

**Decoding Discourse:**  
**Gender Dynamics in German Bundestag Debates**  
**(1949-2021)**

Teresa Hailer<sup>a</sup>

---

**Abstract:** The study aims to examine the behaviour towards women in parliamentary debate, inspired by anecdotal evidence suggesting unjust treatment of female politicians in plenary discussions. The research focuses on whether a politician's gender influences both positive and negative reactions, proxied through applause and heckles. The analysis encompasses the complete set of speeches in the German Bundestag from its establishment in 1949 to the conclusion of the last legislative period in 2021. Using regression analysis, the study explores the gender effect on interruptions. The results suggest that being a women increases the amount of positive reactions given to a speech, while it has no effect on negative ones. This finding contrasts with the initial idea of the paper and implies that women are not prevented from stating their opinion in plenary debates.

**Keywords:** Political economy, women's representation, parliamentary discourse, German politics .

**JEL classification:** J16, P35, P37, H11 .

---

<sup>a</sup>Heidelberg University, Bergheimer Straße 58, 69115 Heidelberg. Email: [teresa.hailer@awi.uni-heidelberg.de](mailto:teresa.hailer@awi.uni-heidelberg.de).

# I Introduction

In the German parliament, the left-party politician Jan van Aken accused his opponent Martin Lindner from the liberals of performing sexist behaviour as the latter allegedly interrupts relatively more female politicians' speeches than speeches by their male colleagues (Korge 2012). Furthermore, several female politicians such as Claudia Roth, Anne Spiegel and Anja Schulz complained about inappropriate heckles in parliamentary speeches, which are considered sexist (DIE ZEIT 2022). Even though interruption is a standard instrument in parliamentary debates, male politicians are being accused of tending to interrupt relatively more women than men on the floor. Plenary debates are not simple speeches where politicians state their opinion about specific topics and colleagues might ask questions. Instead, they are characterised by a culture of discussion where interruptions determine the debate: Opponents pose difficult questions or shout out disrupting comments while companions support through applause or confirming remarks. When going through the complaints, the question of whether gender affects response in parliamentary debates arises. This question is tried to be answered in the following analysis.

The role of women in politics fills a large branch of literature in political economy. Some researchers analyse the effect of female representation in parliaments and the influence on outcomes in terms of legislative decisions. Other scholars examine the behaviour toward women in politics. As the field of politics is historically male-dominated, the treatment of female politicians might differ from that of their male colleagues. In the past, women often complained about sexist comments and experienced misogynist behaviour (Burkhardt 1992; Stopfner 2018). As parliamentary debates follow a strict structure, interjections are the only spontaneous kind of interaction. They display the audience's reaction to a speech, which can be either positive or negative. Interruptions are analysed as a rhetorical instrument in parliamentary debates, in general, while some scholars examine them through a gender lens. Both the quantity and the quality of disruption to speeches held by female politicians are studied, and scholars come to different results, stating that women either get heckled more or less or make more or fewer interruptions than their male counterparts. Even though studies in the field increase, so far, there has not been a quantitative analysis of several sittings of plenary debates analysing interruptions on a gender basis. This research idea gains importance as interruptions could prevent female politicians from stating their opinions properly and, further, from implementing their objectives.

The paper aims to examine behaviour towards women in parliamentary debates, which is proxied through interruptions as a form of response. The analysis scrutinizes debates in the German parliament, looking at a complete set of speeches since the formation of the Bundestag in 1949 until the last completed legislative period ended in 2021. The data on plenary debates derives from protocols of the parliament, the so-called Bundestag, which document not only all speeches, but also their interruptions (Deutscher Bundestag 2022f). Two kinds of interjection are taken into consideration: Supportive reactions are measured through applause, and disruptive ones are proxied through heckles.

In a first step, interruption patterns across gender are compared by examining descriptive statistics. Due to their low explanatory power, a regression analysis is performed to estimate the effect of gender on interjections. Several tests for heterogeneity and robustness

are conducted to complete the empirical analysis.

The analysis of descriptive statistics suggests that speeches held by female politicians receive more applause, with no discernible difference in the occurrence of heckling when compared to speeches by their male counterparts. The following regression analysis estimates a small positive effect of gender on supportive behaviour. When testing the effect on negative responses, no significant effect is estimated, indicating that men and women receive the same amount of heckles. These results stand in contrast to the initial idea of the paper and furthermore also to the anecdotal evidence of complaints and accusations described above. This effect could be, among other reasons, due to a change in behaviour towards sexism or due to a higher aversion towards sexist practices.

The paper starts with a review of the existing literature, followed by a description of the institutional background. The next chapter describes the methodology and data used for the analysis. In the following part, the results of the empirical study are shown, including tests for heterogeneity and robustness. The paper finishes with a conclusion.

## II Literature review

In the literature, an often-discussed topic in political economy regarding gender is the lower representation of women in politics. The German Bundestag is not an exception, with a proportion of about one-third of female politicians in the latest legislative period (Deutscher Bundestag 2022e). However, many scholars have shown that the representation of females in parliament has a positive effect on political outcomes: Female politicians tend to commit themselves more to the needs of women (Celis 2009; Schwindt-Bayer 2006; Taylor-Robinson and Heath 2003). Furthermore, the participation of women in politics sets a focus on parenting as well as children's well-being, primarily through education (Clots-Figueras 2012; Kittilson 2008; Svaleryd 2009). Other researchers show that the representation of female politicians leads to an increase in health care spending, improving especially women's health (Chen 2013; Cunial 2021; Mavisakalyan 2014). Examining women's behaviour in the legislature, it seems likely that they tend to focus on different topics than their male colleagues.

The question in the next step is what happens to women once they enter politics. As politics is a historically male-dominated space, the treatment of female politicians might differ from that of their male colleagues. In the past, women complained about sexist comments and even misogynist behaviour in parliaments (Burkhardt 1992; Stopfner 2018). A large branch of the literature scrutinises the representation of women in parliamentary debates and comes to differing results: In the Swedish Riksdag, relatively fewer speeches are held by female politicians (Bäck, Debus, and Müller 2014). The same outcome has been withdrawn from an analysis of parliamentary debates in the United States (Kathlene 1994; Mattei 1998) as well as in Greece (Bou-Franch 2016) and in the British House of Commons (Catalano 2009). Research in the Ecuadorian parliament shows that women not only hold fewer speeches but also that their speeches are shorter on average (Vallejo Vera and Gómez Vidal 2020).

In contrast to these results, analyses in other countries find that there is no difference in the participation in parliaments between men and women. This holds for Aus-

tralia (Broughton and Palmieri 1999), France (Murray 2010) and Uganda (Wang 2014). Apart from speaking time, some scholars analysed the topics being discussed by men and women. Female politicians show less engagement in stereotypically seen as masculine topics, such as finance or defence, which leads to a lower representation of women in these debates (Bäck and Debus 2019; Bäck and Debus 2016).

An essential concept in explaining these differences is social role theory. According to this theory, men and women are assigned particular societal roles: Women are seen as care-taking and more communal, while men are more agentic and assertive. These roles inhabit an image of how men and women ought to be, which does not imply that they indeed are like that. The assigned roles have an influence on communication and can explain the difference in topics that each gender focuses on. Furthermore, social role theory can also account for the lower representation of female politicians in debates as women are seen to have less authority and have a lower will to be represented in discussions (Brescoll 2011; Eagly and Steffen 1984). Whether or not this concept holds and women have an intrinsic need to be less represented, it might still be the case that female politicians feel obligated to fulfill an assigned role. This idea is described by role congruity theory. There is a perceived dichotomy between the female gender role, as being more care-taking, and the leadership role, portrayed by authority and prominence. This discrepancy influences communication as women fear a backlash when acting against their assigned position (Eagly and Karau 2002; Rudman et al. 2012).

A difference in the treatment of female and male politicians cannot only be seen in their representation in parliamentary debates, but also in the reaction to their speeches. An essential instrument in parliamentary discourse is interruptions which are “one example of informal disorderly parliamentary behaviour” (Stopfner 2018, p. 620). Interruptions occur when a member of parliament (MP) reacts to a speech and comments on it without permission to speak by the president of the parliament. Interruptions are neither allowed nor forbidden and determine a form of interaction between the speaker and their audience (Burkhardt 2004). Interjections are often spontaneous reactions to the speech being held, and they frequently occur with an average of every 1 to 1.5 minutes in a speech (Kipke 1995).

According to Kipke (1995), different types of interruptions reacting to a speech can occur: One possibility is to differentiate between political and apolitical reactions. Political reactions refer to the topic being discussed by the speaker and respond to the content of the speech. Apolitical comments are not constructive and often refer to personal traits of the speaker, such as their appearance or other characteristics unrelated to the topic. Another form of differentiation is to divide between supportive and disruptive interruptions. Supportive ones can be in the form of applause and constructive comments. They are often expressed by the speaker’s colleagues and help to support them. In contrast to that, disruptive comments can be laughter or destructive questions. The aim is to confuse the speaker and weaken their self-representation. Interjections can be seen as a demonstration of power where the speaker’s authority is challenged. Heckling can therefore account for a violation of the speaker’s strength in parliament (Ilie 2013; Shaw 2000). While difficult questions might add substance to the debate, heckles can also be inappropriate, especially when they are apolitical, as described above. Some comments are discriminatory and result in fear of giving speeches for politicians (Grisdale 2001).

Interactions and heckling have been analysed in different contexts. Part of the scholarly research focuses on the influence of parties for interruptions. In Germany, the entry of the right-wing party gave rise to new research on heckling. Scholars analysed the change in interruption culture in the German parliament (Brunner et al. 2019) as well as several federal parliaments (Lewandowsky et al. 2020; Vögele and Thoms 2019).

Focussing on the influence of gender on heckling, researchers followed different approaches. Some set a focus on the person who interrupts and come to the result that men tend to interrupt relatively more (Edelsky and Adams 1990; van Eecke and Fernández 2016; Shaw 2000). Following this approach, scholars analyse the different constellations of speaker and interrupter. Mixed results can be seen as some findings suggest that men seem to interrupt relatively more women than they interrupt other men (van Eecke and Fernández 2016) while others find that politicians interrupt fellow politicians more often if they belong to the same gender (Stopfner 2015).

Apart from the quantity of heckles, the content of comments is also scrutinised. Women receive more sexist comments and heckles compared to men in a study analysing debates in Australia, Canada and the United Kingdom (Collier and Raney 2018). Likewise in Austria, the quality of heckles differs by gender, and female MPs get more discriminatory heckles (Stopfner 2018).

The quantity and quality of heckles have also been analysed in the German context. Prominent research by Burkhardt (1992) studies interruptions in parliamentary debates on a gender basis, comparing protocols of the German National Assembly in 1919 to ones of the Parliament of Bonn in 1983/84. He concludes that female politicians are interrupted relatively more than their male colleagues in both periods. Further, interruptions decreased as female MPs received fewer comments in the later period.

More recent research by Och (2020) analyses the difference in interruptions by gender by investigating the protocol of one sitting of the 17th legislative period. Och finds that interruptions by men are neither systemic nor do they hold women back from stating their opinion.

### III Institutional background

The German parliament is the legislative body of the country. It is directly determined by the citizens through an election every four years.

Members of the parliament usually belong to a party and build a fraction together with their party fellows. Furthermore, several groups exist within the Bundestag, such as committees for particular topics or working groups. The coordination of the parliament belongs to the eldest council (Ältestenrat), which consists of the president and vice-presidents of the parliament, members of each fraction according to the proportion of the fraction and a member of the government (Deutscher Bundestag 2022e).

The eldest council manages the business of the parliament. The Bundestag has twenty weekly sittings per year, consisting of different meetings. The first days of a sitting week belong to the different fractions and committees. On Wednesdays, the government examination takes place, and on Thursdays and, eventually, Fridays debates in plenary are planned (Deutscher Bundestag 2022c).

Consecutive plenary debates characterize the way of working in the parliament which vary in their type: There are discussions about bills, statements by the government or so-called current hours (Aktuelle Stunde) which concern the latest occurrences (Linn and Sobolewski 2010).

While the types and topics might differ, debate coordination and structure persist. The agenda for each sitting and the time are previously determined by the eldest council, which informs the MPs as well as the government (Deutscher Bundestag 2022e). The agenda for a sitting consists of several items, most of them being debates of the different types described above. Each fraction is allowed to speak in plenary about each agenda item. The eldest council sets the time for each item, and the speaking time for a fraction is assigned through a key, the so-called Berlin Hour. The duration is determined according to the proportion of MPs in each fraction. For most debates, the duration is given in minutes per debate, while in current hours, the number of speakers is specified (Deutscher Bundestag 2022f). Even though the time of speaking is defined for each fraction, it is up to the party to decide on the speakers. The fraction must divide the speaking time between its speakers and has to inform the president before the debate starts. This implies that plenary discussions are very structured and do not leave much room for spontaneity. A critical position in governing this structure is the parliament’s president. They have the right to regulate the discussion by stopping speakers when they extend their speaking time or calling MPs to order when they violate the rules (Linn and Sobolewski 2010).

As processes in the parliament are pretty structured, interruptions win importance. They are the only instrument which can be used spontaneously and, as described in the literature review, are a critical rhetorical tool for discussions.

For the following analysis, the complete set of speeches from the parliament’s formation in 1949 to the end of the last completed period in 2021 is taken into account. The 19 legislative periods contain 229,278 speeches held by 3,763 distinct politicians. While the first parliament had 402 seats, the size increased over time with the last parliament having 709 seats (Deutscher Bundestag 2017).

Over the course of the Bundestag’s elections, there were 28 different parties represented in the Bundestag. While some of them persisted over time, others dissolved or merged with similar ones (Deutscher Bundestag 2022e).

## IV Methodology and data

### A Methodology

This paper tries to answer the research question of whether gender has an effect on response in parliamentary debates. There are different types of reactions to a speech, such as applause, laughter, cheerfulness, heckles or interposed questions. Applause and heckles are appropriate response measures as both occur quite often, while others, such as laughter, are fairly rare and more difficult to distinguish from other reactions.

The research question of whether gender has an effect on interruptions is divided into two single hypotheses as two types of reactions are considered. Firstly, the difference in positive responses is examined. Such reactions can be seen as supportive behaviour aiming

to encourage colleagues, which is mostly demonstrated by giving applause to a speech. Secondly, heckles are taken into the analysis. These are comments to a speech and depict disruptive interjections considered being negative. The amount of applause and heckles is summed up for every speech and, consequently, builds a count variable depicting the amount of disruptions per speech. To identify the effect, speeches by female politicians are compared to those of male politicians.

This effect is analysed in two steps. A first analysis looks at descriptive statistics. The averages of the two reactions, applause and heckles, are compared to see whether there is a difference in the mean amount of reaction per speech. Even though this analysis can deliver a first glimpse, its explanatory power is quite low due to several factors which have an influence on both gender and reaction. Aspects such as party affiliation, seniority or the topic of a speech might determine the speaker and the reaction to the speech.

To overcome this problem and increase the explanatory power, the effect is estimated in a linear regression. In the case of interruptions in parliamentary debates, gender is seen as a treatment which divides MPs into two types where female politicians are the treated ( $d_i = 1$ ) and male politicians the control group ( $d_i = 0$ ) following Hill, Griffiths, and Lim (2018).

The potential outcome can be written as

$$interjection_i^t = \begin{cases} interjection_{1i}^t & \text{if } d_i = 1 \\ interjection_{0i}^t & \text{if } d_i = 0 \end{cases} \quad (1)$$

where the outcome variable *interjection* is a count variable depicting the amount of interruptions per speech for each individual  $i$ . The following analysis scrutinizes two different types of interruptions, applause and heckles, which are depicted by the type  $t$  of interjections.

The analysis aims to find the difference in response due to gender which is described as the average treatment effect (ATE). It shows the expected value of the difference in response and can be written as

$$\tau_{ATE} = E(interjection_{1i}^t - interjection_{0i}^t) \quad (2)$$

Summarizing the empirical strategy, the model being estimated is:

$$interjection_i^t = \beta_0 + \beta_1 gender_i + u_i^t, \quad (3)$$

where  $\beta_1$  depicts the effect of gender and  $u_i^t$  the error term.

The effect is estimated by implementing the Ordinary Least Squares (OLS) estimator along with controlling for several variables following Wooldridge (2020). This leads to the final equation, which is estimated:

$$interjection_i^t = \beta_0 + \beta_1 gender_i + \beta_2 X_i + u_i^t \quad (4)$$

with  $X_i$  depicting the control variables.

## B Data

The data for the dependent variables, applause and heckles, derives from protocols of plenary sessions which document every sitting. The reports are openly accessible and available the following working day after a session (Deutscher Bundestag 2022f). While all protocols are available through the parliament's website, this paper made use of a corpus that synchronized all protocols over the last 70 years (Blaette 2017). To generate a protocol, a group of sixteen keepers of minutes works together on one session. Two of them document simultaneously while the next ones take over after five minutes. They do not only log all speeches together with the speaker's party affiliation and role but also try to document all interruptions. The documentation varies as sometimes rather general remarks such as applause or laughter are made. If the keepers of minutes can detect the interruption's origin, they also note down the precise person and the specific words of the interjection (Deutscher Bundestag 2022d; Schmid 2010).

Even though the level of detailedness may vary, the documentation of interruptions follows a clear and uniform structure trying to record all comments. However, they might still miss some interjections, and the protocols are not a complete transcript of the debate. Still, they are an appropriate tool for investigating the discussion. The complete documentation of parliamentary debates contains 229,278 speeches.

Regarding the dependent variable, the number of interruptions of a certain type is taken. The protocols denote interruptions with a new paragraph and state the exact type of interjection. Hence, the amount can be accumulated, which results in a count variable showing the number of interruptions. In a first step, supportive behaviour is analysed, which is proxied through the variable *applause*. In the next step, *heckles* are taken into the analysis depicting disruptive behaviour.

To investigate the effect of female politicians opposed to male politicians, *gender* is the main variable of interest. It is a dummy variable indicating whether a politician is female ( $d_i = 1$ ) or male ( $d_i = 0$ ). The data for gender as well as other personal characteristics, derives from a dataset by Frank and Stadelmann (2022).

Several control variables are added to the regression to investigate the effect of gender on interruptions. As some politicians might inhabit a particular position in the parliament or their party, their role is taken as a control. Roles are divided into two groups: *top office* and *government*. Both are dummy variables showing whether a politician inhabits one of the roles.

The variable *top office* applies to those MPs who inhabit a parliamentary party's chair or vice-chair. Further, each party's whip (parlamentarischer Geschäftsführer) is considered a top office role. Politicians who work in top office roles are generally more known by other MPs which might have an influence on responses to their speeches. Especially inappropriate heckles which refer to personal characteristics might occur more often as others know more about these persons. Furthermore, politicians with a higher position have been shown to interrupt others more, which leads to the idea that their behaviour in receiving heckles might also differ (Vögele and Thoms 2019).

The second variable of role applies to politicians in the government. Parliamentary debates can generally be seen as discussions between government and opposition. The opposing parties attack the governing ones and interrupt them relatively more by inhab-



iting a more aggressive behaviour. The aim is to vote out the government, especially when new elections are about to come. This leads to more heckles received by politicians in the government (Maurer and Jost 2020; Truan 2017; Vögele and Thoms 2019). Roles in the government are chancellor and cabinet ministers as well as junior ministers (parlamentarischer Staatssekretär).

Further control for the regression is the type of *mandate* an MP holds. The German election system relies on personalized proportional representation. Candidates can be elected directly through their constituencies or indirectly through a party list. The mandates received through both ways are equal in political power, and each should hand out 299 mandates. An exception to this rule is excess mandates (Überhangmandate) which are additional seats when a party wins more direct mandates than they should according to the proportion of their list mandates (Deutscher Bundestag 2022f). The last Bundestag, for example, was constituted through 299 direct mandates and 410 list mandates (Deutscher Bundestag 2021).

Even though the political power is the same for both types of mandate, they might be obtained by different types of politicians. MPs elected through a direct mandate act in the interest of their constituency (Deutscher Bundestag 2022b). Therefore, they might stand up for their voters' needs but do not represent a controversial position in general debates.

While direct mandates depend on the popularity of the voters, list mandates are conditional on popularity among party members. Each political party decides the order of the list, which implies that a higher list position goes to a more popular candidate, likely to win the mandate. The better a politician is, the higher they are on the party list (Schmid 2022). MPs elected through list mandates might therefore be more known among all politicians. They are likely to be more popular within their party and receive more support, while they are less popular among other parties and therefore might be interrupted more.

The type of mandate is depicted by a dummy variable which is 1 for direct mandates and 0 for list mandates. Again, the numbers derive from the dataset on personal characteristics (Frank and Stadelmann 2022).

A further control for personal characteristics is the variable *age*. For the analysis, the age at the beginning of the examination period is taken for every politician. The continuous variable derives from the same dataset (Frank and Stadelmann 2022). In general, age is seen as an indicator of competence and professionalism of politicians (Bailer 2013; Mackenrodt 2008; Saalfeld 1997). Hence, it is crucial to control for as this could influence the type of responses a politician receives.

While age controls perceived competence, it does not account for a politician's experience in parliament. Therefore, *seniority* is taken as a further control. The variable counts how many previous periods a politician served in the Bundestag. The data on prior periods derives from a database by Joly (2022). Patterns of interruption might differ for senior politicians due to different factors: As they served longer, they might experience more solidarity with their colleagues (Mayntz and Neidhardt 1989). Further, they may be seen as more competent and professional, similar to the case of age (Saalfeld 1997). Lastly, it could also be that politicians with greater experience improved their rhetorical skills and are therefore better in giving speeches.

As noted above in the explanation of protocols, depending on the size of a fraction, the duration of speeches or the number of speakers is set for each party. Hence, it could be the case that more than one speaker has the chance to speak. The party decides the order of speakers (Deutscher Bundestag 2022a; Linn and Sobolewski 2010). An option could be to choose a strong speaker for the first position. This person then might receive more interruptions than the next ones as they are rhetorically stronger, and it is the first time that someone from this party takes the word. Therefore, it is controlled for *first speaker* by using a dummy variable which is 1 if the politician is the first one to give a speech for their party and 0 if a colleague already made their point on the same agenda item.

Another control for personal characteristics is the *party affiliation* of a politician. The chances of being interrupted can be determined by statements that a single MP makes but also by the fact that they belong to a particular political party. As discussed before, parliamentary debates are a form of discussion between government and opposition. Therefore, it matters whether a politician belongs to one party or the other. As party affiliation influences the chances of both giving and receiving heckles, it is essential to control for it (Brunner et al. 2019; Lewandowsky et al. 2020; Vögele and Thoms 2019). The politicians' parties are noted in the protocols which document the sitting (Deutscher Bundestag 2022f).

Another factor which could influence the response to a speech is the level of rhetorical skills a politician has. A good speaker receives more applause for their speech, while a speaker with poor skills might be heckled more (Heritage and Greatbatch 1986). As a proxy for rhetorical skills, the *occupation* of MPs is considered. The field a person works in can determine their mastery of communicating and discussing (Grieswelle 2000; Klein 2019). The dataset for this variable contains the occupations or previous occupations of all MPs (July 2022). They are divided into fields, and five of them are taken as control variables into the regression: law, education, economics, crafts and agriculture. While politicians who work in one of the first three fields might enjoy better rhetorical skills as they are used to talking and giving speeches, the two latter groups are less active and therefore could have poorer skills.

When investigating the responses to a speech, an important influence is the *topic*. The agenda consists of different items which vary in their subject. Some of them draw more attention because important issues are discussed, or a large part of the parliament is involved. Others draw less attention as politicians specialise in certain topics and have more expertise here than in other fields (Roll 1982). Therefore, a variation in attendance can be seen as politicians do not have the duty to attend all sittings and might prefer focussing on other work in their committees or working groups (Schönberger 2016). Another reason why the topic of a speech is important is that some agenda items are more controversial than others and therefore receive more heckles or applause.

Thus, the topic of a speech makes a critical control. The topics derive from the agenda items and are sorted into fields. As it could be that a topic refers to more than one committee, agenda items can belong to one or more of the following topics: construction, culture, sport and tourism, defence policy, development policy, domestic politics, economics and energy, education and technology, environmental issues, Europe, finance, health, household, international relations, labour and social issues, legal affairs, nutrition and agriculture, parliamentary issues, social groups and transportation.

Further, the *year* of the sitting might also have an influence. Heckling is a tool which is especially used by opposing parties and even more when elections come closer (Maurer and Jost 2020). Hence, fixed effects for the year are added to the estimation. Lastly, also *agenda item fixed effects* are included in the regression.

## V Results and discussion

In total, 229,278 single speeches are analysed, with 47,939 of them given by female speakers and 181,339 by male ones. To give a first glimpse of the dataset, table 1 shows descriptive statistics for all speeches in the corpus:

**Table 1:** Descriptive statistics

	Observations	Mean	Stand. Deviation	Median
Applause	185,766	4.493	5.013	3.0
Women	42,322	4.869	4.112	4.0
Men	143,444	4.383	5.244	3.0
Heckles	157,891	3.488	4.088	2.0
Women	34,723	3.268	2.919	2.0
Men	123,168	3.550	4.359	2.0

The average amount of applause for speeches given by female politicians is slightly higher than for those provided by male politicians. When inspecting negative reactions, women are heckled slightly less than men in parliamentary speeches. Both results are contrary to the initial hypotheses, which implied that women receive less positive and more negative reactions.

The comparison of average reactions confirms the initial idea that gender has an effect on response. While this can give a first glimpse, it is not too meaningful. As described in the previous chapter, there might be other variables which influence the reactions to a speech and, which need to be considered when examining the effect of gender.

### A Regression results

Therefore, a regression analysis is performed to extract the ATE by estimating equation (4). Primarily, the first hypothesis is tested by estimating the effect of gender on applause:

$$applause_i = \beta_0 + \beta_1 gender_i + \beta_2 X_i + u_i, \quad (5)$$

where  $\beta_1$  estimates the effect of gender and  $X_i$  is a set of control variables. The results are displayed in table 2.

**Table 2:** Regression results for applause

	<i>Dependent variable:</i>								
	Applause								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Gender	0.832*** (0.025)	0.797*** (0.025)	0.849*** (0.025)	0.671*** (0.025)	0.644*** (0.025)	0.638*** (0.026)	0.595*** (0.026)	0.266*** (0.026)	0.130** (0.052)
Top office		0.658*** (0.024)	0.481*** (0.024)	0.497*** (0.024)	0.703*** (0.031)	0.706*** (0.031)	0.720*** (0.031)	1.086*** (0.032)	0.797*** (0.057)
Government		-0.683*** (0.027)	-1.039*** (0.028)	-0.888*** (0.028)	-0.005 (0.093)	0.018 (0.093)	-0.019 (0.093)	0.349*** (0.093)	0.139 (0.163)
Mandate		0.134*** (0.021)	0.026 (0.021)	0.089*** (0.021)	0.053** (0.026)	0.059** (0.026)	0.048* (0.026)	0.184*** (0.028)	0.107** (0.052)
Age			0.000 (0.001)	-0.002* (0.001)	-0.001 (0.001)	0.002* (0.001)	0.003** (0.001)	0.005*** (0.001)	0.006** (0.002)
Seniority			0.267*** (0.007)	0.275*** (0.007)	0.225*** (0.008)	0.219*** (0.008)	0.202*** (0.008)	0.111*** (0.009)	0.008 (0.020)
First speaker				1.365*** (0.020)	1.411*** (0.022)	1.399*** (0.022)	1.387*** (0.022)	1.570*** (0.028)	1.794*** (0.044)
Party FE	No	No	No	No	Yes	Yes	Yes	Yes	Yes
Occupation controls	No	No	No	No	No	Yes	Yes	Yes	Yes
Topic controls	No	No	No	No	No	No	Yes	Yes	Yes
Time controls	No	No	No	No	No	No	No	Yes	No
Agenda item FE	No	No	No	No	No	No	No	No	Yes
Observations	229,278	229,278	229,278	229,278	229,278	229,278	229,278	229,278	229,278
R <sup>2</sup>	0.00	0.01	0.02	0.04	0.06	0.06	0.06	0.11	0.59
Adjusted R <sup>2</sup>	0.00	0.01	0.02	0.04	0.06	0.06	0.06	0.11	0.22

*Note:* The unit of observation is one speech in a parliamentary debate in the German Bundestag. The dependent variable is the amount of applause in a speech. FE are fixed effects. Heteroskedastic-robust standard errors are denoted in parentheses. \*p<0.1; \*\*p<0.05; \*\*\*p<0.01

The table shows that the effect of gender on applause varies between 0.849 and 0.130. Estimation (1) displays the effect without including any controls. The effect is positive and highly significant. By including more control variables, the effect becomes smaller but remains significant. Hence, being female leads to more applause given to a speech. It is important to note here that even though applause is an adequate measure of supportive behaviour, it might not be too meaningful. Approximately 86 % of the speeches receive at least one applause as speakers can be sure to receive support from their own party. Those speeches which do not receive applause at all are mostly examinations of government (Befragung der Bundesregierung) which are less controversial. Regarding the effects of control variables in column (9), a higher position within a fraction has a significant positive effect on applause. While a direct mandate has a small positive effect, the effect of age and seniority is very small and in the latter case insignificant. Whether a speaker is the first one to talk on an agenda item also has a significant positive effect.

In the next step, the effect of gender on negative responses is estimated by implementing the following regression:

$$heckle_i = \beta_0 + \beta_1 gender_i + \beta_2 X_i + u_i, \quad (6)$$

where  $\beta_1$  estimates the effect of gender on heckles and  $X_i$  is a set of control variables. The results are shown in table 3. The estimated effect of gender on heckles varies between -0.087 and -0.015. Estimation (1) shows that a significant negative effect can be seen when only estimating the effect of gender without including controls. The effect does not only

decrease by including more control variables but it also becomes insignificant. Implying that the female gender has no effect on heckles. Furthermore, it is important to notice that the effect remains quite small. Concerning the influence of control variables, holding a high position within a fraction, having a direct mandate or being the first speaker increase the amount of heckles significantly.

**Table 3:** Regression results for heckles

	<i>Dependent variable:</i>								
	Heckles								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Gender	-0.044** (0.019)	-0.030 (0.020)	-0.015 (0.020)	-0.073*** (0.020)	0.087*** (0.018)	0.070*** (0.019)	0.067*** (0.019)	0.044** (0.019)	-0.038 (0.038)
Top office		0.577*** (0.018)	0.534*** (0.019)	0.540*** (0.019)	0.646*** (0.025)	0.646*** (0.025)	0.647*** (0.025)	0.610*** (0.025)	0.365*** (0.044)
Government		-0.363*** (0.021)	-0.433*** (0.022)	-0.384*** (0.022)	0.252*** (0.068)	0.253*** (0.068)	0.238*** (0.068)	0.276*** (0.069)	0.005 (0.122)
Mandate		0.244*** (0.016)	0.220*** (0.016)	0.241*** (0.016)	0.123*** (0.020)	0.128*** (0.020)	0.125*** (0.020)	0.092*** (0.021)	0.038 (0.041)
Age			0.010*** (0.001)	0.009*** (0.001)	0.009*** (0.001)	0.010*** (0.001)	0.010*** (0.001)	0.005*** (0.001)	0.005** (0.002)
Seniority			0.038*** (0.005)	0.040*** (0.005)	0.028*** (0.007)	0.027*** (0.007)	0.021*** (0.007)	0.075*** (0.006)	0.016 (0.014)
First speaker				0.444*** (0.016)	0.532*** (0.017)	0.528*** (0.017)	0.533*** (0.017)	0.734*** (0.021)	1.062*** (0.033)
Party FE	No	No	No	No	Yes	Yes	Yes	Yes	Yes
Occupation controls	No	No	No	No	No	Yes	Yes	Yes	Yes
Topic controls	No	No	No	No	No	No	Yes	Yes	Yes
Time controls	No	No	No	No	No	No	No	Yes	No
Agenda item FE	No	No	No	No	No	No	No	No	Yes
Observations	229,278	229,278	229,278	229,278	229,278	229,278	229,278	229,278	229,278
R <sup>2</sup>	0.00	0.01	0.01	0.01	0.02	0.03	0.03	0.06	0.53
Adjusted R <sup>2</sup>	0.00	0.01	0.01	0.01	0.02	0.02	0.03	0.05	0.09

*Note:* The unit of observation is one speech in a parliamentary debate in the German Bundestag. The dependent variable is the amount of heckles in a speech. FE are fixed effects. Heteroskedastic-robust standard errors are denoted in parentheses. \*p<0.1; \*\*p<0.05; \*\*\*p<0.01

That the estimated effect of gender on opposing reactions is negative and insignificant stands in contrast to the initial idea that female speakers receive more disruptive interjections. This result is inconsistent with the anecdotal evidence from experiences by female politicians or accusations against male politicians. One reason could be that it has become less acceptable to discriminate against women by interrupting them more, which is shown by accusing certain politicians of sexist behaviour.

## B Heterogeneity tests

Further regressions are performed to determine the effect's origin and influences. The analysis for heterogeneity is divided into two parts: First, the effect is estimated in subsamples and then it is evaluated by adding interaction terms to the main regression.

The first subsamples where the ATE is estimated concern the topic under discussion. Even though topic controls are inserted in both (5) and (6), interruption patterns might change in debates about certain topics. Therefore, the same regressions are performed in each of the 19 thematic fields.

**Table 4:** Regression results for applause for thematic subsamples

		<i>Dependent variable:</i>				
		Applause				
	(1)	(2)	(3)	(4)	(5)	
	Construction	Culture, sport and tourism	Defense policy	Development policy	Domestic politics	
Gender	0.500* (0.271)	0.510 (0.639)	0.170 (0.260)	0.310 (0.437)	0.553 (0.425)	
Observations	5,921	6,018	1,918	2,276	16,910	
	Economics and energy	Education and technology	Environmental issues	Europe	Finance	
Gender	0.394** (0.178)	0.405 (0.279)	0.491* (0.278)	0.349 (0.291)	0.392 (0.346)	
Observations	5,375	4,999	5,571	4,799	4,762	
	Health	Household	International relations	Labour and social issues	Legal affairs	
Gender	0.671** (0.262)	0.495*** (0.177)	0.562 (0.849)	0.502*** (0.164)	0.274*** (0.099)	
Observations	18,233	752	12,681	49,375	4,731	
	Nutrition and agriculture	Parliamentary issues	Social groups	Transportation		
Gender	0.685** (0.325)	0.272** (0.129)	0.556*** (0.214)	0.491 (0.381)		
Observations	4,731	18,993	5,595	4,146		

*Note:* The unit of observation is one speech in a parliamentary debate in the German Bundestag. The dependent variable is the amount of applause in a speech. The regression is performed for subsamples of each thematic field. The regression is performed including all control variables and fixed effects. Heteroskedastic-robust standard errors are denoted in parentheses. \*p<0.1; \*\*p<0.05; \*\*\*p<0.01

In half of the fields, no significant effect is estimated for applause. In the topics on construction, economics and energy, environmental issues, health, household, labour and social issues, legal affairs, nutrition and agriculture, parliamentary issues and social groups a positive effect is estimated following the result of the main regression. The results for the regression performed on thematic subsamples are displayed in table 4.

**Table 5:** Regression results for heckles for thematic subsamples

		<i>Dependent variable:</i>				
		Heckles				
	(1)	(2)	(3)	(4)	(5)	
	Construction	Culture, sport and tourism	Defense policy	Development policy	Domestic politics	
Gender	0.085 (0.199)	0.366 (0.431)	-0.015 (0.198)	0.019 (0.315)	-0.006 (0.289)	
Observations	5,921	1,612	6,018	1,918	2,276	
	Economics and energy	Education and technology	Environmental issues	Europe	Finance	
Gender	0.229 (0.140)	0.026 (0.182)	0.089 (0.197)	-0.186 (0.216)	0.071 (0.265)	
Observations	16,910	5,375	4,999	5,571	4,799	
	Health	Household	International relations	Labour and social issues	Legal affairs	
Gender	0.169 (0.187)	0.159 (0.133)	-0.047 (0.556)	-0.022 (0.129)	-0.032 (0.083)	
Observations	4,762	18,233	752	12,681	49,375	
	Nutrition and agriculture	Parliamentary issues	Social groups	Transportation		
Gender	0.314 (0.276)	-0.078 (0.108)	0.063 (0.153)	0.141 (0.276)		
Observations	4,731	18,993	5,595	4,146		

*Note:* The unit of observation is one speech in a parliamentary debate in the German Bundestag. The dependent variable is the amount of heckles in a speech. The regression is performed for subsamples of each thematic field. The regression is performed including all control variables and fixed effects. Heteroskedastic-robust standard errors are denoted in parentheses. \*p<0.1; \*\*p<0.05; \*\*\*p<0.01

When implementing the regression for heckles on all thematic subsamples, it can be seen that in none of the topics, female speakers receive significantly more or less heckles than men, supporting the results shown in table 3. The estimated effects for heckles are shown in table 5.

Apart from the effect of topics, it could also be the case that interruption patterns differ for certain parliamentary groups. Therefore, it is interesting to test for the effect of gender on reactions in all parliamentary fractions separately. Over the 70 years since the parliament's formation, there have been many parties which are merged in this estimation according to their political positioning. This leads to several parliamentary groups: Christian, green, left, liberal, right, social and non-attached. Table 6 shows the regression results for applause for the party subsamples. When estimating (5), a positive effect can be seen for Christian, left, liberal and right parties. A negative effect is estimated for female politicians from social parties and no effect for those in green parties or those who are not attached to any fraction.

**Table 6:** Regression results for applause for party subsamples

	<i>Dependent variable:</i>						
	Applause						
	Christian (1)	Green (2)	Left (3)	Liberal (4)	Right (5)	Social (6)	Non-attached (7)
Gender	0.584*** (0.095)	-0.117 (0.191)	0.458* (0.263)	0.437*** (0.137)	0.273*** (0.085)	-0.186** (0.077)	0.964 (1.769)
Occupation controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Topic controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Agenda item FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	63.753	20.587	15.887	31.136	42.929	67.828	1.220
R <sup>2</sup>	0.45	0.75	0.83	0.67	0.62	0.49	0.91
Adjusted R <sup>2</sup>	0.10	0.17	0.27	0.23	0.31	0.19	0.58

*Note:* The unit of observation is one speech in a parliamentary debate in the German Bundestag. The dependent variable is the amount of applause in a speech. The regression is performed for subsamples of each fraction. FEs are fixed effects. Heteroskedastic-robust standard errors are denoted in parentheses. \*p<0.1; \*\*p<0.05; \*\*\*p<0.01

Furthermore, the regression analysing heckles (6) is also performed for each party and displayed in table 7. For women from the Christian and the right party, the results indicate that they receive significantly more heckles, while women from social parties receive less. All other groups show no significant effect. The variation of the effect could be a reason why the main regression shows no significance as the effects cancel each other out.

**Table 7:** Regression results for heckles for party subsamples

	<i>Dependent variable:</i>						
	Heckles						
	Christian (1)	Green (2)	Left (3)	Liberal (4)	Right (5)	Social (6)	Non-attached (7)
Gender	0.208*** (0.070)	-0.043 (0.128)	-0.104 (0.172)	0.152 (0.120)	0.196** (0.077)	-0.263*** (0.056)	0.146 (2.371)
Occupation controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Topic controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Agenda item FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	63.753	20.587	15.887	31.136	42.929	67.828	1.220
R <sup>2</sup>	0.41	0.74	0.80	0.56	0.46	0.41	0.69
Adjusted R <sup>2</sup>	0.03	0.14	0.15	0.00	0.02	0.06	-0.49

*Note:* The unit of observation is one speech in a parliamentary debate in the German Bundestag. The dependent variable is the amount of heckles in a speech. The regression is performed for subsamples of each fraction. FE are fixed effects. Heteroskedastic-robust standard errors are denoted in parentheses. \*p<0.1; \*\*p<0.05; \*\*\*p<0.01

Another way to test how the effect is affected by other factors is by using interaction terms. This way, not only the effect of gender on response is estimated, but also how gender interacts with other variables.

In the first analysis, the interaction of *gender* and *party affiliation* is examined. Therefore, the interaction term  $gender \times party$  is added to equation (4):

$$interjection_i^t = \beta_0 + \beta_1 gender_i + \beta_2 gender_i \times party_i + \beta_3 X_i + u_i^t \quad (7)$$

To see whether the summed up effect of  $\beta_1$  and  $\beta_2$  is significant, a multiple hypothesis test is performed following Wooldridge (2020). As before, the effect of gender on positive reactions is analysed first by estimating the following regression:

$$applause_i = \beta_0 + \beta_1 gender_i + \beta_2 gender_i \times party_i + \beta_3 X_i + u_i. \quad (8)$$

Table 8 shows a positive reaction of gender on applause could be found for the green and liberal group as well as non-attached. The left and social groups show a negative effect of gender on applause. The fact that both a negative and positive effect can be seen could be the reason why the effect in the main regression is equalized.



**Table 8:** Regression results for applause including interaction term with party

	<i>Dependent variable:</i>						
	Applause						
	Christian (1)	Green (2)	Left (3)	Liberal (4)	Right (5)	Social (6)	Non-attached (7)
Gender	0.033 (0.032)	0.115*** (0.030)	0.066** (0.031)	0.081** (0.032)	0.204*** (0.030)	0.161*** (0.028)	0.120*** (0.031)
Fraction	-0.557*** (0.033)	-0.018 (0.031)	-0.473*** (0.034)	0.530*** (0.033)	-0.604*** (0.055)	-4.020*** (0.150)	-0.394*** (0.049)
Gender × Fraction	0.343*** (0.062)	0.150** (0.070)	0.400*** (0.070)	0.102* (0.058)	-0.194** (0.079)	-0.936*** (0.296)	0.285*** (0.070)
Party FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Occupation controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Topic controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Agenda item FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	229.278	229.278	229.278	229.278	229.278	229.278	229.278
R <sup>2</sup>	0.574	0.574	0.574	0.574	0.574	0.574	0.574
Adjusted R <sup>2</sup>	0.28	0.28	0.28	0.28	0.28	0.28	0.28

*Note:* The unit of observation is one speech in a parliamentary debate in the German Bundestag. The dependent variable is the amount of applause in a speech. The table shows results for each party separately. FE are fixed effects. Heteroskedastic-robust standard errors are denoted in parentheses. \*p<0.1; \*\*p<0.05; \*\*\*p<0.01

Furthermore, the regression is also performed for analysing heckles:

$$heckle_i = \beta_0 + \beta_1 gender_i + \beta_2 gender_i \times party_i + \beta_3 X_i + u_i. \quad (9)$$

Almost all parties show a highly significant negative effect of gender on disruptive interjections. The only exception builds the right fraction where the female gender has a slight positive effect. The estimated effects are displayed in table 9.

**Table 9:** Regression results for heckles including interaction term with party

	<i>Dependent variable:</i>						
	Heckle						
	Christian (1)	Green (2)	Left (3)	Liberal (4)	Right (5)	Social (6)	Non-attached (7)
Gender	-0.102*** (0.024)	-0.066*** (0.023)	-0.043* (0.023)	-0.028 (0.025)	-0.028 (0.025)	-0.004 (0.022)	-0.033 (0.024)
Fraction	-0.491*** (0.029)	-0.130*** (0.026)	-0.231*** (0.031)	0.591*** (0.027)	0.591*** (0.027)	-1.643*** (0.171)	-0.176*** (0.036)
Gender × Fraction	0.322*** (0.054)	0.324*** (0.054)	0.215*** (0.059)	-0.012 (0.045)	-0.012 (0.045)	0.389 (0.258)	0.226*** (0.051)
Party FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Occupation controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Topic controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Agenda item FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	229.278	229.278	229.278	229.278	229.278	229.278	229.278
R <sup>2</sup>	0.33	0.33	0.33	0.33	0.33	0.33	0.33
Adjusted R <sup>2</sup>	0.12	0.12	0.12	0.13	0.13	0.12	0.12

*Note:* The unit of observation is one speech in a parliamentary debate in the German Bundestag. The dependent variable is the amount of heckles in a speech. The table shows results for each party separately. FE are fixed effects. Heteroskedastic-robust standard errors are denoted in parentheses. \*p<0.1; \*\*p<0.05; \*\*\*p<0.01

Apart from analysing the interaction between gender and party affiliation, the role could have another influence for female speakers. As described in the previous chapter, the role could influence interruption patterns. These patterns might differ for men and women, among other things, due to social role theory. Roles are defined as in the description for control variables, where positions are taken into account: *government* and *top office*. Therefore, an interaction term between *gender* and *role* is added to the regression:

$$interjection_i^t = \beta_0 + \beta_1 gender_i + \beta_2 gender_i \times role_i + \beta_3 X_i + u_i^t \quad (10)$$

The results for applause as well as heckles can be seen in table 10.

**Table 10:** Regression results for applause and heckles including interaction term with role

	<i>Dependent variable:</i>			
	Applause		Heckles	
	Government (1)	Top office (2)	Government (3)	Top office (4)
Gender	0.208*** (0.054)	0.306*** (0.052)	0.000 (0.040)	0.053 (0.039)
Role	0.221 (0.166)	0.914*** (0.065)	0.045 (0.125)	0.425*** (0.051)
Gender × Role	-0.733*** (0.169)	-0.679*** (0.127)	-0.355*** (0.111)	-0.350*** (0.090)
Party FE	Yes	Yes	Yes	Yes
Occupation controls	Yes	Yes	Yes	Yes
Topic controls	Yes	Yes	Yes	Yes
Agenda item FE	Yes	Yes	Yes	Yes
Observations	229.278	229.278	229.278	229.278
R <sup>2</sup>	0.59	0.59	0.53	0.53
Adjusted R <sup>2</sup>	0.22	0.22	0.09	0.09

*Note:* The unit of observation is one speech in a parliamentary debate in the German Bundestag. The dependent variable is the amount of applause or heckles in a speech. The table shows results for each kind of role separately first without and then with controls. FE are fixed effects. Heteroskedastic-robust standard errors are denoted in parentheses. \*p<0.1; \*\*p<0.05; \*\*\*p<0.01

After implementing a multiple hypotheses test, a negative effect is found for women in government and top office positions regarding applause. Concerning heckles, again a negative effect has been estimated for both types of role. Consequentially, it can be seen that role has an effect on the reactions for women, and they seem to be interrupted less than their male colleagues.

The analysis for heterogeneity of the treatment effect showed that it remains quite homogenous in different topics, while it varies when scrutinizing different parties. The effect also varies regarding different roles. However, it has to be noticed that even if the effect is significant it remains quite small.

## C Robustness checks

While several factors influence the treatment effect, another question regards its robustness. The first robustness check estimates the ATE in a reduced sample. As described before, each party is assigned a specific time for speaking in parliament and can choose its own speakers. If the time allows, several speakers will take the word. Only agenda items where at least one female and one male speaker from the same party hold a speech are taken into the following analysis. In this way, the influence of other variables can be avoided. Politicians from the same party do not diverge in their political opinions about the discussed topic and, therefore, thematic differences can be excluded. Further, also influences like timing or topic do not affect the result as they are the same for both speakers. The reduced sample contains 55,497 speeches.

The same regressions (5) and (6) are performed for the reduced sample and shown in table 11.

**Table 11:** Regression results for applause and heckles for subsample of politicians belonging to same party

	<i>Dependent variable:</i>									
	Applause					Heckles				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Gender	0.397*** (0.045)	0.453*** (0.045)	0.531*** (0.046)	0.386*** (0.045)	0.121*** (0.044)	-0.045 (0.033)	0.004 (0.033)	0.033 (0.033)	-0.039 (0.033)	-0.060* (0.032)
Top office		1.024*** (0.049)	0.842*** (0.050)	0.772*** (0.049)	0.808*** (0.065)		0.646*** (0.035)	0.572*** (0.036)	0.537*** (0.036)	0.406*** (0.050)
Government		-1.733*** (0.066)	-2.006*** (0.068)	-1.791*** (0.066)	0.051 (0.180)		-1.102*** (0.047)	-1.206*** (0.049)	-1.098*** (0.049)	-0.138 (0.134)
Mandate		0.313*** (0.044)	0.231*** (0.045)	0.245*** (0.044)	0.214*** (0.062)		0.270*** (0.032)	0.237*** (0.032)	0.244*** (0.032)	0.059 (0.047)
Age			-0.011*** (0.003)	-0.012*** (0.003)	-0.004 (0.003)			0.001 (0.002)	0.001 (0.002)	0.000 (0.002)
Seniority			0.235*** (0.015)	0.229*** (0.014)	-0.034 (0.022)			0.084*** (0.011)	0.081*** (0.011)	-0.012 (0.016)
First speaker				2.456*** (0.051)	2.128*** (0.070)				1.228*** (0.037)	1.216*** (0.050)
Party FE	No	No	No	No	Yes	No	No	No	No	Yes
Occupation controls	No	No	No	No	Yes	No	No	No	No	Yes
Topic controls	No	No	No	No	Yes	No	No	No	No	Yes
Agenda item FE	No	No	No	No	Yes	No	No	No	No	Yes
Observations	55.497	55.497	55.497	55.497	55.497	55.497	55.497	55.497	55.497	55.497
R <sup>2</sup>	0.00	0.03	0.03	0.07	0.41	0.00	0.02	0.02	0.04	0.34
Adjusted R <sup>2</sup>	0.00	0.03	0.03	0.07	0.25	0.00	0.02	0.02	0.04	0.16

*Note:* The unit of observation is one speech in a parliamentary debate in the German Bundestag. Columns (1)-(5) show the results for equation (5) for the reduced sample with applause as dependent variable. Columns (6)-(10) show the results for equation (6) for the reduced sample with heckles as dependent variable. Both regressions are performed for a subsample including only speeches where at least two politicians from the same party who differ in their gender hold a speech on one agenda item. FE are fixed effects. Heteroskedastic-robust standard errors are denoted in parentheses. \*p<0.1; \*\*p<0.05; \*\*\*p<0.01

The effect for applause almost equals the effect of the large sample when including all controls, and is again highly significant. When estimating the effect for heckles, the ATE behaves as in the main sample. It is negative and decreases in its magnitude by including more controls, but contrary to the main regression it is significant. Hence, it can be said that the effect remains robust when examining a reduced sample to overcome influencing factors.

Another way to test the robustness of the effect is to analyse only those speeches which receive responses. Thus, a new subsample is created, excluding speeches that do not get

any applause or heckling. This could influence the effect as certain speeches might get fewer reactions, such as an examination of the government as described above. Again, both estimation (5) and (6) are performed for the subsamples.

The sample containing speeches which received applause consists of 131,342 speeches and even fewer speeches are heckled, namely 103,710. Contrary to the main regression, the results in this specification demonstrate a negative but insignificant effect for applause and a negative and significant effect for heckles as shown in table 12.

**Table 12:** Regression results for applause and heckles for speeches with response

	<i>Dependent variable:</i>									
	Applause					Heckles				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Gender	0.010 (0.034)	0.079** (0.034)	0.162*** (0.034)	0.064* (0.034)	-0.109 (0.081)	-0.627*** (0.033)	-0.530*** (0.034)	-0.509*** (0.034)	-0.537*** (0.034)	-0.132* (0.076)
Top office		1.435*** (0.034)	1.201*** (0.034)	1.201*** (0.034)	1.154*** (0.100)		1.079*** (0.032)	1.025*** (0.032)	1.025*** (0.032)	0.544*** (0.094)
Government		1.840*** (0.047)	1.448*** (0.048)	1.442*** (0.048)	0.961*** (0.315)		1.347*** (0.044)	1.259*** (0.045)	1.261*** (0.045)	0.453* (0.275)
Mandate		0.048 (0.030)	-0.068** (0.031)	0.000 (0.031)	0.178* (0.097)		0.132*** (0.029)	0.111*** (0.029)	0.125*** (0.029)	0.084 (0.097)
Age			0.006*** (0.002)	0.006*** (0.002)	0.012*** (0.004)			0.017*** (0.002)	0.017*** (0.002)	0.016*** (0.005)
Seniority			0.272*** (0.010)	0.273*** (0.010)	0.015 (0.033)			0.026*** (0.009)	0.025*** (0.009)	0.046 (0.029)
First speaker				0.892*** (0.029)	2.338*** (0.076)				0.226*** (0.028)	1.594*** (0.076)
Party FE	No	No	No	No	Yes	No	No	No	No	Yes
Occupation controls	No	No	No	No	Yes	No	No	No	No	Yes
Topic controls	No	No	No	No	Yes	No	No	No	No	Yes
Agenda item FE	No	No	No	No	Yes	No	No	No	No	Yes
Observations	131.342	131.342	131.342	131.342	131.342	103.710	103.710	103.710	103.710	103.710
R <sup>2</sup>	0.00	0.02	0.03	0.04	0.63	0.00	0.02	0.02	0.02	0.59
Adjusted R <sup>2</sup>	0.00	0.02	0.03	0.04	0.06	0.00	0.02	0.02	0.02	-0.07

*Note:* The unit of observation is one speech in a parliamentary debate in the German Bundestag. Columns (1)-(5) show the results for equation (5) for the reduced sample with applause as dependent variable. Columns (6)-(10) show the results for equation (6) for the reduced sample with heckles as dependent variable. Both regressions are performed for a subsample including only speeches which received at least one applause or one heckle, respectively. FE are fixed effects. Heteroskedastic-robust standard errors are denoted in parentheses. \*p<0.1; \*\*p<0.05; \*\*\*p<0.01

The last check for robustness uses a different coding for the dependent variable. So far, the amount of interjections was summed up for every speech building a count variable. To test how the effect changes, interjections are measured by a dummy variable  $Dinterjection_i^t$  indicating whether the speech received an interjection ( $Dinterjection_i^t = 1$ ) or whether it did not receive any interjection ( $Dinterjection_i^t = 0$ ). This leads to the following estimations for applause and heckles, where both the independent and dependent variables are binary:

$$D_{applause}_i = \beta_0 + \beta_1 gender_i + \beta_2 X_i + u_i \quad (11)$$

$$D_{heckle}_i = \beta_0 + \beta_1 gender_i + \beta_2 X_i + u_i \quad (12)$$

The estimated effects for applause and heckles are displayed in table 13. The effect for applause is small and positive and highly significant, just as in the main regression. When analysing heckles, the effect varies decreases and becomes insignificant when including all controls. This is in line with the main results and shows that the effect remains robust when changing the coding of the dependent variable.

**Table 13:** Regression results for applause and heckles for binary coded dependent variable

	<i>Dependent variable:</i>									
	Applause					Heckles				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Gender	0.092*** (0.002)	0.075*** (0.002)	0.076*** (0.002)	0.063*** (0.002)	0.028*** (0.004)	0.045*** (0.002)	0.039*** (0.002)	0.039*** (0.002)	0.034*** (0.002)	0.008 (0.005)
Top office		-0.016*** (0.002)	-0.019*** (0.002)	-0.018*** (0.002)	0.008** (0.004)		0.008*** (0.002)	0.006*** (0.002)	0.007*** (0.002)	0.010** (0.004)
Government		-0.266*** (0.002)	-0.271*** (0.002)	-0.260*** (0.002)	-0.038*** (0.010)		-0.179*** (0.003)	-0.183*** (0.003)	-0.178*** (0.003)	-0.037*** (0.012)
Mandate		0.010*** (0.002)	0.008*** (0.002)	0.013*** (0.002)	0.001 (0.004)		0.030*** (0.002)	0.028*** (0.002)	0.030*** (0.002)	0.003 (0.004)
Age			0.000** (0.000)	0.000 (0.000)	0.000 (0.000)			0.000 (0.000)	0.000 (0.000)	-0.001** (0.000)
Seniority			0.004*** (0.001)	0.004*** (0.001)	-0.002 (0.001)			0.003*** (0.001)	0.003*** (0.001)	-0.001 (0.001)
First speaker				0.101*** (0.002)	0.017*** (0.002)				0.038*** (0.002)	0.044*** (0.003)
Party FE	No	No	No	No	Yes	No	No	No	No	Yes
Occupation controls	No	No	No	No	Yes	No	No	No	No	Yes
Topic controls	No	No	No	No	Yes	No	No	No	No	Yes
Agenda item FE	No	No	No	No	Yes	No	No	No	No	Yes
Observations	229.278	229.278	229.278	229.278	229.278	229.278	229.278	229.278	229.278	229.278
R <sup>2</sup>	0.01	0.07	0.07	0.09	0.59	0.00	0.02	0.02	0.02	0.57
Adjusted R <sup>2</sup>	0.01	0.07	0.07	0.09	0.21	0.00	0.02	0.02	0.02	0.17

*Note:* The unit of observation is one speech in a parliamentary debate in the German Bundestag. Columns (1)-(5) show the results for equation (11) with a binary dependent variable indicating whether a speech received at least one applause. Columns (6)-(10) show the results for equation (12) with a binary dependent variable indicating whether a speech received at least one heckle. FE are fixed effects. Heteroskedastic-robust standard errors are denoted in parentheses. \*p<0.1; \*\*p<0.05; \*\*\*p<0.01

All in all, it can be said that the effect remains robust when estimating subsamples or changing the measurement of reactions. This supports the findings of the main regressions.

## VI Conclusion

The present analysis contributes to the discussion on the effect of gender in plenary debates. The research question of whether gender has an effect on response in parliamentary debates is tested by examining speeches held in the German Bundestag over a period of more than 70 years. The paper analyses the impact of a politician's gender on the amount of interruptions that their speech received. The analysis divides interruptions into two types: Supportive interjections are measured by applause while heckles account for disruptive interjections.

The results of the empirical analysis suggest that gender has a small and significant positive effect on the amount of positive reactions to a speech. Furthermore, no significant effect is estimated when examining the effect of a speaker's gender on negative reactions, namely heckles. The findings indicate that gender plays a role in influencing positive reactions, while there is no impact on negative responses.

These results are further tested for their heterogeneity and robustness. All in all, the outcome of the estimation contrasts the initial idea of the paper and the anecdotal evidence which motivated the research question. This implies that female politicians are not prevented through interruptions from stating their opinion and bringing forth their ideas. Even though the present analysis aims at identifying the effect of gender on response, it

has some limitations. Firstly, there is insecurity in the data reliability. While the keepers of minutes try to log all reactions, there is some variation in notation. Sometimes rather general remarks are made, while other comments are noted with specific words. As there are only two people who keep record of the reactions of over 700 MPs, some comments could potentially be missed by the keepers of minutes. This gives room for a measurement error which is hard to overcome. Furthermore, there are some statistical issues which could question the results. For the identification strategy, an omitted variable bias could still be problematic. Even though it was tried to overcome it by including several control variables, there could be other factors which influence both the dependent and independent variable of interest. A possible path for future research would be an estimation strategy that addresses endogeneity concerns such as Propensity Score Matching. Ultimately, it is important to take these results with a grain of salt. Even though there could be found no large effect of gender on response, this should not automatically lead to the result that women are not discriminated against in plenary discussions. One option is that an obvious demonstration of sexism might not be seen as appropriate anymore, as heckling only women would be. If a change in debate culture is assumed, then it would be interesting for future research to compare the 19 legislative periods to each other and see a development over time.

## References

- Bäck, Hanna and Marc Debus (2016). *Political Parties, Parliaments and Legislative Speech-making*. Springer eBook Collection. London: Palgrave Macmillan. DOI: 10.1057/9781137484550. URL: <http://gbv.eblib.com/patron/FullRecord.aspx?p=4720267>.
- (2019). “When Do Women Speak? A Comparative Analysis of the Role of Gender in Legislative Debates”. In: *Political Studies* 67.3, pp. 576–596. DOI: 10.1177/0032321718789358. URL: [https://journals.sagepub.com/doi/pdf/10.1177/0032321718789358?casa\\_token=vnfQ1EpFLtwAAAAA:62gu-3IKJJfyBly1Rb384fbzELKTDEvXIOLxRCgLhBF3iIj9bn8NKDKxyinzwNmLAbRY16Wxnkw](https://journals.sagepub.com/doi/pdf/10.1177/0032321718789358?casa_token=vnfQ1EpFLtwAAAAA:62gu-3IKJJfyBly1Rb384fbzELKTDEvXIOLxRCgLhBF3iIj9bn8NKDKxyinzwNmLAbRY16Wxnkw).
- Bäck, Hanna, Marc Debus, and Jochen Müller (2014). “Who Takes the Parliamentary Floor? The Role of Gender in Speech-making in the Swedish Riksdag”. In: *Political Research Quarterly* 67.3, pp. 504–518. DOI: 10.1177/1065912914525861. URL: <https://journals.sagepub.com/doi/pdf/10.1177/1065912914525861>.
- Bailer, Stefanie (2013). *Seiteneinsteiger im Deutschen Bundestag*. Springer eBook Collection. Wiesbaden: Springer VS. DOI: 10.1007/978-3-658-01026-3. URL: <https://link.springer.com/content/pdf/10.1007/978-3-658-01026-3.pdf>.
- Blaette, Andreas (2017). *GermaParl. Corpus of Plenary Protocols of the German Bundestag. TEI files, availables at: https://github.com/PolMine/GermaParlTEI*.
- Bou-Franch, Patricia (2016). *Exploring language aggression against women*. Vol. Volume 86. Benjamins Current Topics. Amsterdam, Netherlands: John Benjamins Publishing Company.
- Brescoll, Victoria L. (2011). “Who Takes the Floor and Why”. In: *Administrative Science Quarterly* 56.4, pp. 622–641. DOI: 10.1177/0001839212439994. URL: [https://journals.sagepub.com/doi/pdf/10.1177/0001839212439994?casa\\_token=jGCL7vu1kYkAAAAA:rq%20wQwbUJcBHdPKKdFvX0bAOMLMjiJzmaGK6oi-qNq5aASSGfQSCVOJ5xBpApToHS2\\_ebSbp1vhg](https://journals.sagepub.com/doi/pdf/10.1177/0001839212439994?casa_token=jGCL7vu1kYkAAAAA:rq%20wQwbUJcBHdPKKdFvX0bAOMLMjiJzmaGK6oi-qNq5aASSGfQSCVOJ5xBpApToHS2_ebSbp1vhg).
- Broughton, S. and S. Palmieri (1999). “Gendered Contributions to Parliamentary Debates: The Case of Euthanasia”. In: *Australian Journal of Political Science* 34.1, pp. 29–45. DOI: 10.1080/10361149950443. URL: [https://www.tandfonline.com/doi/pdf/10.1080/10361149950443?casa\\_token=scGD9p8XGt0AAAAA:fPA1lr1o%20wAcf4x-VH1Ky01u5EYC2wj338xk\\_v1RnZXqKk8BWg135r7MSW1urwq8ttZAm5nQp8Po](https://www.tandfonline.com/doi/pdf/10.1080/10361149950443?casa_token=scGD9p8XGt0AAAAA:fPA1lr1o%20wAcf4x-VH1Ky01u5EYC2wj338xk_v1RnZXqKk8BWg135r7MSW1urwq8ttZAm5nQp8Po).
- Brunner et al. (2019). “Die AfD im Bundestag”. In: *Süddeutsche Zeitung*. URL: <https://www.sueddeutsche.de/projekte/artikel/politik/die-afd-im-bundestag-e362724/>.
- Burkhardt, Armin (1992). “»Das ist eine Frage des Intellekts, Frau Kollegin!«” In: *Die Geschlechter im Gespräch*. J.B. Metzler, Stuttgart, pp. 287–309. DOI: 10.1007/978-3-476-03400-7-13. URL: [https://link.springer.com/chapter/10.1007/978-3-476-03400-7\\_13](https://link.springer.com/chapter/10.1007/978-3-476-03400-7_13).
- (2004). *Zwischen Monolog und Dialog: Zur Theorie, Typologie und Geschichte des Zwischenrufs im deutschen Parlamentarismus*. Vol. 250. Reihe Germanistische Linguistik. Berlin: DE GRUYTER. DOI: 10.1515/9783110910704.
- Catalano, Ana (2009). “Women Acting for Women? An Analysis of Gender and Debate Participation in the British House of Commons 2005–2007”. In: *Politics & Gender*

- 5.01, p. 45. DOI: 10.1017/S1743923X09000038. URL: <https://www.cambridge.org/core/services/aop-cambridge-core/content/view/670A9C75C7ED58EF815C6CF0F14BAAB5/S1743923X09000038a.pdf/women-acting-for-women-an-analysis-of-gender-and-debate-participation-in-the-british-house-of-commons-2005-2007.pdf>.
- Celis, Karen (2009). “Substantive Representation of Women (and Improving it): What it is and should be About?” In: *Comparative European Politics* 7.1, pp. 95–113. DOI: 10.1057/cep.2008.35. URL: <https://biblio.ugent.be/publication/699205/file/702297.pdf>.
- Chen, Li-Ju (2013). “Do female politicians influence public spending? Evidence from Taiwan”. In: *International Journal of Applied Economics* 10.2, pp. 32–51. URL: [http://conferencenow.info/yhsing/applied-economics-journals/ARCHIVE/ijae/index\\_files/IJAE%20SEPT%202013%20LI-JU%20CHEN%2010-29-2013%20R2.pdf](http://conferencenow.info/yhsing/applied-economics-journals/ARCHIVE/ijae/index_files/IJAE%20SEPT%202013%20LI-JU%20CHEN%2010-29-2013%20R2.pdf).
- Clots-Figueras, Irma (2012). “Are Female Leaders Good for Education? Evidence from India”. In: *American Economic Journal: Applied Economics* 4.1, pp. 212–244. DOI: 10.1257/app.4.1.212. URL: [https://www.aeaweb.org/aej-applied/accepted\\_single.php?id=730&jrnl=app](https://www.aeaweb.org/aej-applied/accepted_single.php?id=730&jrnl=app).
- Collier, Cheryl N. and Tracey Raney (2018). “Understanding Sexism and Sexual Harassment in Politics: A Comparison of Westminster Parliaments in Australia, the United Kingdom, and Canada”. In: *Social Politics: International Studies in Gender, State & Society* 25.3, pp. 432–455. DOI: 10.1093/sp/jxy024.
- Cunial, Santiago Lujan (2021). “Do More Female Politicians Translate Into Better Health Outcomes? Gender Representation and Infant Mortality in Argentine Provinces”. In: *World Medical & Health Policy* 13.2, pp. 349–372. DOI: 10.1002/wmh3.411. URL: [https://onlinelibrary.wiley.com/doi/pdf/10.1002/wmh3.411?casa\\_token=P5gkHnivAF4AAAAA:eTLpQf0nNIyI3yEv6QCpVYwpBVdegDIqLBJSGMqlytduirWjSvzjOZ4KQXBIRIR2QR9BLdPSNBxZDjg](https://onlinelibrary.wiley.com/doi/pdf/10.1002/wmh3.411?casa_token=P5gkHnivAF4AAAAA:eTLpQf0nNIyI3yEv6QCpVYwpBVdegDIqLBJSGMqlytduirWjSvzjOZ4KQXBIRIR2QR9BLdPSNBxZDjg).
- Deutscher Bundestag (2017). *Frauen und Männer*. URL: [https://www.bundestag.de/webarchiv/abgeordnete/biografien19/mdb\\_zahlen\\_19/frauen\\_maenner-529508](https://www.bundestag.de/webarchiv/abgeordnete/biografien19/mdb_zahlen_19/frauen_maenner-529508).
- (2021). *Tagesordnung des Plenums*. URL: <https://www.bundestag.de/services/glossar/glossar/T/tagesordnung-868648>.
- (2022a). “7.11 Regelungen zur Debattendauer”. In: *Datenhandbuch*. URL: [https://www.bundestag.de/resource/blob/196288/e126ffe1aebad0b92641fa6e8d80dfe3/Kapitel\\_07\\_11\\_Regelungen\\_zur\\_Debattendauer-data.pdf](https://www.bundestag.de/resource/blob/196288/e126ffe1aebad0b92641fa6e8d80dfe3/Kapitel_07_11_Regelungen_zur_Debattendauer-data.pdf).
- (2022b). *Direktmandat*. URL: <https://www.bundestag.de/services/glossar/glossar/D/direktmandat-245380>.
- (2022c). *Erläuterungen zur Geschäftsordnung*. URL: [https://www.bundestag.de/parlament/aufgaben/rechtsgrundlagen/go\\_erl/gescho12-244682](https://www.bundestag.de/parlament/aufgaben/rechtsgrundlagen/go_erl/gescho12-244682).
- (2022d). *Onlineausgabe des Datenhandbuchs zur Geschichte des Bundestages*. URL: <https://www.bundestag.de/datenhandbuch>.
- (2022e). *Sitzverteilung des 20. Deutschen Bundestages*. URL: [https://www.bundestag.de/parlament/plenum/sitzverteilung\\_20wp](https://www.bundestag.de/parlament/plenum/sitzverteilung_20wp).
- (2022f). *Überhangmandat*. URL: <https://www.bundestag.de/services/glossar#url=L3NlcnZpY2VzL2dsb3NzYXIvZ2xvc3Nhci9VL3VlYmVyaF9tYW5kYXR1LLTIONTU1Mg=&mod=mod445382>.



- DIE ZEIT (2022). “Diskriminierung: Sexismus im Bundestag: Parlamentarierinnen berichten”. In: *Die Zeit*. URL: <https://www.zeit.de/news/2022-02/10/sexismus-im-bundestag-parlamentarierinnen-berichten>.
- Eagly, Alice H. and Steven J. Karau (2002). “Role congruity theory of prejudice toward female leaders”. In: *Psychological Review* 109.3, pp. 573–598. DOI: 10.1037//0033-295X.109.3.573. URL: [http://web.pdx.edu/~mev/pdf/Eagley\\_Karau.pdf](http://web.pdx.edu/~mev/pdf/Eagley_Karau.pdf).
- Eagly, Alice H. and Valerie J. Steffen (1984). “Gender stereotypes stem from the distribution of women and men into social roles”. In: *Journal of Personality and Social Psychology* 46.4, pp. 735–754. DOI: 10.1037/0022-3514.46.4.735. URL: [https://www.researchgate.net/profile/Valerie-Steffen-2/publication/232467742\\_Gender\\_Stereotypes\\_Stem\\_from\\_the\\_Distribution\\_of\\_Women\\_and\\_Men\\_in\\_Social\\_Roles/links/5b29482a0f7e9b1d0035bb6e/Gender-Stereotypes-Stem-from-the-Distribution-of-Women-and-Men-in-Social-Roles.pdf](https://www.researchgate.net/profile/Valerie-Steffen-2/publication/232467742_Gender_Stereotypes_Stem_from_the_Distribution_of_Women_and_Men_in_Social_Roles/links/5b29482a0f7e9b1d0035bb6e/Gender-Stereotypes-Stem-from-the-Distribution-of-Women-and-Men-in-Social-Roles.pdf).
- Edelsky and Adams (1990). “Creating Inequality: Breaking the Rules in Debates”. In: *Journal of language and social psychology* 9.3, pp. 171–190. URL: <https://journals.sagepub.com/doi/pdf/10.1177/0261927X9093001>.
- Frank, M. and D. Stadelmann (2022). “Competition, benchmarking and electoral success: Evidence from almost 70 years of the German Bundestag: Unpublished manuscript”. In.
- Grieswelle, Detlef (2000). *Politische Rhetorik: Macht der Rede, öffentliche Legitimation, Stiftung von Konsens*. DUV Sozialwissenschaft. Wiesbaden: Deutscher Universitäts-Verlag.
- Grisdale, Mackenzie (2001). “Heckling in the House of Commons”. In: *Canadian Parliamentary Review* 34.3, pp. 38–45.
- Heritage, John and David Greatbatch (1986). “Generating Applause: A Study of Rhetoric and Response at Party Political Conferences”. In: *American Journal of Sociology* 92.1, pp. 110–157. DOI: 10.1086/228465.
- Hill, Rufus Carter, William E. Griffiths, and Guay C. Lim (2018). *Principles of econometrics*. Fifth edition. Hoboken, NJ: Wiley Custom.
- Ilie, Cornelia (2013). “Gendering confrontational rhetoric: discursive disorder in the British and Swedish parliaments”. In: *Democratization* 20.3, pp. 501–521. DOI: 10.1080/13510347.2013.786547. URL: [https://www.tandfonline.com/doi/pdf/10.1080/13510347.2013.786547?casa\\_token=rXqIcxG4BscAAAAA:r0YHVT9eJSUEVnQG1GM1aUgbidD8F-vT4ALzrfao7VRMvrGoxH0vZ6iVgDT5f6TWwp8Gokpcaik](https://www.tandfonline.com/doi/pdf/10.1080/13510347.2013.786547?casa_token=rXqIcxG4BscAAAAA:r0YHVT9eJSUEVnQG1GM1aUgbidD8F-vT4ALzrfao7VRMvrGoxH0vZ6iVgDT5f6TWwp8Gokpcaik).
- Joly, P. (2022). *btmembers: Import Data on All Members of the Bundestag since 1949: R package version 0.1.2*. URL: <https://github.com/jolyphil/btmembers>.
- Kathlene, Lyn (1994). “Power and Influence in State Legislative Policymaking: The Interaction of Gender and Position in Committee Hearing Debates”. In: *American Political Science Review* 88.3, pp. 560–576. DOI: 10.2307/2944795.
- Kipke, Rüdiger (1995). “Der Zwischenruf - ein Instrument politischparlamentarischer Kommunikation?” In: *Sprache des Parlaments und Semiotik der Demokratie: Studien zur politischen Kommunikation in der Moderne*, pp. 107–112. DOI: 10.1515/9783110921328.107.

- Kittilson, Miki Caul (2008). “Representing Women: The Adoption of Family Leave in Comparative Perspective”. In: *The Journal of Politics* 70.2, pp. 323–334. DOI: 10.1017/S002238160808033X.
- Klein, Josef (2019). *Politik und Rhetorik: Eine Einführung*. Lehrbuch. Wiesbaden and Heidelberg: Springer VS. DOI: 10.1007/978-3-658-25455-1. URL: [https://www.researchgate.net/profile/Josef-Klein-3/publication/333609242\\_Politik\\_und\\_Rhetorik\\_Eine\\_Einfuehrung/links/611a762a1ca20f6f86275781/Politik-und-Rhetorik-Eine-Einfuehrung.pdf](https://www.researchgate.net/profile/Josef-Klein-3/publication/333609242_Politik_und_Rhetorik_Eine_Einfuehrung/links/611a762a1ca20f6f86275781/Politik-und-Rhetorik-Eine-Einfuehrung.pdf).
- Korge, Johannes (2012). “Linken-Attacke auf Martin Lindner: Dieser Macho ruft dazwischen und kraut sich seine...”. In: *DER SPIEGEL*. URL: <https://www.spiegel.de/politik/deutschland/linken-politiker-van-aken-nennt-martin-lindner-fdp-einen-macho-a-835268.html>.
- Lewandowsky et al. (2020). *Wie hat sich der Parlamentsalltag durch die AfD verändert?* URL: [https://www.mzes.uni-mannheim.de/publications/misc/report\\_ltw2019.html](https://www.mzes.uni-mannheim.de/publications/misc/report_ltw2019.html).
- Linn, Susanne and Frank Sobolewski (2010). *So arbeitet der Deutsche Bundestag: Organisation und Arbeitsweise ; die Gesetzgebung des Bundes*. 23. Aufl., 17. Wahlperiode, Aug. 2010. Rheinbreitbach: NDV Neue Darmstädter Verl.-Anst.
- Mackenrodt, Christian (2008). “Wie wichtig ist die Person? Zur Bedeutung von Persönlichkeitsfaktoren von Wahlkreisbewerbern bei Bundestagswahlen”. In: *Zeitschrift für Parlamentsfragen* 39.1, pp. 69–83. DOI: 10.5771/0340-1758-2008-1-69.
- Mattei, Laura R. Winsky (1998). “Gender and Power in American Legislative Discourse”. In: *The Journal of Politics* 60.2, pp. 440–461. DOI: 10.2307/2647917. URL: [https://www.journals.uchicago.edu/doi/pdfplus/10.2307/2647917?casa\\_token=p4bbsywr\\_UAAAAA:iiH7B4V8JeWR0K1ALNIyVx0z0wFH-hrFTudp8ri2XN8Q8FaN4rsEg70WJWEtOB\\_Ykr7CicLlig](https://www.journals.uchicago.edu/doi/pdfplus/10.2307/2647917?casa_token=p4bbsywr_UAAAAA:iiH7B4V8JeWR0K1ALNIyVx0z0wFH-hrFTudp8ri2XN8Q8FaN4rsEg70WJWEtOB_Ykr7CicLlig).
- Maurer, M. and P. Jost (2020). “Das Ende der Debattenkultur?” In: *Zeitschrift für Politik* 67.4, pp. 473–490. DOI: 10.5771/0044-3360-2020-4-473. URL: [https://www.researchgate.net/profile/Pablo-Jost-2/publication/346563893\\_Das\\_Ende\\_der\\_Debattenkultur\\_Wie\\_die\\_AfD\\_Negativitat\\_und\\_Inzivilitat\\_in\\_den\\_Bundestag\\_tragt\\_und\\_wie\\_die\\_anderen\\_Parteien\\_darauf\\_reagieren/links/5fc76cd292851c00f8453349/Das-Ende-der-Debattenkultur-Wie-die-AfD-Negativitaet-und-Inzivilitaet-in-den-Bundestag-traegt-und-wie-die-anderen-Parteien-darauf-reagieren.pdf](https://www.researchgate.net/profile/Pablo-Jost-2/publication/346563893_Das_Ende_der_Debattenkultur_Wie_die_AfD_Negativitat_und_Inzivilitat_in_den_Bundestag_tragt_und_wie_die_anderen_Parteien_darauf_reagieren/links/5fc76cd292851c00f8453349/Das-Ende-der-Debattenkultur-Wie-die-AfD-Negativitaet-und-Inzivilitaet-in-den-Bundestag-traegt-und-wie-die-anderen-Parteien-darauf-reagieren.pdf).
- Mavisakalyan, Astghik (2014). “Women in cabinet and public health spending: evidence across countries”. In: *Economics of Governance* 15.3, pp. 281–304. DOI: 10.1007/s10101-014-0141-x. URL: <https://link.springer.com/content/pdf/10.1007/s10101-014-0141-x.pdf>.
- Mayntz, R. and F. Neidhardt (1989). “Parlamentskultur: Handlungsorientierungen von Bundestagsabgeordneten—eine empirisch explorative Studie”. In: *Zeitschrift für Parlamentsfragen* 20.3, pp. 370–387. URL: <https://www.jstor.org/stable/24224158>.
- Murray, Rainbow (2010). “Second Among Unequals? A Study of Whether France’s “Quota Women” are Up to the Job – ERRATUM”. In: *Politics & Gender* 6.04, pp. 643–669. DOI: 10.1017/s1743923x1000053x.

- Och, Malliga (2020). “Man interrupting in the German Bundestag: Gendered Opposition to Female Members of Parliament?” In: *Politics & Gender* 16.2, pp. 388–408. DOI: 10.1017/S1743923X19000126.
- Roll, Hans-Achim (1982). *Plenarsitzungen des Deutschen Bundestages: Festgabe für Werner Blischke*. Vol. v.4. Beiträge zum Parlamentsrecht. Berlin: Duncker & Humblot.
- Rudman, Laurie A. et al. (2012). “Status incongruity and backlash effects: Defending the gender hierarchy motivates prejudice against female leaders”. In: *Journal of Experimental Social Psychology* 48.1, pp. 165–179. DOI: 10.1016/j.jesp.2011.10.008.
- Saalfeld, Thomas (1997). “Professionalisation of parliamentary roles in Germany: An aggregate-level analysis, 1949–94”. In: *The Journal of Legislative Studies* 3.1, pp. 32–54. DOI: 10.1080/13572339708420498. URL: [https://www.tandfonline.com/doi/pdf/10.1080/13572339708420498?casa\\_token=pFVEq1KBkjoAAAAA:F699z0Z\\_OXVa0s3YutMnQQRyxycy0kNeT6pUXAhjgrrvtpjKNxJ-XMNUUB5eT1BxCQ9xwle2fAK9Fnkk](https://www.tandfonline.com/doi/pdf/10.1080/13572339708420498?casa_token=pFVEq1KBkjoAAAAA:F699z0Z_OXVa0s3YutMnQQRyxycy0kNeT6pUXAhjgrrvtpjKNxJ-XMNUUB5eT1BxCQ9xwle2fAK9Fnkk).
- Schmid, Sandra (2010). *Deutscher Bundestag - „Das Geschehen im Parlament festhalten“*. URL: [https://www.bundestag.de/webarchiv/textarchiv/2010/28642186\\_kw06\\_stenografen-200926](https://www.bundestag.de/webarchiv/textarchiv/2010/28642186_kw06_stenografen-200926).
- (2022). *Deutscher Bundestag - Zweitstimme: Ein Kreuz für das Mehrheitsverhältnis im Bundestag*. URL: <https://www.bundestag.de/parlament/bundestagswahl/zweitstimme-502282>.
- Schönberger, Christoph (2016). “Vom Verschwinden der Anwesenheit in der Demokratie Präsenz als bedrohtes Fundament von Wahlrecht, Parteienrecht und Parlamentsrecht”. In: *JuristenZeitung* 71.10, p. 486. DOI: 10.1628/002268816x14557089676658.
- Schwindt-Bayer, Leslie A. (2006). “Still Supermadres? Gender and the Policy Priorities of Latin American Legislators”. In: *American Journal of Political Science* 50.3, pp. 570–585. DOI: 10.1111/j.1540-5907.2006.00202.x.
- Shaw, Sylvia (2000). “Language, Gender and Floor Apportionment in Political Debates”. In: URL: [https://journals.sagepub.com/doi/pdf/10.1177/0957926500011003006?casa\\_token=KCe2zpfA9KQAAAAA:R03X2BuHQ4LolvutfaASYR\\_vqe8MDush4Iu8JezsADT\\_e-vJrtvnljLbiumlyVTORuUTPKSkKLg8](https://journals.sagepub.com/doi/pdf/10.1177/0957926500011003006?casa_token=KCe2zpfA9KQAAAAA:R03X2BuHQ4LolvutfaASYR_vqe8MDush4Iu8JezsADT_e-vJrtvnljLbiumlyVTORuUTPKSkKLg8).
- Stopfner, Maria (2015). “Bleiben Sie freundlich! – Korrektive Prozesse im Parlament”. In: *Miscommunication and Verbal Violence Du malentendu à la violence verbale Miscommunication und verbale Gewalt*. URL: [https://tuhat.helsinki.fi/ws/portalfiles/portal/49995712/Dialog3\\_painoon.pdf#page=293](https://tuhat.helsinki.fi/ws/portalfiles/portal/49995712/Dialog3_painoon.pdf#page=293).
- (2018). “Democracy and Discriminatory Strategies in Parliamentary Discourse”. In: *Journal of Language and Politics* 17.5, pp. 617–635. DOI: 10.1075/jlp.18014.sto. URL: [http://mlkrook.org/pdf/Stopfner\\_18.pdf](http://mlkrook.org/pdf/Stopfner_18.pdf).
- Svaleryd, Helena (2009). “Women’s representation and public spending”. In: *European Journal of Political Economy* 25.2, pp. 186–198. DOI: 10.1016/j.ejpoleco.2008.12.004.
- Taylor-Robinson, Michelle M. and Roseanna Michelle Heath (2003). “Do Women Legislators Have Different Policy Priorities than Their Male Colleagues?” In: *Women & Politics* 24.4, pp. 77–101. DOI: 10.1300/J014v24n04{\textunderscore}04. URL: [https://www.tandfonline.com/doi/pdf/10.1300/J014v24n04\\_04?casa\\_token=CuLbkN5sIFIAAAAA:GTAaxbLpxzKE5D0oB5iHNTrA6FZ5N15P\\_WUZxsCNu9lfuwNn4nrm8jxrjsndx9t8y4GsXILzruc](https://www.tandfonline.com/doi/pdf/10.1300/J014v24n04_04?casa_token=CuLbkN5sIFIAAAAA:GTAaxbLpxzKE5D0oB5iHNTrA6FZ5N15P_WUZxsCNu9lfuwNn4nrm8jxrjsndx9t8y4GsXILzruc).

- Truan, Naomi (2017). “Zwischenrufe zwischen parlamentarischer Routine und Kreativität”. In: *Cahiers d'Études Germaniques* 73, pp. 127–140. DOI: 10.4000/ceg.2370. URL: <https://journals.openedition.org/ceg/2370>.
- Vallejo Vera, Sebastián and Analía Gómez Vidal (2020). “The Politics of Interruptions: Gendered Disruptions of Legislative Speeches”. In: URL: <https://ilcss.umd.edu/static/fbd289c2394ee199b2d3ffa1f5777ea2/the-politics-of-interruptions.pdf>.
- van Eecke, Paul and Raquel Fernández (2016). “On the Influence of Gender on Interruptions in Multiparty Dialogue”. In: *Interspeech 2016*. ISCA: ISCA, pp. 2070–2074. DOI: 10.21437/Interspeech.2016-951. URL: <https://www.essence-network.com/wp-content/uploads/2015/08/eecke-fernandez.pdf>.
- Vögele, Catharina and Claudia Thoms (2019). “Die isolierte Fraktion. Zwischenreaktionen, Zwischenrufe und die AfD im Baden-Württembergischen Landtag”. In: *ZParl Zeitschrift für Parlamentsfragen* 50.2, pp. 306–326. DOI: 10.5771/0340-1758-2019-2-306. URL: <https://www.nomos-elibrary.de/10.5771/0340-1758-2019-2-306/die-isolierte-fraktion-zwischenreaktionen-zwischenrufe-und-die-afd-im-baden-wuerttembergischen-landtag-jahrgang-50-2019-heft-2?page=1>.
- Wang, Vibeke (2014). “Tracing Gender Differences in Parliamentary Debates: A Growth Curve Analysis of Ugandan MPs’ Activity Levels in Plenary Sessions”. In: *Representation* 50.3, pp. 365–377. DOI: 10.1080/00344893.2014.951234. URL: [https://www.tandfonline.com/doi/pdf/10.1080/00344893.2014.951234?casa\\_token=jxxk0\\_DvBvIAAAAA:Fx1HCK93sAxybDYM0j4umBeLd63JGVJKL-\\_W0GpLzvVtXhDUafbsEV6UJXUFo-b6IJksmK9kNk](https://www.tandfonline.com/doi/pdf/10.1080/00344893.2014.951234?casa_token=jxxk0_DvBvIAAAAA:Fx1HCK93sAxybDYM0j4umBeLd63JGVJKL-_W0GpLzvVtXhDUafbsEV6UJXUFo-b6IJksmK9kNk).
- Wooldridge, Jeffrey M. (2020). *Introductory econometrics: A modern approach*. Seventh edition. Boston, MA: Cengage.