on this subject in the conclusion section).

The picture is clearer in the US. As can be seen in Figure 6, which presents the electoral gender gap in the US over the years by cohorts, the electoral gender gap was inverted over the years from a negative (traditional) gap to a positive (modern) one. Interestingly, this trend existed among all birth cohorts, so that since 1992 women in all ages voted for Democrat candidates in higher levels compared to men. An echo to the generational replacement theory can be found in this figure in the periods when a demographic replacement occurred. The oldest cohort, for example, which is observed in our data till 1976, shows a general traditional gap along its life. The newer cohorts (1927-1942 and 1943-1958), who started to vote in 1972 and 1984 respectively, show – except for one election year – a general modern gender gap. This suggests that a demographic process of new cohorts coming in and older cohorts disappear may have contributed to the transformation of the electoral gender gap in the US during the 1970s and 1980s.

-- Figure 6 here –

5.2 Towards a separation of cohort, period and age effects: An HAPC model

While much can be learned from the descriptive analyses presented in the previous section, in order to clarify questions of cohort replacement a more sophisticated analysis should be preformed. This kind of analysis must take care of the three variables – cohort, age and period, and estimate them separately so that the effect of each would be distinguishable from the effects of the other two.

Estimating separate age, period and cohort effects raise a great challenge due to the exact linear dependency between the three variables, which violates one of the most important assumptions of a multiple regression (Mason & Fienberg 1985). One way to weaken this dependency is by measuring the variables in different temporal units, so that two of them cannot determine the exact value of the third (Firebaugh 1997). Another way to ameliorate the problem of linear dependency is to apply a nonlinear transformation to one of the variables, age in this case, providing there are theoretical reasons to assume that its effect on the dependent variable either grows or declines at higher levels (Mason & Fienberg, 1985). In our case one can speculate that the effect of age on political conservatism would be stronger in stages of the life course when people get settled, and therefore are ready to support political parties which did not attract them before. Later in life age would play a smaller part in shaping voting preferences, so that the predicted difference in voting between the ages of 50 and 60, for example, would be smaller than the one between the ages of 20 and 30.

These two techniques of weakening the dependency between variables make it possible to avoid the identification problem and run a fixed-effects model in which the effects of all three factors are jointly assessed in a multiple linear regression. However, Yang and Land
(2006, 2013) argue that analyzing this data structure with a pure fixed-effects model might expose it to statistical errors. When assuming that the impact of cohort and period is fixed, we ignore the possibility that people from the same cohort or period also share the same random error components. They suggest a new hierarchical mixed (random and fixed) effects model for APC analysis. Besides the fact that the contextual effects of period and cohort can be separated in this model and estimated by random effects, Yang & Land (2008) note that it also has the advantage of being more efficient statistically (compared to fixed-effects models) in research designs like the present one, where the number of cases in each year-cohort cell is unequal.

The hierarchical APC (HAPC) model separates the variables into two levels. Level-1 of the model estimates the fixed effects of age and other individual variables, gender in our case, as follows:

\[ \text{Vote}_{ijk} = \beta_{0jk} + \beta_1 \text{Age}_{ijk} + \beta_2 \text{Age}^2_{ijk} + \beta_3 \text{Female}_{ijk} + \beta_4 \text{Female}_{ijk} \times \text{Age}_{ijk} + e_{ijk} \]

For \( i = 1, 2, \ldots, n_{jk} \) individuals within cohort \( j \) and period \( k \).

\( \beta_{0jk} \) is the intercept indicating the probability of voting left (Labour or Democrat) for an individual at the mean age and from a birth cohort \( j \), who was surveyed in survey-year \( k \). \( \beta_1 \ldots \beta_4 \) denote the level-1 fixed-effects coefficients; \( e_{ijk} \) is the random individual effect, which is assumed to be normally distributed with mean 0 and within-cell variance \( \sigma^2 \).

Level-2 of the model:

Overall mean:

\[ \beta_{0jk} = \gamma_0 + u_{0j} + \nu_{0k} \]

Sex effect:

\[ \beta_{3jk} = \gamma_3 + u_{3j} + \nu_{3k} \]

\( \gamma_0 \) is the model intercept, or the grand mean; \( u_{0j} \) is the overall cohort effect in terms of residual random coefficients of cohort \( j \) averaged over all time periods, with variance \( \tau_u \); and \( \nu_{0k} \) is the overall period effect in terms of residual random coefficients of period \( k \) averaged over all birth cohorts, with variance \( \tau_v \). \( \gamma_3 \) is the level-2 fixed effect coefficient of gender. To test whether differences between men and women vary by cohorts and periods, the model specifies that the gender coefficient has cohort effects \( \nu_{3j} \) and period effects \( \nu_{3k} \) with random variance components \( \sigma^2_{k3} \) and \( \sigma^2_{j3} \). This model does not include further control variables.

-- Table 1a here --

Table 1a presents estimates of fixed effects coefficients and random effects variance components for voting Democrat in the US. The model shows no significant age effect net of the random period and cohort effects. Gender, on the other hand, has a significant effect, according to which the odds of voting Democrats are higher for women in 19.2% compared
to men at the average age. The interaction term of age and gender is also significant, which means that the effect of gender changes with age.

The lower panel of Table 1a presents results of random effects in terms of residual variance components for the intercept and for level 1 coefficient of gender. There are significant period changes in levels of Democrat support. Also, the gender gap varies significantly between periods net of age and cohort effects. Cohort effects and gender gap variations between cohorts were not significant. These results question our cohort replacement hypothesis, suggesting that the gender gap varied between periods and not as much between cohorts. This means that whatever caused the change in women or men’s political preferences, it might have changed the preferences of all cohorts, and not only the preferences of younger generations per se.

-- Table 1b here --

The dependent variable of the HAPC model for the UK was voting for Labour (vs. Conservative or Liberals), and the results are somewhat different from the US (Table 1b). First, the estimated fixed effect coefficient of gender is negative, as expected from the descriptive analysis, which means that women have lower odds of voting Labour, but this effect is not statistically significant. The level-1 age effect is not significant as well, the same as in the US. As for random effects, gender was not estimated for period variation in this model due to the small number of points in time. The intercept of period effect indicates that there are significant variations in Labour support between election years. The most interesting finding in our context relates to cohort effects. Both the intercept and the gender coefficient are significant, which means that Labour support varies significantly between cohorts, and more important – that the gender gap in voting for Labour varies significantly between cohorts, net of age and period effects. Figure 7, which presents the predicted probabilities of voting for Labour by gender and cohorts, reveals that most cohorts show a traditional gender gap of men more leftwing than women. Variations in size of the gender gap between cohorts as well as few transformations in direction (among the 1926-1930 birth-cohort for instance) probably contributed to the emergence of significant cohort effects. Interestingly, the traditional gender gap only widens among the youngest cohorts, which contradicts the common theory of young women getting less conservative than men.

-- Figure 7 here --

6. Conclusion

The aim of the proposed study was to examine the electoral gender gap from a generational perspective. While descriptive analysis of the US electoral gender gap implied for cohort effects, the results of an advanced model separating cohort from age and period effects suggest that what might have looked like differences between cohorts, is actually period variations occurred among all cohorts. These findings go in line with those found by Danigelis et al. (2007) regarding political attitudes in the US. Examining attitudes toward historically subordinated groups (blacks, women), civil liberties and privacy, they found that

3 Predicted probabilities were calculated as \[ \frac{\exp(b)}{1+\exp(b)} \].
an overall attitude change, occurred among all cohorts over time, made a significant contribution to aggregate attitude change in society. Nonetheless, this change was stronger among younger age groups, which means that a cohort replacement may have had some contribution to the aggregate change as well. In light of these ideas, our findings call for further investigation, which will focus on decomposing the aggregate change in the electoral gender gap in the US into "intercohort" effects (the amount of attitude change among each cohort) and "intracohort" effects (how cohorts differ in their attitude change) (Firebaugh 1997).

The curious findings regarding the UK, which showed cohort effects of the electoral gender gap with only little variation between periods, call for some further instigation of this issue, particularly the relationship between issue preferences and voting behavior in different election years. Comparative historical studies of the electoral gender gap typically treat left and right parties as representing fixed ideologies/policies in all countries along all periods (although see Manow & Emmenegger 2012 for an exception). However, parties do not function as static actors. They respond to the messages they get from their electorate and make electoral calculations. As levels of political participation among women increased the female vote became more important to political parties, which made them adopt ideas and policies that would attract women voters. For instance, Morgan (2013) shows how the electoral competition over the female electorate led to the expansion of work-family policies in Germany, the UK and the Netherlands. Consequently, different cohorts may respond in a different way to this kind of policy changes. For example, an election campaign which focuses on childcare benefits may attract women of younger cohorts, but not older women. As a result, the gender gap may vary between cohorts, but it will not be related to time variations.

This study tried to deliver a more comprehensive framework to the question of the changing electoral gender gap in western democracies and how it relates to a generational replacement process. It showed that descriptive analysis can provide much information about this topic, but at the same time that it is also restrict the ability to properly estimate generational effects. As more sophisticated statistical models designated for age-period-cohort analysis are developed and introduced to social scientists, questions regarding generations and cohort replacement can get more accurate answers.
References


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Figure 1: Percent Voted Republican Candidates for Presidency by Gender, US 1948-2008
Figure 2: Percent Voted Republican Candidates for Presidency by cohort and Gender, US 1948-2008
Figure 3: Percent Voted Conservative Candidates for Parliament by Gender, UK 1974-2010

[Graph showing the percent of Conservative candidates by gender from 1974 to 2010, with lines indicating the percentage for men and women over the years.]
Figure 4: Percent Voted Conservative Candidates for Parliament by cohort and Gender, UK 1974-2010
Figure 5: Gender gap by birth cohorts: the UK 1974-2010
Figure 6: Gender gap by birth cohorts: the US 1948-2008
Figure 7: Cohort effects on voting Labour by gender: UK 1974-2010
Table 1a: Logit cross-classified random effects model estimates of voting Democrat, the US 1948-2008

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Variance Components

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N=24,209

Note: *p<0.05.

Table 1b: Logit cross-classified random effects model estimates of voting Labour, Britain 1974-2008

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<td>Age Squared $\beta_2$</td>
<td>-0.02**</td>
<td>0.005</td>
<td>3.57</td>
</tr>
<tr>
<td>Gender $\beta_3$</td>
<td>-0.06</td>
<td>0.04</td>
<td>-1.67</td>
</tr>
<tr>
<td>Gender*Age $\beta_4$</td>
<td>-0.03</td>
<td>0.02</td>
<td>-1.69</td>
</tr>
</tbody>
</table>

Variance Components

<table>
<thead>
<tr>
<th>Variance Components</th>
<th>Variance</th>
<th>SE</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cohort</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intercept</td>
<td>0.03**</td>
<td>0.02</td>
<td>0.04</td>
</tr>
<tr>
<td>Gender</td>
<td>0.01*</td>
<td>0.008</td>
<td>0.08</td>
</tr>
<tr>
<td>Period</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intercept</td>
<td>0.10**</td>
<td>0.05</td>
<td>0.03</td>
</tr>
</tbody>
</table>

N=17,488

Note: **p<0.05. *p<0.1