

# The Great Society, Reagan's Revolution, and Generations of Presidential Voting

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July 7, 2014

## WORKING PAPER

### Abstract

We build a generational model of presidential voting, in which long-term partisan presidential voting preferences are formed, in large part, through a weighted “running tally” of retrospective presidential evaluations, where weights are determined by the age in which the evaluation was made. Under the model, the Gallup Presidential Approval Rating time series is shown to be a good approximation to the political events that inform retrospective presidential evaluations. The political events of a voter’s teenage and early adult years, centered around the age of 18, are enormously important in the formation of these long-term partisan preferences. The model is shown to be powerful, explaining a substantial amount of the macro-level voting trends of the last half century, especially for white voters and non-Southern whites in particular. We use a narrative of presidential political events from the 1940s to the present day to describe the model, illustrating the formation of five main generations of presidential voters.

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On November 6, 2012, Democratic President Barack Obama was reelected to the American presidency by defeating Republican Mitt Romney with a 51-47% margin, or, equivalently, by 52.0% of the two-party vote. Although this was an important and celebrated victory, Obama's vote share was smaller than that of his 2008 election, in which he defeated Sen. John McCain with 53.7% of the two-party vote. The roughly 2 percentage point swing towards the Republican candidate was not enough for Romney to win the election, but it did reflect substantial losses for Obama among some sub-populations within the electorate. One group of particular interest is young voters, who were an important piece of Obama's 2008 coalition. According to the exit polls, Obama lost 5 points among voters aged 18-29 when compared to the 2008 result<sup>1</sup>, a deficit that grows to 9 points when we look only at non-Hispanic whites<sup>2</sup>. The true swing among young white voters may in fact have been smaller than indicated by the exit polls<sup>3</sup>, but these data certainly suggest a substantial change over Obama's first term. Why was there such a dramatic shift among this particular group of voters? And what impact might this change imply for future elections?

We answer this question by not only examining this particular group, but by building a broader model of generational voting in American presidential elections. In the model, long-term presidential voting preferences are formed, in large part, by a running tally of retrospective presidential evaluations. Building from similar models developed by other scholars, we show that these retrospective evaluations are best characterized as a weighted average, in which presidential political events from a voters' teenage and early adult years take on substantially more weight.

The model accounts for a substantial portion of the macro-level variation in voting trends of the past half century. We show that the 2012 shift among young voters was in no way arbitrary, rather it was indicative of a systematic trend in which political events disproportionately impact the political preferences of young voters, especially young white voters, and partisan presidential voting attachments remain relatively consistent over many subsequent decades. In short, Obama's losses

among young people were reflected in his comparatively poor presidential performance ratings leading up to the 2012 elections, and those lost votes are likely to carry to future presidential elections among this new generation of voters.

The political preferences of young voters, and the formation of those preferences, have long been important areas of study within political science, sociology, and social psychology. Indeed, the study of "political socialization," as named by Hyman (1959), touched some of the seminal works in American political behavior, such as *The American Voter*. For Campbell et al. (1964), party identification, which structures political attitudes and voting behavior, is formed early in life and is directed in large part by parental influence. Much of the early literature in the field continued studying young peoples' preferences in this regard, often using panel studies of high school students, and sometimes of their parents, to identify the micro-level foundations of political attitudes and behaviors<sup>4</sup>.

While the early studies began looking at *macro*-level implications of these micro trends, they were limited by the relatively short time-frames that their surveys covered—normally a couple of decades or less. For example, one of the features of the early data, circa the 1960s-1970s, was the observation that older voters tended to identify more as Republicans. Much ink was spilled attempting to disentangle whether this was due to aging, in which some social or psychological process pushed individuals towards a conservative viewpoint later in life, or generational effects, in which the shared life events of that particular birth cohort put them more in line with the Republican party. Crittendon (1962), using data over the course of 12 years, settled on a conclusion of aging effects, while Cutler (1970), Glenn and Hefner (1972), and others, with the benefit of additional data gathered over the subsequent decade, concluded that the relationship was a generational one.

Eventually, scholars began to recognize the difficulty in fully disentangling age, cohort, and period effects, the last of which refers to specific short-term influences on political attitudes. The problem with this line of questioning is that one of the three effects is fully determined by the combination of the other two—if we could fully estimate cohort and period

<sup>1</sup>Obama's two-party vote share was 67-33% in 2008 and 62-38% in 2012.

<sup>2</sup>Obama's 55-45% advantage was flipped to 46-54% in favor of Romney in 2012.

<sup>3</sup>When considering margins of error around the exit poll estimates, along with some of the known difficulties in conducting exit polls, the 9 percentage point difference should only be considered a rough estimate.

<sup>4</sup>There are many extensive reviews of the early period, e.g. (Niemi and Sobieszek, 1977; Delli Carpini, 1989; Niemi and Hepburn, 1995). One book of particular note is Jennings and Niemi (1981), which summarizes many of their substantial contributions.

effects, along with the interaction between the two, then the preferences of all age groups would be fully identified (Converse, 1976; Glenn, 1976; Markus, 1983). Attempts to estimate all three together rely on modeling assumptions, such as linearity and additivity of effects.

Bartels and Jackman (2014) recognize these problems and develop an alternative model, more explicitly grounded in theories of political learning:

Rather than attempting to partition observed variance into additive “period” and “cohort” components by brute force, we posit a single process of political learning in which the two important elements are (1) period-specific “shocks” reflecting the distinctive political events of a given time period, and (2) age-specific “weights” reflecting the extent to which these shocks are internalized by individuals at various points in the life-cycle. Generational patterns of political change arise endogenously from the interaction of these basic elements—a form of interaction that cannot be captured within the conventional additive [age-period-cohort] framework.

The Bartels and Jackman model is an attractive generalization of the “running tally” model, whereby an individual’s partisan identification is a function of retrospective evaluations of each party’s performance over the course of his or her lifetime (Fiorina, 1981; Achen, 1992). The “running tally” model is a simple Bayesian learning model, in which evaluations build on top of each other, all of them having equal weight regardless of age or recency. As a result, political events occurring early in life are no more or less important in forming partisan opinions than events from later on. Gerber and Green (1998) provide another generalization of the “running tally” model, but the Bartels and Jackman model, with potentially different weights associated with any age, is the most flexible.

Though the Bartels and Jackman model is quite satisfying on theoretical grounds, fitting the model empirically proves challenging. They turn their model towards estimating partisan identification, using the differential partisanship rates across the American National Election Study (ANES) cumulative dataset. The ANES is a great resource for this type

of study—it captures survey responses from 1952-2008, and as such covers a 56-year time period and a wide variety of generational cohorts over many elections. But their empirical model tries to estimate *both* the partisan shocks and the age-specific weights from the same data. Although the parameters of their model are not completely underidentified<sup>5</sup>, the model appears statistically underpowered. This is reflected in their results, in which the age-specific weights quickly oscillate between negative and positive and the uncertainty bounds around those weights are large, to the point that almost none are statistically distinguishable from zero.

In this paper, we build a similar model and use it to understand a different phenomenon, that of presidential voting preferences. Presidential voting is an ideal choice for estimating this particular model, for three reasons. Firstly, the actions and evaluations of the president are among the most public and notable in American politics. If, in the spirit of Mannheim (1952)’s theory, we expect generations to be shaped by the shared historical events that dominated their youth, it is likely that politically, those events will often be associated with the president. Second, presidential elections are the most salient political events in American politics, at least among those that are regularly scheduled. They draw the most attention of both the media and the general public, and presidential turnout rates are higher, by a wide margin, than any other form of political participation. Because of this, presidential voting preferences are an important place to look for the expression of generational political preferences.

Lastly, the public’s evaluation of the president has been measured on an ongoing basis since the 1930s, in the form of Gallup’s Presidential Approval Rating. When applied to the question of partisan presidential voting preferences, this rich time series can be used as an approximation to the partisan shocks that may influence voting patterns. Doing so leaves the model responsible for estimating only the age-specific weights<sup>6</sup>, allowing much more precise estimates than if we were to fit the age-weights and the partisan shocks at the same time.

Incidentally, it should be noted that the topic of generations in presidential voting has recently garnered some attention in the popular press. A report released by the Pew Research

<sup>5</sup>See footnote 17, (Bartels and Jackman, 2014: pg 14)

<sup>6</sup>Along with a relatively small number of additional parameters, as explained later.

Center in advance of the 2012 election found relatively consistent presidential voting patterns for generations of voters, with those generations defined by who was president when they turned 18 (Kohut et al., 2011: pg. 16).

On top of switching the focus to presidential voting, we generalize the previously discussed models by allowing the age weights to vary, in a limited way, by race and region. Given the substantial differences between minorities and white people, and between Southern and non-Southern whites, it is faulty to assume that the same model of political learning should be applied to all three. Bartels and Jackman, for example, recognize this and remove white Southerners and African Americans entirely from their analysis. Instead, we incorporate them into the analysis and estimate how well the generational model fits their observed political development.

Through this analysis, we find strong and intuitive age weights among white voters, particularly non-Southern whites. The formation of partisan presidential voting trends peaks around the ages of 14-24, with a substantial buildup and drawdown in those weights until roughly the age of 40. The impact of those age weights, combined with different levels of presidential approval for different birth cohorts, lead naturally to substantial generational trends—to take a prominent example, white voters born in 1952, who were mainly socialized during the Kennedy and Johnson administrations, are consistently 5-10 percentage points more likely to support Democratic presidential candidates than those born in 1968, who were influenced more strongly by the presidencies of Carter, Reagan, and Bush I. The age weights for minorities, in contrast, are much less powerful, suggesting that their political socialization process is somehow different than that of white voters. Lastly, the data indicate that broad election-by-election changes—normally termed *period effects* in the literature, and quite important when estimating presidential vote choice as opposed to party identification—are somewhat larger for young voters in the impressionable age range than for older voters. A model incorporating all of these factors explains substantially more macro-level variation than a simple model accounting for period and race/region effects alone.

The paper will proceed by describing the data and statistical model. We then show the model results and how those results can be interpreted to describe the political socialization process for partisan presidential vote choice. Last, we

provide a historical narrative of presidential approval over the past half century, emphasizing how particular presidents and events had a differential impact on various generations of the American voting public. We close with discussion.

## Data and Preliminary Evidence

Before describing the statistical model in full, it is useful to describe the data sources and display some preliminary evidence. Large sample size is a necessary prerequisite for the analysis, because we want the flexibility to define the generational cohorts using individual birth years. American presidential elections benefit from a substantial amount of polling, allowing us to leverage multiple high-quality surveys over the course of decades.

We combine four major sources of polling: (1) the aforementioned ANES cumulative dataset covering the 1952-2008 timespan; (2) individually coded Gallup presidential polling data, available from the Roper Center’s iPoll database going back to 1952; (3) the 2000, 2004, and 2008 Annenberg National Election Studies, large sample surveys giving a particularly detailed view of those three elections; and (4) a series of internal campaign polls conducted by Greenberg Quinlan Rosner Research over the course of the 2012 election cycle, to provide coverage for this most recent election. This data was provided for this research by Catalist, LLC, a political data vendor<sup>7</sup>. For the ANES and Gallup datasets, we only use data from presidential election years. After removing missing data<sup>8</sup>, we have 306,011 observations in total.

As a first step, it is helpful to examine the raw data for the four most recent elections. The relationship between age and presidential vote choice is displayed in the three panels of Figure 1. Here we “control” for race by only displaying data for white voters. We describe these graphs in detail to inform intuitions and motivate the construction of the model<sup>9</sup>.

The left panel shows the relationship between age and vot-

<sup>7</sup>The 2012 polls are not publicly available, but the relevant data is available for replication purposes on request.

<sup>8</sup>Variables of interest are presidential vote choice, ethnicity, state of residence to determine whether white voters live in the South, and age (or, equivalently, birth year, defined here as the year of the survey response minus age).

<sup>9</sup>For this preliminary analysis, we combine all of the data sources and do not consider house effects or other omitted variables. The full model will more formally estimate the relationships shown here, and we will describe robustness checks that take omitted variables into account.

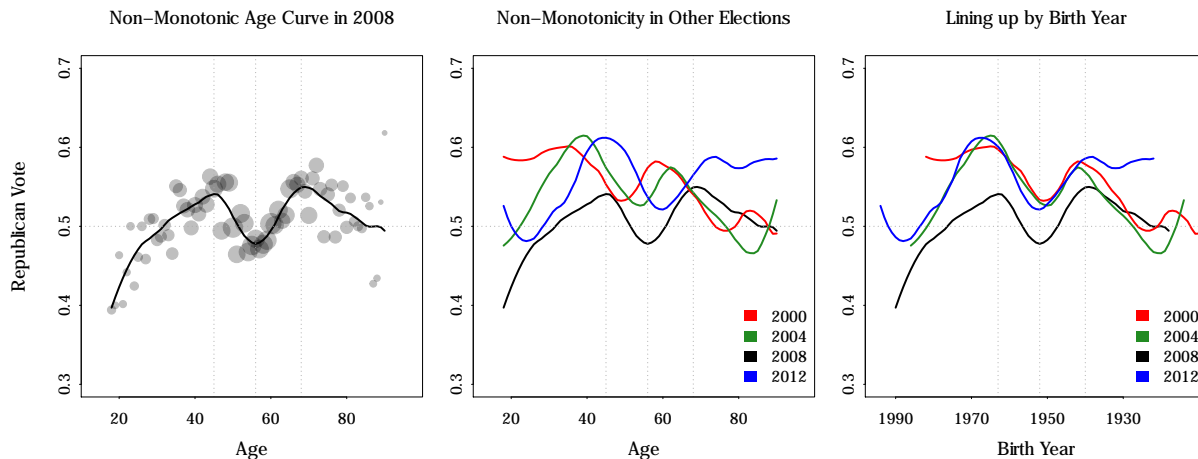


Figure 1: *Raw data and LOESS curves, indicating the relationship between age and presidential voting preferences among non-Hispanic white voters for the 2000-2012 elections. (L) The relationship is clearly non-monotonic and quite peculiar in 2008; instead of a linear or even quadratic relationship, the curve changes directions multiple times. (C) Non-monotonicity is a feature of the other elections as well, though no clear pattern is apparent from this graph alone. (R) The true relationship emerges when the curves are lined up by birth year instead of age. The peaks and valleys occur in almost identical locations, strongly suggesting a generational trend.*

ing for the 2008 election. Because we have over 33,000 responses for white voters in 2008, we have the statistical power to separate the data into individual age buckets—each bubble is a single year of age, with the  $y$ -axis indicating level of Republican support, in this case for Senator John McCain, and the size of each bubble indicating sample size. The fitted curve is a simple locally weighted regression (LOESS) curve.

We immediately notice a striking relationship. Republican vote share is neither linearly related to age (as was the case in the data from the 1960s), nor is there a simple quadratic relationship, in which middle-aged voters are more likely to vote for the Republican while both young and old voters are more Democratic. Instead, we see a clear non-monotonic relationship, in which (1) young white voters strongly supported then-candidate Obama, with 18 year olds at about 40% for McCain; (2) McCain’s vote grows with age, up to 54% at age 45; (3) the curve reverses direction, decreasing to 48% for 56-year olds; (4) McCain’s vote climbs again, to it’s peak of 55% at age 67; (5) the curve takes a final turn, decreasing for the remainder of the graph and stopping around 50% for the oldest respondents.

Moving to the center panel, we overlay a similar curve for the 2000, 2004, and 2012 elections, removing the bubbles to

ease interpretability. We notice non-monotonic relationships for all four of these elections, but the curves are messy and do not reveal a clear pattern.

Finally, in the right-hand panel, the true insight is revealed. Here, we line the curves up by birth year instead of by age, and the consistent pattern emerges clearly. All four curves almost perfectly in line: the peaks and valleys are nearly identical in every curve, and, with the exception of the 2008 election, all curves are essentially right on top of each other, especially for voters born between 1940 and 1970, where the bulk of the data lie. The two peaks in the data occur roughly around the birth years of 1941 and 1968, with the pro-Democratic valley around 1952. Here, we emphasize that this relationship remains clear and strong over the course of 12 years, measured across multiple surveys conducted by different organizations, and unaltered by any complicated statistical model. This appears to be no statistical artifact.

Without treading too far into the dreaded age-period-cohort framework, it is also important to point out that the 2008 curve is lower than the remaining curves for almost all birth cohorts. Recall the overall vote totals for each of these elections<sup>10</sup>. While 2000, 2004, and 2012 were all decided by

<sup>10</sup>The Democratic two-party vote share for the 2000-2012 elections were, in

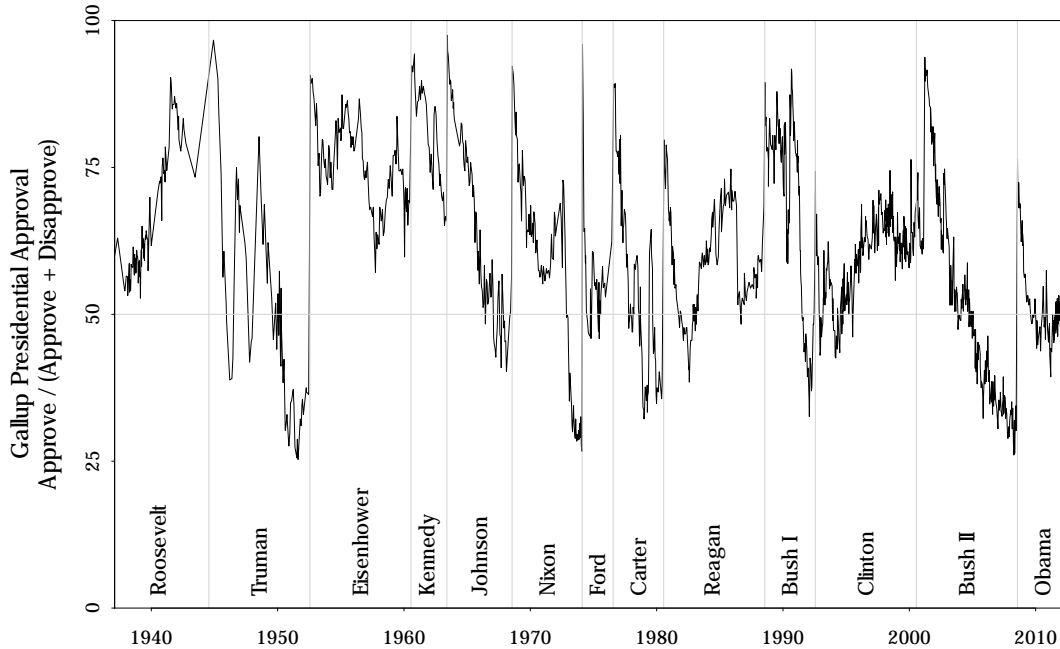


Figure 2: *The Gallup Organization’s Presidential Approval Rating time series, measured from 1937-2012. We use this data to approximate partisan shocks inherent in political events at the presidential level.*

small margins, 2008 was a relatively robust victory for Democratic candidate Pres. Obama. We and others have commented on the nature of “uniform swings” in Presidential voting (Ghitza and Gelman, 2013), and it certainly seems from this data that there was a widespread, if not uniform, swing towards Obama in 2008.

In sum, the data is strongly suggestive of a model in which vote choice is generational, at least among white voters. Instead of a purely generational explanation, however, it appears necessary to include period effects to reflect changing economic circumstances, cyclical voting habits, candidate-centric qualities, and other broad differences between elections. It should be noted, however, that these period effects need not be entirely uniform, a feature we will explore in the model.

Besides individual survey responses, the other main data we use is the Gallup Organization’s long-running Presidential Approval Rating time series, displayed in Figure 2. We use this series as an approximation to the partisan shocks that the public experiences due to political events at the presi-

dential level. Recall that in the (as yet informally described) model, presidential voting choices are informed by a weighted “running tally” of retrospective evaluations of past presidential performance, with differential weights given to political events based on when they occurred in an individual’s lifetime. If this is indeed the case, then the Gallup time series is an ideal measurement of those evaluations, even if it only approximates the shocks experienced by the public due to each political event.

One unfortunate limitation of using this time series, however, is that despite being one of the longest-running time series available in the study of American political behavior, it is “only” available from 1937 onward. Because the analysis focuses on differential age weights through the *entire* life cycle, and due to the importance of early life political socialization suggested in the literature, we are forced to discard any observations in which we do not have presidential approval data for the respondents’ entire life span. In other words, we drop respondents born before 1937 from the analysis. The resulting distribution of the data, totaling 201,933 responses, is separated by election year and then by year of birth in Figure 3. The data cover the 1960-2012 elections, with a strong

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order, 50%, 49%, 54% and 52%; it should be noted that these reflect the vote totals for the full electorate, not for white voters only, as is shown in Figure 1.

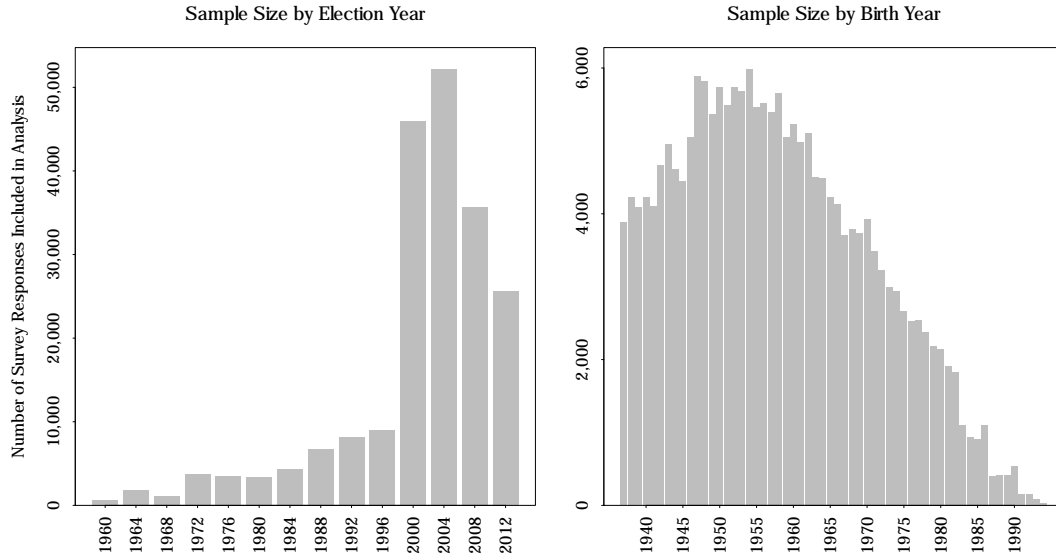


Figure 3: *After removing survey respondents born before 1937, the analysis includes 201,933 survey respondents in total, here displayed by election year and year of birth. The data, and thus the analysis, has a strong emphasis towards the most recent four elections, and so it can be interpreted as being weighted towards the contemporary political climate. The data encompass generational cohorts defined by their individual birth year from 1937-1994, with at least 1,000 responses for each birth year until 1986.*

emphasis on the most recent four elections, each having at least 25,000 responses. As for generational cohorts defined by birth year, the data encompass the 1937-1994 cohorts, with at least 1,000 responses for each individual year until 1986 (the last birth year eligible for the 2004 election).

## Statistical Model

We are interested in modeling presidential vote choice by birth year cohort over the 1960-2012 elections, distinguishing the political socialization mechanism by race and region. As such, each survey respondent is indexed by three attributes: (1) his/her birth year cohort  $c \in C = \{1937, 1938, \dots, 1994\}$ , (2) the year of the election  $t \in T = \{1960, 1961, \dots, 2012\}$ , and (3) the race/region group  $g \in G = \{\text{non-Southern white, Southern white, and minority}\}$ . Notice that  $T$  includes non-election years—under this formulation, individuals hold partisan presidential voting tendencies even in non-presidential years, even though they mainly express their preferences through voting in an election every four years<sup>11</sup>. Also notice that minorities are grouped to-

gether into a single group. It would be preferable to separate African Americans, Hispanics, and other groups, but the data from earlier years does not always or consistently distinguish between minority groups, forcing us to group minorities together for the present analysis.

With each respondent indexed according to these characteristics, we can represent the data as  $J$  mutually exclusive cells, with each cell representing a unique combination of the three indices. This will help us keep a cleaner notation through the remainder of this section. We label the outcome variable, presidential vote choice in the observed election, as  $y$  and, within any cell  $j$ , we label  $y_j$  as the number of respondents preferring the Republican candidate, and  $n_j$  as the number of respondents indicating a Republican or Democratic preference (undecided voters are discarded). The data model, then, is:

$$y_j \sim \text{Binomial}(n_j, \theta_j), \quad (1)$$

where  $\theta_j$  is what we want to estimate: the proportion of Republican presidential support within cell  $j$ . Before fully defin-

<sup>11</sup>The model is, in fact, fit using data observed during presidential election years alone. As such, this distinction is a theoretical one facilitating the idea

of latent presidential voting preferences that persist even in non-election years.

ing  $\theta_j$ , it is useful to introduce a bit of additional notation.

For each cell  $j$ ,  $x_{j,i}$  indicates *Republican-directional* presidential approval for age  $i \in I = \{1, 2, \dots, 70\}$  for the birth year cohort represented in that cell. To construct this, we (1) subtract 50% from the Gallup Approval time series, and (2) multiply the resulting number by  $-1$  when the sitting president was a Democrat. The resulting *Republican-directional* approval will be positive under two conditions: either a Republican president has ratings above 50%, or a Democratic president has ratings below 50%. Conversely, the rating will be negative under a popular Democratic or an unpopular Republican president.

This is a natural way to include directional approval ratings into the model, where  $y = 1$  indicates Republican support. As an example, consider the cohort born in 1959. In 1960 (age = 1), the average approval rating for the Republican President Eisenhower was 71%, so  $x_{j,1} = +21\%$ . In 1961 (age = 2), the presidency flipped to Democratic President Kennedy, who had an average rating of 88%, yielding  $x_{j,2} = -1 \times (88 - 50) = -38\%$ <sup>12</sup>.

The  $x$ 's, then, approximate partisan political shocks that are related to the Presidency. Now that these are specified, we define the *generational effect* on a particular cell:

$$\gamma_j = \beta_{g[j]} \sum_{i=1}^{70} w_i x_{j,i}, \quad (2)$$

where  $w_i$  indicates the *age-specific weight* at age  $i$ , and  $\beta_{g[j]}$  reflects the importance of the age-specific weights for each race/region group. These are the primary foci of the analysis. If the  $w$  terms are all roughly the same magnitude, that would imply that the simple unweighted “running tally” is an appropriate model of retrospective presidential evaluations. If, however, they are much higher for some particular age range, then those ages are the foundational ages of presidential political socialization. To structure the analysis a little bit, we impose an AR-1 restriction on the  $w$  weights, under the expectation that they take on a somewhat smooth structural

<sup>12</sup>Two other notes: (1) The  $x$ 's are top-censored at age 70 because, as discussed earlier, we restrict the analysis to people born after 1937 and there are a very small number of observable approval ratings above that age; (2) ratings for ages that occurred after the election year  $t$  reflected in cell  $j$  are set to 0; those ratings are from the future, in comparison to the survey response, and thus should have no impact on retrospective presidential evaluations.

form:

$$w_i \sim \text{Normal}(w_{i-1}, 1), \quad (3)$$

with no prior expectation on  $w_1$ .

The purpose of the  $\beta$  term is to estimate the extent to which the political socialization process implied by the age weights  $w$  is different for each race/region group, indexed on  $g[j]$ . A priori, we expect minorities to be less impacted by the age weights, due to (a) consistently strong Democratic support among African Americans, and (b) the fact that many Hispanic voters may be immigrants, and therefore did not experience the political shocks as strongly as white voters who have lived in the United States for their entire lives. We do not impose this expectation through priors in the model, but the  $\beta$  terms allow us to examine the question. Finally, to keep the model identified, the random walk in the  $w$  terms is drawn with a scale parameter  $\sigma = 1$ , as shown above, and the  $w$ 's themselves are restricted to sum to 1.

Because we are modeling presidential vote choice, it is necessary to include broad election-by-election *period* effects, denoted  $\alpha_{t,g} \sim \text{Normal}(0, \sigma_\alpha)$ . Notice that the  $\alpha$ 's are indexed by  $t$  and  $g$ , reflecting potentially different effects by election year and race/regional group. Instead of adding the period effects in the same way for all age groups, we generalize the period effect through an interaction term,  $\lambda_{g[j]}$ . The final period effect  $A_j$  for cell  $j$ , then, is:

$$A_j = \alpha_{t[j],g[j]} + \lambda_{g[j]} w_{i[j]} \alpha_{t[j],g[j]} \quad (4)$$

$$= (1 + \lambda_{g[j]} w_{i[j]}) \alpha_{t[j],g[j]}. \quad (5)$$

This generalization is important, because if individuals are more likely to be impacted by political events at a certain age, then it is also reasonable to ask whether election-to-election period effects are more pronounced at that impressionable age as well. We index  $\lambda$  on the group  $g$  in cell  $j$ , to allow this interaction to vary by race/region, and we draw  $\lambda \sim \text{Half-Normal}(0, \sigma_\lambda)$  to normalize the interaction effect toward zero. Adding these two terms together:

$$\theta_j = \gamma_j + A_j \quad (6)$$

completes the model.

Computationally, we fit the model using Stan (Stan Devel-



opment Team, 2013) in conjunction with R (R Core Team, 2012). Stan uses the No U-Turn (NUTS) sampler (Hoffman and Gelman, In press), an extension to Hamiltonian Monte Carlo (HMC) sampling (Duane et al., 1987), which in and of itself is a form of Markov Chain Monte Carlo (Metropolis et al., 1953). We generate 4 chains, each run for 1000 iterations, and we save the final 500 iterations of each chain, which are sufficient to indicate convergence through post-modeling diagnostics such as Gelman-Rubin  $\hat{R}$  (Gelman et al., 2004).

## Model Results

Because the statistical model consists of many sets of parameters, the easiest way to describe results is through a series of graphs, displaying the posterior density of the parameters of interest.

### Age Weights

Figure 4 displays the main result of the paper: estimates for the *generational* trends implied by the model. The left-hand panel shows estimates for the age-specific weights  $w$ , along with 50% and 95% credible intervals. These weights reflect the formative years of political socialization—if, as the model posits, partisan presidential voting is a “running tally” reflecting the retrospective evaluations of past Democratic and Republican presidents, then these weights strongly indicate those evaluations are much more meaningful around the age of 18 than later in life.

It is helpful to examine the characteristics of this graph in more detail, because they both build confidence in the plausibility of the model and seem to explain quite a bit about the political socialization process. Notice that  $w_1$ , the age weight at age 1, is essentially zero. This makes sense, as political events at such a young age would seem unlikely to have a strong impact on long-term preferences. Also notice that weights for all years are either positive, or, in the very early and later years, indistinguishable from zero. Strong negative weights would be problematic, because they would imply some sort of presidential approval backlash at a certain age, so it is nice to see that they are absent here. Neither of these features were imposed on the model, rather they arose naturally and thus provide good face validation.

The substantive interpretation of the weights also appear

quite clear. At a very young age, evaluations of the president seem to have little impact. But the weights increase steadily, peaking around the ages of 14-24 and gradually decreasing after that. By the age of roughly 45 onward, they become, on one hand, statistically indistinguishable from zero. But on the other, they seem to remain slightly above zero for the duration of the curve. There are some slight twists up and down, but those are likely due to noise in the model and do not appear particularly meaningful. As a whole, then, the importance of presidential evaluations never truly falls to zero; it remains, albeit substantially less important than in earlier years.

This age-weight curve is quite intuitive. The formative years for retrospective presidential evaluations are at roughly the ages of 14-24. An enormous literature in social psychology point to late adolescence and early adulthood as important years of socialization, and indeed other scholars in the early literature found this rough age range to be important years for political socialization. When they examined macro-partisan trends among adults, for example, Erikson, MacKuen and Stimson (2002) found a roughly similar pattern, in which political events had the largest impact at age 18-19, with impact declining progressively from there.

With that in mind, the definition of ages 14-24 is overly specific. Indeed, weights at age 12 or 27 are statistically indistinguishable from the peak years, and evaluations remain quite heavily weighted for some time after the age of 24. Even later in life, the weights do not go all the way down to zero. Though the importance of political events in forming long-term preferences does diminish, it does persist to some degree.

For the sake of clarity, it may be helpful to re-emphasize the data that informs the age-weight curve. In particular, how can the model determine the importance of political events that occur when a survey respondent is, say, 14 years old, when there are no actual survey responses for 14 year olds? The trick here is that, despite not actually interviewing any 14 year olds, all of the surveys recorded age, and therefore both (a) the year that the respondent was 14 years old, and (b) the Presidential Approval rating during that year, are both apparent. For example, imagine a 45-year old who was interviewed in 2012. This respondent was born in 1967 and was 14 years old in 1981. Therefore, despite the fact that there are no survey interviews of this person at age 14, we know that Ronald

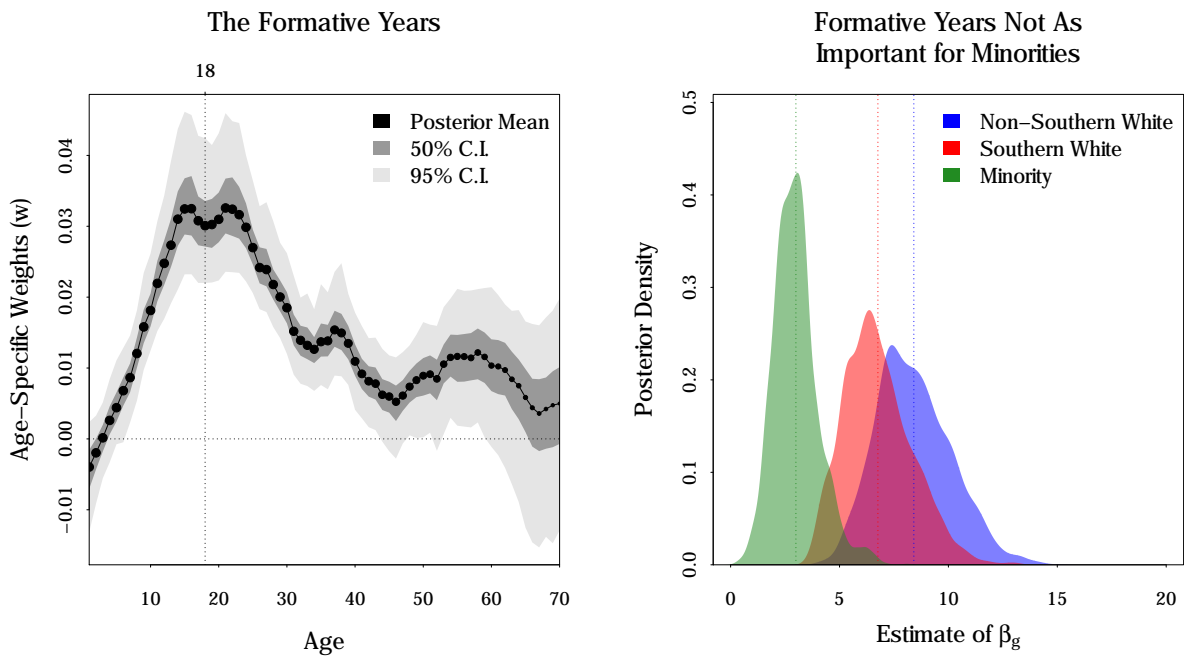


Figure 4: *Estimates for the generational aspects of the model. (L) The rough age range of 14-24 is found to be of paramount importance in the formation of long-term presidential voting preferences. Political events at a very young age have very little impact, and after the age of 24, the age weights decrease, staying at a small steady magnitude from about the age of 45 onward. (R) These age weights, and the political socialization process implied by them, are substantially more important for non-Hispanic whites than for minorities as a whole.*

Reagan was President at that time, with an average Presidential Approval of 66% during that year. The retrospective voting model posits that those events in 1981 had some effect on this voter’s long-lasting political preferences, and the particular model presented here posits that there are age-specific weights and other features, as described earlier. The survey response from 2012 allows the model to observe the preference of this voter from 2012 *at age 45*. But, the model essentially “backs out” the effect of that 1981 shock, and indeed the effects of all political shocks, as they were applied during the appropriate age and year. This is what allows the estimation of the age-weight curve.

### Importance by Race and Region

With the age curve fully defined, we move to the right-hand panel of Figure 4. Here we display estimates for the *importance* of the age curve, as represented by the  $\beta_g$  term in Equation (2) of the model. The numeric magnitude of the effect (shown on the  $x$ -axis) is difficult to interpret, and we will return to

this interpretation later on; but the main takeaway is that the age curve is substantially less important for minorities than for non-Hispanic whites. The average estimates for the three groups—non-Southern whites, Southern whites, and minorities—are 8.4, 6.8, and 3.0, respectively. Although the difference between Southern and non-Southern whites does not appear to be meaningful, the generational effect is over twice as large for whites as for minorities as a whole. It should be noted, in addition, that the  $\beta$ ’s are all positive, despite not being constrained to be so in the model, indicating statistical significance.

This result is in line with a priori expectations, though again those expectations were not imposed on the model. African Americans have consistently voted with the Democratic party, and as such it is difficult for the age weights and partisan shocks to have a substantial impact on their voting patterns. For Hispanics, the political socialization process is likely to be substantially more complex. Some Hispanic voters are native-born citizens and have experienced

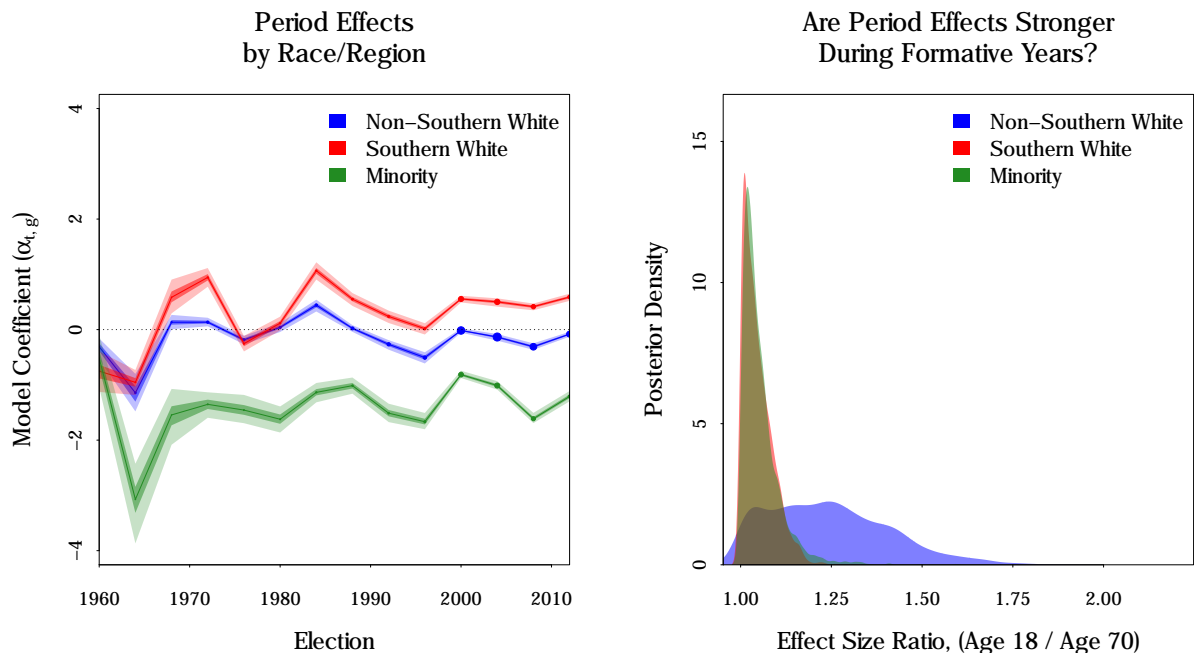


Figure 5: *Estimates for the election-to-election period effects in the model. (L) Minorities are consistently more likely to vote for Democratic presidents, and Southern whites have steadily trended pro-Republican over the past 50 years. (R) Period effects are roughly similar between young and old voters among minorities and in the South; evidence is inconclusive for non-Southern whites.*

the same political shocks as non-Hispanic whites (though they may have experienced them differently). Others are immigrants and may have not lived here for many of the events that comprise the shocks that are measured in the Gallup series. On top of this, naturalized citizens may self-select into political participation at different rates based on the salience of political activity among their community (Pantoja, Ramirez and Segura, 2001), adding additional complicating factors.

In short, it appears that the straight-forward political socialization process described for white voters here is not necessarily applicable for minorities. We should note, however, that in some sense this estimate is too crude—pooling all minorities together may inappropriately inflate this  $\beta$  term for African Americans and deflate it for Hispanics, leading us to underestimate the impact of this socialization process on Hispanic voters. But the data limitations necessitate this pooling procedure, and so a detailed investigation for those groups must be left for another time.

## Period Effects

Next, Figure 5 holds a summary of the election-to-election *period* effects estimated by the model. Recall that the period effects were allowed to vary by race/region, and so all three “time series” are plotted on the left, along with their 50% and 95% credible intervals. These effects are all reasonable—minorities are consistently more likely to vote for Democratic presidents, and Southern whites have steadily trended pro-Republican over the past 50 years.

The right-hand plot is a transformation of the  $\lambda$  effects from Equations (4) and (5). Recall that these terms were put in the model so that we could ask, are period effects more pronounced during the formative years shown in Figure 4? Here we are not plotting the  $\lambda$  estimates directly, due to the difficulty in directly interpreting interaction effects (Gelman and Hill, 2007), a challenge that is exacerbated with a model of this complexity. Instead we display the the implied *ratio* of period effects—the numerator is the implied period effect for an 18-year old voter (the peak of the age-weight curve), and denominator the implied effect at age 70 (roughly the bottom

of the curve).

The evidence here appears inconclusive. For Southern whites and minorities, the mode of the ratio gathers at the boundary 1.0, implying no differential effect at all. For non-Southern whites, however, there is a rather wide estimate centering around 1.25, but having substantial mass from 1.0 to 1.5. This means that period effects for non-Southern whites are somewhere between 0% and 50% greater for young voters than old voters. The high end, or even the mode around 1.25, would imply quite a large difference, but the model's inability to precisely estimate the magnitude of the effect leaves this particular question unanswered.

## Explanatory Power

Now that parameter estimates have been described, one question remains: how substantively meaningful are these generational trends? The  $\beta$  estimates in Figure 4 answer the question statistically, but those estimates are not particularly meaningful or understandable. Instead, notice Figure 6. A natural way to interpret the magnitude of effects is in the context of how well they explain the macro-level voting trends present in the data. One clear statistic in this regard is the sample size-weighted  $R^2$  for each of the cells—how much of the variation is explained by the model?

The *overall* results are shown in black—the model explains fully 92% of the variance in the data! This number is misleading, however, because most of that variation could be accounted for with a much simpler model incorporating only election-to-election period and race/region group effects. After all, there are big differences between minorities and non-minorities, and big differences between elections.

Several comparisons are thus shown for context. A model incorporating only the election-to-election period effects, broken out by race/region group as before, explains 89% of the overall variance. The real substantive power of the model is found by looking *within* groups. Within each group, the data is much less spread out, so the  $R^2$  is lower overall. But the full model is quite an improvement over the simpler model among non-Southern whites, improving the model fit from 53 to 71%. Among Southern whites, the fit is slightly improved, going from 50 to 56%. And for minorities, the difference is rather miniscule. On top of this, visual inspection of the fitted model values (i.e. post-predictive model-checking (Gel-

man et al., 2004)) reveals the model capturing the qualitative variation found in Figure 1 quite well.

In sum, the model accounts for a substantial portion of the variation in presidential voting over the last half century. Although much of that variation could be accounted for with a simpler model, the added generational effects implied by the age weights amount to a substantial improvement in model fit, especially among non-Southern whites.

## Generations of Presidential Voting

Now that the model is complete, we embark on a short narrative of the Presidential Approval time series, recounting pieces of the historical presidential record from the 1940s to present day. The purpose of this narrative is not simply to describe presidential history, nor is it to provide a detailed account of the formation of major public policies. Instead, we examine events through the lens of the model. We intend to describe the major political events that formed the presidential voting character of different generations. These events can and should be interpreted in relatively broad fashion, for if we expect them to have a wide impact on entire generations of voters, their exact details are of relatively little consequence. Through this narrative, we hope to provide a bit of color and substance to the analysis, and we hope to develop a more qualitative feel for the quantitative modeling results.

For this section, we focus exclusively on non-Hispanic whites. Although the political socialization of minorities is an important topic, the noted strength of the model among whites and relative lack of strength among minorities indicate that this history is most appropriately described in this manner.

Through the preliminary analysis and modeling efforts, we have come to a number of strong conclusions. The political events surrounding the formative years around 14-24 are of paramount importance in structuring life-long presidential voting preferences; those events are well-approximated by the Presidential Approval time series; and those events seem to have endogenously created five broad generations of voters. They can be denoted, for now, by their year of birth—voters born in the 1930s or earlier (pro-Democrat); 1941 (Republican); 1952 (Democrat); 1968 (Republican); and the 1980s or later (Democrat). These years are chosen because the voters

## How Well Does the Model Explain Macro-Level Vote Choice?

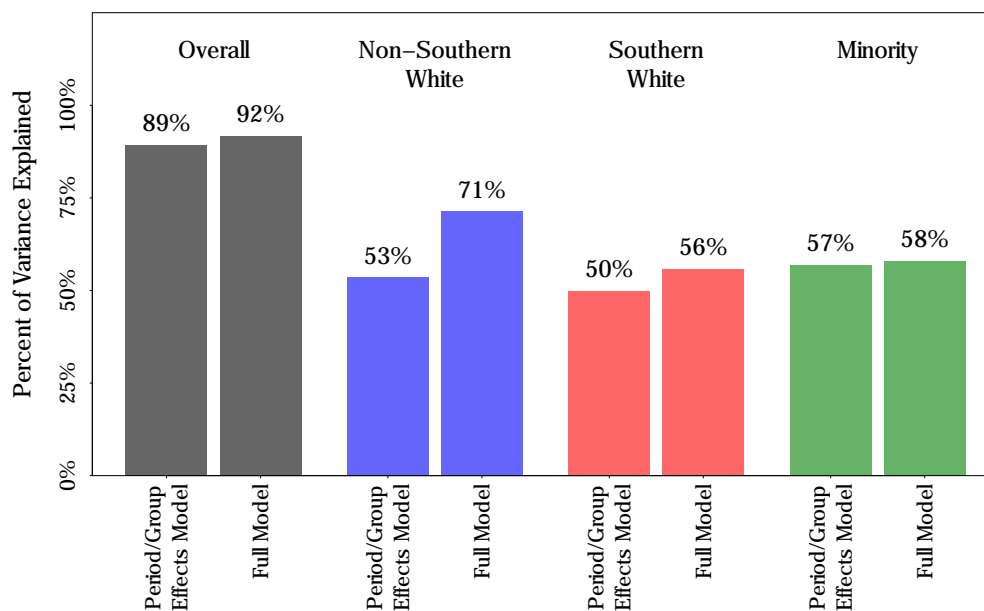


Figure 6: *the model accounts for 92% of the macro-level variance in voting trends over the past half century. That said, much simpler models, incorporating only period/group effects, would also account for much of the variance. The real substantive power of the model is seen in how it improves model fit within race/region groups, particularly among non-Southern whites.*

born in these years appear to epitomize the character of the five main generations found through the model. We will examine each of them in turn.

### New Deal Democrats

For the first generation, born in the 1930s or earlier, we are actually quite short-handed in descriptive capabilities, for a number of reasons. First, this is a large and widely diverse group! Within the dataset, the earliest were born in 1855, so when considered as a whole their political life experiences are quite varied. Second, the analysis specifically and intentionally excluded the vast majority of this group, due to the lack of presidential approval data available for much of their lives. As a result, the model is not formally appropriate for this particular generation. With these caveats in mind, we can still take the general principles learned from the model and speculate as to how they might have affected this group.

In regards to understanding voting patterns in the latter

half of the twentieth century, we can focus the narrative onto people born from roughly 1910-1940, because people born before 1910 comprise only a small minority of voters over this period. Fortunately, this makes the analysis relatively straightforward. There is a single towering figure that could have affected this group's presidential evaluations: Franklin Delano Roosevelt. FDR's achievements are monumental. He guided the country through the Great Depression and World War II, and in the New Deal he laid the foundation for the modern American welfare state. He served as president for twelve years, being elected four times, both more than any president in American history.

For voters born in the 1910s and 1920s, their peak formative years were spent during the Great Depression and World War II. They experienced Republican President Hoover's inability to help the country through this difficult period, and as children and young adults they saw the country recover under the Democrat FDR. This was followed immediately by the greatest war in world history, where they saw FDR guide the

country through and emerge as one of the world's superpowers. To this generation, then, the United States became the leaders of the free world under President Roosevelt's watch. These events surely had an impact on their presidential voting preferences, and those preferences remain to the present day. Recall Figure 1, where these now elderly voters continue to have comparatively pro-Democratic preferences through the 2000-2012 elections.

For voters born in the 1930s, their exposure to FDR was more limited than the earlier group. Their formative years occurred mostly after the country recovered from the Depression, and, for many, even after World War II. They were exposed to FDR's later years, though, and therefore experienced the tail end of his presidency, which, recalling the Approval series from Figure 2, remained enormously popular. Most of their peak years, however, are spent with President Truman at the helm. Truman had mixed and limited popularity over his two terms, ending his presidency at 36% approval. As such, this group's long-term voting preferences are mixed, and they lead into the next generation.

## Eisenhower Republicans

From this point forward, quantitative data can be used to aid the discussion. The Approval series is available for the full lifespan of the remaining generations, and so we apply the model in full and see the results as they change over time. The first of such graphs is shown in Figure 7. This type of graph will be shown for each of the remaining four generations, so it is important to describe it in some detail.

The top panel shows the familiar Presidential Approval series, now highlighted to emphasize the generational impact of each time period. The series is colored red to blue, with dark red reflecting pro-Republican approval ratings, dark blue as pro-Democrat, and shades of lighter colors and grey in between<sup>13</sup>. The width of the series reflects age-specific weights  $w$  as determined by the model. The graph thus emphasizes the peak formative years, where the events reflected in the Approval series were most powerful for this particular generation.

The bottom panel integrates over the shown Approval series and is thus reflective of the *cumulative* generational effects

from time of birth. This curve represents the sum presidential voting tendencies of the cohort, at each particular age, as marked on the  $x$ -axis. The series starts on the middle grey line, because there have been no events to alter generational tendencies at age 0. Importantly, election-to-election *period* effects are intentionally excluded—this graph is not meant to be reflective of voting in particular elections, rather it encompasses the *general* partisan tendencies of the cohorts, independent of the particulars of each specific race.

With these data as the starting point, we can examine the roots of the 1941 cohort's partisan presidential preferences in detail. These voters were too young to remember FDR's many accomplishments, instead entering their years of political socialization in anti-Democrat or pro-Republican times. In Figure 7 and those to follow, the most important times are the ones reflected with the darkest and widest bands. In this graph, the first such moment occurs when this generation is roughly 10 years old, in 1951. President Truman, who had barely won reelection three years earlier, had sent American troops into Korea, and now the war was turning into a disaster. After the unconditional victory of World War II, Americans were unaccustomed to the apparent stalemate in Korea, and Truman's popularity plummeted.

When President Eisenhower assumed office in 1953, his approval rating was enormously high, starting at 91%. Most presidential terms start out with high ratings, as noted elsewhere (Erikson, MacKuen and Stimson, 2002), but unlike most, Eisenhower remained popular over the entirety of his presidency. The heroic World War II general had promised to end the Korean War during his campaign and quickly did so, ushering in an era of relative peace. Although he did not succeed in ending the Cold War, as he desired, all international conflicts over his tenure were relatively minor. On the domestic front, the 1950s were a time of economic prosperity and progress. Eisenhower oversaw the creation of the Interstate Highway System and signed the Civil Rights Act of 1957 into law.

The most prominent dip in Eisenhower's popularity came around 1957-1958. The country was in recession, the Soviet Union had launched Sputnik and appeared to be winning the space race, and Eisenhower was forced to send federal troops to Little Rock to enforce a federal desegregation policy, indicative of a wider tension over civil rights across the country.

<sup>13</sup>Note that this coloring scheme perfectly reflects *Republican-directional* presidential approval, as was included in the model and described earlier.

## Birth Year = 1941

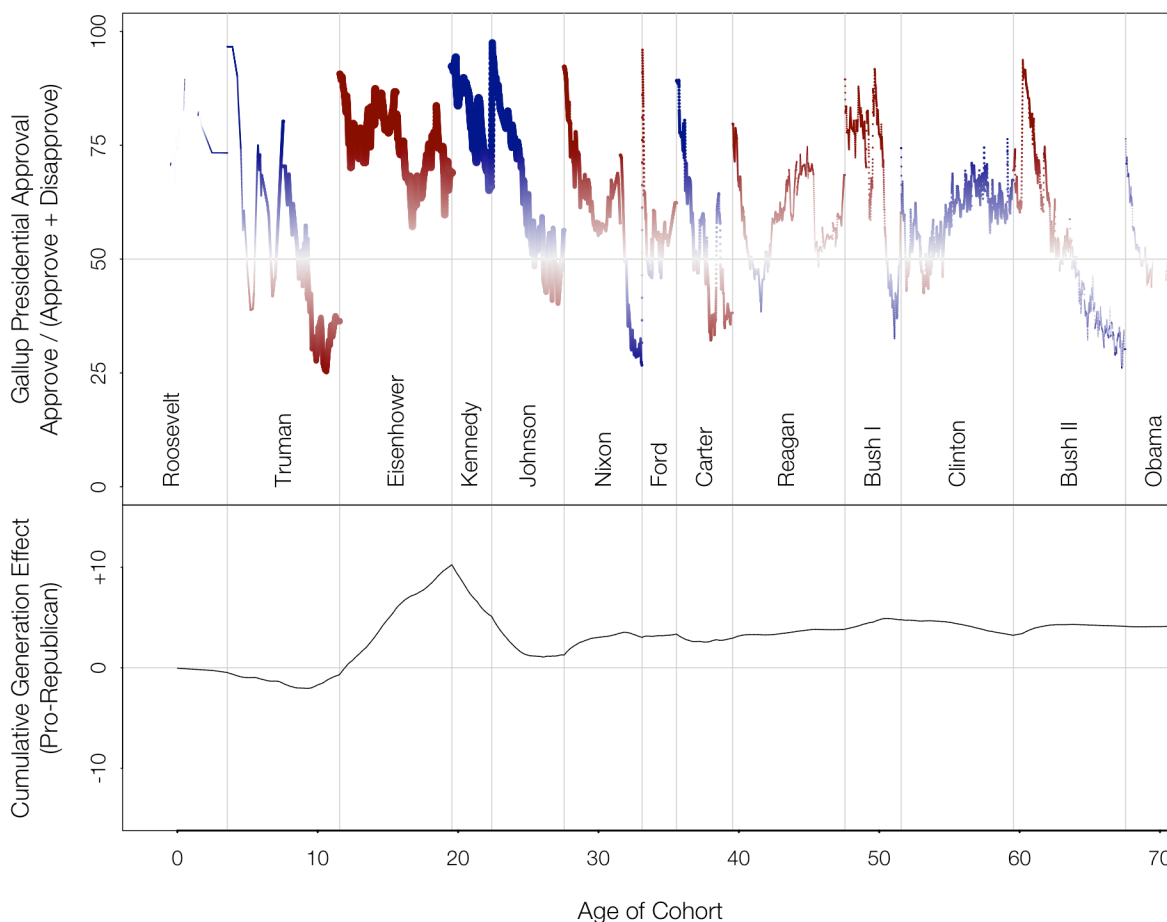


Figure 7: *The Presidential Approval time series, and the cumulative generational effects of that series, for Eisenhower Republicans, born in 1941. The series is drawn to emphasize this generation's peak years of socialization, according to the age weights found by the model. Dark blue indicates strongly pro-Democratic years, dark red for pro-Republican, and shades of grey in between. This generation missed most of the FDR years and were socialized through 10 straight pro-Republican years, spanning the end of the Truman presidency and eight years of the popular Republican President Eisenhower. Their partisan voting tendencies were somewhat stabilized back towards the neutral grey line by the pro-Democratic 1960s, and they reached a rough equilibrium by the end of the Nixon presidency.*

Yet his approval ratings dipped only for a short while, reaching a bottom point of 57% in March, 1958, and rebounding quickly back to the 70-80% range. Eisenhower was able to navigate these problems, and in sum had an enormously popular presidency, leaving office with a 69% approval rating.

The 1941 generation, then, had experienced 10 straight years of pro-Republican presidential evaluations, from roughly the ages of 10-20, much within the peak years of so-

cialization. The impact of this period on their long-term presidential voting preferences is apparent in the bottom panel of Figure 7. Notice the curve's steep ascent, peaking at the end of the Eisenhower administration. Continuing on this curve, the Kennedy and Johnson years stabilized their voting tendencies to a degree, shifting them back towards the middle grey line. Those particular events are best described in the narrative for the next generation, but the model does indi-

cate that the pro-Democratic 1960s influenced these voters as well. The cumulative generation effect comes to a rough equilibrium by the end of the Nixon Presidency. By the mid 1970s, this cohort was past the age of 30, and the major characterization of their presidential voting patterns had been set. The curve continues to wiggle up and down, but the impact of events from this point forward is relatively small.

The 1941 cohort can thus best be described as *Eisenhower Republicans*, though we should not take the term too literally. As we have described, this generation and others are not the byproduct of a single year—for instance, when they turn 18—or of a single president. Rather their preferences reflect a weighted summation of their full life experience.

## Baby Boomers

We turn next to the 1960s, a decade filled with a series of highly dramatic political events with long-lasting impact on the presidential level. According to the model, the generation most influenced by these events were those we generically refer to as *Baby Boomers*, and they in turn are epitomized by voters born in 1952. The conspicuous pro-Democratic dip seen earlier was among these voters, and in that sense this group provides a great deal of the variation in presidential voting preferences seen in the dataset. As a result, this group, and the events of the 1960s overall, are of particular importance to the narrative.

As can be seen in Figure 8, the Eisenhower years occurred too early in their lives to have long-lasting influence on voting preferences. Instead, they came of age during the Kennedy, Johnson, and, importantly, Nixon years. Kennedy, like Eisenhower before him, began his presidency with immense popularity, reflected in his 92% approval rating. He came into office at a time when the political mood of the country was at a liberal high-point (Stimson, 1991), and his bold “New Frontier” agenda reflected that mood. His domestic policy goals were wide-ranging and reflected an optimism in America’s abilities in the post-World War II era—an expanded government role in combatting poverty, increased federal aid to improve education, medical care for the elderly, progressing the cause of civil rights, and more. Famously, Kennedy emphasized the importance of science and technology and committed to sending a man to the moon by the end of the decade. At the same time, his short presidency was characterized by

an unusually tumultuous series of foreign policy events. He was at the helm during the failed Bay of Pigs invasion, and the Cuban Missile Crisis was perhaps the closest the world came to seeing the Cold War turn hot.

Though he succeeded in passing a number of his domestic policy initiatives and in averting war, Kennedy’s short presidency was by no means an irrefutable success. Many questioned his strength as a leader in the face of the Soviet Union, and his liberal agenda was at times stalled in Congress. His approval ratings are thus characterized by a steady decline over his three year presidency, interrupted by a short positive burst following the Cuban Missile Crisis. Indeed, when an assassin’s bullet tragically ended his presidency near the end of 1963, his approval ratings were at their lowest point at 66%.

Ironically, in some sense the tragic end to the Kennedy presidency may have helped cement his legacy. Historical counterfactuals are always a dubious proposition—but perhaps Kennedy would have been a relatively unpopular president, shackled with a declining approval rating, struggling to pass the remainder of his policies. Instead of this unflattering portrait, Kennedy is widely remembered for his charisma, images of his beautiful and sophisticated family, and his optimistic vision of the future. For the *baby boomer* generation, born in 1952 and roughly 11 years old at the time of his assassination, surely these are the stronger lasting memories.

*Quantitatively*, Kennedy’s assassination drove a unique occurrence in the Approval time series—two enormous popularity spikes in less than a three-year time span. When President Johnson took the helm at the end of 1963, a second Democratic President jumped above the 90% range, this time to 97% approval, the highest in the series. Johnson took this opportunity, along with his singular abilities as the quintessential Washington insider, to achieve Kennedy’s goals in the name of the fallen president. Building from Kennedy’s “New Frontier,” he wanted to not only pass a set of discrete policy proposals, but to build America into a Great Society:

The Great Society rests on abundance and liberty for all. It demands an end to poverty and racial injustice, to which we are totally committed in our time. But that is just the beginning. The Great Society is a place where every child can find knowledge to enrich his mind and to enlarge his talents. It is a place where leisure is a welcome chance to



## Birth Year = 1952

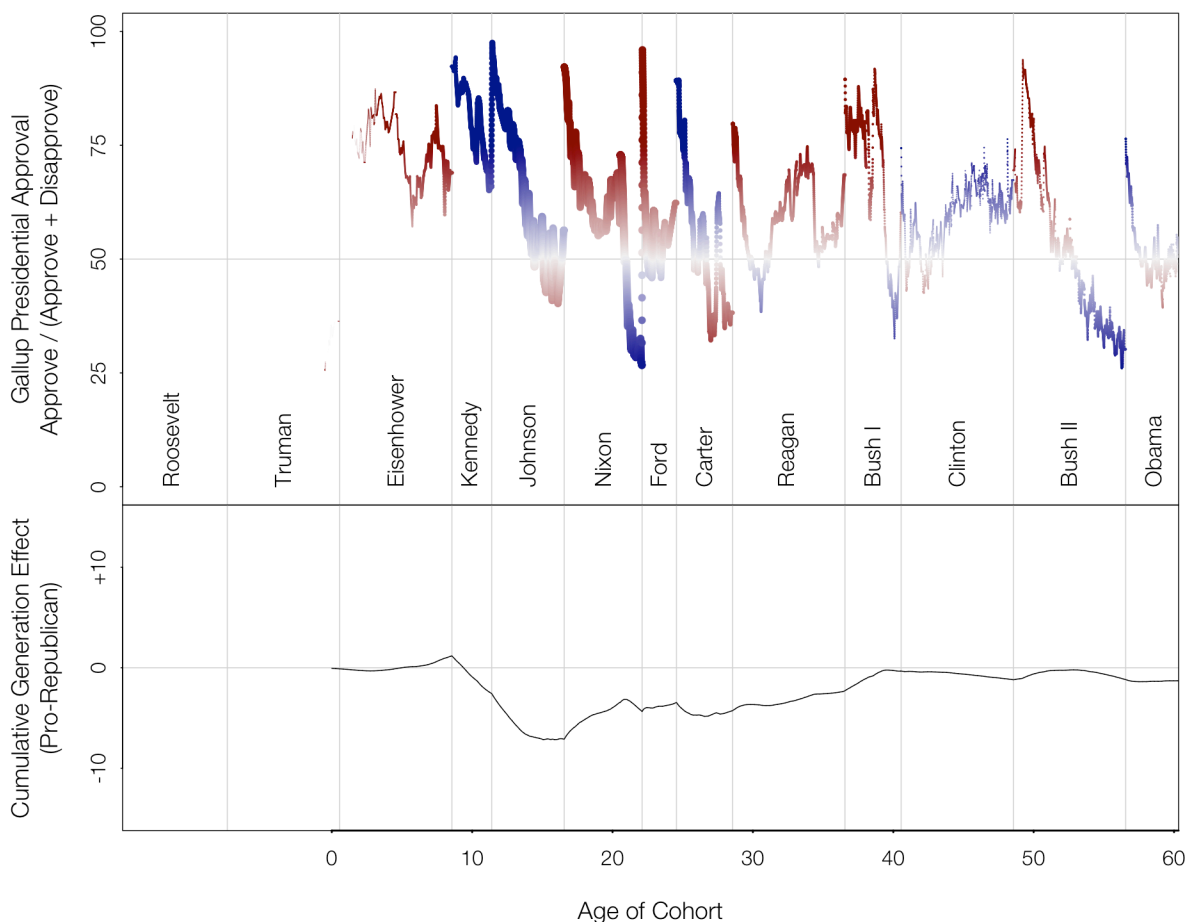


Figure 8: *The generation we refer to as Baby Boomers are best epitomized by the cohort born in 1952, whose presidential political events are emphasized here. Too young to be highly influenced by the Eisenhower years, they experienced an intense period of pro-Democratic sentiment during the 1960s, highlighted by the assassination of President Kennedy and the subsequent Great Society legislation passed by President Johnson. After 1968, however, roughly 25 years of near-consistent pro-Republican events neutralized their presidential voting preferences over that long stretch of time.*

build and reflect, not a feared cause of boredom and restlessness. It is a place where the city of man serves not only the needs of the body and the demands of commerce but the desire for beauty and the hunger for community. It is a place where man can renew contact with nature. It is a place which honors creation for its own sake and for what it adds to the understanding of the race. It is a place where men are more concerned with the quality of their goals than the quantity of their goods. But

most of all, the Great Society is not a safe harbor, a resting place, a final objective, a finished work. It is a challenge constantly renewed, beckoning us toward a destiny where the meaning of our lives matches the marvelous products of our labor. (Johnson, 1964)

For a time, it seemed as though Johnson might succeed in passing legislation to match his lofty rhetoric. He passed the Civil Rights Act of 1964 and the Voting Rights Act of 1965—the foundational pieces of federal legislation

of the civil rights era—outlawing discriminatory policies in schools, public places, and the voting booth. He established landmark programs to aid low income families and the elderly—Medicare and Medicaid, the federal food stamp program, the Department of Housing and Urban Development (HUD), and others. He focused on education through programs such as Project Head Start, expanded student loans, increased federal funding to universities, and the nongovernmental Corporation for Public Broadcasting. And he passed legislation to protect the environment, regulating pollution through the Water Quality Act and Air Quality Act, and establishing the national wilderness, rivers, and trails systems<sup>14</sup>. In sum, his legislative accomplishments were gargantuan, and the legacy of those programs is felt to this day.

Johnson also enjoyed immense popularity for an extended period of time, as reflected in his high approval ratings and his landslide election victory over Barry Goldwater in 1964. Johnson's presidency, and his legacy, however, were marred by the start of the Vietnam War and increasing racial and social tension in the late 1960s. By 1967, his approval ratings had fallen into the 40-60% range, and by 1968 the once powerful President and lifelong politician decided against running for reelection.

It is both interesting and illuminating to reflect on how these events shaped the presidential voting tendencies of the *baby boomer* generation, as described here. The majority of these events actually took place before their years of peak socialization. The strong pro-Democratic years, in the sense of presidential approval ratings, were 1961-1966, when these voters, born in 1952, were roughly 9-14 years old. Although this is just before the peak years, recall from Figure 8 that these events still had a substantial cumulative impact on their presidential voting tendencies. As we stated earlier, the ages of 14-24 are the strongest, but they are not the only years that matter. Here, the relatively large weights from age 9-14, in combination with the particularly high Democratic approval ratings of that era, were enough to sway these voters for many years to come.

The years after Johnson's decline, from 1967 onward, remain instructive. This was a particularly interesting time in American history, especially for young people in their teenage

years, due to the anti-Vietnam protest movement and the rise of the counter-culture. Johnson's approval rating "only" fell to about 50% at that time, implying, in the model, barely any positive or negative change in long-term presidential voting preferences. Thinking outside the model, though, it seems unquestionable that young people had negative feelings towards Johnson at the time. So how can we account for this?

There are two responses. First, we do not claim that the model perfectly captures all aspects of presidential history, only that the Approval series and the associated age weights are a good approximation to the historical events that shaped long-term voting preferences. In this regard, despite this apparent weakness in the model, the final results still seem on target, with this generation ending up relatively pro-Democratic.

Second, the Vietnam War and this generation's response to it is rather complicated. In 1967 and 1968, Vietnam was Johnson's war. But moving into the 1970s it became Nixon's war to many, and the protests shifted from anti-Johnson to anti-Nixon. It is plausible that this shift was particularly pronounced amongst the 1952 generation. They were not yet 18 years old under Johnson and were thus at highest risk of being drafted by Nixon. And when Nixon won the 1968 election by speaking to the "silent majority," he did so by explicitly denouncing the political concerns of these particular voters, young people who protested in the 1960s (along with minorities).

The implications of this can be seen in part in Nixon's 1972 reelection campaign. The Twenty-Sixth Amendment had just passed, setting the national voting age to 18. According to the data, white voters under the age of 25 (first-time voters in 1972) supported Nixon at only 53% ( $N = 1242$ ), in comparison to 70% for white voters 25 or older ( $N = 8162$ ). This 17 point gap is by far the largest in the dataset, never exceeding 9 points in any other election.

Despite this anti-Nixon sentiment, the cumulative curve of Figure 8 suggests that 1968 was the high point of this generation's pro-Democratic feelings. Nixon was in fact a popular president for a time, and the start of his administration ushered in roughly 25 years of almost entirely pro-Republican presidential performance. Four of the next five presidents were Republicans, and with a few short-term exceptions, all of those years were in the Republicans' favor. As a result,

<sup>14</sup>A list of these policies were pulled from the website [www.presidentialtimeline.org](http://www.presidentialtimeline.org).

the cumulative curve features a slow and steady incline over that period. By the time President Clinton came into office in 1992, this cohort, at 40 years of age, had reached a steady state around the neutral grey line. Since then, their general leanings have been essentially neutral, neither decidedly pro-Democrat nor pro-Republican. This, it should be noted, is in contrast to both the *Eisenhower Republicans*, described earlier, and the generation we describe as *Reagan Conservatives*, to which we turn next.

## Reagan Conservatives

It is, in some sense, a coincidence that the next generation of voters is best described by those born in 1968, the year of such turmoil and change among the baby boomers. On the other hand, this particular birth year ensures no influence of the Kennedy and Johnson years on this Republican cohort's long term voting preferences, under the model. Their Approval series is shown in Figure 9.

For this generation, both the polarized Nixon presidency—characterized by years of high popularity followed by the depths of Watergate—and the middling Ford presidency had little impact. Their political socialization seems to have started with President Carter. Like those before him, he began his term with high popularity, but his ratings quickly dwindled as adverse political events overtook his presidency. By the time he left office, an energy crisis, stagflation, and the Iran hostage crisis, among other events, had left him in the 30-40% range.

This led into President Reagan's campaign and his optimistic vision of America as a shining city on a hill. Though his early years were defined by a lack of economic recovery and the Republicans' defeats in the 1982 midterm elections, Reagan's popularity dipped below 50% for only a relatively short period. The recovery hit full swing shortly thereafter, and Reagan, whose campaign famously declared that it was "Morning in America" again, was reelected in a landslide, winning 49 of 50 states. This powerful imagery and the apparently overwhelming support of the American people no doubt had a powerful impact on the young cohort, who, 16 years old at the time, were squarely in the middle of their peak years of political socialization. Despite the Iran-Contra scandal and ballooning deficits near the end of his second term, Reagan's "Revolution" ended with his presidency at a 68%

approval rating.

President Bush I's presidency seems to have extended pro-Republican sentiment in ways that are, perhaps, underestimated in the collective public memory. From a foreign policy perspective, Bush was enormously successful. The fall of the Berlin Wall and the end of the Cold War both came under his watch, not Reagan's, and Operation Desert Storm was a testament to the power of American leadership in the post-Cold War era. As a result of these successes, Bush's ratings rarely fell below 80% for over 2 years, only dipping below 50% right near the end of his term.

Unfortunately for his personal legacy, economic problems at home doomed his presidency. The Clinton campaign declared, "It's the Economy, Stupid," and with this as their focus, they won the presidency back to the Democrats in 1992, ending over a decade of nearly continuous pro-Republican (or anti-Democrat under President Carter) sentiment. The pro-Democratic Clinton years neutralized this generation's long term preferences to a certain degree, but they were roughly 30 years old, past the age of peak socialization, by the time Clinton reached his peak popularity in the late 1990s.

Looking at Figure 9, it is perhaps unfair to label this generation as *Reagan* instead of *Bush Conservatives*, but anybody with a passing familiarity of contemporary American politics can recognize the term—Reagan continues to be lauded to this day for his foreign policy toughness, for passing conservative economic legislation, and for winning a landslide reelection in 1984. Bush, who followed through on Reagan's foreign policy rhetoric and successfully led the U.S. into the post-Cold War era, is not discussed as fondly by the Republican party faithful. Regardless, their joint reign as popular presidents certainly seems to have left a powerful legacy, especially for this generation.

## Generation Y and Millennials

For the last group, born in 1985, there is not much data with which to work, as they only have 27 years of political experience by the 2012 elections, the latest in the dataset. But in Figure 10, the presidential influences that have shaped their voting preferences thus far are seen clearly. If the results of the model hold, it is likely that these years will remain influential over the remainder of their lives.

For this generation, the uncertainty of the Cold War is long

## Birth Year = 1968

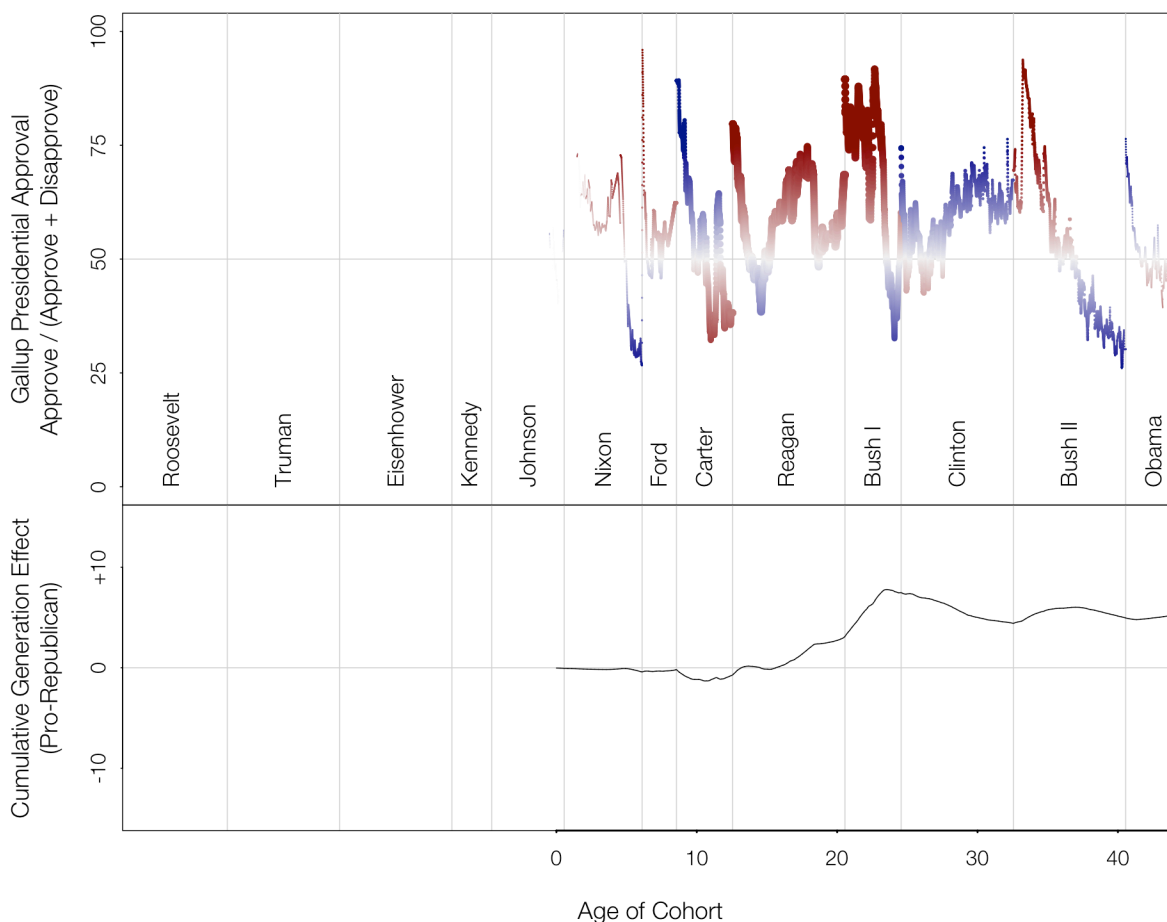


Figure 9: *The Approval series as seen by the generation we call Reagan Conservatives, best epitomized by the cohort born in 1968. This generation missed the Kennedy and Johnson years entirely, and their peak socialization fell under the popular Republican Presidents Reagan and Bush I. By the time the Democratic President Clinton reached his peak popularity in the late 1990s, they were already roughly 30 years old.*

gone, and the foreign policy successes of the Reagan and Bush administrations, though discussed at times in contemporary political discourse, are memories of other generations' lives, not of their own. Indeed, the first president to influence their voting patterns in a substantial way is the Democratic President Clinton. Clinton's biggest political defeat, in the face of the Republicans' Contract with America, took place in 1994 when these voters were only 9 years old. They entered their peak socialization years in 1999—the federal deficit had been eradicated, the country was experiencing a period of immense economic growth and prosperity, and America remained the

leader of the free world and the globe's lone superpower. Despite his impeachment and the Monica Lewinsky scandal, Clinton had garnered positive approval ratings for roughly four straight years, and he kept his popularity through the remainder of his term, ending his presidency with a 67% rating.

In 2001, the Republican Bush II took office, and thus began one of the most turbulent presidencies in American history. Campaigning as a moderate and "Compassionate Conservative," Bush II became a deeply polarizing and ultimately unpopular figure. The terrorist attacks of 9/11 drove his popularity to 94%, a time in which the youngest cohort tem-

## Birth Year = 1985

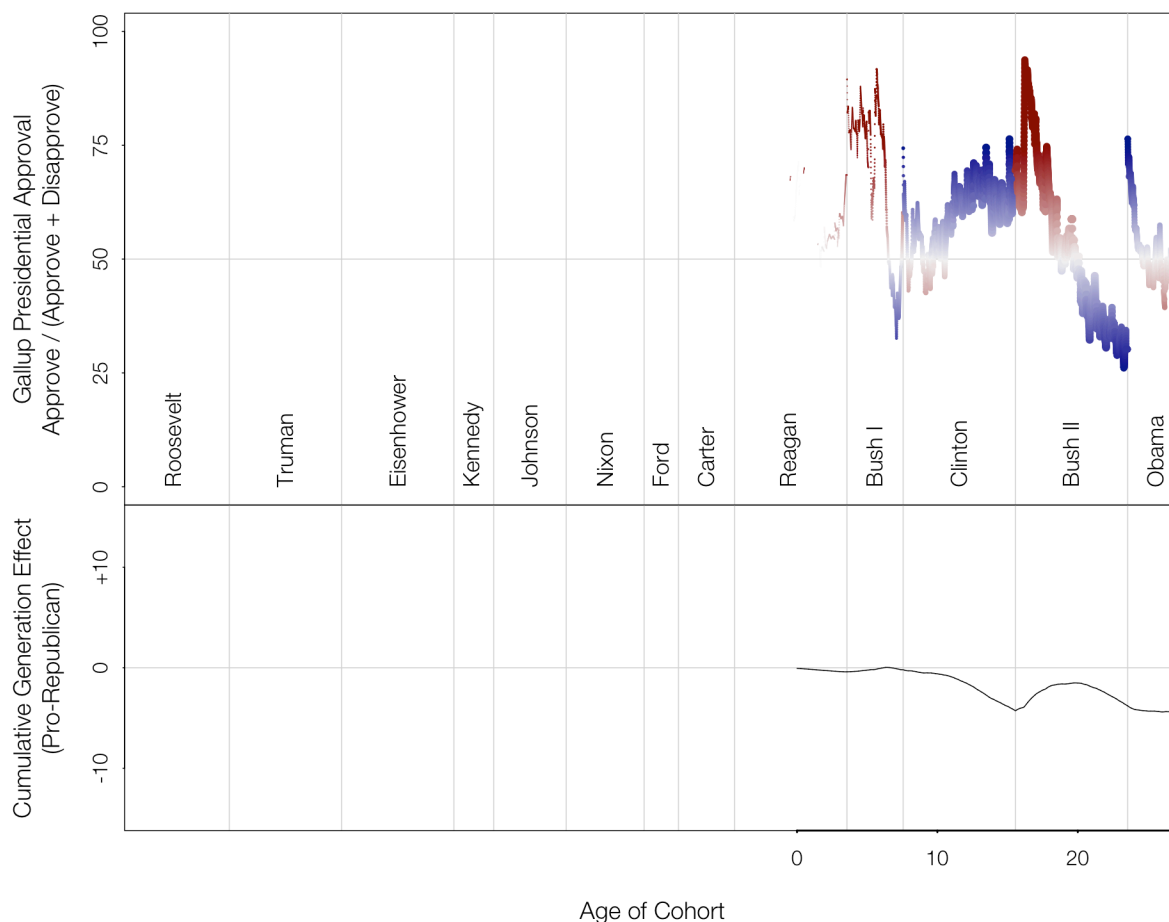


Figure 10: *The Approval series as seen by the last generation, referred to by their nonpolitical descriptors, Generation Y and the Millennials. Their experience had only lasted 27 years by the 2012 election, but the model indicates that these years should remain highly influential over the rest of their lives. Their formative years have been primarily characterized by the popular Democratic President Clinton and the unpopular Republican Bush II, resulting in their relatively strong pro-Democratic sentiment.*

porarily shifted in a pro-Republican direction. But after these heights, he experienced a steady and calamitous decline. On the foreign policy front, his administration undertook costly and unpopular wars in two countries and more broadly declared a global “War on Terror.” Though some supported the President’s vision of America as a crusader for democracy around the world, others considered his policies, particularly the war in Iraq, as deeply problematic ventures which cost American lives and treasure, weakened America’s standing in the world, and produced little, if any, gains. In terms of domestic policy, Bush II’s most notable accomplishment—his

2001 tax cuts—ultimately resulted in the surpluses achieved under the Clinton administration turning, once again, into massive federal deficits. On top of this, the end of his presidency was headlined by the largest financial crisis the country had faced since the Great Depression. Despite passing effective eleventh hour legislation in the form of the Troubled Asset Relief Program (TARP) to avert the crisis, many still lay this calamity at his feet.

Quantitatively, these problems are clearly reflected in his approval ratings. Bush II first fell below 50% approval in May of 2004. He barely won reelection that year, and in doing so

received only a slight bump to his approval ratings. Falling below 50% again in March 2005, only two months after his second inauguration, his ratings stayed in negative territory for the remainder of his presidency—almost an entire four years, by far the longest such stretch in the series. His approval hit its low point of 26% in October of 2008, in the midst of the financial crisis, and was slowed, it seems, only by his merciful departure from office three months later.

This brings us to the current Democratic President Barack Obama and to the end of the series. Obama, like the other presidents, began with a high 76% rating—less than the 90% levels from earlier in the series, but in line with the more recent Presidents Clinton and Bush II. His popularity quickly declined, however, in part due to the ongoing financial crisis which began under Bush II. His rating dipped to 50% in February of 2010, and has remained in that range over the subsequent three years.

For the last generation of voters, then, their presidential voting preferences thus far seem to mostly reflect the popular Democrat Clinton and the deeply unpopular Republican Bush II. At the midpoint of his presidency, the legacy of President Obama and his ultimate influence on this newest generation of white voters remains undetermined.

## The Changing White Electorate

Now that we have described each of the five generations separately, we examine their impact on the overall white vote in tandem. We do so in Figure 11. Here we plot each of the cumulative generation curves from the earlier figures on a single graph, with a few modifications.

First, the definitions for each of the generations have become looser. For the narrative section, it was helpful to take the birth year most emblematic of each group, but here we broaden to define each generation on the scale of decades, allowing us to monitor the entire electorate at once. Despite the change, the basic narratives remain the same—and indeed, overly specific definitions of generations are not supported by the evidence. Second, notice the changing widths of each curve. These reflect the proportion of the electorate that each generation represents at any given time. At the start of the series, the oldest generation reflects the entire white electorate; as time marches on, they become a smaller and smaller portion, and by 2012 all five generations are represented. Third,

instead of plotting each generation's *full* curve from age zero onward, we only plot the curves from their first entry into the *voting* electorate, i.e. from their first election onward. Last, we have included the *New Deal Democrats* and older voters in this graph, despite the fact that the statistical model did not explicitly include them<sup>15</sup>.

From this graph, we can more clearly see the influence of each generation, while also plotting the tendencies of the full white electorate, shown in green. In the 1940s, whites were slightly Democratic due to the influence of FDR. Through the 1950s, the *Eisenhower Republicans* entered the electorate and shifted whites towards the neutral 50% line, with the Kennedy/Johnson years moving the electorate back down over the course of the 1960s. Thus began the long period of Republican ascendancy—slightly trending upward through the Nixon and Ford years, slowed in part by the entry of the *Baby Boomers*. But the onset of the Reagan administration moved almost all generations upward—the *New Deal Democrats* were too old at that point to have any meaningful change, but the remaining generations, especially the *Reagan Conservatives*, moved dramatically, with the green curve crossing the 50% boundary line in late 1985. Those same *Reagan Conservatives*—now defined as a group going until the birth year of 1979—neutralized a bit under the Clinton presidency, but that change was not meaningful enough to largely move the electorate as a whole. Bush II's 9/11 spike moved all groups slightly, and his slow and steady decline also served to move most groups once again.

This graph does not in fact represent the complete opinion trends of each of these generations. After all, the model does not fit 100% of the variance in the data. But it does indicate that this relatively simple model can explain quite a bit about the overall voting character of the white electorate. Indeed, the graph is *entirely* driven by the presidential political events represented in the Approval series and the age weights. The white electorate moves in meaningful ways, and the familiar “parallel lines” of public opinion, in which different groups respond to political events in similar ways, are apparent (Page and Shapiro, 1992). In the model, changes which

<sup>15</sup>To construct this group's generation curve, we apply the statistical model for the years covered by the time series, including both generation and period effects. We then fit an additional regression model to find an intercept adjustment for this group, placing them in line with their expected voting preferences in an average election. An “average” election is defined as one in which the period effects are set to zero.

## The Changing White Electorate As A Function of Presidential Approval

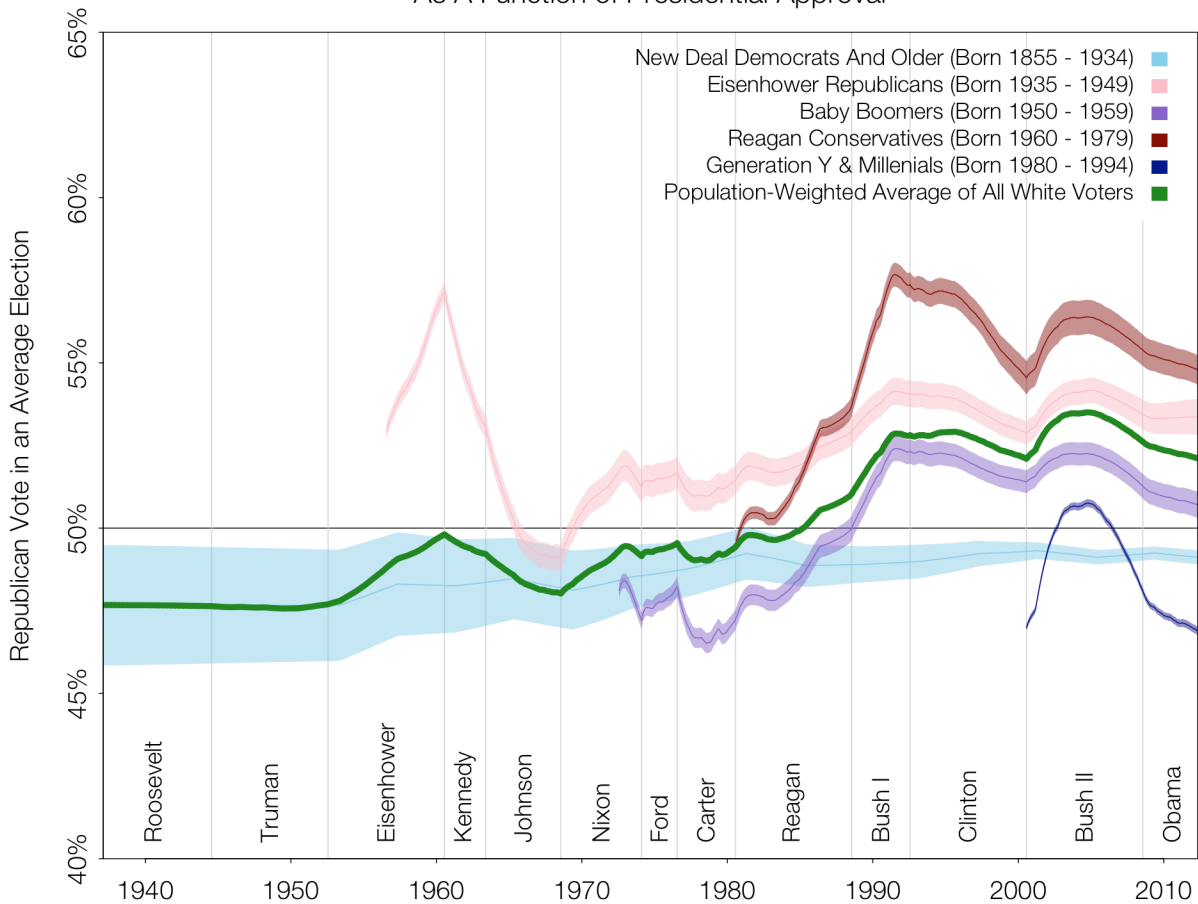


Figure 11: *The cumulative preferences of each generation is shown, along with the weighted summation of the full white electorate. The generations are now more loosely defined, to allow the entire electorate to be plotted at once, with the width of each curve indicating the proportion of the white electorate that each generation reflects at any given time. The model—in this graph reflecting only the Approval time series and the age weights—can explain quite a bit about the voting tendencies of the white electorate over time.*

are in some senses “small” seem to have a big impact on policy and on the overall character of the electorate—the green curve, representing the full white electorate, spans only 7 percentage points altogether. In the grand scheme of presidential politics, however, a consistent 7 point swing is enormously meaningful.

### Discussion

Now that the model is complete, it is an appropriate moment to revisit the observation which opened the paper. To restate,

55% of white voters aged 18-29 voted for then-candidate Obama in 2008, and that advantage flipped to 54% in favor of the Republican candidate Romney in 2012. Why did this happen? The answer, it seems, is now clear. Heading into 2008, young voters had only experienced the popular Clinton and unpopular Bush II years. The winds were in Obama’s favor, and these voters in particular were in a position to be most receptive to those election-to-election period effects. Going into 2012, however, the most recent years of poor Bush II performance were replaced by mediocre ratings of Obama himself. As the country moved roughly 2 points

away from Obama as a whole, these young white voters, in or near their peak years of socialization, were in position to be moved the most. That is indeed what happened, and the end result was a larger loss among this young group.

It is, of course, difficult to forecast the exact implications of this loss on future Presidential elections. But if the model results are any indication, this is a change that may reverberate well into the future. Alternatively, we might state this result in a positive tone for the Democrats—perhaps 2008 was a special year, similar to 1972, in which a strongly pro-Democratic cohort entered the electorate in the wake of a deeply unpopular Republican president. Perhaps these first-time voters, born around 1990, will remember the Clinton and Bush II years through their lifetimes and hold persistent pro-Democratic views for the remainder of their voting lives. If so, then 2012 was not the outlier, but rather a return to normalcy, and the 1990 cohort will be an inflection point, similar to the cohort born in 1952.

Regardless of how we interpret the result from these two recent elections, the larger trend is clear and strong. The “running tally” model appears vindicated from the perspective of presidential voting, and in particular we see that retrospective evaluations of the president’s performance are particularly meaningful during the teenage years and young adulthood, peaking around the ages of 14-24. The Approval Ratings time series appear to be a good approximation to the political events informing those retrospective evaluations, and a model which accounts for these events can tell us quite a bit about the voting character of the white electorate over the last half century.

On top of the quantitative results, the brief narrative has helped clarify some of the qualitative details of the story. When we think about generations of presidential voting, it is important not to think about a single election or of a single defining political event. Rather, generations appear to be formed through a prolonged period of presidential excellence. FDR and the New Deal, Eisenhower, Kennedy and Johnson’s Great Society, the Reagan/Bush conservative revolution, and the Clinton years are all characterized by long periods of high approval ratings, each of which steadily pushed the cumulative voting preferences of a generation in one direction or another. The only major exception appears to be the last—the Clinton years were aided not by an additional

successful Democrat, but by the deeply unpopular Republican Bush II.

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