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# Electoral Reform and Legislative Behavior: Evidence From Denmark's Transition to Proportional Representation

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## ABSTRACT

This article examines the effect of electoral system reform on legislative speech-making by Members of Parliament (MPs), focusing on the case of Denmark's 1918 shift from single-member districts (SMD) to proportional representation (PR) in elections to the lower chamber. While the relationship between electoral systems and MP behavior is well established, few studies have been able to isolate causal effects using a natural control group. Leveraging the unique institutional configuration of Denmark's bicameral parliament—where the upper chamber remained unaffected by the reform—this study applies a difference-in-differences design to assess how reform shaped parliamentary behavior. Using a novel dataset covering all MPs between 1901 and 1939, the analysis compares both the absolute number of speeches delivered and the relative speech frequency of MPs across 1 electoral periods. The results demonstrate that MPs in the reformed lower chamber spoke significantly less following the introduction of PR, aligning their behavior more closely with that of MPs in the unreformed upper chamber. These findings hold across both outcome measures and after accounting for relevant controls, including seniority, party affiliation, and chamber-specific institutional differences. The analysis provides strong support for the argument that PR enhances party control over individual legislators and reduces incentives for personal vote-seeking via speech-making. The article contributes to the broader literature on electoral systems and legislative behavior, and offers new historical insight into the institutional development of representative democracy in early twentieth-century Europe.

The relationship between the electoral system and representation is well established in the literature (e.g., Huber and Powell 1994; Powell 2000). The question of whether MPs behave differently when elected under single-member district (SMD) systems compared to proportional representation (PR) systems has been a recurring topic, explored across multiple cases and time periods (e.g., Baumann et al. 2017; Debus and Bäck 2014). While the level of party cohesion in parliamentary voting is typically high, individual MPs can, as Proksch and Slapin (2015) argue, express dissent through their speech-making. In SMD systems, MPs primarily rely on their constituents to secure re-election, whereas in PR systems, the party determines whether an MP can run again. In closed-list systems, the party further decides on a list position that would enable re-election. Therefore, it is

reasonable to expect changes in MP behavior following significant institutional developments such as electoral reform, particularly in systems characterized by strong party influence.

To explore this further, it is necessary to examine changes to electoral systems, which are often utilized to investigate their impact on various legislative behaviors (see e.g., Høyland and Søyland 2019; Viganò 2024, 2025; Liao 2025). Ishima (2020) demonstrates that electoral reform in an Australian state altered MP speech-making incentives. The present study extends this research by examining an earlier shift to PR in Denmark in the early twentieth century, providing new insights into how electoral systems shape legislative behavior across different democratic contexts. In 1918, the electoral system for the lower

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chamber of the Danish Parliament transitioned from SMD to PR, while the upper chamber retained an indirect PR system. This change presents a valuable opportunity for analysis. Given that all legislation had to be discussed and passed in both chambers, we are able to compare MPs in the lower chamber with those in the upper chamber, offering a between-chamber comparison between those who were affected by the electoral reform and those who were not. By focusing on parliamentary speech-making, we evaluate whether the reform led to changes in legislative behavior.

In this article, we analyze the number of speeches delivered by each MP during the 1 electoral periods from 1901 to 1939. An electoral period is defined as the time between one election to the lower chamber and the next. This covers 18 years and seven periods pre-reform, and 21 years and nine periods post-reform in the lower chamber. This framework enables us to employ a difference-in-differences research design, similar to the approach taken by Ishima (2020). Our focus on the number of speeches is informed by recent work such as Willumsen (2021) and Fernandes et al. (2021), which examine speech-making in modern parliaments. Our results reveal a significant impact of the electoral system change on MP behavior. Post-reform, lower chamber MPs spoke less frequently than their pre-reform counterparts, suggesting a diminished distinction in speech frequency between the lower and upper chambers. This implies that lower chamber MPs adapted to the party control long experienced by upper chamber MPs. These findings hold even after controlling for potential confounding factors such as seniority and party affiliation. Overall, the Danish case provides clear evidence that institutional changes can directly lead to alterations in MP behavior.

The following section discusses the link between parliamentary representation and the electoral system, followed by a detailed overview of our specific case of Denmark from 1901 to 1939. Subsequently, we present the data and variables used in our study before sharing our analysis and discussing the findings in relation to our initial expectations.

## 1 | Parliamentary Debate and Electoral Systems

There is extensive literature exploring the link between legislative behavior and the electoral system (e.g., Bernauer and Bräuninger 2009; Debus and Bäck 2014; Hug and Martin 2012; Martin 2011). These studies, among others, rest on the assumption that MPs act strategically in pursuit of re-election. It is well established that the electoral system shapes MP behavior by creating distinct incentives. In proportional representation (PR) systems with party lists, loyalty to the political party is rewarded, whereas single-member district (SMD) systems encourage the cultivation of a personal following rather than party allegiance. Studies of electoral reform often attribute behavioral changes directly to these shifting incentives. For instance, Cox et al. (2019) report increased party unity following a transition to proportional representation.

Some of the clearest insights into the effects of electoral systems on legislative behavior come from studies of mixed-member systems, such as Germany, where MPs are elected both through

SMD and PR with closed party lists. Sieberer (2010) identifies variation in voting behavior between SMD and PR-elected Bundestag members. Similarly, Stadelmann et al. (2019) highlight behavioral differences by comparing parliamentary voting with referendum results. Baumann et al. (2017) show that party list MPs who deviate from the party line in speeches are subsequently placed lower on party lists, thus reducing their re-election prospects. Maaser and Stratmann (2018) find a clear connection between the electoral system and committee membership: MPs elected via SMDs are more likely to seek positions on committees that distribute constituency benefits than those elected via PR.

In purely PR systems, such as the Czech Republic, Marcinkiewicz and Stegmaier (2019) demonstrate a direct positive relationship between parliamentary speech-making and the likelihood of re-election. In Italy, Giannetti and Pedrazzani (2016) find that leaders of governing parties allocate more speaking time to frontbenchers than to backbenchers, thereby exercising stronger control over the parliamentary agenda. Recent research also indicates that electoral reforms can alter the content of speeches and other forms of communication. Høyland and Søyland (2019), for example, show that speeches in Norway became more partisan following the introduction of PR. Shomer (2017) and Yildirim et al. (2019) also find a relationship between legislative behavior and candidate selection within parties. This body of literature convincingly establishes both a theoretical and empirical link between the electoral system and legislative behavior, a foundation that is central to our study.

Having established this connection, we turn to the specific form of legislative behavior analyzed here: speech-making. A growing body of literature examines legislative speeches as a window into parliamentary behavior. Bäck et al. (2021) describe this as a “maturing field”, one that has seen both empirical and theoretical advances over the past two decades. The most comprehensive theoretical framework in this area is offered by Proksch and Slapin (2012, 2015, 2021), who highlight three main dimensions: who speaks, what is said, and how debates are organized. This study focuses primarily on the first dimension; that is, who delivers a speech. Though debate organization inevitably shapes both the opportunity and frequency of speech-making. The central premise is that party-centered electoral systems, such as PR, require the cultivation of a strong party brand, necessitating high levels of party discipline and conformity. Conversely, systems that emphasize individual candidates, such as SMDs, incentivize MPs to develop a personal vote within their constituencies (Proksch and Slapin 2015).

The expectation that legislative behavior, especially speech-making, would vary with the electoral system also relates to the regulation of parliamentary procedure. Without such rules, parliaments would risk descending into disorder (Cox 2006). To avoid this, institutional rules have developed over time in response to various internal pressures (Kof 2018). One key area of regulation concerns the plenary timetable, which Rasch (2014) identifies as one of the three pillars of parliamentary agenda-setting. Without clear procedures on who may speak, when, and on what topics, plenary debates risk becoming bottlenecks, particularly as all bills

must be debated and passed (Cox 2006, 141). Much of the coordination necessary to prevent such logjams is managed by political parties. In parliamentary systems, party groups play a central role, assigning spokespersons for specific bills and allocating committee seats (Damgaard 1995). It is widely accepted that modern representative democracy would be nearly unthinkable without political parties (LaPalombara 1974). Candidates typically run under party labels, and once elected, they pursue influence through their party group. As such, parties have a vested interest in controlling both who speaks for them and what is said. The stronger the party group's control, the less likely individual MPs are to act in ways that contradict the party's position. This may include voting against the party line, abstaining, or making unsanctioned speeches on issues for which a party spokesperson has already outlined a stance (Bowler et al. 1999). Parties thus seek to maintain a clear, unambiguous brand. While Proksch and Slapin (2012) acknowledge that parties may tolerate some deviation to avoid appearing overly rigid, Bäck et al. (2019) show that speaking time is often allocated strategically to protect the party's image. However, this is also to some extent dependent on the particular institutional setting that is under examination.

Although Bäck et al. (2019) suggest that MPs might stay off the floor in order to campaign locally, they ultimately dismiss this possibility by arguing that MPs are primarily focused on gaining publicity. This appears similar in the period examined here, when the Danish media system was heavily localized and most areas had at least four newspapers, one affiliated with each of the four main parties. MPs enjoyed privileged access to these outlets, which in turn benefitted their electoral prospects (Fouirnaies 2021). It was therefore in the interest of MPs, both before and after the reform, to speak in parliament in order to secure coverage in the local press.<sup>1</sup> Similar arguments are offered by Viganò (2025), who finds that where open access floor rules exist, MPs tend to devote more of their speaking time to local matters than in systems where floor access is more tightly controlled by parties, underlining the role of party groups in managing speeches.

## 2 | Denmark 1901–1939

Denmark began its journey towards full democracy with the introduction of a constitution in 1849, which established a bicameral parliament. Although liberal in character, extending the franchise to men, the constitution did not grant women the right to vote in national elections until 1915. In 1866, the constitution was amended to reflect a more conservative orientation, securing a strong presence for the landed gentry in the upper chamber, while liberals gained a majority in the lower chamber from 1872 onwards. From 1901, governments were formed based on the party able to command a majority in the lower chamber. In the early twentieth century, debates emerged concerning the electoral system, particularly as the Social Democrats began challenging the Liberals in many constituencies, especially in urban areas. Eventually, the Social Democrats, Liberals, and Social Liberals supported electoral reform through a constitutional change, while the Conservatives opposed it. The 1915 constitutional

reform introduced equal franchise and proportional representation (PR) for elections to the lower chamber.<sup>2</sup> Denmark's experience mirrors that of other countries (e.g., Boix 1999; Rokkan 1970), although this interpretation has been subject to significant criticism (e.g., Blais et al. 2005; Cox et al. 2019).

In the 1918 election, all MPs from the Copenhagen area were elected through PR, and a strong proportional element was incorporated into seat allocation across the rest of the country. Parties that failed to win a directly elected seat could secure representation through the proportional mechanism. The 1920 elections marked the complete elimination of single-member districts from the Danish system, creating a fully proportional electoral structure that has largely remained in place since. The overall number of seats won depends on the level of national support, which is then distributed via seats in each electoral region dependent on party support in that region, alongside top-up seats to ensure proportionality at the national level. This in turn changed the focus of the parties from the local level to the national level. Parties could nominate candidates via semi-closed lists, allowing voters to alter the party's preferred order, or through open lists with constituency nomination. The Social Democrats predominantly used semi-closed lists, while the Conservatives and Liberals adopted a mixed approach. For example, in the 1929 election, the Conservatives used semi-closed lists in three electoral regions and open lists in 20. The Social Democrats, by contrast, used semi-closed lists in 22 regions and open lists in only one.<sup>3</sup> Despite the open list format, party control remained strong. The party organization had to validate each nomination, making it impossible for local associations to nominate candidates without the support of the central party, thereby reinforcing organizational control over candidate selection.

The 1915 constitutional reform also expanded the lower chamber, ensuring that no party would suffer substantial losses under the new system. Prior to the reform, the Folketinget had 113 members. This number rose to 139 in 1918 and to 148 in September 1920, following the reintegration of Northern Schleswig into Denmark after a plebiscite.<sup>4</sup> The upper chamber, Landstinget, consisted of 66 members until 1918, increasing to 72 between 1918 and September 1920, and to 76 thereafter. Until 1918, 12 upper chamber members were appointed for life by the King. Following the reform, the outgoing chamber elected 18 members (rising to 19 from September 1920) via a proportional method. The remaining members continued to be elected through indirect PR elections, where voters selected members of an electoral college who then chose the MPs. This mechanism entrenched strong partisan control over the composition of the upper chamber. There were no term limits, but a member's re-nomination was determined by their party. Likewise, parties exercised strict control over whether an MP elected through the indirect elections should instead be appointed as one of the chamber elected members, which would create a vacancy for the party to fill through the indirect route. This mechanism could be used, for example, to accommodate members who had lost seats in the lower chamber or to free a seat in the lower chamber. The electoral term for the upper chamber was 8 years. For the lower chamber, it was 3 years until 1918 and 4 years thereafter,

with the Prime Minister retaining the right to call early elections. Notably, three elections took place in 1920—in April, July, and September—due to the constitutional adjustments required for Northern Schleswig's reintegration. The Danish parliament remained bicameral until the upper chamber was abolished in 1953.<sup>5</sup> Legislative bills could be introduced in either chamber, but both chambers had to approve the same version for legislation to be enacted. Consequently, identical debates and legislative discussions occurred in both chambers. Throughout most of the period under review, there were four main parties: the Liberal Party, the Social Liberal Party (which split from the Liberals in 1905), the Social Democrats, and the Conservatives. The latter was formed in 1915 through a merger of the "Right" party and the Free Conservatives.<sup>6</sup> A small number of independents were elected before the reform, typically with support from one of the established parties and often caucusing with them. After the reform, a few minor parties gained representation in the lower chamber, including the Industrial Party, the Communist Party, the Farmer's Party, the Justice Party, and the Schleswig Party representing the German minority.<sup>7</sup> Party groups are essential for understanding parliamentary dynamics in this period. One key difference from the present-day parliament concerns "private" speeches, meaning speeches made by MPs who were not serving as official spokespersons for their party on a given issue. During this period, it was common in both chambers for several MPs from the same party to contribute to debates. There were no formal time constraints, that is, MPs were able to speak more or less as they wished at the discretion of the Chair. In the first half of the period under examination, the rules were similar in both the Lower and Upper Chamber. Any member could request the floor on any topic and was usually granted speaking time in the order in which the requests were made, although the Chair retained discretion to determine the sequence (Rigsdagen 1915, Tillæg B: 3117 to 3140; Rigsdagen 1918, Tillæg C: 3–26). The standing orders also allowed the Chair or a group of members, 15 in Folketinget and 10 in Landstinget, to call for a vote to end the debate if members were misusing the privilege of speaking to obstruct proceedings. Stricter rules governing speaking rights and speaking length were introduced in the Lower Chamber in 1933. Members were no longer permitted to speak more than twice on each reading and speech lengths were limited, with spokesmen granted longer allocations (Rigsdagen 1932, Tillæg C: 3425–3431).<sup>8</sup> In the Upper Chamber, there were no formal limits on speaking time or on the number of interventions an MP could make, apart from the general powers of the Chair to manage the debate. Overall, and importantly for the arguments in this article throughout the era, any MP could speak on any issue at least once, subject to certain length limitations, particularly in the final 6 years of the period covered (see also Møller 1949, 21, 62–64).<sup>9</sup>

This contextual overview, together with the preceding literature review, informs the hypotheses tested in this article. Given that PR systems promote stronger party control, we expect this to be reflected in our empirical findings. Specifically, we anticipate that the difference in speech-making between the lower and upper chambers will narrow after the reform, reflecting the changed incentives faced by MPs. We therefore propose the following hypothesis:

**Hypothesis 1.** *After the treatment of electoral reform, speech-making in the lower chamber will align more closely with that of the untreated upper chamber, resulting in fewer speeches.*

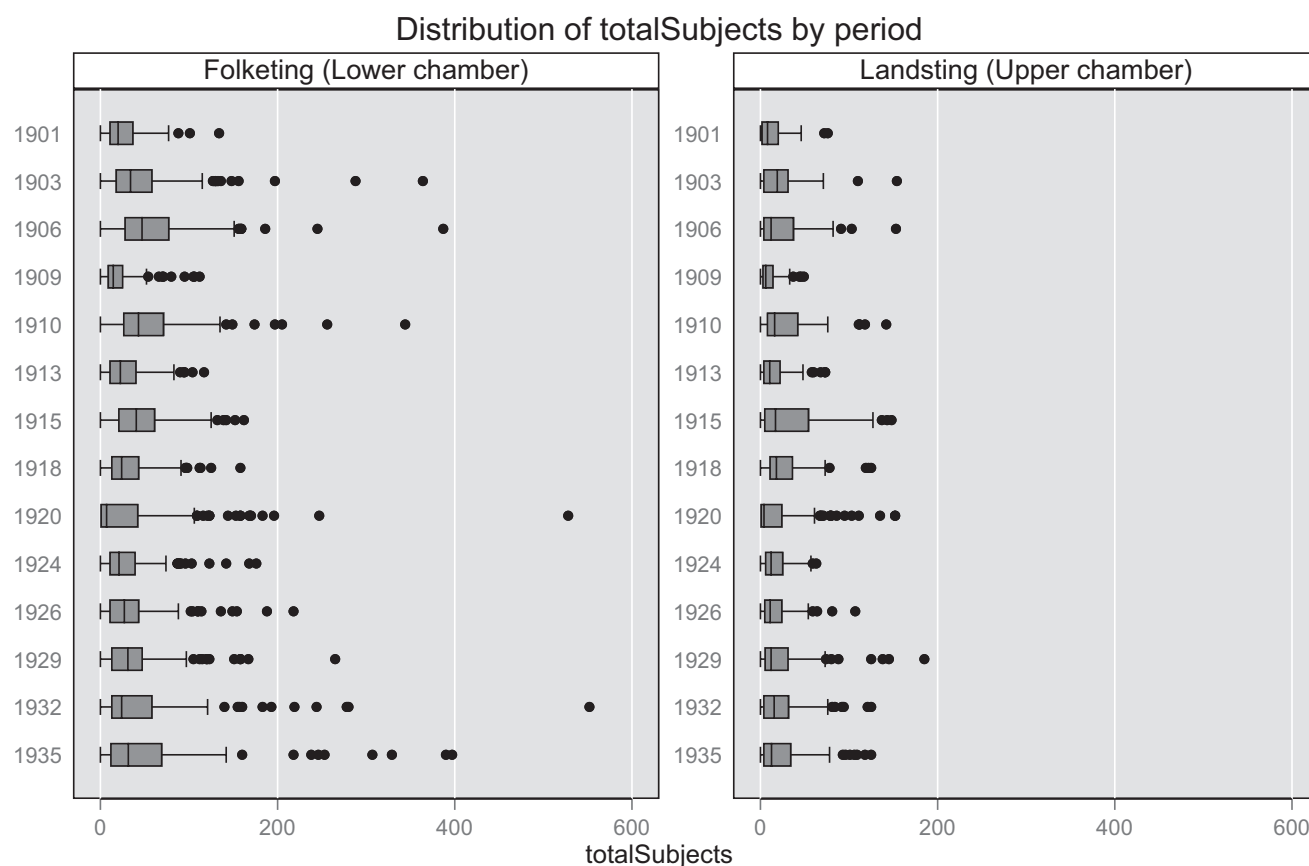
### 3 | Data and Methodology

Throughout the period discussed in this article, the electoral system used to elect members of the upper chamber remained unchanged; members continued to be selected through indirect elections with a restricted franchise. Although there were changes in the franchise during this period, these did not affect the method by which upper chamber members were elected. This continuity allows us to define 1918 as the treatment year, the lower chamber as the treatment group, and the upper chamber as the control group for analytical purposes. Since both chambers debated the same bills, operated within the same political system, and functioned concurrently, the Danish case presents a particularly suitable opportunity to estimate the effect of electoral reform using a difference-in-differences design.

The dataset includes all MPs who served in the Danish Parliament between 1901 and 1939, in either the lower or upper chamber.<sup>10</sup> The starting point, the 1901 election, was chosen because, from this date, party strength in the lower chamber became decisive in government formation. The end point is 1939, as the election that year was followed by the German occupation of Denmark in 1940. A cross-party government was formed soon after, effectively suspending traditional political competition until the end of the Second World War. This timeframe provides 17 years of pre-reform observation and 21 years of post-reform data, covering 16 electoral periods.<sup>11</sup>

The dependent variables in this study are derived from the number of speeches delivered by MPs in parliament, recorded in the registers of debate maintained by the Danish Parliament. In recent years, these historical records have been made available online, including the registers from which the dependent variable is constructed.<sup>12</sup> These registers indicate the specific column in the parliamentary proceedings where an MP spoke, along with the subject of the speech. Each entry in the register is counted as one speech, irrespective of length. A new column number is treated as a new speech. This method provides the total number of speeches given by an MP during an electoral period. It does not distinguish between MPs who speak frequently on a single topic and those who speak less often on a wider range of topics. For example, an MP delivering 25 speeches on the same issue and another delivering one speech on 25 different issues would both be recorded as having given 25 speeches. To account for this variation, we include a control variable measuring the number of distinct topics addressed by each MP. In the previous example, the first MP would have a topic score of 1, while the second would score 25. This allows us to control for breadth of contribution and mitigate the risk of underestimating the effect of the reform. The theoretical expectation is that increased party control under PR would be associated with fewer speeches and a narrower range of topics addressed by individual MPs. In total, 77,224 speeches were delivered by 1966 MPs in the lower chamber, an average of 39.3 speeches per MP per session. In the upper





**FIGURE 1** | Distribution of speeches (total number) across electoral periods and chamber.

chamber, 25,980 speeches were made by 1195 MPs, equating to an average of 21.7 speeches per MP per session. Across both chambers, 800 unique MPs served during the period covered. The box plots in Figure 1 display the distribution of speeches per MP for each election year between 1901 and 1939, separated by chamber. In the Folketing (left panel), the period preceding 1920 shows relatively compact distributions centered around lower median values, indicating a consistent and moderate number of speeches per MP across elections. Following the 1920 reform, however, the boxes widen and extend further to the right, with several periods showing outliers. This pattern suggests a structural change: after the 1920 reform the lower chamber began to handle larger and a more variable number of speeches, consistent with the argument of the importance of the electoral system reform. In contrast, the Landsting (right panel) exhibits remarkable stability across the same period, with medians and dispersion remaining narrow and largely unchanged. The absence of a corresponding shift in the upper chamber strengthens the interpretation that the change observed in the Folketing reflects a chamber-specific institutional development rather than a broader temporal trend affecting both houses.

A key challenge for the analysis is that MPs do not participate equally in parliamentary activity, whether in terms of voting (e.g., Fazekas and Hansen 2022) or speech-making. Some MPs may be less active due to illness or other employment. While most MPs participate at least occasionally, there are exceptions. For example, in the upper chamber, two members—Christian Count Moltke (served 1875–1918)<sup>13</sup> and Frederik Count Moltke

(served 1894–1910),<sup>14</sup> his nephew—did not deliver a single speech during the period under examination, beginning in 1901. In contrast, other MPs were extremely active; Conservative MP John Christmas-Møller<sup>15</sup> and Social Liberal MP Ove Rode,<sup>16</sup> both in the lower chamber, each delivered more than 500 speeches in a single electoral period (1932–1935 and 1920–1924, respectively).

This variation in participation presents analytical complications. Although the dependent variable is not normally distributed, it approximates normality after applying a natural logarithmic transformation. This approach is commonly used to address skewness in the dependent variable (see also Goplerud 2021, 74). To deal with zero-speech cases, we add the value one to all observations, allowing for inclusion in an Ordinary Least Squares regression framework. While this transformation could introduce bias for MPs entering or leaving mid-period, control variables are included to account for these cases. As a robustness check, we also include an alternative dependent variable measuring the relative frequency of speeches. This is calculated by expressing each MP's number of speeches as a proportion of the most active MP in that electoral period and chamber. The most active MP receives a score of 1, and all others are scaled accordingly. This measure retains individual-level variation while accounting for differences across periods and chambers. If the hypothesis is correct, we expect to observe a significant decline in both the absolute number of speeches and relative speech frequency in the lower chamber following the reform.

Another important consideration is the speaking rights of ministers. Ministerial speeches differ considerably in character and frequency. Ministers usually speak only on matters within their portfolio and can intervene at any point in relevant debates. Therefore, ministers are excluded from the main analysis, as their speech patterns reflect executive responsibilities rather than the effects of electoral rules. Ministers who enter or leave office mid-period are included only for the portion of the period in which they were not serving as ministers.

Alongside the dependent variable and the measure of topic breadth, the analysis includes several other variables: indicators for treatment group membership, treatment timing, and the difference-in-differences interaction. Additional control variables are included to capture other sources of variation. These include whether the MP entered parliament through a by-election or as a substitute, whether they were elected unopposed, or in the case of the upper chamber, whether they were appointed by the King or later the outgoing chamber. We also include an indicator for whether the MP resigned or otherwise left parliament during the electoral period. The relative seniority of each MP is accounted for, and party dummies are included in all models to control for party-level effects.

Table 1 summarizes the variables used in the analysis. The sample is restricted to regular MPs, excluding ministers. Those appointed to or removed from ministerial office during an electoral period are included only during the time they served as regular MPs. Information on elections is drawn from the official election statistics published by the Danish Statistical Bureau following each election, supplemented in a few cases by Nordengaard (1949). Seniority data for the lower chamber are taken from Kjær and Pedersen (2004), and for the upper chamber from Pedersen (1978).<sup>17</sup>

### 3.1 | The Effect of Electoral System Reform on Speech-Making Between Chambers

Table 2 presents the results of two OLS regression models. Model 1 uses the natural logarithm of the number of speeches delivered

**TABLE 1** | Variable summary.

Variables	(1)	(2)	(3)	(4)	(5)
	N	Mean	SD	Min	Max
Log # of speeches	3161	2.79	1.38	0	6.32
Relative frequency of speeches	3161	0.174	0.195	0	1
Resigned in period	3161	0.0389	0.193	0	1
Entered in period	3161	0.0424	0.202	0	1
Elected via no vote	3161	0.135	0.342	0	1
Topics	3161	12.92	12.80	0	113
Time	3161	0.593	0.491	0	1
Treated	3161	0.622	0.485	0	1

**TABLE 2** | Results.

Variables	Log # speeches	Relative speech frequency
	Model 1	Model 2
Time	−0.05 (0.05)	−0.01 (0.01)
Treated	0.67*** (0.05)	−0.03*** (0.01)
Time × Treated	−0.28*** (0.06)	−0.04*** (0.01)
# Topics	0.09*** (0.00)	0.01*** (0.00)
MP resigned	−0.27*** (0.07)	−0.03** (0.01)
MP replacement	−0.33*** (0.07)	−0.02** (0.01)
Unopposed/appointed	−0.14*** (0.04)	0.01* (0.01)
Liberal	0.01 (0.04)	0.00 (0.01)
Conservative	−0.02 (0.04)	0.00 (0.01)
Social liberal	−0.18*** (0.04)	−0.02*** (0.01)
Minor parties	−1.17*** (0.13)	−0.16*** (0.02)
Independent	0.12 (0.10)	−0.02 (0.02)
Constant	1.50*** (0.05)	0.07*** (0.01)
Observations	3161	3161
R <sup>2</sup>	0.68	0.55

Note: Standard errors in parentheses, \*\*\* $p < 0.01$ , \*\* $p < 0.05$ , \* $p < 0.1$ .

by each MP during an electoral period as the dependent variable, while Model 2 employs the relative frequency of speeches (scaled to the most active MP in each period and chamber).<sup>18</sup> The main variable of interest is the interaction between time and treatment (Time × Treated), which captures the effect of electoral reform on speech-making in the lower chamber, relative to the upper chamber. Control variables are included to ensure that the results are not biased; the exact coefficients of these controls are of less interest.

In Model 1, the interaction term is negative and statistically significant, indicating that MPs in the lower chamber gave

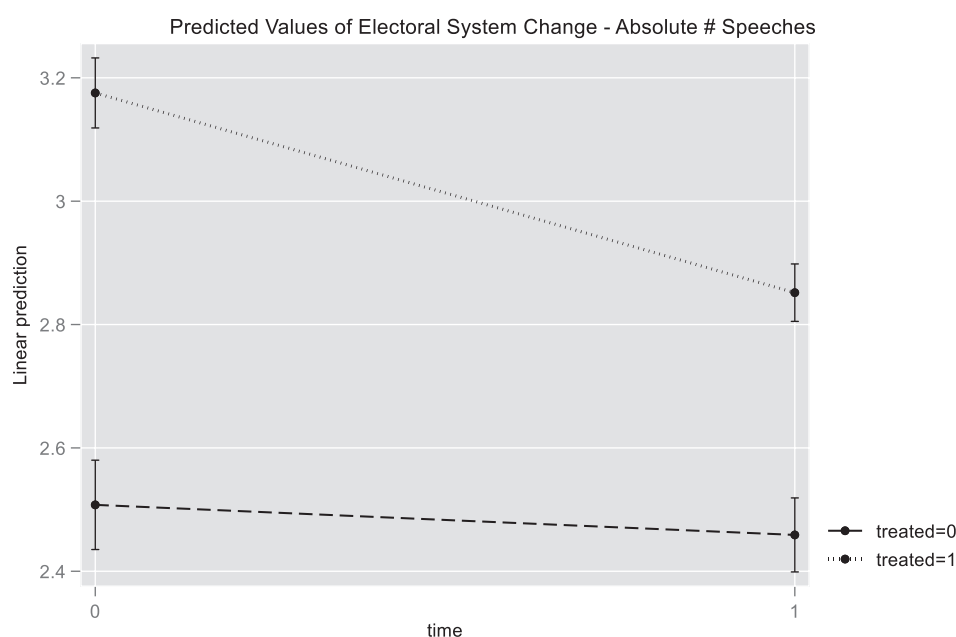
significantly fewer speeches following the introduction of proportional representation, when compared to MPs in the unreformed upper chamber. Given the dependent variable is in logged form, the coefficient can be interpreted approximately as a 24% reduction in the number of speeches by lower chamber MPs post-reform. A similar pattern is observed in Model 2, where the interaction coefficient is also negative and statistically significant. This suggests that the speech activity of reformed MPs, when measured relative to their most active peer in the same period, also declined post-reform. Although the effect size is smaller in absolute terms, a decline of around 4%, the consistency across both models provides robust support for the hypothesis that proportional representation increases party control, leading to reduced individual-level speech-making.

The component terms themselves produce strong evidence that our approach of using two measures of the dependent variable is worthwhile. The Treated variable is positive and significant in Model 1 reflecting that, prior to the reform, MPs in the lower chamber (the treated group) were more active in speech-making than their upper chamber counterparts. However, in Model 2, Treated is negative and significant, suggesting that relative to the most active speaker lower chamber MPs were somewhat less dominant even pre-reform. This discrepancy illustrates the value of analyzing both absolute and relative measures of speech activity. The time variable (post-reform period) is not statistically significant in either model, implying that overall temporal changes unrelated to reform did not meaningfully influence speech frequency across both chambers. The control variables return coefficients that are as expected. Number of Topics is positively and significantly associated with both dependent variables in both models, affirming that MPs who contribute on more topics speak more frequently. MPs who resigned or entered as replacements delivered fewer speeches, as seen in the negative and significant coefficients in both models. MPs elected unopposed or appointed spoke less in Model 1 though the effect is weaker and marginally positive in Model 2. The coefficients

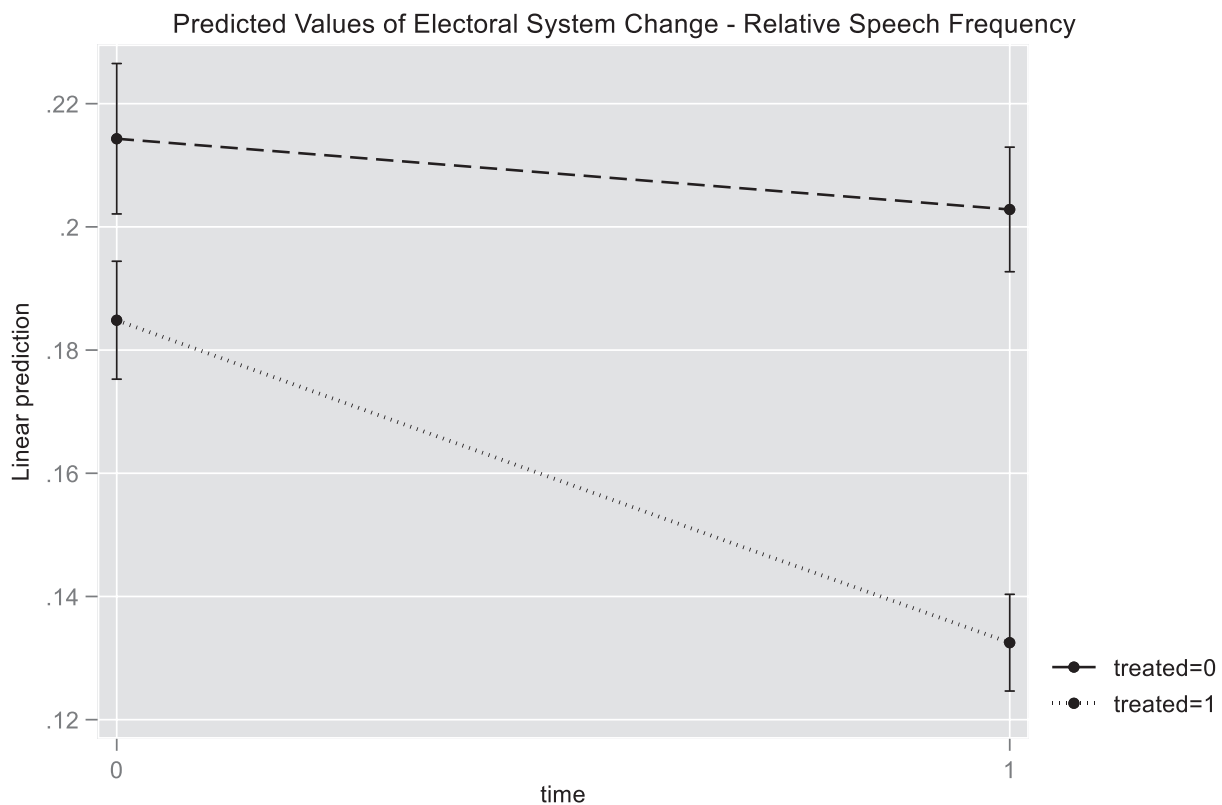
for party dummies show that Social Liberal MPs and those from Minor Parties gave fewer speeches overall, suggesting marginalized groups having fewer speaking opportunities. There are two elements that need to be considered in relation to these results. First, the dataset includes more than 11% of observations with a zero count in the untransformed dependent variable. A robustness check reported in the online Appendix S1 assesses whether the core interaction persists when these observations are removed from the analysis. This is indeed the case, as the interaction remains significant. The second issue concerns the minor parties. A separate robustness check in the Appendix S1 excludes these observations, restricting the analysis to the four major parties. Again, the significant coefficient on the interaction term is unchanged, which suggests that the results presented here are robust to alternative model specifications and are not driven by the large number of zero count observations or by the minor parties.

The strong impact of the electoral reform can also be seen when the results are shown visually. In Figures 2 and 3 we present the predicted means for the differences-in-differences measure; that is, the interaction between time and treatment. This graphically illustrates that the disparity between the speeches given in the upper and lower chambers has declined when we compare the differences between the two chambers pre- and post-treatment, regardless of whether the focus is in the absolute number of speeches or the relative frequency of speeches. There is a clear, significant difference between the predicted values pre- and post-reform for the speeches in the lower chamber.

The results presented support confirmation of the hypothesis. There is clear variation between the chambers in how the reform affected MP behavior, and this variation aligns with our theoretical expectations. Although the effect size decreases when considering relative speech frequency, this actually strengthens our argument. The relative measure indirectly accounts for changes in chamber size following the



**FIGURE 2** | Interaction effect of time and treatment – absolute # speeches.



**FIGURE 3** | Interaction effect of time and treatment – relative speech frequency.

electoral reform and the subsequent reintegration of Northern Schleswig into Denmark. The reform altered the composition of the lower chamber by increasing its size by 25 seats, resulting in an unprecedented influx of new representatives. The upper chamber also experienced a modest increase in size. If changes in chamber size—rather than the electoral reform—were driving the observed effects, we would expect to see comparable changes in both chambers. However, the similarity of results when using both the logged absolute number of speeches and the relative frequency measure suggests that chamber size is not the primary factor. Instead, the findings point to the reform itself as the key driver, in line with our theoretical expectations.

We can further draw on two qualitative examples to contextualize the reform and illustrate the changes in speech-making. In the pre-reform period, parties exercised less control over who spoke. An example is found in the 1913 to 1914 session, during a debate on the first reading of a bill concerning proper drainage into the fjord of Ringkøbing in Folketinget (Rigsdagen 1913, Forhandlingerne (Folketinget): 4130–4240). The four spokesmen, one from each of the main parties but none representing constituencies in the area concerned, delivered their speeches. They were then followed by five speakers from the Liberal Party, all elected in constituencies close to or directly encompassing part of the fjord. Two private members from the Social Liberals contributed, although both represented districts far removed geographically, and the only Conservative contribution beyond that of the spokesman came from a member elected in the capital area. The speeches from members representing the affected constituencies focused on the practical challenges posed by the proposed legislation and

were lengthy. Some of the interjections from members representing other areas instead addressed general principles or sought to highlight differences with the stance taken by their own party spokesman.

This contrasts with a 1931 proposal in Folketinget to close the Navigational School in Aalborg (Rigsdagen 1930, Forhandlingerne (Folketinget): 1504–1541). The four spokespeople presented their parties' positions. The government parties, the Social Democrats and the Social Liberals, supported the closure, while the Conservatives and Liberals in opposition opposed it. Beyond the spokesmen, there were three short private contributions, all from members elected in the electoral region in which Aalborg is located. The Social Democrat member did not speak against the proposal but noted that the decision had been anticipated for a decade. The Conservative member made a general statement in favor of maintaining local educational institutions, though otherwise supported the position of the party spokesman. The Liberal member also highlighted this issue, but additionally responded to a later remark by the minister that, although elected in one area, he also operated a legal office in another Danish city where a similar school was not slated for closure. The key difference from the earlier example is the absence of divergence from party positions. Instead, members elected in the affected area raised nuances and local circumstances in support of their parties' stance. It is also notable that not all members from the region contributed, nor did members from other areas where similar schools existed.

Overall, the pattern reflects some similarity with the findings of Viganò (2024) regarding MP behavior after moving from



single-member districts to proportional representation, as well as the findings of Høyland and Søyland (2019) on increased partisanship post-reform. The evidence presented here does not suggest that private member contributions disappeared entirely after the reform, but rather that they declined in frequency and show some indication of shifting towards more supportive statements aligned with party positions.

## 4 | Conclusion

Electoral system reform is a rare event, and rarer still are cases where a suitable control group allows for causal inference regarding its effects. This article has examined the 1918 reform of the Danish electoral system for the lower chamber, using a difference-in-differences design that exploits the unique institutional configuration of Denmark's bicameral parliament. By analyzing both the absolute number of speeches delivered by each MP and their relative speech frequency within an electoral period, we have evaluated whether legislative behavior changed following the reform. Our approach leverages between-chamber variation, with the reformed lower chamber serving as the treatment group and the unreformed upper chamber as a control.

The expectation was that MPs in the lower chamber, facing new incentives under a proportional representation system characterized by stronger party control, would engage in less frequent speech-making. Under the previous single-member district system, MPs had incentives to build personal reputations within their constituencies. The introduction of proportional representation in an electoral system highly dependent on national levels of support and party lists reduced the need for such behavior, as party endorsement rather than local appeal became central to re-election, increasing the control of the central party organization over candidate selection. MPs who did not toe the party line could be denied re-nomination under open lists or given a lower ranking on the list under semi-closed lists, thus leaving them with a much more difficult path for re-election. Running as an independent in a constituency would not allow for election as it was previously possible in the SMD. The empirical results are consistent with this theoretical expectation. The dual approach of using both absolute and relative speech frequencies for dependent variables allows for the increase of size to be rejected as the driving factor for the findings presented given the results are consistent across both measures.

Nonetheless, this study has several limitations. First, it uses a relatively simple measure of parliamentary speech-making, based on counts of speeches rather than their content. While this approach provides useful behavioral data, it does not capture shifts in the nature or tone of parliamentary contributions. Existing studies, such as Høyland and Søyland (2019) and Ishima (2020), have demonstrated the value of using the content of speeches to detect behavioral change. Although this is not currently feasible in the Danish case due to limited availability of digitized speech texts, it represents a promising avenue for future research. Second, while ministers have been excluded from the analysis to preserve comparability, future work could consider the role of designated spokespeople. Although such roles

were not as formally institutionalized during the period studied as they are today, accounting for this variation could enhance the robustness of findings.

This article set out to answer a straightforward question: did electoral reform in Denmark affect legislative speech-making? The evidence presented here supports a clear affirmative answer. Results from both dependent variables confirm that MPs in the lower chamber spoke less frequently following reform, mirroring patterns long observed in the upper chamber. These findings offer further evidence that institutional change affects legislative behavior and contribute to both the broader literature on electoral systems and the historical study of early twentieth-century parliaments.

## Acknowledgments

During the preparation of this work the author used Grammarly and ChatGPT in order to improve language and readability. After using this tool/service, the author(s) reviewed and edited the content as needed and takes full responsibility for the content of the publication.

## Data Availability Statement

The data and replication file is uploaded to the Harvard Dataverse (Harvard Dataverse: <https://doi.org/10.7910/dvn/wfcskv>).

## Endnotes

- <sup>1</sup> There were very few newspapers being distributed nationally, the main news outlet for the vast majority of the population was their local newspaper, and especially for in-depth political coverage.
- <sup>2</sup> The exact implementation details were to be settled in an electoral law. Initially expected to be implemented in 1915, the First World War led to its postponement until the 1918 election.
- <sup>3</sup> While it would be interesting to examine whether the election via open or semi-closed lists matter for speech-making there is too little variation in approaches within the parties to allow for this. However, party dummies are included in the analysis to capture any party-specific variation.
- <sup>4</sup> The members representing the four counties in Northern Schleswig (Haderslev, Tønder, Aabenraa and Sønderborg) were elected as one, where the other Danish counties elected their members separately. These were the first members of Northern Schleswig to serve in the Danish Parliament, as the period 1849 until 1864 where Northern Schleswig was annexed by Germany, saw the counties as part of Duchy of Schleswig-Holstein which did not elect members to the Danish parliament.
- <sup>5</sup> For discussion on the change to unicameralism in Denmark, see Arter (1991) and Skjæveland (2019).
- <sup>6</sup> Liberal Party: *Venstre*. The Social Liberals: *Radikale Venstre*. Right: *Højre*.
- <sup>7</sup> The Industry Party: *Erhvervspartiet* 1918–1924. The Farmer's Party: *Frie Folkeparti* (later *Bondepartiet*) 1934–1939. The Justice Party: *Retsforbundet* (1926–1939). Schleswig Party: *Slesvigsk Parti* 1920–1939.
- <sup>8</sup> A party spokesman had 20 min for the first speech and 5 min for the second at the first reading, while for the second and third readings it was 1 h for the first speech and 30 min for the second. Ordinary members were limited to 10 and 5 min the first reading and 15 and 5 min at the second reading.
- <sup>9</sup> The length of the speech does not impact the speech measurements used here.

- <sup>10</sup> For the purposes of this article we make no distinction between female and male MPs. The first female MPs were elected in 1918, though the number serving in the lower chamber was either three or four until 1939, while it for the upper chamber was between three and at most eight. For a general discussion on electoral systems and legislative behavior of women, see Höhmann (2020).
- <sup>11</sup> The April to June 1920 period has been removed from consideration, its only function was to prepare the Constitutional amendment for the reunification with Northern Schleswig. The June–September 1920 has been merged with the September 1920 to 1924 electoral period to avoid a further period with limited activity. The June to September 1920 had a mean of 1.5 speeches with a maximum of 18, again all relating to the reunification.
- <sup>12</sup> The parliamentary proceedings are also available, but in all cases the way they are presented are through PDF documents that while scanned are not provided in an easily accessible format and makes scraping a somewhat cumbersome endeavor. There are further issues with the quality of scans, that means that any attempt at scraping result in data for which significant processing is required before it can be used. While there are undoubtedly different lessons to be learned by using the actual speeches, this is also a different question to what is examined in this article.
- <sup>13</sup> Often denoted “Moltke-Lystrup” after the estate Lystrup where he resided.
- <sup>14</sup> Often denoted “Moltke-Bregentved” after the estate Bregentved where he resided.
- <sup>15</sup> John Christmas-Møller was leader of the Conservative Party by then, but clearly not one to believe in the specialization of MPs or that leaders should only speak sparingly.
- <sup>16</sup> Ove Rode was a former minister of the interior, an author and a generally highly regarded compromise-seeker who also did not stick to a few topics to voice his views.
- <sup>17</sup> The dataset and replication files can be found on the Harvard Dataverse: (link removed for anonymous peer review).
- <sup>18</sup> The results are similar if instead of using the natural logarithm the raw count is used instead estimated in a negative binomial regression. This can be found in the online appendix.

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## Supporting Information

Additional supporting information can be found online in the Supporting Information section. **Appendix S1:** lsg70056-sup-0001-AppendixS1.docx.