



Political competition and legislative shirking in roll-call votes: Evidence from Germany for 1953–2017

Marco Frank¹ · David Stadelmann^{1,2} 

Received: 22 October 2020 / Accepted: 19 May 2021 / Published online: 10 July 2021
© The Author(s) 2021

Abstract

We analyze the impact of *elected* competitors from the same constituency on legislative shirking in the German Bundestag from 1953 to 2017. The German electoral system ensures at least one federal legislator per constituency with a varying number of elected competitors between zero to four from the same constituency. We exploit the exogenous variation in elected competitors by investigating changes in competition induced by legislators who leave parliament during the legislative period and their respective replacement candidates in an instrumental variables setting with legislator fixed effects. The existence of elected competitors from the same constituency reduces absentee rates in roll-call votes by about 6.1 percentage points, which corresponds to almost half of the mean absentee rate in our sample. The effect is robust to the inclusion of other measures of political competition.

Keywords Political competition · Accountability · Absence · Rent seeking · Political representation

JEL Classifications D72 · D78 · H11

1 Introduction

Political competition affects the behavior of politicians and their legislative activities (e.g., Bernecker, 2014; Gavaille & Vershelde, 2017). Voters usually benefit as political competition increases because competition extends their opportunities to punish politicians for legislative shirking, that is, for neglecting their parliamentary duties. We investigate how the existence of *elected* competitors from the same constituency, but from different parties in the German federal parliament, affects legislative shirking. The German national electoral system institutionally guarantees that the number of elected legislators per constituency varies from one to five: At least one legislator, who faces

✉ Marco Frank
marco1.frank@uni-bayreuth.de

David Stadelmann
david.stadelmann@uni-bayreuth.de

¹ University of Bayreuth, Bayreuth, Germany

² CREMA – Center for Research in Economics, Management and the Arts, Zurich, Switzerland

zero to four competitors, always represents a constituency. To establish a causal impact of elected competitors, we exploit changes in the number of competitors from legislators leaving parliament during the legislative period within an instrumental variables setting. Our approach allows us to explore the effect of more vigorous political competition when constituents can compare the behavior of already elected legislators directly.

Political competition is argued to increase citizens' welfare, enhance the efficiency of decision-making, improve the quality of political outcomes, and reduce rent extraction efforts (e.g., Padovano & Ricciuti, 2009; Stigler, 1972). Empirically, political competition has been shown to affect economic development (Besley et al. 2010; Padovano & Ricciuti, 2009), public spending (Rogers & Rogers, 2000; Padovano & Ricciuti, 2009; Aidt & Eterovic, 2011), public debt (Skilling & Zeckhauser, 2002), tax revenues (Yogo & Njib, 2018), and government efficiency (Ashworth et al. 2014; Sørensen, 2014). It influences the policy decisions of governments (Besley & Preston, 2007; Besley et al. 2010; Bracco et al. 2019) and increases the supply of politically provided public goods (Arvate, 2013). The lack of political competition has been linked to diverse forms of favoritism (Solé-Ollé & Viladecans-Marsal, 2012; Curto-Grau et al. 2018; Lévêque, 2020), a less independent judiciary (Hanssen, 2004), and the concentration of power (Dal Bó et al. 2009).

At the individual legislator level, being exposed to more electoral competition relates to more active legislative processes (Gavoille, 2018; Gavoille & Vershelde, 2017), less outside income (Becker et al. 2009), less rent extraction (Ferraz & Finan, 2011; Kauder & Potrafke, 2016), and it influences legislators' voting behavior (Kauder & Potrafke, 2019). Competition seems to foster a higher quality of politicians, measured either by education, previous employment in high-skilled occupations, political experience, cognitive and leadership abilities, or even facial competence (Atkinson et al. 2009; De Paola & Scoppa, 2011; Galasso & Nannicini, 2011; Dal Bó et al. 2017). It has been linked to absentee rates in roll-call votes (Galasso & Nannicini, 2011 and Bernecker, 2014 find less frequent absences as competition increases, while Besley & Larcinese, 2011 and Willumsen, 2019 find no effect). Electoral competition usually is measured by winning vote margins or the number of (effective) candidates who run for office. Our contribution introduces a novel and alternative measure of competition and analyzes its effects on legislative activity and the behavior of individual legislators.

The existence of elected competitors from the same constituency but different parties in parliament largely has remained a neglected aspect of electioneering, subsequent legislative competition, and the activities of individual legislators. If more than one legislator is elected per constituency, voters can compare more easily the activity and the qualities of these legislators. Thus, elected competitors from the same constituency can directly be benchmarked against one another. They are active in the identical political environment and for the same constituents. Such a benchmark for evaluating a legislator's behavior, activity and performance in parliament may allow voters to make more informed decisions. Electoral competition may amplify legislative competition and affect the behavior of legislators. Politicians have been shown to be more accountable in elections and they are punished for poor performance when voters are provided with more reliable information that may allow for benchmarking (e.g., Ferraz & Finan, 2008; Banerjee et al. 2011). That effect, in turn, changes the incentives of legislators to take account of their constituents' interests and increases legislative competition within parliament, that is, legislators may better fulfill their legislative duties and shirking is reduced (e.g., Bernecker, 2014; Gavoille & Vershelde, 2017). Hence, we expect that competition from other elected legislators from the same constituency makes legislative shirking more costly and less appealing.

The informative institutional setting at the German federal level allows us to analyze the effect of having one or more elected competitors from the same constituency on legislative shirking in parliament. The German electoral system combines elements of plurality voting with proportional representation in a mixed electoral system: one-half of all legislators is elected in a local constituency by the plurality rule, while the other half is elected from a party list at the state level by proportional rule. Candidates running for a direct mandate in constituencies typically appear on a party list, that is, they can enter parliament as direct candidates or through the party list (e.g., Frank & Stadelmann, 2021). Defeated candidates from the direct election in the constituencies may still win mandates through the party lists if they rank high enough on their respective party list. Consequently, the overall number of elected legislators per constituency can be more than one: next to the directly elected legislator, one or more legislators may be elected through the party lists such that more legislators per constituency enter the federal parliament. In most cases, more than one legislator represents a constituency, that is, competitors are elected and benchmarking is possible.¹

For our empirical analysis, we rely on data from German legislators in the federal parliament for the legislative periods from 1953 to 2017. As commonly is done in the literature, we use absentee rates in roll-call votes as a dependent variable to measure legislative shirking (e.g., Gagliarducci et al. 2010; Besley & Larcinese, 2011; Bernecker, 2014). Our results show that facing competition from elected legislators from the same constituency correlates negatively with the absentee rates of individual politicians. The result holds when controlling for a large set of covariates. We also account for legislator fixed effects such that the same individual legislators are compared when and when not facing elected competitors over different legislative periods.

While legislator fixed effects go some way toward address endogeneity issues, unobservable variables such as political ability or valence could be time-variant. To address such issues, we rely on credibly exogenous variation in the number of legislators per constituency in an instrumental variables setting: During a given legislative period, legislators may end their mandates and leave parliament for reasons such as death, sickness or running for higher political offices. Vacant mandates are allocated in Germany *without* another election to the next candidate from the closed state party list who has not yet been elected to federal parliament. Therefore, legislators who leave parliament bring about changes in the number of competitors in *two* constituencies simultaneously: in the constituency they originally served, and in the constituency where a replacement candidate takes office.² Thus, we can generate two instrumental variables that credibly are exogenous to competition from *other* legislators from the two constituencies concerned, thus allowing us to estimate the causal effect of political competition and elected competitors.

Employing our instrumental variables, we find that the existence of an elected competitor from the same constituency leads to a statistically significant reduction of 6.1 percentage points in the roll-call-vote absentee rate. The effect is quantitatively substantial and represents about 49% of the mean absentee rate in our sample. It is robust to the inclusion of other indicators of political competition, that is, our measure of competition captures additional aspects of electoral competition and benchmarking in comparison to what is

¹ Online Appendix B provides a discussion and examples of the different ways voters receive information to compare and benchmark legislative behavior and activity of legislators elected from the same constituency.

² If a legislator ends his/her mandate, his/her constituency loses a legislator (thus, competition weakens there), while another constituency gains a legislator (thus, strengthening competition there).

reflected by, for example, vote margins. Subsample regressions and alternative specifications of the dependent variable capturing legislative shirking also yield robust results.

The remainder of the paper is structured as follows: Sect. 2 describes the institutional setting and our data. Section 3 presents the identification strategy. Estimation results, robustness checks, and mechanisms are presented in Sect. 4. Section 5 summarizes our results and offers our conclusions.

2 Institutional background and data

2.1 Electoral system

Germany operates a mixed-electoral system. Currently, 299 seats or about half of the German federal parliament consists of legislator elected by plurality rule in single-member constituencies within the 16 German states (*Länder*). Those politicians hold a direct mandate. The other half (and usually more owing to overhang mandates and leveling seats) consists of legislators who are elected by proportional rule at the state level and enter parliament through closed state party lists. Voters cast two ballots simultaneously, the so-called *first* and *second vote*. Parties nominate either no candidates or *exactly* one candidate for direct election in each constituency. The candidate winning the plurality of first votes wins the direct mandate and enters the federal parliament. Voters cast their second vote for a party list at the state level. The ranking of candidates on the party lists is determined by secret pre-election ballots in decentralized conferences of state delegates in each state. The state list is not influenced directly by national party leaders. Usually, well-known candidates from the state are ranked in top positions. Parties also aim for representation of different regions in the state or opt for candidates with different backgrounds. Some parties have adopted self-imposed female quotas. The second vote guarantees overall proportional representation in parliament since the share of seats a party wins in a state is proportional to its second vote share (conditional on obtaining 5% of all votes nationwide). Subtracting the party's direct mandates from its overall seats at the state level yields the number of legislators elected from the party list. Party lists are closed so that preference voting is not possible. Only those candidates with the highest ranks obtain a list mandate and enter the federal parliament. When the number of direct mandates in a state exceeds the number of seats a party is entitled to according to its second vote share, the respective party can keep the excess mandates as a bonus. Owing to those so-called "overhang mandates", the final number of actual members in the German Bundestag usually exceeds the statutory number of legislators, which has been 598 since 2002.³

Candidates usually make use of the possibility of running for election as a direct candidate in a constituency and being placed simultaneously on the state party list to raise their chances of entering parliament. They rely on the party list as a fallback option if they do not win a direct mandate in their constituency. In the period from 1953 to 2017, 73.4% of all legislators were candidates competing for a direct mandate and they were on the party list simultaneously. A total of 15.9% ran as direct candidates in a constituency without

³ Since 2013, overhang mandates have been compensated for by receiving leveling seats to restore the proportionality of second vote results (Federal Constitutional Court, BVerfG 2 BvF 3/11, July 25, 2012). Our identification strategy is not affected by either the overhang mandates or leveling seats because it relies solely on the existence of the mixed-member electoral system.

party list fallback options; 10.7% of the legislators were candidates only on state party lists⁴ and cannot be linked to competitors in specific constituencies. Candidates who win a plurality in their constituency must accept a direct mandate.⁵ They are later omitted from the party list when mandates are allocated from the list. However, candidates defeated in the direct election might still receive a mandate from the closed state party list if they are ranked high enough. Whether a defeated direct candidate finally receives a mandate from the party list is the combined result of his/her ranking on the party list and the party's second vote result in that state. Consequently, mandates from the different party lists are not distributed equally over constituencies (e.g., Frank & Stadelmann 2021).

The direct mandates ensure that every constituency is represented by at least one legislator. Additional legislators who lose the direct election but then enter parliament through the party list increase the constituency's representation (e.g., Maaser & Stratmann, 2016; Frank & Stadelmann, 2021). The additional legislators per constituency always are from different parties because parties are allowed to have only one candidate per constituency. They are competitors, and they can be benchmarked against one another directly regarding their parliamentary activity. The number of elected legislators per constituency has an upper bound defined by the number of parties in parliament, and it varied from one to five from 1953 to 2017, that is, the number of *elected* competitors from the same constituency, yet other parties vary from zero up to a maximum number of four.

2.2 Roll-call votes

Voting in parliamentary sessions is one of the central tasks of legislators (Besley & Larcinese, 2011). Voters, media, and competing legislators criticize politicians regularly for legislative shirking and high absences in parliamentary sessions.⁶ Because (sub-)committee sessions, meetings of parliamentary groups, and other parliamentary bodies are scheduled during parliamentary sessions, however, low participation in plenum sessions does not necessarily imply legislative shirking. We rely on absenteeism in roll-call votes as a measure of legislative shirking as is commonly done in the literature (e.g., Gagliarducci et al. 2010; Besley & Larcinese, 2011; Bernecker, 2014). Roll-call votes frequently are requested for controversial topics, economic policy, and so on, accounting for roughly 5% of all votes on final bill passage in Germany (Sieberer et al., 2020). When roll-call votes are scheduled, no other committee sessions or meetings interfere. Individual voting behavior is published after roll calls, including information on whether a legislator missed the vote. We measure the share of all roll-call votes in a legislative period for which a legislator is absent.

Participation in roll-call votes is compulsory and an unexcused absence currently entails a deduction of 100 euros from the legislator's monthly lump sum pay (§13(2)

⁴ This share includes legislators from West-Berlin who were designated by the House of Representatives of Berlin until 1990.

⁵ We are aware of only four cases wherein the winner of the race in the constituency refused the mandate and did not enter the federal parliament (Holger Börner in 1976; Franz-Josef Strauß in 1980 & 1983; and Oskar Lafontaine in 1990).

⁶ To provide two recent examples for Germany: *Der Spiegel* notes that representatives often shirk on Fridays (see <https://www.spiegel.de/politik/deutschland/bundestag-abgeordnete-fehlen-am-liebsten-freitag-a-1272666.html>, accessed October 15, 2020), and the tabloid *Bild* provides a ranking of legislators who often miss parliamentary sessions (see <https://www.bild.de/bild-plus/politik/2019/politik/bundestag-die-abwesenheitsliste-der-bundestagsabgeordneten-62654054>, accessed October 15, 2020). For further examples and anecdotes see Online Appendix B.

Geschäftsordnung des Deutschen Bundestages und Geschäftsordnung des Vermittlungsausschusses and §14(2) *Abgeordnetengesetz*). Moreover, German voters have been shown to punish legislators for high absenteeism (Bernecker, 2014). Anecdotal evidence suggests that parties put pressure on legislators to attend roll calls.⁷ The salience of roll-call votes, the media attention they receive, mandatory participation, and the fines lead us to the conclusion that absences in roll-call votes are a conservative measure for legislative shirking.

2.3 Data

Bergmann et al. (2018a, 2018b) report data on voting behavior in all roll-call votes in the German Bundestag over the 1953–2013 period, along with information on legislators' characteristics. We augmented their collected data using the same sources for 2013 to 2017 to include the most recent full legislative period. Roll-call votes are obtained from the publications of the Bundestag administration, and we rely on personal biographies from the Bundestag's website and the *Datenhandbuch zur Geschichte des Deutschen Bundestags* (Data Handbook on the History of the German Bundestag) to add further bibliographical details. Our dataset covers 64 years from the second to the 18th legislative period. The first legislative period of the Bundestag (1949–1953) is not suitable for our empirical analysis owing to differences in the electoral system.

Our final sample includes all legislators who ran for a direct mandate only (15.9%) and those who ran for a direct mandate and were placed simultaneously on a party list (73.4%). We must drop legislators from the sample who ran for election solely on closed state party lists because they cannot be linked to constituencies (10.7%). If legislators served less than half of a legislative period, we omit observations from the respective shortened period for reasons of precision (<3.9%).⁸ In total, we obtain a final dataset of 8734 observations from 3006 distinct individual legislators over 17 legislative periods.

Table A1 in the Online Appendix provides summary statistics. The outcome variable *Absentee rate in roll-call votes* is the number of recorded votes a legislator misses divided by the overall number of roll-call votes during his/her term in one legislative period. The average rate of missed roll-call votes is 12.5%. We also construct the share of days on which a legislator misses at least one roll-call vote (average 15.1%) as an alternative measure of absenteeism.

Our main explanatory variable, *Elected competitors in constituency*, is a binary variable indicating whether a legislator serves with competitors in parliament elected from the same constituency but representing other parties. The variable is zero for legislators without any competitor elected from the same constituency.⁹ *Elected competitors in constituency* mirrors precisely the peculiarities of the German two-tiered electoral system that we exploit. For 84.2% of our observations, legislators face at least one competitor elected from the same constituency in parliament. To provide further information on the composition of that number, a majority of 55.6% of legislators in our sample faces competition from *exactly*

⁷ Carl Eduard Graf von Bismarck has obtained the unflattering title of “Germany’s laziest politician “ (see <https://www.sueddeutsche.de/politik/carl-eduard-graf-von-bismarck-deutschlands-faulster-politiker-tritt-ab-1.352492>, accessed February 26, 2020), and the Christian conservatives pressured him to behave differently.

⁸ If those observations are included, our results and interpretations do not change (see Robustness Checks).

⁹ We obtain qualitatively similar results when entering the number of elected competitors from the same constituency as the explanatory variable (see Table A2 in the Online Appendix).

one *elected* legislator from the same constituency, while 25.0% have *exactly* two *elected* competitors, 3.4% of the legislature have *exactly* three *elected* competitors, 0.2% of representatives in the Bundestag have a maximum number of four competitors, and 15.8% of legislators face no competitors elected from the same constituency. The mean number of elected competitors is 1.17 and the median number is one. Figure A1 in the Online Appendix suggests that the existence of elected competitors relates negatively to absenteeism; Figure A2 shows that the fraction of legislators with no *elected* competitor varies moderately over time, from 11.9% to 26.8%.

We also enter several standard measures of electoral competition, including *Vote margin* (the differences in first votes), the number of *Direct candidates* in the constituency, or *Parliamentary group size*, all of which are employed in the literature (e.g., Bernecker, 2014; Gavouille & Verschelde, 2017). This allows us to ask whether *Elected competitors in constituency* matters independently of other forms of competition, that is, whether *Elected competitors in constituency* controls for different aspects of political competition.

Regarding other variables in our dataset, we account for holding a direct mandate, being a member of a party in government, age at the beginning of the legislative period, and legislative tenure. Moreover, we enter indicators related to positions and the experiences of legislators. All such variables serve as controls and have been employed previously in the related literature (e.g., Gagliarducci et al. 2011; Mocan & Altindag, 2013).

3 Identification strategy

3.1 Fixed effects regression framework

More political competition amongst elected competitors makes it easier for voters to evaluate legislative performance, to compare and contrast legislators amongst one another through benchmarking, and to penalize undesired behavior when legislative or representational duties are neglected. Hence, legislative shirking is supposed to become more costly when legislators have competitors from the same constituency. In our final sample, 73.2% of all observations comprise legislators who are reelected. Thus, the likelihood is high that politicians compete in elections with other elected legislators from the same constituency to whom they can be compared directly.¹⁰

We leverage the German mixed electoral system to analyze the effect of more political competition from *elected* competitors from the same constituency on the absentee rate in roll-call votes. We start by specifying the following regression framework:

$$\text{Absentee rate in roll-call votes}_{it} = \beta_1 \text{Elected competitors in constituency}_{it} + X_{it}\gamma + \lambda_i + \mu_t + \varepsilon_{it}. \quad (1)$$

The unit of observation in our analysis is legislator-legislative-period-specific, that is, we explain the *Absentee rate in roll-call votes* of legislator *i* in legislative period *t*. *Elected competitors in constituency* serves as the main explanatory variable. Vector X_{it} contains typical covariates to control for mandate type, being a member of a party in government or a minister, age and tenure as well as alternative measures of electoral competition.

¹⁰ Elected legislators from the same constituency also may provide a relevant benchmark for voters even if one of them does not run for reelection.

Legislative period fixed effects μ_i account for common changes affecting all legislators over time, such as changes in legislators' salaries and differences in monitoring technology such as news coverage (see, e.g., Mocan & Altindag, 2013; Braendle, 2014; Fisman et al. 2015; Hofer, 2017). Most important, the panel structure allows us to include legislator fixed effects λ_i to consider all legislator-specific characteristics that remain constant over time, including observable ones (gender, occupation, and political experience at lower levels of government) and potentially unobservable ones such as charisma or personality traits. Including legislator fixed effects ensures that we compare the *same* legislators over time in situations when they face elected competitors in their constituency to situations when they do not face such competition; thus, β_1 captures the relevance of elected competitors for the same legislator. We expect $\beta_1 < 0$, if competition reduces absentee rates. The error term is denoted by ε_{it} .

Our legislator fixed effects approach goes some way toward establishing the effect of competition on absenteeism in roll-call votes, but political ability or valence may be time-variant and unobservable, which might lead to biased coefficient estimates.¹¹ Legislators who elevate their political abilities will strengthen their chances of winning a direct mandate. Legislators whose political abilities decline over time will have lower probabilities of winning a direct mandate but might still receive a mandate from the party list. Having a list mandate implies that the number of competitors from the same constituency is at least one because exactly one legislator always is elected directly. Hence, political ability likely correlates negatively with our measure of political competition. More able politicians could be more involved in the legislative work of their party groups and receive more attention from voters, the media and interest groups, such that they are less likely to miss roll-call votes. If changes in political ability correlate negatively with both *Elected competitors in constituency* and *Absentee rate in roll-call votes*, we should have an *upward* bias of β_1 in an OLS fixed effects framework, that is, our setting will underestimate the negative effect of competition on legislative shirking if changes in political ability are not considered.

3.2 Instrumental variables strategy and fixed effects

To account for potential bias and to estimate the causal effect of political competition on absenteeism, we adopt an instrumental variables strategy in a 2SLS setting including fixed effects. We leverage variation in the number of elected competitors from the same constituency by investigating legislators leaving parliament during the legislative period.¹²

The reasons for legislators ending their tenure during the legislative period are the following: 32.4% leave parliament owing to sickness and unexpected death; 26.8% accept a higher political post, such as prime minister or minister in a state, state secretary and Federal President; 15.2% accept a different mandate, for example, at the European Union, state level or as a mayor; 10.0% leave for jobs in the public sector and 3.9% for jobs in the private sector; 7.0% depart for other reasons¹³ unrelated to electoral competition within

¹¹ If ability or valence were time-invariant, they would be captured in the fixed effects.

¹² Jennes and Persyn (2015) adopt a comparable strategy when instrumenting the representation of Belgian constituencies with resigning ministers.

¹³ Such cases include retired civil servants who made use of a short time window between two legislative periods to circumvent regulations that the rights and obligations of civil servants are suspended when they are member of the federal parliament: the old term officially continues after the election for the new parliament already has taken place until the new parliament is constituted. Knowing that they were elected again, some retired civil servants resigned at the very end of the old legislative period to be reactivated as a civil

their constituency; and only 4.7% of dropouts are linked to scandals. We cannot identify a specific reason for six legislators who left parliament during the legislative period since the start of our dataset in 1953. It is unlikely, and in many cases impossible, that parties systematically delay dropouts of legislators to manage and thereby influence representation or competition in certain constituencies: legislators may die during their terms or their new function legally is incompatible with holding a mandate, for example, when they become Federal President, minister in a state, state secretary, civil servant in another function or judge at the Constitutional Court. It is, thus, realistic to expect reasons for dropping out of parliament to be independent of the time-varying characteristics of *other* legislators in the constituency.

3.2.1 Early termination induces changes in competition in two constituencies

In Germany, no by-elections are held to fill a vacant mandate. Instead, the electoral law requires the mandate to be filled by the next candidate from the respective state party list within one week. More important, Germany's rule-based mechanism does not allow parties to target constituencies with additional representatives during the legislative period for electoral or competitive considerations. Mandates are not filled at all if the party of the legislator who drops out holds an overhang mandate in that state or if no other candidates remain on the party list who would accept it. By construction of the electoral system, any replacement candidate always must be either a defeated candidate from *another* constituency in that state or a candidate who ran for election only on the party list. To make it entirely clear: If a legislator drops out from parliament, his/her constituency always loses a representative, while *another* constituency potentially gains an additional representative who was not elected previously to parliament.

Legislators who leave parliament during the legislative period therefore induce changes in political competition in two constituencies. Thus, we create two binary variables to instrument the variable *Elected competitors in constituency: Early dropout in constituency* takes a value of one for legislator i at time t if another competitor elected from his/her constituency terminates his/her term within the first half of the legislative period. *Replacement in constituency* equals one for legislator i at time t if a not yet elected candidate from the constituency receives the replacement mandate from the list within the first half of the legislative period.¹⁴

Footnote 13 (continued)

servant. The opportunity is given to them of being promoted or enlarging their pension claims as a civil servant before they re-enter parliament again when the new term starts.

¹⁴ A tradeoff is encountered when considering changes in political competition induced during the first half of the legislative period. On the one hand, it reduces the number of observations we count as legislators who drop out or as replacement candidates, thus making it potentially more difficult in our setting to find an effect. On the other hand, the effect that dropouts and their respective replacement candidates have on competition within constituencies and on later absentee rates can be measured more accurately if those changes apply to a large portion of the legislative period.

3.2.2 2SLS estimation strategy

We employ *Early dropout in constituency* and *Replacement in constituency* as two instrumental variables. The first-stage equation in our instrumental variables approach is as follows:

$$\begin{aligned} \text{Elected competitors in constituency}_{it} = & \alpha_1 \text{Early dropout in constituency}_{it} \\ & + \alpha_2 \text{Replacement in constituency}_{it} + X_{it}\theta + \tau_i + \pi_i + v_{it}. \end{aligned} \quad (2)$$

Elected competitors in constituency is explained by our two instruments as well as the vector of covariates X_{it} , legislator and legislative period fixed effects. We then use the prediction to explain absentee rates:

$$\text{Absentee rate in roll-call votes}_{it} = \beta_1 \widehat{\text{Elected competitors in constituency}_{it}} + X_{it}\gamma + \lambda_i + \mu_i + \varepsilon_{it}. \quad (3)$$

We estimate the model implied by Eqs. (2) and (3) with a 2SLS estimator. The effect of political competition on *Absentee rate in roll-call votes* is identified in the second stage regression by the instrumented variable *Elected competitors in constituency*, which itself is explained by the instruments. Following the discussion of our fixed effects regression framework above and the potential upward bias of the OLS setting, we expect $\hat{\beta}_1^{2SLS} < \hat{\beta}_1^{OLS}$ (or in absolute terms $|\hat{\beta}_1^{2SLS}| > |\hat{\beta}_1^{OLS}|$, as both coefficients are expected to be negative).

To serve as valid instrumental variables, *Early dropout in constituency* and *Replacement in constituency* should correlate strongly with the main explanatory variable *Elected competitors in constituency*. At the same time, the instruments should be orthogonal to the error term ε_{it} . That is the case for *Early dropout in constituency* and *Replacement in constituency*: Whether and why competitors resign is the result of personal or career considerations or unfortunate circumstances and, hence, independent of *other* legislators from both the same and *other* constituencies. Legislators leaving parliament during the legislative period should not affect the absentee rates of other legislators in his/her constituency and certainly not legislators representing constituencies wherein resignation leads to a replacement candidate obtaining a mandate for reasons beyond the induced change in political competition.¹⁵ Dropouts and replacements directly affect political competition in terms of the number of competitors, as will be shown below.

Overall, we can construct our instruments based on 255 legislators who drop out and 167 who replace them. Table A1 in the Online Appendix shows that about 3.6% of elected competitors may benefit from other legislators from the same constituency dropping out and that 4.6% of observations are affected owing to replacements.¹⁶

¹⁵ Replacement candidates might be more prone to being controlled by the party whip, which may affect their attendance and that of other members of their faction. As a reaction, other factions could adjust their behavior accordingly and discipline their members such that the legislator from the replacement candidate's constituency has a lower absentee rate owing to a channel other than competition in the constituency. That scenario is unlikely and we have not seen evidence that more experienced legislators look at replacement candidates from their own factions (who lost in their constituency and might have been further down the party list) as role models. Moreover, such reactions across parties to replacement candidates would imply that the replacement candidates should have lower absentee rates, which is not the case.

¹⁶ The difference in the means of *Early dropout in constituency* and *Replacement in constituency* purely is mechanical because the replacement candidate necessarily enters a constituency represented already by at least one member of parliament.

4 Results

4.1 Fixed effects regressions: The link between elected competitors and absentee rates

Table 1 shows the link between *Elected competitors in constituency* and *Absentee rate in roll-call votes* accounting for mandate type, being a member of the government party, age, tenure, being a minister as well as individual legislator and time fixed effects in an OLS fixed-effects setting as specified in Eq. (1).

Specification (1) suggests that being a legislator who faces elected competitors from the same constituency is associated with a statistically significant lower absentee rate. Quantitatively, being a legislator who faces elected competitors reduces absentee rates by about 1.0 percentage point. The signs of the other covariates are mostly as expected. Being a directly elected legislator reduces absentee rates (Gagliarducci et al. 2011), members of the parties in government miss parliamentary sessions less often, being a minister increases absentee rates, legislators tend to be absent more often the longer they are members of the parliament (*Tenure*), and age itself is statistically insignificant. In specification (2), we enter additional covariates into our regression to control for more political positions. *Elected competitors in constituency* remains negatively related to *Absentee rate in roll-call votes*.¹⁷

Several roll-call votes may take place in the same parliamentary session. When creating our dependent variable *Absentee rate in roll-call votes*, it makes no difference whether a legislator misses, for example, five roll-call votes on the same day or five votes on days each with a single roll-call vote. We enter the share of days that legislators are absent at least once as an alternative dependent variable in columns (3) and (4) to account for frequent roll-call votes on the same day. The link between *Elected competitors in constituency* and *Share of days absent* is comparable to the results using *Absentee rate in roll-call votes* as the dependent variable. If legislators face other elected competitors in their constituency, the share of days that they are absent from parliament is statistically lower.

4.2 Instrumental variables: The effect of elected competitors on absentee rates

We report the 2SLS regression results in Table 2. We enter *Early dropout in constituency* and *Replacement in constituency* as instruments for *Elected competitors in constituency*.

The first stage results in all columns of panel (b) indicate that our instruments correlate strongly with *Elected competitors in constituency*. As expected, the variable *Early dropout in constituency* affects competition negatively, while the variable *Replacement in constituency* affects competition positively. *F*-statistics for the excluded instruments indicate that the instruments are not weak. The first-stage results underscore the relevance of our instruments in explaining political competition from other elected legislators, as could be expected given the institutional setting.

¹⁷ Parliamentary presidents, chairs of parliamentary groups, and whips miss recorded votes less often. Being a junior minister and chair of a committee has just as small of an effect on absentee rates as does experience as a minister or junior minister from previous legislative periods (coefficients not shown in Table 1).

We explore a parsimonious 2SLS specification without controls in column (1) of panel (a). The coefficient of *Elected competitors in constituency* is statistically significant and negative. Adding personal time-variant covariates, legislator fixed effects, and legislative period fixed effects in column (2) as well as additional political positions controls in column (3), we find that the statistically significant and negative effect persists but becomes smaller in magnitude. The existence of elected competitors from the same constituency, which owes to dropouts or replacements, leads to a reduction in the absentee rate by about 6.1 percentage points, which is larger than the OLS results of Table 1, as expected.¹⁸ That effect is quantitatively substantial and corresponds to about 49% of the average absentee rate in roll-call votes (12.5%). Thus, competition from other elected legislators in the same constituency explains about half of the average absentee rate. Hansen's J-statistic and respective p-values, as reported in Table 2, corroborate the argument that the instruments are uncorrelated with the error term and suggest that the instruments are econometrically valid.

The IV results are qualitatively and quantitatively similar when using the *Share of days absent* as the dependent variable in columns (4)–(6). Dropouts and replacements affect electoral competition (first stage), and competition from elected competitors negatively affects legislators' absentee rates.¹⁹ Overall, the 2SLS results point to a substantial effect of having elected competitors from the same constituency, which is revealed in actual parliamentary behavior. As hypothesized and consistent with theory, voters could be able to evaluate legislators' representation efforts better and may make more informed decisions in elections once benchmarking becomes easier. Shirking therefore is more costly for legislators when they can be compared effectively to competitors who are active in the same political environment, that is, in the same constituency. Direct electoral competition may thus drive legislative competition in parliament which affects parliamentary activity.

4.3 Robustness checks and refinements

Table 3 reports a series of robustness checks.²⁰ We continue to employ our instrumental variables strategy. Next to the existence of elected competitors from the same constituency, other aspects of political competition like the closeness of elections or the number candidates who run for a direct election in the constituency might be important to explain legislative shirking. In particular, candidates in contested constituencies might receive higher positions on state party lists as a reward or to secure their election. Constituencies that are competitive for reasons other than the number of elected legislators might end up with several representatives. Thus, further exploration considering alternative dimensions of political competition becomes relevant.

We investigate whether the effect of *Elected competitors in constituency* is independent of commonly used measures of political competition in our Table 3 regressions.

¹⁸ Testing for a direct effect of *Early dropout in constituency* and *Replacement in constituency* on *Absentee rate in roll-call votes* in a reduced form approach yields results that are fully consistent with the main findings: Legislators whose constituencies receive a replacement candidate have lower absentee rates while legislators from constituencies with a competitor who drops out miss more often.

¹⁹ We also note that the coefficients of *Elected competitors in constituency* in Table 2, Panel (a) are, as expected (see Sect. 3), larger in absolute terms than the respective coefficients in Table 1.

²⁰ To save space we do not report results with *Share of days absent* as a dependent variable. Our insights and interpretations do not change when entering that variable (results are available upon request).

Table 1 The effect of elected competitors in constituency on the absentee rate in roll-call votes (OLS fixed effects)

Dependent variable	(1)	(2)	(3)	(4)
	Absentee rate in roll-call votes		Share of days absent	
Elected competitors in constituency	−0.00996** (0.00457)	−0.00903** (0.00458)	−0.00894* (0.00459)	−0.00784* (0.00456)
Direct mandate	−0.0116* (0.00608)	−0.0102* (0.00605)	−0.0139** (0.00610)	−0.0122** (0.00605)
Government party	−0.0401*** (0.00367)	−0.0404*** (0.00375)	−0.0481*** (0.00376)	−0.0490*** (0.00383)
Age	0.00353 (0.00699)	0.00387 (0.00697)	0.00655 (0.00729)	0.00642 (0.00725)
Age ²	−0.00001 (0.00002)	−0.00003 (0.00002)	−0.00002 (0.00002)	−0.00003 (0.00002)
Tenure	0.0402*** (0.0137)	0.0460*** (0.0135)	0.0384*** (0.0139)	0.0451*** (0.0137)
Minister	0.0982*** (0.0139)	0.0920*** (0.0140)	0.106*** (0.0138)	0.0988*** (0.0138)
Political position controls	No	Yes	No	Yes
Legislator fixed effects	Yes	Yes	Yes	Yes
Legislative period fixed effects	Yes	Yes	Yes	Yes
Observations	8734	8734	8734	8734
Number of legislators	3006	3006	3006	3006
R-squared	0.255	0.262	0.337	0.347

OLS fixed effects estimation. The unit of observation is an individual legislator-legislative period pair. The dependent variables are the share of missed roll-call votes in columns (1) and (2) and the share of days a roll-call vote is missed at least once in columns (3) and (4). Political position controls include *Junior minister*, *(vice) Parl. president*, *(vice) Chair committee*, *(vice) Chair parl. group*, *Whip*, *Experience as minister*, *Experience as jun. minister*. Standard error estimates are clustered at the legislator level. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

In column (1), we enter vote margins following, for example, Galasso and Nannicini (2011). Vote margins are positive for legislators with direct mandates (margins over runner-up in direct elections) and negative for legislators from the party list (difference to winner of the direct mandate).

We suspect that the effect of vote margins is non-linear and largest when legislators are either closely elected or not elected. Hence, we also enter the squared vote margin. The effect of *Elected competitors in constituency* remains unchanged, that is, statistically significant, negative and with an absolute size corresponding to about 6.1 percentage points.

In column (2), we include two further measures of political competition: *Closeness constituency* is the difference in the vote shares of the first and second candidate in the direct election, allowing us to consider the direct mandate contest within a constituency. We expect direct elections to be more competitive when voters can choose amongst more alternatives and therefore enter the number of *Direct candidates*, which is the sum of all candidates running for direct election in the constituency. The effect of *Elected competitors in constituency* remains statistically significant, negative, and of the same size as before.

Table 2 The effect of elected competitors in constituency on the absentee rate in roll-call votes (2SLS)

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent variable	Absentee rate in roll-call votes			Share of days absent		
<i>Panel (a): Second stage results</i>						
Elected competitors in constituency	-0.142*** (0.0329)	-0.0613*** (0.0233)	-0.0614*** (0.0234)	-0.149*** (0.0337)	-0.0576** (0.0226)	-0.0577** (0.0226)
Dependent variable	Elected competitors in constituency					
<i>Panel (b): First stage results for instruments only</i>						
Early dropout in constituency	-0.290*** (0.0283)	-0.367*** (0.0315)	-0.367*** (0.0315)	-0.290*** (0.0283)	-0.367*** (0.0315)	-0.367*** (0.0315)
Replacement in constituency	0.164*** (0.00609)	0.122*** (0.0145)	0.123*** (0.0144)	0.164*** (0.00609)	0.122*** (0.0145)	0.123*** (0.0144)
<i>Controls (for all panels)</i>						
Personal controls	No	Yes	Yes	No	Yes	Yes
Political position controls	No	No	Yes	No	No	Yes
Legislator fixed effects	No	Yes	Yes	No	Yes	Yes
Legislative period fixed effects	No	Yes	Yes	No	Yes	Yes
Observations	8734	8734	8734	8734	8734	8734
Number of legislators	3006	3006	3006	3006	3006	3006
F-statistic first stage	432.4	102.1	102.3	432.4	102.1	102.3
Hansen J-statistic (p-val.)	0.134	0.756	0.688	0.108	0.700	0.636

2SLS estimation. The unit of observation is an individual legislator-legislative period pair. The dependent variables are the share of missed roll-call votes in columns (1)–(3) and the share of days a roll-call vote is missed at least once in columns (4)–(6). Personal controls include *Direct mandate*, *Government party*, *Age*, *Age²*, *Tenure* and *Minister* as in Table 1. Political position controls include *Junior minister*, (*vice*) *Parl. president*, (*vice*) *Chair committee*, (*vice*) *Chair parl. group*, *Whip*, *Experience as minister*, *Experience as jun. minister*. Standard error estimates are clustered at the legislator level. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

The other measures of political competition have the expected signs, but they are statistically insignificant.

Legislators have been found to be absent more often in their last term when reelection incentives no longer have any disciplining effect (Lott, 1987; Rothenberg & Sanders, 2000; Besley & Larcinese, 2011; Willumsen & Goetz, 2017). Results from column (3) confirm that finding and indicate that, in their last terms, legislators' absentee rates are about 3.0 percentage points higher. The size of the parliamentary faction has a negative impact, too.

In column (4), we take the distance of the legislators' state to the seat of government into account (see, e.g., Willumsen, 2019). Distance is related to travel time, which may affect absentee rates. We exploit the change in the seat of government from Bonn to Berlin in 1999 to account for distance and interact state dummies with a variable indicating whether the seat of parliament is in Berlin or not. The effect of the existence of elected competitors in the same constituency is unaffected by the inclusion of those additional controls: its effect remains negative at about 6.2 percentage points.

The number of roll-call votes in which legislators are theoretically able to participate varies over legislative periods. The relative salience of a single roll-call vote in legislative

Table 3 Robustness checks for the effect of elected competitors in constituency on the absentee rate in roll-call votes controlling for alternative measures of political competition

Dependent variable	Absentee rate in roll-call votes					
	(1)	(2)	(3)	(4)	(5)	(6)
	Include further control variables					
Elected competitors in constituency	-0.0605*** (0.0232)	-0.0608*** (0.0233)	-0.0604*** (0.0230)	-0.0622*** (0.0235)	-0.0773*** (0.0281)	-0.0702** (0.0289)
Vote margin	-0.0234 (0.0263)					
Vote margin ²	0.00333 (0.0561)					
Closeness constituency		-0.00603 (0.0248)				
Direct candidates		-0.00140 (0.00119)				
Last term			0.0296*** (0.00444)			
Parl. group size			-0.000296*** (0.00007)			
Personal controls	Yes	Yes	Yes	Yes	Yes	Yes
State*Seat gov. controls	No	No	No	Yes	No	No
Legislator fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Legislative period fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	8734	8734	8734	8734	7767	6482
Number of legislators	3006	3006	3006	3006	2944	2662
F-statistic first stage	104.1	103.3	101.9	100.8	71.57	48.17
Hansen J-statistic (p-val.)	0.736	0.780	0.757	0.809	0.482	0.424

2SLS estimation. The unit of observation is an individual legislator-legislative period pair. The table shows second stage regression results using *Early dropout in constituency* and *Replacement in constituency* to instrument *Elected competitors in constituency*. The dependent variable is the share of missed roll-call votes in all columns. Personal controls include *Direct mandate*, *Government party*, *Age*, *Age²*, *Tenure* and *Minister* as in Table 1. *State*Seat gov. controls* are dummy variables for every state multiplied with an indicator variable taking a value of one when the seat of government is located in Berlin. Standard error estimates are clustered at the legislator level. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

periods with only a few votes might make it more costly for legislators to miss. To test whether our results are driven by periods with small numbers of roll-call votes, we drop observations from legislators who were able to (theoretically) participate only in fewer than 30 or 50 recorded votes in columns (5) and (6), respectively. If anything, the point estimates for *Elected competitors in constituency* increase slightly in absolute terms in those subsamples. The effect always remains negative and statistically significant.

Tables A2–A4 in the Online Appendix show a large array of additional robustness checks and offers further discussions. In Table A2, we account for the fact that up to five representatives can be elected from one constituency and replace the binary measure of competition with the number of elected competitors. In Table A3, we concentrate on different samples to test for the robustness of our main results, thereby taking account of different incentives regarding participation in roll-call votes. Table A4 explores more nuanced measures of *Absentee rate in roll-call votes*, by analyzing excused and unexcused absences separately, votes versus days or legislative shirking in the first versus the second half of the legislative period. All robustness tests support our main interpretation: Elected competitors from the same constituency affect the legislative activity by reducing legislative shirking.

To investigate the effect of elected competitors on legislative shirking further and to explore additional implications of its theoretical underpinning, we conduct an analysis for subgroups of legislators in Table 4.

Legislators from the large parties (Christian conservatives, CDU/CSU, and the social democrats, SPD) normally compete for direct constituency mandates, while legislators from smaller parties have little chance to win such mandates. For politicians from smaller parties, it is more important to have promising positions on the party list. Consequently, the existence of elected competitors is expected to influence the legislative behavior of politicians from large parties more strongly. In columns (1) and (2), we estimate regressions for subsamples of legislators from larger and smaller parties. As expected, we find a negative and statistically significant effect of *Elected competitors in constituency* on *Absentee rate in roll-call votes* for legislators from larger parties. The effect is not statistically significant for legislators from small parties.²¹ If we replaced *Elected competitors in constituency* with the number of competitors to allow for more variation in the competition variable, we would obtain a negative and statistically significant effect of having elected competitors even for small parties.

Columns (3) and (4) differentiate between legislators who are elected directly in the constituencies and those gaining seats from the closed state party list. For both groups, we find a negative effect that is statistically significant and quantitatively comparable to our main results. No evidence is found that the effect of elected competitors from the same constituency is restricted to legislators elected in the plurality voting tier. One potential explanation why the existence of elected competitors and benchmarking possibilities are relevant for legislators elected in the proportional tier is that they usually run again as a direct candidate in the constituency so that their performance relative to the legislator with the direct mandate matters. Even if legislators have small chances of winning in

²¹ The statistical insignificance and the large point estimate for the sample of politicians from smaller parties was to be expected owing to our instrumental variables setting: Virtually no variation exists in our competition variable for the sample of legislators from smaller parties. That is because they are elected mostly from the party lists. Consequently, the number of elected competitors they face from the same constituency almost always is at least one and often even more because an additional legislator from the defeated candidates of a larger party supervenes. Indeed, the instrumentation strategy yields small *F*-statistics for the excluded instruments in the first stage.

Table 4 Further investigating the effect of elected competitors in constituency on the absentee rate in roll-call votes

Dependent variable	Absentee rate in roll-call votes						Deviation		
	(1)	(2)	(3)	(4)	(5)	(6)		(7)	(8)
Legislators from large parties	Legislators from large parties	Legislators from small parties	Legislators elected in constituency	Legislators elected from party lists	Small vote margins (IMV<=0.15)	Large vote margins (IMV>0.15)	0 and 1 direct competitors	0 and more than 1 competitors	Share of votes a legislator deviates from party line
Elected competitors in constituency	-0.0467** (0.0221)	-0.450 (0.310)	-0.0644* (0.0330)	-0.0525* (0.0301)	-0.0695** (0.0283)	-0.0643 (0.0511)	-0.0530** (0.0242)	-0.0355 (0.0328)	-0.0154* (0.00916)
Personal controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Legislator fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Legislative period fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	7250	1484	4516	4218	4167	4567	6239	3875	8731
Number of legislators	2339	684	1649	1821	1742	2015	2467	2034	3006
F-statistic first stage	105.5	2.580	63.82	43.73	64.14	24.16	91.28	48.95	102
Hansen J-statistic (p-value)	0.393	0.693	0.622	0.747	0.989	0.895	0.185	0.867	0.882

2SLS estimation. The unit of observation is an individual legislator-legislative period pair. The table shows second stage regression results using *Early dropout in constituency* and *Replacement in constituency* to instrument *Elected competitors in constituency*. The dependent variable is the absentee rate in roll-call votes in columns (1)–(8). In column (9), the dependent variable is the share of votes a legislator deviates from the party line. Personal controls include *Direct mandate*, *Government party*, *Age*, *Age²*, *Tenure* and *Minister* as in Table 1. Columns (1)–(8) show subsample regressions. Columns (1) and (2) divide the sample according to the belonging to large or small parties. Columns (3) and (4) divide the sample considering legislators elected in the constituency or elected from the closed state party list respectively. Columns (5) and (6) divide the sample according to the vote margin in the direct tier. The first group in column (5) consists of legislators with small vote margins (IMV<=0.15). The second group consists of legislators with larger vote margins. In columns (7) and (8), we divide the sample according to the number of competitors from the same constituency. Standard error estimates are clustered at the legislator level. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

the constituency because they are from smaller parties, parties usually profit from strong candidates in the constituencies because they improve their second vote shares. Finally, as stated above, legislators who are comparatively successful in direct elections might also be rewarded in the conferences of state delegates with higher positions on the party list.

Column (5) shows that the effect of political competition is negative and statistically significant when legislators win or lose within a 15 percentage point margin, that is, when the direct election is comparatively close. On the other hand, if winners are elected safely (e.g., by more than a 15 percentage point margin) and the losers care more about their positions on the party list, we would expect that having more elected competitors might be less relevant for winners and losers (corresponding to the results of column 6). Thus, (expected) vote margins can moderate the effect of elected competitors on absentee rates.

Having elected competitors from the same constituency may matter more when they contest the direct mandate in the next election. In column (7), we drop all observations of legislators having two or more elected competitors. In column (8), observations of legislators with exactly one elected competitor are omitted. A larger number of competitors from the same constituency increases the likelihood that the additional legislators are candidates from smaller parties who lose the direct election with a large difference in first votes. They represent a smaller electoral threat to those competing for the direct mandate. The point estimates in column (7) are negative and statistically significant. In column (8), the point estimates are negative, somewhat smaller than column (7), and statistically insignificant, as expected.

Next to absentee rates, the roll-call vote data allow us to study deviations from the party line. The deviation rate is the number of times a legislator votes against his/her party majority divided by the number of roll-call votes in which he/she participates.²² Party discipline is strongly enforced in Germany, and the mean deviation rate in our sample is only 2.5%. Interestingly, however, column (9) shows that legislators having elected competitors from the same constituency deviate less often from the party line. Having elected competitors from the same constituency reduces the deviation rate by 1.5 percentage points in our 2SLS estimations, which is substantial given the high levels of party discipline. More elected competitors at the constituency level seem to make the fallback party list option and hence voting with the party line more relevant owing to the German electoral system.

5 Conclusion

We analyze the effect of political competition on legislative shirking in roll-call votes using data from the German Bundestag from 1953 to 2017. We leverage the German mixed electoral system, which institutionally leads to differences in the number of *elected* legislators from the same constituency but representing different parties. Having more elected legislators from the same constituency is relevant because it allows voters to evaluate their representatives' efforts and to compare them with each other under the same circumstances. Exogenous variation in the number of competitors per constituency is established by accounting for legislators who leave parliament during the legislative period and their respective replacement candidates as instruments. That empirical strategy allows us to

²² Three observations are dropped from our sample in the estimation of deviations from the party line because the corresponding legislators missed all roll-call votes they potentially could have attended.

identify the effect of political competition induced by elected competitors on legislative shirking in an instrumental variables setting.

We find that legislators who face elected competitors from the same constituency reduce their absentee rates by about 6.1 percentage points. The effect is substantial and corresponds to nearly 49% of the mean absentee rate. The effect of elected competitors is robust to the inclusion of individual fixed effects and other covariates found to be relevant predictors of legislative shirking. The effect also is independent of other measures of political competition commonly used in the literature. Our result suggests that, apart from the relevance of political competition for legislative shirking, *elected* competitors from the same constituency might be seen as a heretofore neglected aspect of political competition.

Evidence from our regression analysis indicates that our measure of political competition also impacts deviation from the party line in roll-call votes in addition to its effect on absentee rates. Future research may investigate the congruence of deviation from party lines induced by political competition. Such research might explore the effect of political competition on other legislative behavior, including the number of speeches, interpellations, and social media activity. Because mixed electoral systems are becoming more and more prevalent in different countries, our measure of competition and our empirical strategy may be applied elsewhere.

The possibility of contrasting legislators who represent the same geographic constituency in the same general political environment is not limited to mixed electoral systems. Thus, the disciplining function of elected competitors likewise could take effect in other contexts, for example, in pure proportional systems. Even in pure majoritarian systems, voters might compare the performances of elected legislators to some degree although they typically do not compete directly against one another at the same time. However, it could be expected that US Senators, for instance, are benchmarked by voters against one another. Similarly, usually two Councils of States are elected in Swiss cantons at the same time and voters hold two votes such that they may also be compared in parliament.

Supplementary Information The online version contains supplementary material available at <https://doi.org/10.1007/s11127-021-00906-w>.

Acknowledgements We thank Daniel Gottal, Tommy Krieger, Gustavo Torrens as well as the participants of 2020 Annual Conference of the German Economic Association, the 2020 Meeting of the Bavarian Graduate Program in Economics and the 2020 Graduate Workshop (University of Bayreuth) for thoughtful comments and suggestions.

Funding Open Access funding enabled and organized by Projekt DEAL.

Open Access This article is licensed under a Creative Commons Attribution 4.0 International License, which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons licence, and indicate if changes were made. The images or other third party material in this article are included in the article's Creative Commons licence, unless indicated otherwise in a credit line to the material. If material is not included in the article's Creative Commons licence and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder. To view a copy of this licence, visit <http://creativecommons.org/licenses/by/4.0/>.

References

- Aidt, T. S., & Eterovic, D. S. (2011). Political competition, electoral participation and public finance in 20th century Latin America. *European Journal of Political Economy*, 27(1), 181–200.

- Arvate, P. R. (2013). Electoral Competition and Local Government Responsiveness in Brazil. *World Development*, 43, 67–83.
- Ashworth, J., Geys, B., Heyndels, B., & Wille, F. (2014). Competition in the political arena and local government performance. *Applied Economics*, 46(19), 2264–2276.
- Atkinson, M. D., Enos, R. D., & Hill, S. J. (2009). Candidate faces and election outcomes: is the face-vote correlation caused by candidate selection? *Quarterly Journal of Political Science*, 4(3), 229–249.
- Banerjee, A. V., Kumar, S., Pande, R., & Su, F. (2011). *Do informed voters make better choices? Experimental evidence from urban India*. Working Paper, Harvard University.
- Becker, J., Peichl, A., & Rincke, J. (2009). Politicians' outside earnings and electoral competition. *Public Choice*, 140(3), 379–394.
- Bergmann, H., Bailer, S., Ohmura, T., Saalfeld, T., & Sieberer, U. (2018a). BTVote MP characteristics. Harvard Dataverse. <https://doi.org/10.7910/DVN/QSFXLQ>
- Bergmann, H., Bailer, S., Ohmura, T., Saalfeld, T., & Sieberer, U. (2018b). BTVote voting behavior. Harvard Dataverse. <https://doi.org/10.7910/DVN/24U1FR>
- Bernecker, A. (2014). Do politicians shirk when reelection is certain? Evidence from the German parliament. *European Journal of Political Economy*, 36, 55–70.
- Besley, T., & Larcinese, V. (2011). Working or shirking? Expenses and attendance in the UK Parliament. *Public Choice*, 146, 291–317.
- Besley, T., & Preston, I. (2007). electoral bias and policy choice: theory and evidence. *The Quarterly Journal of Economics*, 122(4), 1473–1510.
- Besley, T., Persson, T., & Sturm, D. M. (2010). Political competition, policy and growth: theory and evidence from the US. *Review of Economic Studies*, 77(4), 1329–1352.
- Bracco, E., Porcelli, F., & Redoano, M. (2019). Political competition, tax salience and accountability. Theory and evidence from Italy. *European Journal of Political Economy*, 58, 138–163.
- Braendle, T. (2014). Does remuneration affect the discipline and the selection of politicians? Evidence from pay harmonization in the European parliament. *Public Choice*, 162, 1–24.
- Curto-Grau, M., Solé-Ollé, A., & Sorribas-Navarro, P. (2018). Does electoral competition curb party favoritism? *American Economic Journal: Applied Economics*, 10(4), 378–407.
- Dal Bó, E., Dal Bó, P. D., & Snyder, J. (2009). Political dynasties. *Review of Economic Studies*, 76(1), 115–142.
- Dal Bó, E., Finan, F., Folke, O., Persson, T., & Rickne, J. (2017). Who becomes a politician? *The Quarterly Journal of Economics*, 132(4), 1877–1914.
- De Paola, M., & Scoppa, V. (2011). Political competition and politician quality: evidence from Italian municipalities. *Public Choice*, 148, 547–559.
- Ferraz, C., & Finan, F. (2011). Electoral accountability and corruption: evidence from the audits of local governments. *American Economic Review*, 101(4), 1274–1311.
- Ferraz, C., & Finan, F. (2008). Exposing corrupt politicians: The effects of Brazil's publicly released audits on electoral outcomes. *The Quarterly Journal of Economics*, 123(2), 703–745.
- Fisman, R., Harmon, N. A., Kamenica, E., & Munk, I. (2015). Labor supply of politicians. *Journal of the European Economic Association*, 13(5), 871–905.
- Frank, M., & Stadelmann, D. (2021). More federal legislators lead to more resources for their constituencies: Evidence from exogenous differences in seat allocations. *Journal of Comparative Economics*, 49(1), 230–243.
- Gagliarducci, S., Nannicini, T., & Naticchioni, P. (2010). Moonlighting politicians. *Journal of Public Economics*, 94(9–10), 688–699.
- Gagliarducci, S., Nannicini, T., & Naticchioni, P. (2011). Electoral rules and politicians behavior: a micro test. *American Economic Journal: Economic Policy*, 3(3), 144–174.
- Galasso, V., & Nannicini, T. (2011). Competing on good politicians. *American Political Science Review*, 105(1), 79–99.
- Gavoille, N. (2018). Who are the 'ghost' MPs? Evidence from the French parliament. *European Journal of Political Economy*, 53, 134–148.
- Gavoille, N., & Vershelde, M. (2017). Electoral competition and political selection: An analysis of the activity of French deputies, 1958–2012. *European Economic Review*, 92, 180–195.
- Hanssen, F. A. (2004). Is there a politically optimal level of judicial independence? *American Economic Review*, 94(3), 712–729.
- Hofer, K. (2017). Shirk or work? On how legislators react to monitoring. *Economics Working Paper Series 1616*, University of St. Gallen, School of Economics and Political Science.
- Jennes, G., & Persyn, D. (2015). The effect of political representation on the geographic distribution of income: Evidence using Belgian data. *European Journal of Political Economy*, 37, 178–194.
- Kauder, B., & Potrafke, N. (2016). Supermajorities and political rent extraction. *Kyklos*, 69(1), 65–81.

- Kauder, B., & Potrafke, N. (2019). Conservative politicians and voting on same-sex marriage. *German Economic Review*, 20(4), e600–e617.
- Lévêque, C. (2020). Political connections, political favoritism and political competition: Evidence from the granting of building permits by French mayors. *Public Choice*, 184, 135–155.
- Lott, J. R. (1987). Political cheating. *Public Choice*, 52, 169–186.
- Maaser, N., & Stratmann, T. (2016). Distributional consequences of political representation. *European Economic Review*, 82, 187–211.
- Mocan, N., & Altindag, D. T. (2013). Salaries and work effort: an analysis of the European Union Parliamentarians. *The Economic Journal*, 123(573), 1130–1167.
- Padovano, F., & Ricciuti, R. (2009). Political competition and economic performance: Evidence from the Italian regions. *Public Choice*, 138, 263–277.
- Rogers, D. L., & Rogers, J. H. (2000). Political competition and state government size: Do tighter elections produce looser budgets? *Public Choice*, 105, 1–21.
- Rothenberg, L. S., & Sanders, M. S. (2000). Severing the electoral connection: shirking in the contemporary congress. *American Journal of Political Science*, 44(2), 316–325.
- Sieberer, U., Saalfeld, T., Ohmura, T., Bergmann, H., & Bailer, S. (2020). Roll-call votes in the German bundestag: a new dataset, 1949–2013. *British Journal of Political Science*, 50(3), 1137–1145.
- Skilling, D., & Zeckhauser, R. J. (2002). Political competition and debt trajectories in Japan and the OECD. *Japan and the World Economy*, 14(2), 121–135.
- Solé-Ollé, A., & Viladecans-Marsal, E. (2012). Lobbying, political competition, and local land supply: Recent evidence from Spain. *Journal of Public Economics*, 96(1–2), 10–19.
- Sørensen, R. J. (2014). Political competition, party polarization, and government performance. *Public Choice*, 161, 427–450.
- Stigler, G. J. (1972). Economic competition and political competition. *Public Choice*, 13, 91–106.
- Willumsen, D. M. (2019). So far away from me? The effect of geographical distance on representation. *West European Politics*, 42(3), 645–669.
- Willumsen, D. M., & Goetz, K. H. (2017). Set free? Impending retirement and legislative behaviour in the UK. *Parliamentary Affairs*, 70(2), 254–279.
- Yogo, U. T., & Njib, M. M. (2018). Political competition and tax revenues in developing countries. *Journal of International Development*, 30(2), 302–322.

Publisher's Note Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.