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Who Represents the Constituency? Online Political Communication by Members of Parliament in the German Mixed-Member Electoral System

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Who Represents the Constituency? Online Political Communication by Members of Parliament in the German Mixed-Member Electoral System

Members of parliament (MPs) are elected via two different tiers in mixed-member electoral systems—as winners of a seat in a constituency or as party candidates under proportional rules. While previous research has identified important consequences of this “mandate divide” in parliaments, questions remain how this institutional setup affects MPs’ political behavior in other arenas. Analyzing more than one million social media posts, this article investigates regional representation in the online communication of German MPs. The results show that MPs elected under a direct mandate refer approximately twice as often to their constituencies by using regionalized wording and geographic references than MPs elected under the proportional tier. The substantive findings provide new evidence for the benefits of mixed-member electoral systems for political representation while the methodological approach demonstrates the added value of social media data for analyzing the political behavior of elites.

Communicating with constituents is one of the key responsibilities of members of parliament (MPs). The increasing use of social network sites such as Facebook and Twitter in society enables a more direct engagement with citizens and increases the responsiveness of legislators, at least to the preferences of the attentive public (Barberá et al. 2019). However, each social media platform comes with sociotechnical idiosyncrasies and specific audience compositions to which politicians have to adjust

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(Bossetta 2018; Stier, Bleier, Lietz et al. 2018). As such, social media are fundamentally different venues for political communication than the more structured parliamentary arena. At the same time, the literature on constituency campaigning has consistently identified differences in MPs' political behavior depending on the incentives provided by the electoral system (Herron, Nemoto, and Nishikawa 2018; Klingemann and Wessels 2003; Sieberer 2015). Against this backdrop, we investigate to what extent institutional factors which have traditionally shaped the political behavior of MPs in mixed-member electoral systems are still relevant in digital settings.

More concretely, we analyze how the electoral system incentivizes legislators to represent local constituencies in their posts on Facebook and Twitter. We focus on the German mixed-member proportional (MMP) system that provides two different pathways to receiving a mandate: election under majoritarian electoral rules in a constituency or via a party list under proportional rules. We analyze more than a million social media posts by German MPs in the 19th legislative period of the Bundestag to illuminate the routine behavior of MPs during a non-campaign period. An automated text analysis shows that directly elected MPs do indeed target their political communication more towards local constituencies by using geographic references and regionalized wording. The German mixed-member electoral system therefore guarantees the proportional distribution of parliamentary seats and simultaneously provides favorable opportunity structures for the regional representation of citizens.

Theory

MPs in Mixed-Member Electoral Systems and Their Differing Representational Focus

How do electoral systems affect political representation? This article aims to contribute to this perennial issue in comparative politics by focusing on the consequences of varying incentive structures for MPs in mixed-member electoral systems. Enabling a direct, two-way communication between MPs and their constituents, the advent of digital media adds yet another dimension to debates about political representation (Blumenau 2020). Against

the backdrop of a still inconclusive scholarly debate about the implications of having two different tiers in an electoral system (Herron, Nemoto, and Nishikawa 2018, 463), we aim to provide new evidence by investigating the content of MPs' online political communication.

Proponents of the *mandate divide theory* posit that the main difference between the two legislator groups is the way in which they have received their mandate. This difference allows for comparing “different [electoral] formulas in the same cultural, economic, and historical contexts and at the same time” (Herron, Nemoto, and Nishikawa 2018, 446). The basic assumption of the approach is institutionalist, meaning that varying incentives result in different electoral, legislative, or communicative behaviors of list MPs compared to directly elected MPs.

As an MMP system, the German polity occupies a middle ground on “a continuum of electoral systems from those in which legislators depend exclusively on their own personal votes to those in which votes are given exclusively to parties such that legislators have no direct ties to voters” (Shugart 2003, 25). With the first vote, German voters select 299 candidates in single-seat districts in which a one-round plurality contest determines the winner. This “nominal tier” represents the candidate-centered aspect of the MMP (Shugart and Wattenberg 2003, 11). The second vote allocates (at least) 299 seats through closed, ranked lists determined by the political parties in the 16 German states (Länder). The pooling of all party votes at the national level determines the Bundestag's overall seat distribution. Many German candidates run for a direct mandate and on a party list simultaneously. However, as only a minority of MPs has ever changed the mandate mode during their political career (Manow 2012, 2013), the chances are extremely high that if reelected, they will receive their mandate in the same way in which they received their current one. Consequently, we focus our interest on the mandate mode but take dual candidacies into account in our analysis.

To gain a high-ranking position on a party list, candidates must improve their standing with party stakeholders who are their main principals instead of voters (Sieberer 2015). In contrast, candidates in single-seat districts appear with their names on the ballot and in campaign materials distributed in the constituency. To be elected via the nominal tier, it is essential to establish “a direct and visible relationship between a geographic subset of voters on the one hand and a particular candidate on the other. Such

a relationship might result in an ‘identification effect’ on the part of the representative which translates into behavioral predispositions” (Zittel and Gschwend 2008, 983). This process could be reinforced if parties assign district winners to parliamentary services related to regional representation (e.g., in their committee work).

Several studies have analyzed these behavioral differences. Klingemann and Wessels (2003) show that nominally elected MPs have significantly more contact with local residents than list MPs and state more often that they aim to represent all citizens of the constituency. In a more recent study, Coffé affirms these results by showing that nominally elected MPs’ “representational focus” (2018) is primarily directed towards their district. In contrast, list MPs who have run on both tiers, and even more so pure list MPs, mention interest groups or policies more often as their core representational focus. But how do these differences in the representational focus translate to the comparatively novel and peculiar sphere of social media?

Social Media as a Means for Regional Representation

With the increasing use of social networking sites such as Facebook and Twitter by citizens and opinion leaders such as journalists (Barberá et al. 2019; Oschatz, Stier, and Maier 2021), using these platforms seems imperative for politicians. We assume that legislators not only use social media for campaign purposes but also to address the matters of constituents as sitting MPs during the legislative period.

MPs should allocate their available time, money, or personnel according to the primary goal to stay in parliament. Yet since all German legislators receive the same budget, resources are only a secondary factor when it comes to explaining differences in their behavior (Breunig, Grossman, and Hänni 2020). As social media are relatively cheap tools that can be managed by the staff allocated to each MP, they can be useful instruments for MPs on both electoral tiers. While nominal MPs should try to strengthen their personal relationship with voters in their respective constituencies, list MPs can use social media to bolster their reputation among party activists who are disproportionately active on social media. Our own analyses show that the mandate mode matters only little when it comes to explaining how often German MPs post on social media.¹ In addition, social media are very specific communication

environments with different sociotechnical affordances and audiences that significantly differ from the general public (Bossetta 2018; Stier, Bleier, Lietz et al. 2018).

Taken together, the strong role of institutional variations identified in other venues might be overshadowed by context-specific factors in the case of social media. Yet we argue that a mandate divide should not primarily manifest itself in the activity of MPs on social media *per se*, but in the *content of their posts*. A related study revealed that nominally elected MPs are more responsive to citizens from their constituencies than list MPs (Breunig, Grossman, and Hänni 2020), as MPs elected under majoritarian rule were almost twice as likely to respond to e-mail sent by voters. With regard to parliamentary questions, Zittel, Nyhuis, and Baumann (2019) showed that legislators use geographic representation as a complementary strategy to signal attention to their constituents and their (local) concerns. While differences were mainly driven by personal characteristics of MPs, the authors found no evidence for a mandate divide concerning the geographic representation in parliamentary questions. Although we build on their framework to study the content of MPs' political communication, we expect the findings to be different when studying social media posts. Whereas parliamentary questions often focus on issues, communication on social media is open for all sorts of regional appeals and direct interactions with citizens. Regionalized political communication should be especially attractive for nominally elected legislators to emphasize their attachment to the constituency.

Following Zittel, Nyhuis, and Baumann (2019), we take into account that MPs can make political content appealing to regional audiences by addressing villages, towns, or municipalities in the constituency, which we conceptualize as *geographic references*. In addition, we investigate a second dimension to analyze the regionalization of political communication also on a linguistic level. We call this dimension *regionalized wording*, comprising linguistic terms that refer to regional matters in general. This second dimension seeks to obtain a more comprehensive understanding of how politicians can make appeals to regional constituents and to provide a robustness test. With regard to the mandate mode, we expect both dimensions of regionalized political communication to follow the same logic. These considerations lead us to our main hypotheses:

Hypothesis 1a Nominally elected legislators use more geographic references on social media than legislators elected via party lists.

Hypothesis 1b Nominally elected legislators use more regionalized wording on social media than legislators elected via party lists.

Research Design

Country Selection and Timeframe

Among mixed-member electoral systems, MMP systems such as Germany represent hard test cases for observing differences between mandate modes in political communication. Although the two electoral tiers are formally functionally independent, contamination effects are present due to the large number of dual candidates and the compensatory nature of the German MMP system. Hence, if we find evidence for differences in political communication associated with varying mandate modes, these differences should also be present in MMM systems where a mandate divide is more likely to occur (Sieberer 2010).

The 19th German Bundestag formed after the elections on 24 September 2017 consisted of 709 MPs: 299 MPs were elected nominally in the constituencies and 410 MPs gained their seats via party lists. The vast majority were nominal candidates in constituencies *and* candidates on a party list (dual candidates, $N = 616$). Only 22 of the elected representatives were exclusive list candidates, while 71 of the elected representatives were exclusive constituency candidates. As another hard test of the mandate divide theory, our timeframe covers the post-election period when differences between direct and list MPs should be less pronounced than during election campaigns.

Social Media Data

We analyze political communication by elected MPs on Facebook and Twitter. Both platforms are used by different strata of the population and serve different goals for politicians (Stier, Bleier, Lietz et al. 2018). They currently are the two most important digital venues for political communication. Tweets by all

MPs were collected in real time from the Twitter Streaming API from July 2017 onwards when they stood as candidates (Stier, Bleier, Bonart, et al. 2018). We collected the posts from the public Facebook pages of MPs from CrowdTangle that allows for queries of historical public Facebook data.² Because tweets had to be collected in real time, and to keep the data set consistent over the full research period, we did not research social media accounts that might have been created during the legislative period. In sum, the data set consists of 292,948 Facebook posts and 886,166 tweets from MPs between September 25, 2017 (the day after the election) and February 20, 2020 (see Online Appendix Section A1).

We measure regional representation by applying a dictionary-based automated text analysis. We created two types of dictionaries to independently account for *geographic references* and *regionalized wording*. In constructing the first dictionary, we followed Zittel, Nyhuis, and Baumann (2019) and created individual dictionaries including the names of all municipalities for each of the 299 constituencies (Bundeswahlleiter 2017). We then matched each MP with the respective dictionary that corresponds to their constituency. The few MPs that did not run for a nominal mandate were matched according to their place of residence. The second dictionary consists of terms such as “constituency” (*Wahlkreis*), “regional” (*regional*), and synonyms derived from the most common German dictionary *Duden*.³

Analysis Strategy

After applying the dictionaries to all Facebook posts and tweets, we aggregated the number of relevant mentioned terms per MP for each platform, resulting in skewed dependent count variables. Likelihood ratio tests showed that the overdispersion parameter is significant in all models ($p < 0.001$); therefore, negative binomial regression models are preferable over Poisson models.

Additional personal and political characteristics influence the relationship between the mandate mode and online political communication. The use of digital media is not just dependent on the socioeconomic status, age, and education of MPs but should also vary according to the composition of constituencies. Since representatives as rational actors should take the social media affinity of their constituents into account, socioeconomic indicators at the constituency level are also included. Relevant political

control variables are whether an MP was already an incumbent pre-2017 and a dummy whether a candidate is leading a party list as a *Spitzenkandidat*, increasing the incentives to reach beyond individual constituencies.⁴

The variable electoral marginality controls for competitive nominal elections in a district that might increase incentives for regional representation. Party list viability takes into account that MPs with safe list positions have fewer incentives to cultivate their districts. Beyond that, we include a measure of a party's emphasis on local politics, as parties with a programmatic focus on local politics should rely more on regional representation.⁵

Finally, we also include the logged total activity by MPs on Facebook or Twitter since the count of posts with regionalized wording is correlated with the overall posting frequency. Descriptive statistics for all variables are shown in Online Appendix Section A3.

Results

We first investigate to what extent MPs' social media posts contained *geographic references*. In total, German MPs published 59,037 Facebook geographic references to municipalities in their constituencies (min = 0, mean = 115, max = 1,042). On Twitter, the respective number is lower with 12,112 regional references (min = 0, mean = 30, max = 1,032). The two models for the number of geographic references in Table 1 show a positive and significant effect of the direct mandate, both for Facebook and Twitter. Thus, we find consistent empirical evidence in favor of Hypothesis 1a.

German MPs published 16,672 *regionalized wording* terms on Facebook (min = 0, mean = 32, max = 452) and 6139 terms on Twitter (min = 0, mean = 15, max = 336). The results in Table 1 provide support for Hypothesis 1b. More generally, it is noteworthy that the effect sizes of regionalized wording are similar to the results for geographic references. Despite entirely different conceptualizations and operationalizations, the two dimensions of regionalization cross-validate each other.

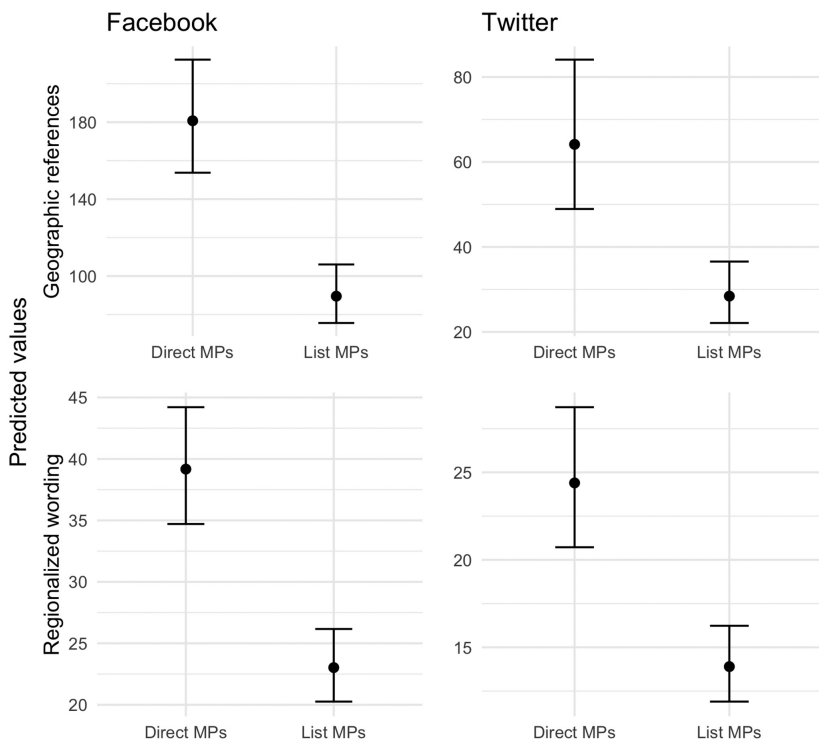
But are these statistically significant differences also substantively meaningful? Figure 1 plots the predicted values using the R package *ggeffects* (Lüdtke 2018). The marginal effects at the mean values are generated holding non-focal variables constant and varying the focal variable direct mandate. Across Facebook and Twitter, directly elected MPs posted approximately twice as many

TABLE 1
Effects of the Mandate Mode on Regional Representation

	Geographic References		Regionalized Wording	
	Facebook	Twitter	Facebook	Twitter
Direct mandate	0.70 (0.11)***	0.81 (0.17)***	0.53 (0.08)***	0.56 (0.11)***
Electoral marginality (10% threshold)	0.14 (0.11)	0.01 (0.17)	0.23 (0.08)**	0.24 (0.11)*
Party list electoral viability	0.06 (0.09)	0.02 (0.14)	0.07 (0.07)	0.09 (0.09)
Party emphasis on local politics	-0.06 (0.08)	-0.40 (0.11)***	-0.01 (0.06)	-0.12 (0.07)
Dual candidacy	0.03 (0.15)	0.08 (0.23)	-0.09 (0.11)	-0.10 (0.15)
Highly educated	-0.05 (0.11)	-0.23 (0.16)	0.00 (0.08)	0.01 (0.10)
Age (in 2017)	-0.01 (0.00)	0.00 (0.01)	0.00 (0.00)	-0.00 (0.00)
Gender (male = 1)	-0.05 (0.09)	-0.02 (0.14)	-0.09 (0.07)	-0.08 (0.09)
Incumbent	0.31 (0.09)**	0.39 (0.14)**	-0.08 (0.07)	0.08 (0.09)
<i>Spitzenkandidat</i> (party list leader)	-0.14 (0.11)	0.04 (0.16)	-0.36 (0.08)***	-0.05 (0.10)
Population density	0.03 (0.03)	0.14 (0.04)***	-0.05 (0.02)**	-0.02 (0.02)
Income of private households	-0.02 (0.02)	-0.03 (0.03)	0.02 (0.01)	0.02 (0.02)
University entrance qualification	-0.01 (0.01)	-0.00 (0.01)	-0.02 (0.01)***	-0.03 (0.01)***
Share of young population	0.04 (0.03)	-0.08 (0.04)	-0.08 (0.02)***	-0.07 (0.03)**
Facebook frequency (logged)	1.07 (0.06)***		1.04 (0.05)***	
Twitter frequency (logged)		0.62 (0.04)***		0.85 (0.03)***
Intercept	-1.68 (0.64)**	-0.02 (0.79)	-2.24 (0.50)***	-2.64 (0.51)***
AIC	5614.25	3182.03	4203.04	2469.80
Log likelihood	-2790.13	-1574.02	-2084.52	-1217.90
Deviance	593.93	466.94	552.44	433.56
Num. obs.	514	408	514	408

Note Negative binomial regression models with unstandardized coefficients and standard errors.
*** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$.

FIGURE 1
Predicted Values and 95% Confidence Intervals of the Mandate Mode, Results from [Table 1](#)



terms related to geographic references and regionalized wording during the observed timeframe of 29 months compared to list MPs.

We investigated three related aspects in further detail. First, we aimed to disentangle the effects of the mandate mode (direct or list) and the candidacy type (dual or exclusive). For this, we interacted the candidacy type with the mandate mode, confirming our main results for both, MPs who were dual and exclusive candidates (Online Appendix Section A4). Second, following research on the enhanced interest of women in local politics (Coffé 2013; Rapeli 2014), we expected that gender might also affect regional representation. Interactions between the gender and mandate mode, however, did not reveal much heterogeneity (Online Appendix Section A5). Third, since the CDU/CSU held most direct mandates, we explored a potential heterogeneity in interaction

models of CDU/CSU membership with the mandate mode. In fact, directly elected CDU/CSU members had similar predicted values as directly elected MPs of other parties, amid unreliable results for CDU/CSU MPs elected via party lists due to their small group size (Online Appendix Section A6).

We conducted additional robustness tests. Interacting the two variables related to electoral strategy, *electoral marginality* and *party list viability*, yielded inconsistent effects (Table A5). Moreover, when more directly estimating the demand for direct communication, our main results again held. For this, we included variables measuring the mean number of followers and the sum of @-mentions for Twitter; as well as the mean number of page likes and sum of comments on Facebook during our research period for each MP (Table A6). We also ran models excluding the MPs from Berlin because the term *Berlin* was frequently used as a reference to the political power center and not to the city in a geographic sense (Table A7). Finally, we constructed the percentage of geographic references and regionalized wording among all posts for each MP instead of the raw counts as dependent variable (Table A8). The main findings regarding the mandate mode were confirmed in all models.

Discussion and Conclusion

This article investigated to what extent the mandate mode affects online political communication in mixed-member electoral systems. Drawing a comprehensive portrait of the social media activities of legislators in the German Bundestag during the 19th legislative period (2017–20), we measured two distinct dimensions of regional representation on social media—geographic references and regionalized wording. The results show that directly elected MPs address their local constituencies approximately twice as often as list MPs. The finding is in line with a recent study showing that nominally elected MPs are more responsive to the demands of citizens living in their place of residence than list MPs in their e-mail communication (Breunig, Grossman, and Hänni 2020). Yet the fact that institutional factors leave a mark in MPs' behavior despite the idiosyncrasies inherent to each social media platform is still noteworthy. By showing that electoral incentives such as the mandate mode affect MPs' online political communication, the article also complements rather than contradicts the null finding of the mandate mode regarding regional representation in the parliamentary arena by Zittel, Nyhuis, and Baumann (2019).

Our study comes with several limitations. Naturally, social media data can only trace publicly visible (strategic) signals of regional attachment by MPs but cannot speak to the actual quality of how local concerns are represented. Another limitation is that the group of CDU/CSU list MPs with social media accounts was small, meaning that our results cannot fully explain variation within the biggest parliamentary group. Still, the large number of directly elected CDU/CSU MPs did not differ from their directly elected colleagues from other parties. Exploiting the longitudinal nature of social media data, future studies should compare how regional representation in the online realm dynamically changes within and across legislative periods. Zooming in on differences between social media platforms—including Instagram—is an additional promising research avenue.

The results demonstrate that besides preserving the proportional value of each vote, the German mixed member-electoral system also provides incentives for the representation of local constituencies. With growing discussions about reforms of electoral systems and the prediction that mixed-member electoral systems will probably be *the* electoral system of the 21st century (Shugart and Wattenberg 2003, 1), a comprehensive understanding of the incentive structure of such a system is indispensable. As such, the mixed-member electoral system combines the best of two worlds and can serve as an essential benchmark for electoral reforms in other countries (Carey 2009; Saalfeld 2005).

Understanding how MPs elected under different electoral tiers use social media also contributes to the question of how new communication technologies can strengthen political responsiveness. In fact, the chosen research period constitutes a least-likely case for behavioral differences depending on the mandate mode. As the incentives for direct candidates to use social media for local campaigning are stronger during election campaigns, the differences between mandate modes should be even more pronounced in more contentious times. More generally, the article demonstrated the methodological value of social media that provide an unparalleled fine-grained stream of public statements at the level of individual politicians. Finally, while debates about the mandate divide and its effects are still ongoing, our findings are a testament to the importance of political institutions and established theoretical models of legislative behavior, even in the fast-paced, more fragmented age of social media.

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‘[Correction added on 24 May 2022, after first online publication: Lennart Schürmann was designated as corresponding author]’ and ‘An affiliation to Universität zu Köln has been added for Lennart Schürmann’.

NOTES

1. Online Appendix [Table A4](#) shows that the posting frequency is not affected by the mandate mode.

2. Two caveats are that CrowdTangle neither returns data for non-public Facebook accounts such as personal profiles that can also be used for political purposes, nor for deleted accounts. While politicians only rarely delete their accounts, one prominent example was provided by Angela Merkel who did so in February 2019.

3. The full set of keywords in the dictionary is: *wahlkreis*, örtlich*, regional*, lokal*, hiesig*, räumlich*, *heimisch*. To include different forms of the terms we included asterisks for stemming. We used the *R* package *quanteda* for the text analysis (Benoit et al. 2018).

4. We defined leaders of a party list as the first two candidates because some parties (e.g., the Greens) have special rules such as quotas for candidates that identify as female.

5. The operationalization of these variables is explained in Online Appendix Section [A2](#).

REFERENCES

- Barberá, Pablo, Andreu Casas, Jonathan Nagler, Patrick J. Egan, Richard Bonneau, John T. Jost, and Joshua A. Tucker. 2019. “Who Leads? Who Follows? Measuring Issue Attention and Agenda Setting by Legislators

- and the Mass Public Using Social Media Data.” *American Political Science Review* 113: 883–901.
- Benoit, Kenneth, Kohei Watanabe, Haiyan Wang, Paul Nulty, Adam Obeng, Stefan Müller, and Akitaka Matsuo. 2018. “Quanteda: An R Package for the Quantitative Analysis of Textual Data.” *Journal of Open Source Software* 3: 774.
- Blumenau, Jack. 2020. “Online Activism and Dyadic Representation: Evidence from the UK E-Petition System.” *Legislative Studies Quarterly* 45: 889–920.
- Bossetta, Michael. 2018. “The Digital Architectures of Social Media: Comparing Political Campaigning on Facebook, Twitter, Instagram, and Snapchat in the 2016 U.S. Election.” *Journalism and Mass Communication Quarterly* 95: 471–96.
- Breunig, Christian, Emiliano Grossman, and Miriam Hänni (2020) Responsiveness and Democratic Accountability: Observational Evidence from an Experiment in a Mixed-Member Proportional System. *Legislative Studies Quarterly*. <https://doi.org/10.1111/lsq.12326>
- Bundeswahlleiter 2017. “Wahlkreise und zugeordnete Gemeinden.” https://www.bundeswahlleiter.de/dam/jcr/0a36af27-fea1-48a6-9776-2a4a8b238ad9/btw17_wkr_gemeinden.zip (November 16, 2018).
- Carey, John M. 2009. *Legislative Voting and Accountability*. New York: Cambridge University Press.
- Coffé, Hilde. 2013. “Women Stay Local, Men Go National and Global? Gender Differences in Political Interest.” *Sex Roles* 69: 323–38.
- Coffé, Hilde. 2018. “MPs’ Representational Focus in MMP Systems. A Comparison between Germany and New Zealand.” *Representation* 54: 367–89.
- Herron, Erik S., Kuniaki Nemoto, and Misa Nishikawa. 2018. “Reconciling Approaches in the Study of Mixed-Member Electoral Systems.” In *The Oxford Handbook of Electoral Systems*, ed. Erik S. Herron, Robert J. Pekkanen, and Matthew S. Shugart, 445–71. Oxford: Oxford University Press.
- Klingemann, Hans-Dieter, and Bernhard Wessels. 2003. “The Political Consequences of Germany’s Mixed-Member System: Personalization at the Grass Roots?” In *Mixed-Member Electoral Systems: The Best of Both Worlds?* ed. Matthew S. Shugart and Martin P. Wattenberg. Oxford: Oxford University Press, 279–96.
- Lüdecke, Daniel. 2018. “ggeffects: Tidy Data Frames of Marginal Effects from Regression Models.” *Journal of Open Source Software* 3: 772.
- Manow, Philip. 2012. “Wahlkreis- oder Listenabgeordneter, Typus oder Episode? Eine Sequenzanalyse der Wege in den Bundestag.” *Politische Vierteljahresschrift* 53: 53–78.
- Manow, Philip. 2013. “Mixed Rules, Different Roles? An Analysis of the Typical Pathways into the Bundestag and of MPs’ Parliamentary Behaviour.” *Journal of Legislative Studies* 19: 287–308.
- Oschatz, Corinna, Sebastian Stier, and Jürgen Maier 2021. Twitter in the News: An Analysis of Embedded Tweets in Political News Coverage. *Digital Journalism*. <https://doi.org/10.1080/21670811.2021.1912624>

- Rapeli, Lauri. 2014. "Comparing Local, National and EU Knowledge: The Ignorant Public Reassessed." *Scandinavian Political Studies* 37: 428–46.
- Saalfeld, Thomas. 2005. "Germany: Stability and Strategy in a Mixed-Member Proportional System." In *The Politics of Electoral Systems*, ed. Michael Gallagher and Paul Mitchell, 209–29. Oxford: Oxford University Press.
- Shugart, Matthew S. 2003. "'Extreme' Electoral Systems and the Appeal of the Mixed-Member Alternative." In *Mixed-Member Electoral Systems: The Best of Both Worlds?* ed. Matthew S. Shugart and Martin P. Wattenberg. Oxford: Oxford University Press, 25–51.
- Shugart, Matthew S., and Martin P. Wattenberg, eds. 2003. *Mixed-Member Electoral Systems: The Best of Both Worlds?* Oxford: Oxford University Press.
- Sieberer, Ulrich. 2010. "Behavioral Consequences of Mixed Electoral Systems: Deviating Voting Behavior of District and List MPs in the German Bundestag." *Electoral Studies* 29: 484–96.
- Sieberer, Ulrich. 2015. "Using MP Statements to Explain Voting Behaviour in the German Bundestag: An Individual Level Test of the Competing Principals Theory." *Party Politics* 21: 284–94.
- Stier, Sebastian, Arnim Bleier, Haiko Lietz, and Markus Strohmaier. 2018. "Election Campaigning on Social Media: Politicians, Audiences, and the Mediation of Political Communication on Facebook and Twitter." *Political Communication* 35: 50–74.
- Stier, Sebastian, Arnim Bleier, Malte Bonart, Fabian Mörsheim, Mahdi Bohlouli, Margarita Nizhegorodov, Lisa Posch, Jürgen Maier, Tobias Rothmund, and Steffen Staab (2018) Systematically Monitoring Social Media: the case of the German federal election 2017. *GESIS Papers* (04). <https://doi.org/10.21241/ssoar.56149>
- Zittel, Thomas, and Thomas Gschwend. 2008. "Individualised Constituency Campaigns in Mixed-Member Electoral Systems: Candidates in the 2005 German Elections." *West European Politics* 31: 978–1003.
- Zittel, Thomas, Dominic Nyhuis, and Markus Baumann. 2019. "Geographic Representation in Party-Dominated Legislatures: A Quantitative Text Analysis of Parliamentary Questions in the German Bundestag." *Legislative Studies Quarterly* 44: 681–711.

Supporting Information

Additional supporting information may be found in the online version of this article at the publisher's web site:

Supplementary Material

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