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Competition, benchmarking, and electoral success: Evidence from 69 years of the German Bundestag☆

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ABSTRACT

The German electoral system ensures that there is always at least one federal legislator per constituency. This legislator can face competition from additionally elected competitors to the Bundestag from precisely the same constituency. The existence of several legislators per constituency allows voters to benchmark their quality against each other. We analyze the causal impact of having more elected competitors from the same constituency on legislators' personal success versus the success of their parties. Our data cover the legislative terms in the German Bundestag and federal elections in the period 1953–2021. In our analysis, we rely on exogenous variation in elected competitors by investigating changes induced by legislators who leave the Bundestag during the legislative period and their respective replacement candidates as instrumental variables. We find that legislators are less successful in elections when they are exposed to elected competitors from the same constituency. The results suggest that benchmarking possibilities are relevant for voters to evaluate their representatives.

1. Introduction

Elections are a crucial mechanism in democracies to hold politicians accountable. Incumbent politicians' reelection constraints are more binding if they are active in a politically competitive environment and if voters are well informed about their performance (e.g., Ferraz and Finan 2011; Ashworth 2012). In this paper, we ask the question of how being exposed to *elected* competitors from the same constituency affects electoral success of legislators. Relying on parliamentary and electoral data from 1953 to 2021 for the German Bundestag (federal parliament), we find that legislators are evaluated less favorably by voters when they have more elected competitors from their constituency. We provide evidence that is consistent with the idea that the existence of more than one elected legislator per constituency makes it easier for voters to assess the quality of their representatives by benchmarking them.

Due to the two electoral tiers of the mixed-electoral system employed in German federal elections, candidates have two options to obtain a mandate: (1) They can obtain a direct mandate in one of the local constituencies by winning the plurality of votes. Alternatively, (2) they can obtain a mandate through a closed state party list. One-half of the statutory size of the Bundestag encompasses

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legislators elected in the constituencies, and the other half stems from the state party lists allocated by proportional rule. Dual candidacies are allowed, that is, candidates usually run for election in both electoral tiers. Thus, if candidates lose in the direct election in their constituency, they still have a chance to enter the Bundestag via the state party list. While every constituency is represented by exactly one directly elected legislator, it is possible that defeated direct candidates can be mandated additionally to the Bundestag through the party lists depending on their party list positions. The electoral system thereby generates differences in the representation of constituencies in the Bundestag and it induces observable differences in the level of competition from *elected* competitors within constituencies (Maaser and Stratmann 2016; Frank and Stadelmann 2021a).

Elected competitors from the same constituency may serve as benchmarks against which voters can compare and evaluate their legislators (Frank and Stadelmann 2021b). Benchmarking can provide valuable information to voters: If legislators run again in the election, voters are better able to assess their dedication and quality, which can result, ceteris paribus, in more adverse conditions to being electorally successful (e.g., see Ferraz and Finan 2008; Ashworth 2012; Costas-Pérez et al., 2012; Chong et al., 2015). Legislators without elected competitors instead may profit electorally if there are no benchmarking possibilities for voters.[1]

To analyze the effect of exposure to elected competitors on electoral success, we compile competition data for all German legislators from 1953 to 2021. Conditional on them running at least twice, we investigate the impact of elected competition on their electoral outcomes. We analyze a sample of 7507 observations in 18 federal elections.

The panel data structure allows us to employ a legislator-specific fixed effects strategy in a first step, that is, we compare the electoral success of the same legislator in campaigns with elected competitors to campaigns when the legislator faces no elected competitors. Our fixed effects strategy helps to alleviate omitted variable bias concerns. It does, however, not enable us to account for all potentially time-variant (unobservable) variables, such as changes in a politician's valence, popularity, or political networks which may correlate with both competition and electoral success. Thus, we also employ an instrumental variables strategy. Our instrument leverages a peculiar feature of the electoral system: During a legislative period, it happens that legislators resign their mandate (one in 15 legislators drops out of parliament before the term ends). The most common reasons are death or the acceptance of another office or mandate. There are no by-elections. Instead, the first not yet elected candidate from the closed state party list who is in most instances an unsuccessful direct candidate from another constituency receives the replacement mandate. Consequently, the resignations of legislators lead to changes in the number of representatives and, hence, changes in competition in *two* constituencies. First, competition decreases in the constituency where the withdrawing legislator originated from. Second, competition increases in the constituency of the replacement candidate. The reasons for resignation and the rule-based replacement mechanism should be orthogonal to the characteristics of other legislators representing the two affected constituencies, which qualifies both changes to be used as instruments for elected competition.

Our empirical results show that legislators are less successful when they are exposed to other elected competitors from their constituency. This effect is comparatively large and statistically robust with respect to different specifications for competition, instrument use, and various subtleties that party politics might imply. With regard to mechanisms, we discuss potential channels that may explain the impact of exposure to elected competitors on electoral success and provide indicative evidence in favor of benchmarking: Having elected competitors from the same constituency is more detrimental to legislators when they are from an ideologically close party, in more recent legislative terms characterized by converging positions of the major parties and when the elected competitors are relatively more competent.

The remainder of this paper is organized as follows: Section 2 discusses related literature. Section 3 explains the German electoral system and outlines how competition is linked to individual electoral success through benchmarking. Section 4 presents the data and our identification strategy. Section 5 summarizes our main estimation results, robustness checks, and analysis of mechanisms. We provide a summary and conclusion in Section 6.

2. Related literature

In competitive environments politicians, parties, and governments can be expected to be more accountable to voters and therefore target policies toward voters' preferences (e.g., Stigler 1972; Padovano and Ricciuti 2009). On the macro level, political competition is associated with economic growth and promotes sounder fiscal policies (Rogers and Rogers 2000; Padovano and Ricciuti 2009; Besley et al., 2010; Aidt and Eterovic 2011). The absence of competition fosters various forms of favoritism detrimental to the general electorate's interests (Solé-Ollé and Viladecans-Marsal 2012; Curto-Grau et al., 2018; Lévêque 2020) and the creation of political dynasties (Dal Bó et al., 2009). On the individual level, politicians are more engaged in legislating, adjust their voting behavior in parliament, or reduce absences if political competition is high (Galasso and Nannicini 2011; Bernecker 2014; Gavoille and Verschelde 2017; Gavoille 2018; Kauder and Potrafke 2019; Frank and Stadelmann 2021b). Also, the abuse of power and rent extraction are lower in more competitive environments (Ferraz and Finan 2011; Kauder and Potrafke 2016). Finally, political competition is shown to be positively related to the quality of candidates and elected representatives (De Paola and Scoppa 2011; Galasso and Nannicini 2011; Dal Bó et al., 2017). We add to this strand of literature by introducing a new measure for political competition, which is exposure to elected competitors from the same constituency (see also Frank and Stadelmann 2021b), and we investigate the effect of elected competitors on individual electoral success.[2]

[1] Legislators without elected competitors are usually likely to profit from a standard incumbent advantage.

[2] Note that the literature on political competition concentrates more on the effects of competition on policies or behavior and less on electoral success. The reason is that political competition is quantified predominantly with vote margins, which itself is a measure related to success.

In our analysis, we consider benchmarking possibilities as one potentially relevant mechanism to explain the impact of exposure to elected competitors from the same constituency and individual electoral success. Thereby, we also add to the literature that highlights the importance of information and informational shortcuts for voting behavior (e.g., see Lupia 1994; Delli Carpini and Keeter, 1996). Abundant empirical evidence indicates that the ability of voters to hold politicians electorally accountable improves if voters possess credible information about politicians' track records (for an overview, see Pande 2011). For example, corruption that is revealed in random audits or by judiciary intervention is punished by voters and decreases the reelection prospects of involved incumbents (Ferraz and Finan 2008; Costas-Pérez et al., 2012; Chong et al., 2015). Politicians who exhibit a positive track record are rewarded by voters (Banerjee et al., 2011). Incumbents perform better in elections if voters are made aware of their valence and qualification, for instance, by direct mailing (Banerjee et al., 2011; Kendall et al., 2015). Chang et al. (2010) point out that misconduct or a good track record alone are not sufficient to affect voting behavior, but the respective information must be accessible to information sources that voters consult. Voter information in the above mentioned literature is usually affected by increased transparency through independent auditing, judicial intervention, or a researcher's nudge in a randomized controlled trial design. In our analysis, we suggest that information about incumbents can be generated within politics through comparisons of incumbent politicians engaging in direct competition.

3. Institutional background and theoretical considerations

3.1. The German federal electoral system

The German mixed-electoral system for the Bundestag combines plurality rule with proportional representation. Voters have two votes corresponding to these two electoral tiers.

The so-called *first vote* is for candidates in single-member districts. The candidate with the plurality of first votes in the constituency wins a direct mandate for the Bundestag. Legislators elected by plurality rule account for one-half of the statutory size of the parliament. As of 2002, there were 299 constituencies.[3] Constituencies do not cross state borders, and the number of constituencies per state is proportional to a state's population, currently with the minimum number of two constituencies in the city state of Bremen (since 2002) and the maximum number of 73 in North Rhine-Westphalia in the elections 1965–1976. Each party can have only one direct candidate per constituency who is nominated by the party members in the constituency or delegates in a secret ballot.

The so-called *second vote* for statewide party lists establishes proportionality of the electoral result at the state level. Legislators elected by proportional rule from the state party lists account for the second half of the statutory size of the Bundestag. State party lists are closed, and the ranking of the candidates is determined in conferences of party delegates in the respective states before the election. The number of mandates a party wins in a state is proportional to its second vote share if it achieves 5% of all valid votes or wins three direct mandates nationwide. In each state, the direct mandates of the party are subtracted from the overall number of mandates it is entitled to due to its second vote share. The remaining mandates are then taken by the candidates from the party list with the highest position who have not yet been elected with a direct mandate. If the number of direct mandates is equal or even larger than the party's proportional number of seats according to the second votes, no further candidates from the state party list enter the Bundestag, but the party can keep these overhang seats. The size of the Bundestag therefore exceeds its statutory size by the number of overhang seats.[4]

3.2. Representation, competition, and benchmarking

Even though every constituency is represented by a directly elected legislator (direct mandate), the combination of plurality and proportional rule generates substantial differences in actual political representation among constituencies and within constituencies over time. The reason is the possibility for candidates to present themselves as a direct candidate in a constituency and on a state party list at the same time (dual candidacy). Parties in the Bundestag usually present a direct candidate in a constituency even if their direct candidate has little chance of obtaining a plurality of the votes.

Of all the candidates who were elected to the Bundestag in the period from 1953 to 2021, 75.3% made use of such a dual candidacy. A total of 16.5% ran as direct candidate without also presenting themselves on the party list. Only 8.2% presented themselves solely on the party list and were not actively competing for a direct mandate in a constituency.[5]

As described above, candidates who lose in the direct election in the constituency may still obtain a mandate from the state party list. Through party lists, further candidates from the constituency may enter parliament in addition to the already directly elected candidate. Legislators from the party lists have incentives to represent the constituency just as the directly elected legislators. They are perceived as representative for the constituency by the local public because they presented themselves as a direct candidate in the

[3] The statutory size of the Bundestag and therefore the number of constituencies has changed over the last decades. Starting with 242 constituencies in 1949, the number of constituencies increased to 247 in the 1957 election after the Saarland joined the Federal Republic of Germany and to 248 in 1965. After German reunification, the number increased again to 328 until 2002, when it was reduced to its current number of 299 constituencies.

[4] As overhang seats lead to disproportionate representation, disadvantaged parties have been compensated with leveling seats to establish proportionality again since 2013, leading to a substantial increase in the number of legislators.

[5] The share of pure list candidates includes all legislators from West Berlin who were designated by the House of Representatives of Berlin until 1990.

election. In addition, some level of commitment for the constituency is required to be nominated again in the constituency in the upcoming election by local party delegates and even to get a promising position on the party list.

Importantly, there is no statutory mechanism in Germany that guarantees that all constituencies are represented equally in terms of the number of legislators as the supervening legislators depend on the result of the second vote for the party in the proportional tier and the positions of candidates on the party list. Thus, some constituencies receive up to five additionally elected legislators from the state party lists while others remain represented only by their directly elected legislator. From the perspective of individual legislators, this means that they can have from zero to five elected competitors from the same constituency. Note again that legislators from the same constituency are always from different parties because each party is restricted to one candidate per constituency. Thus, the legal subtleties of the legislative system lead to differences in competition within constituencies over time that are independent of individual candidates, their characteristics and their campaigns helping us to credibly identify the relevance of elected competition for electoral success.

Additional legislators in a constituency, each from a different party, generate a more competitive political environment there. Comparison possibilities, mutual control, and competition activities make it more likely that misconduct and shirking are disclosed and perceived by voters. Commitment to the constituency (such as obtaining fiscal transfers and public employment, see Maaser and Stratmann 2016; Frank and Stadelmann 2021a), in turn, can be evaluated in relation to other legislators. Benchmarking elected competitors from the same constituency against each other may help reducing the asymmetric information prevalent in politics. It enables voters to obtain a more realistic picture of the quality of legislators including their parliamentary work, local commitment, and personal characteristics. If there is only one elected legislator in the constituency, voters lack such direct benchmarks against which their legislator can be evaluated. Benchmarking possibilities should improve voters' knowledge about their legislators and contribute to more information as well as transparency in the constituency. Thus, we expect that voters benchmark politicians and can cast a more informed vote when competition is high.

Anecdotal evidence suggests that legislators in the Bundestag who are from the same constituency are actively benchmarked against each other regarding, for instance, their behavior in parliament or commitment to their constituents. We provide a collection of benchmarking examples with references to newspapers articles in Appendix A.

3.3. Electoral success and competition of elected legislators

According to the literature, incumbents are shown to be less successful in elections if voters are better informed about their personal traits, qualifications, and behavior in office (e.g., see Ferraz and Finan 2008; Banerjee et al., 2011). To analyze whether benchmarking possibilities through elected competitors from the same constituency have a similar effect, we rely on additional features of the German electoral system: the timing of the election and split ticket voting.

The normal legislative term of the Bundestag is four years. Usually, elections for the new parliament are scheduled approximately one month before the current legislative term ends. This overlap allows us to identify the exposure of legislators to elected competitors from their constituency in the concluding legislative term *at the time* of the election. We can then link competition to their electoral success *in* the election for the new parliament.

As a measure of a legislator's electoral success in the election for the new parliament, we employ the difference in the first vote share of a competing legislator and the second vote share of the respective party in the constituency. As voters have two votes, split ticket voting is possible, that is, voters can opt for a candidate to represent the constituency who is from a different party than the party they give their second vote to. Relating first and second vote shares within one constituency holds the advantage that we can compare the voting behavior of the *same* voters regarding the legislators versus their parties. If voters cast their first votes strictly in accordance with their second vote for parties, the legislator's first vote share would correspond to the respective party's second vote share within the constituency. A positive vote share difference between the first and the second vote indicates that voters support the legislator beyond the party affiliation. Conversely, a negative vote share difference between the first and the second votes indicates that voters tend to support the party more than the legislator in their constituency. Reasons for positively or negatively evaluating a legislator versus the party might be linked to personal characteristics such as charisma, valence, or political experience in the constituency. It can be a reward or a punishment for the legislator's performance during the concluding legislative term.[6] The difference may also be driven by an incumbency advantage over other non-incumbent direct candidates in the constituency or strategic behavior in ticket-splitting (see, e.g., Pappi and Thurner 2002, Gschwend 2007, or Harfst et al., 2018 for strategic voting behavior in the German context).

Benchmarking possibilities induced by elected competitors in the concluding legislative term allow voters to compare individual legislators from the same constituency such that they are better able to assess their quality. Misconduct and shirking may be punished more severely. We hypothesize that having *elected* competitors from the same constituency reduces the individual success of legislators versus the party's success in the same constituency in comparison with when there is no *elected* competitor.

[6] A strong candidate in the constituency might be a reason for voters to also cast their second vote for the candidate's party. The difference in first and second votes would then be a conservative measure for the personal electoral success.

4. Data and identification strategy

4.1. Data

Our data span all legislative terms and elections from 1953 to 2021. We retrieve legislator data for the period from 1953 to 2013 from Bergmann et al. (2018a). Personal biographies from the Bundestag website and the Data Handbook on the History of the German Bundestag (*Datenhandbuch zur Geschichte des Deutschen Bundestags*) are used as a supplement and to add legislator data for 2013 to 2021 (when the most recent election took place). To retrace the constituencies in which legislators run for reelection, we employ information provided by the Federal Election Commissioner (*Bundeswahlleiter*). The Federal Election Commissioner also provided first and second vote results at the constituency level.

Elections for a new parliament take place during the precedent legislative term. To analyze the effect of *elected* competitors, we focus on legislators who are candidates in two subsequent elections. To be included into our sample, legislators must have been a direct candidate and served in the Bundestag, thus allowing us to measure their exposure to elected competitors from the same constituency in the ending legislative term at the time of the election. They also must present themselves as direct candidates again in the election for the new parliament to calculate their first and second vote share difference. This means that we omit legislators from our analysis who are only a list candidate in one of the two subsequent elections and legislators who do not run for reelection. Our final sample covers 2933 distinct legislators and 18 elections, which yields a panel data set including 7507 observations. Summary statistics for all variables included in our main analysis are shown in Appendix Table A1.

4.1.1. Main dependent variable: individual electoral success

We use *Diff. in first and second vote share* as the variable for the individual electoral success of legislators in the election for the new parliament. It is the difference between the first vote share the legislator receives and the second vote share for the legislator's party in the constituency. For example, former chancellor Angela Merkel won 44.0% of the first votes in her constituency in the 2017 election.[7] Her party, the Christian Democratic Union (CDU), gained only 32.9% of the second votes in this constituency. The 11.1 percentage point difference indicates that Angela Merkel was individually successful in the election as she received more votes than her party within the constituency.

Panel A in Fig. 1 shows a histogram for the first vote shares in the election for the new parliament of all incumbent legislators in our sample. First vote shares vary from 0.7% to 81.9%.[8] The histogram for the respective second vote shares in Panel B shows a similar picture. The first and second vote shares are double peaked. This is explained by legislators affiliated to traditionally centrist parties, that is, the Social Democratic Party (SPD), the CDU, and the Christian Social Union (CSU), who obtain relatively high first vote shares and their parties obtain high second vote shares. Candidates from smaller and more fringe parties usually obtain lower first and second vote shares, respectively.[9] The difference in first and second vote shares is depicted in Panel C. Elected legislators tend to obtain more first votes on average than their parties receive second votes in the same constituency. The mean difference is 2.3 percentage points, and the median difference is 2.0 percentage points, which is suggestive of a typical incumbent advantage.[10] The values for *Diff. in first and second vote share* have a wide range from −11.8 percentage points to a maximum of 31.0 percentage points.

4.1.2. Main explanatory variable: Elected competitors

Concerning our main explanatory variable of interest, incumbents running for reelection face from zero to four other elected competitors from the same constituency in parliament at the time of the election. Competitors to legislators elected directly in the constituency are the defeated candidates who enter through the party lists. Competitors to legislators elected from the party lists can be both legislators elected in the constituency and other defeated candidates who enter through their party list.[11]

As parties can have at most one direct candidate per constituency, the number of parties elected to parliament minus one represents an upper bound for the number of elected competitors. A share of 16.0% of legislators in our sample are the only representatives in their constituency, that is, they face no elected competitors in the Bundestag. Slightly more than half of legislators (54.1%) have one elected competitor, 25.4% have two elected competitors, and 3.8% and 0.7% of all legislators have three and four elected competitors, respectively.

To implement exposure to elected competitors from the same constituency in our analysis, we use the binary variable *Elected competitors in constituency*. It takes a value of one if legislators have at least one elected competitor and a value of zero for legislators

[7] Angela Merkel was a candidate in constituency 15 (Vorpommern-Rügen – Vorpommern-Greifswald I) in the Mecklenburg-Western Pomerania state.

[8] Minimum and maximum values can be attributed to Georg Körner (German Party [abbreviated with DP for Deutsche Partei]) in the constituency of Duisburg II in 1957 and Kurt Schmücker (CDU) in the constituency of Vechta – Cloppenburg in 1961, respectively.

[9] Candidates and parties with usually smaller first and second vote shares include the Free Democratic Party (FDP), Alliance 90/The Greens, the Party of Democratic Socialism (PDS) and its successor party The Left, and the DP. The graphs also show observations of election results close to zero. These observations mostly belong to still incumbent legislators from parties who fail the electoral threshold of 5% in the election for the new parliament (e.g., the West-German The Greens [1990], the PDS or The Left [1994, 2002; 2021] or the FDP [2013]).

[10] We account for any such an advantage in our empirical setting with legislator-specific fixed effects.

[11] Legislators elected from the party lists can also have zero elected competitors at the time of the election for the new parliament if their elected competitors have resigned their mandate before.

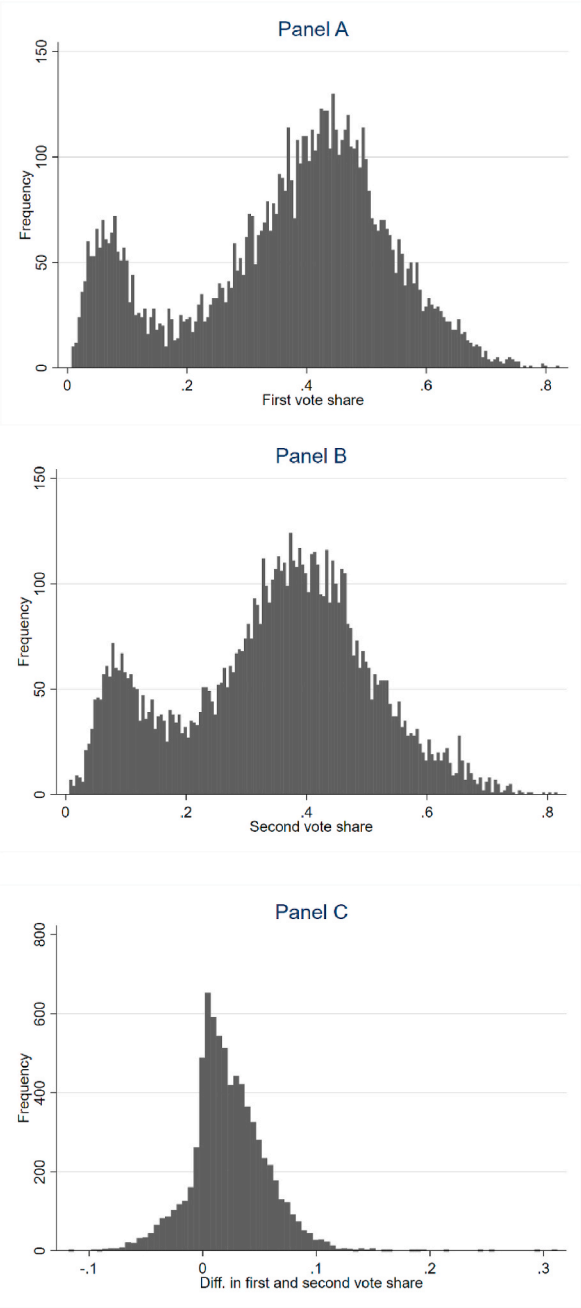

Fig. 1. Histograms for the first and second vote shares and the differences in first and second vote shares in the election for the new parliament.

who are not exposed to elected competitors. We use a binary variable instead of the number of elected competitors as our main explanatory variable of interest for the following reasons. First, a majority of legislators have exactly one elected competitor. The mean number of elected competitors is 1.19 and the median is 1. Second, there are only a few legislators with more than two elected competitors. Third, legislators without elected competitors may be hurt most in terms of competition when the first elected competitor enters. The additional effect of every other additionally elected competitor may be more limited. Using the number of elected competitors from the same constituency instead of the binary variable as an alternative does not change our main insights (see Appendix Table A3).

4.1.3. Further covariates

From the perspective of a legislator running for a new mandate, other elected competitors from the same constituency are existent due to the electoral system as described above, that is, competition is reasonably independent of personal characteristics. Moreover, we

will account for legislator-specific fixed effects. Additionally, when analyzing the effect of elected competitors on individual electoral success, we consider other time-variant explanatory factors for differences in first and second vote shares.

We control for holding a direct mandate, being a member of a party in government, age at the election, and legislative tenure as personal attributes that could also influence the decision of voters. Legislators could also profit when they hold a salient position in government, in the party, or in parliament. We therefore control whether legislators are a minister, junior minister, (*vice*) parliamentary president, (*vice*) chair of a committee, (*vice*) chair of a parliamentary group, or whip in the legislative term preceding the election. We additionally include a variable that measures if the legislator has been a minister in previous legislative terms. Finally, election-related covariates could also be relevant for the success of politicians. First, turnout has been shown to play some role in an incumbent's success in an election (e.g., for mixed evidence, see Hansford and Gomez 2010; Martins and Veiga 2014; Frank et al., 2022). In addition, citizens could be encouraged or discouraged to vote depending on the information they gather through benchmarking (Chong et al., 2015). When there are more parties to elect than direct candidates, a positive difference in first and second vote shares could be driven by the relative abundance of parties. Thus, we account for the number of direct candidates in the constituency in which the incumbent runs for reelection and the number of parties at the state level. The number of candidates running for direct election is a measure for how contested first votes are in the constituency. Note, that the number of direct candidates constitutes another aspect of competition than exposure to *elected* competitors from the same constituency in the concluding term. Most importantly, the latter can be used by voters as benchmarks for the evaluation of the performance and quality of incumbent legislators, which is not possible for yet unelected direct candidates. Parties that are represented in the Bundestag usually have a direct candidate in all constituencies, even if there is no chance to win the direct mandate. By contrast, small political parties that are not present in the Bundestag sometimes refrain from nominating direct candidates, highlighting the relevance to systematically control for the number of direct candidates in the constituency and the number of parties at the state level in all main estimates.

4.2. Identification strategy: legislator-specific fixed effects and instrumental variables

4.2.1. Fixed effects regression framework

To analyze the effect of political competition on individual electoral success, we start by introducing a regression framework that accounts for individual legislator-specific fixed effects. Thereby, we compare the same legislators in elections when they can be benchmarked against elected competitors from the same constituency to elections when there are no competitors. Observations in our panel data set correspond to legislator i in election t. We analyze the following specification:

$$\textit{Diff. in first and second vote share}_{it} = \beta_1 \textit{Elected competitors in constituency}_{it} + X_{it}\gamma + \lambda_i + \mu_t + \varepsilon_{it}. \quad (1)$$

$\textit{Diff. in first and second vote share}_{it}$ is the dependent variable capturing the individual electoral success of legislators i in election t. The main explanatory variable for exposure to competition is $\textit{Elected competitors in constituency}_{it}$. It measures whether legislators have elected competitors from the same constituency in the old parliament against which they can be benchmarked at the time of the election t.[12] We expect that legislators are less successful in elections when there are benchmarking possibilities, that is, we expect the coefficient estimate $\widehat{\beta}_1$ to be negative.

Time-varying personal characteristics of legislators, political positions, and election-related controls are captured by the X_{it}. Legislator-specific fixed effects λ_i account for all characteristics of legislators that are constant over time. These include observable ones such as gender, occupation, and party affiliation, but also unobservable traits such as charisma. Legislator-specific fixed effects mitigate concerns from omitted variable bias that could emanate from such constant, but unobservable or difficult to quantify traits of legislator that affect their individual success. The model is complemented by election fixed effects μ_t to control for election-specific shocks that are common to all legislators. The error term is constituted by ε_{it}.

4.2.2. Instrumental variables and fixed effects

Legislator-specific fixed effects in combination with time-varying observable covariates captured in X_{it} alleviate omitted variable bias concerns. They cover observable, time-variant traits of legislators as well as both observable and unobservable, constant characteristics (fixed effects). Even as the institutional setting insures that elected competitors emerge due to the design of the German electoral system, time-variant unobservables such as valence, a legislators' popularity, or political networks matter for electoral success, that is, they can correlate with or impact *Diff. in first and second vote*. If such unobservable, time-variant variables correlate with *Elected competitors in constituency,* estimates of β_1 would be inconsistent.[13]

To systematically deal with endogeneity issues from time-variant omitted variables and to establish the impact of elected competitors on electoral success, we rely on an instrumental variables strategy based on early termination and replacement candidates (for similar approaches, see Jennes and Persyn 2015; Frank and Stadelmann 2021b). Again, we leverage the German electoral law to examine credibly exogenous variation in competition.

[12] The election for the new parliamentary term takes place during the old legislative term; thus, we know whether legislators have elected competitors from the same constituency in parliament on election day.

[13] A priori, it is unclear whether an estimate for β_1 will be biased upwards or downwards. It is reasonable to assume that competent, popular, and connected legislators are more successful. However, whether and how unobserved quality, valence, popularity, and political networks are, if at all, positively or negatively linked to *Elected competitors in constituency*, is not theoretically evident.

Our identification strategy builds on legislators who leave the Bundestag prior to the end of the legislative period (e.g., due to death or acceptance of another office), which induces changes in the level of competition in up to *two* constituencies. First, constituencies from which resigning legislators originate are not compensated for the loss of their representative, for instance, through a by-election. Thus, the number of legislators decreases in the concerned constituency, and the remaining legislators face one fewer elected competitor. Second, a vacant mandate is filled by the first candidate from the respective state party list who has *not* yet obtained a mandate in the Bundestag. Due to the electoral system, this replacement can never be from the same constituency as the resigning legislator. If this replacement candidate is a defeated candidate from another constituency, the number of legislators and competition increases there.

To clarify the way that early termination of a legislator affects competition due to the German electoral law, consider the following example from the period 2013–2017. In 2013, Norbert Müller (The Left) ran unsuccessfully for a direct mandate in constituency 61,[14] and then held the unfortunate position of the first candidate from the state party list who *did not* obtain a mandate for the Bundestag. Diana Golze (The Left) lost the contest for the direct mandate in constituency 60,[15] but obtained a mandate through the state party list of The Left. She withdrew from the Bundestag on November 6, 2014, to become a minister in the new state government in Brandenburg. As a consequence, her constituency lost her as an elected legislator and competition decreased there. Norbert Müller received Diana Golze's replacement mandate. Thus, the number of legislators and, therefore, competition increased in constituency 61 during the legislative term. As in this example, the constituency of the resigning legislator is *always different* from the constituency of the replacement candidate. The legal reason is that parties can only have one candidate for direct election per constituency.

We use resigned legislators and their replacement candidates to generate two instruments for the variable *Elected competitors in constituency*. First, we create the binary variable *Early dropout in constituency* processing information from all 555 legislators representing a constituency who left the Bundestag prior to the termination of the legislative term from 1953 to 2021. For legislator i in election t, *Early dropout in constituency* takes a value of one if an elected legislator from the current constituency has resigned before the election. The second instrument *Replacement in constituency* captures replacement candidates. It takes a value of one for all legislators representing a constituency that has obtained a replacement candidate. We are able to identify 363 replacement legislators who add to elected competitors.[16] As shown in Appendix Table A1, 7.6% of all legislators in our sample are affected by resigning legislators, while 8.9% are from a constituency with a replacement candidate.

To implement our instrumental variables strategy with *Early dropout in constituency* and *Replacement in constituency* as the instruments, we employ a two-stage least squares (2SLS) estimator. First and second-stage equations are as follows:

$$\textit{Elected competitors in constituency}_{it} = \alpha_1 \textit{Early dropout in constituency}_{it} + \alpha_2 \textit{Replacement in constituency}_{it} + X_{it}\theta + \tau_i + \pi_t + \upsilon_{it}, \quad (2)$$

$$\textit{Diff. in first and second vote share}_{it} = \beta_1 \widehat{\textit{Elected competitors in constituency}}_{it} + X_{it}\gamma + \lambda_i + \mu_t + \varepsilon_{it}. \quad (3)$$

The first-stage Eq. (2) has the variable *Elected competitors in constituency* on the left-hand side and uses the instruments as explanatory factors as well as the vector of covariates X_{it}, legislator, and election fixed effects. The second stage then uses the instrumented *Elected competitors in constituency* variable to estimate the effect on *Diff. in first and second vote share*. Thereby, we exploit the variation in the instrumented competition variable which is induced by resigning legislators and their replacements to estimate an effect of elected competition on individual electoral success. The coefficient of interest is β_1 in Eq. (3). We expect the respective estimate $\widehat{\beta}_1^{2SLS}$ to be negative.

To serve as valid instruments, two conditions need to be fulfilled. The first condition requires that the instruments be strong predictors for the endogenous variable *Elected competitors in constituency*. This is the case by definition of the German electoral law, that is, the electoral system induces the change in elected competition when legislators leave parliament prior to the end of their term. In the next section, we also show empirically that *Early dropout in constituency* is strongly negatively correlated to *Elected competitors in constituency* while *Replacement in constituency* has a strong positive effect on exposure to competitors. As a second condition, the instruments need to be orthogonal to the error term ε_{it} conditional on other controls in Eq. (3). To examine this condition, we separately contemplate the two instruments starting with *Early dropout in constituency*. Two arguments can be given to justify the exogeneity of *Early dropout in constituency*. First, the reasons why legislators leave the parliament are credibly independent from time-variant characteristics of *other* legislators in the two affected constituencies. Indeed, the most common causes for the 555 shortened terms are sickness or premature death (31.0%).[17] Legislators are known to resign their relatively safe and well-paid mandate because of personal ambitions when they accept another political office or mandate (25.6% and 15.1%, respectively), a job in the public sector (11.7%), or a position in the private sector (5.8%). Often, their new position is incompatible with their mandate for legal reasons (e.g.,

[14] Potsdam – Potsdam-Mittelmark II – Teltow-Fläming II in the state of Brandenburg.

[15] Brandenburg an der Havel – Potsdam-Mittelmark I – Havelland III – Teltow-Fläming I in the state of Brandenburg.

[16] Mandates are not compensated if resigning legislators hold an overhang seat. Moreover, replacement candidates are more likely to be list candidates only rather than initially elected legislators, which explains the difference in the number of resigning and replacing legislators with links to a constituency.

[17] Employing only early dropouts due to death as an instrument does not affect our results (see Appendix C).

federal president, minister in a state, state secretary, civil servant, or judge) or evaluated critically due to conflicts of interest. Further reasons why legislators leave the parliament are involvement in a scandal (5.1%),[18] the party applies a so-called rotation principle (4.0%),[19] or personal reasons (1.1%). In only four cases we are unaware of the reason a legislator withdrew the mandate. Second, further evidence underlines that legislators resign their mandate credibly independent from the characteristics or even the *existence* of elected competitors. This is well illustrated by the 78 of 555 resigning legislators who were the only representatives in their constituency at the time of their withdrawal. Clearly, their withdrawal could not have been driven by other legislators in their constituency nor their traits, because there were none. These 78 uncontested, resigning legislators reported reasons similar for their withdrawal to those of their contested counterparts.[20] From this, we would consider it reasonable that *Early dropout in constituency* is exogenous to *Elected competitors in constituency*.

Considering the second instrument *Replacement in constituency*, we note once again that vacant mandates are replaced by not yet elected candidates. The replacement candidate is chosen based on the ordering on the closed state party list which prohibits parties to retroactively target constituencies with representatives. The replacement candidate only enters as a new competitor because a former legislator without connection to the receiving constituency withdraws from the Bundestag. Thus, we consider it reasonable that *Replacement in constituency* is exogenous to *Elected competitors in constituency*.

In summary, *Early dropout in constituency* and *Replacement in constituency* plausibly serve as valid instruments in the following analysis.

5. The effect of elected competitors on electoral success

5.1. Fixed effects regressions

Table 1 presents legislator-specific fixed effects regressions results from Eq. (1). Column (1) only includes *Elected competitors in constituency* as an explanatory variable. The coefficient is negative, statistically significant at the 1% level and indicates that the exposure to elected competitors is negatively related to individual electoral success. We subsequently add fixed effects and time-variant controls in columns (2) to (5). While column (2) employs legislator-specific fixed effects and column (3) adds election fixed effects, we also introduce time-variant legislator controls (column 4) and additionally use election-related and political position covariates in column (5). The coefficient for *Elected competitors in constituency* is always negative and statistically highly significant. Legislators' individual success in federal elections is negatively related to exposure to elected competitors in their constituency. In terms of magnitude, the existence of elected competitors in the constituency relates to a 0.27 percentage points smaller *Diff. in first and second vote share* (column 5). This amounts to a non-negligible 11.7% of the mean *Diff. in first and second vote share* in the full sample.

The results for the other statistically significant covariates allow for reasonable interpretations: legislators who already hold a direct mandate do better in the election. The same applies for legislators who are a minister or member of a governing party. As expected, the number of parties competing at the state level is positively related to *Diff. in first and second vote share*. If voters can choose among more parties, this reduces the second vote share of the legislator's party, and, in turn, mechanically increases their vote share difference. By contrast, more overall candidates for direct election negatively impact the first votes the legislator receives, which is reasonable too.

5.2. Instrumental variables and fixed effects

The results from our 2SLS strategy are shown in Table 2. Panel (A) provides the second stage results and Panel (B) the corresponding estimates from the first stage.

We start with a parsimonious model including only legislator fixed effects in column (1) and add election fixed effects, personal-, position-, and election-related controls in columns (2) to (4). In all specifications, the instruments have their signs as expected (Panel B): *Early dropout in constituency* decreases *Elected competitors in constituency*, and *Replacement in constituency* increases it. Both coefficients for the instruments are significant at the 1% level and first-stage *F*-statistics for the joint significance are well above the standard thresholds. This makes us confident that the instruments are relevant. In addition, testing for overidentifying restrictions yields Hansen's *J*-statistic and respective *p*-values which underline that the instruments are valid in econometric terms. Given the German electoral law and the design of workings of the system when a legislator leaves parliament early, we consider our instruments as plausibly exogenous.

In line with our hypothesis, the second stage results for the effect of the instrumented *Elected competitors in constituency* variable on individual electoral success in Panel A are all negative and statistically significant. Being exposed to elected competitors from the same constituency decreases the first and second vote share difference by 0.56 percentage points when employing all controls (column 4).

[18] Examples of scandals are that legislators are shown to have worked as a spy or accused of another infringement. Excluding withdrawals due to scandals does not affect our results (see Appendix C).

[19] A rotation principle was applied by The Greens in the 1980s. It stipulated that their legislators leave the parliament after half of the legislative term and aimed to prevent professional politicians.

[20] The respective shares for the 78 legislators, who do not have an elected competitor in their constituency when they resign, are as follows: death and sickness (39.7%), political office (26.9%), other political mandate (6.4%), public sector (11.5%), private sector (3.9%), scandal (6.4%), rotation principle (1.3%), and personal reasons (2.6%). The rest are unknown.

Table 1
The link between *Elected competitors in constituency* and the *Diff. in first and second vote share* (OLS fixed effects).

	(1)	(2)	(3)	(4)	(5)
Dependent variable	Diff. in first and second vote share				
Elected competitors in constituency	−0.0141***	−0.0035***	−0.0036***	−0.0026***	−0.0027***
	(0.0013)	(0.0008)	(0.0007)	(0.0007)	(0.0007)
Direct mandate				0.0046***	0.0044***
				(0.0011)	(0.0011)
Tenure				0.0017	0.0007
				(0.0042)	(0.0043)
Age				0.0008	0.0012
				(0.0012)	(0.0012)
Minister				0.0026*	0.0040**
				(0.0015)	(0.0016)
Government party				0.0035***	0.0035***
				(0.0007)	(0.0007)
Number of parties in election					0.0004*
					(0.0002)
Direct candidates in election					−0.0018***
					(0.0003)
Turnout					−0.0313
					(0.0274)
Political position controls	No	No	No	No	Yes
Legislator fixed effects	No	Yes	Yes	Yes	Yes
Election fixed effects	No	No	Yes	Yes	Yes
Observations	7507	7507	7507	7507	7507
Number of legislators	2933	2933	2933	2933	2933
R-squared	0.0244	0.0042	0.1384	0.1547	0.1746

Notes: OLS fixed effects estimation. The unit of observation is an individual legislator-election pair. Political position controls include *Junior minister*, *(vice) Parl. president*, *(vice) Chair committee*, (*vice*) *Chair parl. group*, *Whip*, and *Experience as minister*. Standard error estimates are clustered at the legislator level. ***p < 0.01, **p < 0.05, *p < 0.1.

Table 2
The effect of *Elected competitors in constituency* on the *Diff. in first and second vote share* (2SLS fixed effects).

	(1)	(2)	(3)	(4)
Dependent variable	Diff. in first and second vote share			
Panel (A): Second stage results				
Elected competitors in constituency	−0.0071**	−0.0054**	−0.0058**	−0.0056**
	(0.0028)	(0.0026)	(0.0025)	(0.0025)
Panel (B): First stage results for instruments only				
Dependent variable	*Elected competitors in constituency*			
Early dropout in constituency	−0.2992***	−0.2991***	−0.3070***	−0.3072***
	(0.0237)	(0.0238)	(0.0240)	(0.0240)
Replacement in constituency	0.1628***	0.1676***	0.1655***	0.1641***
	(0.0144)	(0.0146)	(0.0148)	(0.0149)
Controls (for all panels):				
Personal controls	No	No	Yes	Yes
Political position controls	No	No	No	Yes
Election controls	No	No	No	Yes
Legislator fixed effects	Yes	Yes	Yes	Yes
Election fixed effects	No	Yes	Yes	Yes
Observations	7507	7507	7507	7507
Number of legislators	2933	2933	2933	2933
F-statistic first stage	147.5	150.5	147.9	146.0
Hansen *J*-statistic (p-val.)	0.361	0.956	0.906	0.873

Notes: 2SLS estimation. The unit of observation is an individual legislator-election pair. Personal controls include *Direct mandate*, *Tenure*, *Age*, *Minister*, and *Government party* as in Table 1. Political position controls include *Junior minister*, *(vice) Parl. president*, *(vice) Chair committee*, *(vice) Chair parl. group*, *Whip*, and *Experience as minister*. Election controls include *Number of parties in election*, *Direct candidates in election* and *Turnout.* Standard error estimates are clustered at the legislator level. ***p < 0.01, **p < 0.05, *p < 0.1.

The size of the effect from the 2SLS setting is slightly larger in absolute terms than in the OLS analysis. It accounts for approximately one-fourth of the mean difference in the sample or 0.17 standard deviations. We conclude that the existence of elected competitors is an economically relevant determinant of a legislator's success.

5.3. Robustness analyses

In the following, the robustness and reliability of our main result from the 2SLS setting are carefully explored. Table 3 provides a first set of robustness checks.

Politics does not always follow straight lines. Sometimes, legislators become a member of another party during their tenure, for example, due to ideological differences, and run for the new party in the election. Ideological or representational differences with their party could be a reason why legislators change the constituency in which they run for direct election. In both cases, benchmarking these legislators could be complicated for voters. We therefore drop all legislators who change the party or the constituency in columns (1) and (2), respectively.

Exposure to elected competitors and individual electoral success could be confounded when the boundaries of a constituency change.[21] In particular, changing boundaries of the constituency means that the electorate changes, too. Column (3) shows an estimation for the sample of constituencies with unaltered boundaries in the election in comparison to the preceding term.

We account for the potentially special political environment in the capital (Bonn, and later Berlin) and state capital cities that could trigger political competition. For instance, party associations from such capital cities could have a more influential position within the state than associations from more remote constituencies. If that is the case, politicians from capital cities are more likely to have elected competitors. In addition, the media could be concentrated there which improves comparison possibilities for voters and disciplines politicians. We drop observations from all capital and state capital cities from our sample in column (4).

In the history of the German Bundestag, three legislative terms have been shorter than the statutory four years. In all cases, the federal president declared new elections after the parliament denied the chancellor a vote of confidence. Our main result is robust to the exclusion of elections following a shortened term as shown in column (5).

When turning to the results in columns (6) and (7), we concentrate on legislators who might be considered "special cases." First, we drop legislators who have received a mandate in the concluding term through a replacement mandate (column 6). Second, legislators are omitted in column (7) when their mandate type changes; that is, we omit legislators who hold a direct mandate at the time of the election but then enter parliament again through the party list, and vice versa. We additionally drop legislators who fail to be reelected. A changing mandate type might be seen as an indicator of a rather volatile political environment in the constituency, or a new evidence base that inverts how voters perceive their legislators. All results remain robust.

In the last two columns of Table 3, we test for the robustness of our main results to political agreements and electoral recommendations. In rare cases in the early days of elections for the German Bundestag, some parties had electoral agreements in single constituencies. Usually, a major party did not nominate an own direct candidate to support the direct candidate of a smaller political party. The direct candidate from the smaller party then received a first vote share that was remarkably higher than the respective second vote share. We therefore drop observations from all constituencies in which there was no candidate from either *SPD*, *CDU*, or *CSU* in column (8). Finally, we aim to exclude that our results are driven by other forms of electoral recommendations at the level of the constituency in column (9). It can happen that a competing direct candidate and the respective local party associations give a voting recommendation: they publicly support an ideologically close direct candidate to prevent another undesired direct candidate from representing the constituency.[22] First and second vote shares often differ considerably in constituencies with such voting recommendations. Therefore, we drop outlying observations with values of *Diff. in first and second vote share* $< |0.1|$ in column (9) to account for such tactics.

All results from Table 3 show that the negative effect of more elected competitors on individual electoral success is not driven by exceptional political circumstances. In Appendix C, we provide an array of additional robustness checks that we also discuss there in greater detail. First, the instruments and their validity are further examined. Second, we show that we obtain qualitatively similar results when using the number of elected competitors in the constituency as the main explanatory variable instead of a binary indicator for the existence of elected competitors. Third, we provide rolling regressions for legislative terms, states, and parties. Fourth, we provide an array of "placebo tests". The negative effect of elected competition on electoral success is highly robust to different model specifications, instrument choices, and subsamples.

5.4. Evidence for benchmarking as a potential mechanism

All our results are supportive of the negative effect of elected competitors on electoral success. We now investigate potential mechanisms underlying this effect. We start by providing evidence that is consistent with the explanation that legislators are less successful in elections if voters can benchmark them against elected competitors (Table 4). We then proceed by discussing and analyzing alternative explanations for the effect of elected competitors on electoral success (Table 5).

A first approach to consider benchmarking as a mechanism is to contrast the existence of ideologically distinct versus ideologically close elected competitors (Buttice and Stone 2012; Gavoille and Verschelde 2017). Consider the example of a constituency represented

[21] As required by electoral law, the boundary of a constituency is adjusted if the population deviates too much from the mean population of all constituencies. Similarly, the number of mandates per state can be reduced or increased by applying a population-based apportionment. This entails a reduction or increase in the number of constituencies and, consequently, an adjustment of their boundaries in affected states.

[22] We should note here that giving up a hopeless direct candidacy in favor of a direct candidate from another party is a very rare practice: parties fear that voting recommendations for other direct candidates also influence the voters' second vote behavior. This would impair the recommending party's representational strength in parliament which is proportional to the second vote share.

Table 3
Robustness checks for the effect of *Elected competitors in constituency* on the *Diff. in first and second vote share* (2SLS fixed effects).

Dependent variable	Diff. in first and second vote share								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Exclude from sample if …	Different party	Different constituency	Boundary changes	Capital	Short term	Replacement candidate	Mandate changes	Vacant candidacy	Potential Outlier
Elected competitors in constituency	−0.0045*	−0.0055**	−0.0058*	−0.0061**	−0.0059**	−0.0041*	−0.0053*	−0.0043*	−0.0041*
	(0.0024)	(0.0024)	(0.0032)	(0.0026)	(0.0030)	(0.0024)	(0.0029)	(0.0024)	(0.0022)
Personal controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Pol. position controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Election controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Legislator fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Election fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	7464	7171	6043	6518	6282	7252	6091	7491	7391
Number of legislators	2914	2833	2738	2546	2845	2842	2472	2927	2921
F-statistic first stage	146.6	142.8	98.75	134.7	111.9	149.4	110.8	146.6	143.9
Hansen *J*-statistic (*p*-val.)	0.459	0.215	0.981	0.958	0.887	0.401	0.502	0.337	0.434

Notes: 2SLS estimation. The unit of observation is an individual legislator-election pair. The table shows second stage regression results using *Early dropout in constituency* and *Replacement in constituency* to instrument *Elected competitors in constituency*. Personal controls include *Direct mandate*, *Tenure*, *Age*, *Minister*, and *Government party* as in Table 1. Pol. position controls include *Junior minister*, *(vice) Parl. president*, *(vice) Chair committee*, *(vice) Chair parl. group*, *Whip*, and *Experience as minister*. Election controls include *Number of parties in election*, *Direct candidates in election*, and *Turnout*. Standard error estimates are clustered at the legislator level. ***p < 0.01, **p < 0.05, *p < 0.1.

Table 4
Analyzing benchmarking as a mechanism for the effect of *Elected competitors in constituency* on the *Diff. in first and second vote share* (2SLS fixed effects).

Dependent variable	Diff. in first and second vote share						First vote share	Second vote share
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Different ideology	Similar ideology	Pre-reunification	Post-reunification				
Elected competitors in constituency	−0.0061***	−0.0114	−0.0030	−0.0132*			−0.0138*	−0.0082
	(0.0022)	(0.0072)	(0.0026)	(0.0070)			(0.0079)	(0.0077)
At least one competitor with leading position					−0.0095*			
					(0.0058)			
At least one competitor without leading position						−0.0048*		
						(0.0025)		
Personal controls	Yes	Yes	Yes	Yes	(Yes)	(Yes)	Yes	Yes
Political position controls	Yes	Yes	Yes	Yes	No	No	Yes	Yes
Election controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Legislator fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Election fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	6946	3180	3173	3432	2509	4593	7507	7507
Number of legislators	2756	1811	1300	1542	1623	2449	2933	2933
F-statistic first stage	155.1	30.90	92.16	33.58	17.72	97.77	146.0	146.0
Hansen *J*-statistic (p-val.)	0.434	0.805	0.824	0.830	0.857	0.322	0.078	0.086

Notes: 2SLS estimation. The unit of observation is an individual legislator-election pair. The table shows second stage regression results using *Early dropout in constituency* and *Replacement in constituency* to instrument *Elected competitors in constituency*. Personal controls include *Direct mandate*, *Tenure*, *Age*, *Minister*, and *Government party* as in Table 1. *Minister* is not included in the list of controls in columns (5) and (6). Political position controls include *Junior minister*, *(vice) Parl. president*, *(vice) Chair committee*, *(vice) Chair parl. group*, *Whip*, and *Experience as minister*. Election controls include *Number of parties in election*, *Direct candidates in election*, and *Turnout*. Standard error estimates are clustered at the legislator level. ***p < 0.01, **p < 0.05, *p < 0.1.

Table 5
Analyzing other potential mechanisms besides benchmarking for the effect of *Elected competitors in constituency* on the *Diff. in first and second vote share* (2SLS fixed effects).

Dependent variable	Diff. in first and second vote share							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
							Backbenchers (I)	Backbenchers (II)
Elected competitors in constituency	−0.0051**	−0.0055**	−0.0061**	−0.0055**	−0.0049*	−0.0050*	−0.0043*	−0.0056**
	(0.0025)	(0.0025)	(0.0025)	(0.0025)	(0.0028)	(0.0028)	(0.0022)	(0.0025)
Vote margin	0.0254***							
	(0.0046)							
Closeness constituency		0.0079						
		(0.0051)						
Absentee rate			0.0063**					
			(0.0026)					
Dual candidacy				0.0032**				
				(0.0012)				
List position					−0.0001**			
					(0.0001)			
Safe list position						0.0013		
						(0.0008)		
Personal controls	Yes	Yes	Yes	Yes	Yes	Yes	(Yes)	(Yes)
Political position controls	Yes	Yes	Yes	Yes	Yes	Yes	(Yes)	(Yes)
Election controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Legislator fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Election fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	7507	7507	6967	7507	6141	6141	4544	4466
Number of legislators	2933	2933	2701	2933	2519	2519	2286	2265
F-statistic first stage	145.7	145.8	142.1	146.0	110.0	109.5	117.4	99.42
Hansen *J*-statistic (p-val.)	0.969	0.902	0.922	0.866	0.882	0.867	0.688	0.945

Notes: 2SLS estimation. The unit of observation is an individual legislator-election pair. The table shows second stage regression results using *Early dropout in constituency* and *Replacement in constituency* to instrument *Elected competitors in constituency*. Personal controls include *Direct mandate*, *Tenure*, *Age*, *Minister*, and *Government party* as in Table 1. Political position controls include *Junior minister*, *(vice) Parl. president*, *(vice) Chair committee*, *(vice) Chair parl. group*, *Whip*, and *Experience as minister*. Election controls include *Number of parties in election*, *Direct candidates in election*, and *Turnout.* In columns (7) and (8), we only account for those controls that are not used as a condition for defining prominent politicians (*Minister*, *Junior minister*, *(vice) Parl. president*, *(vice) Chair parl. group*, *Whip* and *Experience as minister).* Standard error estimates are clustered at the legislator level. ***p < 0.01, **p < 0.05, *p < 0.1.

by two legislators from the center-right CSU and the left-wing party The Left. These two legislators are very different ideologically. Benchmarking these legislators might be of little use to voters as the ideological costs to adjust the first vote would be too high regardless of their differences in individual valence. Consider now that a legislator from the FDP, a party usually classified to the ideological center-right, competes with the legislator from the CSU instead of the left-wing legislator. This competitor presents a real alternative to the legislator from the CSU in ideological terms. The ideological costs for benchmarking these two legislators and changing the first vote are relatively small for voters such that they may more strongly react to differences in individual quality. Therefore, the existence of elected legislators can be expected to be more pivotal when the ideological positioning of elected competitors is close. Columns (1) and (2) in Table 4 show corresponding estimates which account for exposure to ideologically distinct versus ideologically close competitors.[23]

In column (1), we employ a sample that includes legislators who either have no elected competitor or at least one elected competitor from an ideologically distinct party. In column (2), we employ a sample of legislators exposed to competitors with similar ideological leanings. The results support a benchmarking interpretation: we find that exposure to both ideologically distinct and similar elected competitors have a negative impact on electoral success. The point estimate for elected competitors in the sample accounting for similar ideology (column 2) is roughly twice as large in absolute terms than in the sample for distinct ideology (column 1), though marginally insignificant. In line with theory, this suggests that legislators are to a larger extent evaluated concerning their personal characteristics and work in a setting where benchmarking is less constrained by ideological differences for voters.

Further evidence in favor of benchmarking as a mechanism is provided in columns (3) and (4). Again, we rely on the argument that voters are expected to be more sensitive to the quality of legislators as revealed by benchmarking if ideological differences are less pronounced. Over the last decades, at first glance, the party landscape in Germany has become more diverse because there are more parties represented in parliament. However, parties have converged on a left–right scale and the positions on topics such as economics, social security, European integration, or the environment now differ for the two major parties SPD and CDU less than in the past and, in particular, when compared with the situation prior to the fall of Communism. This convergence of parties and positions seems to be a phenomenon observed all over Europe (e.g., Spoon and Klüver 2019). Thus, decreasing ideological costs for split ticket voting make benchmarking legislators increasingly important as a criterion for first vote decisions. Consequently, we should observe a larger effect of having elected competitors from the same constituency on individual electoral success in more recent elections. We divide our sample into a pre- and post-reunification period to leverage the induced convergence of party positions after the fall of Communism.[24] We observe that there is no statistically significant effect of elected competitors in the pre-reunification period in column (3). The coefficient has a theory-consistent sign but is small in absolute terms. After reunification, by contrast, having elected competitors from the same constituency decreases *Diff. in first and second vote share* by 1.32 percentage points. The point estimate is statistically different from zero and larger than for the pre-reunification period. These results add to the evidence that benchmarking might be an underlying mechanism for the effect of elected competitors on individual electoral success.

The negative effect of having elected competitors on electoral success through benchmarking may be heterogenous. If benchmarked against a relatively competent competitor, the effect of having an elected competitor may be more detrimental to individual electoral success than if benchmarked against an average competent legislator.[25] We rely on holding a leading position such as minister, junior minister, whip, chair of a committee, parliamentary president, or chair of the parliamentary group and having been minister in previous periods as a proxy for competence. In columns (5) and (6), we analyze subsamples of legislators who do not hold such a position. In column (5), we consider legislators without leading position who have either no competitor or at least one competitor holding one of the leading positions listed above. We find that the effect is comparatively large and statistically significant. In column (6), we use the same approach to analyze the effect of elected competitors without leading position on legislators without leading position. The effect is considerably smaller in absolute terms than in column (5). This suggests that being exposed to competitors holding a leading position is more detrimental to the electoral success of legislators without a leading position than competition from legislators likewise without leading position. This result supports the view that benchmarking may be a relevant mechanism to explain the negative effect of having elected competitors on electoral success. Hereby, the competence of legislators is just one of the potential aspects that voters may use for benchmarking. It would be interesting to study the heterogeneity of the effect of elected competitors with respect to further aspects that may be used for benchmarking such as engagement for the constituency, local popularity, or legislative work but such data is currently not available to us.

In columns (7) and (8), we replace our dependent variable by the first vote share the legislator receives and the second vote share of the party, respectively. Elected competitors from the same constituency only have a statistically significant negative effect on the legislators' first vote share which suggests that our main result is driven by changes in first votes. Legislators are less successful in

[23] We divide the German parties into two groups. SPD, The Greens, and PDS/The Left form one group representing parties rather to the ideological left. CDU, CSU, and smaller political parties such as the DP form the right-leaning group. We classify the FDP as right-leaning party except for the years that it was in a ruling coalition with the SPD. We do not assign the Alternative for Germany (AfD) to any of these two groups, that is, we systematically treat it as ideologically remote corresponding to current statements of party leaders. Legislators are considered to have an ideologically close competitor if there is at least one other legislator from the same constituency and the same group with a similar ideological leaning. Elected competitors from the group other than their own count as ideologically distinct competitors.

[24] We exclude the period 2017–2021 from the post-reunification sample because of the presence of the AfD in parliament. The emergence of the populist, right-wing party led to a reversal towards a rather more distinguished political landscape in Germany again.

[25] It is conceivable that legislators even profit from the existence of another competitor if this competitor stands out by being particularly incompetent.

elections as soon as there are elected competitors (column 7), but the second vote shares are unaffected (column 8). A reasonable explanation for this differential pattern is that voters are better able to assess the individual quality of legislators through benchmarking possibilities and adjust their first vote accordingly.

Benchmarking activities of voters may not be limited to legislators from their own constituency. While we are not able to account for the whole variety of alternative benchmarking possibilities, we can analyze legislators from other constituencies in the state or other legislators from the same party. In Table A6 in the Appendix, we account for the presence of such potential benchmarks next to elected competitors from the same constituency. We find that the presence of these other benchmarking possibilities does not alter the effect of having elected competitors from the same constituency. In fact, benchmarking at the local level remains highly important for voters.

In Table 5, we explore other potential underlying mechanisms for the effect of elected competitors on electoral outcomes.

First, it might be that having elected competitors from the same constituency coincides with other aspects of electoral competition that simultaneously impact individual success in elections (column 1). We account for vote margins in the direct election as another measure for competition (e.g., see Bernecker 2014). Legislators' vote margins are mechanically positive if they win the direct mandate (margin over the runner-up in direct election) and negative for those who enter through the party list or fail to be reelected (difference to the winner of the direct mandate). A larger vote margin relative to other candidates in the constituency captures another aspect of personal electoral success besides the performance relative to the party. As can be expected, legislators with a larger vote margin also succeed more often in their constituency in comparison with their party. The effect of *Elected competitors in constituency* remains unchanged, that is, statistically significant, negative, and with an absolute size corresponding to about 0.51 percentage points.

Voters supporting smaller parties may want to avoid wasting their first vote and give it to a candidate with better chances to win the plurality of first votes in the constituency. Such behavior should be more prevalent in close constituencies (e.g. Gschwend 2007). In column (2), we include a measure that captures how close the race for the direct mandate is in the constituency. *Closeness constituency* displays the difference of the vote shares of the winner and runner-up in the direct election. The respective coefficient is positive as expected, but statistically insignificant. Thus, accounting for situations in which voters could be more inclined to split their ticket for tactical reasons does not alter the effect of *Elected competitors in constituency* on individual electoral success. Overall, there is no evidence that *Elected competitors in constituency* simply captures other forms of political competition in the constituency.

Legislators might adjust their behavior in parliament which makes voters evaluating them either more positively or negatively when they are exposed to elected competitors. Being present and voting in parliament is generally perceived as one of the main duties of a legislator (e.g., Gagliarducci et al., 2010; Besley and Larcinese, 2011). The variable *Absentee rate* gives the share of roll call votes a legislator missed during the ending term and is generated from Bergmann et al. (2018b) and Frank and Stadelmann (2021b) covering all but the last legislative term in the sample. Surprisingly, *Absentee rate* relates positively to *Diff. in first and second vote share*, that is, legislators are more successful in the upcoming election the more often they are absent in parliament, as shown in column (3). While we do not know exactly what legislators do in the time they miss a roll-call vote, it is illustrative that absentee rates of legislators with reelection incentives increase in advance of the upcoming election (result not shown here). Hence, this finding may be rationalized if legislators spend the absences in their constituency to create closer ties to their voters or to campaign. In any case, the effect of *Elected competitors in constituency* remains unchanged.

In columns (4) to (6), we consider that parties could equip legislators with safe positions on the state party lists to offset the existence of elected competitors and increase their probability of reelection. Having a safe position on the party list, legislators could afford to exert less effort in their direct campaigns, which would, in turn, explain their lower electoral success. We find that legislators with a dual candidacy have more individual electoral success, not less, in column (4). This is substantiated in the subsample of legislators running in the proportional tier, which enables us to directly control for their party list position in column (5). That is, we exclude legislators who run as direct candidates only. Legislators at the bottom of the party list are less successful according to their first and second vote share difference. We get a statistically insignificant coefficient for a variable controlling for relatively safe party list positions in column (6).[26] These results point to an interpretation that being a dual candidate or having a prominent position on the party list is a sign of quality. The effect of *Elected competitors in constituency* remains unaltered, that is, it remains negative, statistically significant, and of similar size.

As another potential channel, it could be argued that the prominence of politicians matters for the effect of exposure to elected competitors on electoral success. To exclude the possibility that prominence of politicians drives our results, we run subsample regressions on constituencies that are represented by backbenchers only in column (7). That is, all legislators in this subsample and their elected competitors are neither a minister, experienced as minister, junior minister, parliamentary president, chair of the parliamentary group, nor whip. In column (8), we additionally drop legislators who profit from a resigning competitor who holds one of these positions. Again, no changes in our effect of interest can be reported.

Access to resources in campaigns could be another factor that may influence electoral success in the context of federal elections in Germany (e.g. Dinas and Foos 2017). Legislators may have advantages over non-incumbent candidates in the constituency to access such resources. For instance, legislators receive lump sum payments for employees in support of their parliamentary work who may also help organizing their campaigns. Legislators may also receive more resources from their parties or have an easier access to the local media. An increasing number of elected competitors from the same constituency should decrease the comparative advantage of better access to resources in campaigns over non-incumbent candidates. Due to data limitations, we are not able to test for this

[26] A position on the party list is relatively safe if it is smaller than the number of candidates that entered parliament through the party list in the preceding election divided by two.

potential channel directly. In Table A6 in the Appendix, we contrast legislators from parties in government to legislators from opposition parties arguing that legislators from parties in government should have even better access to such resources in their campaigns. However, the results do not support such an interpretation: Elected competitors from governing parties do not seem to have systematically better access to campaigning resources compared to elected politicians from opposition parties to confer an electoral advantage to them or benchmarking of elected legislators may equate such an advantage.

The results in this section and a large array of tests relegated to the Appendix always support the negative effect of elected competitors on individual success in elections. While several explanations may contribute to the effect of elected competitors on success, the results from this section are suggestive that the proposed benchmarking channel has merit as a relevant channel. Nevertheless, we note that other channels that may explain the effect of elected competition, for example, individual access to resources in campaigns or behavioral adaption may still be pertinent too. Our identification strategy allows for a credible identification of the effect of elected competition. However, not all aspects of the work of legislators are perfectly observable which limits the analysis of potential channels to some extent.

6. Conclusion

This paper presents evidence for the causal effect of having *elected* competitors from the same constituency on electoral success employing data from the German federal elections covering a period of 69 years. We rely on exogenous variation in competition induced by legislators resigning their mandate for reasons such as death and their respective replacements in an instrumental variables approach. We find that legislators are less successful in elections when they are exposed to elected competitors from the same constituency. As a mechanism, we argue that the existence of elected competitors enables voters to better evaluate their work through benchmarking these legislators. Such benchmarks may be relevant because legislators from the same constituency are active in the same political context and represent the same constituents. Benchmarking improves the knowledge of voters about their legislators, and it allows them to better assess the quality and performance of representatives. Consistent with this explanation, the negative effect of elected competitors on electoral success is more pronounced if elected competitors are ideologically close such that voters are more sensitive regarding their quality and track record and if competitors are relatively more competent.

Our results highlight the disciplining function of political competition and its role for individual electoral success of incumbent politicians. Benchmarking possibilities can be a relevant way for voters to get a more realistic picture of their legislators and alleviate that they cast their first vote for candidates just because they are an incumbent. In that sense, the exposure to other *elected* competitors or rather incumbents from the same constituency can also be seen as factor that reduces the incumbency advantage in elections. Interestingly, benchmarking possibilities in the case of the German Bundestag arise from the institutional design and electoral laws which illustrates that having more transparent politics needs not only be contingent on outside information provided by independent audits, the judiciary, non-governmental organizations, or researchers. Local or state media and electoral campaigns might play a significant role in conveying the benchmarking information, which is a hypothesis left to explore in future research.

We leverage the specific context of the German electoral system to link competition and electoral success. The effect of elected competitors from the same constituency on electoral success through benchmarking is not exclusive to this setting such that our insights are likely to generalize. Other countries operate similar mixed electoral systems, which makes the external validity of our approach and findings testable beyond Germany. Moreover, benchmarking can also be applied by voters in countries with different electoral systems. In proportional systems, this could be done by comparing legislators who represent the same multi-member district. For instance, voters might process benchmarking information if split ticket voting and cumulating votes are possible in open list systems. But also in purely majoritarian systems, benchmarking politicians who are active in the same political environment and for the same voters could be feasible. One example constitutes the two senators representing the same state in the Senate of the United States, who could be benchmarked against each other.

Declaration of competing interest

The authors declare that they have no financial interests that relate to the research described in this paper.

Data availability

Data will be made available on reasonable request.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.ejpoleco.2022.102274.

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