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Composition Effects of the German Federal Government  
on the Average Top Income Tax Burden

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**Abstract**

This paper investigates whether the setting of the German top income tax burden is affected by the composition of the Federal Government in terms of connectedness with the national (academic) elite and company network from 1958 to 2011. The results reveal that the percentages of university graduates, former executive board members, as well as the government's average age at the time of decision are related to a lower average top income tax burden. Conversely and surprisingly, an increasing percentage of former members of a supervisory board is associated with a higher average top income tax burden. Interestingly, varying percentages of governmental members with an elitist social background are not aligned with the tax setting. Finally, the higher the difference of mandates between CDU & CSU and those of the SPD in the German Parliament, the lower is the average top income tax burden.

JEL-Codes: D83, D85, H24, P16

# **Zusammensetzungseffekte der deutschen Bundesregierung auf die durchschnittliche Steuerbelastung deutscher Spitzenverdiener**

## **Zusammenfassung**

Dieses Papier untersucht, ob die Festlegung der durchschnittlichen Steuerbelastung deutscher Spitzenverdiener zwischen 1958 und 2011 von der Zusammensetzung der Bundesregierung in Form von Verbindungen zur nationalen (akademischen) Elite und dem Unternehmensnetzwerk beeinflusst wird. Die Ergebnisse zeigen, dass der Anteil an Universitätsabsolventen, früheren Vorstandsmitgliedern und das durchschnittliche Alter der Regierung zum Zeitpunkt der Entscheidung mit einer durchschnittlich niedrigeren Steuerbelastung deutscher Spitzenverdiener verbunden sind. Im Gegensatz hierzu und überraschenderweise ist ein steigender Anteil früherer Aufsichtsratsmitglieder mit einer durchschnittlich höheren Steuerbelastung deutscher Spitzenverdiener verknüpft. Interessanterweise findet sich keine Verbindung eines variierenden Anteils von Regierungsmitgliedern mit elitärem Hintergrund auf Spitzensteuermast. Schließlich ist die durchschnittliche Steuerbelastung deutscher Spitzenverdiener umso geringer, je höher die Differenz an Bundestagsmandaten zwischen CDU/CSU und SPD ist.

Im Internet unter:

[http://www.wiwi.uni-muenster.de/io/forschen/downloads/DP-IO\\_02\\_2013.pdf](http://www.wiwi.uni-muenster.de/io/forschen/downloads/DP-IO_02_2013.pdf)

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# Composition Effects of the German Federal Government on the Average Top Income Tax Burden\*

## 1. Introduction and Literature Review

*“Yet if you want to find real political rage – [...] You’ll find it instead among the very privileged, people who don’t have to worry about losing their jobs, their homes, or their health insurance, but who are outraged, outraged, at the thought of paying modestly higher taxes”* (Krugman 2010). As Krugman points out in this quote, the income tax burden of top earners is the subject of many debates in the public media as well as in sociological and economic academic literature. On the one hand, this paper contributes to the sociological analyses of US-American and German (academic) elite networks and their effects on political decisions concerning the income distribution or taxation of incomes. On the other hand, it contributes to the economic discussions on the deviation of interests between politicians and the public as well as the impact of interlocking directorates and political connectedness on performance. Up to this day, no investigation has analysed the impact of the German top politicians’ connections to the national (academic) elite and company network on the setting of the average top income tax burden.

Actually, the effective taxation of German top earners is investigated by Bach et al. (2013). By extension, the authors found out that the effective average tax rate of Germans, who belong to the top percentile of households with above-average incomes accounts for 30.5 per cent. The results clarify that the effective average tax rate of this group rapidly fell about a third from 1990 to 2005. Besides, Romer and Romer (2010) analysed the reasons of tax changes that arise from political as well as from non-political developments in the United States of America. Precisely, they found four main categories that cause tax changes: “counteracting other influences on the economy, paying for increases in government spending (or lowering taxes in response to reductions in spending), addressing an inherited budget deficit, and promoting long-run growth” (Romer and Romer 2010, p. 799).

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Focusing on German Federal Governments, Scharfenkamp and Dilger (2012) investigated differences between the chancellors, vice chancellors, as well as ministers of the inner and residual cabinets with respect to their socio-demographic backgrounds and educational, economic, and political human capital. The empirical results reveal that ministers of the inner cabinet have the most advantageous social background and the best education. Furthermore, vice chancellors reach the highest level of economic human capital, measured by board seats occupied before their current appointment in the Federal Government. Moreover, the highest scores for the average tenure in the Federal Government, as well as expertise in the actual headed department are shown by chancellors.

The impact of the German company network, also called 'Deutschland AG' (for a historical review of the development see Höpner and Krempel 2004), and especially of political interlocking directorates on e.g. firm performance are widely discussed in the research field of Corporate Governance. For example, Niessen and Ruenzi (2010) investigated on politically connected corporations in Germany. They found out that members of the conservative and liberal parties more often worked in business corporations than members of left-wing parties. The upshot of their analysis is that the politically connected firms show significant differences to disconnected firms. Furthermore, politically connected firms outperformed disconnected firms on the stock market in 2006.

The impact of board composition, especially political connections on 114 Italian state-owned corporations, was analysed by Menozzi et al. (2012). They found that boards of directors dominated by political connections negatively correlate with the performance of the particular corporation. By contrast, the employment is significantly positive affected by a dominant percentage of politically connected directors.

On the basis of the network approach, several sociological studies dealt with the influence of community-elites and their influences on community decision-making systems by illustrating the formation of coalitions and opposing factions of community-elites in Germany (see e.g. Laumann and Pappi 1973 or Laumann et al. 1977). Due to the fact that the implemented input factors and their particular influence on the output of the elite's team decisions is not observable, the process of decision making is considered as a black box (Laumann and Pappi 1973, p. 213). Following up this assumption, Michael Hartmann (2009) shows that from 1945 to 1980 almost two thirds of the US-American governing cabinets' members were born in middle or working class families and thus had a non-elitist social background. In the same

period, the income distribution was balanced and the maximum income tax rates were comparatively high. The results changed for the second period of his random sample between 1981 and 2009, where nearly 70 per cent of the governing cabinets' members had an upper middle or upper class background. In comparison to the first period, the income gap rose quickly and the maximum income tax rates were much lower than in the first period. A comparable study is presented by Heinemann and Janeba (2011). They focussed on the process of decision making by analysing the ideological bias among the German national parliamentarians regarding the perceived mobility of international (corporate) tax bases, especially profits from capital income and real capital. In summation, the authors showed that ideology has a direct as well as an indirect influence on the perceived national autonomy in tax setting. The same result applies to preferences for a European corporate tax.

Barro (1973) presented one of the first models that concentrate on diverging interests between political representatives and citizens. Consequently, he discusses political structures that limit selfish acts of the government. James M. Buchanan (2003) points out the rent-seeking aspects of the political class and their corresponding decisions. He postulates that if the political authority becomes contestable, the politicians' incentives raise to act selfishly or in favour of preferred groups. Founded on this approach, Horgos and Zimmermann (2010) clarify the possible link between political business cycles and the formation of lobbies. They found significant evidence for the phenomenon that interest groups support a party to increase lobbying activities after the supported party came to power. Then the lobbies benefit from their activities in two ways. First, they profit by securing their capital and second, by decreasing their growth-depressing activities before the next election.

The results of previous investigations do not consider the influence of the German top politicians' social background, academic efforts, as well as a former managerial career on the decision of setting the top income tax.

This paper points out that the decisions of Federal Governments are influenced by their academic education and previous appointments in German non-profit organisations and corporations. Therefore, it is organised as follows: The second section proposes the hypotheses referring to the object of investigation. In the third section the description of the sample composition and its descriptive statistics follow. Thereafter, in section four, the empirical results will be presented. Finally, the paper ends with a conclusion in the fifth section.

## 2. Hypotheses

Changes in German tax law can be set by drafts of the referees or Federal Government. In this paper the focus is on government drafts that were agreed by the ruling cabinet. Afterwards, this government draft will be read up to three times in the German Parliament (called German Bundestag) until this organ makes a decision. In the last step, the agreement of the German Bundesrat is asked for the final realisation of the planned tax modification (see German Bundestag 2013, German Ministry of Finance 2013).

This paper mainly analyses on the decision about the government draft within the ruling cabinet and ask in how far its composition affects the setting of the average top income tax burden. In fact, the second step of decision made by the German Bundestag will be considered in terms of controlling for an ideological bias, as well as concerning the pressure from among the population. Ultimately, the following five hypotheses and their derivation illustrate the first two steps of the entire governmental decision process about changes in tax law. While the hypotheses one to four concern to the composition of the Federal Government, the last hypothesis focuses on the composition of parties within the German Bundestag.

Referring to several former studies, it can be assumed that the cohesion of the German elite network is related to the social homogeneity of its members (see e.g. Barton 1985, Domhoff 1998, Moore et. al. 2002). According to Moore et al. (2002) upper- or upper-middle-class origins are the reasons for both emerging social similarity and comparable outlooks (Moore et al. 2002, p. 727). For this reason, the elitist background illustrates a strong connectedness to the national elitist network that might influence the top income tax settings by German top politicians because of a social desirability bias. This means that members who know the national elite from childhood on might feel more obligated to work for the network. In consideration of the average top income tax burden, it can be assumed that governmental members with an elitist social background decide in favour of their network. In other words, governmental members who belong to the elite network have an incentive to lower the income tax burden for themselves and their network. Thus, the first hypothesis will test whether a higher percentage of cabinet members with an elitist social background have a decreasing impact on the German average top income tax rate.

*H1: The higher the percentage of German Federal Government's members with an elitist social background, the lower is the average top income tax burden.*

Following the model of Mattozzi and Merlo (2008), the career patterns of politicians can be categorised into two types: career politicians and political careers. Individuals who are professional politicians until their retirement are defined as career politicians. The opposite is a political career by individuals who leave the political sector and start working in business corporations or somewhere else before their retirement. In this paper, the focus is on political careers because of the assumption that politicians who actually occupy a leading position in a Federal ministry might plan to change from the political sector (back) into business corporations to earn higher wages than before or during their political career. Due to the high (inter)national media attention for Federal ministers and their resulting better career opportunities, this assumption can also be applied to those politicians that worked in business corporations or registered organizations before their appointment in the German Federal Government. In the following, there will be a distinction between the general ability to earn above-average wages by final academic degrees and the more specialised condition of a previous leadership position in a non-profit organisation or a German business corporation. Former appointments in the latter can increase the probability of a reappointment as a manager or director after finishing the career in the Federal Government compared to disconnected top politicians. Hence, the probability to improve the individual career and therefore establish oneself within the German elite network might be facilitated by an existing connectedness to national business corporations and other important organisations.

From this perspective on political careers, ministers of the Federal Government also have an incentive to maximise their income after taxes by reducing their (future) income tax burden and consequently lower the average top income tax burden. Thus, the reduction of the top income tax rate is kind of a foresighted measure. This means that top politicians vote for a decrease of the top income tax burden in order to ensure that they will minimise their future income tax burden in case that they will reach the highest income tax class by a reappointment in the board of a business corporation for example. Due to the social desirability bias, they also have an incentive to decrease the top income tax burden regarding the entire German elitist network. Thus, the next hypothesis will test whether the percentage of university graduates and the average top income tax burden correlate with each other. Moreover, it will be analysed whether a higher percentage of university graduates decreases the average top income tax burden.



*H2: The higher the percentage of university graduates, the lower is the German average top income tax burden.*

Besides, the more specific case of politicians who are connected with German top managers because of previous appointments in non-profit organisations or business corporations will be investigated by proposing the following three hypotheses.

*H3a: The higher the percentage of cabinet members with previous appointments as (vice) presidents of German non-profit-corporations, the lower is the German average top income tax burden.*

*H3b: The higher the percentage of cabinet members with previous appointments in executive boards of German business corporations, the lower is the German average top income tax burden.*

*H3c: The higher the percentage of cabinet members with previous appointments in supervisory boards of German business corporations, the lower is the German average top income tax burden.*

Regarding the time it takes planning a political career, the model of Mattozzi and Merlo (2008) does not comment on the individuals' age. However, Federal Government's members with a higher average age at the time of decision already passed several career levels and earned above-average wages before. Consequently and in short term, the alternative income that individuals would earn when changing an appointment will be higher for older ministers than for younger ones. Focusing on the question of this paper, there might exist an association between the average age at the time of decision and the average top income tax burden. More precisely, the last hypothesis postulates that older politicians are more likely to tend to lower the average top income tax burden than younger ones.

*H4: The higher the average age at the time of decision, the lower is the German average top income tax burden.*

With regard to the composition of the German Bundestag, the forthcoming hypothesis controls for an ideological bias of the parties. In other words, the assumption whether an increasing difference of mandates between the centre-right parties CDU and CSU and the centre-left party SPD lead to a reduction of the German average top income tax burden will be tested. This assumption bases on the fact that the power of the conservative wing increases

with a higher difference of mandates in favour of the CDU and CSU, and that this similarly determines the outcome of the vote following the parties' goals for their members and voters.

*H5: The higher the difference between CDU & CSU mandates and those of the SPD in the German Parliament, the lower is the German average top income tax burden.*

### **3. Sample Composition and Descriptive Statistics**

This chapter explains the collection of data and furthermore shows the descriptive statistics. While the first section describes the dependent variable's characteristics of this analysis in terms of the average top income tax burden, the following sections define the explanatory variables. At the end of the chapter an overview of the descriptive statistics will be presented by table 1.

#### **3.1. Dependent Variable**

The German average top income tax burden is the dependent variable on which the following analysis will focus. Thus, the sample on which this study is based consists of 54 years and analyses the average top income tax burden from 1958 to 2011. Unfortunately, no comparable data is available for the years from 1949 to 1957 so that this investigation is limited to the above-mentioned period.

First, the average top income tax burden needs to be separated from the average top income tax rate by explaining its calculation. While the average top income tax rate quantifies average tax burden for the highest income bracket without taking into consideration any concrete assessment basis, the top average income tax burden is calculated for a certain taxable base. In detail, the calculation of the average top income tax burden started by collecting the limitations of the highest income tax brackets from 1958 to 2011. Building on that, an assessment basis of 65,000 Euro was set for the first investigated year. Hence, a taxable base of 276,687.15 Euro was calculated for 2011. Afterwards, all assessment bases for the following years were inflated by the particular German CPI (consumer price index) that was collected for each year by using the database Inflation.eu (see Inflation.eu 2013). In a further step, the annual average top income tax burden has been calculated for single persons by using the income tax calculator provided by the German Ministry of Finance (see Germany Ministry of Finance 2012). The calculation of the average top income tax burden bases on the

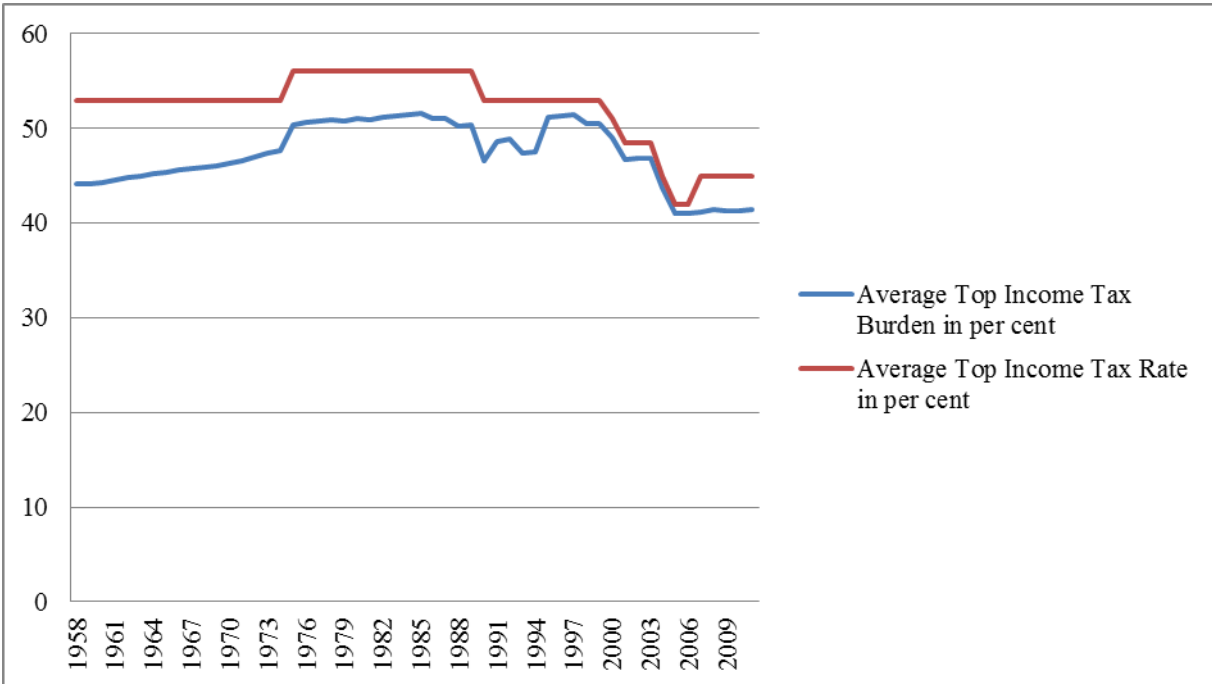
tariff function of the highest income tax bracket that is contained in Section 32a of the German Income Tax Act (see German Income Tax Act (EStG) 2013). For the analysed time period, this tariff function changed steadily but remained in this form:

$$\text{Average top income tax burden (in Euro)} = \text{Average top income tax rate (in per cent)} * \text{Assessment basis (in Euro)} - \text{constant term (in Euro)}$$

Finally, the percentage of the income tax burden is calculated by dividing the amount of the average top income tax burden (in Euro) through the assessment basis and adding this interim result to the corresponding solidarity surcharge (in per cent) (see Germany Ministry of Finance 2012). An overview of the data used, as well as of the interim results is given in Table A1 in the appendix.

The different developments of the German average top income tax rates as well as of the average top income tax burden (for the investigated assessment bases) are illustrated in Figure 1.

**Figure 1: Development of the German Average Top Income Tax Burden and Average Top Income Tax Rate from 1958 to 2011**



Obviously, the initial average top income tax burden of 44.11 per cent slightly increased up to 47.72 per cent from 1958 to 1974. One year later this amount raised comparably fast to 50.39 per cent and did not change significantly until 1989. In 1990 and after the fall of the Berlin wall, the top income tax burden fell down drastically by 3.78 points. The development between 1991 and 1995 was comparably volatile. From 1996 to 2005 the German average top income tax burden continuously fell from 51.28 per cent to 42 per cent in 2005. Until 2011, this value slightly decreased down to 41.36 per cent.

This chart points out the clear benefit of measuring the income tax burden of German top earners by using the above-mentioned indicator. Noticeably, the setting of the average top income tax rate changed less over time than the indicator of the average income tax burden that includes more information like the solidarity surcharge. So the average top income tax burden seems to be a more informative indicator than the average tax rate of the highest income tax class.

As a result, the descriptive statistics indicate a mean of 47.32 per cent with a minimum of 40.97 per cent and a maximum of 51.55 per cent.

### **3.2. Explanatory Variables**

In this study, the changes of the German average top income tax burden will be explained by the composition of the German Federal Government, especially with regard to the connectedness within the elite network and with top managers of German non-profit organisations, as well as with business corporations. In addition, the varying composition of parties within the German Parliament (German Bundestag) is considered, too.

The German Federal Government consists of a Federal chancellor, his or her deputy, and several ministers. In the following it is assumed that each Federal Government decides whether or not to modify the taxation of German top earners for the forthcoming year at the beginning of each year. Consequently, this period is considered as a time delay between the decision of the government and its inception. For example, the Federal Government that ruled on 1<sup>st</sup> January 1957 decided on changes in the tax setting for German top earners. By assumption, this decision will be realized in 1958. So the available sample of explanatory variables consists of the 54 Federal Governments that ruled at January 1<sup>st</sup> each year from 1957 to 2010. The sample contains 188 individuals whose personal data were read up on the database Munzinger Archive (2012) and the official homepages of the ministries. The

personal data include the age at the time of decision, the (elitist) social background, the highest academic degree, and previous leadership positions within German non-profit organisations or business corporations. All explanatory variables follow a team-based perspective to show how the composition of the investigated government and its variation influences the setting of the average top income tax burden. Hence, the following variables are measured by the percentage or mean values.

First, the average age at the time of decision of each analysed Federal Government is illustrated by the calculated mean of the individuals' ages in the focused year. While the mean accounts for 54.63 years, the lowest average age at the time of decision was 50.88 years and the maximum 59.93 years. While the maximum and minimum average age at the time of decision ranges between 50.88 and 59.93 years, the mean accounts for 54.63.

Second, an elitist social background of cabinet members is measured by the occupation of their fathers. Due to the fact that the parents of the analysed politicians lived in a predominantly patriarchal culture, where men earned a living while their wives were housewives or solely worked part-time, this approach is justified (see Duncker 2003, pp. 800 et seq. and 881 et seq.). The classification of jobs and the categorisation into an elitist or non-elitist social background follows Hartmann (2002). Every occupation was attributed to one of eleven ordinal segments. In a further step, these eleven categories were pooled into an elitist and a non-elitist social class. According to Hartmann, the elitist class comprises all occupations from business people, academic freelancers, upper officers, or landholders to upper appointees, chief executives, and upper entrepreneurs (see Hartmann, 2002, p. 33). In this sample, the average percentage of ministers with an elitist background is 52.38 per cent. The corresponding minimum is 30.77 per cent while the maximum is 66.67 per cent.

Third, the percentage of university graduates is calculated by the number of government members that have finished an academic degree before their appointment in the Federal Government. Received grades while being in the government are not considered in this sample. The descriptive statistics show that the average percentage of university graduates is about 38.19 per cent. Interestingly, the lowest percentage accounts for 10.53 per cent while the highest one is on a much higher level of 78.57 per cent.

Furthermore, previous leading positions are considered by looking at the appointments as a leader of a German non-profit organisation or in an executive or supervisory board of a

national business corporation. Focusing on leading positions in non-profit organisations or foundations (which are independent of any political party), a former presidency or deputy function is considered in this analysis. Moreover, appointments in the executive board of a German business corporation as a chairman (“Vorstandsvorsitzender”, comparable to CEO), deputy, or a regular member are considered in this dataset. Besides, previous chairmen of supervisory boards, deputies, as well as regular members of this corporate body are included. An examination of the descriptive statistics shows that on average 26.35 per cent of the analysed individuals worked as a (vice) president of a non-partisan non-profit organisation or foundation before they joined the Federal Government. The lowest value accounts for 9.52 per cent while the highest one is 50.00 per cent. Focusing on executive board members, an average percentage of only 6.06 per cent is found for this sample. This mean corresponds to a minimum of null per cent and a maximum of 18.75 per cent. The descriptive statistics for previous appointments in the supervisory board of a German business corporation reveal an average percentage of former supervisory board members of 18.54 per cent. This mean corresponds to a minimum of null per cent and a maximum of 37.50 per cent.

Looking at the number of mandates that each party holds in the current German Bundestag, the results of the past elections were collected from the database Wahlrecht.de (see Wahlrecht.de 2013). The difference of mandates between the centre-right as well as centre-left parties was calculated by subtracting the number of mandates of the SPD from the sum of mandates of the CDU and CSU. As a result, the minimum value is -5.80 % which means a majority of mandates of the SPD of 5.8 per cent. By contrast, the maximum value of this item and hence the maximum difference in favour of the CDU and CSU is 18.40 per cent. The average difference accounts for 5.68 per cent.

The composition of the German Bundestag as well as the power of each party can be depicted by the voter participation of the previous election. With the help of the voter participation it is possible to measure in how far the German citizens feel involved respectively feel capable to participate in the direct democracy (see Bowler and Donovan 2002). Thus, implementing the voter participation in this model controls for the voters’ preferences and their support of the current composition of the German Bundestag. In detail, the voter participation of each election was collected by using the database Wahlrecht.de (see Wahlrecht.de 2013). The minimum voter participation of this sample is 70.80 per cent while the maximum value

accounts for 91.10 per cent. Corresponding to these values, the average voter participation is 84.39 per cent.

So, the following analysis encompasses dummy variables that e.g. control for a new composition of the Federal Government and German Bundestag because of the beginning of a new legislative period in the last year. In sum, 15 new compositions that result from elections or an extraordinary shuffle of the government are indicated. This study controls for an ideological bias by the diversity of parties and therefore its members. So, the following analysis encompasses dummy variables that illustrate which party leads the particular government. While the centre-right Christian Democratic Parties (CDU and CSU) lead 50 per cent of the investigated 54 years of government, only 20 years were ruled by the centre-left Social Democratic Party (SPD). Finally, a grand coalition of both parties ruled Germany for 7 years. All presented descriptive statistics are summed up in Table 1.

**Table 1: Descriptive Statistics**

Variable	Obs.	Minimum	Maximum	Mean
Average top income tax burden	54	40.97	51.55	47.32 % [3.40]
Percentage with an elitist background	54	30.77 %	66.67 %	52.38 % [9.17]
Percentage of university graduates	54	10.53 %	78.57 %	38.19 % [18.51]
Percentage of former (vice) presidents	54	9.52 %	50.00 %	26.35 % [9.23]
Percentage of former executive board members	54	0.00 %	18.75 %	6.06 % [5.24]
Percentage of former supervisory board members	54	0.00 %	37.50 %	18.54 % [8.61]
Average age at the time of decision	54	50.88	59.93	54.63 [2.17]
Difference between CDU & CSU and SPD mandates in the German Parliament	54	-5.80 %	18.40 %	5.68 % [6.01]
Voter participation of previous election	54	70.80 %	91.10 %	84.39 % [5.41]
				<b>Frequency</b>
New legislative period started in the previous year	54			15 [27.78 %]
CDU & CSU led the Federal Government	54			27 [50.00 %]
SPD led the Federal Government	54			20 [37.04 %]
Grand coalition (CDU, CSU & SPD)	54			7 [12.96 %]

*Notes: In the first part of the table, the values in brackets illustrate the corresponding standard deviations of the metric items. Conversely, the values in brackets refer to the percentage of the analysed sample for all nominal variables.*

#### 4. Empirical Results

In this chapter, the hypotheses are tested by running separate bivariate Ordinary Least Squares-regression models as well as two multivariate models that tests for the combined effect of all independent variables on the average top income tax burden. The bivariate as well as the two multivariate models differentiate in so far as one (type of) model includes the entire investigation period from 1958 to 2011 and therefore all types of governments. However, the other (type of) model solely analyses governments that exclude grand coalitions of the CDU,



CSU, and SPD to clarify if the ideological bias of the leading party changes the results of the total model.

The correlations between the explanatory variables and the average top income tax burden are tested by using bivariate OLS-regression models. Due to the fact that a directional correlation is of interest, the choice of this method was made because the results of the Kolmogorov-Smirnov-test showed that the dependent variable is not normally distributed and the application of correlation coefficients solely reveals results on non-directional associations. Furthermore, non-linear relationships between the average top income tax burden and the tested independent items are indicated so that calculating its logarithm leads to the most efficient results for the investigated relationships.

Table 2 presents the standardised beta coefficients of all bivariate OLS-regressions for each tested explanatory item. While the first row presents the results for the total model for each item, each second row shows the results for the model excluding the seven years led by grand coalitions. Hence, the direction of impact on the average top income tax burden and its strength are reflected here.

**Table 2: Standardised Beta Coefficients of the Bivariate OLS-Regression Models**

<b>Variable</b>	<b><i>Bivariate OLS- regression with LN (average top income tax burden)</i></b>	<b>Significance</b>	<b>N</b>	<b>Adjusted R<sup>2</sup></b>
Percentage with an elitist background	.339*	.012	54	.098
	.240	.105	47	.036
Percentage of university graduates	-.456**	.001	54	.193
	-.505**	.000	47	.238
Percentage of former (vice) presidents	.131	.344	54	-.002
	.083	.579	47	-.015
Percentage of former executive board members	.077	.582	54	-.013
	-.130	.384	47	-.005
Percentage of former supervisory board members	-.069	.619	54	-.014
	.451**	.001	47	.186
Average age at the time of decision	-.583**	.000	54	.327
	-.560**	.000	47	.298
Difference between CDU & CSU and SPD mandates in the German Parliament	-.109	.432	54	-.007
	-.194	.190	47	.016
Voter participation of previous election	.458**	.001	54	.194
	.317*	.030	47	.080

Notes: \* and \*\* denote significance at the 5 per cent and 1 per cent level respectively.

Obviously, a higher percentage of university graduates or average age at the time of decision significantly lower the average top income tax burden in both types of the model. These medium correlations are significant on the one per cent level. Contrary to this, the results for the total model reveal that a higher percentage of governmental members with an elitist background as well as an increasing voter participation of the previous election significantly raise the average top income tax burden. While a mean strength can be observed here as well, the significance is on the five per cent level for the percentage with an elitist background and on the one per cent level for the average age of decision. Moreover, the percentage of former supervisory board members as well as the voter participation in the previous election raises the tax burden in the model excluding grand coalitions. The percentage of former supervisory board members' impact shows a medium strength on the one per cent level. As opposed to the total model, the impact of the voter participation in the model excluding grand coalitions only

has a weak strength that is significant on the five per cent level. Admittedly, no further significant associations are identified here.

Consequently, the second and fourth hypotheses that a higher percentage of university graduates in the Federal Government or average age at decision significantly decrease the average top income tax burden are supported in both models. Due to insignificant or significant opposed influences, the hypotheses one, three (including all sub-hypotheses) and five have to be rejected.

In the following step, all hypotheses will be tested by the estimation of two OLS-regression models that include all explanatory variables. Nevertheless, one exception is given by the model that excludes grand coalitions. Due to the fact that the reference category of the dummy variable *CDU & CSU led the Federal Government* loses one of its references (that of grand coalitions) in this model, the dummy variable that controls for a Federal Governments led by the SPD is left out here. An overview of the results is presented in Table 3.

**Table 3: Results of the Multivariate OLS-Regression**

Variable	<i>Dependent variable: LN (average top income tax burden)</i>	
	<i>All governments</i>	<i>Without coalitions</i>
Constant	3.793*** [.235]	3.904*** [.236]
Percentage with an elitist background	.001 [.001]	.000 [.001]
Percentage of university graduates	-8.365E-005** [.001]	.000 [.001]
Percentage of former (vice) presidents of NPOs	.002 <sup>#</sup> [.001]	.002 [.001]
Percentage of former executive board members	-.003* [.001]	-.003* [.001]
Percentage of former supervisory board members	.002* [.001]	.003** [.001]
Average age at the time of decision	-.014** [.004]	-.013** [.014]
Difference between CDU & CSU and SPD mandates in the German Parliament	-.003* [.001]	-.004* [.002]
Voter participation of previous election	.008** [.002]	.007** [.002]
Dummy CDU & CSU led the Federal Government	.095** [.024]	.013 [.025]
Dummy SPD led the Federal Government	.088** [.031]	
Dummy New legislative period started in the previous year	.017 [.013]	.013 [.013]
Significance	.000	.000
Observations	54	47
Adjusted R <sup>2</sup>	.693	.635

Notes: #, \*, \*\* and \*\*\* denote significance at the 10 per cent, 5 per cent, 1 per cent and 1 per mill level respectively.

First of all, there is no indication for a significant influence of the percentage of politicians with an elitist background on the setting of the average top income tax burden in both models. Likewise in the bivariate regression model, the first hypothesis has to be rejected here, too.

However, the outcome shows that a higher percentage of university graduates significantly lowers the average top income tax burden in the whole model. This result is significant on the one per cent level so that the second hypothesis that a higher percentage of university graduates leads to a decrease of the average top income tax rate also is supported here. Noticeably, this effect cannot be confirmed by the OLS-regression that excludes grand coalitions.

Surprisingly, the results reveal that a higher percentage of former presidents or deputies of a non-profit-organisation or foundation raises the average income tax burden for German top earners with a weak significance of ten per cent. Nevertheless, this impact is not supported by the model without grand coalitions. Therefore, hypothesis 3a is not supported for both models.

Conversely, significant tax lowering influences are identified for the analysed positions in executive boards in both models. In other words, a higher percentage of former CEOs or regular members of an executive board decreases the average top income tax burden on a level of significance of five per cent. Thus, hypothesis 3b is confirmed for both multivariate models, too.

Interestingly, the significant increasing impact of the percentage of former supervisory boards' members that was indicated in the bivariate OLS-regression model is supported for the multivariate studies. In these models, the influence of this item is still significantly positive on the five and one per cent level. So, hypothesis 3c, that former appointments in supervisory boards decrease the average top income tax rates, has to be rejected entirely.

Nevertheless, as the results of the bivariate OLS-regressions already indicated the average age at time of decision significantly decreases the setting of the average top income tax burden here too. Therefore, hypothesis 4 is confirmed for both multivariate regression models.

Along the same lines, hypothesis 5 is supported which postulates that the higher the difference of mandates of CDU and CSU as well as the SPD in the German Parliament, the lower the average top income tax burden. This means that the assumed ideological bias that a

majority of CDU and CSU members in the German Bundestag leads to a reduction of the average income tax burden of German top earners, is significantly confirmed for each model.

Interestingly, the voter participation of the last election has a raising impact on the setting of the average top income tax burden. This effect is significant on the one per cent level in both models.

Furthermore, the dummies that control for the leadership of the Federal Government by the CDU and CSU or SPD both have a significant increasing influence on the average income tax burden, if all governments are included in the multivariate model. Contradictory, no significant impact of the dummy variable *CDU & CSU led the Federal Government* can be found in the regression model without grand coalitions.

Finally, the dummy variable that controlled for new compositions of the Federal Government because of the beginning of a new legislative period in the previous year (after an election or an extraordinary shuffle of the government) has no significant impact on the investigated dependent item in any model.

## **5. Conclusions**

To the best of the author's knowledge, this article is the very first that investigates the influence of the Federal Government's composition in terms of socio-demographic characteristics, education, and economic connectedness on the setting of the German average top income tax burden. Founded on sociological theory and the economic model of Mattozzi and Merlo (2008), this paper obtains empirical results regarding the German top politicians' social backgrounds and career paths that might indicate motivations and incentives in order to decrease the national average top income tax burden and thus lower their own (future) income tax burden as well as those of network partners.

Empirical results confirm a significantly decreasing impact of the average age at the time of decision on the average top income tax burden in every investigated model. It follows that this association does not depend on the ideological bias of a government. Moreover, a higher percentage of government members with an academic degree has a significant lowering impact in both bivariate regression models, but solely in the multivariate model including all governments. In other words, the percentage of university graduates does not affect the setting of the average top income tax rate when grand coalitions are not considered within the

analysis. Furthermore, a significantly decreasing impact is found for previous leadership appointments in executive boards of German private business corporations. While this effect is not significant in any of the bivariate regressions, it is significant on the five per cent level in all multivariate models. Surprisingly, previous appointments in non-partisan non-profit-organisations or foundations as well as in a supervisory board of a German business corporation raise the average top income tax burden. While the influence of a higher percentage of members with a former (vice) presidency in non-profit-organisations is weakly significant on the ten per cent level in the multivariate regression model for all governments, it is admittedly not significant in the all bivariate and the multivariate model excluding grand coalitions. Contradictory, the percentage of former supervisory board members correlates significantly positive with the dependent variable in the bivariate model excluding grand coalitions as well as both multivariate models.

The results reveal, in addition, that there exists an ideological bias for German Parliaments where the CDU and CSU have more mandates than the SPD. Ultimately, a significantly negative correlation is identified between the difference of the parties' mandates and the average top income tax burden in each multivariate analysis even though, no significant association is indicated by the bivariate regressions. The composition of the German Bundestag as well as the power of each party can be depicted by the voter participation of the previous election. In this study, higher voter participation leads to a raising average top income tax burden. This effect is robust in all investigated regression models and significant on the five to one per cent level. Admittedly, the interpretation of the voter participation in this model should be different. One conclusion of this result could be that the pressure on the ruling government increases similarly with the raising of the voter participation. In other words, a raising voter participation might indicate a higher attention and sensitivity of the citizens in the future. Consequently, German top politicians have an incentive to avoid unpopular changes in tax law like reducing the average top income tax burden of the national riches. In conclusion, this result might indicate that a higher voter participation could lead the members of the German Bundestag to vote for a popular solution in terms of raising the average top income tax burden.

*“You see, the rich are different from you and me: they have more influence. It’s partly a matter of campaign contributions, but it’s also a matter of social pressure, since politicians spend a lot of time hanging out with the wealthy”* (Krugman 2010). Finally, the outcome of

this study shows that the Federal Governments' decisions as well as those of the German Bundestag about the setting of the average top income tax burden are not only based on macroeconomic data and expertise, but also on the composition of these organs regarding social background, previous career paths, and ideological bias. Nevertheless, it is true that these results solely reveal association but no causality between the investigated items.

Of course the results give an indication of possible improvements, for example by adding the curriculums vitae of German Parliament's members as well as the members of the German Bundesrat to improve the illustration of the endogenous decision process. In addition and according to Romer and Romer (2010), the implementation of macroeconomic data could control for exogenous factors and their effect on the setting of the average top income tax burden. Further research might consider refined variables like the real income tax burden of German top earners, the effective taxation, or beyond that the taxation of capital assets. Considering the simultaneous development of international top income tax rates might illustrate the competition of the German tax system and the risk of relocation of top earners. Finally, an international comparison of this association could clarify in how far these findings are generalizable or limited in their informative value.

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## Appendix

### Appendix 1: Calculation of the Average Top Income Tax Burden

Year	CPI Inflation Germany	Nominal Assessment Basis	Average Top Income Tax Burden (for single persons)
1958	2.14 %	65,000.00 €	44.11 %
1959	0.90 %	65,585.00 €	44.18 %
1960	1.54 %	66,595.01 €	44.32 %
1961	2.29 %	68,120.03 €	44.52 %
1962	2.85 %	70,061.46 €	44.75 %
1963	2.97 %	72,142.28 €	44.99 %
1964	2.34 %	73,830.41 €	45.17 %
1965	3.24 %	76,222.52 €	45.42 %
1966	3.54 %	78,920.79 €	45.68 %
1967	1.80 %	80,341.37 €	45.80 %
1968	1.47 %	81,522.39 €	45.92 %
1969	1.91 %	83,079.46 €	46.05 %
1970	3.45 %	85,945.70 €	46.28 %
1971	5.24 %	90,449.26 €	46.62 %
1972	5.48 %	95,405.88 €	46.94 %
1973	7.03 %	102,112.91 €	47.34 %
1974	6.99 %	109,250.60 €	47.72 %
1975	5.91 %	115,707.31 €	50.39 %
1976	4.25 %	120,624.88 €	50.63 %
1977	3.74 %	125,136.25 €	50.82 %
1978	2.72 %	128,539.95 €	50.93 %
1979	4.04 %	133,732.97 €	50.78 %
1980	5.44 %	141,008.04 €	51.05 %
1981	6.34 %	149,947.95 €	50.93 %
1982	5.25 %	157,820.22 €	51.19 %
1983	3.30 %	163,028.28 €	51.34 %
1984	2.41 %	166,957.27 €	51.46 %
1985	2.07 %	170,413.28 €	51.55 %
1986	-0.13 %	170,191.74 €	51.06 %
1987	0.25 %	170,617.22 €	51.07 %
1988	1.27 %	172,784.06 €	50.21 %
1989	2.78 %	177,587.46 €	50.37 %

1990	2.70 %	182,382.32 €	46.59 %
1991	4.04 %	189,750.57 €	48.60 %
1992	5.09 %	199,408.87 €	48.91 %
1993	4.44 %	208,262.62 €	47.39 %
1994	2.72 %	213,927.37 €	47.54 %
1995	1.72 %	217,606.92 €	51.20 %
1996	1.45 %	220,762.22 €	51.28 %
1997	1.91 %	224,978.78 €	51.40 %
1998	0.94 %	227,093.58 €	50.49 %
1999	0.57 %	228,388.01 €	50.51 %
2000	1.45 %	231,699.64 €	49.00 %
2001	1.98 %	236,287.29 €	46.77 %
2002	1.40 %	239,595.31 €	46.82 %
2003	1.04 %	242,087.10 €	46.86 %
2004	1.67 %	246,129.96 €	43.69 %
2005	1.56 %	249,969.58 €	40.97 %
2006	1.58 %	253,919.10 €	41.02 %
2007	2.29 %	259,733.85 €	41.22 %
2008	2.63 %	266,564.85 €	41.38 %
2009	0.32 %	267,417.86 €	41.33 %
2010	1.14 %	270,466.42 €	41.36 %
2011	2.30 %	276,687.15 €	41.49 %

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