

# Generational change in party support in Germany: The decline of the Volksparteien, the rise of the Greens, and the transformation of the education divide

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## ABSTRACT

Motivated by the eroding support for the old “Volksparteien” CDU/CSU and SPD, especially among younger voters, this study conducts an age-period-cohort analysis of vote choices in all 20 German federal elections, from 1949 to 2021. I study both generational differences in levels of party support and the changing effect of education on voting. The results, first, point to the importance of generational replacement in understanding party’s shifting fortunes, with the CDU/CSU and the SPD being weaker in more recent cohorts and the Greens stronger. Second, while high education divides voters of the old right (CDU/CSU and especially FDP) and left (SPD) in earlier cohorts, it divides voters of the new-left Greens and the radical-right AfD in more recent cohorts. This study enhances our understanding of the changing patterns of party support in the German electorate and, as a broader lesson, shows how electoral realignment is driven by generational replacement.

## 1. Introduction

The 2021 Bundestag election marked a watershed moment in the history of the German party system. For the first time in the history of the Federal Republic of Germany (FRG), the old “Volksparteien” (people’s parties) CDU/CSU and SPD together accounted for less than half of the party votes. Which structural changes in voter-party alignment are behind these shifts? And will the decline of the old „Volksparteien” continue? While questions about the future are difficult to answer with certainty, differences in voting by age groups in the 2021 election suggest that the trend might persist. Among those aged 70 and older, the CDU/CSU still received 37.5% and the SPD 34.8%. Yet, among the youngest voters, aged 18 to 24, these shares were just 10.8% and 15.6% respectively—both lower than the shares obtained by the liberal FDP (20.5%) and the Greens (24.0%) in this age bracket (Bundeshwahlleiter, 2022). These results point to large generational differences in vote choices in Germany, and by extension also in the social divisions underlying those. Yet, it is unclear to what extent they reflect stable differences across generations rather than age or life-cycle effects, or even short-term reactions to the political situation around the 2021 elections.

Against this background, this study conducts an age-period-cohort (APC) analysis of voting behavior in Germany using data from post-election surveys for all 20 federal elections, from 1949 to 2021. It

addresses two interrelated questions: First, are there persistent differences in party support across generational cohorts, net of age and period effects? In particular, to what extent is the long-term electoral decline of the CDU/CSU and the SPD, and the rise of the Greens, driven by generational replacement? Second, does education affect party preferences differently in different cohorts—indicating a generational realignment? In particular, has high education shifted from being associated with the “old” right to being associated with the “new” left?

By addressing these questions, this manuscript contributes to two strands of literature. First, it adds to previous APC analyses of voting in German elections (Goerres, 2008; Klein, 2009; Rüdiger, 2012; Schoen, 2006; Wagner et al., 2012). It does so in two ways. For a start, it asks how the generational differences in levels of party support identified in previous work have evolved amidst the recent transformations of the German party system. In other words, it reassesses the question of generational change using fresh data including the more recent federal elections up to 2021. In addition, the present analysis goes beyond the previous studies by examining not only how the level of party support is subject to generational change, but also its drivers. It does so with a focus on formal education, as one of the core socio-structural characteristics.

Second, via the latter the article contributes to an ongoing debate on the (changing) impact of education on party preferences in Western

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democracies. A plethora of studies show how voting for (left-) libertarian vs. (right-) authoritarian parties is nowadays structured by high vs. lower formal education, giving rise to an “education cleavage” (Stubager, 2010, 2013). Yet, this has not always been the case. Analyses of long time-series indicate a “reversal of the education cleavage” (Gethin et al., 2021, 2022): Whereas high education was associated with voting for the (economic) right in the past, it is now associated with voting for the (cultural) left. In this study, I argue that there is a strong generational component to this realignment and, drawing on the German case, investigate this generational realignment in more detail than previous related studies (Gethin et al., 2021; van der Brug and Rekker, 2021).

The results of this study underscore the importance of generational replacement in understanding parties’ shifting fortunes. First, even net of age and period effects, the CDU/CSU and the SPD are much weaker within more recent cohorts. The Greens are notably stronger in more recent cohorts, though support for the Greens already reached its plateau with the Baby Boomers (in Western Germany). Due to the mechanics of generational replacement, and to the extent these trends persist, these findings imply a plausible baseline scenario for the future evolution of German parties over the medium turn: Vote shares for the CDU/CSU and the SPD can be expected to decline further; the reverse holds for the Greens, but their projected future increase seems more limited as much of the generational change in support for the Greens has already materialized.

Second, holding high education matters differently in different generations. Among those born until 1945, high education goes along with an increased likelihood of a CDU/CSU and, especially, FDP vote as well as a decreased likelihood to vote for the SPD. Among those born later, high education primarily makes voting for the Greens more likely and, conversely, voting for the radical-right AfD less likely. Thus, there is a generational realignment in the effect of education.

Overall, this study enhances our understanding of the changing patterns of party support in the German electorate and sheds light on its likely future evolution. Moreover, it holds broader lessons by demonstrating how processes of electoral change and realignment operate chiefly through generational replacement. It thereby seconds a point made elsewhere recently (van der Brug and Rekker, 2021), namely that APC models hold enormous potential to better understand electoral change as such change is often driven by generational replacement. Most studies on electoral change and de/realignment, studying solely variation over time, overlook this potentially crucial role of generational change. This omission is consequential as we may underestimate the degree of change if we look at the electorate at large and do not consider that older voters are often set in their ways. For example, if education is differently related to voting in different cohorts, these effects will cancel each other out in an analysis that averages over cohorts.

Building on the pertinent literature, the next section outlines the theoretical arguments of this study. Section three discusses data and methods. Section four presents the results. Section five summarizes the study and discusses implications.

## 2. The changing German party system, the role of political socialization and the education divide

In this section, I will first give an overview on aggregate election results in German elections since 1949 to outline the broad shifts in party support that took place. Next, I will elaborate on how political socialization and cohort effects might be relevant to these trends and discuss previous research on cohort differences in party support in Germany. I then turn to studies on the changing role of education for voting behavior in Western Europe and suggest that cohort effects drive this realignment. Along the way, I formulate a set of hypotheses to be

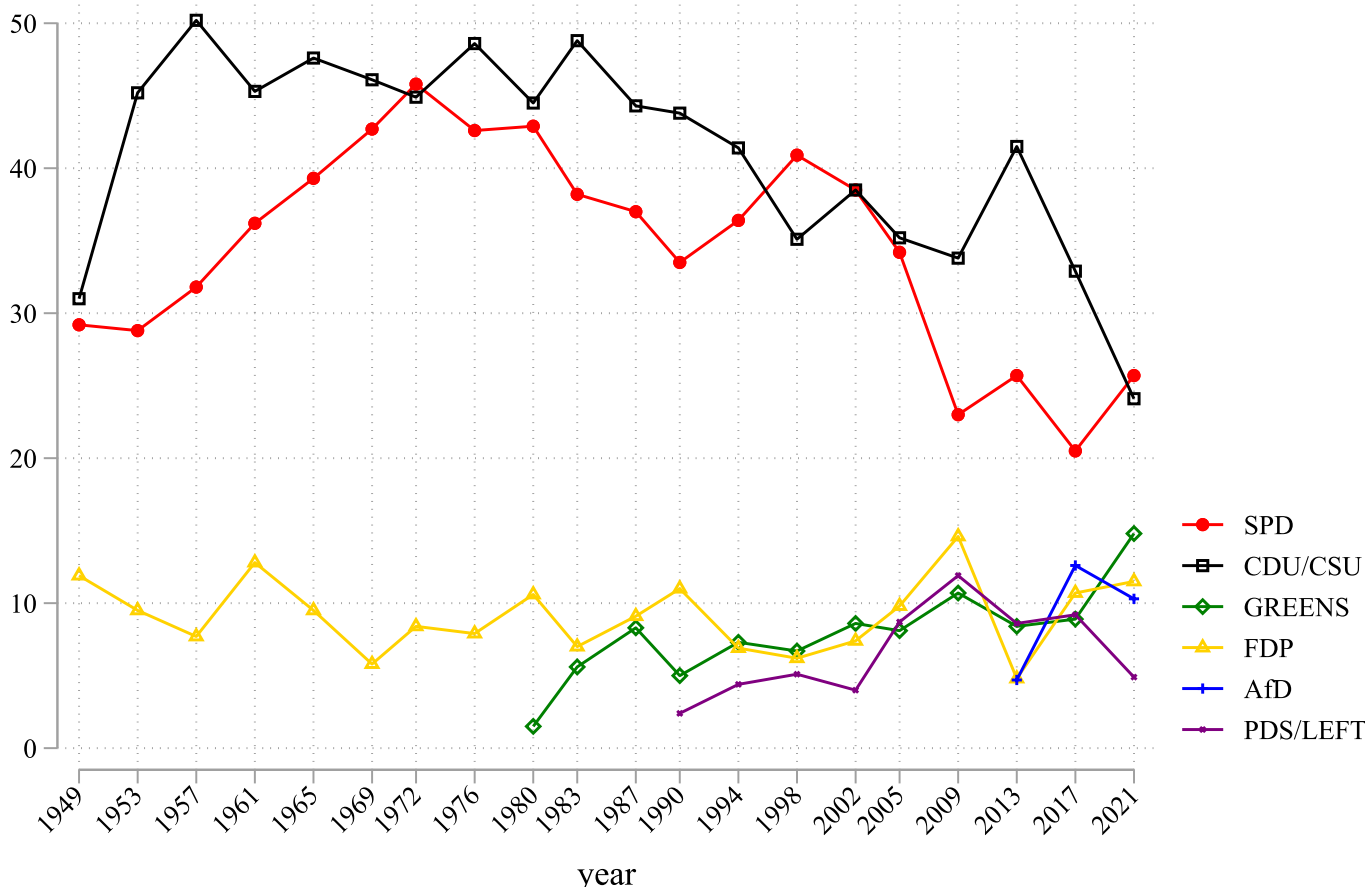


Fig. 1. Party vote shares in elections to the German Bundestag.

tested in the empirical part.

Fig. 1 shows the vote shares of the six parties represented in the 20th German Bundestag for all twenty national elections since the founding election of 1949. The most striking trend is the decline in the strength of the old „Volksparteien“ since their highs in the 1960s and 1970s. Between 1953 and 1987, the combined vote share of the Christian Democrats and the Social Democrats had always been higher than 80%. In 2021, these parties received 24.1% and 25.7% of the votes respectively, together accounting for just 49.8% of the vote. Another remarkable long-term trend—albeit partly driven by their good performance in 2021—is the rising strength of the Greens. Overall, the German party system has, after a period of consolidation in the early phase of the FRG, become more fragmented over time, as have party systems in many other Western European democracies.

While in itself remarkable, these aggregate trends may mask even more dramatic shifts in the voting behavior between generational cohorts. In a recent review, Wouter van der Brug and Mark Franklin (2018) have characterized generational replacement as the “engine of electoral change”. This view builds on the “formative years hypothesis”, according to which political orientations tend to be formed and consolidated during adolescence and early adulthood and are persistent thereafter. There is ample research supporting the formative years hypothesis, especially when it comes to orientations that are central to individuals’ political belief systems (Alwin and Krosnick, 1991; Sears and Funk, 1999; van der Brug and Franklin, 2018). Depending on their political socialization, individuals of different cohorts may look at the political world very differently. For example, recent studies show that citizens’ left-right identifications relate to policy issues differently across cohorts, reflecting the salience of issues during the time when people were socialized into politics (Rekker, 2016; Steiner, 2023).

Similar dynamics are plausible when it comes to voting behavior, and they may lead to two different kinds of patterns. First, political socialization may leave lasting footprints in the form of different levels of party support across different cohorts. These cohort effects may arise directly in that people who were socialized during a particular era when a party was exceptionally popular are permanently more inclined to vote for that party. Such cohort effects may also arise more indirectly, for example when political socialization leads to certain attitudes being permanently more widespread in particular cohorts, which then make these cohorts support parties with corresponding positions. Second, similar mechanics of political socialization may also leave lasting footprints in the form of the drivers of party preferences being different across cohorts. For example, when the salience of political conflicts changes over time, divisions among older cohorts are likely to still reflect old conflicts whereas the dividing lines within younger cohorts are likely to be more strongly shaped by new conflicts. In line with this second possibility, van der Brug and Franklin (2018: 436) reason that “realignments should have a strong generational component”, yet note that their “literature search found this to be a very under-studied topic”.

To analyze generational effects of either type, it is mandatory to separate cohort from age (or “life cycle”) and period effects. This is achieved by age-period-cohort (APC) analyses (Bell, 2020; Neundorff and Niemi, 2014). A few previous studies have applied APC models to party choices of German voters (Goerres, 2008; Klein, 2009; Rattinger, 1992; Rüdiger, 2012; Schoen, 2006; Wagner et al., 2012). These studies follow two distinct approaches. One set of studies is based on cohort analyses of data from the “Repräsentative Wahlstatistik” (Representative Electoral Statistic) (Rattinger, 1992; Rüdiger, 2012; Wagner et al., 2012). These data contain aggregated information on vote choices of age brackets for (most of the) the German federal elections. A second approach, the one followed in this study as well, is to use individual-level survey data from repeated cross-sections: Schoen (2006) uses data from German election surveys for the elections from 1980 to 2002, Goerres (2008) draws on Politbarometer surveys from 1977 to 2002, and Klein (2009) relies on data from the German General Social Survey (“ALLBUS”) from 1980 to 2006.

Despite the different methods and data sources, these previous studies report common patterns of cohort differences in party support, and also converge on how to interpret those. First, the CDU/CSU is found to be most popular among those born in the two to three decades leading up to the end of World War (WW) II (Goerres, 2008; Rattinger, 1992; Wagner et al., 2012). This “Adenauer generation” (Goerres 2008) was politically socialized under a strong CDU/CSU during the chancellorship of Konrad Adenauer, during which the young FRG experienced its “Wirtschaftswunder” (economic miracle). Support for the SPD peaks among the Baby Boomers (usually defined as those born from 1946 to 1964), or “Brandt generation” (Goerres 2008), politically socialized under a strong SPD during the chancellorship of Willy Brandt (Goerres, 2008; Rattinger, 1992; Schoen, 2006; Wagner et al., 2012). Both of the old “Volksparteien” receive lower support among generations succeeding their respective peak cohorts. For the CDU/CSU, though, it is not clear whether this is a continuing trend or whether it has recovered a bit among more recent cohorts born after the mid 1970’s. Regarding the FDP, there is weak evidence, at best, of cohort effects (Rattinger, 1992; Schoen, 2006; Wagner et al., 2012).

As a party that emerged only later in the history of the FRG, cohort effects in the Green vote have received special attention (Goerres, 2008; Klein, 2009; Rüdiger, 2012; Schoen, 2006; Wagner et al., 2012). These studies show that the rise of the Greens was to a large extent a generational phenomenon, with the Greens receiving little backing among those born before 1945 and then much higher support among those born in the two to three decades thereafter. Klein (2009), for example, reports the strongest cohort effects in favor of the Greens for the generation of the “new social movements”, born between 1954 and 1964. In line with Inglehart (1977), these generational effects are attributed to post-materialist values being more widespread within these cohorts (see, especially: Klein, 2009)—that is, to an indirect effect of socialization. In some of these studies, support for the Greens tends to dissipate in subsequent generations, born in the 1970s and later (Goerres, 2008; Klein, 2009; Rüdiger, 2012; Wagner et al., 2012). This has led Rüdiger (2012: 116) to diagnose a “greying” of the Greens”. Yet, like for the CDU/CSU, the trends in the Green vote among the more recent cohorts are less clear and consistent across studies, probably reflecting that the data for these generations are much sparser.

Against this background, I reassess generational differences in party support over an enlarged time horizon, covering over 70 years of German elections. Since none of the previous studies go further than 2009, and those based on survey data not further than 2006, the main goal is to assess how the trends reported in earlier studies have played out in more recent cohorts in Western Germany. My guiding expectation here simply is that the overall trends in party support (see Fig. 1) are reflected in stable differences in party support across cohorts, in continuation of the main trends identified in previous research. Thus, I expect the old “Volksparteien” to be less supported by the more recent cohorts, as compared to their respective peaks. For the Greens, I follow previous research in the expectation that the Greens are much more popular among those born after 1945 compared to earlier cohorts. Yet, across the post-1945 cohorts, in contrast to the idea of a peak from earlier work, a plateau-like pattern seems more likely from today’s perspective—in light of the Green party’s historically strong performance in 2021 and the concerns over global climate change attracting recent generations to the Greens.

The following three hypotheses summarize these expectations.

- H1. Compared to those born until 1945, support for the CDU/CSU declines in subsequent cohorts.
- H2. Compared to Baby Boomers, support for the SPD declines in subsequent cohorts.
- H3. Compared to pre-1946 cohorts, support for the Greens is (persistently) higher in subsequent cohorts.

These hypotheses focus on Western Germany given the longer time

series and the more straightforward history of political socialization into party politics of the FRG. Yet, the addition of data from almost two decades after German reunification also allows me to contrast cohort patterns in Western Germany with those in the East, where the communist legacy likely has led to different patterns.

The second contribution of this study is to analyze whether the effect of education on vote choice differs across cohorts. Within the German context, this is an entirely new contribution: To the best of my knowledge, there is so far no publication investigating whether socio-structural characteristics affect voting differently across cohorts in Germany. From past research, we know a lot about how the association between *social class* and voting has changed *over time* in Germany, in particular that working class membership has lost most of its capacity to predict the SPD vote (e.g., [Elff and Roßteutscher, 2017, 2022](#)). However, this strand of research has not considered cohort differences in the effect of social class, nor has it paid much attention to the role of education in general.<sup>1</sup>

Yet, education has gained much attention as a socio-structural driver of the vote in recent cross-national studies. On the attitudinal level, it is well documented that those with high levels of formal education are more liberal and cosmopolitan in their political outlooks ([Bovens and Wille, 2017](#); [Hakhverdian et al., 2013](#); [Kriesi et al., 2008](#)). On the level of voting, the highly educated are much less likely to support parties of the radical right ([Arzheimer and Carter, 2006](#); [Ivarsflaten and Stubager, 2013](#)). Instead, the highly educated disproportionately support parties with culturally liberal and cosmopolitan positions, especially “new left” Green or other left-libertarian parties ([Abou-Chadi and Hix, 2021](#); [Gethin et al., 2022](#); [Stubager, 2013](#)). For some authors, these political divisions between the high and the lower educated amount to a new political cleavage—an “education cleavage” ([Bovens and Wille, 2017](#); [Stubager, 2013](#)). In any case, in today’s Western Europe high education is overall associated with preferring the libertarian (new) left over the authoritarian right. Yet, research has paid little attention to the possibility that this tendency varies across generational cohorts.

The analyses in [Gethin et al. \(2021, 2022\)](#) show how the effect of education on voting has changed *over time*. Using a dichotomous distinction between parties of the left and the right, these authors document a “reversal of the education cleavage”: High education was associated with voting for the “right” in the past and became associated with voting for the “left” only over time (also see: [Kitschelt and Rehm, 2022](#)). This reversal is connected to the rising salience of cultural issues, which resulted in an increasingly two-dimensional policy space composed of an economic and a cultural dimension ([Oesch and Renwald, 2018](#); [Hillen and Steiner, 2020](#)). It is the liberal and cosmopolitan positions typically held by the highly educated on the cultural dimension of this space which make them vote for culturally libertarian parties of the new left and which put them in opposition to the radical right.

However, it is important to distinguish between different party families within the left and the right (cf. [Abou-Chadi and Hix, 2021](#)). Accordingly, rather than just a reversal, there has been a transformation of the education divide: In the past, the highly educated preferred the “old” right (Conservatives, Christian Democrats and Liberals) over the “old” left (Social Democrats/Socialist) due to economic reasons arising from the privileged status of the higher educated; nowadays the highly educated prefer the new left (Greens) over the radical right due to

<sup>1</sup> There is generally virtually no research on how drivers of voting differ across cohorts (cf. [van der Brug and Rekker, 2021](#): 436; for one exception, see: [van der Brug and Rekker 2021](#)).

cultural reasons.<sup>2</sup>

Given the profound role of political socialization, it is plausible that this educational realignment is, at least partly, driven by generational replacement. Yet, the two existing studies investigating into this possibility ([Gethin et al., 2022](#); [van der Brug and Rekker, 2021](#))—while ground-breaking—do not fully explore the account of educational realignment carved out above.<sup>3</sup>

The present study builds on this important work by conducting an APC analysis of education’s effects on voting for individual parties in Germany. The German case is well suited to this endeavor: The relatively high level of continuity of the German parties makes it possible to analyze reasonably long time series for at least five of the current six major parties.<sup>4</sup> I formulate two hypotheses on the expected generational realignment of the education divide, without making strong assumptions on the exact timing of the transformation.

**H4.** Within earlier cohorts (but less so within more recent cohorts), high education is associated with a higher likelihood to vote for the old right (CDU/CSU and FDP) and a lower likelihood to vote for the old left (SPD).

**H5.** Within more recent cohorts (but less so within earlier cohorts), high education is associated with a higher likelihood to vote for the new left (Greens) and a lower likelihood to vote for the radical right (AfD).

Finally, there is an additional reason why cohort effects should be studied in conjunction with the effect of education on voting: The mass expansion of education that took place after WW II and the advent of a “knowledge society” it helped to bring about. In Germany, the share of those leaving school with a degree allowing university entry (“Abitur” and “Fachabitur”) increased from just 7% in 1960 to over 50% after 2010 ([Statistisches Bundesamt, 2022](#)). Thus, there are much more highly educated individuals in later cohorts compared to earlier ones. These compositional differences in education could also give rise to cohort differences in voting, so that it is important to study cohort and educational differences in voting in conjunction. Moreover, the shifting economic and social role of education is likely to have contributed to education playing a different political role across generations. Particularly in more recent cohorts, individuals with lower levels of education may view themselves as relative losers of socio-economic transformations ([Steiner et al., 2023a](#)), and the resulting populist sentiment ([Spruyt et al., 2016](#)) might be an additional reason why the lower educated in recent cohorts are more likely to vote for right-wing populist parties.

<sup>2</sup> This reading accords with the detailed results by party family and country in [Gethin et al. \(2022: 27\)](#): While education today is not consistently related to voting for the old right and old left, the tendencies of the highly educated to be more supportive of the Greens and less supportive of the radical right are (almost) uniform across countries.

<sup>3</sup> First, [Gethin et al. \(2022: 37\)](#) report that “generational dynamics appear to have played a major role in the reversal of the education cleavage”. However, they only present results from a period-cohort analysis, with all countries pooled together and parties sorted into a simple dichotomy of left-wing vs. right-wing. This is not sufficient to understand the more fundamental process of realignment outlined above as it requires analyzing parties (or party families) separately. Moreover, their analysis does not control for age effects, and thus is not able to discriminate between age and cohort effects. Second, [van der Brug and Rekker \(2021\)](#) run APC analyses on survey data from the Dutch elections between 1986 and 2017. Within their broader analysis of realignment over time and cohorts, they find that education explains more variance in voting propensities in more recent cohorts. However, concentrating on the overall variance explained by education, rather than the effects of education for specific parties, their study is not well suited either to reveal change in *how* education is related to the vote.

<sup>4</sup> The time series covers more than 70 years of voting for the CDU/CSU, SPD, FDP (1949–2021), over 40 years of voting for the Greens (1980–2021) and over 25 years of voting for the Left Party/PDS (1994–2021). Only for the AfD (2013–2021), the time series is much more limited.

### 3. Data and methods

The analysis in this article draws on post-election surveys from all twenty German federal elections from 1949 to 2021. For the elections from 1949 to 2017, I make use of the dataset provided by Gethin et al. (2021). This dataset is a collection of harmonized data from post-election surveys containing core variables on vote choices and socio-demographic characteristics. To this dataset, I added harmonized data from the GLES post-election survey for the 2021 federal election (GLES, 2022).<sup>5</sup> The combined dataset includes 30,556 observations with valid information on the party vote (including abstention), an average of 1,528 per election, with a minimum of 689 (1969) and a maximum of 2,883 (2021).

Like van der Brug and Rekker (2021), I disentangle age, period, and cohort effects by running regressions that include all three as predictors, while coding birth years and age in life years into theoretically informed categories and estimating period effects freely by including dummy variables for each (but one) election year. This follows the approach to solve the APC identification problem through imposing a functional form for the regression models that is informed by theoretical assumptions (Kritzer, 1983). The main concern with this approach, and APC analyses in general (Bell, 2020), is that inferences may depend on the assumed functional form. I thus carried out robustness checks to ensure that the inferences are robust to alternative cohort and age groupings, as reported below.

The classification of generational cohorts—displayed in Table 1—follows an internationally well-known scheme, which is used widely in comparative public opinion research (see, e.g., Norris and Inglehart, 2019). I use this scheme because I assume that most readers will be familiar with it and because it is well suited to the German context as well. As displayed in the last column of Table 1, for each cohort there is a strong overlap with a corresponding political generation as defined for the German case by either Goerres (2008) or Klein (2009). As the data go far back in time (to 1949), I distinguish between three different pre-1946 generations. I use this distinction to the extent possible, but because the data series start later for the Greens (1980), the PDS/Left (1994) and the AfD (2013), I need to use versions of the cohort scheme that collapse the two or even three earliest cohorts for these parties, as indicated in the respective results, whenever the data gets too sparse.

For the main models, I code age into four groups based on life phases, following van der Brug and Rekker (2021): late adolescence (18–21), early adulthood (22–29), middle adulthood (30–65), and late adulthood

**Table 1**  
Cohort classification.

Birth years	Label	Corresponding generation(s) in previous studies
–1900	Lost Generation	“Pre-War Generation” (Klein, 2009): –1921
1901–1927	World War II Generation	
1928–1945	Silent Generation	“Adenauer Generation” (Goerres, 2008): 1915–1945
1946–1964	Baby Boomers	“Brandt Generation” (Goerres, 2008): 1946–1962
1965–1979	Generation X	“Generation Kohl” (Goerres, 2008): 1963–1976/“Generation Golf” (Klein, 2009): 1965–1975
1980–	(Post-) Millennials	“Generation Schröder” (Goerres, 2008): 1977–/“Reunification Generation” (Klein, 2009): 1976–

<sup>5</sup> I also went back to the original survey for 1961 (Scheuch et al., 2014) to code voluntary non-voting with zero in the turnout variable. In the dataset provided by Gethin et al. (2021), non-eligible citizens and voluntary non-voters are both coded missing on the turnout variable.

(66–). With this theoretically informed classification, collinearity between age groups and cohorts remains at a moderate level, sufficient to keep age and cohort effects apart (see the two-way tables for cohorts and age in appendix A). However, in case of the AfD, the time series is too short to allow for any decomposition of cohort and age effects. The models for the AfD therefore omit age. The cohort effects estimated for the AfD are therefore valid only under assumption of there being no life-cycle effects, and thus need to be interpreted with caution.

To measure educational attainment, I use a binary indicator that is coded 1 for individuals who obtained at least a school degree qualifying for university entrance, that is an “Abitur” or “Fachabitur”, or who studied at a university. It is coded 0 for all individuals whose highest school degree is below that. This is in keeping with the literature on the education cleavage which conceives of it primarily as a divide between two groups: the highly educated and the lower educated (Bovens and Wille, 2017; Stubager, 2013). Within the segregated German schooling system, the distinction between those with an “(Fach-)Abitur” and those without seems most relevant to capture such a divide. The data closely track the strong trend towards higher levels of education in more recent cohorts noted above: Within the WW II and the Silent Generation about 7% and 12% respectively hold an advanced school degree, while about 50% of all (Post-)Millennials do (see appendix B).

The dependent variables are a set of binary indicators of voting for each of the six represented in the current Bundestag, that distinguish between a party vote (“Zweitstimme”) for the respective party and voting for another party. The Left and its predecessor PDS are treated as the same party for this purpose. Following standard practice, nonvoters are excluded from the main analyses, but are considered in robustness checks.

Using these dependent variables, I estimate a series of binary logistic regressions. In the first step, I am interested in how the probabilities to vote for the parties vary across cohorts. As main independent variables, these models include the cohort and age groups and a set of dummy variables for the respective election year. In addition, the cohort groups are interacted with a dummy variable for living in the Eastern part of Germany, thus allowing cohort effects on the two sides of the former wall to differ. As a basic socio-demographic control variable, I control for gender, but since I am interested in the descriptive differences between cohorts, I do not include further controls.

To interpret the results of the model, I plot predicted probabilities (marginal means) for different values of cohort and Eastern Germany in the main text (and report regression tables as well as predicted probabilities by age and year in appendix C). I display 85% confidence intervals as their non-overlap approximates statistically significant differences in the predicted probabilities across conditions in the data at hand.<sup>6</sup>

In the second step, I am interested in how the effect of education differs across cohorts. The main analysis is limited to Western Germany for the reasons discussed above; Eastern Germany is studied in separate regression analyses. In addition to interacting cohort and education, the model also interacts education with age group and the year dummies. Thus, changes in the effect of education across cohorts are net of life cycle- and period-related variation in the effect of education.

I use weights that adjust the party vote shares, including the share of non-voters, in the sample to the official election results. Thus, the party vote shares in the weighted data reflect the actual shares in the respective elections. I thereby intend to make the results more representative of the actual electorates, while at the same minimizing distortions from different sampling frames across surveys and giving equal

<sup>6</sup> When standard errors of the estimates to be compared are equal, the non-overlap of 83.4% confidence intervals corresponds to  $p < 0.05$  (Payton et al., 2003). The 85% confidence intervals used are robust to (some) asymmetry in the size of the standard errors and have been checked to approximate  $p < 0.05$  well in the present application.

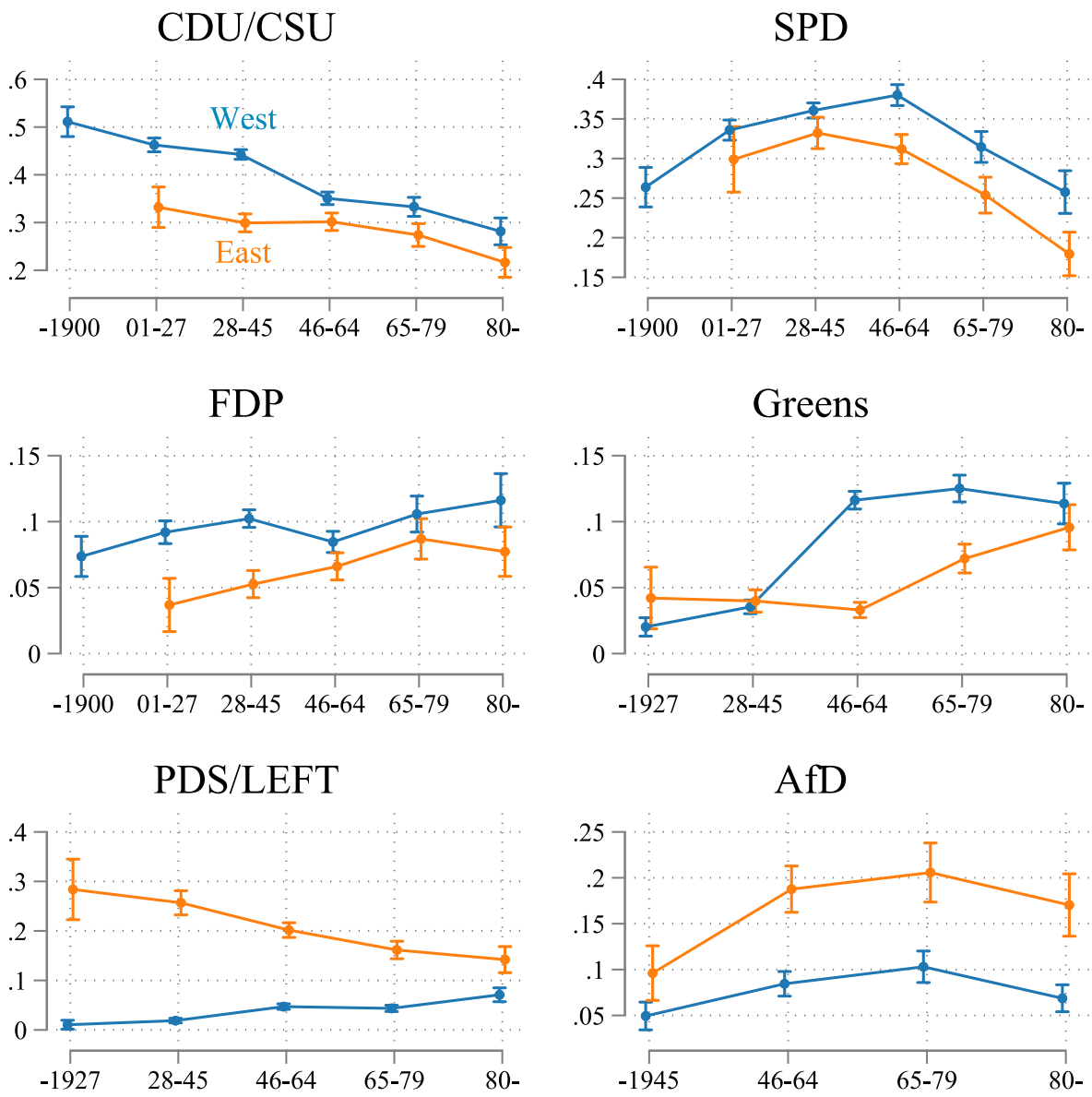


Fig. 2. Predicted probability of party choice by cohorts and West vs. East. Note: Predicted probabilities (with 85% confidence intervals) from binary-logistic regression models with age, period and cohort effects. Weights employed that adjust vote choices to official election results. Full regression tables as well as plots with predicted probabilities by age and year are reported in appendix C.

weight to each election survey no matter the size of its sample.<sup>7</sup>

#### 4. Results

##### 4.1. Cohort differences in levels of party support

In Fig. 2, I present the main results pertaining to H1 to H3. The plots show the predicted probabilities to vote for each of the six parties by cohort and Western vs. Eastern Germany based on the binary-logistic regressions. In line with H1 and H2, the plots indicate lower support for the old “Volksparteien” among more recent cohorts in Western

<sup>7</sup> These vote weights are computed separately for Western and Eastern Germany (if applicable). In models including Western and Eastern Germany, these weights are multiplied by a regional weight that adjusts the sample to the relative sizes of the two electorates, for the results not to be distorted by the oversampling of Eastern Germans in surveys from 1994 onwards. (Note that the 1990 survey still included only Western Germany.)

Germany. The probability to vote for the CDU/CSU is very high in all three pre-1946 generations in Western Germany. Yet in contrast to some previous studies (e.g., Wagner et al., 2012), but in line with others (Schoen, 2006), it is even somewhat higher among those born earlier (51% among those born until 1900) than among the 1928-to-1945 generation (44%). The probability of a CDU/CSU vote declines already substantially among Baby Boomers and then further falls to a low of about 28% among (Post-)Millennials. Support for the SPD is rather low (26%) among those born until the beginning of the 20th century, peaks among Baby Boomers (38%) and then falls monotonically to a low of 26% among (Post-)Millennials.

These results indicate that much of the secular decline in the strength of the two former “Volksparteien” is driven by varying levels of support across generations in combination with the demographical dynamics of generational replacement. This conclusion is bolstered by a look at the period/year effects (see Figure C1 in the appendix): The trends towards lower levels of support within more recent generation are much clearer and more consistent than any trends over time, especially in case of the CDU/CSU. Life-cycle effects on the CDU/CSU as well as the SPD vote are

generally limited, though there is a noteworthy tendency of higher CDU/CSU support among those over 65 (see [Figure C1](#) in the appendix).

The probability of a Green vote is low (<4%) for members of the two pre-1946 cohorts (that could be considered in this regression). It jumps to about 12% among Baby Boomers and stays on roughly this level thereafter. This pattern is in line [H3](#). There is thus a strong generational component to the Greens' tendency of performing better in more recent elections—rather than it being only or mainly a period phenomenon (see [Figure C1](#) in the appendix for predicted probabilities across years and age groups). On top, the results indicate that the probability to vote for the Greens declines progressively over the life cycle. Interestingly, the cohort patterns are very different in Eastern Germany with support for the Greens being much lower among Baby Boomers in Eastern Germany who were socialized into politics under very different conditions than their Western German counterparts. Among (Post-)Millennials, who were socialized into politics under more or less similar conditions, the East/West gap has closed.

Cohort patterns differ across East and West even more dramatically in case of the PDS/LEFT whose support is higher in more recent cohorts in the West and lower in the East. These diametrically opposed patterns seem to originate in the status of the PDS as the legal successor of the Socialist Unity Party (SED), the ruling party of the German Democratic Republic (GDR), which has pulled Eastern Germans from earlier cohorts towards the party and pushed Western Germans from earlier cohorts away from it. Support for the AfD across cohorts follows a similar inverse U-shaped pattern in the East and the West, but with the level of support being generally much higher in the East. Generational differences are least pronounced for the FDP, in line with the largely trendless fluctuation in its overall election results (see [Fig. 1](#)) and previous research.

With respect to differences between East and West, there is an overall tendency towards generational convergence, paralleling findings on generational convergence in political attitudes ([Svallfors, 2010](#)). As in case of the Greens, we observe lower levels of support for the CDU/CSU as well as the FDP among earlier cohorts in the East, representing a mirror image of the higher levels of PDS/LEFT support in these cohorts. Among the recent cohorts, these gaps have virtually disappeared. However, there are no signs of East-West convergence when it comes to the AfD, for which the East-West gap is about 10 percentage points for Baby Boomers, the Generation X and (Post-)Millennials alike.

In appendix D, I present alternative versions of [Fig. 2](#) as robustness checks. First, not using the weight mainly affects the levels of party support but does not change the cohort patterns. Second, I employ a more fine-grained cohort scheme, consisting of birth decades. This leads to similar conclusions albeit with even larger differences across Western German cohorts: For example, while the probability to vote CDU/CSU is over 40% for all cohorts born before 1950, it is only 24% for those born in the 1990s. Support for the SPD peaks among those born in the 1950s with 38% and then successively drops to 21% for those born in the 1990s. For the Greens, the more fine-grained cohort scheme points to a further increase in support among those born in the 1990s (to 16%), after a slight drop in support among those born in the 1970s and 1980s compared to those born in the 1960s. Third, I present results using a more fine-grained classification of age groups. The findings are again similar, though with one exception: The alternative coding of age results in a tendency of support for the Greens to decline again after the Baby Boomers in the West (alongside a strong pattern of Green support declining with age). Thus, there is some uncertainty involved in attributing variation in Green support to either cohort or life-cycle effects, reflecting limitations arising from the shorter time series. The patterns in [Fig. 2](#) for the Greens are thus to some degree dependent on whether one is willing to make the (in my view plausible) assumption that party support varies with age mostly according to life phases. Fourth, I present results including abstention (coded zero). This does not affect the main conclusions, but slightly changes the picture in ways that reflect the higher abstention among Eastern German voters as well as within more recent cohorts. For example, as (Post-)Millennials are more likely to

abstain, they are less likely to cast a vote for the Greens compared to Baby Boomers if abstention is included; while there is no such dip in Green voting if abstention is left out of the picture (as in [Fig. 2](#)).

In sum, the results suggest that shifts in the strength of parties over time are not merely driven by period effects but reflect persistent differences in the propensities of different cohorts to support parties—in line with theories of political socialization. In the German case, this is foremost reflected in more recent cohorts' progressively lower support for the old "Volksparteien" and in (persistently) higher support for the Greens among post-1945 cohorts.

#### 4.2. Cohort differences in the effect of education on voting

In [Fig. 3](#), I present the main results pertaining to [H4](#) and [H5](#), i.e., the differential effect of education across cohorts. From another angle, these analyses relax the assumption implicit to the analysis in the previous section that cohort patterns are the same for the lower educated and the higher educated. [Fig. 3](#) shows predicted probabilities to vote for each of the six parties by cohort and lower vs. high education in Western Germany.

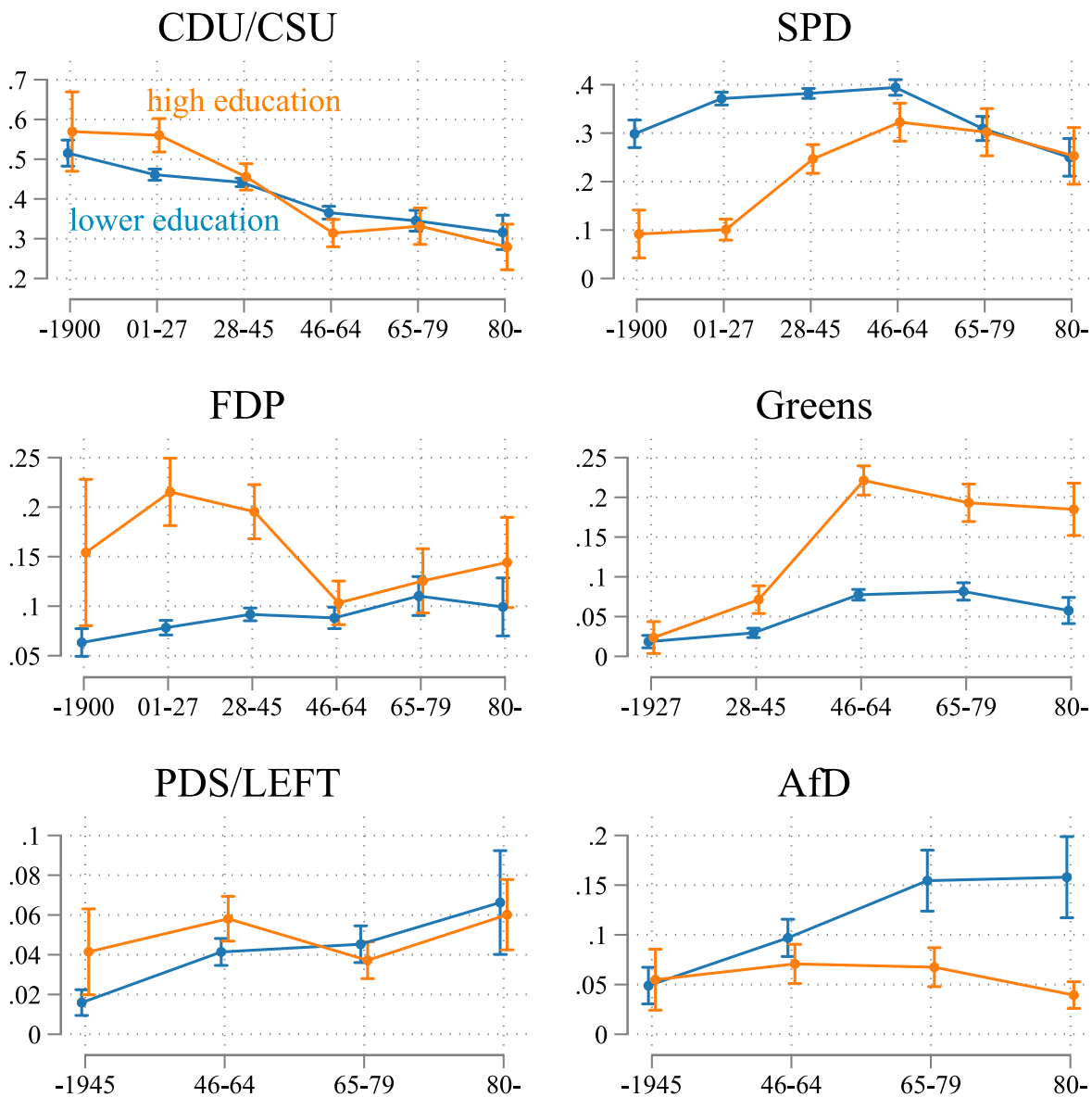
In line with [H4](#), high education is associated with a higher likelihood to vote for the "old" right and a lower likelihood to vote for the "old" left among the earlier cohorts born before 1946. This is especially clear regarding voting for the SPD and the FDP and for the 1901-to-1927 cohort. Within the 1901-to-1927 cohort, an SPD vote is almost four times less likely among the highly educated (10%) as among the lower educated (37%). Within the 1928-to-1945 cohort, there is still a notable gap of about 14 percentage points in the probability of an SPD vote between the two educational groups. This gap vanishes in subsequent cohorts.

Conversely, within the 1901-to-1927 and the 1928-to-1945 cohort, the higher educated are more than twice as likely to vote for the FDP as their lower educated contemporaries. This gap also disappears in subsequent cohorts. The pattern is less clearly in line with [H4](#) for the CDU/CSU, though the results do show an (early) reversal of the effect of education. Within the 1901-to-1927 cohort, the higher educated are 10 percentage points more likely to vote for the party, in line with [H4](#). Among Baby Boomers, it is the lower educated who are more likely to vote CDU/CSU, by 5 percentage points. However, differences in predicted probabilities by education are relatively minor within all cohorts for the CDU/CSU, when compared to the large differences for other parties.

The first observation to note about the more recent cohorts, born from 1946 onwards, especially the Generation X and the (Post-)Millennials, is that voting probabilities do not vary by level of education for the "old" parties: There are no statistically significant differences between the educational groups for the CDU/CSU, the SPD, and the FDP. This observation goes against the idea of an emerging education cleavage affecting all parties. Rather, in line with [H5](#), high education is only associated with a higher likelihood to vote for the new left Greens and a lower likelihood to vote for the radical-right AfD. When it comes to voting for these two parties, education makes a big difference, though only so in more recent cohorts.

For the Greens, the percentage point difference is already quite high among Baby Boomers (=14 percentage points) and stays on a high level in subsequent cohorts. Higher educated (Post-)Millennials are three times as likely to vote for the Greens than (Post-)Millennials with lower levels of education (18% vs. 6%). Within the two pre-1946 cohorts (considered here), support for the Greens is low no matter the level of education. While high education does increase the probability of a Green vote among the 1928-to-1945 cohort, the increase is small in magnitude (4 percentage points), much smaller than among subsequent cohorts.

The results for the AfD represent a mirror image but conform even more with the idea of a successively widening education divide. The highest and lowest probabilities to vote for the AfD are both found among (Post-)Millennials. (Post-)Millennials with lower levels of



**Fig. 3.** Predicted probability of party choice by cohorts and high education in Western Germany. Note: Predicted probabilities (with 85% confidence intervals) from binary-logistic regression models with age, period, and cohort effects. Western Germany only. Weights employed that adjust vote choices to official election results. Full regression tables as well as plots with predicted probabilities by age and year are reported in appendix E.

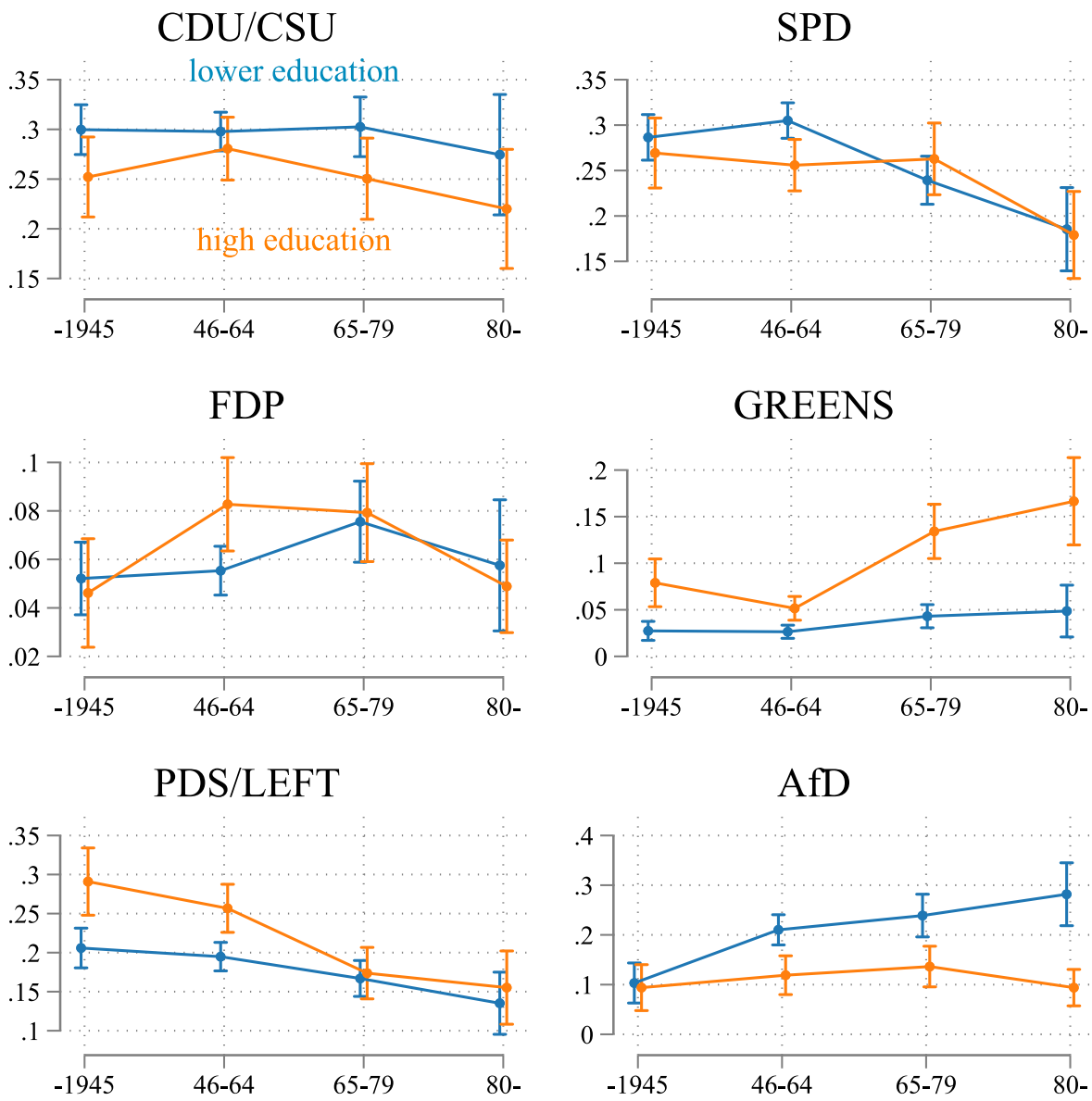
education are about four times as likely to vote for the party as their higher educated contemporaries (16% vs. 4%). In contrast, among those born before 1965, education is not discernibly associated with the AfD vote.

On a superficial level, these results support the notion of a reversal of the education divide at the cohort level in that high education is associated with voting for the (old) right in earlier cohorts and associated with voting for the (new) left in more recent cohorts. Yet, the results are more accurately characterized as indicating a vanishing of an old education divide between the “old” right, especially the FDP, and the “old” left SPD and the emergence of a new education divide with the new left Greens and the radical-right AfD at its poles. This generational realignment of the education divide is thus strongly related to the emergence of new parties and the rising salience of the cultural dimension of political conflict.

It is striking to see how much this change in the role of education for the vote takes place at the cohort level rather than materializing through period effects. Recall that the results in Fig. 3 are from a model that also allows the effect of education to vary over time (and with age). In

contrast to the cohort results in Fig. 3, the results in Figure E1 of the appendix show few clear trends, if any, in the effect of education on the vote to change over time. The clearest evidence of such over-time change can be seen for the AfD for which the education gap has also increased over the three elections it participated in (2013, 2017 and 2021). It is plausible that this development is related to the party’s transformation from a single-issue party that emerged out of the controversy over the Eurozone bailouts to a prototypical party of the radical right (Arzheimer and Berning, 2019), rendering it less attractive to highly educated voters from all cohorts. Regarding age, there is little evidence of life-cycle effects to differ with one’s level of education. One notable exception is that the decline in Green support over the life cycle is stronger among the lower educated.

The results in Fig. 3 also qualify the results on the cohort trends from Fig. 2, showing how these are either driven mostly by the lower or mostly by the highly educated. In case of the SPD, the dwindling support after the Baby Boomers is mostly driven by the lower educated. Among the lower educated, the SPD is 14 percentage points weaker among (Post-)Millennials compared to Baby Boomers, whereas it has lost only 7



**Fig. 4.** Predicted probability of party choice by cohorts and high education in Eastern Germany. Note: Predicted probabilities (with 85% confidence intervals) from binary-logistic regression models with age, period and cohort effects. Eastern Germany only. Due to the shorter time period, the first three cohorts have been collapsed for all parties. Weights employed that adjust vote choices to official election results. Full regression tables are reported in appendix H.

percentage points among the highly educated. The CDU/CSU's losses in more recent cohorts are much stronger among the highly educated than the lower educated. As a mirror image, the Greens' gains in post-1945 cohorts come mostly from the highly educated.

Likewise, Fig. 3 reveals that the overall moderate cohort trends in support of the AfD in Fig. 2 hide divergent trends across educational groups. Among the lower educated, the AfD is much more popular in the two most recent cohorts, whereas the cohort trend points, if anything, in the opposite direction among the highly educated. This result speaks to important debates on generational differences in right-wing populist party support (e.g., Norris and Inglehart, 2019; Schäfer, 2022). The patterns are at odds with a cultural backlash among the older cohorts but seem consistent with explanations pointing to a perceived lack of societal recognition among the lower educated in more recent generations (Gidron and Hall, 2020; Steiner et al., 2023b).

The appendix contains a similar set of robustness checks as those used above in section 4.1 (see section F of the appendix). Results are again qualitatively similar when not using weights. The use of the more fine-grained cohort scheme with birth decades confirms the conclusions

from Fig. 3, but also hints at a further widening of the educational gap in the Green vote in the most recent cohort. Among individuals born in the 1990s, the predicted probability of a Green vote is 25% for the highly educated but just 7% for the lower educated, amounting to a record gap of 18 percentage points. For the AfD, there is a tendency of declining support among those born in the 1990s relative to those born in the 1980s. While this holds for both the highly and the lower educated, the education gap in the AfD vote remains substantial (10 percentage points). Using the more fine-grained age groups also leads to similar conclusions, but again results in a tendency of support for the Greens to decline again after the Baby Boomers. Including abstention changes the picture slightly, as it drives predicted probabilities of voting for each of the parties downward, especially for lower educated members of more recent cohorts. This results, for example, in a noticeable gap in the probability of an SPD vote between highly educated and lower educated (Post-)Millennials (21% vs. 14%). In other words, that highly and lower educated (Post-)Millennials are equally likely to vote SPD (as indicated in Fig. 3), is true only if we consider exclusively voters. This points to the important fact that the education divide is also very much about

different levels of electoral participation (e.g., [Bovens and Wille, 2017](#)).<sup>8</sup>

In a final analysis, I investigate cohort-by-education patterns for Eastern Germany. The results in [Fig. 4](#) are in line with [H5](#): Within the post-1964 cohorts, high education is primarily associated with a higher likelihood of a Green vote and a lower likelihood of an AfD vote. Even more so than in the West, the results in the East point to a successive widening of the educational gap. The probability to vote Green has successively increased among the higher educated (to 17% among higher educated (Post-)Millennials), whereas support has at best marginally increased among the lower educated (standing at 5% among lower educated (Post-)Millennials). For the AfD, as in the West, the education gap is largest among (Post-)Millennials with a probability to vote AfD of 28% among the lower educated and 9% among the higher educated. When using the more fine-grained cohort scheme (see appendix section H), these tendencies are further amplified for the 1990s cohort with the probability of the higher educated to vote Green rising to 18% and the probability of the lower educated to vote AfD climbing to 35%.

However, results for the pre-1965 cohorts, especially the pre-1945 cohort, are very different in the East. There is no meaningful education gap for any of the “old” parties CDU/CSU, SPD, and FDP. Instead, among the pre-1965 cohort, but not the more recent ones, high education is associated with voting for the socialist PDS/Left party. This pattern can plausibly be attributed to the communist past of Eastern Germany: Among the pre-1965 cohorts, higher education is associated with having held elite positions in the GDR, and the greater allegiance to the regime associated with these elite positions has resulted in an increased propensity to support the SED’s successor parties after unification (cf. [Klein and Caballero, 1996](#)). Thus, that patterns in the East and West differ among the earlier cohorts does not contradict the claim that linkages between education and voting behavior are shaped by political socialization but are in line with it.

## 5. Conclusion

Drawing on harmonized data from election surveys for all twenty German federal elections from 1949 to 2021, this study has examined cohort differences in vote choices for all six major parties represented in the 20. German Bundestag. There are two sets of main findings.

First, in line with earlier work ([Goerres, 2008](#); [Klein, 2009](#); [Rüdig, 2012](#); [Schoen, 2006](#); [Wagner et al., 2012](#)) the results reveal strong variation in levels of party support across cohorts. In Western Germany, support for the old “Volksparteien” CDU/CSU and SPD is lower among the more recent cohorts relative to their peaks among the pre-1946 cohorts and the Baby Boomers respectively. The Greens fare persistently better among those born after 1945. With period effects being less consistently related to long-term trends in party support in German federal elections, it appears that the secular decline of the old “Volksparteien” and the rise of the Greens are to a large extent a result of generational replacement.

These results add to previous research in that they show that the generational decline of the CDU/CSU and SPD from their respective peaks has continued in recent cohorts. In contrast to some earlier research, there is—with new data added—little evidence of Green support declining within the Generation X and the (Post-)Millennials, rather

its support seems to have plateaued. With many of those born before 1946 already having left the electorate (see [Figure A1](#) in the appendix), generational replacement has already left its mark on election results—but if the trend persists, we may expect a further decline of the CDU/CSU and the SPD and some further rise of the Greens over the medium term.

Second, the results show that education’s relation to voting behavior is very different in earlier and more recent cohorts. In Western Germany and within pre-1945 cohorts, high education is associated with an increased likelihood of voting for the “old” right, especially the FDP, and a decreased likelihood to choose the SPD. These differences—representing an “old” education divide in which the higher educated prefer the “old” right over the “old” left on economic grounds—vanished in subsequent cohorts. Instead, in these cohorts, but not the earlier ones, high education makes a strong difference for the Green vote and, increasingly so, for the AfD vote. While highly educated (Post-)Millennials are more than three times more likely to vote for the Greens than lower educated (Post-)Millennials, lower educated (Post-)Millennials are about four times more likely to vote for the AfD than highly educated (Post-)Millennials.

These results add to and qualify previous work on the changing effect of education on the vote in Western Europe ([Gethin et al., 2021](#); [van der Brug and Rekker, 2021](#)). Rather than to a “reversal of the education cleavage” ([Gethin et al., 2021, 2022](#)) or to the effect of education on the vote merely becoming larger in more recent cohorts ([van der Brug and Rekker, 2021](#)), these results point to a transformation of the education divide away from an “old” education divide pitting the “old” left against the “old” right towards a “new”—one might say: cultural—education divide pitting the new-left Greens against the radical-right AfD. In a way, this new education divide is quantitatively more important than the old one as the high educated are a much larger group in more recent cohorts (see appendix B). Like with levels of party supports, these shifts seem to largely flow from cohort effects as there is little evidence of the effect of education to change over time (net of cohort effects). Again, there are straightforward implications: If the trends persist, the new education divide will further gain in importance in future electorates due to the mechanics of generational replacement. This is especially likely for Eastern Germany where the widening of the education gap regarding the Green and the AfD vote is stronger and more recent.

More broadly, these findings on the German case indicate that electoral change is to a large extent a matter of generational dynamics, mirroring recent findings on electoral realignment in the Netherlands ([van der Brug and Rekker, 2021](#)). For future research, this implies that in order to understand processes of electoral change more attention should be paid to the generational dimension, rather than assuming that at a single point in time drivers of the vote operate similarly for all cohorts. The insight that electoral realignment might operate through generational change also has implications for important debates around electoral realignment. For example, the re-orientation of working-class voters from the mainstream left to the radical right ([Arzheimer, 2013](#); [Oesch and Rennwald, 2018](#)) may not be a matter of individuals switching sides over time—for which there appears to be little evidence, but of workers from new cohorts voting differently than workers from older cohorts.

At the same time, the present study is, of course, not without limitations. In particular, the model employed implies a number of simplifying assumptions that future studies may relax to gain additional insight. For example, it is conceivable that ageing and/or period effects differ across cohorts. Relatedly, vote choices are likely to be more stable among both voters of higher age and from earlier cohorts ([Rekker, 2022](#))—which, in turn, has implications for the projections from such models. In these and other ways, future work, on the German case and beyond, may build upon this study to better understand the generational component of electoral change.

<sup>8</sup> I investigate electoral turnout directly in appendix section G through a similar set of binary-logistic APC regression models. The results not only show that declining turnout is to large extent a cohort phenomenon (cf. [Elf and Roßteutscher, 2017](#)) but that this decline chiefly concerns the lower educated (cf. [Schäfer et al., 2020](#)). Among higher educated (Post-)Millennials the predicted probability to turn out to vote is still 86%, not far from the peak level of 92% for highly educated Baby Boomers. In contrast, only 63% of lower educated (Post-)Millennials turn out to vote—compared to 81% of lower educated Baby Boomers.

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## Declaration of competing interest

The author declares that he has no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

## Data availability

Reproduction code is available at Harvard Dataverse: <https://doi.org/10.7910/DVN/6MNIXJ>.

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## Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.electstud.2023.102706>.

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