

Gründler, Klaus; Potrafke, Niklas; Wochner, Timo

Working Paper

Outside Employment and Parliamentary Priorities

CESifo Working Paper, No. 12016

Provided in Cooperation with:

Ifo Institute – Leibniz Institute for Economic Research at the University of Munich

Suggested Citation: Gründler, Klaus; Potrafke, Niklas; Wochner, Timo (2025) : Outside Employment and Parliamentary Priorities, CESifo Working Paper, No. 12016, CESifo GmbH, Munich

This Version is available at:

<https://hdl.handle.net/10419/325007>

Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

Terms of use:

Documents in EconStor may be saved and copied for your personal and scholarly purposes.

You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.

If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.

CES ifo

**12016
2025**

July 2025

Working Papers

Outside Employment and Parliamentary Priorities

Klaus Gründler, Niklas Potrafke, Timo Wochner

CES ifo

Imprint:

CESifo Working Papers

ISSN 2364-1428 (digital)

Publisher and distributor: Munich Society for the Promotion
of Economic Research - CESifo GmbH

Poschingerstr. 5, 81679 Munich, Germany
Telephone +49 (0)89 2180-2740

Email office@cesifo.de
<https://www.cesifo.org>

Editor: Clemens Fuest

An electronic version of the paper may be downloaded free of charge

- from the CESifo website: www.ifo.de/en/cesifo/publications/cesifo-working-papers
- from the SSRN website: www.ssrn.com/index.cfm/en/cesifo/
- from the RePEc website: <https://ideas.repec.org/s/ces/ceswps.html>

Outside Employment and Parliamentary Priorities*

Klaus Gründler^{a,d,c}, Niklas Potrafke^{†a,b,c}, and Timo Wochner^{e,f}

^aifo Institute, Munich, ^bUniversity of Munich (LMU), ^cCESifo, Munich, ^dUniversity of Kassel, ^eETH Zurich, ^fKOF Institute

July 23, 2025

This paper has been accepted for publication in the Journal of Economic Behavior & Organization.

Abstract

Many democracies allow their legislators to engage in private employment, but the consequences for parliamentary priorities are still poorly understood. We collect large-scale longitudinal data on outside employment and biographic characteristics for all members of the 18th German Bundestag, and link this information to all spoken words and voting behavior in parliament. We present novel evidence that outside employment is associated with parliamentary priorities. Legislators address topics of sectors from which they receive private income more often, are more positive about these sectors, and take a generally more pro-industry stance in legislation. Our results have important implications regarding the independence of legislators.

Keywords: MPs' outside earnings, payment of politicians, lobbying

JEL Codes: D72, H11, K40

*We would like to thank Jon Fiva, Kai Gehring, Benny Geys, Jerg Gutmann, Salomo Hirvonen, Jean Lacroix, Massimo Morelli, Panu Poutvaara, Nils Wehrhöfer, and Kaspar Wüthrich for very helpful comments and discussions. We would also like to thank the participants of the 30th Silvaplana Workshop on Political Economy 2021 in Pontresina, the 2022 European Public Choice Society (EPCS) meeting in Braga, the 2022 Journées Louis-André Gérard-Varet (LAGV) conference in Marseilles, as well as the 2022 Annual Congress of the International Institute of Public Finance (IIPF) in Linz for very helpful comments and discussions. We would also like to thank the participants in research seminars at the University of Munich and the ifo Institute Munich for valuable discussions and feedback. Timo Wochner holds a Ph.D. scholarship from the Foundation of German Business and acknowledges financial support.

[†]Corresponding author. University of Munich and ifo Institute for Economic Research. Poschingerstraße 5, 81679 Munich, Germany. E-Mail: Potrafke@ifo.de.

1 Introduction

The independence of legislators is a central aspect of democracy. But what if corporate money is involved? A large literature has addressed this question by exploring whether campaign finance impacts the behavior of members of parliament (MPs) when holding office (e.g., [Coate, 2004](#); [Dawood, 2015](#)). Another source of corporate money, however, has received less attention in the literature: the possibility of MPs to earn outside money while holding public office. About 80% of democracies allow such practices ([Weschle, 2024b](#)), offering substantial scope for distraction from parliamentary duties and for political influence of private clients.

Previous work has focused almost exclusively on potential crowding-out effects of outside employment, exploring whether MPs engage in fewer parliamentary activities when pursuing outside employment. Surprisingly, the question of whether outside activities impact the *content* and the *topical priorities* of legislators in parliament is still vastly understudied. This lack of attention in the literature does not reflect a general view among scholars that a potential impact of outside employment on topical priorities should not be of concern. Compiling a unique survey among the universe of economics professors at German universities, we show that large parts of the scientific community hold strong beliefs about negative effects of outside employment on MPs’ focus in parliament.¹ More than three-quarters of the respondents state that the primary reason for their skepticism is the threat of limited independence when corporate money is received. Yet, to date, no empirical evidence exists to substantiate the concern that corporate money mitigates legislators’ independence. The goal of this paper is to fill this gap.

We document three main results. Our first main result is that outside employment is associated with the thematic focus of MPs’ parliamentary work. This evidence is established based on manually compiled large-scale longitudinal data that combines parliamentary activity and biographic characteristics of all 656 members of the 18th German Bundestag (2014-2017) with the extent and source of outside activities, parliamentary functions, the transcripts of all spoken words during the 18th legislative period, and self-coded voting behavior in roll-call votes. Our data collection benefits from a major reform in disclosure rules in Germany, which allows us to collect much

¹The survey, which was conducted without delivering any information about our theoretical predictions, was sent out prior to our analysis to prevent hindsight bias. It allows us to compare our main findings to average expert predictions (see, e.g., [DellaVigna et al., 2019](#)).

more granular information about MPs’ outside earnings. The reform took place in 2013 and was implemented at short notice following a scandal that was accompanied by massive public outcry. Importantly, the reform did not restrict the legality of having outside employment as an MP but rather abruptly lifted the veil of censoring, providing researchers with the set-up of an unfiltered view on engagement in outside activities.

Our empirical set-up relates the sources of MPs’ outside earnings to topics covered in their speeches in the German Bundestag. We uncover the current topical focus of MPs’ parliamentary work from speeches in parliament. Using data on more than 12 million words that were spoken during the 18th German Bundestag, our natural language processing approach allows us to identify the share of words per speech that is devoted to a specific topic. We classify these shares for each speech of all legislators, which delivers time-varying measures of the intensity an MP works on certain topics. Our machine-learning-based approach has several advantages over alternative strategies to retrieve MPs’ focus from observational data. Most importantly, while some studies use the laws introduced by MPs to reveal their topical focus, the selection of legislators to specific committees typically rests on long-standing experience. The speech-based classification of topical priorities, instead, allows us to measure shifts in legislators’ topics over time, which we exploit to separate general expertise from topical shifts caused by outside employment. The time-varying nature of our measure allows us to explore whether legislators address certain industries more often when taking-up or intensifying outside work in these industries. Exploiting within-MP variation in industry-specific outside earnings, we find that outside earnings from a specific industry is significantly related to the associated topic share of that industry covered in MPs’ parliamentary speeches. A change of thematic focus in parliamentary work towards the industry of the outside employment represents a strong signal that outside employment influences the content of MPs’ parliamentary work.

We next explore the *motivation* underlying a connection between outside employment and MPs’ parliamentary work. While it might be that working for a specific industry increases the knowledge of parliamentarians about a certain field, it may also be that outside money creates incentives to present that industry in a better light and to work towards more favorable regulations of this industry. Our second main result provides suggestive evidence for the latter explanation, showing that an increase in industry-specific outside earnings makes speeches about that industry more positive. Relying on MP-times-topic fixed effects in those regressions rules out that the relation

between industry-specific sentiment embedded in parliamentary speeches and MPs' outside employment arises from selection of outside employment into individual industries. In a falsification test, where we relate outside earnings from a particular industry to the sentiment expressed toward other industries, we find that MPs adopt a more negative tone toward other sectors when engaging in outside employment, suggesting a reallocation of rhetorical favor toward their financial sponsors.

While the results on shifts in speech content suggest that outside employment is associated with changes in how MPs prioritize issues in their parliamentary work, a remaining question is whether outside activities are also consequential for actual legislation. Our third main result suggests that this is the case, revealing that outside earnings also relate to MPs' voting behavior on legislation. We establish this result based on self-coded data on MPs' voting behavior in roll-call votes, the most important data source on parliamentary behavior available for Germany. Leveraging within-MP variation in the intensity of outside employment, we show that outside earnings significantly increase the likelihood that MPs vote pro-industry. To rule out that these results are driven by party-specific *ex ante* probabilities to vote pro-industry, which might correlate with the likelihood to receive outside earnings, we also explore whether legislators *deviate* from party lines. We find that those legislators who receive outside earnings are significantly more likely to deviate from their party line to vote pro industry. Taken together, our results represent extensive evidence that outside employment is associated with parliamentary priorities and behavior of MPs.

Our results provide important insights into MPs' behavior in parliament. The strong linkage between topical priorities and outside employment may suggest that outside earnings influence the issues MPs choose to emphasize in their speeches in order to cast a particular industry in a more favorable light or to advance its legislative interests. The close entanglement between income received from industry and parliamentary priorities may also indicate that MPs use their speeches strategically to attract outside jobs. Both interpretations point to a misalignment between private incentives and the public interest. Even if outside income merely reflects MPs' pre-existing views, the resulting entanglement raises normative concerns about political representation.

Contribution to the literature: Previous research examined how outside earnings relate to activities in parliament (e.g., [Gagliarducci et al., 2010](#); [Geys and Mause, 2013](#); [Geys, 2013](#); [Arnold et al., 2014](#); [Staat and Kuehnhanss, 2017](#); [Gavoille, 2018](#);

Hurka et al., 2018; Weschle, 2024b; Wochner, 2022; see Geys and Mause, 2022 for a survey). These studies exclusively focused on crowding-out effects initiated by outside employment, i.e. whether MPs with outside earnings conduct *fewer* parliamentary activities or are more often absent in parliament.

In contrast, there is hardly any evidence of how outside employment influences the direction legislators take through their parliamentary work. The one notable exception is Weschle (2024b), who shows for the United Kingdom that conservative MPs with outside employment increase the number of written parliamentary questions and provides suggestive evidence that the increase relates to their employment. As written parliamentary questions are a tool mostly used by MPs in opposition, it remains an open question whether those results represent broader empirical patterns or extend to effects on legislation. The lack of evidence is even more striking given the strong priors of the scientific community that we document in our survey among university professors. Our main contribution is to fill this gap.

Our work is also related to the literature on lobbying in politics (e.g., Bertrand et al., 2014; Geys and Titl, 2019; Geys and Mause, 2024 and the surveys of Polk, 2020, 2023). In particular, scholars investigate how lobbying, such as campaign contributions, influences roll-call votes in parliament. Evidence shows that campaign contributions have bought votes in the United States (e.g., Snyder Jr, 1992; Grier et al., 2023; Balles et al., 2024, and the survey by Weschle, 2024a). There is also evidence on how outside earnings relate to roll-call votes. Previous research has demonstrated that MPs with outside earnings are more likely to deviate from the party line (Mai, 2022; Weschle, 2024b). As in Germany there is no systematic data on which MP works on which specific legislation, roll-call votes serve as the primary source for assessing legislative positions. Consequently, determinants of roll-call voting behavior have been extensively studied in the existing literature (e.g., Stratmann, 2006, Sieberer, 2010, Kauder et al., 2017, Sieberer et al., 2020, Sieberer and Ohmura, 2021, Mai and Wenzelburger, 2024). We connect to this literature by providing novel evidence on whether outside employment influences *how* MPs vote in roll-call votes, i.e. whether they vote more pro-industry when receiving outside money. Classifying the degree of industry-leaning by manually coding the behavior of MPs in roll-call votes, we show that an increase in the intensity of outside work increases MPs' pro-industry stance in roll-call votes.

2 Data

Our analysis is based on a series of novel self-compiled data collections for the 18th legislative period of the German national parliament (“Bundestag”). Four political parties were represented in the German parliament during this period. The center-left Social Democratic Party (“SPD”) and the center-right Christian Democratic Union (“CDU”) formed the government. The Greens (“Bündnis 90/Die Grünen”) and the Left Party (“Die LINKE”) were in opposition. Our final dataset includes information on biographic characteristics, parliamentary activity, content of parliamentary work, roll-call voting behavior, and outside earnings of all 656 MPs that were in office in the 18th legislative period. Appendix Table (A1) presents descriptive statistics for all variables.

2.1 The 2013 reform in declaration rules

For most of German political history, the amount of income that parliamentarians receive from external sources was not publicly disclosed. The declaration rules changed in the year 2007, when a new law was introduced that forced MPs to report their outside earnings in a three-scale bracket system. The change in the declaration allowed voters to see for the first time *which* of their legislators received external money (see also the discussion of the German accountability and transparency environment in [Geys and Mause, 2012](#)). However, the top-coding nature of the declaration scheme made it impossible to estimate the *extent* of extra-parliamentary work. In the highest of the three income brackets, parliamentarians needed to report earnings of 7,000 Euro or higher—an amount that many MPs exceeded with a single speech.²

To improve the transparency of its members, the 17th German Bundestag released a major reform including much higher thresholds for the reporting of outside earnings. From 2013 onwards, MPs were required to report their outside earnings on a ten-level scale that reaches from 1,000-3,500 Euros (Level 1) up to more than 250,000 Euros (Level 10) per activity. The 2013 reform in disclosure rules was implemented rapidly in response to public pressure after the exorbitant outside earnings of the former German Minister of Finance Peer Steinbrück were leaked to the general public. The revelation of the amount of outside earnings initiated momentous public outcry and led the parliament to vote in favor of stricter disclosure rules, particularly given that the

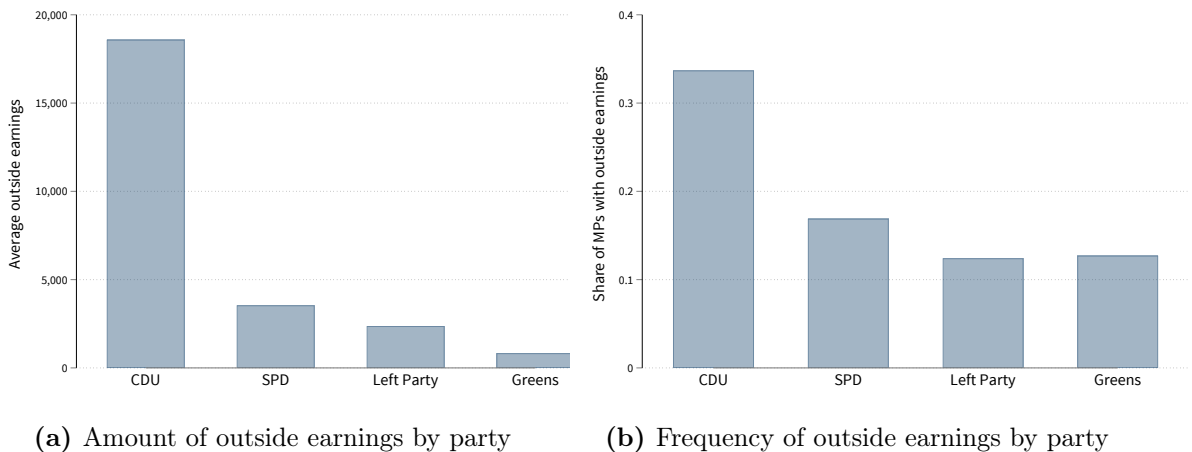
²During the legislative period 2009-2013, outside earnings needed to be reported in three levels. Lower bounds were 1,000 Euros, 3,500 Euros, and 7,000 Euros. Earnings that exceed the level of 7,000 Euros have been censored.

2013 parliamentary election was at the front door. Importantly, the reform did not limit how much MPs can earn from outside employment (both from dependent employment and self-employment). At the same time, strategic large-scale misreporting has been made very costly due to heavy—and enforced—punishment (up to 50% reduction in yearly wages) if MPs are caught not disclosing outside earnings. The German case and the legislative period after the reform are hence well-suited to study the relationship between outside earnings and parliamentary activities.³

2.2 Outside earnings

While outside earnings have been subject to declaration since the 17th legislative period, there is no readily available collection of data summarizing amounts or types of outside earnings per MP. Instead, legislators declare their outside earnings to the public individually on their webpages of the German Bundestag. For our project, we manually collect and structure the information declared on all 656 webpages to obtain a full dataset on the amount and source of outside earnings between 2014 and 2017.

Figure 1 AMOUNT AND FREQUENCY OF OUTSIDE EARNINGS BY PARTY



Notes: The figure shows the amount (Panel a) and the frequency (Panel b) of outside earnings earned by MPs of individual parties. The data is presented for all parties that have been part of the 18th Bundestag. The figure shows averages over the entire 18th legislative period. Data is self-collected.

³While the availability of data would, in principle, allow us to expand the analysis into more recent periods, the following 19th legislative period (2017–2021) was heavily affected by the Covid-19 pandemic.

Coding scheme: The declaration rules require MPs to report outside earnings per activity in brackets. Given that the “true” amount of outside earnings for the highest bracket has, in principle, no upper limit, we use the lower bound of each bracket as an estimate for MPs’ outside earnings per declared activity. We aggregate all declared activities of legislators in a given year to obtain the total amount of outside earnings per MP and year. This coding scheme provides a conservative estimate of the amount received by outside activities (see also [Arnold et al., 2014](#)).⁴ Even though the reform of disclosure rules has enabled researchers since the 18th legislative period to measure outside employment with much greater granularity than before, the bracket system still entails some measurement imprecision. Random measurement error in our outside earnings variable would lead to an attenuation bias in our empirical estimates, which biases the estimated coefficient toward zero. If, however, MPs systematically bunched their outside income to downplay the extent of outside employment, the resulting non-random measurement errors in our outside earnings variable would potentially introduce a bias that is more difficult to interpret. In Appendix D, we provide a series of validation strategies, which reveal no sign of strategic bunching and, more generally, show that observed changes based on the bracket-system correlate strongly with changes in precisely measured industry earnings.

Cross-sectional distribution of outside earnings: Figure (1a) plots average outside earnings across German parties in the 18th German Bundestag. The figure reveals substantial cross-party heterogeneity in outside earnings. MPs from the conservative CDU had much higher outside earnings on average (18,600 Euros) than MPs from the progressive SPD (3,500 Euros), the Greens (825 Euros), and the Left Party (2,400 Euros). There is also large heterogeneity in outside earnings within parties, but the percentage of MPs receiving any outside earnings, shown in Figure (1b), suggests that the party averages are not driven by single legislators with disproportionately high outside earnings. Between 2014 and 2017, 24% of all legislators received outside earnings at least in one year. The share was highest for legislators of the conservative CDU (34%) and lower for members of the SPD (17%), the Left Party (12%), and the Greens (13%).

⁴Using this classifications scheme, level 1 describes outside earnings of 1,000 Euros, level 2 of 3,500 Euros, level 3 of 7,000 Euros, level 4 of 15,000 Euros, level 5 of 30,000 Euros, level 6 of 50,000 Euros, level 7 of 75,000 Euros, level 8 of 100,000 Euros, level 9 of 150,000 Euros and level 10 of 250,000 Euros. Only eight MPs reported earnings in Level 10 for a single activity during the legislative period from 2013-2017.

Within-MP variation in outside earnings: Figure (B1a) in the appendix shows the distribution of income *changes*. As there are some important outliers (e.g. changes $> 300,000$), Figure (B1b) zooms into the distribution of changes where the bulk of the observations is located. Together, the figures show that there is quite some within-MP variation in income changes that we can use for estimation. Conditional on having any change, the average income change is €28.566. This variation comes from 156 MPs, who see a change in their general outside earnings over the time period. However, as our empirical strategy will rely on MP-topic combinations, the available variation is larger. There, we observe changes in 217 MP-topic combinations. In terms of the number of *switches* on the extensive margin, we observe 153 shifts in topic-k earnings, meaning that an MP goes from zero to some non-zero income or from non-zero income to zero *for a specific topic domain*. Counting the total amount of switches, i.e. including also all changes on the intensive margin, we have 526 individual shifts in topic-k earnings in the data.

2.3 Content of MPs’ parliamentary work

We compile two complementary time-variant measures to classify the substantive and thematic priorities on which legislators focused in their parliamentary work during the 18th legislative term. The first measure retrieves the topics MPs are currently working on based on speeches they give in parliament. The second measure gauges changes in actual behavior of MPs, classifying the content legislators vote for in roll-call votes.

2.3.1 Speech-based measures of topic shares

We employ natural language processing on all parliamentary speeches of the 18th German Bundestag to identify the contents that legislators are concerned with at a certain point in time. Data comes from the ParlSpeech V2 dataset compiled by [Rauh and Schwalbach \(2020\)](#), which contains all spoken words in the parliaments of nine countries, including Germany. To disentangle speeches from other oral contributions, we examine all speeches with more than 100 terms. This procedure allows us to identify a total of 19,405 speeches and more than 12 million spoken words.

To detect addressed topics of parliamentary speeches, we use a Latent Dirichlet Allocation (LDA) model on the full corpus of the ParlSpeech V2 dataset between 2014 and 2017. We employ a series of common processing steps such as part-of-speech (POS)

tagging, lemmatization, removal of stop words, and set the number of topics to $k = 10$.⁵ Table (A2) in the appendix shows that the LDA model produces word distributions over topics that allow to assign distinct labels to the topics (such as education, housing, and social issues).

We then use these words-over-topics distributions to classify each individual speech by MPs in the 18th legislative period across the identified ten topics. Aggregating the means over those topics for each MP-year combination, we derive our main dependent variable: the *share* of topics addressed in parliamentary speeches on an MP-year level. Figure (B2) in the appendix shows the share of addressed topics over the years.

Alternative outcome measure: To construct an alternative outcome measure that measures the *dominant* theme per speech, we assign every speech to one individual topic by taking the highest probability assignment across topics. This complementary classification allows us to assess how the *number* of topic-specific speeches changes in response to outside earnings from a given industry. Compared to the classification of dominant themes, however, our share-based main outcome variable is more sensitive to subtle changes in content and also captures marginal notes inserted into speeches on other topics.

Validation of our classification approach: The output of the LDA model allows us to uncover whether MPs intensify their focus on one topic by either increasing the addressed topic share and/or increasing the number of topic-specific speeches. We next validate the output of our classification approach. The logic underlying our validation procedure is that some MPs should have a much higher ex ante probability to cover certain topics in speeches, when they are members of committees in the German Bundestag. According to the Bundestag’s Rules of Procedure (“Geschäftsordnung”), the standing committees are referred to as “*preparatory decision-making bodies of the Bundestag*”, illustrating the importance of the committees for parliamentary work. As the committees are devoted to work on specific topics (such as social affairs, education, or defense), members of these committees should cover committee-related topics to a larger extent in their speeches than other legislators.

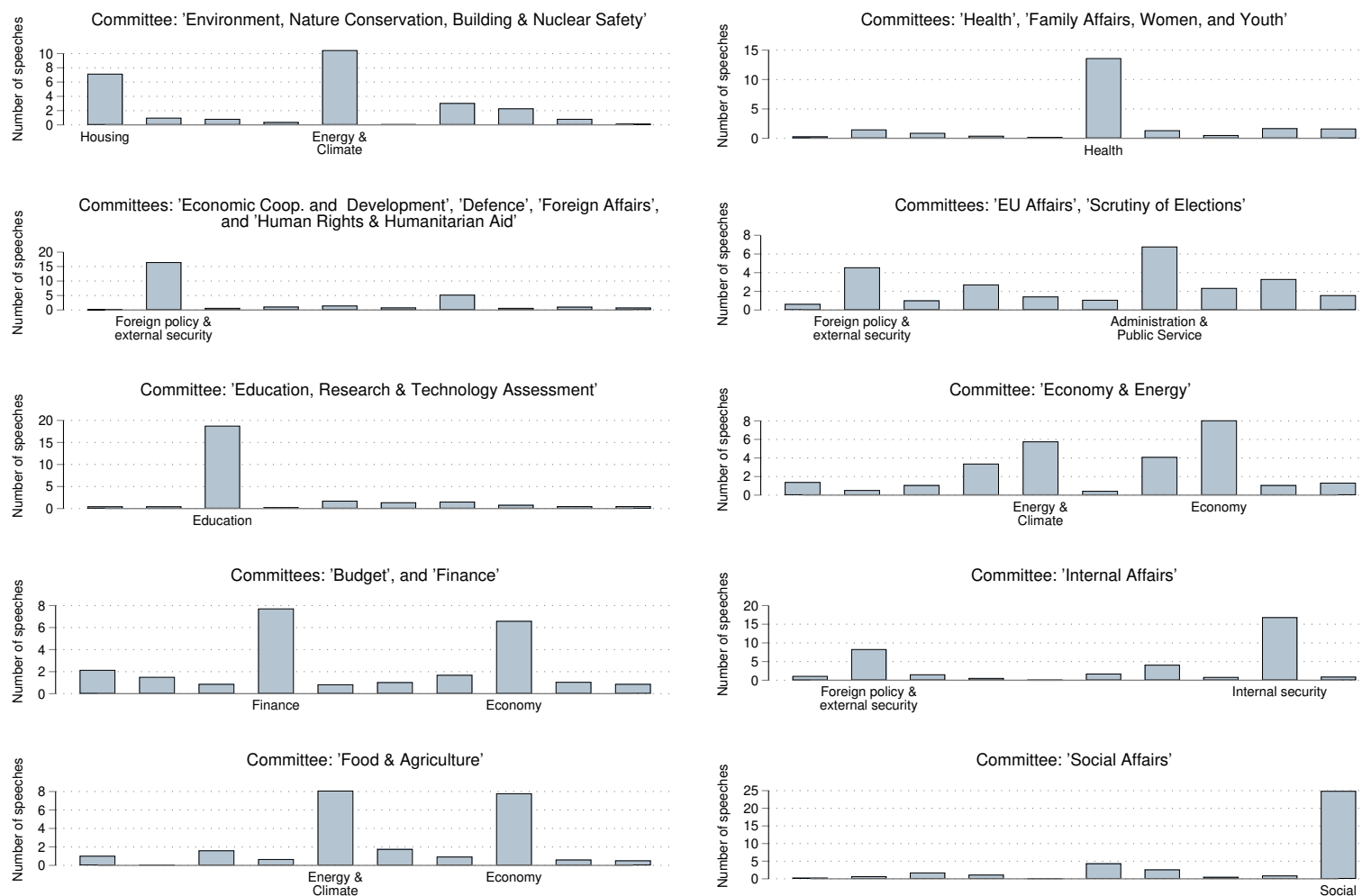
⁵To select the number of topics, we compare coherence measurements of our LDA model across varying numbers of topics. Comparing the perplexity of the classification outcome, we find that $k \approx 10$ delivers the best description of our speech documents. Exploring the classification outcomes, we also find that $k = 10$ delivers very plausible classifications with discrimination power across identified topics.

Linking our MP-level dataset with information on MPs’ committee membership, we first assign our classified topics to committees (see Panel B of Table A2). The topics identified via our LDA approach allows for a clear assignment of topics to committees (e.g. the topic “social” is assigned to the committee on social affairs etc.). We then plot distributions of topic-specific speeches for MPs from those committees. The patterns, shown in Figure (2), demonstrate that we classify speeches very consistently: The overwhelming majority of speeches by MPs in assigned committees are on the corresponding topic. This regularity provides strong evidence that our LDA model successfully captures and separates between topics.

Sentiment: We also classify the sentiment of MPs’ speeches. Our approach relies on pre-assigned polarity scores for each word in a dictionary, which are then used to assess the overall sentiment of a text. Research has shown that custom-made dictionaries tend to outperform more general sentiment dictionaries (Shapiro et al., 2022). This should particularly be the case in a political context, where legislators tend to use more neutral words compared to social media posts, newspaper articles, or books. We hence use a sentiment dictionary that is specifically tailored for the German political language (Rauh, 2018).

Our approach assigns sentiment scores to each speech. We next rely on our classification of individual speeches into topics to construct average sentiment indicators for each MP-year-topic combination. These sentiment indicators include the share of positive and negative words as well as a compound sentiment score, which is derived from the difference between the positive and negative shares.

Figure 2 VALIDATION OF THE TOPIC CLASSIFICATION: TOPICS AND MPS' COMMITTEES



Notes: The figure shows the distributions of the number of speeches per topic for MPs that are members of committees. The figure labels those topics that are particularly covered by the work of a specific committee.

Validation of the sentiment scores: The dictionary by [Rauh \(2018\)](#) has been validated against human-coded analyses of parliamentary speeches, party manifestos, and media coverage, providing accurate sentiment measurements.⁶ We also conduct our own validation, where two research assistants (blinded to the purpose of the task) rated the sentiment of 1,000 speeches, which allows us to benchmark our derived sentiment scores against human ratings. Figure (B3) shows a very distinct pattern: The algorithm assigns higher sentiment scores to speeches that were rated by the research assistants as having a positive sentiment (+1) compared to speeches that were rated as neutral (0) or having a negative sentiment (-1). Neutrally rated speeches are also clearly distinguishable from negatively rated speeches. With over a standard deviation difference in the sentiment scores across the categories of the human ratings, our validation exercise shows economically meaningful separations of speeches. The differences across categories are also statistically significant at the 1% level. This provides us with confidence that our algorithm captures the sentiment of speeches in a meaningful way.

2.3.2 Roll-call votes

To directly assess whether outside work of MPs influences legislation, we examine roll-call votes. If votes on a certain topic in the German Bundestag are conducted in the format of roll-call voting, parliamentarians’ individual stance on legislation is recorded. The votes of legislators in roll-call votes are made public on the webpage of the German Bundestag. To use the data for our analysis, we first manually compile the votes of all parliamentarians. We then hand-code for all 212 roll-call votes that took place during the 18th legislative term whether they concern topics related to the private industry. In total, we classify 96 of them as roll-call votes on issues that are either relevant for the broader economy—such as votes on free trade agreements—or relevant for individual industries. Industry-specific votes include, for instance, votes on pharmaceutical laws (e.g. the vote on 11 November 2016), the expansion and promotion of energy sources (e.g. the vote on 8 July 2016), or agricultural regulations (e.g. the vote on 5 November 2015). Examples of roll-call votes that do not concern private industry issues include acts amending the Criminal Code, classifying certain countries as safe countries of origin, or amending the Disability Equality Law. We manually code whether voting in

⁶We deliberately avoid more advanced sentiment analysis methods, as the concept of sentiment may differ from that of stance toward specific entities ([Bestvater and Monroe, 2023](#)). Our focus, instead, is on how speeches are framed, particularly through the use of words with positive or negative connotations.

favor or against the motion reflects a pro-industry stance by MPs, and combine this classification with the information on how each individual MP voted.⁷

Based on 55,211 MP-vote observations, we first construct a variable “Industry-leaning” that takes the values of “-1” when an MP i voted in roll-call j (in year t) *against* the interests of the private industry, the value of “0” when an MP abstained from voting (but was present), and the value of “+1” when an MP voted *in favor* of the private industries’ interests. We then take the sum of the “Industry-leaning” variable for each MP-year observation and construct the share of alignment by dividing by the number of roll-call votes in that year.

Some roll-call votes might follow the general party line of legislators, and hence we might expect that MPs from parties that are generally more concerned about the state of the economy might have a higher ex ante probability to vote pro-industry. As a complementary strategy to measure behavior in roll-call votes, we also classify whether MPs deviate from the party line. To this end, we create a variable that assumes a value of one if MPs vote pro-industry *and* this vote is against the party line (recovered by the party-specific majority in the roll-call vote).

2.4 Biographic information

Finally, we collect data on MPs’ characteristics. We are particularly interested in *time-varying* characteristics, as legislator fixed effects control for any time-invariant confounders (including birth year, gender, education etc.). The most important potential for confounding arises from *parliamentary functions*, which impact both the content of parliamentary work and the attractiveness of MPs for employment in the private sector. To obtain a full list of parliamentary functions, we went through the archives of the German Bundestag to assess whether MPs have had political leadership positions (e.g. the position of a group chairman, a committee chair, a state secretary or a cabinet position) or switched between leadership and non-leadership positions. Most of this information is provided in the form of texts, which we operationalized and matched with the individuals in our dataset. We additionally gather information on MPs’ *party responsibilities*, identifying whether they served in roles such as party

⁷Voting “yes” or “no” in roll-call votes can reflect different stances depending on the framing of the motions. For example, when a motion is tabled that would be favorable to the private industry, voting “yes” reflects a pro-industry stance by MPs. In contrast, when a motion is tabled on whether an amendment request to a draft bill should be dismissed and if the amendment request would have been in favor of private industry interests, then voting “no” reflects a pro-industry stance by MPs.

whips. Most of these party roles were unchanged over the 18th legislative period. Similarly, we observed no change in committee memberships in our sample period.

Previous studies suggest that MPs’ retirement considerations and pension eligibilities influence their parliamentary activities (Geys and Mause, 2016; Willumsen and Goetz, 2017). Since 2008, pensions have increased at a constant rate of 2.5% for each additional year served in parliament beyond the first. As a result, differential pension trajectories across MPs should be absorbed by the fixed effects. We might, however, expect that MPs who reached the official retirement age during the legislative period have incentives to reallocate the time spent for outside activities and parliamentary activities, and reaching the retirement age might also shift MPs’ priorities. To account for such effects, we collect data on pension eligibility and code a dummy variable that is one if an MP reached official pension age.

We also use self-compiled data on MPs’ media appearances in all major television talk shows in Germany from Gründler et al. (2024). This data has been documented in close co-operation with Germany’s largest and most important TV stations. The data collection includes the most popular TV formats of the German political sphere, covering approximately 1,500 shows that span over more than 100,000 minutes.⁸ We use the information on the invited talk show guests to construct a variable measuring the yearly number of appearances per legislator in those talk shows over the 18th legislative period.

3 Empirical Strategy

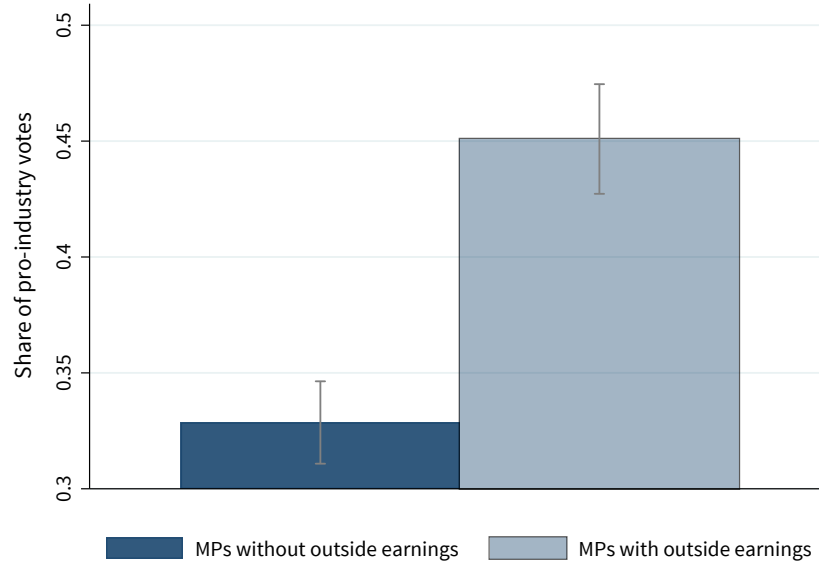
3.1 Descriptive analysis

Estimating how outside employment relates to the content of parliamentary work is challenging, as we have to rely on observational data. MPs who earn outside earnings are likely to be different along several dimensions from MPs who do not earn outside earnings. Figure (3) exemplifies potential ex ante differences by plotting roll-call voting behavior separately for legislators with and without outside employment. The figure shows that MPs who are active in outside employment (i.e. earn any outside earnings) are significantly more likely to vote pro-industry in roll-calls than others. Similarly, Appendix Figure (B4) shows that those differences extend to MPs’ topical focus in

⁸The data collection includes the popular political talk shows “Markus Lanz”, “Günther Jauch”, “Anne Will”, “Maybritt Illner”, “Menschen bei Maischberger”, “Hart aber Fair”, and “Faktist”.

parliamentary speeches: MPs with outside earnings are significantly more likely to talk about topics relating to finance or the economy and significantly less likely to talk about topics relating to education or social issues.

Figure 3 PRO-INDUSTRY VOTES AND OUTSIDE EMPLOYMENT



Notes: The figure relates MPs' share of pro-industry votes in roll-calls to a dummy indicating whether they are active in outside employment.

The differences in topical priorities and industry-leanings likely reflect differentials in general expertise of MPs, different interests, or might even stem from differences in socioeconomic or sociodemographic characteristics of MPs. We next describe how our empirical strategy allows to account for such general differences across MPs.

3.2 Econometric model

Parliamentary speeches: We start our empirical analysis by estimating how outside earnings from a specific industry relate to the content covered in parliamentary speeches. A main challenge of this analysis is that MPs usually work on topics for which they have acquired long-standing expertise. An MP who is an expert on finance has a higher ex ante probability to speak in parliament about banking regulations than other MPs. At the same time, this MP is also more likely to engage in outside activity in the banking sector. We develop a strategy that allows us to account for MP-times-topic fixed effects to distinguish between general expertise on a certain topic and a

potentially higher intensity to which this topic is covered in MPs’ speeches when they have taken on a specific outside employment. We then estimate whether MPs address banking regulations to a greater extent when receiving (increased) earnings from the banking sector, holding constant general expertise on banking questions.

We manually assign the sources of each of the MPs’ outside activities to the topics identified via our natural language processing approach (see section 2). This classification approach is based on the company paying for the outside earnings. For example, we classify outside earnings received from real estate activities under “Housing” (Topic 1) and outside earnings received from pharmaceutical companies under “Health” (Topic 6). This classification scheme allows us to link outside earnings to topics covered in speeches.

To account for MP-times-topic fixed effects, we transform the data into a repeated panel format, i.e. the unit of observation is on the MP-year-topic level. That is, we exploit variation over time t in the attention given to topic k in speeches by MP i . Our regression is therefore not topic k -specific, but instead fully leverages the available variation in *within* MP-specific outside earnings *within* topics k . Our empirical setup is represented by the following equation:

$$\text{Topic Share}_{ikt} = \rho(\mathbb{1}_{ikt}^{\text{Earnings}} \times \text{Earnings}_{ikt}) + \mathbf{X}_{it}\boldsymbol{\beta} + \zeta_t + \eta_{i \times k} + \varepsilon_{ikt} \quad (1)$$

where we regress the average share a topic k is mentioned in speeches given by MP i in year t on MP i ’s earnings from topic source k in year t . Time-varying controls are included in the matrix \mathbf{X}_{it} . Including legislator-times-topic fixed effects $\eta_{i \times k}$ rules out that the estimated parameter $\hat{\rho}$ captures ex ante differences in legislator characteristics—such as specific knowledge, interest, or expertise—rather than the impact of outside employment. It also eliminates differentials in committee membership across MPs as well as pre-parliamentary occupations. Importantly, the interaction fixed effects leverage only MP-specific variation in outside earnings within individual industries – ruling out that the results are driven by within-legislator across-industry variation. We also introduce time fixed effects ζ_t to absorb period-specific shocks to parliamentary topics. Such shocks include profound events, like economic downturns or specific geo-political incidents, which lead to a general shift in the topics covered in parliamentary speeches at a certain point in time. We cluster standard errors on the MP-level to account for potential serial correlation.

Roll-call voting behavior: Our strategy to examine whether MPs’ outside work influences their voting behavior on legislation follows a similar empirical design. Specifically, we estimate the following specification:

$$\text{Industry}_{it} = \rho(\mathbb{1}_{it}^{\text{Earnings}} \times \text{Earnings}_{it}) + \mathbf{X}_{it}\boldsymbol{\beta} + \zeta_t + \eta_i + \varepsilon_{it} \quad (2)$$

The unit of observation is on the MP-year level, where the dependent variable Industry_{it} measures the share of MP i ’s pro-industry roll-call votes in year t . Time-invariant socio-demographic and socio-economic characteristics of MPs are absorbed by MP fixed effects (η_i), time-varying factors (retirement eligibility, political leadership positions, and media appearances) are included in the matrix \mathbf{X} . Year-specific factors are absorbed by year fixed effects (ζ_t). The empirical estimate of parameter ρ reflects then whether MPs’ voting depends on their outside activities.

Discussion: As with all studies examining the consequences of outside employment, a central empirical challenge is the endogeneity of treatment: members of parliament (MPs) self-select into outside activities based on unobserved factors that may also influence their legislative behavior. As a result, our estimates should not be interpreted as strictly causal. Nonetheless, we implement a range of robustness checks and design features to mitigate confounding concerns.

Our empirical design moves beyond previous work that mostly focuses on the *extensive* margin (i.e. whether or not MPs are active in outside work) and neglect the *intensive* margin (i.e. the extent of outside work and the amount of outside earnings). Statistically, using the extensive margin alone requires sufficient switchers, i.e. MPs who transition into and out of outside employment. While the extent of outside money earned by legislators changes substantially across years, switches into or out of outside employment are much less common. Economically, in difference-in-differences frameworks that define outside employment as a binary treatment, individuals that *increase* their outside activity are implicitly assumed to experience no additional treatment. It is, however, reasonable to assume that the *extent* of outside work is important for a potential lobbying effect. Our newly collected data allows us to account for both the extensive and the intensive margin of outside employment.

More generally, the use of MP-level fixed effects accounts for any time-invariant unobserved factors of MPs that may confound the relationship between outside earnings and parliamentary activities. On top of general expertise and interests, innate abil-

ity and talent, communication skills, family background, and also MPs’ attractiveness might play a role. MP fixed effects are a powerful tool to eliminate these potential sources of bias, as including them allows us to account for (i) any experience in politics at the local, state, and national level before the beginning of the 18th legislative period and (ii) differences in (unobserved) increases in MPs’ legislative experience and expertise conditional on biological or political age.

A potential threat to the validity of our estimates comes from time-varying individual-level factors that are correlated simultaneously with MPs’ parliamentary work and their outside activity. To tackle this threat, we include MP-specific characteristics that change over the 18th legislative period in the matrix \mathbf{X}_{it} . These factors include leadership positions within the parliament or the party (such as positions of a group chairman, a committee chair, being a state secretary, holding cabinet positions, or serving as a party whip) and pension eligibility (see Section 2.4). Additionally, we proxy public visibility of MPs via media appearances in major political talk shows. Being a guest in TV talk shows could increase the popularity of MPs and give rise to more outside opportunities; at the same time, media appearances might shift the topical priorities to cover the most recent popular discussions. Media appearances should also correlate with general changes in popularity of MPs.

Finally, the interval-censored nature of our outside earnings variable might impact the estimation results. In Appendix D, we show that the measurement error introduced by the bracket system is *random* in the sense that there is no systematic over- or under-reporting of MPs. Random measurement error in the independent variable gives rise to attenuation bias, which biases the estimated coefficient toward zero. This means that our empirical strategy will deliver a *conservative* estimate of the true relationship.

4 Results

4.1 Beliefs of the scientific community

A survey among the universe of economics professors: We ask the scientific community in Germany about their priors regarding the impact of outside work on legislators’ parliamentary activity in the German Bundestag. Our survey was conducted among all tenured economics professors at German universities. We exploit the unique infrastructure of the “Economists panel” (German: “*Ökonomenpanel*”) conducted jointly by the ifo Institute in Munich and the “Frankfurter Allgemeine Zeitung”

(FAZ) to collect our survey. Data collected by the Economists panel has previously been used in related studies that required high-quality responses from professional economic experts (e.g., [Dräger et al., 2025](#)).

Importantly, the survey was collected (1) before running our analysis and (2) without sharing any hypotheses to prevent priming of the respondents and to rule out hindsight bias ([DellaVigna et al., 2019](#)). The survey was in the field between 8 June and 15 June 2021, with a total of 146 economics professors at German universities participating (response rate: 20.1%).

The “wisdom of the crowd” of economics professors has been shown to predict the outcome of economic studies quite well ([DellaVigna and Pope, 2018](#)). The predictions of economics professors obtained via our survey are hence valuable in assessing the ex ante credibility of our hypotheses and the plausibility of our results, hence improving the quality of our findings.

The main question of interest included in the survey is: *“Do you think that outside earnings of members of the German Bundestag pose a problem for the quality of their parliamentary work?”*. We also asked the professors about the reasons for potential adverse effects on parliamentary work. We ask about these reasons in open-ended text questions to prevent any priming of respondents regarding potential hypotheses. Answers to this question allow us to shed light on the plausibility of a potential effect of outside work on the content of parliamentary work.

Main findings: A majority of the 146 economics professors (68%) in our survey responded that they believe in crowding-out effects from outside earnings on the parliamentary activities of MPs. Even though our open-ended text question about the reason of a potentially negative effect included no reference to independence considerations, a striking number of 76% of respondents mentioned that outside earnings can create dependencies that threaten the independence of the political decisions of parliamentarians. Taken together, the results from our pre-analysis survey show that there is a widespread belief that outside employment can influence the content of MPs’ work—yet, there is a distinct lack of evidence for this concern.

4.2 Main results

4.2.1 Results for parliamentary content

Table (1) presents the main results on the relationship between MPs’ sources of outside earnings and the addressed content in their parliamentary speeches (estimating Equation 1). We report results from a parsimonious model (Column 1), and then gradually introduce year fixed effects (Column 2) and MP-times-topic fixed effects (Column 3), as well as a set of time-varying MP-level controls (Column 4).

Across all specifications, we estimate strongly positive and statistically significant coefficients on the outside earnings variable. This result suggests that the sources of MPs’ outside earnings are strongly related to their topical priorities in parliament. Legislators are significantly more likely to address topics related to a specific industry when they receive an increasing amount of money from that industry. In all specifications, this relationship is statistically significant at the 1% level. The parameter estimate in Column (4) suggests that an increase in topic-specific outside earnings by 20,000 Euros (roughly one standard deviation) is related to an increase in the topic share covered in parliamentary speeches by 0.74 percentage points (4% of a standard deviation) on a mean of 9.2%.

Extensive margin: Previous research has focused almost exclusively on the extensive margin of outside employment, examining whether individuals engage in outside work at all, rather than the intensity or extent of their involvement. To compare our results based on both the extensive and the intensive margin to a dichotomous measure of outside earnings, we reduce our outside earnings variable to a binary dummy (this makes our specification akin to the one used by e.g., Weschle, 2024b). Table (A3) shows that our results persist in the cross-section but cease to be statistically significant when including MP-times-topic fixed effects. This result demonstrates that the *extent* of outside remuneration is decisive for changes in MPs’ topical focus.

Pre-trends and treatment dynamics: An important assumption underlying our empirical design is that, in the absence of treatment, units with different amounts of outside earnings would have exhibited parallel trends in mentions of industry k over time. We next examine trends previous to switching into outside employment, and then estimate event-time effects to capture the dynamic relationship between outside earning and topics of speeches. Figure (B5) in the appendix visualizes the results, showing no

Table 1 OUTSIDE EARNINGS AND TOPIC SHARES — REGRESSION RESULTS

Dependent variable: Topic share				
	(1)	(2)	(3)	(4)
	Parsimonious	+ Year FEs	+ MP-level FEs	+ Controls
$\mathbf{1}_{ikt}^{Earnings} \times Earnings_{ikt}$	0.049*** (0.016)	0.049*** (0.016)	0.037*** (0.006)	0.037*** (0.006)
Fixed MP \times topic effect	No	No	Yes	Yes
Fixed year effect	No	Yes	Yes	Yes
Controls	No	No	No	Yes
Observations	25,450	25,450	25,450	25,450
Number of MPs	656	656	656	656

Notes: The table shows regression results on the relationship between MPs’ outside earnings and MPs’ topical focus in their parliamentary speeches, empirically estimating equation (1). The topical focus is measured based on natural language processing techniques that allow us to extract for every speech the share that a specific topic is mentioned in MPs’ parliamentary speeches. Individual time-varying controls include a dummy for political leadership positions, a dummy for reaching the official retirement age of 65, and the number of MPs’ media appearances in talk shows. Clustered standard errors on the MP-level to account for potential serial correlation are reported in parentheses.

differential pre-trends and a statistically significant shift in mentions of industry k after receiving (higher) income from that industry. Economically, the increase in reference to industry k after receiving income from k is in the same ballpark as our baseline estimates. The results also reveal that the shift in parliamentary priorities is enduring: It emerges in the period when outside income is received, persists through to $t + 2$, and then diminishes thereafter.

Heterogeneous treatment effects: To examine the potential of a bias from heterogeneous treatment effects, we employ newly available tools developed by [De Chaisemartin and d’Haultfoeuille \(2020\)](#). Specifically, we perform a weight decomposition of group time-level treatment effects to examine the incidence of ‘negative weights’ that arise from ‘forbidden comparisons’. This analysis allows us to examine how severe a potential bias would be and how likely it is that the signs of our estimated coefficients would flip. Under the common trends assumption, treatment monotonicity, and if the groups’ treatment effect does not change over time, the sum of the negative weights is equal to -0.0046 and hence very close to zero. A near-zero incidence of negative weights indicates that the identifying variation in our DiD design stems primarily from

valid comparisons, reducing concerns about bias due to treatment effect heterogeneity or forbidden comparisons.

Number of topic-specific speeches: The results so far show that outside earnings from one industry make MPs more likely to speak about this particular industry in their parliamentary speeches. We also examine how the *number* of topic-specific speeches changes, using our alternative outcome variable. Appendix Table (A4) shows that topic-specific outside earnings also increase the number of topic-specific speeches (both for the extensive and intensive margin). Results for the intensive margin are highly statistically significant, while the coefficient for the extensive margin falls just short of the 10% significance level ($t = 1.57$). The estimated coefficient for the extensive margin suggest that a switch into industry-specific outside employment increases the number of topic-specific parliamentary speeches by 0.29 speeches (on a mean of 0.73). Those results demonstrate that outside employment can *increase* certain types of parliamentary activities, with the increase in activities and their content linked to MPs’ employment.

Time-varying controls: Our model includes a set of time-varying controls that may simultaneously correlate with both the topics covered in speeches and the potential to earn outside income. Our baseline specification includes parliamentary position that are pooled in a single variable. The results remain virtually unchanged when we control for these positions individually.

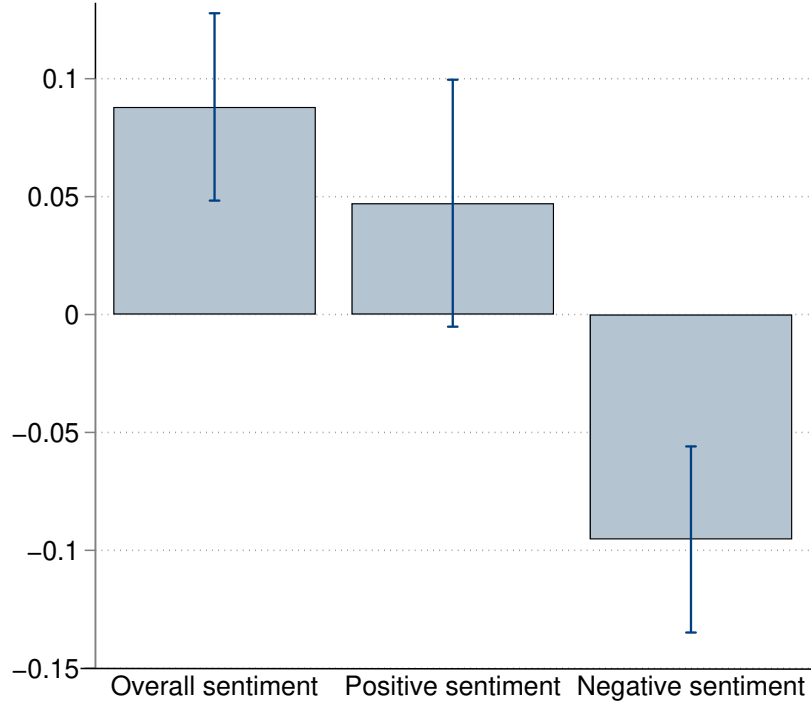
4.2.2 Results for sentiment of speeches

Figure (4) shows the results when estimating the full specification in Equation (1), i.e. with MP-times-topic fixed effects and controls, using our sentiment indicators as the dependent variable.

An increase in outside earnings from one sector is linked to an *increase* in the overall sentiment score recovered from speeches about that specific sector—a relation that is particularly driven by a crowding-out of negative sentiment. This relationship is statistically significant on the 1% level, and the magnitude is sizeable: An increase in topic-specific outside earnings by one standard deviation relates to a 8% of a standard deviation increase in overall sentiment of MPs’ parliamentary speeches about that

sector. The main result here is that legislators are much more positive in their speeches about a certain sector if they receive private money from that sector.

Figure 4 OUTSIDE EARNINGS AND SENTIMENTS IN SPEECHES



Notes: The figure shows the estimated coefficients on the topic-specific outside earnings variable when estimating the full specification in Equation (1), i.e. with MP-times-topic fixed effects and controls, using speeches' sentiment as the dependent variable. The coefficients show the increase in the sentiment indicators (as % of a standard deviation) when the outside earnings variable is increased by one standard deviation.

Falsification test: In Figure (B6) in the appendix, we report the results from a placebo analysis in which we relate outside earnings from a particular industry to sentiment scores related to all other industries. We do not find any impact on the overall sentiment or positive sentiment components. However, the results show that once MPs receive money from a particular industry, they adopt a more negative tone toward other industries, suggesting a reallocation of rhetorical favor toward their financial sponsors.

Metrics of speeches: In Appendix Table (A5), we relate other metrics of the parliamentary speeches to MPs' intensity of outside employment. The results provide

suggestive evidence that MPs with a higher intensity in outside employment tend to hold longer speeches ($t = 1.40$). This result aligns with the finding that an increase in outside earnings also tends to *increase* the number of overall and topic-specific parliamentary speeches, while it tends to decrease the number of other parliamentary activities (most notably MPs’ rates of presence in parliament; see Appendix Section C). In contrast, we find no differences in LIX scores, which measure the readability or complexity of texts.⁹ This result suggests that a higher intensity in outside employment does not increase the technicality of speeches.

4.2.3 Results for roll-call voting behavior

Table (2) shows the results on the relationship between MPs’ outside earnings and their behavior in roll-call votes concerning private industry (estimating Equation 2). We again show results from a parsimonious model (Column 1), and then gradually introduce fixed effects for years (Column 2) and individuals (Column 3), as well as a set of time-varying MP-level controls (Column 4).

Across the board, we find that when MPs receive higher outside earnings, they are more likely to vote in favor of private industries. The relationship is strongly statistically significant and persists across all specifications. This result is consistent with the hypothesis that an increase in the intensity of MPs’ involvement in the private sector impacts MPs’ pro-industry stance in legislation. The parameter estimate implies that an increase in (general) outside earnings by 60,000 Euros (roughly one standard deviation) is related to an increase in the the pro-industry vote share by 1.1 percentage points (3% of a standard deviation) on a mean of 36%.

Sample restrictions: For historical reasons, defense-related issues are often decided in roll-call votes. Therefore, roll-calls concerning defense represent a non-negligible part of our sample. The empirical patterns persist when we exclude roll-call votes related to defense issues (see Appendix Table A6).

⁹The LIX index is computed as follows (see [Anderson, 1981](#)):

$$\text{LIX} = \frac{W}{S} + \frac{100 * W_{6c}}{W}, \quad (3)$$

where W denotes the number of words, W_{6c} describes the number of words with more than 6 characters, and S denotes the number of sentences. The LIX index hence constructs a score for the complexity of a speech based on average sentence lengths and percentages of long words.

Table 2 OUTSIDE EARNINGS AND ROLL-CALL VOTING BEHAVIOUR — REGRESSION RESULTS

Dependent variable: Pro-industry roll-call vote share				
	(1)	(2)	(3)	(4)
	Parsimonious	+ Year FEs	+ MP FEs	+ Controls
$\mathbb{1}_{it}^{Earnings} \times Earnings_{it}$	0.034** (0.016)	0.037*** (0.013)	0.018** (0.008)	0.018** (0.009)
Fixed MP effect	No	No	Yes	Yes
Fixed year effect	No	Yes	Yes	Yes
Controls	No	No	No	Yes
Observations	2,544	2,544	2,544	2,544
Number of MPs	656	656	656	656

Notes: The table shows regression results on the relationship between MPs’ outside activities and roll-call voting behavior, empirically estimating equation (2). Individual time-varying controls include a dummy for political leadership positions, a dummy for reaching the official retirement age of 65, and the number of MPs’ media appearances in talk shows. Clustered standard errors on the MP-level to account for potential serial correlation are reported in parentheses. The number of observations is 2,544 instead of 2,545 because one MP was absent during all roll-call votes in a given year.

Extensive margin: We find that when examining the extensive margin, the positive relation between MPs’ outside employment and their pro-industry roll-call voting behavior persists in the cross-section but turns insignificant when using MP-fixed effects (see Appendix Table A7). This result mirrors the results for MPs’ parliamentary content, and indicates that the *extent* of outside remuneration determines the degree of entanglement with parliamentary priorities.

Deviations from party line: We next assess whether MPs’ outside employment makes MPs not only more likely to vote pro-industry, but also whether these pro-industry votes are against their parties’ preferred position. Using data on roll-call level, we first generate a dummy that equals one when an MP defects from the party line in a given roll-call vote. We then regress this dummy on MPs’ outside earnings controlling for socio-economic characteristics (gender, age, dummies for East-West states, political leader positions and retirement eligibility) and party \times roll-call fixed effects. As MPs’ outside earnings are observed on the yearly level, we also control for the number of roll-calls in a year. This regression replicates previous findings that MPs with outside earnings are generally more likely to deviate from the party line (e.g. Mai, 2022).

We then replace the dependent variable with a dummy that equals one when an MP defects *and* this defection represents a pro-industry vote. Appendix Table (A8) shows that outside earnings significantly increase the likelihood that MPs defect from their party line to vote pro-industry. This result strongly suggests that MPs’ defections in roll-calls are linked to their outside employment.

Outside earnings and roll-call attendance: We also examine how outside earnings impact MPs’ absence rate in parliament. As crowding-out effects are not the main focus of this paper, we relegate the results and details on the estimation to the Appendix (Section C) to economize space. Consistent with crowding-out, we find that higher outside earnings are significantly related to an increase in MPs’ absence rate in roll-call votes (see Appendix Table C1). This shows that MPs with outside earnings vote more often pro-industry, despite a potential crowding-out effect of outside earnings. A possible explanation for this could be that MPs with outside employment focus more extensively on industry-relevant roll-calls, while paying less attention to others.

4.2.4 Discussion: What do our results imply?

Our results show that increases in outside employment are positively associated with (i) greater coverage of the respective industry in parliamentary speeches, (ii) a more favorable tone toward that industry, and (iii) a higher likelihood of pro-industry voting in roll-call decisions, even when this conflicts with the party line. Since our results are based on within-MP variation, they do not simply capture differences between MPs with and without outside earnings, but rather reflect how individual MPs change their behavior when they begin to receive—or receive more—outside income. The inclusion of MP-by-topic fixed effects ensures that the observed patterns cannot be driven by within-legislator variation in outside earnings *across* industries (i.e., selection into specific industries) or by other time-invariant factors such as MPs’ committee memberships.

Under binding time constraints, additional extra-parliamentary activities should crowd-out parliamentary work (and we present evidence for such a pattern in Appendix Section C). In light of this crowding-out effect, the observed increase in both the share of speeches devoted to the industry providing outside income and the *absolute number* of such topic-specific speeches likely reflects a strategic reallocation of MPs’ parliamentary efforts toward financially supportive industries at the expense of other policy areas. The

fact that we observe these patterns in Germany—where party discipline is traditionally strong—provides novel evidence of how influential money in politics can be. It is plausible to assume that this entanglement may be even more pronounced in countries where parties exert less political influence.

While our results imply that legislators cover topics of a certain industry more frequently when receiving larger amounts of money from that industry, they so far do not uncover the *motivation* underlying this behavior. Working for a specific industry may enhance parliamentarians’ expertise in a given field. However, outside earnings may also create incentives to portray that industry more favorably and to advocate for more beneficial regulation. While the more positive tone in speeches offers suggestive evidence for the latter mechanism, the sentiment patterns further indicate that MPs may use their parliamentary contributions strategically to position themselves as attractive candidates for outside employment.

Our results raise important concerns about political representation and lobbying influence. On the one hand, they may reflect a distortion of parliamentary priorities, where rhetorical and legislative attention is reallocated toward financially supportive sectors, potentially at the expense of broader public interests. This aligns with concerns about undue influence and weakened representational integrity in democracies. On the other hand, outside employment might equip MPs with sector-specific expertise, allowing for more informed debate and policy engagement. However, even in this more benign interpretation, the conflation of private compensation and public advocacy poses normative challenges, as it blurs the line between expertise-driven representation and rent-seeking behavior.

5 Conclusion

Elected representatives are expected to act in the best interest of their constituents. The main message of this paper, however, is that outside employment is systematically related to the content of parliamentary work. This finding raises important concerns about *political representation*, as it suggests that legislative attention and rhetorical emphasis may be influenced by private financial interests. Similarly, the observed shift toward more industry-aligned positions in roll-call voting raises the possibility that lobbying pressures may undermine voter-oriented decision-making.

One potential policy response would be to restrict or ban outside employment for sitting MPs. However, such a ban may entail significant costs: it could deter highly qualified individuals from entering politics or impose excessive burdens on those with pre-existing professional commitments. In such cases, limiting possibilities for outside employment might reduce the quality or diversity of representation. Future research should explore how to design institutional rules that mitigate undue influence while preserving access to political office for a broad set of candidates.

References

- Anderson, J. (1981). Analysing the Readability of English and Non-English Texts in the Classroom with Lix. *Seventh Australian Reading Association Conference*.
- Arnold, F., Kauder, B., and Potrafke, N. (2014). Outside earnings, absence, and activity: Evidence from German parliamentarians. *European Journal of Political Economy*, 36:147–157.
- Balles, P., Matter, U., and Stutzer, A. (2024). Special interest groups versus voters and the political economics of attention. *Economic Journal*, 134(662):2290–2320.
- Bertrand, M., Bombardini, M., and Trebbi, F. (2014). Is it whom you know or what you know? An empirical assessment of the lobbying process. *American Economic Review*, 104(12):3885–3920.
- Bestvater, S. E. and Monroe, B. L. (2023). Sentiment is not stance: Target-aware opinion classification for political text analysis. *Political Analysis*, 31(2):235–256.
- Coate, S. (2004). Pareto-improving campaign finance policy. *American Economic Review*, 94(3):628–655.
- Dawood, Y. (2015). Campaign finance and American democracy. *Annual Review of Political Science*, 18:329–348.
- De Chaisemartin, C. and d’Haultfoeuille, X. (2020). Two-way fixed effects estimators with heterogeneous treatment effects. *American Economic Review*, 110(9):2964–2996.
- DellaVigna, S. and Pope, D. (2018). Predicting experimental results: who knows what? *Journal of Political Economy*, 126(6):2410–2456.
- DellaVigna, S., Pope, D., and Vivalt, E. (2019). Predict science to improve science. *Science*, 366(6464):428–429.
- Dräger, L., Gründler, K., and Potrafke, N. (2025). Political shocks and inflation expectations: Evidence from the 2022 Russian invasion of Ukraine. *Journal of International Economics*, 153:104029.
- Gagliarducci, S., Nannicini, T., and Naticchioni, P. (2010). Moonlighting politicians. *Journal of Public Economics*, 94(9-10):688–699.
- Gavoille, N. (2018). Who are the ‘ghost’ MPs? Evidence from the French parliament. *European Journal of Political Economy*, 53:134–148.
- Geys, B. (2013). Election cycles in MPs’ outside interests? The UK house of commons, 2005–2010. *Political Studies*, 61(2):462–472.
- Geys, B. and Mause, K. (2012). Delegation, accountability and legislator moonlighting: Agency problems in Germany. *German Politics*, 21(3):255–273.
- Geys, B. and Mause, K. (2013). Moonlighting politicians: A survey and research agenda. *Journal of Legislative Studies*, 19(1):76–97.
- Geys, B. and Mause, K. (2016). The limits of electoral control: Evidence from last-term politicians. *Legislative Studies Quarterly*, 41(4):873–898.
- Geys, B. and Mause, K. (2022). Politiker-Nebentätigkeiten als Einflusskanal für Lobbying. In *Handbuch Lobbyismus*, pages 1–21. Springer.

- Geys, B. and Mause, K. (2024). Politicians’ extra-parliamentary activities and lobbying. In *The Political Economy of Lobbying: Channels of Influence and their Regulation*, pages 183–200. Springer.
- Geys, B. and Titl, V. (2019). Political donations and the allocation of public procurement contracts. *European Economic Review*, 111:443–458.
- Grier, K., Grier, R., and Mkrtchian, G. (2023). Campaign contributions and roll-call voting in the US House of Representatives: The case of the sugar industry. *American Political Science Review*, 117(1):340–346.
- Gründler, K., Potrafke, N., and Wochner, T. (2024). The beauty premium of politicians in office. *Journal of Economic Behavior & Organization*, 217:298–311.
- Hurka, S., Oberholzer, L., and Daniel, W. (2018). When time is money: sideline jobs, ancillary income and legislative effort. *Journal of European Public Policy*, 25(5):651–669.
- Kauder, B., Potrafke, N., and Riem, M. (2017). Do parties punish MPs for voting against the party line? *CESifo Economic Studies*, 63(3):317–332.
- Mai, P. (2022). Whose bread I don’t eat, his song I don’t sing? MPs’ outside earnings and dissenting voting behaviour. *Party Politics*, 28(2):342–353.
- Mai, P. and Wenzelburger, G. (2024). Loyal activists? Party socialization and dissenting voting behavior in parliament. *Legislative Studies Quarterly*, 49(1):131–160.
- Polk, A. (2020). What do we know about lobbying in Germany? *Review of Economics*, 71(1):43–79.
- Polk, A. (2023). Lobbyismus aus ökonomischer Perspektive. In *Handbuch Lobbyismus*, pages 41–70. Springer.
- Rauh, C. (2018). Validating a sentiment dictionary for German political language—a workbench note. *Journal of Information Technology & Politics*, 15(4):319–343.
- Rauh, C. and Schwalbach, J. (2020). The ParlSpeech V2 data set: Full-text corpora of 6.3 million parliamentary speeches in the key legislative chambers of nine representative democracies.
- Shapiro, A. H., Sudhof, M., and Wilson, D. J. (2022). Measuring news sentiment. *Journal of Econometrics*, 228(2):221–243.
- Sieberer, U. (2010). Behavioral consequences of mixed electoral systems: Deviating voting behavior of district and list MPs in the German Bundestag. *Electoral Studies*, 29(3):484–496.
- Sieberer, U. and Ohmura, T. (2021). Mandate type, electoral safety, and defections from the party line: The conditional mandate divide in the German Bundestag, 1949–2013. *Party Politics*, 27(4):704–715.
- Sieberer, U., Saalfeld, T., Ohmura, T., Bergmann, H., and Bailer, S. (2020). Roll-call votes in the German Bundestag: A new dataset, 1949–2013. *British Journal of Political Science*, 50(3):1137–1145.
- Snyder Jr, J. M. (1992). Long-term investing in politicians; or, give early, give often. *Journal of Law and Economics*, 35(1):15–43.

- Staat, C. and Kuehnhanss, C. (2017). Outside earnings, electoral systems and legislative effort in the European Parliament. *Journal of Common Market Studies*, 55(2):368–386.
- Stratmann, T. (2006). Party-Line Voting and Committee Assignments in the German Mixed-Member System. In *Democratic Constitutional Design and Public Policy: Analysis and Evidence*. The MIT Press.
- Weschle, S. (2024a). Campaign finance. In *The Political Economy of Lobbying: Channels of Influence and their Regulation*, pages 143–165. Springer.
- Weschle, S. (2024b). Politicians’ private sector jobs and parliamentary behavior. *American Journal of Political Science*, 68(2):390–407.
- Willumsen, D. M. and Goetz, K. H. (2017). Set free? Impending retirement and legislative behaviour in the UK. *Parliamentary Affairs*, 70(2):254–279.
- Wochner, T. (2022). Part-time parliamentarians? Evidence from outside earnings and parliamentary activities. *European Journal of Political Economy*, 75:102224.

A Supplementary Tables

Table A1 DESCRIPTIVE STATISTICS

Variable	Observations	Mean	Std. dev.	Min	Max
<i>Main variables (MP-year-level):</i>					
Outside earnings	2,545	0.11	0.57	0	13.795
Pro-industry vote share	2,544	0.36	0.38	-0.79	1
Topic 1 share	2,545	0.08	0.19	0	0.99
Topic 2 share	2,545	0.13	0.23	0	0.99
Topic 3 share	2,545	0.08	0.18	0	0.99
Topic 4 share	2,545	0.08	0.15	0	0.95
Topic 5 share	2,545	0.08	0.18	0	0.99
Topic 6 share	2,545	0.11	0.23	0	0.99
Topic 7 share	2,545	0.12	0.17	0	0.99
Topic 8 share	2,545	0.09	0.18	0	0.99
Topic 9 share	2,545	0.08	0.17	0	0.98
Topic 10 share	2,545	0.08	0.18	0	0.97
<i>Main variables (MP-year-topic level):</i>					
Outside earnings across all topics	25,450	0.01	0.18	0	13.795
Share across all topics	25,450	0.09	0.19	0	0.99
Number of topic-specific speeches	25,450	0.75	2.27	0	53
<i>Time-varying MP-level controls:</i>					
Talk show appearances	2,545	0.25	1.08	0	13
Political leadership position	2,545	0.12	0.32	0	1
Retirement age dummy	2,545	0.11	0.31	0	1
<i>Auxiliary data on parliamentary activity:</i>					
Absence rate	2,545	8.38	12.18	0	100
Speeches	2,545	5.80	4.76	0	33
Oral contributions	2,545	2.08	3.21	0	39
Interpellations	2,545	14.83	37.75	0	294
Group initiatives	2,545	11.96	21.98	0	134

Notes: The table shows descriptive statistics of the variables used in our empirical analysis. Outside earnings are measured in 100,000 Euros.

Table A2 TOPICS ADDRESSED IN PARLIAMENTARY SPEECHES

Housing	Foreign policy & external security	Education	Finance	Energy & Climate	Health	Administration & Public Service	Economy	Internal security	Social
stadt wohnung miete straÙe wohnungsbau infrastruktur mietpreisbremse geld wohnraum linke	flüchtling soldat einsatz bundeswehr hilfe verantwortung sicherheit krieg region konflikt	bildung forschung ausbildung schule programm hochschule chance integration entwicklung geld	haushalt geld investition zukunft entwicklung herausforderung wirtschaft programm schuld infrastruktur	energie energiewende klimaschutz landwirtschaft unternehmen entwicklung zukunft welt industrie betrieb	kind familie pflege eltern leben versorgung leistung patient arzt gesellschaft	parlament abkommen abkomme demokratie entscheidung kommission verhandlung abgeordnete partei ehe	unternehmen verbraucher bank produkt verbraucherschutz verbraucherinnen geld markt risiko richtlinie	datum opfer sicherheit bürger schutz behörde person untersuchungsausschuß arbeit polizei	rent arbeit mindestlohn beschäftigter arbeitnehmer arbeitgeber arbeitsmarkt linke betrieb
<i>Panel B: Associated committees</i>									
"Environment, Nature Conservation, Building & Nuclear Safety"	"Economic Coop. & Development" "Defence" "Human Rights & Humanitarian Aid" "Foreign Affairs"	"Education, Research & Technology Assessment"	"Budget" "Finance"	"Food & Agriculture"	"Health" "Family Affairs, Senior Citizens, Women & Youth"	"Scrutiny of Elections", "EU Affairs"	"Economy & Energy"	"Internal affairs"	"Labor & Social Affairs"

Notes: The table shows the ten topics addressed in all parliamentary speeches between 2014-2017 identified by our LDA model. Panel B lists the committees that we assign to the topics.

Table A3 OUTSIDE EARNINGS AND TOPIC SHARES — EXTENSIVE MARGIN

Dependent variable: Topic share				
	(1)	(2)	(3)	(4)
	Parsimonious	+ Year FEs	+ MP-level FEs	+ Controls
$\mathbb{1}_{ikt}^{Earnings}$	0.071*** (0.017)	0.071*** (0.017)	0.002 (0.016)	0.002 (0.016)
Fixed MP \times topic effect	No	No	Yes	Yes
Fixed year effect	No	Yes	Yes	Yes
Controls	No	No	No	Yes
Observations	25,450	25,450	25,450	25,450
Number of MPs	656	656	656	656

Notes: The table shows regression results on the relationship between MPs' outside earnings and MPs' topical focus in their parliamentary speeches, when using a binary indicator in equation (1). The topical focus is measured based on natural language processing techniques that allow us to extract for every speech the share that a specific topic is mentioned in MPs' parliamentary speeches. Individual time-varying controls include a dummy for political leadership positions, a dummy for reaching the official retirement age of 65, and the number of MPs' media appearances in talk shows. Clustered standard errors on the MP-level to account for potential serial correlation are reported in parentheses.

Table A4 OUTSIDE EARNINGS AND TOPIC-SPECIFIC SPEECHES — REGRESSION RESULTS

Dependent variable: Number of topic-specific speeches				
	(1)	(2)	(3)	(4)
	Parsimonious	+ Year FEs	+ MP FEs	+ Controls
<i>Panel A: Intensive margin</i>				
$\mathbb{1}_{ikt}^{Earnings} \times Earnings_{ikt}$	0.173* (0.090)	0.164* (0.090)	0.227*** (0.070)	0.227*** (0.070)
<i>Panel B: Extensive margin</i>				
$\mathbb{1}_{ikt}^{Earnings}$	0.316** (0.147)	0.300** (0.147)	0.288 (0.183)	0.286 (0.182)
Fixed MP \times topic effect	No	No	Yes	Yes
Fixed year effect	No	Yes	Yes	Yes
Controls	No	No	No	Yes
Observations	25,450	25,450	25,450	25,450
Number of MPs	656	656	656	656

Notes: The table shows regression results on the relationship between MPs’ outside earnings and MPs’ topical focus in their parliamentary speeches, empirically estimating equation (1) when using the number of topic-specific speeches as the dependent variable. Panel A shows results when examining the intensive margin of outside employment, Panel B shows results when examining the extensive margin of outside employment. The topical focus is measured based on natural language processing techniques that allow us to extract for every speech the share that a specific topic is mentioned in MPs’ parliamentary speeches. We then assign each speech to the topic with the highest share. Individual time-varying controls include a dummy for political leadership positions, a dummy for reaching the official retirement age of 65, and the number of MPs’ media appearances in talk shows. Clustered standard errors on the MP-level to account for potential serial correlation are reported in parentheses.

Table A5 OUTSIDE EARNINGS AND PARLIAMENTARY SPEECHES—METRICS OF SPEECHES

	(1)	(2)
	Avg. length of speech	LIX score
$\mathbb{1}_{it}^{Earnings} \times Earnings_{it}$	45.667 (32.651)	0.449 (0.479)
Observations	2,374	2,374
Controls	Yes	Yes
Fixed MP effect	Yes	Yes
Fixed year effect	Yes	Yes

Notes: The table shows regression results on the relationship between MPs’ outside earnings and the length and complexity of MPs’ parliamentary speeches, empirically estimating equation (2). All models include fixed effects for MPs and years and individual time-varying controls: political leadership positions and a dummy for reaching the official retirement age of 65. Clustered standard errors on the MP-level to account for potential serial correlation are reported in parentheses. The number of observations is lower than in the baseline results because both variables take a missing value when an MP did not give a speech in a year.

Table A6 OUTSIDE EARNINGS AND ROLL-CALL VOTING BEHAVIOUR — SAMPLE RESTRICTIONS

Dependent variable: Pro-industry roll-call vote share				
	(1)	(2)	(3)	(4)
	Parsimonious	+ Year FEs	+ MP FEs	+ Controls
$\mathbb{1}_{it}^{Earnings} \times Earnings_{it}$	0.021*** (0.008)	0.022*** (0.006)	0.027** (0.012)	0.027** (0.013)
Fixed MP effect	No	No	Yes	Yes
Fixed year effect	No	Yes	Yes	Yes
Controls	No	No	No	Yes
Observations	2,544	2,544	2,544	2,544
Number of MPs	656	656	656	656

Notes: The table shows regression results on the relationship between MPs’ outside activities and roll-call voting behavior, empirically estimating equation (2) when excluding defense related roll-call votes. Individual time-varying controls include a dummy for political leadership positions, a dummy for reaching the official retirement age of 65, and the number of MPs’ media appearances in talk shows. Clustered standard errors on the MP-level to account for potential serial correlation are reported in parentheses. The number of observations is 2,544 instead of 2,545 because one MP was absent during all roll-call votes in a given year.

Table A7 OUTSIDE EARNINGS AND ROLL-CALL VOTING BEHAVIOUR — EXTENSIVE MARGIN

Dependent variable: Pro-industry roll-call vote share				
	(1)	(2)	(3)	(4)
	Parsimonious	+ Year FEs	+ MP FEs	+ Controls
$\mathbb{1}_{it}^{Earnings}$	0.104*** (0.016)	0.114*** (0.014)	-0.016 (0.020)	-0.017 (0.020)
Fixed MP effect	No	No	Yes	Yes
Fixed year effect	No	Yes	Yes	Yes
Controls	No	No	No	Yes
Observations	2,544	2,544	2,544	2,544
Number of MPs	656	656	656	656

Notes: The table shows regression results on the relationship between MPs' outside activities and roll-call voting behavior, when using a binary indicator in equation (2). Individual time-varying controls include a dummy for political leadership positions, a dummy for reaching the official retirement age of 65, and the number of MPs' media appearances in talk shows. Clustered standard errors on the MP-level to account for potential serial correlation are reported in parentheses. The number of observations is 2,544 instead of 2,545 because one MP was absent during all roll-call votes in a given year.

Table A8 OUTSIDE EARNINGS AND ROLL-CALL VOTING BEHAVIOUR — PRO-INDUSTRY DEFECTIONS

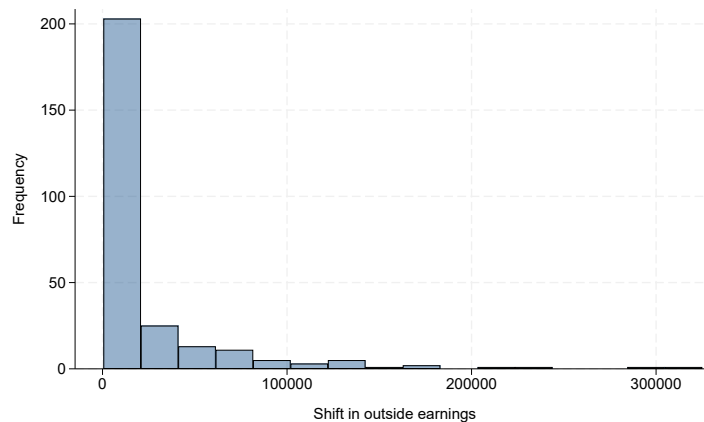
Dependent variable: Pro-industry defection			
	(1)	(2)	(3)
	Parsimonious	+ FEs	+ Controls
$\mathbb{1}_{it}^{Earnings} \times Earnings_{it}$	0.0009* (0.0005)	0.0014*** (0.0005)	0.0013*** (0.0004)
Roll-call \times party FE	No	Yes	Yes
Controls	No	No	Yes
# Roll-call votes	96	96	96
Observations	60,484	60,484	60,484

Notes: The table shows regression results on the relationship between MPs' outside activities and pro-industry defections in roll-call votes. Controls include MPs' gender, age, dummies for East-West states, political leader positions and retirement eligibility. We also control for the number of roll-call votes in a year. Clustered standard errors on the MP-level to account for potential serial correlation are reported in parentheses.

B Supplementary Figures

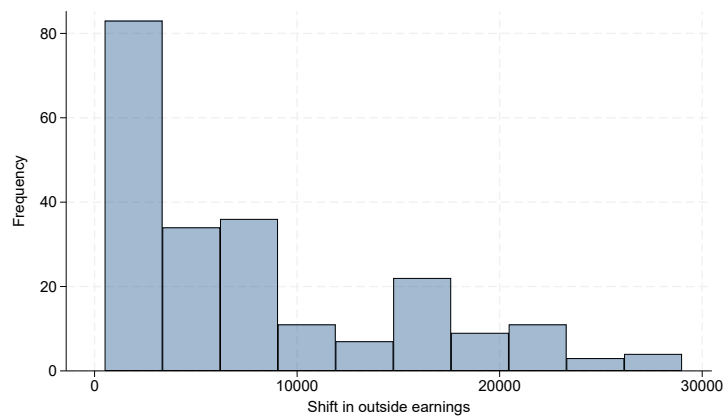
Figure B1 DISTRIBUTION OF INCOME CHANGES

(a) Distribution shift



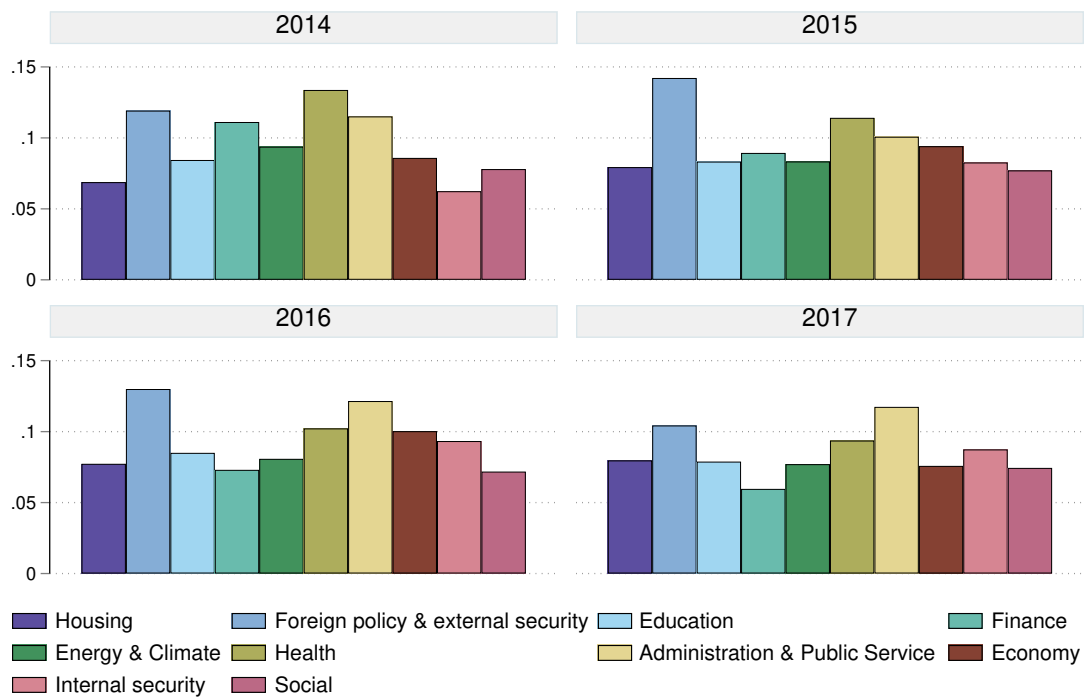
Notes: The figure visualizes the distribution of income changes (in absolute terms).

(b) Distribution shift – Zoomed in



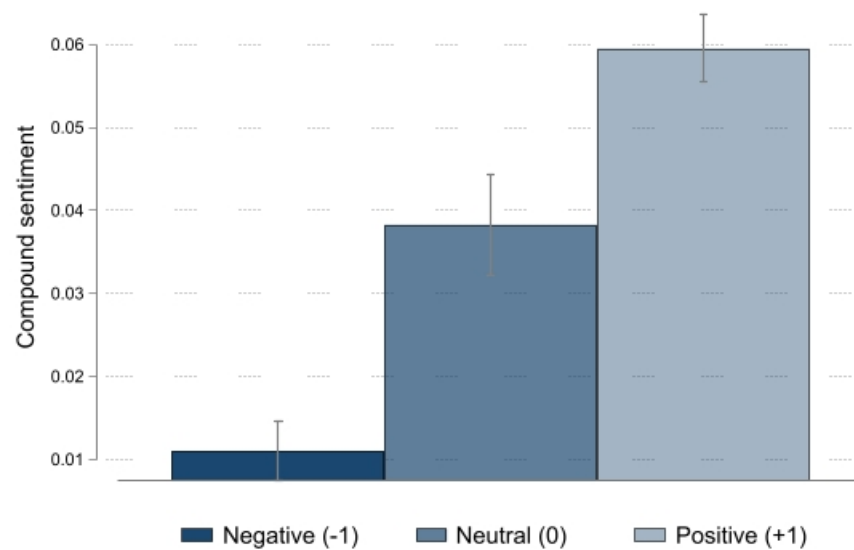
Notes: The figure visualizes the distribution of income changes (in absolute terms) including all changes $< \text{€}30,001$.

Figure B2 TOPICS OF PARLIAMENTARY SPEECHES OVER TIME



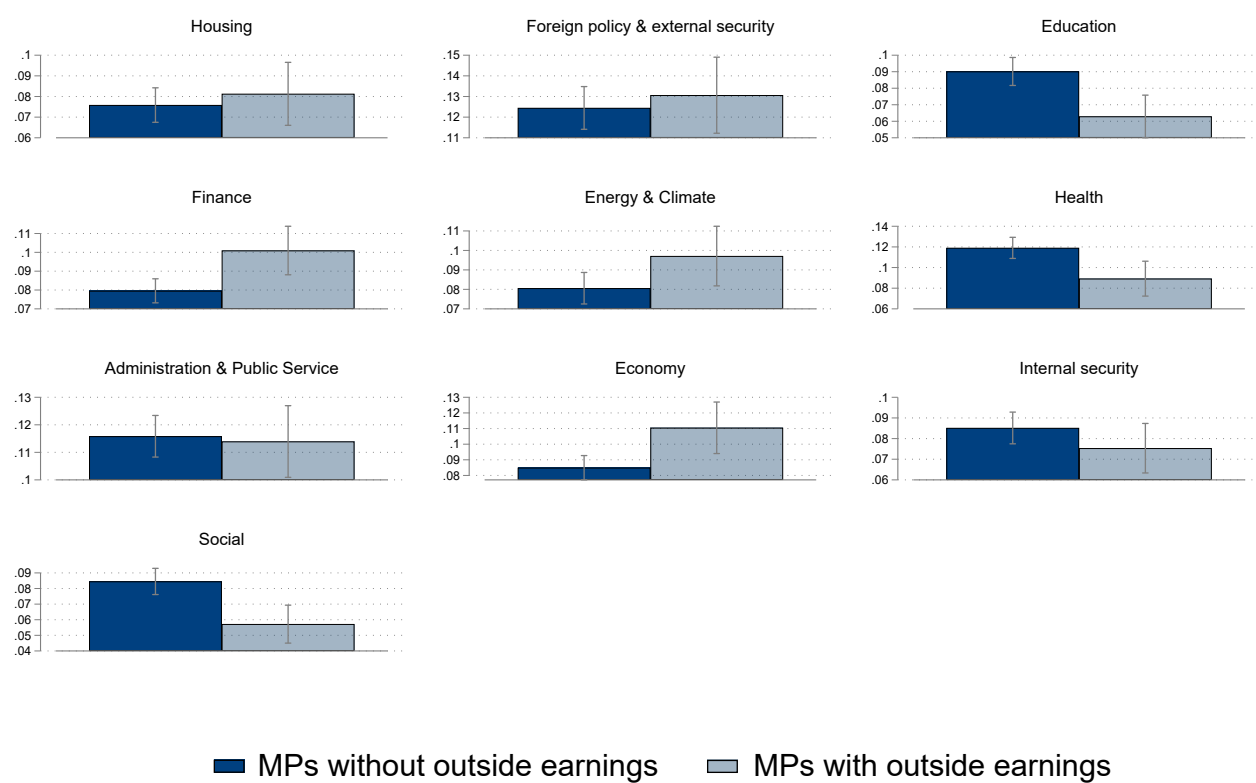
Notes: The figure shows the share of parliamentary speeches dealing with the respective ten topics identified by our LDA model. Data comes from the ParlSpeech V2 dataset (Rauh and Schwalbach, 2020).

Figure B3 VALIDATION OF THE SENTIMENT INDICATORS: SENTIMENT SCORES AND HUMAN RATINGS



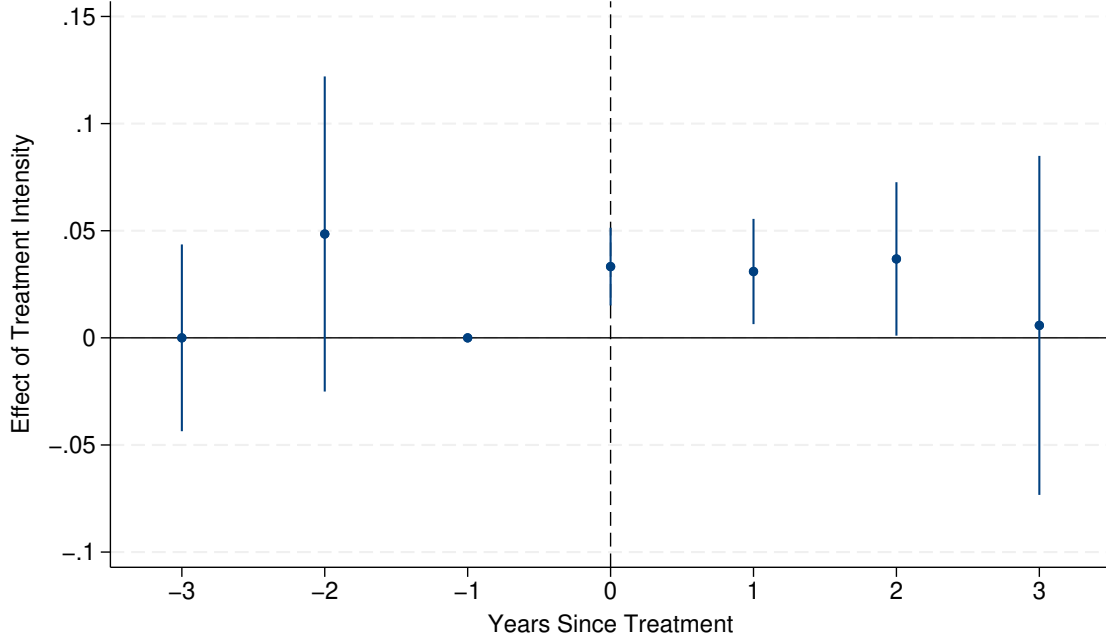
Notes: The figure relates the sentiment scores derived from our algorithm to human ratings (+1 positive sentiment, 0 neutral sentiment, -1 negative sentiment) of 1,000 parliamentary speeches.

Figure B4 TOPIC SHARES IN MPS' SPEECHES AND OUTSIDE EMPLOYMENT



Notes: The figure relates MPs' topical focus in their parliamentary speeches to a dummy indicating whether they are active in outside employment.

Figure B5 EVENT STUDY ANALYSIS OF OUTSIDE EARNINGS AND TOPICS MENTIONED IN PARLIAMENTARY SPEECHES

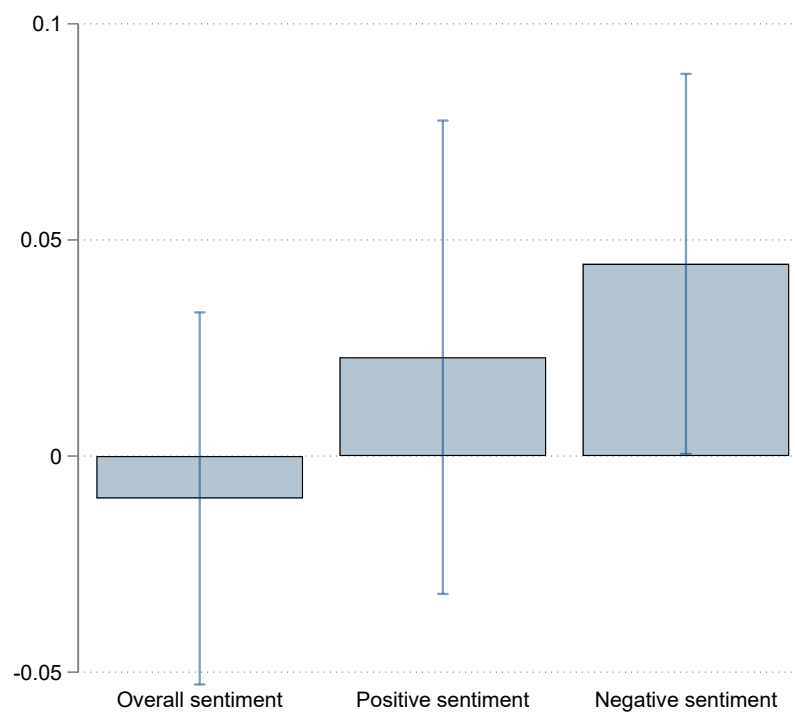


Notes: The figure shows the results from an event study analysis examining pre-trends in references to topics prior to receiving outside earnings and dynamic effects. Specifically, the underlying model is

$$\text{Topic}_{ikt} = \sum_{z < 0} \beta_z \times \mathbf{1}\{\text{Time}_{it} = z\} + \sum_{z \geq 0} \beta_z \times \mathbf{1}\{\text{Time}_{it} = z\} \times \text{Outside}_{itk} + \gamma_i + \delta_t + \varepsilon_{ikt}.$$

Our event study design interacts the treatment indicator with the intensity measure for periods following treatment, while pre-treatment coefficients rely solely on event-time dummies, as the amount of outside earnings is necessarily zero beforehand. This approach ensures correct identification of dynamic effects along the intensive margin post-treatment. While the coefficients before and after treatment are not directly comparable in magnitude due to this structural difference, their patterns remain informative. In particular, the absence of pre-trends supports the identifying assumptions, and the post-treatment dynamics reveal how the intensity of outside earnings shapes parliamentary behavior over time.

Figure B6 OUTSIDE EARNINGS AND SENTIMENTS IN SPEECHES—PLACEBO ANALYSIS



Notes: The figure shows the estimated coefficients on the topic-specific outside earnings variable when estimating the full specification in Equation (1), i.e. with MP-times-topic fixed effects and controls, using sentiment for all *other* industries as the ones from which MPs receive outside incomes as the dependent variable. The coefficients show the increase in the sentiment indicators (as % of a standard deviation) when the outside earnings variable is increased by one standard deviation.

C Crowding-out effects

Previous research examined whether outside employment gives rise to shirking-behavior of MPs. Our data on MPs’ parliamentary activities allows us to re-examine crowding-out effects. Specifically, we estimate the following regression:

$$\text{Activity}_{ijt} = \lambda_j(\mathbf{1}_{it}^{\text{Earnings}} \times \text{Earnings}_{it}) + \mathbf{X}_{it}\boldsymbol{\beta}_j + \eta_i + \zeta_t + \varepsilon_{ijt} \quad (4)$$

where Activity_{ijt} describes the parliamentary activity measure $j = 1, \dots, 5$ for MP $i = 1, \dots, 656$ at time $t = 1, \dots, 4$. We are particularly interested whether MPs are present or absent from parliament, but we also examine specific activities such as group initiatives, speeches, and interpellations. The indicator function $\mathbf{1}_{it}^{\text{Earnings}}$ takes the value of one when an MP i in year t has any outside earnings. We multiply this indicator function with the Earnings_{it} variable, which denotes MP i ’s outside earnings at time t (measured in 100,000 Euros). The estimated coefficient on this interaction, $\hat{\lambda}_j$, quantifies whether outside activities lead to crowding-out.

Results for crowding-out effects: Table (C1) shows the results for MPs’ absence rates from parliamentary roll-call voting sessions. Column (I) represents a parsimonious specification that looks at raw correlations between outside earnings and absence, columns (II) and (III) add year and MP fixed effects respectively, and column (IV) adds time-varying controls, yielding our full model. The parameter estimate of the outside earnings variable is positive and statistically significant throughout all specifications.¹⁰

Are other parliamentary activities also affected? To assess whether MPs substitute their presence in parliament for other types of parliamentary activity when receiving outside earnings, we use the number of speeches, oral contributions, interpellations, and group initiatives as the dependent variables. The results for those types of parliamentary activity show that MPs do not compensate for their more frequent absence from parliament with other parliamentary activities (see Table C2). When examining the number of speeches, the parameter estimate of the outside earnings vari-

¹⁰Some MPs exhibit very high absence rates in some years (up to 100% in the most extreme case). Such high absence levels are most often driven by prolonged sickness of MPs, a factor unrelated to outside earnings. We test for the sensitivity of our results to such outliers by dropping all observation with absence levels above 70%. This exercise (affecting 14 observations) yields a very similar coefficient of 2.24 (se: 1.12). Inferences also do not change when using other cut-offs, such as trimming at the 99% percentile (coefficient: 2.05, standard error: 1.29).

Table C1 OUTSIDE EARNINGS AND ABSENCE FROM PARLIAMENT—BASELINE REGRESSION RESULTS

Dependent variable: MPs' absence rate in parliament				
	(1)	(2)	(3)	(4)
	Parsimonious	+ year fixed effects	+ MP fixed effects	+ controls
$1_{it}^{Earnings} \times Earnings_{it}$	1.427** (0.715)	1.463** (0.716)	2.195* (1.159)	2.255** (1.104)
Observations	2,545	2,545	2,545	2,545
Number of MPs	656	656	656	656
Fixed year effect	No	Yes	Yes	Yes
Fixed MP effect	No	No	Yes	Yes
Controls	No	No	No	Yes

Notes: The table shows regression results on the relationship between MPs' outside earnings and MPs' absence rate from parliament, empirically estimating equation (4). Individual time-varying controls include a dummy for political leadership positions, a dummy for reaching the official retirement age of 65, and the number of MPs' media appearances in talk shows. Clustered standard errors on the MP-level to account for potential serial correlation are reported in parentheses.

able has a positive sign ($t = 1.44$). For all other activities, including labor-intensive background work such as group initiatives and interpellations, we estimate coefficients on the outside earnings variable with a negative sign, even though the parameters are not statistically significant at conventional levels (columns 2 to 4). Taken together, our results imply that outside employment is linked to an increase in MPs' absence rate from parliament, but does not fundamentally impact other types of parliamentary activity.

Table C2 OUTSIDE EARNINGS AND ACTIVITIES IN PARLIAMENT— REGRESSION RESULTS

	(1)	(2)	(3)	(4)
	Speeches	Oral contributions	Interpellations	Group Initiatives
$\mathbb{1}_{it}^{Earnings} \times Earnings_{it}$	0.260 (0.181)	-0.088 (0.074)	-0.597 (0.445)	-0.506 (0.413)
Observations	2,545	2,545	2,545	2,545
Number of MPs	656	656	656	656
Controls	Yes	Yes	Yes	Yes
Fixed MP effect	Yes	Yes	Yes	Yes
Fixed year effect	Yes	Yes	Yes	Yes

Notes: The table shows regression results on the relationship between MPs' outside earnings and key activities in parliament, empirically estimating equation (4). All models include fixed effects for MPs and years and individual time-varying controls: Political leadership positions, a dummy for reaching the official retirement age of 65, and the number of MPs' media appearances in talk shows. Clustered standard errors on the MP-level to account for potential serial correlation are reported in parentheses.

D Validation of our outside earnings coding scheme

MPs in Germany need to report their outside earnings in ten brackets during our sample period. To convert this into a continuous variable, we use the lower bound of each bracket to obtain a conservative measure of MPs’ outside earnings. This measure might suffer from two potential sources of bias: It will over-estimate the amount of change for MPs that in a given year earn income just above a bracket threshold and then earn income just below the bracket threshold in the next year. Using the lower boundaries will hence overestimate the drop in earnings. Similarly, it will under-estimate the change in earnings if MPs’ real outside earnings change but remain within the same bracket. This measurement imprecision could bias our estimates. In this appendix, we present two strategies that test how big of an issue this is.

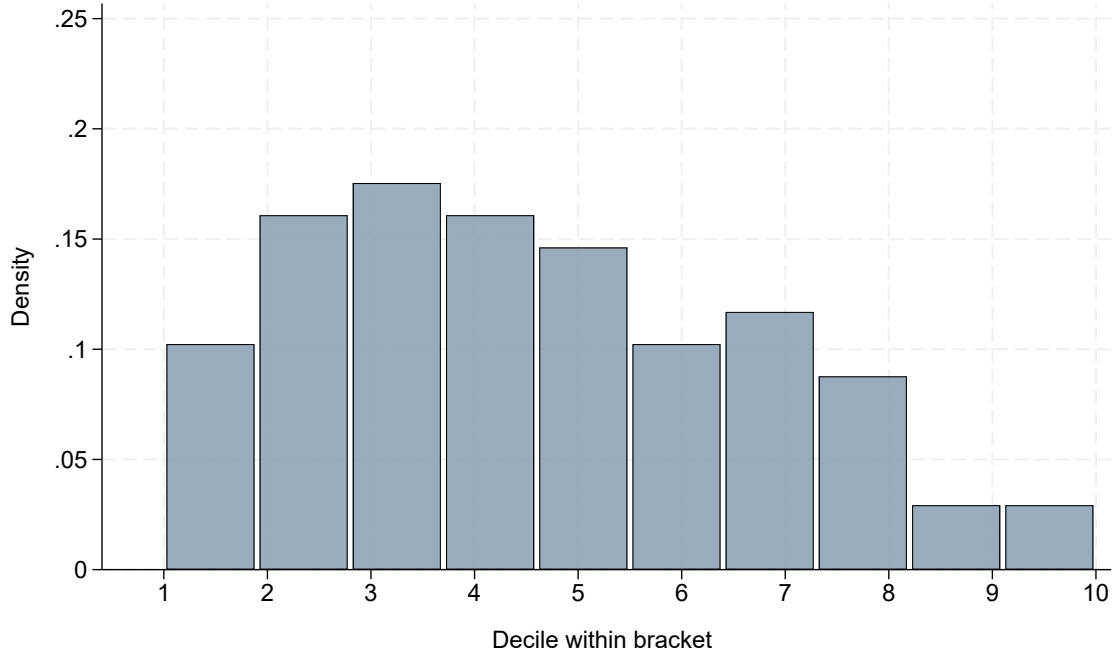
General remarks: When computing changes in income based on bracketed data, the choice of the exact value we choose within each bracket (lower bound, midpoints, upper bound) should have no impact on the computed change, except for the open-ended top bracket, for which an assumption is needed if we chose anything else than the lower bound.

Importantly, however, the consequences of the imprecision hinge on the nature of the measurement error: If the measurement error introduced by the interval-censored nature of the data is random in the sense that it is not systematically over- or under-estimated, our estimates should reflect a lower bound of the “true” relationship. This would be the case if when measuring changes, observations might be both upwards (small increase inflated by switching brackets) or downwards (large increase but income remains in the same bracket) biased.

However, measurement error might be non-random if MPs bunch just below bracket cut-offs (to downplay outside earnings). Strategy 1 examines how likely it is that MPs bunch their outside income. Strategy 2 examines more generally how implied changes with bracketed reporting relate to actual changes in MPs’ outside earnings.

Strategy 1: In 2021, there has been a reform that requires MPs to report the precise numbers earned in the private sector. We hand collect MPs’ outside earnings closely before (bracket system) and after (exact amount) the 2021 reform. The idea is to compare outside earnings coded in brackets with the exact amounts and inspect the distribution of precisely reported earnings within brackets. In order for our comparison

Figure D1 DECILES WITHIN BRACKETS



Notes: Distribution of precise outside earnings across brackets of the classification scheme applicable for the 18th German Bundestag.

to be informative, we focus on MPs who (i) got re-elected, (ii) had the identical outside job pre- and post the reform, and (iii) reported income in the same bracket before and after the reform. In total, our data covers 51 MPs with 76 identical jobs pre- and post the reform.

We use our data to calculate the distribution of earnings within brackets using deciles over the bracket range. Consider two examples to see how our comparison works:

1. **MP Christoph Meyer:** Outside employment as member of the Advisory Board at *DEUTSCHE ROCKWOOL GmbH & Co. KG, Gladbeck*. He reported annual earnings in Bracket 4 (€15.000-€30.000) before the reform and reported annual earnings of precisely €25.000 after the reform. Bracket 4 covers ten €1,500 deciles, meaning that we classify earnings of MP Meyer in decile 7.
2. **MP Bärbel Bas:** Member of the Supervisory Board at *Hüttenwerke Krupp Mannesmann GmbH, Duisburg*. She reported annual earnings in Bracket 3 (€7.000-15.000) before the reform and reported annual earnings of precisely €7.500 after

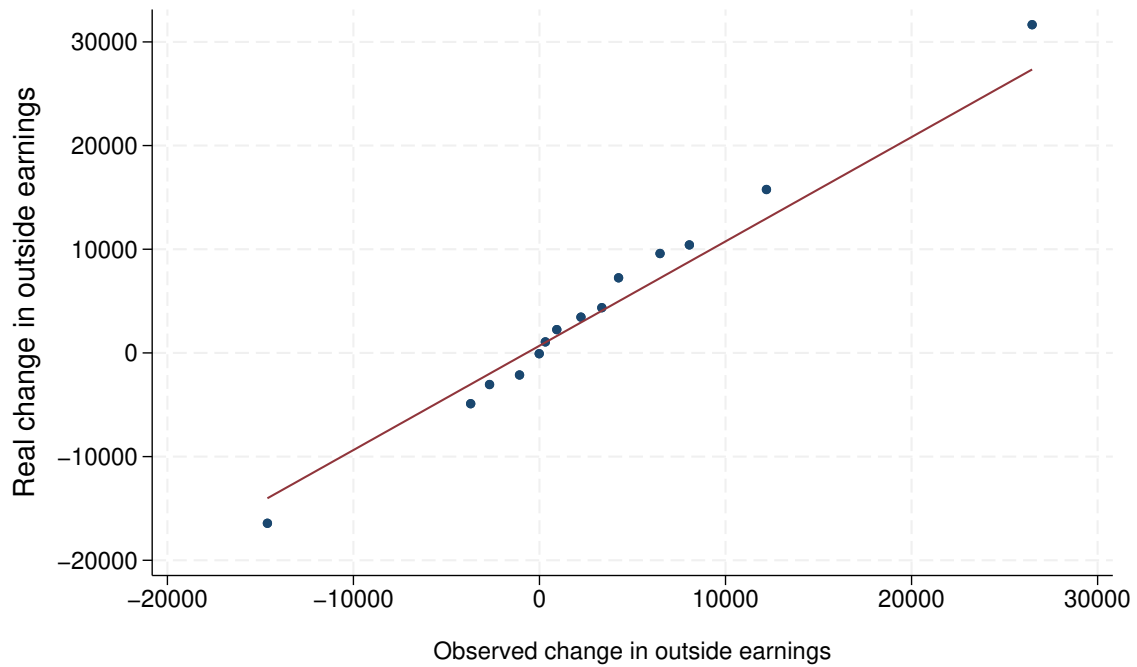
the reform. Bracket 3 covers ten €800 deciles, meaning that we classify earnings of MP Bas in decile 1.

Figure (D1) plots the distribution of incomes after the reform within brackets, pooling the information of all brackets (i.e. a value in decile 4 can be in bracket 3, 4, 5, or in any other bracket). The figure shows very little signs of bunching. In fact, the distribution suggests that using the lower bound should be a good guess.

Strategy 2: To more closely pin down the average measurement error of our outside earnings variable, we hand collect new data on MPs’ outside earnings over the entire post-reform legislative period of the 20th Bundestag 2021-2024 (early elections took place in February 2025). This new data allows us calculate precise y-o-y changes in outside earnings. To get an idea about the size of measurement error of our coding scheme in the 18th Bundestag, we compute the changes in MPs’ outside earnings as if they would have to report the earnings in the old bracket system and compare the two outcomes. Figure (D2) provides the results. We find that there is a (very) strong correlation between the bracketed classification scheme and the precise figures.

Conditional on having a positive change, the actual median change in outside income over the 20th Bundestag was €6,384.62, whereas the observed (bracketed) median change was €6,000 Euros. At the same time, conditional on having a negative change, the actual median change in outside income over the 20th Bundestag was €-4,881.89, whereas the observed (bracketed) median change was €-3,500 Euros. These summary statistics imply that we slightly underestimate the true change in income, with our estimates being biased towards zero—the true relationship, therefore, should be stronger.

Figure D2 REAL AND OBSERVED CHANGES IN OUTSIDE EARNINGS



Notes: Precise yearly changes of outside earnings in the 20th Bundestag (2021–2024) and counterfactual classification based on the former bracket system.