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The Politicians' Wage Gap: Insights from German Members of Parliament*

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Abstract

Using a unique dataset of German members of parliament (MPs) this paper analyzes the politicians' wage gap (PWG). After controlling for observable characteristics as well as accounting for election probabilities and campaigning costs, we find a positive income premium for MPs which is statistically and economically significant. Our results are consistent with the citizen candidate model: The PWG amounts to 35–65% when comparing MPs to citizens in an executive position. However, it shrinks to zero when restricting the control group to top-level executives. This suggests that German politicians do not receive excessive pay when compared to senior executives.

JEL Classification: D72, H11, H83, J31, J45

Keywords: politicians' wage gap, citizen-candidate model, office remuneration, outside earnings

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1 Introduction

Do politicians enjoy a wage premium? Previous research has only examined income differentials between public and private sector employees.¹ In this paper, we empirically test whether there is a politicians' wage gap (PWG) for German members of parliament (MPs) conditional on qualification as well as election probabilities and campaigning costs. To the best of our knowledge this has not been investigated before. This specific wage gap could, however, be very important – especially when taking into account that an increasing share of the population in Western democracies perceives that the political class has separated itself from the electorate, forming an elitist circle of substantive political power and little accountability (Hay, 2007). Moreover, growing economic inequality has amplified the general discontent with politicians, since the political elite is said to belong to the top of the income distribution, separating it from the average citizen (Gilens, 2005; Solt, 2008).² However, from a theoretical point of view, the citizen candidate framework suggests an income premium for politicians as a compensation for the uncertainty of (re)election as well as for campaigning costs (Osborne and Slivinski, 1996; Besley and Coate, 1997). Moreover, a wage premium can be justified to attract high quality candidates (Messner and Polborn, 2004; Caselli and Morelli, 2004).

In the empirical analysis we make use of a unique micro dataset of personal and professional information on German MPs, providing detailed insight into their earnings (including office remuneration and outside earnings) as well as their occupation before entering parliament (Becker et al., 2009). We combine these data with the German Socio-Economic Panel Study (SOEP), a micro dataset which is representative for the German population and thus for the electorate. We estimate election probabilities as well as campaigning costs for candidates running for the German parliament in order to calculate MPs' expected income. The empirical

¹ See Ehrenberg and Schwarz (1987); Bender (1998); Gregory and Borland (1999) for overviews. Although most studies concentrate on US data, similar results are obtained for other countries (e.g. Pederson et al., 1990; Hartog and Oosterbeek, 1993; Melly, 2005; Gorodnichenko and Peter, 2007).

² The German case is of special interest as the reputation of politicians in Germany seems to be lower than the reputation of most other occupations and has been decreasing for many years (Allensbacher Archiv, 2008). In addition, trust in German politicians is rather low compared to several other European countries (European Social Survey, 2007).

analysis then proceeds in two steps in order to estimate the PWG. First, we employ a standard ordinary least squares (OLS) regression to account for observable characteristics that affect earnings. Second, we make use of semi-parametric matching techniques in order to further increase comparability between MPs and voters.

Our results show that both the sign and the size of wage gap depend on the definition of the control group and the MPs' income. On average politicians earn more than citizens in executive positions after controlling for observed characteristics, most importantly qualification. Using a broad definition of executives, the PWG varies between 35–65% depending on the specification (corresponding to 20,000–36,000 euros per year). Robustness checks suggest that these results are unlikely to be biased by positive selection into politics. When defining the control group more narrowly, the wage gap shrinks and is statistically indistinguishable from zero for “top-level” executives, suggesting that German politicians pay is not excessive in this case. These findings are consistent with the citizen candidate framework, which stipulates a non-negative wage gap. The wage gap mechanically decreases when excluding politicians' outside earnings while it increases considerably when neglecting election probabilities and campaigning costs.

The paper is structured as follows. In Section 2 we discuss the theoretical concept underlying our empirical analysis. Section 3 describes the institutional background and the data. In Section 4, we lay out our empirical strategy and present the results. Section 5 concludes.

2 Theoretical Background

In this section we use the citizen candidate framework (Osborne and Slivinski, 1996; Besley and Coate, 1997) to provide a theoretical explanation for a non-negative income differential for members of parliament when compared to the electorate. Initially all citizens find themselves in a situation of political competition and have to decide whether to run for office (Cadigan, 2005). Citizens weigh the costs of running for office against the uncertain individual benefits of winning the election.³

³ See Besley (2004); Mattozzi and Merlo (2008); Gersbach (2009); Braendle and Stutzer (2010); De Paola and Scoppa (2011). For empirical applications see Ferraz and Finan (2009); Gagliarducci

Typically, the necessary condition for a rational citizen to decide to run for political office takes the form (Caselli and Morelli, 2004)

$$p \cdot (W^{office} - W^{private}) \geq CC. \quad (1)$$

Hence, the difference between office remuneration (W^{office}) and market income in the private sector ($W^{private}$) weighted by the election probability (p) has to compensate for the direct campaigning costs (CC) associated with candidacy. From expression (1) it follows directly that the pay of politicians should exceed the income of comparable citizen in order to compensate for the uncertainty of (re)election and for the sunk costs of candidacy.

The model has implications for the selection of candidates with regard to qualification. The effect of ability on participation is mixed. On the one hand, high-ability citizens have a higher expected income in the private sector and therefore face a lower wage premium when running for office. On the other hand, if voters prefer competent citizens in political office, they are more likely to win the election and might face lower costs due to more efficient campaigning.

The politicians' wage gap. The main purpose of this study is to empirically test whether there is a wage premium for German MPs which can neither be explained by advantageous characteristics of politicians, such as qualification, nor by a compensation for uncertainties and campaigning costs stemming from electoral competition. In order to specify what we refer to as the politicians' wage gap (PWG) we define a binary indicator R_i , which equals 1 if individual i decides to run for office, and 0 otherwise. Individual income Y_i is defined as

$$Y_i(X_i, p_i) = \begin{cases} p_i \cdot W_i^{MP}(X_i) + (1 - p_i) \cdot W_i^{cit}(X_i) - CC_i & \text{if } R_i = 1 \\ W_i^{cit}(X_i) & \text{if } R_i = 0, \end{cases} \quad (2)$$

where X_i denotes individual characteristics and $p_i \in [0, 1]$ is the probability of being elected. When running for office, income is the probability weighted sum of office

et al. (2010); Gagliarducci and Nannicini (2011).

remuneration W_i^{MP} and potential income in the private labor market W_i^{cit} net of campaigning costs CC_i . When not running for office, income simply yields the market income of a citizen given the characteristics Y_i^{cit} . Comparing the incomes of two individuals i (a candidate) and j (a citizen) with identical characteristics $X_i = X_j = \tilde{X}$ yields a definition of the relative wage gap:

$$PWG^{unc}(\tilde{X}, p_i) = p_i \cdot \left(\frac{W^{MP}(\tilde{X})}{W^{cit}(\tilde{X})} - 1 \right) - \frac{CC_i}{W^{cit}(\tilde{X})} \quad (3)$$

Expression (3) defines the *unconditional* PWG, taking into account the uncertainty of candidate i being (re)elected as well as the requirement to invest in the election campaign.⁴ From the perspective of the citizen candidate framework, the unconditional PWG of an elected *MP* should in general be weakly greater than zero assuming that candidates form realistic expectations regarding election probabilities and campaigning costs, otherwise they should not have decided to run for office. Alternatively, a positive wage premium for politicians could be interpreted as a prize for winning the political tournament.

3 Institutional Background and Data

The Bundestag is the lower house of the German parliament and is elected for a four-year term. Each eligible voter has two votes. The first one is directly attributed to a candidate representing the electoral district. This part of the election has features of the majority voting system. The second vote is for a party which may then, according to its share of party votes, send candidates from predefined electoral lists into the Bundestag. This part of the election has the feature of proportional representation. While each directly elected candidate represents one of the 299 electoral districts, candidates on the party lists capture the remaining 299 seats in accordance with their party's overall share of second votes. Due to 16 additional surplus mandates, the Bundestag comprised a total number of 614 seats in its 16th

⁴ We also estimate the *conditional* wage gap, defined as $PWG^{cond}(\tilde{X}) = \frac{W^{MP}(\tilde{X})}{W^{cit}(\tilde{X})} - 1$. It neglects election probabilities and campaigning costs and is nested in (3). This wage gap is observed by the electorate and thus relevant for the perception of the political elite's pay.

legislative period (Oct 2005–Sept 2009).

Data. The empirical analysis is based on a unique dataset comprising personal and professional information on German MPs, which is an extended and updated version of the data used by Becker et al. (2009). We only include MPs who have been members of the Bundestag for the entire period under consideration. Hence, a total of 599 MPs are considered for the year 2006. We extract all available data including biographical and socio-demographic information as well as data on previous occupations and political offices from the MPs’ individual Bundestag websites.

We calculate the annual gross earnings as the sum of basic office remuneration, payments for cabinet members, pensions, interim allowances and outside earnings. Each MP receives a remuneration which is determined by the Bundestag itself (7,009 euros per month in 2006, Bundestag, 2009). Furthermore, MPs who are both members of the Bundestag and the Federal Government are paid extra. When a member of the government resigns, she receives interim payments for the number of months she has served as a member of the cabinet – a total of at least six months but not more than three years (Bundesministergesetz, 2008). After resigning from office the former minister is entitled to a pension if the position was held for at least two years.

Since 2005 MPs have been legally obliged to disclose information on outside employment (Bundestag, 2010). All MPs have to report professional activities and sources of income, which they pursue outside their political mandate. For each payment it is indicated whether it is received on a regular (annual or monthly) basis or one-off (Bundestag, 2011b). Outside earnings are published according to four categories: (1) below 1,000 euros, (2) 1,000–3,500 euros, (3) 3,500–7,000 euros and (4) more than 7,000 euros. The highest category has no upper bound. In order to obtain a measure of outside earnings in the highest category, we follow Becker et al. (2009) and assume a level of 12,000 euros, giving us a linearly increasing difference between the category means.⁵ Finally, we calculate the amount of outside earnings

⁵ As this choice may induce distortions, we experiment with several alternatives – including the categories’ lower bounds. The results do not change qualitatively. In terms of quantitative effects, note that the chosen upper bound level is a conservative assumption (Becker et al., 2009). Hence, if estimated effects are biased they will be underestimated. We check the information on outside earnings with other data sources such as newspaper reports and MPs’ personal statements.

for each MP by using average values for each category.

All earnings are before taxes and are likely to underestimate an MP's total income. First, we do not include capital income due to the lack of data. Second, we do not consider the (partly tax-free) allowances for office related expenses as they are not necessarily part of the individual earnings. Third, we do not include additional incomes paid to (vice-)chairmen of the parties' parliamentary groups as this information is not publicly available for all parties and MPs.⁶

We combine the politicians' data with representative survey data for the electorate taken from the SOEP (Wagner et al., 2007) and construct the same socio-demographic variables for the electorate in 2006. Total gross earnings are calculated at the individual level by accumulating labor earnings, fringe benefits, pensions and replacement allowances. Education is based on the CASMIN classification, the sector of employment on the ISCO-88 classification. Non-Germans as well as individuals younger than 18 years are excluded since they are not allowed to vote. Note that in many datasets, high incomes are not very well covered. To tackle this issue, the SOEP includes a special high income sample to increase the representativeness of the upper tail of the income distribution, which has been validated against administrative data (Frick et al., 2007; Bach et al., 2009). Therefore, the SOEP is the main data source for the German government's reports on poverty and affluence. We use SOEP's population weights to make the data representative.

Samples. MPs in the German Bundestag have climbed the job ladder within the profession of a politician. They have personnel responsibility, which certainly distinguishes them from the average employee. Moreover, they face a relatively high workload. For these reasons we consider MPs to hold an executive position in terms of occupation and only compare them to citizens working in an executive position as well. To check the sensitivity with respect to the control group, we start with a rather broad definition of the executive sample. We then narrow down the definition in two steps, by excluding certain professions from the baseline. Our broadest

⁶ Office-related allowances mainly cover expenses at the constituency (about 3,700 euros per month), staff costs (more than 14,000 euros) and travel costs. Party salaries can be quite substantial. For example, a vice-chairman of the SPD receives 3,451 euros per month.

sample follows the SOEP definition and includes individuals in leadership positions across various occupational sectors working full-time. This sample comprises master craftsmen, self-employed, liberal professions, managers as well as public sector executives and high-level civil servants. We refer to this sample as “all executives”. The second reference group (“white collar executives”) excludes master craftsmen as well as self-employed and liberal professionals without employees from the baseline. Finally, we define the “top-level executive” sample as managers as well as liberal professionals and self-employed with ten or more employees.

Table 1: Characteristics of the German electorate and the MPs (in %) in 2006

		Electorate	All executives	White collar	Top level	MPs
<i>Gender</i>	Female	52.2	22.1	19.9	16.9	32.2
<i>Age</i>	18 – 29	16.7	4.9	4.3	4.8	1.2
	30 – 39	15.0	21.0	21.8	20.7	12.5
	40 – 49	20.1	35.9	35.3	39.6	24.2
	50 – 59	16.2	27.1	26.1	23.8	41.4
	60 – 69	15.3	9.9	10.8	7.3	19.9
	≥ 70	16.8	1.2	1.7	3.7	0.8
<i>Education</i>	Low-skilled	15.4	2.3	1.2	0.0	0.2
	Medium-skilled	68.0	56.5	47.1	48.0	17.0
	High-skilled	16.6	41.2	51.6	52.0	82.8
<i>Region</i>	West Germany	77.4	77.5	83.4	87.3	78.0
<i>Occupational status</i>	Not working	47.0	0.0	0.0	0.0	0.0
	Part-time	14.4	0.0	0.0	0.0	0.0
	Full-time	38.6	100.0	100.0	100.0	100.0
<i>Sector</i>	Private sector	36.2	18.2	20.0	68.3	40.1
	Public sector	8.3	15.1	24.7	3.7	53.4
	Self-employed	5.6	66.7	55.3	28.0	6.5
<i>Annual earnings (in euros)</i>	Mean	28,135	56,110	70,036	88,536	105,698
	Median	24,000	42,000	55,059	72,000	86,108
	Observations	20,836	1,505	985	299	599

Source: SOEP and Bundestag, own calculations.

Descriptive Statistics. Table 1 summarizes the distribution of characteristics among the German population eligible to vote as well as among our three executive samples and the MPs. Despite efforts to increase the number of women in professional leadership positions, female politicians are clearly under-represented in the Bundestag. The share of females is even smaller among executives (17–22%).

Both executives and MPs turn out to be older and much better educated than the electorate. More than 40% of the executives are classified as high-skilled and the proportion among MPs is even twice as large. Furthermore, members of the Bundestag often exhibit an occupational background in the public sector while many executives are self-employed. Regarding our research question we are especially interested in the comparability of MPs and executives in terms of annual gross earnings. With a median of 24,000 euros (in 2006), the center of the electorate's distribution is far below the center of the "all executives" and the MPs' distributions which exhibit median values of 42,000 and 86,100 euros. MP earnings average at 106,000 euros, while the mean among the electorate is 28,100 euros and 56,100 euros in the "all executive" sample. Comparing the three executive samples, the narrowing of the definition becomes apparent in the rising mean and median earnings.

Election probabilities. Due to its mixed-member electoral system (see above) there are two channels to enter the Bundestag, either by winning the majority of votes in an electoral district or by being ranked sufficiently high on a party list. We quantify the probabilities of being elected for both channels separately. We first turn to the probability of being elected directly in one of the 299 electoral districts.

For decades, districts have only been won by candidates from the two major parties with Christian (Social) democrats being more successful in the South and West (North and East) as well as in rural and catholic (urban and protestant) areas.⁷ Hence, the party's share of first votes in the previous election (2002) can be regarded as a meaningful predictor for the 2005 vote share and implicitly the probability of winning the majority in the district. In fact, the data show that an individual candidate can influence the electoral outcome only marginally (e.g. by popularity or campaigning effort). To quantify the probability, we retrieve the 2002 first vote shares for each party in each of the 299 districts. We then run a logistic regression of the binary outcome variable *elected* (= 1 if candidate is elected, 0 otherwise) on party and state dummy variables and on the 2002 first vote share.⁸ We use the

⁷ An exception are three districts in the East of Berlin where the Left Party's candidates received the majority of first votes several times. In 2005, a candidate running for the Green Party was successful in another Berlin district for the first time.

⁸ The predicted probabilities for the major parties' candidates are displayed in Figure A.1 in

predicted values for the MPs in our dataset.

The election of party list candidates works as follows: In each of the 16 German states every party sets up a separate list (*Landesliste*). The total share of second votes determines a party’s total number of seats in parliament. After subtracting each party’s number of directly elected MPs, the remaining total is then allocated to the state party lists (net of the direct candidates) according to the share of second votes *in the respective state*. This number finally determines how many party list candidates enter parliament. Consequentially, a candidate’s election probability on a party list is a function of the rank and the number of seats allocated to the party. To estimate these probabilities, we construct a dataset of all party list candidates running for the 2005 election of the Bundestag based on information from the federal agency administrating elections (Bundeswahlleiter, 2011). We run a logistic regression of the binary outcome *elected* on a set of explanatory variables. These comprise state and party dummies, the rank on the respective party list, a binary indicator for the traditional “major parties” (the Christian democrats, the Social democrats and the Left Party in the Eastern states) as well as several interaction terms. Moreover, we include a binary variable indicating whether the party list rank is “promising”, i.e. if it had allowed to enter parliament in the previous election. Based on the estimated coefficients, we use the predicted values for the elected MPs in our dataset.⁹ The overall probability of being elected is the maximum of the probabilities of being elected either through a party list or directly in an electoral district. In Table 2 we present the estimated probabilities for all candidates and elected MPs.

Campaigning costs. Campaigning costs can be regarded as a necessary investment to be made before being (re)elected and hence reduce an MP’s income. The amount of campaigning costs can be expected to vary across MPs depending on

the Appendix. Note that there are two distinct curves with similar shapes for both major parties. The one more to the left (with less observations) represents Eastern German districts where the Left Party receives a much larger share of votes than in the West and the probability of winning the relative majority is higher for a given vote share.

⁹ See Figure A.2 in the Appendix. In some cases (especially for Christian and Social democrats) predicted probabilities are rather low even for high-ranked candidates. This is due to the fact that in some federal states one of the major parties regularly wins almost every district (first vote) such that the respective party cannot send any list candidate to parliament.

Table 2: Estimated election probabilities

	Obs.	Mean	Sd	Min	Max
<i>Party list</i>					
All candidates	1,843	0.208	0.360	0.000	1.000
Elected MPs	384	0.828	0.242	0.001	1.000
Elected MPs (major parties)	249	0.781	0.260	0.001	1.000
<i>Electoral district</i>					
All candidates	1,196	0.250	0.397	0.000	1.000
Elected MPs	299	0.880	0.226	0.021	1.000
Elected MPs (major parties)	295	0.881	0.225	0.021	1.000
<i>Overall</i>					
Christian democrat	216	0.861	0.216	0.032	1.000
Social democrat	221	0.863	0.217	0.107	1.000
Green Party	46	0.939	0.128	0.340	1.000
Liberal Party	61	0.918	0.173	0.380	1.000
Left Party	53	0.850	0.287	0.001	1.000
None	2	0.964	0.001	0.963	0.965
Elected MPs	599	0.873	0.215	0.001	1.000

Source: Bundeswahlleiter (2011), own calculations.

various individual characteristics. Unfortunately, detailed information regarding campaigning expenses from the politicians under consideration is not available.¹⁰ The only reliable source of information on campaigning expenses are the parties' annual statements of accounts (Bundestag, 2011a). In Germany, political parties are legally obliged to report their financial situation to the President of the Bundestag on an annual basis and separately for each federal state. We collect data on the parties' expenses from the statements of accounts during the period 2004–2009. We subtract revenues (i.e. party donations and government subsidies) to calculate yearly net expenses by party and state. As in some states the Bundestag elections coincide with other elections, we need to net out the effect of those other elections on expenses. We, therefore, run a state-party fixed effect regression of net expenses on

¹⁰ There are only very few MPs who provide information on individual campaigning costs (see for instance Martin Dörmann reporting personal expenses of 10,000 euros, <http://www.martin-doermann.de/live/wp-content/uploads/2008/02/glaeserne-taschen.pdf>, 10–19–2011). Moreover, neither party headquarters nor parliamentary groups were willing or able to provide detailed information upon request.

federal, state, district and European election year dummies and predict the expenses for the year 2005 as if there had not been any other elections.¹¹ Thus, we obtain the net expenses per electoral seat for the Bundestag election 2005 by state and party. We define these as campaigning costs that the individual candidates have to bear.

Table 3: Estimated campaigning costs per seat by state and party (in euros)

State	Party					Total
	Christ. dem.	Social dem.	Green	Liberal	Left	
BB	22,333	61,295	9,804	19,578	24,888	27,580
BE	21,892	35,157	12,333	22,542	25,420	23,469
BW	18,215	36,351	11,080	19,239	22,983	21,573
BY	-13,153	30,121	10,424	19,564	22,411	13,873
HB	52,756	21,886	692	18,950	23,898	23,636
HE	20,329	38,659	11,682	16,131	24,161	22,192
HH	-13,632	49,603	6,561	16,172	21,189	15,978
MV	15,811	36,783	10,364	18,368	23,014	20,868
NS	23,474	36,094	11,042	18,819	22,695	22,425
NW	36,787	49,789	14,411	23,443	22,848	29,455
RP	30,589	41,588	11,326	21,176	23,122	25,560
SA	21,487	35,899	12,881	17,898	21,674	21,968
SH	24,878	39,474	14,203	19,181	28,754	25,298
SL	14,302	40,092	9,647	19,144	23,170	21,271
SN	73,567	58,198	13,005	11,399	34,079	38,050
TH	19,764	40,900	12,787	17,925	25,850	23,445
Total	23,087	40,743	10,765	18,721	24,385	23,540

Source: Bundestag (2011a), own calculations.

The results are displayed in Table 3. On average, campaigning costs amount to 23,500 euros per seat and there is considerable variation not only across parties but also across states. Interestingly, looking at the two major parties, the campaigning costs for Social democrats are on average much higher than for Christian democrats (41,000 vs. 23,000 euros) which is due to a considerably higher amount of donations for the latter. Note that the negative values in Table 3 indicate that revenues, especially from donations, exceeded expenses. In those cases, we set the individual

¹¹ Regression outputs are available from the authors upon request.

campaigning costs of the candidate to zero. The estimated campaigning costs can be regarded as an upper bound from the individual candidate’s perspective since it is highly unlikely that the candidate has to personally bear the whole additional costs. Usually, candidates receive (financial) support from their local party as well.

4 Empirical Strategy and Results

4.1 Ordinary Least Squares

The model. In order to estimate the politicians’ wage gap as defined in Section 2, we define an indicator variable P_i , which takes on the value 1 if individual i is an MP and 0 otherwise. Annual earnings Y_i for MPs and citizens are defined as follows:

$$Y_i = \begin{cases} \hat{p}_i \cdot W_i^{MP} + (1 - \hat{p}_i) \cdot \widehat{W}_i - \widehat{CC}_i & \text{if } P_i = 1 \\ W_i^{cit} & \text{if } P_i = 0 \end{cases} \quad (4)$$

For the citizens we use the information on gross earnings W_i^{cit} from the SOEP. For the MPs we use the collected information on earnings W_i^{MP} multiplied with the estimated election probabilities \hat{p}_i . Potential earnings of an MP in the private sector \widehat{W}_i are predicted values based on estimated coefficients from an OLS regression on the sample of citizens. Campaigning costs \widehat{CC}_i are calculated as described above.

In order to operationalize equation (4), we employ a dummy variable approach which is standard for detecting wage differentials between subgroups in empirical labor economics (see e.g. Pederson et al., 1990; Kunze, 2005). As it is common, instead of estimating the model in levels, we use the log of Y_i , which gives the following Mincerian earnings equation (Mincer, 1974) to be estimated using ordinary least squares (OLS):

$$\ln(Y_i) = \beta_0 + \beta_1 P_i + \beta \mathbf{X}_i + \mu_i. \quad (5)$$

A positive and significant estimate of β_1 would provide empirical evidence in favor of a wage premium for politicians. Put another way, the coefficient on the politicians’

dummy corresponds exactly to $PWG^{unc}(\tilde{X}, p_i)$ from equation (3). In terms of the citizen candidate model $\hat{\beta}_1$ measures by how much $p \cdot (W^{office} - W^{private})$ exceeds CC (cf. (1)). We control for a vector \mathbf{X}_i of demographic characteristics which have been shown to be standard determinants of earnings, such as gender, qualification, age, tenure or number of children. The error term is denoted by μ_i . Depending on the specification of the model, we also include interaction terms of certain characteristics with the politician dummy in order to test for heterogeneous effects.

OLS results. Table 4 presents estimation results of equation (5) for the three different executive samples defined above.¹² Specification (1) shows a positive and highly significant coefficient on the dummy variable *politician* of 0.501. This suggests that MPs *ceteris paribus* earn 65% more than non-MP citizens.¹³ The coefficients on the covariates have the expected signs: tenure and age, measuring specific and general human capital respectively, have a positive but decreasing effect on earnings. Education has a positive effect on annual earnings. Compared to the low-skilled, high-skilled (medium-skilled) individuals have a positive income differential of 149% (57%). The female dummy reveals the well-known gender wage gap (Oaxaca, 1973) – in our case of around 30%, which is comparable to previous estimates for Germany (Kunze, 2005; Arulampalam et al., 2007). The variables concerning party affiliation confirm that supporters of those parties which are said to promote more business friendly policies – Christian democrats (CDU/CSU) and Liberals (FDP) – earn about 20–30% more than supporters of Leftist parties.¹⁴ Living in East Germany reduces annual gross individual earnings considerably. Finally, private sector employees have higher earnings than individuals in the public sector or self-employed.

In specification (2) we restrict the income of MPs to the basic office remuneration. The PWG decreases mechanically to 0.324 (38%), but remains statistically and economically significant. In models (3)–(6) we compare the MPs to more

¹² In this section we focus on the results when applying the unconditional income concepts for MPs following definition (3). We also estimate the conditional wage gap. As expected estimates shift upwards (see Table A.2 in the Appendix).

¹³ Note that $\hat{\beta}_1$ can only be interpreted in percentage terms for small values. From (5) it follows that $\ln(Y|P=1) - \ln(Y|P=0) = \beta_1$ and thus $\frac{Y|P=1 - Y|P=0}{Y|P=0} = \exp(\beta_1) - 1$.

¹⁴ Note that survey respondents in the SOEP report their party preferences. Hence we are able to use information on party affiliation not only for MPs but also for the citizens in our sample.

Table 4: OLS – Baseline results: Unconditional wage gap

Executive sample	All		White collar		Top-level	
	Total (1)	Remun. only (2)	Total (3)	Remun. only (4)	Total (5)	Remun. only (6)
Politician	0.501*** (0.086)	0.324*** (0.085)	0.428*** (0.084)	0.251*** (0.083)	0.049 (0.158)	-0.127 (0.158)
Tenure	0.006 (0.008)	0.006 (0.008)	-0.005 (0.008)	-0.005 (0.008)	0.007 (0.009)	0.007 (0.009)
Tenure ²	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)
Age	0.050* (0.027)	0.050* (0.027)	0.064*** (0.023)	0.064*** (0.023)	0.005 (0.034)	0.005 (0.034)
Age ²	-0.000 (0.000)	-0.000 (0.000)	-0.001** (0.000)	-0.001** (0.000)	0.000 (0.000)	0.000 (0.000)
Medium-skilled	0.453 (0.314)	0.453 (0.314)	0.255* (0.144)	0.255* (0.144)	0.145 (0.153)	0.144 (0.153)
High-skilled	0.914*** (0.308)	0.914*** (0.308)	0.765*** (0.151)	0.765*** (0.151)	0.466*** (0.164)	0.466*** (0.164)
Female	-0.284*** (0.052)	-0.284*** (0.052)	-0.247*** (0.056)	-0.247*** (0.056)	-0.263*** (0.082)	-0.263*** (0.082)
Married	0.012 (0.058)	0.012 (0.058)	0.067 (0.063)	0.067 (0.063)	0.089 (0.086)	0.090 (0.086)
Children	0.087 (0.061)	0.087 (0.061)	-0.014 (0.067)	-0.014 (0.067)	0.203** (0.091)	0.203** (0.091)
Christ. dem.	0.191*** (0.053)	0.191*** (0.053)	0.160*** (0.053)	0.160*** (0.053)	0.199*** (0.077)	0.199*** (0.077)
Liberal	0.253*** (0.097)	0.253*** (0.097)	0.124 (0.105)	0.124 (0.105)	0.332*** (0.113)	0.332*** (0.113)
East	-0.397*** (0.053)	-0.397*** (0.053)	-0.399*** (0.063)	-0.399*** (0.063)	-0.284*** (0.100)	-0.284*** (0.100)
Self-employed	-0.234*** (0.050)	-0.234*** (0.050)	-0.184*** (0.058)	-0.184*** (0.058)	0.097 (0.093)	0.097 (0.093)
Public sector	-0.241*** (0.069)	-0.241*** (0.069)	-0.444*** (0.068)	-0.444*** (0.068)	-0.054 (0.111)	-0.055 (0.111)
Constant	8.763*** (0.893)	8.763*** (0.893)	8.794*** (0.508)	8.793*** (0.508)	10.089*** (0.769)	10.088*** (0.769)
Adjusted R^2	0.331	0.331	0.376	0.376	0.436	0.436
Observations	2104	2104	1584	1584	898	898

Note: Robust standard errors in parentheses. Significance levels are 0.1 (*), 0.05 (**), and 0.01 (***).

narrowly defined executive samples. As expected the estimated wage gap shrinks. When applying the “white collar” sample, the wage gap for total income is 0.428 (53%), while the coefficients on the covariates hardly change. Using the “top-level executives”, the coefficients for both income definitions are not significantly different from zero. This results is still in line with the citizen candidate framework, which stipulates a non-negative wage gap.

Group-specific results. The results for the PWG in Table 4 represent an average effect for all MPs under consideration. To provide further evidence of whether the wage gap differs for politicians from different socio-demographic backgrounds, we include interaction terms of the *politicians*'-dummy with other characteristics. We estimate the specifications on the “all executive” sample and include all covariates used in Table 4 (for total MP income).

The results displayed in Table 5 suggest that we do not find additional returns to tenure. Specification (2) shows that the wage gap for high-skilled politicians is much lower ($0.815 - 0.381 = 0.434$) than for medium-skilled MPs (0.815), representing the omitted category. As far as gender is concerned, Table 5 shows a positive and significant coefficient on the *Pol. x Female* interaction term. This positive coefficient neutralizes the negative gender pay gap found in the whole sample (cf. Table 4) so that women in politics do not earn significantly less than male politicians. This is not surprising since male and female MPs receive the same basic office remuneration.¹⁵ A similar logic applies to the PWG of East German politicians. While the baseline results in Table 4 show that earnings in the East are much lower for the combined MP-citizen sample, the *Pol. x East* interaction term yields a positive sign. This indicates that the East-West pay gap is significantly smaller among politicians.

Interestingly, as far as party affiliation is concerned, the results of specification (5) suggest that members of more leftist parties (Social democrats, Green Party, Left Party) exhibit a substantially higher wage gap conditional on observable characteristics than members of right-wing parties. More precisely, the wage premium

¹⁵ This might help to explain why Kotakorpi and Poutvaara (2011) find that increasing office remuneration has stronger effects for female than for male candidates in Finland. Similarly, running the earnings regression on the MP sample yields an insignificant gender dummy estimate.

for liberal and Christian-democratic MPs decreases to 0.289 and 0.354 respectively compared to 0.641 for leftist MPs. This is due to the fact that left-wing voters earn less on average (see Table 4).¹⁶ Hence, the wage gap is larger when comparing the incomes of an average left-wing MP and of a comparable left-wing voter. Finally, the PWG is not different for MPs who have been self-employed before becoming politician but higher for MPs who have previously worked in the public sector (33%). In specification (7) we control for all interaction terms simultaneously and results do not change considerably. As a result, the group-specific results suggest that existing income differentials between socio-economic groups (male vs. female, West vs. East, left vs. right) in the overall population are mitigated or even neutralized in the politicians sample. The earnings distribution among MPs seems to be much more homogenous than in the private labor market.

Selection on unobservables. Like all empirical studies our analysis is subject to the well-known danger of omitted variable bias. If there is an unobserved confounder that affects both the selection into politics and earnings, the estimates of our wage gap are biased. In the context of our study, such an observed confounder could be related to the politicians' personality. For instance, it might be that politicians have certain qualities, such as higher motivation, more competitiveness or better networking skills, that make them more likely to become a politician and at the same time have a positive effect on their earnings.

In order to assess the potential impact of such a positive selection, we make use of the 2005 wave of the SOEP, which contains information on the Big Five personality traits of respondents.¹⁷ The Big Five is a theoretical measurement system stemming from psychology which has been identified to describe an individual's personality comprehensively along the five dimensions openness, conscientiousness,

¹⁶ Especially the Social democrats as well as the Left Party are traditionally supported by blue-collar workers. That is why there are close ties between these left-wing parties and trade unions. In addition, the right-wing parties in Germany are traditionally more business-friendly which might explain why they receive around 70% of total party donations (Bundestag, 2011a). These patterns can be expected to have an effect on MPs' earnings after retiring from politics (Eggers and Hainmueller, 2009; Querubin and Snyder, 2009).

¹⁷ Previous research has shown that the Big Five are stable over time (Cobb-Clark and Schurer, 2011), hence we can use the panel structure of the data and link the personality information from 2005 to our 2006 data

Table 5: OLS – Interaction effects: Unconditional wage gap

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Politician	0.514*** (0.082)	0.815*** (0.107)	0.392*** (0.090)	0.448*** (0.087)	0.641*** (0.093)	0.344*** (0.082)	0.602*** (0.099)
Pol. x Tenure	-0.002 (0.005)						0.003 (0.005)
Pol. x H-skill		-0.381*** (0.073)					-0.350*** (0.070)
Pol. x L-skill		0.470 (0.326)					0.482 (0.316)
Pol. x Female			0.336*** (0.064)				0.253*** (0.063)
Pol. x East				0.238*** (0.069)			0.239*** (0.067)
Pol. x Liberal					-0.352*** (0.101)		-0.160 (0.108)
Pol. x Christ. dem.					-0.287*** (0.065)		-0.164** (0.064)
Pol. x Self-empl.						0.091 (0.085)	0.047 (0.072)
Pol. x Public sector						0.282*** (0.079)	0.199** (0.079)
Adjusted R^2	0.330	0.330	0.330	0.330	0.330	0.330	0.328
Observations	2104	2104	2104	2104	2104	2104	2104

Notes: Regressions estimated on sample of all executives. MP income is defined as total earnings. In addition to the interaction terms, all covariates from Table 4 are included in each specification. Robust standard errors in parentheses. Significance levels are 0.1 (*), 0.05 (**), and 0.01 (***).

extraversion, agreeableness and neuroticism. Previous research has shown that neuroticism and (to some extent) agreeableness have a negative effect on earnings and job performance (see e.g. Nyhus and Pons (2005) and Borghans et al. (2008) for surveys). We are able to replicate this relationship with our “all executive” sample.

As we do not have any information about the personality traits of MPs, we need to impute their Big Five values. In order to provide an upper bound for a positive selection into politics based on personal characteristics, we assume that MPs have average scores (compared to executives) on the dimensions that do not affect earnings (i.e. openness, conscientiousness and extraversion). For agreeableness and neuroticism we, however, assign them values that are one standard deviation lower than the average, which will have a positive effect on their earnings.

Table 6: OLS: Unconditional wage gap including Big Five

Executive sample	All		White collar		Top-level	
	Total (1)	Remun. only (2)	Total (3)	Remun. only (4)	Total (5)	Remun. only (6)
Politician	0.380*** (0.100)	0.203** (0.100)	0.318*** (0.116)	0.142 (0.115)	-0.154 (0.202)	-0.330 (0.202)
Openness	-0.028 (0.030)	-0.028 (0.030)	0.010 (0.020)	0.010 (0.020)	-0.006 (0.043)	-0.006 (0.043)
Conscientiousness	0.011 (0.032)	0.011 (0.032)	-0.004 (0.035)	-0.004 (0.035)	0.021 (0.041)	0.021 (0.041)
Extraversion	0.037 (0.036)	0.037 (0.036)	0.014 (0.030)	0.014 (0.030)	0.054 (0.039)	0.054 (0.039)
Agreeableness	-0.046 (0.031)	-0.046 (0.031)	-0.013 (0.031)	-0.013 (0.031)	-0.004 (0.037)	-0.004 (0.037)
Neuroticism	-0.034* (0.019)	-0.034* (0.019)	-0.046** (0.022)	-0.046** (0.022)	-0.048 (0.031)	-0.048 (0.031)
Adjusted R^2	0.354	0.354	0.404	0.404	0.469	0.469
Observations	1894	1894	1451	1451	860	860

Note: Robust standard errors in parentheses. In addition to Big Five, all covariates from Table 4 are included in each specification. Significance levels are 0.1 (*), 0.05 (**), and 0.01 (***).

The suggested selection certainly overestimates the selection effects based on personality traits. The scarce research on the Big Five in the political arena suggests that politicians are more extraverted and more agreeable than the average citizen (Caprara et al., 2003; Gerber et al., 2011). If any, these results would suggest a negative selection into politics (in terms of income) due to the negative effect of agreeableness on earnings. The overestimation becomes apparent when looking at the mean values for agreeableness and openness across samples. While the averages in the electorate are 5.40 and 3.88 respectively, the average in the “all” (“top-level”) executive sample are 5.26 and 3.70 (5.25 and 3.53). In contrast, the imputation method assigns politicians values of 4.38 and 2.43, which are considerably lower.

Table 6 shows that even if the selection based on personal traits into a political career is completely positive (with respect to earnings) our estimates are quite robust. As expected, all coefficients decline, but the PWG remains positive for specification (1)–(3) and statistically indistinguishable from zero otherwise.¹⁸

¹⁸ Based on (Caprara et al., 2003)’s finding we also assign politicians an above average level of extraversion as a robustness check. Results do not change as extraversion does not significantly

4.2 Matching

The model. As Table 1 shows, the MPs differ from the executives in several characteristics. The matching technology, an econometric method popular in the field of labor economics (Caliendo and Kopeinig, 2008), is a method to further increase the comparability of politicians and executives. In general, matching is applicable if the population under consideration can be divided into one sub-population receiving a treatment (in our case being a politician) and another sub-population of untreated individuals (citizens). Matching is a way to tackle the problem that we cannot observe what politicians would have earned if they had not been elected by finding the most appropriate match in terms of observable characteristics within the control group to calculate the counterfactual outcome. Hence, matching ensures that only the nearest neighbors in terms of characteristics are used to estimate the PWG (Imbens, 2004; Imbens and Wooldridge, 2009).¹⁹ Furthermore, the matching framework allows us to assess the relevance of potential unobserved factors influencing the PWG. As discussed in section 4.1, this might be especially important as unobserved motivation or assertiveness could explain parts of the PWG.

We define a binary “treatment” indicator $P_i \in \{0, 1\}$ that takes the value 1 if an individual is an MP and 0 otherwise. Again, the outcome variable $Y_i(P_i)$ is annual gross earnings. We are interested in estimating the *average treatment effect on the treated* (ATT), which is defined as

$$\tau_{ATT} = E[Y(1)|P = 1] - E[Y(0)|P = 1] \quad (6)$$

with $E[.]$ standing for expectation. The ATT is equal to the potential income differential if it was possible to draw an individual i randomly from the *sample of MPs* and allow the simultaneous pursuit of a career as a non-MP citizen in the regular labor market. In order to construct the counterfactual $E[Y(0)|P = 1]$, we identify a “statistical twin” among the non-treated in terms of observable characteristics. As

affect earnings.

¹⁹ In that sense, matching is comparable to non-parametric regression methods such as kernel estimation since it allows identification without explicit assumptions regarding the (potentially non-linear) functional form of the association between dependent variables and explanatory factors.

matching on numerous characteristics X causes dimensionality problems, we follow standard practice and condition on the propensity score of being treated. That is, we estimate the probability of being a politician given X , $Pr(P = 1|X)$, with a standard probit model.²⁰ The covariates X describe the self-selection into the treatment, which in case of becoming a politician is certainly a very specific and individual decision (Gregory and Borland, 1999; Belman and Heywood, 1989).

Matching results. We estimate the propensity score of being a politician using a simple probit model controlling for all the socio-demographic variables available in our data, such as age, tenure, qualification, gender, presence of children, marital status, occupational position (for politicians before becoming MPs) and region.²¹

As done in Section 4.2 we estimate the PWG using three different definitions of the control group. Table 7 presents the results of the propensity score matching with the logarithmized annual earnings as the outcome variable. We employ a one-to-one nearest neighbor matching specification with replacement and a caliper of one quarter of the standard deviation of the estimated propensity score (Rosenbaum and Rubin, 1985). The \widehat{ATT} for full earnings and the “all executive” sample is highly significant and estimated at 0.312, which indicates that being a politician on average increases earnings by more than 35%. The t-statistics at the lower part of Table 7 show that matching on the propensity score balances treatment and control group well. The only exception is the *East* covariate, for which we, nevertheless, do not find big differences between treatment and control group. Also, the mean standardized bias after matching of 2.20 is very low and suggests that matching was successful (Caliendo and Kopeinig, 2008). The \widehat{ATT} remains positive and significant, when using basic office remuneration as the outcome variable for politicians – excluding outside earnings, payments for cabinet members, pensions and interim allowances.

Specifications (2) and (3) of Table 7 show that narrowing the control group

²⁰ Rosenbaum and Rubin (1983) show that propensity score matching ensures independence of treatment from the potential outcome, which is one of the two identifying assumptions of the matching estimator – the other one being the common support assumption.

²¹ Note that the interpretation of the coefficients of the propensity score estimation is not economically relevant. Neither is the purpose of propensity score estimation to predict the selection into treatment, but to balance the covariates. For completeness, estimation results of the probit estimations are presented in Table A.3 in the Appendix.

Table 7: Matching: Baseline results

	(1)	(2)	(3)
Executive Sample	All	White collar	Top-level
Treated observations	599	599	599
Control observations	1,505	985	299
Full earnings			
ATT	0.312 (0.061)***	0.221 (0.090)***	-0.270 (0.534)
Rosenbaum Γ	2.4	1.8	—
Basic office remuneration			
ATT	0.135 (0.060)**	0.045 (0.089)	-0.447 (0.534)
Rosenbaum Γ	1.6	—	—
t-statistics / % bias reduction:			
Age	-0.03 / 99.5	0.20 / 96.3	6.93 / 12.5
High-skilled	-0.39 / 97.5	-4.03 / 67.2	-1.68 / 85.4
Medium-skilled	0.31 / 97.9	3.95 / 66.9	1.60 / 86.0
Children	-0.37 / 96.8	-0.49 / 95.5	1.44 / 84.7
Gender	0.12 / 96.5	0.37 / 91.5	0.06 / 99.1
East	1.96 / -103.4	0.00 / 100.0	-0.35 / 86.8
Married	0.06 / 91.1	0.56 / 75.3	-0.51 / 54.9
Public sector	-0.06 / 99.5	0.81 / 91.6	-0.12 / 99.3
Self-employed	1.12 / 97.3	2.09 / 94.3	-0.00 / 100.0
Standardized Bias	2.20	5.70	6.58

Note: Estimates are based on “psmatch2” by Leuven and Sianesi (2010) and “rbounds” by Gangl (2004). One-to-one nearest neighbor matching conducted with replacement and a caliper of $0.25 \cdot \sigma_{prop.score}$. ATT refers to average treatment effect on the treated. Standard errors of ATT (shown in parentheses) are corrected following Abadie and Imbens (2006). Stars indicate the conventional significance levels. Rosenbaum Γ denotes the minimum influence (in terms of explanatory power of all observables) a potential unobserved confounder must have to render the PWG estimate insignificant (based on a 1% significance level). t-statistics with H0 “no significant differences in mean characteristic between treated and control group”, % bias reduction corresponds to reduced differences in observables between control and treatment due to matching.

leads to a decline of the estimated PWG. While it remains positive and significant for full earnings and the “white collar” sample, it is statistically indistinguishable from zero in all other earning-sample combinations – a result similar to section 4.1. As the sample size decreases, it becomes more difficult to balance the covariates and the mean standard biased rises as a consequence.²²

Furthermore, we conduct several robustness checks to make sure that our results are not driven by functional forms, the matching algorithm or choices made when estimating the propensity score. We find almost identical estimates when using Epanechnikov kernel matching. The results are also robust to using a simpler model to estimate the propensity score excluding all interaction terms. Yet, in that case, the balancing property is not fulfilled for all covariates, which is precisely the reason why interaction terms should be used. Moreover, our results do not change when using a logit instead of a probit model to estimate the propensity score.

Selection on unobservables. Just as in the OLS analysis we are faced with potential bias caused by omitted variables. So far we have assumed that the observable covariates X fully account for the self-selection of individuals into treatment and control group. However, if there are unobserved factors that simultaneously affect selection into treatment and the outcome, the identifying assumption of unconfoundedness is violated and matching estimators are susceptible to a *hidden bias* (Caliendo and Kopeinig, 2008). In the case of politicians, unobserved characteristics such as motivation, competitiveness or networking skills, might determine selection into treatment, while simultaneously having a positive effect on earnings. To account for this potential bias, we conduct a Rosenbaum bounds sensitivity analysis (see Rosenbaum (2002) for a technical presentation).²³ In a nutshell, the Rosenbaum bound analysis provides a value Γ , which indicates how sensitive the results

²² As done for OLS we also provide matching estimators for PWG based on the conditional income of the politicians. Ignoring campaigning costs and the probability of not being elected into office increases the politicians’ earning and thus the PWG. Table A.2 in the Appendix shows that the \widehat{ATT} varies between zero and 0.5 depending on the income definition and the sample used.

²³ Another estimation technique to account for unobserved heterogeneity is the application of a fixed-effects regression (see Diermeier et al. (2005) for an application to US Congress members). However, this would require a panel dataset of MPs, and we have only data for one legislative period. Moreover, there is no variation in the politicians’ dummy for MPs.

are with respect to an unobserved confounder. A value of $\Gamma = 1.6$ would imply that an unobserved confounder with an explanatory power of at least 1.6 times the explanatory power of *all* observables X is needed to render the estimated effect statistically insignificant (at the 1% significance level). Thus, a low value of Γ indicates that results are quite sensitive to unobserved confounders; high values of Γ (greater than 2) suggest that it is highly unlikely that confounding factors alter inference. The Γ values of Table 7 show that it is quite unlikely that personality traits of politicians could render the positive PWG found in specifications (1) and (2) for full earnings insignificant. The positive wage gap based on basic office remuneration for the “all executive” sample is quite robust to omitted variable bias.

5 Conclusions

In this paper we test whether there is a wage gap for German MPs. Building on a unique dataset and relying on the citizen candidate framework, we calculate the expected earnings of MPs taking into account election probabilities and campaigning expenses. We estimate the politicians’ wage gap by comparing the MPs to a representative sample of German executives using both OLS and matching techniques.

We find that both the sign and the size of wage gap depend on the definition of the control group and the MPs’ income. Using the broadest sample of executives, the PWG varies between 35–65% depending on the estimation method (corresponding to 20,000–36,000 euros per year). Robustness checks suggest that these baseline results are unlikely to suffer from omitted variable bias due to positive selection into politics. When defining the control group more narrowly, the wage gap shrinks and is statistically indistinguishable from zero for “top-level” executives. In this case, the data suggest that the pay of politicians is not excessive. However, while MPs may compare themselves with top-managers, this association might not be shared by the public, which in turn might have consequences for the perception of the adequacy of politicians’ pay. The wage gap also mechanically decreases when we exclude politicians’ outside earnings and restrict their income to the basic office remuneration. On the contrary, the income premium increases considerably when estimating the

conditional wage gap, i.e. neglecting election probabilities and campaigning costs.

Thus, our empirical results are well in line with the theoretical predictions of the citizen candidate framework, which stipulates a non-negative wage gap for politicians. From a normative perspective, a positive PWG could be beneficial for society if it attracted more able individuals to run for office and as a consequence yielded a more efficient provision of public goods. Yet, recent theoretical and empirical studies show that higher earnings need not necessarily lead to better politicians (Poutvaara and Takalo, 2007; Kotakorpi and Poutvaara, 2011). We contribute to this result by showing that becoming a politician is financially attractive for the average executive (and even more so for the average citizen) but not for top-level managers and business-owners.

Several qualifications have to be made with respect to the magnitude of our empirical results. First, in general, higher pay can be justified by a higher workload. Unfortunately, we do not observe the politicians' working hours.²⁴ Second, we probably underestimate the PWG as we assume a conservative upper bound of outside earnings and overestimate individual campaigning costs. Third, it is likely that there is positive selection into the profession of a politician. Although we show that the baseline estimates are robust with respect to an unobserved confounder, their exact magnitudes might change. Finally, we only compare politicians and citizens at one particular point in time. However, politicians who follow *political careers* (as opposed to *career politicians*, Mattozzi and Merlo, 2008) might leave public office in order to work in the private sector and benefit from their political network. It would therefore be worthwhile to estimate the PWG using lifetime income (see e.g. Eggers and Hainmueller, 2009; Querubin and Snyder, 2009). Moreover, our findings for Germany should be complemented with (comparative) studies on other countries and different institutional details and regulations to complete the picture.

²⁴ There is evidence collected from the MPs' websites that their working time lies between 50 and 70 hours a week. We find similar values for the executive samples.

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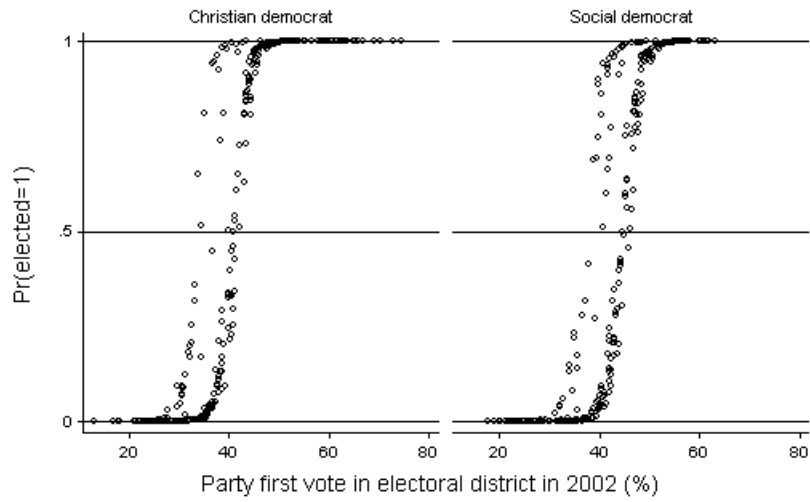
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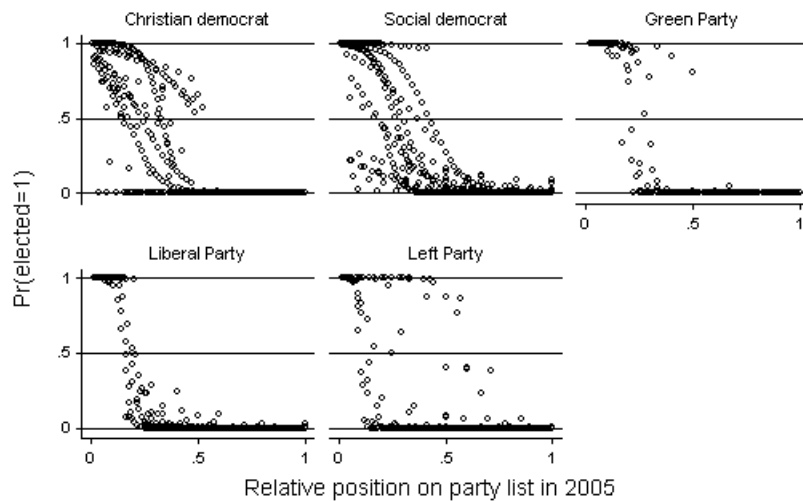
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A Appendix



Source: Bundeswahlleiter (2011), own calculations.

Figure A.1: Election probabilities: Electoral districts



Source: Bundeswahlleiter (2011), own calculations.

Figure A.2: Election probabilities: Party lists

Note: The “relative position on party list” is the rank on the respective party list (with rank 1 being the most promising) divided by the total number of candidates on that list. Hence, the first candidate on the list is assigned a value close to zero while the last candidate receives a one.

Table A.1: Characteristics of MPs by party affiliation

	Christian democrat	Social democrat	Green Party	Liberal Party	Left Party	None	Total
Number	217	220	46	61	53	2	599
Age (years)	51.8	52.4	48.6	49.9	50.6	49.5	51.5
Female (%)	0.2	0.4	0.6	0.2	0.5	0.0	0.3
East (%)	16.1	20.9	19.6	18.0	56.6	50.0	22.0
Direct (%)	66.4	65.0	2.2	0.0	5.7	50.0	48.7
Low skilled (%)	0.0	0.0	0.0	0.0	1.9	0.0	0.2
Medium skilled (%)	17.1	20.5	13.0	4.9	18.9	50.0	17.0
High skilled (%)	82.9	79.5	87.0	95.1	79.2	50.0	82.8
Employee (%)	51.6	25.9	39.1	55.7	34.0	50.0	40.1
Civil servant (%)	43.8	71.4	50.0	24.6	54.7	50.0	53.4
Self-employed (%)	4.6	2.7	10.9	19.7	11.3	0.0	6.5
Unconditional earnings (euros)	82,510	76,380	67,535	74,496	56,591	53,585	75,902
Conditional earnings (euros)	109,274	108,387	96,020	102,776	91,925	98,608	105,698

Source: SOEP and Bundestag, own calculations.

Table A.2: Conditional wage gap: OLS and Matching

Executive sample	All		White collar		Top-level	
	Total (1)	Remun. only (2)	Total (3)	Remun. only (4)	Total (5)	Remun. only (6)
OLS	0.667***	0.493***	0.595***	0.421***	0.216	0.042
Matching	0.498***	0.324***	0.396***	0.222***	-0.101	-0.275
Observations	2104	2104	1584	1584	898	898

Note: Estimates derived from same specifications as in baseline models (see Tables 4 and 7). Significance levels are 0.1 (*), 0.05 (**), and 0.01 (***).

Table A.3: Propensity score estimation

Executive sample	All		White collar		Top-level	
	coeff.	s.e.	coeff.	s.e.	coeff.	s.e.
Age	-0.004	35.804	0.072	36.050	0.019	0.006
High-skilled	-4.983	0.000	5.975	.	0.825	1.309
Medium-skilled	-7.671	0.540	4.011	0.600	-0.065	1.307
Children	-5.721	0.568	-6.251	0.626	0.268	0.254
Female	0.575	0.537	0.292	0.573	0.677	0.153
East	0.674	0.583	1.079	0.662	0.184	0.155
Married	2.040	0.559	0.251	.	-0.686	0.158
Public sector	0.070	0.559	10.870	0.198	2.553	0.407
Self-employed	-12.700	0.000	-2.378	0.727	-0.598	0.208
Age x H-skill	-0.004	35.804	-0.069	36.050		
Age x M-skill	0.029	35.804	-0.046	36.050		
Age x Children	0.138	0.011	0.144	0.012		
Age x Female	0.001	0.011	0.005	0.011		
Age x East	-0.011	0.012	-0.017	0.013		
Age x Married	-0.059	0.011	-0.060	0.012		
Age x Public sector	0.023	0.011				
Age x Self-empl.	0.018	0.013	0.007	0.013		
H-skill x Children	-0.404	0.246	-0.390	0.269		
H-skill x Female	-0.273	0.248	-0.169	0.265		
H-skill x East	0.074	0.252	-0.072	0.291		
H-skill x Married	0.306	0.262	2.118	0.589		
H-skill x Public sector	-1.355	0.248	-11.073	0.000	-0.718	0.420
H-skill x Self-empl.	10.059	0.620	0.558	0.332		
M-skill x Self-empl.	9.873	0.670				
Children x Female	0.493	0.211	0.416	0.223		
Children x Public sector	0.168	0.213	0.152	0.218		
Children x Self-empl.	-0.061	0.265	-0.083	0.281	0.128	0.296
Female x East	-0.141	0.216	-0.093	0.239		
Female x Married	-0.096	0.220	-0.268	0.231		
Female x Public sector	-0.144	0.199			-0.759	0.367
East x Married	0.163	0.221	-0.001	0.258		
East x Public sector	-0.133	0.207	-0.157	0.249		
Married x Public sector	-0.164	0.245	-0.119	0.243		
Married x Self-empl.	0.193	0.283	0.179	0.302		
M-skill x Married			1.947	0.610		
M-skill x Public sector			-9.735	0.274		
Children x East			0.320	0.231		
Children x Married			0.193	0.265	0.541	0.284
Female x Self-empl.			0.258	0.242		
East x Self-empl.			-0.032	0.294		
M-skill x East					0.202	0.329
Constant	5.594	0.481	-5.844	0.442	-1.495	1.332
Pseudo R^2	0.490		0.437		0.375	
χ^2	1231		918		428	
Observations	2104		1584		898	