The Effects of Earnings Disclosure by Politicians*

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Abstract

Starting in 2005, German federal (members of parliament) MPs were forced by law to publish their outside activities and earnings in a bracket system top-coded at 7,000€. Initially, the information was only privately disclosed. In 2007, private was replaced by public disclosure (also retroactively to 2005) and these information can be accessed online on webpages of the German Bundestag. In 2013, more brackets were introduced such that earnings above 250,000€ were now censored. This increased greatly the information available to voters. First, we exploit both reforms to identify the causal effects of disclosure rules on politician's outside earnings using administrative tax return data. It allows us to observe pre-reform income as well as using unaffected state MPs as a control group. Our results indicate that for the first reform the top-censored nature of the reporting scheme has the consequence of raising outside earnings, while the second reform provides evidence that a higher degree of public disclosure leads to a decrease in outside earnings. Second, we explicitly distinguish between the effects of private versus public disclosure and find no effect of private disclosure. Third, to identify potential mechanisms behind our findings, we collected published information on earnings and activities along with political and electoral variables. We show that social norms and electoral accountability matters.

KEYWORDS: tax data, outside earnings, politicians, social norms, income disclosure

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1 Introduction

As in many other countries, German politicians are legally permitted to carry out outside activities in addition to their political work. Politicians engaging in activities other than their work in parliament remains a very controversial topic. On the one hand, there is doubt on whether elected representatives devote all their energy to their political duties and it also raises concerns of potential conflicts of interests (Akcigit et al., 2018). On the other hand, banning politicians from engaging in outside activities might negatively influence the selection of politicians (Gagliarducci et al., 2010, Fisman et al., 2021). A central concern of democratic countries is the degree to which voters can hold members of parliament (MPs) accountable (Djankov et al., 2010). Accountability heavily relies on availability of information about both parliamentary and non-parliamentary actions. One potential policy to inform voters on politician's outside activities are public disclosure laws.[1] If voters observe undesirable behavior, they can vote them out of office. This political pressure could cause politicians to change their behaviour. Despite being widely used, there is little causal evidence on the effects of public disclosure laws on outside activities and earnings. This is due to several reasons. First, it is hard to obtain high-quality data, especially before the introduction of disclosure rules, as politicians outside earnings are unobservable before the implementation of disclosure laws. Second, even the published (and thereby disclosed) data is often coarse and might be misreported. Finally, one has to find a suitable control group to establish a counterfactual scenario.

In this paper, we aim to fill this gap and identify the causal effect of earnings disclosure of outside activities and associated earnings on politician's outside earnings. We overcome the existing problems by exploiting (i) three policy changes with respect to disclosure laws in Germany and (ii) high quality administrative tax return data giving rise to a difference-in-differences setup with German federal MPs as our treatment and state MPs as our control group.

We exploit three reforms that differ in the degree of disclosure intensity. First, we use the introduction of a private disclosure law for federal Members of Parliament (MPs) in Germany as a source of exogenous variation. In 2005, a law was passed that requires MPs to publish their outside activities and levels of outside earnings on the website of the German Parliament *Bundestag* that are freely accessible to voters. Initially, disclosure was only private

[1] According to Djankov et al. (2010), 109 countries around the world have some form of a disclosure law, roughly half of those make disclosed information public. They find suggestive evidence that *public* disclosure is associated with better government and perceived corruption.

because a group of MPs filed a law suit against such public disclosure rules. Each activity is assigned an income bracket such that outside earnings were reported in a bracket system top-coded at 7,000€. In July 2007, the German constitutional court narrowly rejected the law suit, such that disclosure became public. Since everything else remained the same, we use this second policy change to investigate differences between private and public disclosure. The fact that information was top-coded was heavily debated in media and parliament and it raised concerns that voters were not adequately informed.[2] In 2013, our third reform under study, more brackets were introduced such that only earnings above 250,000€ were censored. This greatly increased disclosure obligations for MPs and the information available to voters.

We use administrative tax return data for 2001 to 2014 allowing us to observe politicians' outside earnings at a very precise level.[3] Our main outcome is the total amount of outside earnings. Another important feature of the tax data is that it allows us to use state MPs as a control group. Since state MPs were not subject to any disclosure rules during our sample period, we can use them estimate a difference-in-difference model. German state and federal MPs are highly comparable. Both are full-time politicians, they are elected in a similar way and due to the decentralized nature of the German government structure, both groups face a high degree of responsibility. This comparability is underlined by the absence of any differential trend between treatment and control group prior to the reform.

We start our analysis and provide some descriptive numbers on the extent of outside work. On average, 89% of all federal MPs report an activity and 38% disclose positive outside earnings. The most disclosed remunerated activities belong to working as a lawyer (10%), in management and consulting (10%) or giving speeches (8%). Around 40% of all MPs hold a function in enterprises, either as being a member of the advisory or supervisory board. Using tax return data, we observe that the distribution of outside earnings is highly unequal following a pareto distribution.

To examine who responded to disclosure of outside activities and earnings, we use (i) different income categories as outcome variables and (ii) run quantile regressions to check for heterogeneous responses along the earnings distribution. We check for different effects between income from wages and salaries and income from self-employment and businesses. On the one hand, voters perceive sources of outside earnings differently (Campbell and Cowley, 2015). On the other hand, the literature on behavioral responses towards taxation

[2] During the campaign in the run-up of the 2013 federal elections, politician's outside activities were a much discussed issue because of large outside earnings of the candidate for the chancellorship, Peer Steinbrück.

[3] In general, tax data has very little amount of socio-demographic information and researchers face strict confidentiality rules. Importantly, we do not observe any names and we are not allowed to link any external data set to the tax data. Therefore, we cannot make statements about variables like party affiliation when using our tax data.

shows that the self-employed can more easily adjust their not only labor supply but also the reporting of their income (Saez et al., 2012). In addition, we use income from renting, an unaffected income category, as a placebo outcome. Given the differences in the bracket structure across both reforms and the unequal (outside) earnings distribution, we expect heterogeneous responses across the earnings distribution. Since voters cannot distinguish between a moderate and a high earning MP, the first reform might induce MPs to cover their high earnings behind level 3 such that they earn larger amounts than 7,000€ , while the second reform and the associated changes in the bracket structure might discourage MPs to report activities with high levels of outside earnings.

Private disclosure has no effect on reported earnings and our results show that the introduction of public disclosure in 2007 *increased* total outside earnings by 15.3%. The amount of MPs having positive outside earnings also increased by 4.5 percentage points. Quantile regressions show that the effect is mainly driven by the upper end of the earnings distribution. This points to the problem of the conservative top-coding of activities at 7,000€. We show that the increase is mostly driven by income from self-employment and business income, which would be consistent with increased tax compliance as these incomes are self-reported and the public visibility of their incomes might have increased incentives to report income truthfully. However, the timing of the effect suggests that this mechanism is unlikely. We do not see any increase in earnings in two years of private disclosure even though MPs should have anticipated that there a significant chance of their disclosed activities becoming public retroactively. Other possible explanations for the increase include, for example, changing social norms regarding outside incomes, i.e. making outside incomes more normal and therefore, more acceptable.

The tightening of the disclosure law reform provides evidence that disclosure rules lead to a *lowering* of outside earnings. The introduction of seven new brackets allows to distinguish between medium and high-earning MPs. This leads to a reduction in outside incomes of 9.6%. This decrease is mainly driven by reductions in income from wages and salaries consistent with MPs working less for firms other than their own. Quantile regressions show that this decrease is particularly pronounced at the top of the distribution. This is consistent with top-earners being treated most intensely since the new brackets affected them the most.

We also make use of self-collected data on published earnings from webpages of the German Bundestag which we combine with rich data on demographic and political variables. First, we examine the relationship between tighter disclosure rules and electoral accountability. Directly elected MPs had significantly lower outside earnings when compared to the runner-up

in their election district, who joined via the party list, after, but not before the reform. Similarly, MPs with an unsafe rank on the party list had lower outside earnings than MPs with a very safe rank after the reform, while we could not find a difference before. Although income figures are imprecisely measured, it allows us to uncover the relationship between outside earnings and activities, the influence of party affiliation or (previous) occupation. In addition, we use out self-collected data and show descriptively that party affiliation and gender are highly correlated with the amount of outside earnings.

Sufficient attention is paid to these policy changes and to the disclosed information itself. To confirm the effectiveness, we use various data sources. We assess the interest by voters, media and parliamentarians in outside earnings and show (i) data from Google Trends, (ii) number of newspaper articles mentioning 'outside earnings', (iii) mentions in parliamentary speeches and (iv) clicks on web pages of the Bundestag. We show that interest is the largest around policy changes and disclosed information is accessed more often in these years as well as in (federal) election years.

We contribute to several strands of the literature. To the best of our knowledge, this is the first paper examining public disclosure rules for politicians with administrative tax return data for a western democracy. More specifically, we test if individuals change their earnings and thereby the amount of outside activities in response to a mandatory disclosure of these activities along with the respective earnings. Most related, Slemrod et al. (2020) and Malik (2020) exploit an unexpected release of tax records of Pakistani politicians. In contrast to our study, their focus lies on tax evasion in a developing country. While Malik (2020) consider only MPs and provide strong evidence that the pressure to decrease tax evasion was highest for competitively and directly elected legislators, Slemrod et al. (2020) focus on the universe of tax filers and find a 9% increase in the tax paid by individuals that are exposed to public disclosure.

Second, our study contributes to a broader question of how a change in third party information requirements affects income reporting behavior and how public disclosure of income affects the (reported) income itself (Kleven et al., 2016). The effects of income disclosure have been studied among others for the general population (Bø et al., 2015, Slemrod et al., 2020), CEOs (Mas, 2016), and public employees (Mas, 2017). Both Slemrod et al. (2020) and Bø et al. (2015) find that income disclosure leads to higher levels of tax compliance driven by shifting social norms and concern for reputation. Dwenger and Treber (2018) explicitly study whether public shaming increases tax compliance through social pressure. They exploit the introduction of a naming-and-shaming policy in Slovenia to show that taxpayers reduce their

tax debt to avoid shaming. Perez-Truglia and Troiano (2018) run a field experiment to study shaming by sending different letters to tax delinquents in the US. They find that increasing the visibility of the delinquency status increases compliance by individuals who owe less than 2,500$, while the effect on individuals with larger debt is negligible.[4]

Lastly, we contribute to the moonlighting literature, which investigates the relationship between politicians' outside earnings and parliamentary activity, quality and corruption. This literature shows that allowing moonlighting has ambiguous effects. On the one hand, it might attract more competent politicians, on the other hand these politicians are also more likely to shirk in office (Gagliarducci et al., 2010). Furthermore, politicians connected to private firms might hinder the process of creative destruction and thereby lower productivity (Akcigit et al., 2018). There are also two studies investigating moonlighting of German MPs. Arnold et al. (2014) show descriptively that (reported) outside earnings are not correlated with absence rates and speeches, but negatively correlated with oral contributions and group activities. Becker et al. (2009) find that politicians report less outside income if they face stronger political competition. However, no existing study examines the effect of disclosure rules in a casual manner. Furthermore, we are the first who use administrative tax records to evaluate public disclosure rules affecting politicians.

The remainder of this paper is structured as follows. In Section 2, we describe the institutional context and provide more details about the introduction of disclosure rules in 2005, the change from private to public disclosure in 2007 and the tightening of these rules in 2013. We briefly describe the German voting system. We describe our different data sources and provide descriptive statistics in Section 3. Section 4 outlines our empirical strategy. We explain our Difference-in-Differences strategy in greater detail as well as our event study approach. Several mechanisms that might drive our results are discussed. In Section 5, we present our results both for the introduction and the tightening of the disclosure rules. Last, Section 6 concludes.

2 Institutional Context

2.1 Introduction of Disclosure Rules

Historical background In Germany, both federal and state member of parliament are legally permitted to carry out outside activities besides their political mandate, e.g. lawyers might continue to work within their profession. However, it is clearly stated in §44a of the

[4] See Bursztyn and Jensen (2017) for a survey of the literature on social pressure and shaming effects.

Members of the Bundestag Act (*Abgeordnetengesetz*) that "the exercise of the mandate of a Member of the Bundestag shall be central to his or her activity". In late 2004, payments to federal MPs by large companies such as Siemens of Volkswagen became the focus of public attention. Subsequently, the German federal parliament passed a law in August 2005 that obliged MPs of the German Bundestag to publicly disclose their outside activities and associated earnings. The purpose of the disclosed information was to "indicate combinations of interests with implications for the exercise of the said mandate". The law was controversial and some MPs filed a lawsuit against it arguing that it would violate their privacy rights and the obligation to public disclosure makes it less attractive to run for office for citizens from certain occupations such as for example entrepreneurs.

Private and public disclosure Until the final decision of the Federal Supreme Court, the President of the German Bundestag (*Bundestagspräsident*) decided that outside activities and earnings would have to be privately disclosed to the administration of the Bundestag, but would not be publicly disclosed. In July 2007, the lawsuit was narrowly defeated by a tied court and MPs were forced to publish their sources and levels of outside earnings on web pages of the German Bundestag. To conclude, starting in 2005 federal MPs privately disclose their information and from 2007 (retroactively to 2005 and onwards) all information was publicly disclosed.

Outside activities and associated earnings are published on webpages of the German Bundestag. Table 1 summarizes the disclosure rules.[5] Disclosure obligations involve publication of (i) each outside activity, (ii) corresponding outside earnings per activity, (iii) its frequency and (iv) its source. Disclosed earnings are determined by the gross amounts paid, including expenses, compensations and the value of benefits in kind, while deductions are not included. Therefore, the amount of earnings from an activity is therefore not necessarily equal to earnings that are taxes. Not all kinds of outside earnings need to be disclosed, for example stock options or shareholdings in private corporations, if they are lower than 25%, are exempt. In addition, activities with associated earnings of less than 1,000€ also need not be reported.

The amount of outside earnings are published in income levels. Earnings below 1,000€ are classified as level 0, those between 1,000€ and 3,500€ were referred to as level 1, outside earnings between 3,500€ and 7,000€ were called level 2, while level 3 described outside earnings of above 7,000€. In addition, the law required MPs to assign the respective source to each outside activity. Appendix Figure A1 shows a screenshot of the webpage of an MP.

[5] The interested reader can find an English version of the Code of Conduct for Members of the German Bundestag online (Bundestag, 2013).

Table 1: General disclosure requirements

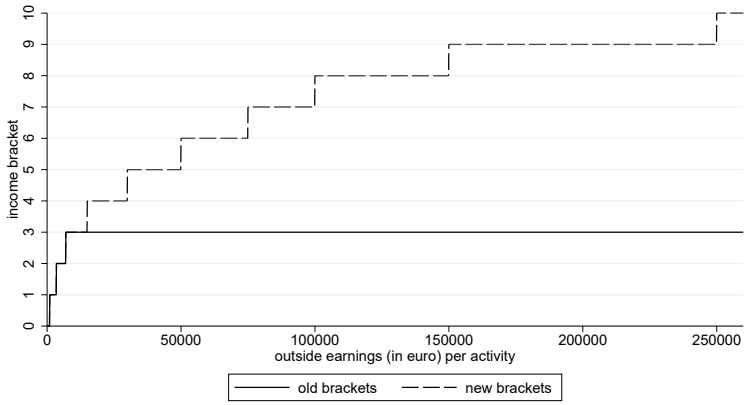
(A) Outside Activities	
remunerated activity during the term of the mandate	e.g. speech
functions in enterprises	e.g. supervisory board
functions in public corporations and institutions	e.g. board of trustees
functions in clubs, associations and foundations	e.g. development aid agency or foundations
shareholdings in private corporations or partnerships	e.g. law firm
(B1) Outside Earnings (EP 16 and 17)	
level 0	income up to 1,000€
level 1	income between 1,000€ and 3,500€
level 2	income between 3,500€ and 7,000€
level 3	income over 7,000€
(B2) Outside Earnings (EP 18)	
level 0	income up to 1,000€
level 1	income between 1,000€ and 3,500€
level 2	income between 3,500€ and 7,000€
level 3	income between 7,000€ and 15,000€
level 4	income between 15,000€ and 30,000€
level 5	income between 30,000€ and 50,000€
level 6	income between 50,000€ and 75,000€
level 7	income between 75,000€ and 100,000€
level 8	income between 100,000€ and 150,000€
level 9	income between 150,000€ and 250,000€
level 10	income over 250,000€
(C) Frequency and Time Frame	
once, monthly or yearly	starting and ending date
(D) Source	
company's name and location	

Notes: We ignore the information on donations. The name of lawyer's clients are not revealed due to existence of lawyer-client-confidentiality. Shareholdings in private corporations only need to be reported if a MP holds more than 25% and no information about received outside earnings needs to be provided (no information about level, frequency and time frame of the activity). For more details we refer to 'Code of Conduct for Members of the German Bundestag'. Reported earnings and activities are published on webpages of the German Bundestag and in *Amtliches Handbuch*.

Top-coding at 7,000€ was criticized since MPs might cover their well-paid activities and declare it as level 3. Nevertheless, various watchdog organizations and the media made extensive use of the published data in subsequent years.

The enforcement of the law works as follows. Every MP has to submit all outside activities and associated income levels, time frame and frequency, and its source to the President of the German Bundestag within three months. These data are then published on the individual websites of the respective MP that are administered by the German Bundestag. If a MP misreports or does not report at all, the violation will be made public and a fine has to be paid. Sanctions include cuts in their enumeration of up to 50%. In addition, considerable cost of reputation is added to the monetary fine, since these cases are widely discussed in the media.[6]

Figure 1: Visualization of both reforms and the underlying bracket structure



Notes: This figures visualizes the bracket structure of both reforms. The solid line refers to the first reform, where every activity that is remunerated with more than 7,000€ is is categorized as level 3. The dashed graph shows the bracket structure under the second reform and thereby the increase in disclosure of outside earnings to voters.

2.2 Tightening of Disclosure Rules

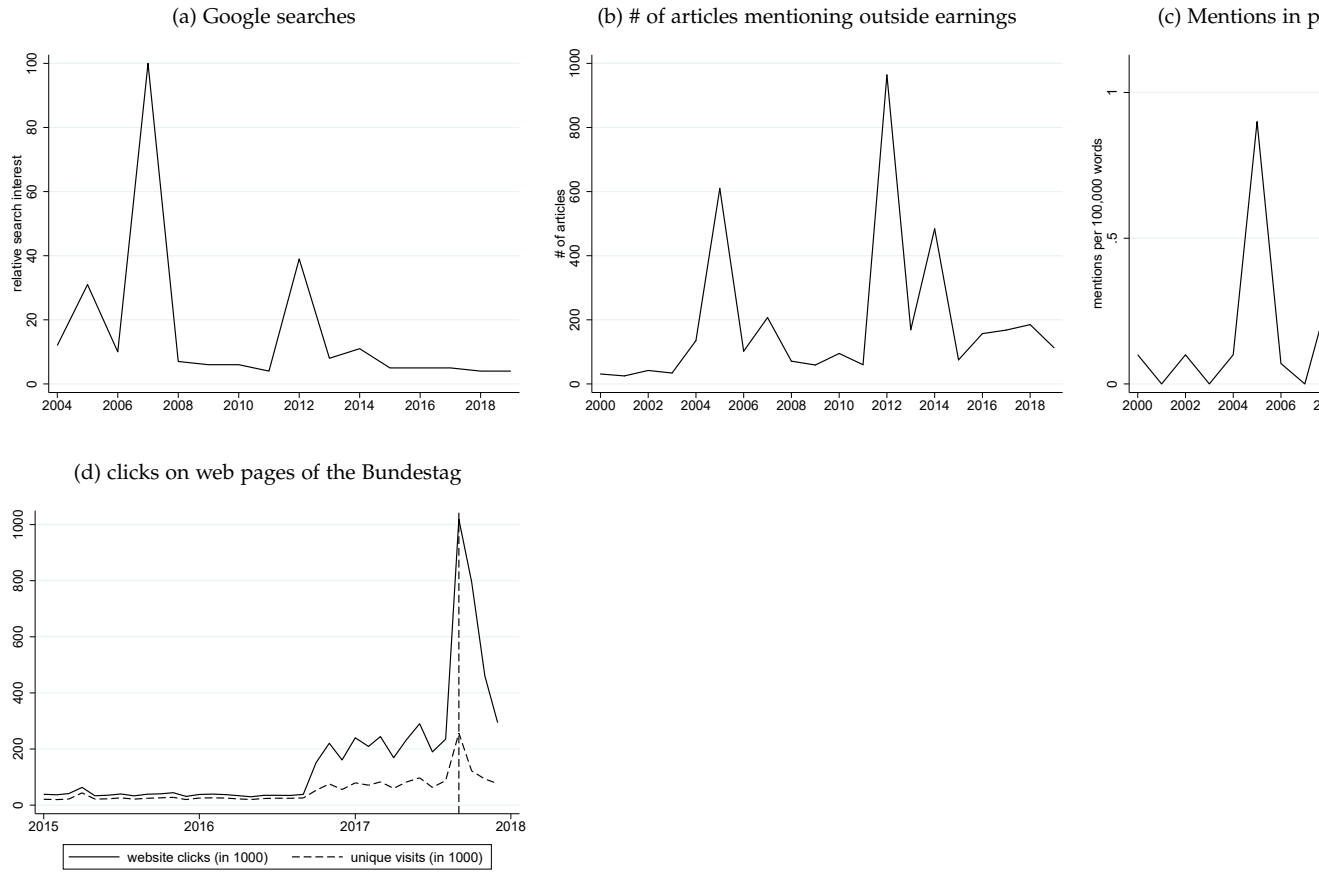
Historical background In 2012, the former German Minister of Finance Peer Steinbrück was nominated as candidate for chancellor for the upcoming federal election. Subsequently, it was pointed out by the media that he was the highest-earning member of parliament by giving a large number of highly-paid speeches.[7] Since most of his outside activities were top-censored, i.e. above 7,000€, his outside earnings were not appropriately reflected in the reporting scheme. This created a prolonged public debate about possible reforms of the reporting requirements throughout 2012 with Google searches spiking (see Figure 2). Using a digitized database of all parliamentary speeches, we also show that the use of the phrase "outside earnings" in speeches by federal MPs spikes in 2012 (see Figure 2). Following this debate, the federal parliament passed a stricter version of the disclosure law in March and came into force in September 2013. MPs could already anticipate the tightening of disclosure law, and we therefore treat 2012 as the reform year for the second reform.

Tightening of disclosure rules The new law aimed to provide more detailed information on high-earning MPs. More specifically, seven new income categories were added to the reporting scheme, so that top-censoring occurred at 250,000€ instead of 7,000€. This makes it possible to distinguish between a MP earning moderate amounts and top-earners. Figure 1 visualizes the bracket structure of both reforms. The solid line refers to the first reform, where every activity that is remunerated with more than 7,000€ is is categorized as level 3. The

[6] This has already happened twice, most notably to the former minister of the interior, Otto Schily, in 2008. As an attorney, he argued that the rule would violate his client's privacy rights. In the end he had to pay a 22,000€ fine.

[7] There were even cases of him missing votes in parliament when giving a paid speech (Spiegel, 2010).

Figure 2: Interest in outside activities and earnings



Notes: Panel (a) plots the search interest relative to the highest point in the chart for the selected region in the specified time period. The value 100 stands for the highest popularity of this search term. Source: Google Trends; search term: 'Nebeneinkünfte' (engl: outside earnings); Search Period: 01.01.2004-31.12.2019 in Germany. Panel (b) plots the number of articles mentioning outside earnings of politicians from the newspaper archive *GENIOS*. Panel (c) plots the number of times outside earnings were mentioned in speeches held in parliament per 100,000 words. Source: Die Zeit. Panel (d) plots website clicks and unique visitors (in 1000) on the webpages of the German Bundestag from January 2015 to January 2018 on a monthly basis. The solid line indicate the federal election in September 2017. Source: Deutscher Bundestag (own freedom of information request of 18.11.2019).

dashed line shows the bracket structure under the new regime and thereby the increase in disclosure of outside earnings to voters. As a reference, federal MPs receive around 90,000€ as a yearly salary for their work as a politician across our period under study.

For the disclosure rules to be effective, there has to be sufficient attention paid to the reported earnings. This can either be archived through the media, which made extensive use of the reported earnings, or by citizens themselves. To test the first channel, we plot the number of articles mentioning politicians outside earnings found in the newspaper archive GENIOS from 2000 to 2019 in Figure 2b. One can clearly see the spikes in articles in 2005 and 2012 when the two big scandals happened. More generally, the number of articles clearly increased after MPs had to disclose their earnings. To test whether citizens themselves look up their MPs earnings, we obtain data on unique visitors and clicks on the webpages of the

Bundestag where the earnings are reported.[8] As one can see in Figure 2d, the number of clicks and unique visitors increases one year before the federal election in September 2017. There were 61.7 million eligible voters and 47.0 million voters, implying a turnout of 76.2%. In the month of election clicks spike at roughly 1,000,000 clicks and 200,000 unique visitors. Together with the large amount of newspaper articles documenting the existence of outside earnings and activities, we argue that sufficient attention was and still is paid to these issues.

2.3 Voting System in Germany

The German Bundestag is the national Parliament of the Federal Republic of Germany, while state Parliaments (*Landtage*) are the legislative bodies for the individual German states. The competence of legislation is split between the 16 State Parliaments and the Federal Parliament. Elections for the German Bundestag as well as for the German State Parliaments are based on a "personalized" proportional representation system. Its goal is to combine the advantages of both proportional representation and majority voting system. Each citizen has two votes. The first vote is directly attributed to a candidate representing her electoral district. As there are 299 federal electoral districts, the same number of mandates in the Bundestag are distributed to the candidates winning the plurality of first votes in their districts (directly elected candidates). The second vote supports a political party at the national level. Based on their share of the second vote, political parties send their candidates from predefined electoral lists into the federal parliament. The electoral lists are determined by the parties at the state level. This way 299 additional mandates are distributed to the parties who have received at least 5 percent of the valid second votes.[9] The Bundestag is elected for four years, while State Parliament elections are held every five years.

In our analysis, we will distinguish between MPs that are directly elected and those who entered parliament through the party list. In particular, directly elected MPs should face a higher level of electoral accountability since voters have the possibility to punish (or reward) them directly given their published information on outside earnings and activities. Furthermore, we will compare MPs with a safe ranking on the electoral list to those with a more insecure ranking. Again, the less secure the rank is, the higher the degree of electoral accountability should be.

[8] Unfortunately, the data is only available from January 2015 to January 2018.

[9] If a party receives more mandates via the first vote than the second vote, all directly elected candidates gain additional seats in the Bundestag (*Überhangmandate*). To keep proportional representation intact, parties whose share of candidates lies below their share of second votes are also given additional seats (*Ausgleichsmandate*).

3 Data

We employ the German Taxpayer Panel for the years 2001 to 2014 (henceforth called *TPP*), which comprises the universe of German tax returns. In addition, we collect publicly disclosed outside activities and earnings for the years 2005 to 2017 as well as publicly available information on demographics, committee membership and voting statistics (henceforth called *reported data*). The two data sets have distinct advantages and drawbacks. The TPP allows us to precisely measure outside income before *and* after the reforms both for federal *and* state MPs. By this, we can causally evaluate the reforms in a difference-in-difference setting. The main drawback of the TPP is the low number of demographic and political variables. Given the strict data protection rules when working with tax return records, we cannot identify individuals' names or party affiliations. In contrast to the tax return data, our reported data offers a rich set of demographic and political variables, but the publicly disclosed information on earnings are imprecisely measured. Given the nature of the reported data, we can only observe federal MPs after the reform and state MPs are not covered at all. We use the reported data to provide some suggestive evidence on the characteristics of outside activities and demographics, but also to support potential mechanisms. Importantly, we are not allowed to combine these two data sets and both will be evaluated separately.

3.1 German Taxpayer Panel

The German Taxpayer Panel (TPP) covers all tax units for the period 2001 – 2014. It is an administrative data set collected by German tax authorities, provided and administered by the German Federal Statistical Office. The unit of observation is a tax unit, i.e., either a single individual or a couple filing jointly. It contains all information necessary to calculate a taxpayer's annual income tax, including basic socio-demographic characteristics such as age, gender, state of residence, marital status, as well as detailed information on income sources and tax base parameters such as work related expenses and (claimed and realized) deductions on a yearly level. Hence, the advantage of tax return data lies in its precise measurement of pre- as well as post-reform income related variables. However, it does not contain of information about the specific type of outside activity (e.g. speech or ongoing work as a lawyer) or personal information (e.g. party affiliation).[10]

Treatment and control group Our empirical strategy compares federal MPs (treatment

[10] Data access is subject to very strict data security rules and we only work with these data via remote-access. Every single request requires a confidentiality check. Moreover, it is impossible to combine these data with any other information.

group) to state MPs (control group). Now, we outline how we determine the two groups in the TPP. First, we identify all members of federal, state, and EU parliament by having positive income from parliamentary activities. Next, we gather data on the remuneration and election dates of all 16 state parliaments as well as well the federal and European parliament from 2001 to 2014.[11] Since state MPs earn less than federal MPs, we discriminate between the two groups within state-year cells. Until 2009, members of the European parliament received the same amount of remuneration as federal MPs. To identify those units we exploit an increase in their compensation in 2009 due to a EU-wide harmonization of their salaries. Hence we drop observations whose income from parliamentary activities discontinuously jumps in 2009 by the reform-induced amount.[12] Further, we drop households, in which both the head and the spouse are MPs since they could be part of both the treatment and the control group.[13] Next, we exploit the panel structure of our data to exclude individuals who just entered parliament for a given year, since we would wrongly classify their pre-politician earnings as outside earnings. MPs leaving parliament receive a transitional payment (*Übergangsgeld*). We make use of the fact that (i) most MPs leave parliament after elections, and (ii) the transitional payment is lower than the regular salary. This allows us to pinpoint MPs whose income from parliamentary activities drops right after a state or federal election. We classify these MPs as dropouts.[14] As a robustness check, we will report results both with and without dropouts. Finally, we drop all MPs from the three German city-states (Berlin, Hamburg and Bremen) since being an MP is only a part-time job in their state parliaments (so-called *Feierabendparlamente*).

In 2013, Bavaria was the first state that introduced a public disclosure law for its state MPs. One year later, five further states introduced similar laws (see Table A7). Therefore, we exclude observations from these states when disclosure laws where in effect to avoid a contamination of our control group. In Figure 3, we verify the accuracy of our allocation mechanism and compare the amount of units identified in the tax data with the actual number of units that are present in parliament. We match the number of state and federal parliamentarians quite closely.

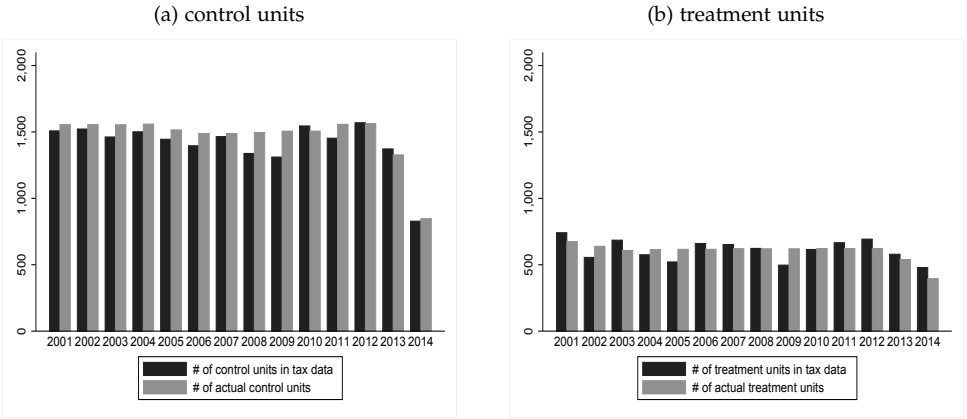
[11] Appendix Figure A2 plots the average remuneration for the federal, EU and all state parliaments over our sample period.

[12] We can identify about two thirds of the 99 EU parliamentarians since one third newly enters the European parliament and is therefore indistinguishably from newly entering federal MPs. Note, that this induces a bias towards zero since a (small) part of the treatment group is not actually treated. Over our sample period there were no changes with respect to income disclosure for members of the European parliament.

[13] This involves only a very small number of couples in our sample period. Including them does not change our results.

[14] Federal MPs receive one additional month of transitional payments for each year they spend in parliament. The transitional payments are capped at 18 months. Starting with the second month after leaving parliament, transitional payments are reduced one to one by all other income a former MP receives.

Figure 3: Comparison between tax data and actual numbers



Notes: Panel (a) shows the number of state MPs that are identified in the tax data (in black) and the actual or expected number of MPs (in grey). Panel (b) shows the number of federal MPs that are identified in the tax data (in black) and the actual number of MPs (in grey). We exclude parliamentarians from Berlin, Hamburg, and Bremen for both groups. We further exclude those units that newly enter parliament and those who leave parliament in a given year. Hence, in our baseline estimations, we only consider 'full year' units such that our results do not get contaminated by e.g. individuals directly entering employment right after leaving parliament. Source: German tax return data, 2001-2014 (Taxpayer Panel, TPP)

Outcome variables We capture disclosed outside earnings as closely as possible. We take advantage of the fact that earnings are divided into seven different types of income (e.g. income from business operations or income from employed work) in the German income tax system. Our main outcome is the total income from sources that MPs have to disclose. This amounts to all income from (i) salaries and wages (ii) (non-corporate) businesses and self-employment (iii) agriculture and forestry, as well as other sources. We will also evaluate the effect on each of the categories (i) to (iii) separately. Furthermore, we use rental income as a placebo outcome since such income does not need to be disclosed.[15]

3.2 Reported Data

Our second data set consists of several publicly available sources (henceforth called *reported data*). The most important part of this data are the reported (and disclosed) outside earnings and activities from web pages of the German federal parliament. We enrich this data with further demographic and political variables. Our reported data covers every MP who was at least present in one of the following three legislative periods of the German Bundestag: 16th legislative period (2005-2009), 17th legislative period (2009-2013) and 18th legislative period (2013-2017).[16] In the following, we describe the different data sources in greater detail.

[15] We do not consider capital income in our analysis, since MPs were not required to disclose such earnings and investment income is only observable until 2009 in the tax data.

[16] Table A2 provides an overview about these three election periods under study as well as the composition of MPs in federal parliament by party.

Demographic variables Using the handbook of German MPs, we extract a number of demographic variables. We observe a politician's name, gender, age, marital status, and number of children. Additionally, we know whether a politician has a PhD degree and their resident state. We classify a politician's (former) occupation into ten groups. Importantly, as opposed to the tax data, we know the party membership of each MP. For our sample period about half of MPs are part of a center-right party (CDU/CSU and FDP), while the other half is a member of one of the left-wing parties (SPD, Greens and The Left). Moreover, we group MPs by their political experience into three categories: newcomers (first term), those serving for two to three terms, and MPs with four or more terms in parliament. Lastly, we construct dummies for MPs that leave (or join) parliament in the middle of an election period since they have less time to accumulate outside earnings. Summary statistics of all these variables can be found in Appendix Table A3.

Political and electoral variables A MP can be voted into the *Bundestag* either via party list or direct ballot (see Section 2.3). To capture this distinction, we construct a dummy for being elected directly. We also create a dummy for MPs who entered through a safe rank on the party list (above-median ranking) as opposed to those that where placed on a less safe rank (below-median ranking). Furthermore, when a MP ran for direct ballot in one of the 299 electoral districts, we obtain her own as well as her party's vote share in that district. Then, we calculate the vote margin of each MP as the difference to the second-placed candidate for winning candidate and the difference to the first placed candidate for all other candidates. To account for political offices and to capture a politician's policy expertise and interest more accurately, we construct dummies for membership in one each of the 23 committees of the German federal parliament. In addition, to capture the rank and status of the MP, we create dummies for being part of party leadership and for being a committee chair, respectively. Summary statistics are again displayed in Appendix Table A4.

Published data on outside earnings We collect every disclosed activity, its income level (0 to 3 for election period 16 & 17 and 0 to 10 for election period 18), its starting and end date as well as frequency (monthly, yearly, once), and the respective employer. Table 2 provides information about the number of MPs with at least one activity and positive outside earnings. 89.12% of all MPs report an activity and 38.14% report positive outside earnings. This is due to the fact that many activities are voluntary work and thus not remunerated. In Appendix Table A6 we display the distribution of each activity's bracket and frequency. 18% of all activities are assigned level three of higher across all election periods. 94% of all activities happen only once and only 2% and 4% of all activities happen on a yearly or monthly basis.

Table 2: Number of MPs with at least one activity and positive outside earnings

	EP16		EP17		EP18		Total	
	N	in %	N	in %	N	in %	N	in %
MPs who report at least one activity	573	89.81	581	89.11	582	88.45	1736	89.12
MPs with positive outside earnings	241	37.77	250	38.34	252	38.30	743	38.14

Notes: This table provides an overview about federal MPs who report outside activities and who report outside earnings for the election periods 16-18 and the average across all three election periods. All percentages refer to the total amount of MPs for a given election period. Source: Reported Data, own calculations.

To determine a value of outside earnings, we assign the mean value of each bracket to every activity (e.g. an activity with level 0 is measured with 500€). The value assigned to the last bracket is determined by polynomial extrapolation, i.e. an activity with level 3 is assigned 9,500€ (see Appendix Figure A3). Since the addition of 7 new levels in election period 18 mechanically increases this measure, we code every activity of level 4 or higher as a level 3 activity. More precisely, an activity with level 0 is assigned a value of 500€ , level 1 2,250€ , level 2 5,250€ and level 3 and above 9,500€ .[17] This is likely to underestimate the true level of outside earnings, but ensures comparability over time. In a last step, we calculate the total amount of reported outside earnings of every federal MP for a given election period and divide it by four to ensure comparability to the yearly tax data.

Published data on outside activities The composition of the main activities that MPs undertake are displayed in Appendix Table A5. 32% pursue a remunerated activity, 40% hold functions in enterprises and 59% hold functions in public corporations. The most popular remunerated activities are classified as law (10% of all MPs report at least one law activity), 10% of all MPs have at least one management and consulting activity and 9% were giving at least one speech. Typical functions in enterprises are member of advisory board (*Mitglied des Beirates*) or member of supervisory board (*Mitglied des Aufsichtsrates*). 11% of all MPs report shareholdings in private corporations with a share larger than 25%, but we cannot observe their income from these shareholdings.

3.3 Descriptive Analysis: Outside Earnings

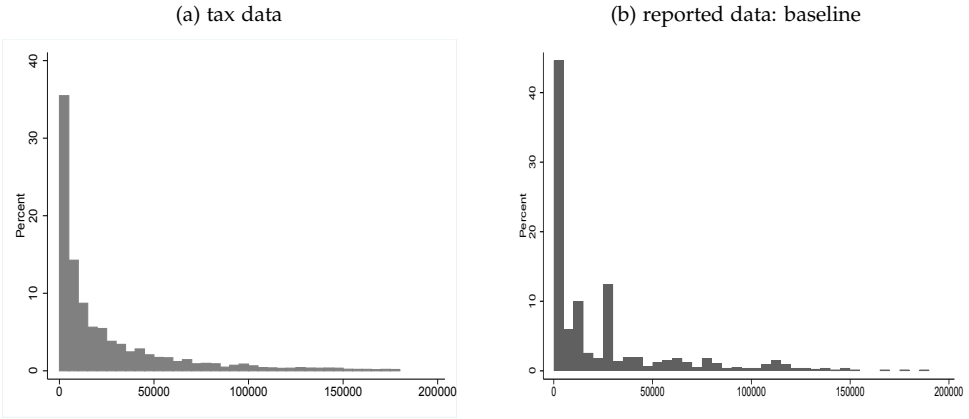
The reported data consists of 1,952 MP-election period observations and covers election period 16-18 of the German Bundestag. We observe 1,108 individual MPs, 264 of which are present throughout all election periods.[18]

Outside earnings Figure 4 plots the distribution of federal MPs outside earnings both

[17] As a robustness check, we also use a lower bound measure, where we we assign the lower threshold of 7,000€ to level 3 (and above) activities.

[18] We provide details of the composition of the German Bundestag for the election periods under study in the Appendix.

Figure 4: Distribution of outside earnings



Notes: Panel (a) displays the distribution of (positive) outside earnings from federal parliamentarians excluding the top 2% for privacy reasons based on the tax return data. Panel (b) shows the corresponding distribution for the baseline measure of outside earnings based on the reported data. Source: German tax return data, 2001-2014 (Taxpayer Panel, TPP) (Panel (a)); Reported Data EP 16 - 18 (Panel (b))

from the reported data as well as from the tax data. Outside earnings is extremely unequally distributed in both data sets. The outside earnings from the tax data closely traces a pareto distribution, while the reported distribution exhibits bunching at different points. Between these bunching points, one can see the missing mass that is caused by the bracket reporting system. In our tax data, half of those MPs who do have positive earnings, have less than 10,000€ and around 30% have more than 30,000€ across the period under study. Next, we compare the outside earnings that were publicly disclosed with the actual outside earnings that we can observe in the tax data.

Table 3 shows that the mean outside earnings in the tax data is around 29,000€ across all MPs. Federal MPs receive on average 21,000€ of outside earnings, while state MPs earn on average 32,000€. The large difference might be surprising since the focus of the political debate is usually on federal MPs. Possible explanations might be the lower public attention placed on state MP's or simply because they still have a closer relation to their hometown and thereby their initial occupation. The major income source is business and self-employment income for federal MPs, while state MPs earn (on average) the most from wages and salaries. The mean in the reported data is around 10,000€. The values reported in the tax data are almost twice as high as our baseline measure from the reported data. This confirms one frequent criticism of the public disclosure law. The bracket system, and in particular the highest bracket, mask the real extent of moonlighting that politicians engage in.

Correlations We classify SPD, Greens and the Left Party as left-wing parties and show that they earn less compared to members of other parties, a result often found in the existing

Table 3: Descriptive statistics: outside earnings (reported data & tax data)

	mean	sd	min	max	N
tax data					
all MPs					
outside earnings	29,358	146,151			27,974
wages & salaries	14,633	136,463			27,974
business & self-employment	11,762	113,943			27,974
renting	-986	17,880			27,974
other sources	2,963	15,770			27,974
federal MPs					
outside earnings	21,546	75,968			8,537
wages & salaries	8,230	42,613			8,537
business & self-employment	10,390	59,358			8,537
renting	-1,830	14,363			8,537
other sources	2,926	16,702			8,537
state MPs					
outside earnings	32,789	167,837			19,437
wages & salaries	17,445	161,184			19,437
business & self-employment	12,364	130,909			19,437
renting	-616	19,212			19,437
other sources	2,980	15,344			19,437
reported data					
federal MPs					
outside earnings: baseline	9,677	26,957	0	251,875	1,952
outside earnings: lower bound	8,478	23,205	0	227,562	1,952

Notes: Both panels refer to yearly values. The upper panel reports earnings based on the German tax return data, 2001-2014 (Taxpayer Panel, TPP). Outside earnings amounts to all income from (i) salaries and wages, (ii) business and self-employment income and (iii) other sources (except for income from parliamentary activities). Income from renting is our placebo outcome. Due to privacy reasons minimum and maximum values are omitted in the tax return data. In out reported data, outside earnings are calculated as follows: *baseline*: an activity with level 0 is assigned a value of 500€ , level 1 2,250€ , level 2 5,250€ and level 3 and above 9,500€ . In our *lower bound* definition, we assign a value of 7,000€ for each activity with level 3 and above. Source: Outside earnings are based on reported data for the election periods 16, 17 and 18 (lower panel);

literature (Becker et al., 2009, Eggers and Hainmueller, 2009). Table 4 shows that the unconditional difference amounts to about 7,400€ per year. This difference shrinks to 3,600€ when including all control variables, such as for example their former occupation, but is still statistically significant and of a economically meaningful size. Furthermore, in our sample both female and East German MPs earn significantly less outside earnings. Meanwhile, there is no significant difference by age and experience once we control for all other variables.[19]

[19] Appendix Figure A4 shows that there is also substantial variation in outside earnings by committee membership. MPs in the economics, agriculture and exterior committee earn on average over 13,000€, while members of the environmental and digital committee earn 3,000€ and less.

Table 4: Outside earnings: correlations

	(1) outside earnings	(2) outside earnings	(3) outside earnings	(4) outside earnings	(5) outside earnings	(6) outside earnings
left-wing	-7,408***					-3,624***
	(1,488)					(1,402)
female		-7,267***				-3,815***
		(1,429)				(1,302)
East Germany			-5,987***			-6,755***
			(1,375)			(1,486)
age between 50 and 60				1,307		-122
				(1,380)		(1,438)
age 60 above				3,191*		1,188
				(1,919)		(1,988)
terms: 2 - 3					1,270	84
					(1,272)	(1,429)
terms: >3					2,069	-1,882
					(1,703)	(2,127)
controls						Yes
N	1,952	1,952	1,952	1,952	1,952	1,952
# politicians	1,108	1,108	1,108	1,108	1,108	1,108

Notes: The outcome variable is outside earnings as described in Section 3.2. SPD, Greens and The Left are coded as left-wing (parties). Controls include all variables in Tables A3 and A4 for which we have full observations. Robust standard errors clustered at the individual level. * p<0.1, ** p<0.05, *** p<0.01. Source: Reported data for EP 16 - 18 (2005–2017).

4 Empirical Strategy

In this section, we outline our empirical strategy. First, we describe both our simple difference-in-differences setting and our identification strategy. Furthermore, we extend our model to a dynamic difference-in-difference strategy. Second, to analyze who particularly responded to disclosure of outside earnings and activities, we run a quantile regression approach and we use different income categories as outcome variables. Last, we explore the mechanisms behind our results using the reported data by comparing MPs with different levels of electoral accountability.

4.1 Difference-in-Differences Strategy

Since 2005 Federal MPs are obliged to privately disclose their outside activities and earnings. Starting from 2007 and onwards these information is publicly disclosed (Also retroactively to 2005). We exploit the fact that members of the federal parliament (*Bundestag*) are affected by disclosure rules, while members of state parliaments (*Landtag*) do not face such legal requirements. Thus, members of the federal parliament are our treatment units and members of state parliaments form our control group. This setup gives rise to a difference-in-difference design by comparing federal to state MPs before and after the reform. This identification strategy will uncover the casual effect of the public disclosure law if the assumption of parallel trends between the treatment and control group holds. We implicitly validate this assumption using a dynamic difference-in-difference approach.

Our baseline estimation is structured as follows: Let Y_{ist} be an outcome of politician i

resident in state s in year t. We then estimate

$$Y_{it} = bTreat_i Reform_t + g_i + l_{st} + e_{it} \tag{1}$$

where $Treat_i$ is a dummy taking the value one if i is a federal MP and $Reform_t$ is an indicator equal to 1 from 2007 onwards. We also include individual fixed effects g_i to control for potentially unobserved and time-constant features of MPs. The state-year fixed effects l_{st} absorb aggregate movements as well as state-specific shocks such as local economic conditions. Finally, we cluster our standard errors at the individual level to allow for serial correlation. The coefficient of interest is b, which identifies the casual effect of the public disclosure law. Our sample period runs from 2001 to 2009 for the first reform. Note that, since this is classical 2x2 difference-in-difference setup, we do not have to assume homogeneous treatment effects for our estimator to be consistent (Goodman-Bacon, 2021).

We evaluate the tightening of the public disclosure law in much the same manner as its introduction with one exception. We drop observations in which state MPs were also subject to disclosure rules (see Section 3.1). Next, we estimate equation 1 on the sample from 2010 to 2014 with the reform dummy being one for $t \geq 2012$. Standard errors are again clustered on the individual level.

Dynamic difference-in-difference As mentioned above, we also estimate a more dynamic version of equation 1 both to test for pre-trends and to allow for dynamic post-treatment effects. To do so, we define a set of dummy variables $\mathbb{1}_{k=t}$, which takes the value one if k equals t and zero otherwise. To estimate the effects of the introduction of public disclosure rules, we run the following equation:

$$Y_{it} = \sum_{k=2001}^{2005} b_k Treat_i \mathbb{1}_{k=t} + \sum_{l=2007}^{2009} b_l Treat_i \mathbb{1}_{l=t} + g_i + l_{st} + e_{it} \tag{2}$$

where we omit the interaction of the 2006 dummy to normalize our estimates to the pre-reform year. Therefore, $b_k \; \forall k \in \{2001, ..., 2005\}$ refer to differences in trends between the treatment and control group before the reform, while $b_l \; \forall l \in \{2007, ..., 2009\}$ represent the dynamic treatment effects.

Analogous to equation 2, we adjust the dynamic difference-in-difference equation such that we check for pre- and post-treatment effects for the second reform:

$$Y_{it} = \sum_{k=2010}^{2010} b_k Treat_i \mathbb{1}_{k=t} + \sum_{l=2012}^{2014} b_l Treat_i \mathbb{1}_{l=t} + g_i + l_{st} + e_{it} \tag{3}$$

where we omit the interaction of the 2011 dummy to normalize our estimates to the pre-reform year. Again, b_{2010} refers to differences in trends between the treatment and control group before the reform, while $b_l \; \forall l \in \{2012, ..., 2014\}$ represent the dynamic treatment effects.

4.2 Who responds to the Disclosure of Outside Earnings and why?

Increased transparency makes politicians more accountable. In which way politicians adjust their earnings depend on the preferences of voters and MPs and an MP's ability to adjust her labor supply. If voters perceive outside income negatively, MPs might in response reduce their outside activities. We discuss direct ways to test for the effect of electoral accountability in the reported data in Section 4.3.

Income components Income disclosure by politicians might have counteracting effects on different categories of outside income. On the one hand, the effect depends on the preferences of voters on incomes from different sources. For example, Campbell and Cowley (2015) show via a survey experiment that voters do not penalize business owners or the self-employed for continuing their business. On the other hand, the literature on behavioral responses towards taxation shows that the self-employed can more easily adjust their labor supply and also the reporting of their income (Saez et al., 2012). Another possible behavioral effect can occur if income disclosure affects tax compliance. By increasing the possibility to detect evasion behaviour, income disclosure laws incentives tax payers to declare their true income (Slemrod et al., 2020, Bø et al., 2015). Given strict third-party reporting standards in Germany, we expect this possible effect only to be present for income from business operations and self-employment, since these income categories are self-declared by the tax payer. Both of these effects should (at least partially) materialize already in 2005 when private disclosure was applied and politicians had to assume that there is a decent chance for public disclosure to be applied retroactively. In contrast, if the effect is only observed from 2007, it is more likely that it is connected to the information that was publicly released.

Social norms towards having outside work might have changed after the introduction of the public disclosure law. Initially, the very conservative top-coding at 7,000€, has prevented voters to distinguish between a high- and moderate-earning MP and might have lead voters to underestimate the true extent of outside earnings. Therefore, from a voter's point of view it might have become more acceptable to have a second job as a politician. The second reform, which introduced more brackets and thereby increased the amount of information available to voters, however, could have had the opposite effect. In response, politicians might then reduce

the amount of outside income.

Public disclosure could also have changed a previous social norm of not pursuing outside activities among MPs to a market transaction by putting a price on it (Gneezy and Rustichini, 2000).[20] Given that MPs are paying a price, which is the reporting requirement itself, they might engage in more outside work. Moreover, politicians might have misperceived social norms and learned from the behavior of their peers, which causes them to update their beliefs about the acceptability of outside earnings (Bursztyn et al., 2020). Reck et al. (2020) study public disclosure of tax returns in Norway. Their evidence suggests that individuals use publicly disclosed information to learn about the incomes of others in their social network for non-tax reasons.

Last, the reported income could also be used as a signal of skill to (certain) voters. This could be potentially heterogeneous with some MPs wanting to highlight the importance of their mandate by having no outside jobs, while others explicitly start to have outside jobs to signal competence.

Quantile regression As already seen in Figure 4, outside earnings of politicians are highly unequally distributed. To shed light into the full distribution of outside earnings, we use (unconditional) quantile regressions. Whereas ordinary least squares regressions allow us to estimate the effect of a given variable at the mean, quantile regressions tell us about the effect of a policy change on the entire distribution of outside earnings.

We apply the estimator suggested by Firpo et al. (2009) to estimate the effect of the reform on all nine deciles of the outside earnings distribution. We apply this estimator to both data periods: 2001 – 2009 (first reform) and 2010 – 2014 (second reform). The results are particular interesting for the second reform, since it has changed only the bracket structure. More precisely, until 2012 every activity that was remunerated with more than 7,000€ was top-coded and appeared as level 3 on the web pages of the German Bundestag. After the tightening of the rules, activities that are remunerated with more than 250,000€ are top-coded. Therefore, we expect most of the effect to be concentrated at the top of the distribution.

4.3 Mechanisms: Electoral Accountability

To further investigate the mechanism of the reform, we look at variation in electoral accountability. As explained in Section 2.3, we exploit the fact that there are two ways to become a federal MP in Germany: direct ballot election and party lists. Since it is impossible to

[20] This is also connected to the concept of moral licensing, where an individual, after doing something perceived as morally good, i.e. a politician being transparent about their outside earnings, it gives herself license to do something that is perceived to be morally bad, i.e. increasing her outside earnings (Merritt et al., 2010).

differentiate between the two groups of MPs in the tax data, we will test this hypothesis using the reported data. As we do not have a control group in this data set, all evidence has to be considered suggestive.

Election via direct ballot or party list Politicians, who enter parliament by direct ballot election, are arguably more accountable to voters. In case for any perceived misbehaviour, voters have the opportunity to directly vote specific politicians out of office. In contrast, voters cannot (directly) vote out specific politicians that enter trough the party list. Therefore, directly elected MPs are more electorally accountable and should react more strongly to the reform if electoral accountability matters. We test the prediction by looking at the subset of electoral districts, from which the second-placed candidate also entered parliament (through the party list). This allows us to compare directly elected MPs to their runner-ups in the following way:

$$Y_{ide} = b_e D_{ie}^{direct} + dX_{ie} + g_d + e_{ide} \quad \forall\, e \in \{16, 17, 18\} \tag{4}$$

where Y_{ide} are outside earnings for MP i in district d in election period e. D_{ie}^{direct} is a dummy for being directly elected, and g_d are district fixed effects ensuring that we identify the effect within electoral districts. We estimate this equation both for the two election periods before the second reform and for the period after the second reform.

We expect b_e to be negative for all election periods, since they are subject to a higher level of electoral accountability. If the tightening of the disclosure rules, which went into effect, in election period 18, increased electoral accountability, directly elected MPs should reduce their outside income relative to MPs entering parliament through the party list. That is, we expect b_e to be even more negative in election period 18.

Safe and unsafe ranking on party list In contrast, MPs entering parliament via party list are only at risk to be voted out of office if they are close to the marginal rank, meaning the last rank which gets into parliament. Therefore, we also compare MPs with a safe list rank to those with an unsafe rank. Given the higher risk of being voted out of office for MPs with an unsafe rank, we argue that they are subject to a higher level of electoral accountability. Since party lists are organized at the state-party level, we construct a dummy $D_{ie}^{unsaferank}$ that takes the value one if a politician has an above median rank. For example, 22 politicians entered through the list of the Bavarian Social Democrats in election period 18. According to our classification, those ranked 1 to 11 had safe list ranks, whereas ranks 12 to 22 were unsafe. We

then estimate the following equation:

$$Y_{ispe} = b_e D_{ie}^{unsaferank} + dX_{ie} + g_{sp} + e_{ie} \quad \forall\, e \in \{16, 17, 18\} \tag{5}$$

where Y_{ispe} are outside earnings for MP i in state s and party p and election period e. g_{sp} are state-party fixed effects controlling for the (potentially) different assignment procedures of the state-level party associations. Similar to above, b_e should generally be negative and become even more negative in election period 18 if electoral accountability plays a mediating role.

5 Results

5.1 Introduction of the Public Disclosure Law

Baseline results We first present the results from our baseline Difference-in-Differences approach (see equation 1). Table 5 shows the causal effects of the introduction of disclosure laws. Outside earnings did actually *increase* by about 15%. Also, the probability of having positive outside income increased by 4.5 percentage points. Both of these effect are statistically significant at conventional levels. One potential concern is that we include politicians who just dropped out of parliament in our sample conflating outside earnings with their regular income. To test this possibility, we exclude these MPs (labelled as *dropouts*) from our sample (see column (2) and (4) in Table 5). This leaves our estimates almost unchanged.

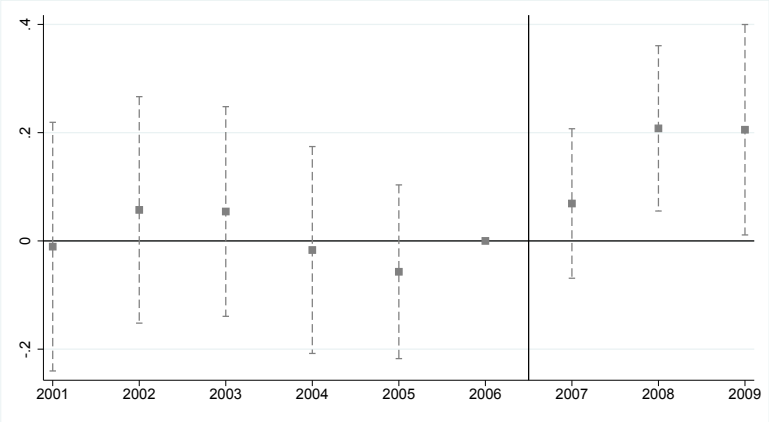
Figure 5 visualizes the estimates of our dynamic difference in differences approach (see equation 2). The effect only emerges after the introduction of public disclosure in 2007. Importantly, there is no evidence for any significant differential trend between the treatment and control group before the reform. This is reinforcing the parallel trends assumption underlying our research design. In addition, we do not observe any differential trend in the time period of private disclosure from 2005 to 2006. Politicians are only reacting to *public*, but

Table 5: Introduction of the disclosure law: extensive and intensive margin

	(1) log outside income	(2) log outside income	(3) outside income > 0	(4) outside income > 0
treatment x reform	0.155**	0.153**	0.049***	0.045***
	(0.064)	(0.066)	(0.017)	(0.017)
politician FE	Yes	Yes	Yes	Yes
state-year FE	Yes	Yes	Yes	Yes
w/o dropouts		Yes		Yes
N	14,135	12,955	19,993	18,412
# politicians	3,189	3,013	3,652	3,546

Notes: This tables displays estimates from equation 1 using log outside earnings (columns 1 & 2) and a dummy for positive outside earnings (columns 3 & 4) as outcome variables. Robust standard errors are clustered at the individual level. * p<0.1, ** p<0.05, *** p<0.01. Source: German tax return data, 2001-2009 (Taxpayer Panel, TPP)

Figure 5: Introduction of the disclosure law: dynamic difference-in-difference



Notes: This graphs displays the coefficients $b_t \; \forall \; t \in \{2001, ..., 2009\}$ and the corresponding 95% confidence intervals estimated by equation 2 using outside earnings as the outcome variable. Robust standard errors are clustered at the individual level. Source: German tax return data, 2001-2009 (Taxpayer Panel, TPP)

not to *private* disclosure. The effect in 2007 is positive, but insignificant. In the following years, the effect becomes stronger and significant at conventional levels.

Income components To disentangle the total effect of an increase in outside earnings, we apply our baseline difference-in-difference setup to different income categories (see equation 1). Table 6 shows the results for wages & salaries (column 1 and 2), business & self-employment (column 3 and 4), other sources (column 5 and 6) and last, renting as our placebo outcome (column 7 and 8). The results show that the increase is solely driven by income from business and self-employment, which increased by 19.3% at the intensive margin and 3.7 percentage points at the extensive margin. All other coefficients are positive and insignificant. Lastly, rental income, which was not affected by the disclosure law, does also not react to the reform. This increased credibility of that the measured effect is solely driven by the introduction of the disclosure law and not by some other shock occurring at the same time.

Now, we discuss if an increase in tax compliance might be an explanation of why the introduction of public disclosure leads to an increase in outside earnings, particularly in business and self-employment income. We do not think that tax compliance (or previous tax evasion) is a driving force behind our results. The timing of the effect is not consistent with an increase in tax compliance. If politicians were concerned about being caught evading taxes, they should have already reacted in 2005 when private disclosure was introduced. Since it was known that the privately disclosed income would become public retroactively, MPs should have anticipated the possibility of public disclosure and, at least partially, increased their tax compliance starting in 2005. Moreover, tax evasion is a criminal offence and caught MPs not

Table 6: Introduction of the disclosure law: income categories

income category	wages & salaries		business & self-employment		other sources		renting (placebo)	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	log income	income > 0	log income	income > 0	log income	income > 0	log income	income > 0
treatment x reform	0.089	0.001	0.193**	0.037**	0.060	0.009	0.095	0.018
	(0.089)	(0.011)	(0.089)	(0.018)	(0.111)	(0.014)	(0.179)	(0.014)
politician FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
state-year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
w/o dropouts	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	5,608	18,412	9,046	18,412	4,463	18,412	3,799	18,412
# politicians	1,518	3,546	2,319	3,546	1,229	3,546	1,550	3,546

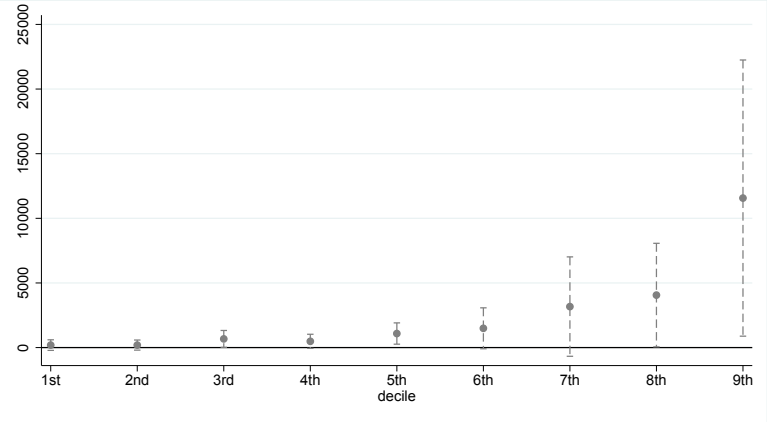
Notes: This tables displays estimates from equation 1 using log outside earnings and a dummy for positive earnings from wages and salaries (column 1 & 2), business operations and self-employment (column 3 & 4), forest and agriculture and other sources (column 5 & 6), and renting (column 7 & 8) as outcome variables. Robust standard errors are clustered at the individual level. * p<0.1, ** p<0.05, *** p<0.01. Source: German tax return data, 2001-2009 (Taxpayer Panel, TPP)

only would loose their mandate, they would also face severe penalties. Reck et al. (2020) study public disclosure of tax returns in Norway. They find that about 90% of searches target wage earners and not self-employed people.

Instead, the increase in 2007 is consistent with a change in social norms towards outside activities and earnings. These social norms could only have changed when outside earnings became *public*, not when they were privately disclosed. As the reported amounts were kept artificially low by top-coding at 7,000€, this could have induced voters (and subsequently politicians) to view outside earnings less negatively. This mechanism is also consistent with the increase being driven by income from self-employment as this income category has been shown to be acceptable by voters (Campbell and Cowley, 2015).

Social norms might also change when previously intrinsically motivated is replaced by extrinsically motivated behavior. Gneezy and Rustichini (2000) show in a field experiment that the introduction of a fine for parents who pick up their children late from a day-care center actually increased late-coming. Before the fine, it was simply a social norm to be on time and afterwards it was perceived as a market transaction. Apply this finding to our setting, it might be that it was a social norm not to have little (or no) outside earnings. After the policy change, the price an MP pays for earning outside income, is the duty to report it. Therefore, since politicians pay the price, earning outside income becomes more acceptable simply because they report it. Another explanation might be that social norms were initially misperceived. Bursztyn et al. (2020) define the term 'pluralistic ignorance'. It refers to a situation where most people privately hold an opinion, but they incorrectly believe that most other people hold the contrary opinion, and end up acting against their own view. When politicians believe having outside jobs are stigmatized, they might be reluctant to reveal their private views to others for fear of social sanctions. If most politicians act this way, they might end up believing their private views are only shared by a small minority at most. In our setting, MPs might have misperceived the norms regarding outside activities since it was not public knowledge.

Figure 6: Introduction of the disclosure law: quantile regression



Notes: This graphs displays the coefficient b on log of outside earnings and the corresponding 95% confidence interval when estimating equation 1 using unconditional quantile regression for the first to ninth decile. Robust standard errors are clustered at the individual level. Source: German tax return data, 2001-2009 (Taxpayer Panel, TPP)

Although the private view of MPs was that having outside earnings is not necessarily a bad thing, they might have been reluctant to have any because they thought that others disapprove such behavior. When outside income became public and were seen to be wide-spread, they engage more in such behavior.

Quantile regressions We test whether the effect is driven by different parts of the outside income distribution by conducting (unconditional) quantile regressions on the deciles of the outside earnings distribution. That is, we estimate not the average effect, but the effect on all nine deciles (Firpo et al., 2009). The results are plotted in Figure 6. The treatment effect is very small for the lower and middle part of the distribution, whereas the effect on the eighth and ninth decile is considerably larger. This implies that most of the treatment effect is driven by high-income MPs that are likely top-censored.

5.2 Tightening of the Public Disclosure Law

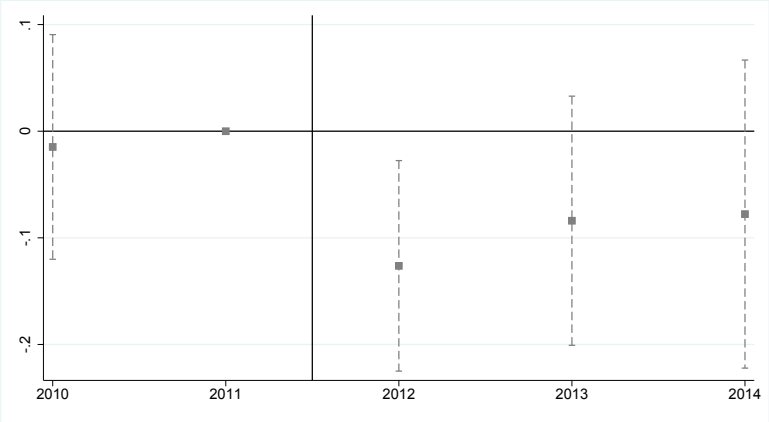
Baseline result Recall, that the reform only introduced seven new brackets such that it shifted top-coded incomes from 7,000€ to 250,000€. Therefore, voters are now able to differentiate between medium- and high-earning MPs. Our baseline difference-in-difference estimates using equation 1 are presented in Table 7. The tightening of disclosure law significantly decreased total outside income by 9.6%, while leaving the extensive margin unchanged. This result is line with the institutional details of the new rules, since the introduction of new brackets did not change the reporting requirements at the extensive margin. As one can see in Figure 7, the effect emerges in 2012 with parallel trends between the treatment and control

Table 7: Tightening of the disclosure law: extensive and intensive margin

	(1) log outside income	(2) log outside income	(3) outside income > 0	(4) outside income > 0
treatment x reform	-0.092*	-0.096**	0.011	0.008
	(0.047)	(0.048)	(0.013)	(0.013)
politician FE	Yes	Yes	Yes	Yes
state-year FE	Yes	Yes	Yes	Yes
w/o dropouts		Yes		Yes
N	8,622	8,299	11,223	10,849
# politicians	2,716	2,600	3,212	3,096

Notes: This tables displays estimates from equation 1 using log outside earnings (columns 1 & 2) and a dummy for positive outside earnings (columns 3 & 4) as outcome variables. Robust standard errors are clustered at the individual level. * p<0.1, ** p<0.05, *** p<0.01. Source: German tax return data, 2010-2014 (Taxpayer Panel, TPP)

Figure 7: Tightening of the disclosure law: dynamic difference-in-difference



Notes: This graphs displays the coefficients $b_t \; \forall \; t \in \{2010, ..., 2014\}$ and the corresponding 95% confidence intervals estimated by equation 3 using outside earnings as the outcome variable. Robust standard errors are clustered at the individual level. Source: German tax return data, 2010-2014 (Taxpayer Panel, TPP)

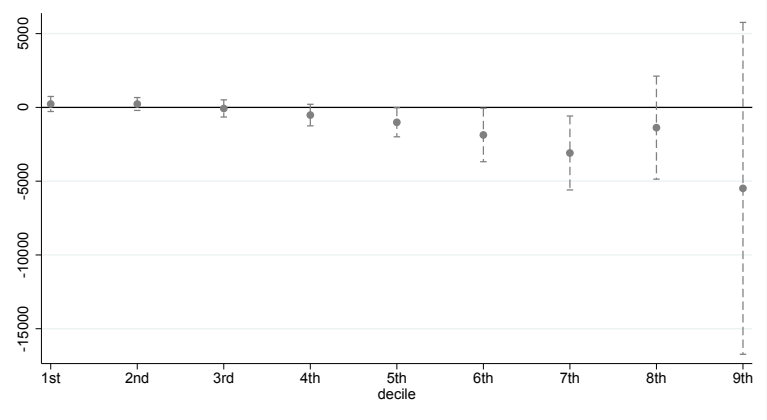
group in the year before. Importantly, the effect occurs before the federal election in 2013 and can therefore not be driven by a changed composition of the federal parliament.

Income categories When we decompose the total effect into the different income categories, we find that the negative intensive margin effect is driven by a reduction of 15.8% of income from wages and salaries (see column 1 of Table 8). We do not find any significant negative effect on self-employment or business income. This is consistent with the tightening of the rules inducing a sizeable transparency effect as this income category is viewed more favourably among voters (Campbell and Cowley, 2015).

We do not find consistent evidence for a change in the other income categories. Similarly to the introduction of the law, we do not find any effect on rental income, which acts as our placebo outcome.

Quantile regression Given that the introduction of the new income brackets mainly affected top-earning MPs, we expect the treatment effect to be concentrated at the top of the distribution. We test this hypothesis by estimating quantile regressions for every decile of the

Figure 8: Tightening of the disclosure law: quantile regression



Notes: This graphs displays the coefficient *b* on log of outside earnings and the corresponding 95% confidence interval when estimating equation 1 using unconditional quantile regression for the first to ninth decile. Robust standard errors are clustered at the individual level. Source: German tax return data, 2010-2014 (Taxpayer Panel, TPP)

distribution. As one can see in Figure 8, the effect is very small and insignificant for the first deciles and then becomes larger the further one goes along the distribution.

Table 8: Tightening of the disclosure law: income categories

income category	wages & salaries		business & self-employment		other sources		renting (placebo)	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	log income	income >0	log income	income >0	log income	income >0	log income	income >0
treatment x reform	-0.158***	-0.000	-0.035	0.034**	-0.116	-0.027**	0.003	-0.017
	(0.052)	(0.009)	(0.064)	(0.015)	(0.073)	(0.011)	(0.095)	(0.012)
politician FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
state-year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
w/o dropouts	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	3,580	10,849	5,808	10,849	3,163	10,849	2,554	10,849
# politicians	1,256	3,096	1,978	3,096	1,064	3,096	964	3,096

Notes: This tables displays estimates from equation 1 using log outside earnings and a dummy for positive earnings from wages and salaries (column 1 & 2), business operations and self-employment (column 3 & 4), forest and agriculture and other sources (column 5 & 6), and renting (column 7 & 8) as outcome variables. Robust standard errors are clustered at the individual level. * p<0.1, ** p<0.05, *** p<0.01. Source: German tax return data, 2010-2014 (Taxpayer Panel, TPP)

Electoral accountability Next, we explore potential mechanisms of the decrease in outside earnings following the tightening of the disclosure rules.[21] As we argued before, we expect the effect to be stronger the more accountable politicians are to their voters. Since we cannot test this hypothesis in the tax data, we make use of the reported data. In a first step, we compare MPs elected by direct ballot and their runner-up peers, who entered via party list. We additionally add electoral district fixed effects to only compare the winner of a direct election and the second placed candidate. Panel A in 9 shows that there was no significant difference between MPs elected by direct ballot and MPs joining via the party list before election period 18.[22] In election period 18, when the new rules became effective, the difference increases to

[21] We cannot use the reported data for the first reform since we cannot observe report outside income before the reform.

[22] The negative, but insignificant coefficients are consistent with the introduction of the law causing minor electoral pressure.

Table 9: Electoral accountability

	(1) EP 16 outside earnings	(2) EP 17 outside earnings	(3) EP 18 outside earnings
Panel A: directly elected			
D^{direct}	-8,501	-6,112	-13,997***
	(5,653)	(10,725)	(5,282)
electoral district FE	Yes	Yes	Yes
controls	Yes	Yes	Yes
N	318	238	404
# politicians	318	238	404
Panel B: unsafe rank			
$D^{unsaferank}$	-2,790	-605	-5,907**
	(2,471)	(3,968)	(2,360)
party-state FE	Yes	Yes	Yes
controls	Yes	Yes	Yes
N	562	578	593
# politicians	562	578	593

Notes: The outcome variable is outside earnings as described in Section 3.2. In Panel A, the sample contains only MPs from districts, where both the first- and second-placed candidate entered parliament to estimate equation 4. In Panel B, we use only MPs that were ranked on a party list to estimate equation 5. Controls refer to all variables in Tables A3 and A4. Robust standard errors. * p<0.1, ** p<0.05, *** p<0.01 Source: reported data EP 16 - 18

roughly 14,000€ and becomes significant at the 1% level (see column (3) of Table 9). This suggests that directly elected MPs reduced their outside earnings more dramatically because of electoral concerns. We observe a similar pattern for MPs inhabiting more and less safe party list ranks. Before election period 18, there is no significant difference between those, who just made it in, and MPs, who were relatively safe (see columns (4) and (5) of Table 9). After the reform, we observe a significant difference of about 6,000€. Both results are robust to the lower bound measure of outside earnings (see Appendix Table A8). Taken together, these estimates provide support for the mechanism of electoral accountability.

6 Conclusion

In this paper, we evaluate the effects of public disclosure rules on politicians outside earnings. Since 2005, members of the German federal parliament are obliged to publish their outside activities and associated earnings in a (top-coded) bracket-based reporting scheme on web pages of the German Bundestag. By law, the execution of the mandate of an MP should be central to his or her activity. The intention of the reform was to indicate any conflicts of interests that might have implications on the political work. First, we exploit the introduction of this policy as exogenous variation. We can observe both federal and state MPs in administrative tax records before and after the policy change. Thereby, we use unaffected state MPs as a control group in a difference-in-difference design. Second, we can differentiate between

private and public disclosure. Since 2005, information on outside activities and earnings was initially privately disclosed to the administration of the Bundestag. In 2007, the Federal Court decided that the information must be publicly disclosed involving a public disclosure of the information for the years 2005 and 2006. Third, we evaluate a second reform that tightened existing rules by introducing seven new income brackets in the reporting scheme causing reported outside income to be top-coded at 250,000€ instead of 7,000€. Last, given the sparse number of demographic variables in the tax return data and the inability to merge this data with any other data set, we collect various other data sets to uncover potential mechanisms behind our findings.

We show that the introduction of public disclosure of outside activities and earnings lead to an increase of 15.3% in outside earnings. This effect is mainly present at the top end of the distribution and is largely driven by income from self-employment and businesses. Importantly, the effect only emerges when disclosure is public, not when it is private. Therefore, it is unlikely that it is driven by increased tax compliance since MPs should have anticipated that there is a significant chance that their privately disclosed income would become public retroactively. A more likely explanation is a change in social norms regarding outside income that made the practice more acceptable. Next, we find that the tightening of the disclosure decrease outside income, in particular, income from salaries and wages drop by 15.8%, while other income categories are largely unaffected. Using the reported data on outside income, we provide evidence that electoral accountability might explain the decrease in outside income. More specifically, we show that outside income of directly elected MPs drops relative to MPs joining via party list after the reform. Similarly, MPs with an unsafe rank on the party list decrease their outside income relative to MPs with a safe rank. Taken together, our results suggest that the effect of income disclosure laws crucially depend on their exact implementation. If the disclosed information is very limited and lacks precision such that voters cannot identify top-earners, public income disclosure can increase outside activities and earnings and thereby, might increase the risk of exertion of influence.

Our project faces various limitations. Earnings in the tax data does not necessarily reflect the time an MP has invested into his or her outside work. Activities differ in the type of activity (for example, giving a speech or being a member of a supervisory board), the time invested, and the degree of interdependence with third parties, all of which we cannot observe in the tax data. Therefore, we cannot make statements about the impact on the quality of parliamentary work or potential conflicts of interest.

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1 Additional Graphs and Tables

Figure A1: Example of outside earnings public disclosure on website of the German federal parliament

Entgeltliche Tätigkeiten neben dem Mandat

Compamedia GmbH, Überlingen,
Vortrag, 2015, Stufe 3 (Deutscher Mittelstands-Summit)

CSA Celebrity Speakers GmbH, Düsseldorf,
Vortrag, 2015, Stufe 4 (AGRAVIS-Vortragsveranstaltung, AGRAVIS Raiffeisen AG, Münster)

Econ Referenten-Agentur, München,
Vortrag, 2014, Stufe 4 (Haspa-Branchen Treff „Wirtschaftsfaktor Russland", Hamburger Sparkasse AG, Hamburg)
Vortrag, 2016, Stufe 4 (Optimum Asset Management-Event 2016, Optimum Asset Management SA, Berlin)

Forum Executive AG, Zürich, Schweiz,
Vortrag, 2016, Stufe 4 (Funds Expert Forum)

GUILLOT Referenten-Kommunikation-Speakers Bureau, Ralingen,
Podiumsdiskussion, 2014, Stufe 4 (Das Freihandelsabkommen TTIP - Chance oder Schreckensvision für Europa, Deutscher Zigarettenverband e.V., Berlin)
Vortrag, 2015, Stufe 4 (Immobilien Investment Forum 2015, Savills Investment Management, Frankfurt/Main)
Vortrag, 2015, Stufe 4 (Tacheles 2015 - Das Investmentgespräch, Drescher & Cie Gesellschaft für Wirtschafts- und Finanzinformation mbH, St. Augustin)

Hoffmann & Campe Verlag GmbH, Hamburg,
Publizistische Tätigkeit, 2014, Stufe 8; 2015, Stufe 8
Vortrag, 2015, Stufe 3 (Lesereise)
Vortrag, 2016, Stufe 2 (Lesereise)

iGZ - Interessenverband Deutscher Zeitarbeitsunternehmen e.V., Berlin,
Vortrag, 2015, Stufe 4 (iGZ-Bundeskongress)

Internationales Steuerseminar Schweiz (ISt S), Zürich, Schweiz,
Vortrag, 2016, Stufe 3 (Internationales Steuerseminar 2016)

marcus evans Germany Ltd., Berlin,
Vortrag, 2015, Stufe 4 (9. CMO-Gipfel)
Vortrag, 2016, Stufe 4 (9. CEO-Gipfel)

MMM-Club (Moderne Markt-Methoden) e.V., Wettenberg,
Vortrag, 2016, Stufe 4 (54. MMM-Kongress)

pilot München GmbH, München,
Podiumsdiskussion, 2016, Stufe 4 (pilot Business-Lounge: „Zukunft gestalten")

Schweizerisches Institut für Auslandforschung (SIAF), Zürich,
Vortrag, 2014, Stufe 3 (Veranstaltungsreihe „Die Zukunft der Demokratie")

The London Speaker Bureau Germany, Karlsruhe,
Vortrag, 2015, Stufe 4 (UniCredit Wirtschaftsgespräch)
Vortrag, 2015, Stufe 4 (beim Industriebeirat der Triton Beratungsgesellschaft GmbH, Frankfurt/Main)

Vodafone Institute for Society and Communications GmbH, Berlin,
Vortrag, 2016, Stufe 2 (Veranstaltungsreihe „AusZeit")

WBMG - Unternehmensberatung GmbH, Landshut,
Beratung, 2014, Stufe 5; 2015, Stufe 7; 2016, Stufe 6

Zeitverlag Gerd Bucerius GmbH & Co. KG, Hamburg,
Publizistische Tätigkeit, 2014, Stufe 1

Funktionen in Unternehmen

Borussia Dortmund GmbH & Co. KGaA, Dortmund,
Mitglied des Aufsichtsrates, 2015, Stufe 4

ThyssenKrupp AG, Essen,
Mitglied des Aufsichtsrates (bis 31.12.2012), 2014, Stufe 3 (für 2012)

Funktionen in Vereinen, Verbänden und Stiftungen

Deutsche Nationalstiftung, Hamburg,
Mitglied des Senats

Helmut und Loki Schmidt-Stiftung, Hamburg,
Mitglied des Kuratoriums

Stiftung Berliner Schloss - Humboldtforum, Berlin,
Mitglied des Kuratoriums

ZEIT-Stiftung Ebelin und Gerd Bucerius, Hamburg,
Mitglied des Kuratoriums, jährlich, Stufe 3

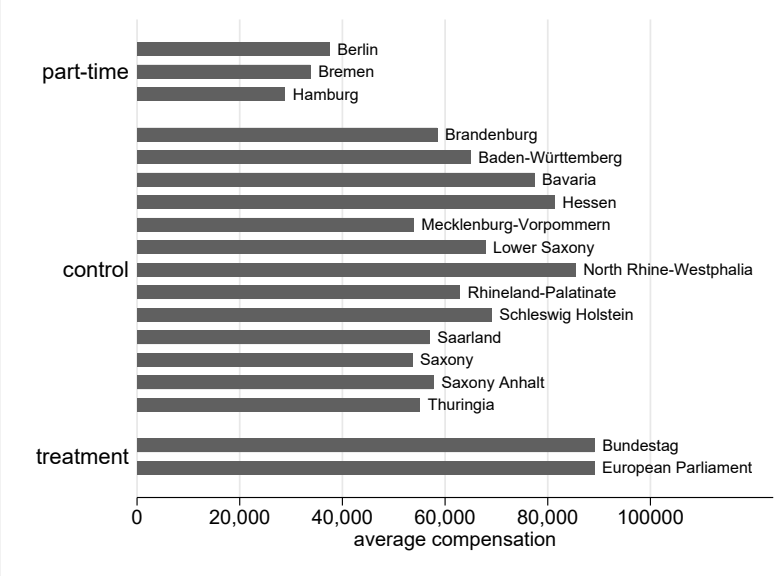
Notes: This figure is a screen shot of Peer Steinbrück's published outside earnings in election period 18. Source: Website of the Bundestag `https://www.bundestag.de/abgeordnete/biografien18/S/steinbrueck_peer/259022`

Table A1: Public disclosure rules and measures of reported outside earnings

	election period 16 & 17				election period 18			
level	from	to	baseline	lower bound	from	to	baseline	lower bound
0	0	1,000	500	500	0	1,000	500	500
1	1,000	3,500	2,250	2,250	1,000	3,500	2,250	2,250
2	3,500	7,000	5,250	5,250	3,500	7,000	5,250	5,250
3	7,000		9,500	7,000	7,000	15,000	9,500	7,000
4					15,000	30,000	9,500	7,000
5					30,000	50,000	9,500	7,000
6					50,000	75,000	9,500	7,000
7					75,000	100,000	9,500	7,000
8					100,000	150,000	9,500	7,000
9					150,000	250,000	9,500	7,000
10					250,000		9,500	7,000

Notes: All values are in Euros. Public disclosure rules for election period 16, 17 and 18 as well as our two different measures that are used in the reported data. See Section 3.2 for details of the construction of the baseline and lower bound measures.

Figure A2: Average compensation of MPs in each parliament



Notes: This figure plots the distribution of average compensation for a MP in each parliament (federal, state or EU). These values refer to the average for the years 2001 to 2014.

Table A2: Details of election periods in federal parliament

	Election Period 16	Election Period 17	Election Period 18
Election Details			
election date	18.09.2005	27.09.2009	22.09.2013
duration	18.10.2005 - 27.10.2009	27.10.2009 - 22.10.2013	22.10.2013 - 24.10.2017
seats	614	622	631
Party			
CDU/CSU	226	239	311
SPD	222	146	193
FDP	61	93	0
The Left	54	76	64
Greens	51	68	63

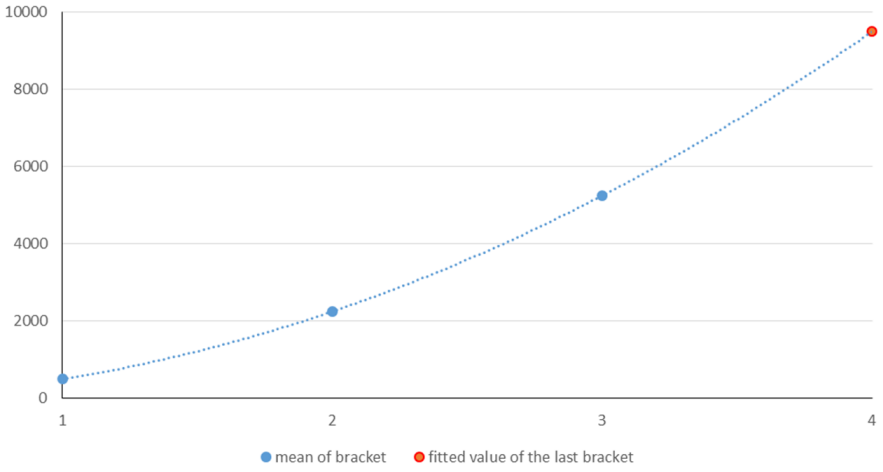
Notes: This table consists of information of each election period in federal parliament under study.

Table A3: Descriptive statistics: demographics (reported data)

variable	mean	sd	N
female	0.34	0.47	1952
age below 50	0.39	0.49	1952
age between 50 and 60	0.37	0.48	1952
age 60 and above	0.24	0.43	1952
East Germany	0.17	0.37	1952
married	0.72	0.45	1952
# children	1.60	1.37	1952
title: doctor	0.19	0.39	1952
title: professor	0.01	0.09	1952
occupation: other	0.32	0.47	1952
occupation: lawyer	0.19	0.39	1952
occupation: economist/MBA	0.16	0.36	1952
occupation: farmer	0.03	0.16	1952
occupation: teacher	0.09	0.28	1952
occupation: civil servant	0.02	0.15	1952
occupation: doctor	0.02	0.12	1952
occupation: journalist	0.03	0.16	1952
occupation: academic	0.08	0.28	1952
occupation: self-employed	0.07	0.26	1952
party: left-wing	0.50	0.50	1952
party: CDU/CSU	0.41	0.49	1952
party: SPD	0.30	0.46	1952
party: Greens	0.10	0.30	1952
party: The Left	0.10	0.30	1952
party: FDP	0.08	0.28	1952
terms: newcomer	0.31	0.46	1952
terms: 2 - 3	0.38	0.49	1952
terms: >3	0.30	0.46	1952
early dropout	0.03	0.18	1952
late entry	0.04	0.20	1952

Source: Reported data for election periods 16, 17 and 18.

Figure A3: Reporting brackets



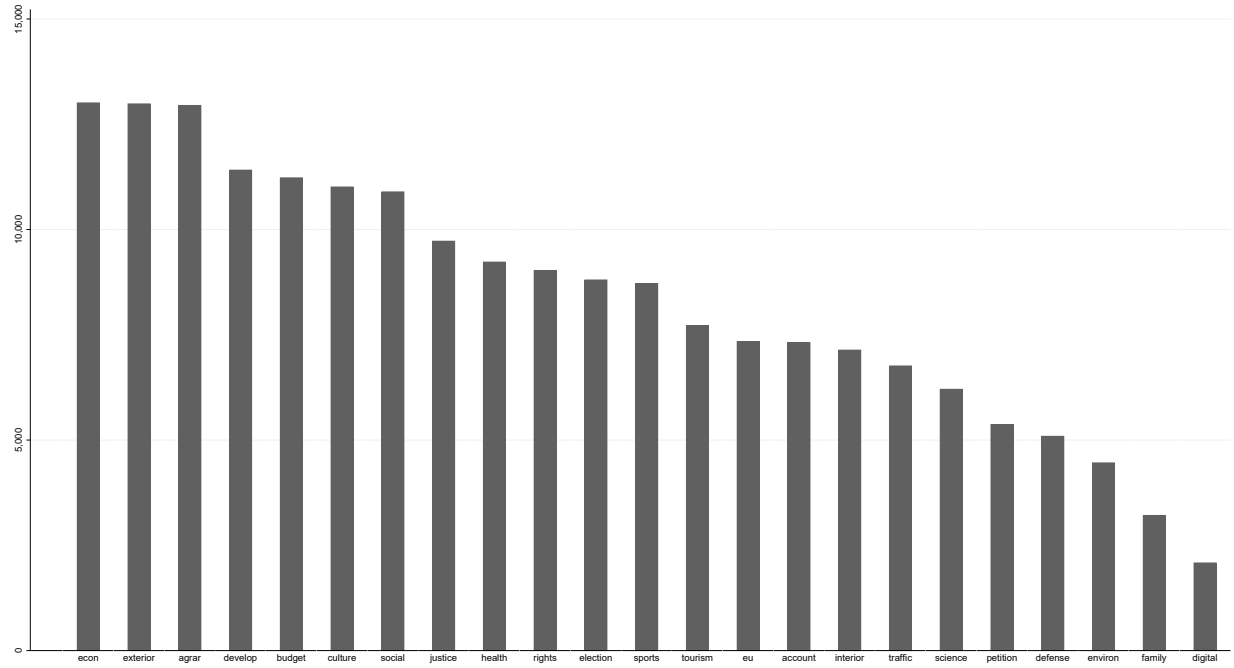
Notes: This figures visualizes the imputed values for each bracket. The blue dots are the average value for the respective bracket through which we fit a polynomial (blue dotted line). We then extrapolate the polynomial function to the highest bracket and impute the predicted value (orange dots).

Table A4: Descriptive statistics: political and electoral variables (reported data)

variable	mean	sd	N
entry: direct ballot	0.46	0.50	1952
entry: list ranking	10.55	12.31	1733
vote margin: candidate	6.78	16.51	1866
vote margin: party	12.09	10.11	1866
leadership	0.11	0.32	1952
committee chair	0.07	0.25	1952
committee: interior	0.06	0.23	1952
committee: digital	0.01	0.09	1952
committee: social	0.06	0.23	1952
committee: family	0.05	0.22	1952
committee: health	0.05	0.22	1952
committee: culture	0.03	0.18	1952
committee: human rights	0.03	0.16	1952
committee: justice	0.05	0.23	1952
committee: environment	0.05	0.22	1952
committee: election	0.03	0.16	1952
committee: development	0.03	0.18	1952
committee: exterior	0.06	0.23	1952
committee: budget	0.10	0.29	1952
committee: petition	0.04	0.19	1952
committee: accounting	0.02	0.13	1952
committee: sports	0.03	0.16	1952
committee: agriculture	0.05	0.22	1952
committee: tourism	0.03	0.16	1952
committee: traffic	0.06	0.24	1952
committee: defense	0.05	0.22	1952
committee: economics	0.06	0.24	1952
committee: science	0.05	0.22	1952
committee: EU	0.05	0.22	1952

Source: Reported data for election periods 16, 17 and 18.

Figure A4: Outside earnings by committee membership



Notes: This graphs displays the average outside earnings as defined in Section 3.2 for each committee in the German federal parliament. Source: Reported Data EP 16 - 18

Table A5: Composition of outside activities per MP (reported data)

	EP 16		EP 17		EP 18		**Total**	
	N	in %	N	in %	N	in %	N	in %
remunerated activity	195	31.76	219	35.21	195	30.90	**609**	**32.62**
type of activity								
law	61	9.93	65	10.45	58	9.19	184	9.86
speech	52	8.57	55	8.84	45	7.13	152	8.14
management and consulting	61	9.93	70	11.25	57	9.03	188	10.07
other	37	6.03	42	6.75	38	6.02	117	6.27
functions in enterprises	240	39.09	223	35.85	291	46.12	**754**	**40.39**
type of function								
public office	0	0	4	0.64	11	1.74	15	0.80
consult	94	15.31	76	12.22	87	13.79	257	13.77
control	144	23.45	144	23.15	197	31.22	197	25.98
lead	25	4.07	24	3.86	32	5.07	81	4.34
type of membership								
regular member	216	35.18	201	32.32	269	42.63	686	36.74
chairman	33	5.37	34	5.47	42	6.66	109	5.84
functions in public corporations	359	58.47	357	57.40	385	61.01	**1,001**	**58.97**
type of function								
public office	226	36.81	247	39.71	264	41.84	737	39.48
consult	95	15.47	90	14.47	89	14.10	274	14.68
control	70	11.40	71	11.41	104	16.48	245	13.12
lead	35	5.70	39	6.27	31	4.91	105	5.62
type of membership								
regular member	339	55.21	341	54.82	372	58.95	372	56.35
chairman	37	6.03	37	5.95	35	5.55	109	5.84
functions in clubs	437	71.17	469	75.40	446	70.68	**1,352**	**72.42**
shareholdings in private corporations	69	11.24	76	12.22	67	10.62	**212**	**11.36**
Total # MPs	**614**		**622**		**631**			

Notes: This table provides an overview about the composition of outside activities per MP, meaning how many MPs pursue a certain activity. The percentages define the share of MPs who persue a certain activity. For example, 32.62% of all MPs report a remunerated activity, while 58.97% of all MPs hold a function in a club. Activities are reported such that they belong to one of the following categories: remunerated activity, functions in enterprises, functions in public corporations, functions in clubs or shareholdings in private corporations. We broadly categorize remunerated activities into (a) law (e.g. lawyer, judge), (b) speech (e.g. speech, publishing books), (c) management and consulting (e.g. business consultant, notary, manager) and (d) other (e.g. farmer, doctor). We classify the type of function into (a) public office (e.g. position in local politics/ church), (b) consult (e.g. advisory board), (c) control (e.g. supervisory board) and (d) lead (e.g. committee, management board, board of trustees). For 1.44% of all remunerated activities and for 0.32% of all functions in enterprises, no information about the type of activity is available. Functions in clubs are often voluntary work. The information 'voluntary' is optional and added in more than 85% of all functions in clubs. In some cases, the name of clients are not revealed due to existence of lawyer-client-confidentiality. We ignore the information of occupational activities pre-dating membership (e.g. lawyer). Shareholdings in private corporations need to be reported if a MP holds more than 25%.

Table A6: Distribution of levels and frequency by activity (reported data)

	EP 16		EP 17		EP 18		Total	
	N	**in %**	**N**	**in %**	**N**	**in %**	**N**	**in %**
Level								
0	1314	48	1395	48	1745	54	4454	50
1	696	26	780	27	721	22	2197	25
2	206	8	218	8	226	7	650	7
3 and higher	**497**	**18**	**512**	**18**	**519**	**18**	**1528**	**18**
3	497	18	512	18	235	7	1244	14
4					115	4	115	1
5					52	2	52	1
6					31	1	31	0
7					18	1	18	0
8					23	1	23	0
9					21	1	21	0
10					24	1	24	0
Frequency								
once	2559	94	2721	94	3032	94	8312	94
yearly	67	2	59	2	53	2	179	2
monthly	86	3	126	4	129	4	341	4

Notes: Levels and frequencies are reported for the following categories of activities: remunerated activities, functions in enterprises, functions in public corporations and functions in clubs. For functions in clubs, MPs can optionally indicate whether is is voluntary work or not. Source: Reported Data, own calculations.

Table A7: Average number of MPs in federal and state parliaments

	number of MPs	election years
Treatment Group	**722**	
Federal Parliament	623	2002, 2005, 2009, 2013
Control Group	**776**	
Baden Württemberg	134	2001, 2006, 2011
Mecklenburg-Vorpommern	71	2002, 2006, 2011
North Rhine Westphalia	210	2005, 2010, 2012
Rhineland-Palatinate	101	2001, 2006, 2011
Schleswig-Holstein	83	2005, 2009, 2012
Saarland	51	2004, 2009, 2012
Saxony	126	2004, 2009, 2014
Control Group *(excluded in 2013 & 2014)*	**187**	
Bavaria	187	2003, 2008, 2013
Control Group *(excluded in 2014)*	**557**	
Hessia	112	2003, 2008, 2013
Lower Saxony	163	2003, 2009, 2013
Brandenburg	88	2004, 2009, 2014
Saxony-Anhalt	106	2002, 2006, 2011
Thuringia	88	2004, 2009, 2014
Part-time parliament *(excluded in all years)*	**352**	
Berlin	146	2001, 2006, 2011
Bremen	85	2003, 2007, 2011
Hamburg	121	2001, 2004, 2008, 2011

Notes: This table consists of information of each parliament under study. The number denotes the average number of MPs in each parliament for the years 2001 to 2014. Germany consists of 16 states (*Länder*). We entirely exclude Berlin, Bremen and Hamburg from our analysis (part-time Parliament (*Feierabendparliament*)). Bavaria, Hessen, Lower Saxony, Brandenburg, Saxony-Anhalt, and Thuringia introduced public disclosure rules in 2013/2014 and are excluded from our sample for these years.

Table A8: Tightening of the disclosure law: channels (lower bound)

	(1) EP 16 outside earnings	(2) EP 17 outside earnings	(3) EP 18 outside earnings
Panel A: directly elected			
D^{direct}	-7,870*	-5,108	-12,328***
	(4,697)	(8,512)	(4,488)
electoral district FE	Yes	Yes	Yes
controls	Yes	Yes	Yes
N	318	238	404
# politicians	318	238	404
Panel B: unsafe party rank			
$D^{unsaferank}$	-2,466	-417	-4,996**
	(2,130)	(3,473)	(2,044)
party-state FE	Yes	Yes	Yes
controls	Yes	Yes	Yes
N	562	578	593
# politicians	562	578	593

Notes: The outcome variable is outside earnings as described in Section 3.2. In Panel A, the sample contains only MPs from districts, where both the first- and second-placed candidate entered parliament to estimate equation 4. In Panel B, we use only MPs that were ranked on a party list to estimate equation 5. Controls refer to all variables in Tables A3 and A4. Robust standard errors. * $p<0.1$, ** $p<0.05$, *** $p<0.01$ Source: reported data EP 16 - 18