THE HIGHER THE BETTER?

A Comparative Analysis of Sociodemographic Characteristics and Human Capital of German Federal Government Members

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ABSTRACT

Are the highest politicians better qualified than their peers? In this article, we analyze differences between chancellors, vice chancellors, and ministers of the inner or residual cabinets of the German federal governments between 1949 and 2009 with respect to their social backgrounds and educational, economic, as well as political human capital. Different statistical methods reveal no clear primacy of chancellors or vice chancellors over other members of government. Interestingly, inner cabinets have higher qualifications than residual cabinets, as well as partly chancellors and vice chancellors.

Introduction

*W*hile the sociodemographic characteristics and human capital of top business managers are widely discussed, the study of top politicians' social background, qualifications, and career is comparably neglected. More general investigations include Mattei Dogan's and John Higely's international overview on the relationship between the origins of governments and crises through the consideration of elites and their characteristics.[1] Another study

by Axel Dreher and his co-authors investigated the impact of political leaders' education and profession on reforms. Estimating these influences for a sample containing seventy-two countries and 500 political leaders, the authors found that the impact of education on the success of reforms is not robust and depends on the chosen method of estimation.[2]

Much of the relevant research has focused on specific cases. Investigations of the stratification patterns and changing composition of the British political elite between 1886 and 1916 were presented by Wilhelm Guttsman[3] and have been followed up for that country by R.W. Johnson for 1955-1972 and Martin Burch and Michael Moran for the 1943 to 1983 period.[4] For the U.S. case, Michael Hartmann analyzed the impact of the sociodemographic background, educational characteristics, and social connectedness of the inner cabinet members on top income tax rates and income distribution between 1945 and 2009. His results reveal that from 1945 to 1980 almost two thirds of the top politicians analyzed stemmed from a non-elitist social background. At the same time, he observed that the income distribution was balanced and the maximum income tax rates were comparatively high. By contrast, nearly 70 percent of the investigated politicians had an elitist background between 1981 and 2009. Compared to the first period, the maximum income tax rates were lower and the income gap increased.[5]

For the German case, Lewis Edinger provided early empirical evidence for a change in career patterns in terms of shifting social background, as well as the education of German politicians between the totalitarian Nazi regime and the democratic Federal Republic of Germany (1936 to 1956).[6] More recently, Katrin Scharfenkamp has investigated whether there is a connection between a minister's probability of reoccupation and his or her sociodemographic characteristics and career paths. This study pointed out that the individual's age, years of membership in the party or the German Bundestag, and previous leadership of nonpartisan nonprofit organizations or business corporations significantly increased the probability of reoccupation. Moreover, the results revealed that the comparably prominent position of the vice chancellor also increases the chance to be reappointed.[7]

These studies assumed that the social background, education, and professional careers of top politicians impact important policies and political outcomes. Thus far, however, there are no studies that investigate whether the highest and most powerful positions are occupied by better or differently qualified individuals than the rest of the cabinet. This article contributes new research to this on-going discussion by delving into how distinguished the head of the government, his or her deputy, and the ministers of the inner cabinet (consisting of the ministers of foreign affairs, interior, economics,

finance, justice, and defense) are from their colleagues in the residual cabinet. This comparative analysis considers items like social background, level of (academic) education achieved, as well as economic, political, and human capital. We aim to analyze these characteristics in the members of the governments of the Federal Republic of Germany from 1949 to 2009. After some explanation of the theoretical background, hypotheses are formulated in the next section and the dataset is described. The fourth section presents the results of the comparative analyses for several characteristics of German chancellors and their ministers and section five concludes the article.

Theoretical Background, Hypotheses, and Dataset

Differences in sociodemographic characteristics are illustrated here by the percentage of women, the average age at inauguration, and the social background of fathers. Important here is the scholarship of Louise K. Davidson-Schmich, who has shown that the quotas introduced by political parties to ensure and raise female political representation had limited impact on the real gender ratios in the sixteen German states and the federal parliament.[8] We surmise that this could also be the case in the federal government. According to Hartmann, top positions in German business corporations and in politics are primarily occupied by comparatively older males with an elitist background.[9] To examine whether this relationship also holds inside the government, the following hypotheses are proposed.

H_1: The percentage of women is lower in hierarchical higher offices than in lower ones.

H_2: For higher positions in the federal government, the average age at inauguration is higher.

H_3: In higher offices of the federal government, the percentage of members with an elitist background is higher.

The key concept of human capital was originally developed by Walter Y. Oi and Gary Becker. They note that individual human capital can be categorized into different forms of general and specific human capital. General human capital consists of knowledge and skills that increase an individual's productivity in several or at least two firms or organizations. Specific or more precisely firm-specific human capital can only be used in one firm and is lost by leaving it.[10]

In this study, academic education and economic human capital are categorized as general human capital. We assume that the knowledge and skills that were taught in school or at university remain and increase individual produc-

tivity in many different occupations. Likewise, economic human capital measured by previous leading positions in German private corporations or organizations can increase an individual's productivity in several jobs. Moreover, Scharfenkamp's previous findings show that economic human capital in terms of previous leading positions in German nonprofit organizations or business corporations increases a minister's probability of reoccupation.[11]

By contrast, political human capital in terms of membership in the particular party or the German Bundestag illustrates a type of industry-specific human capital. Therefore, this type of human capital can only increase an individual's productivity when it is used in politics. Consequently, the corresponding knowledge and abilities are lost when a politician is working in another industry.

If the hierarchy in the government showed corresponding differences in human capital, a chancellor would have the highest degree of human capital in the cabinet, a vice chancellor would be better qualified than the other ministers, and the members of the inner cabinet would have accumulated more human capital than those of the residual cabinet. This is expressed in the following hypotheses:

> H_4: Chancellors have a higher degree of human capital than the vice chancellors, inner and residual cabinets.
> H_5: Vice chancellors have a higher degree of human capital than the inner and residual cabinets.
> H_6: Members of inner cabinets have a higher degree of human capital than those of residual cabinets.

We compiled a dataset for all seventeen federal governments (constituted after an election or major leadership change) from 1949 to 2009. We identified all cabinets, chancellors, deputies and ministers at the opening of each governing period. The sample contains 157 persons whose personal data are collected from the database contained in the Munzinger Archive and the official homepages of the ministries.[12] The personal data are classified in four different groups: sociodemographic characteristics, educational, economic, and political human capital. The following subsections will begin by describing the characteristics of each item, followed by descriptive statistics.

Sociodemographic Characteristics

This section focuses on demographic characteristics, especially the percentage of women in governmental positions, the social class of the father, and the age at inauguration.

Gender

The percentage of women in each cabinet is determined by counting the number of portfolios that have female ministers. The descriptive statistics about the distribution of gender within the cabinets from 1949 to 2009 are presented in Table 1.

Table 1: Descriptive Statistics of the Percentage of Women in Governmental Positions

Observations	Missing	Number of Women	Percentage of Women	Number of Men	Percentage of Men
299	0	38	12.71	261	87.29

The descriptive statistics for the entire sample show that the majority of ministries (87.29 percent of 299 observations) of the German federal government have been headed by men (discussed further below). Women's participation in the federal government at large and as chancellor, vice chancellor, in the inner, and the residual cabinet is illustrated in Figure 1.

Figure 1: Percentage of Women in Governmental Positions
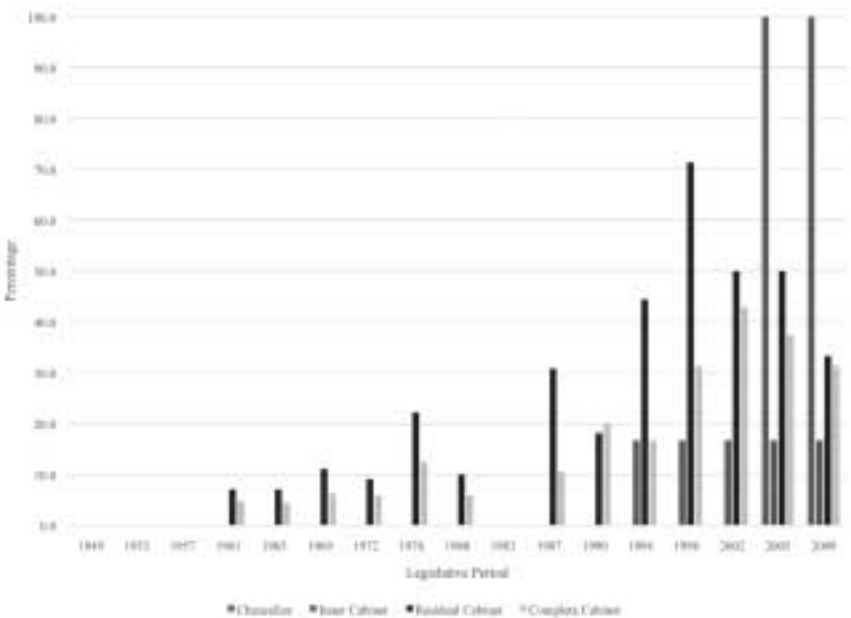
In 1961 Elisabeth Schwarzhaupt was the first woman to work in a federal governmental position and led the Ministry of Health until 1966. Sabine

Leutheusser-Schnarrenberger was the first woman who obtained a position in the inner cabinet by heading the Ministry of Justice from 1992 to 1996 (and again 2009-2013). After 2005, Angela Merkel has been the first female chancellor in the history of Germany. Since 1961, the percentage of females in the residual cabinet rose from 7.1 percent to a maximum of 71.4 percent in 1998. Admittedly, this percentage decreased to 31.3 percent in 2009. The results also show that during the whole period from 1949 to 2009 the percentage of women in the residual cabinet exceeded the percentage in the inner cabinet. Focusing on the complete cabinet, in 1961 the proportion of women was 4.8 percent, rising to 12.5 percent in 1976. Surprisingly, the percentage of women decreased to 5.9 from 1980 to 1982 and even reached zero in 1983. The maximum percentage of women was achieved in 2002 with 42.9 percent.

Social Background

Following Arne Duncker's description of the historically patriarchal culture in Germany, social background is measured here by the occupation of each cabinet member's father. The majority of mothers stayed at home as housewives or worked part-time, while their husbands were the ones working to earn a living.[13]

The jobs are classified in eleven ordinal categories, beginning with workers, farmers, lower-level employees, middle-level employees, the small self-employed, followed by business people, academic freelancers, and higher-level military officers or landowners. Finally there are upper-level officials, chief executives, and entrepreneurs. These eleven categories can be pooled into two social classes. According to Hartmann, the first five categories from workers to the small self-employed can be pooled as the working and (lower) middle class. The second class includes all categories from business people to entrepreneurs and is called upper class.[14] Table 2 presents the frequencies of both social classes and Figure 2 illustrates the distribution of the social classes within the different cabinets.

Table 2: Frequency Table of the Social Classes of Fathers

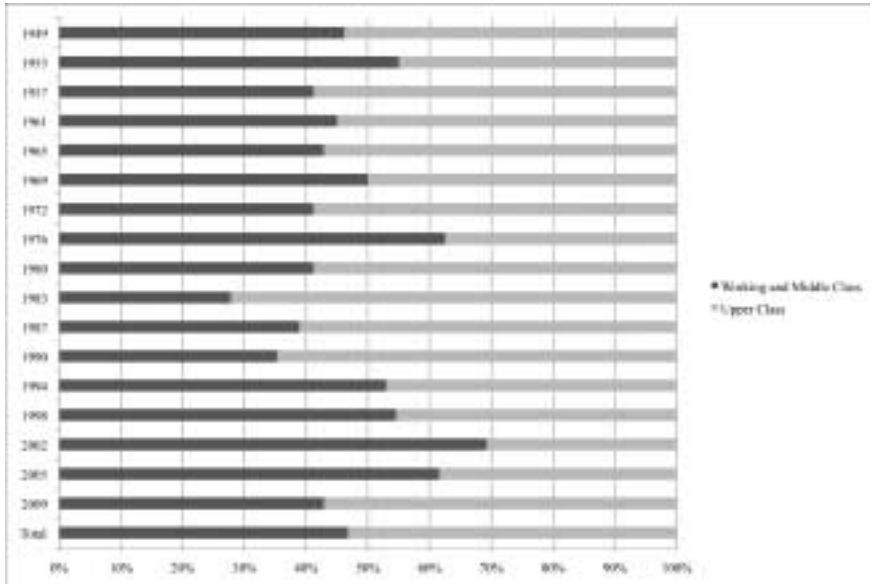| Social Classes	Observations	Percentage
Working and Middle Class	130	46.76
Upper Class	148	53.24
Total	278	100.00
Missing	21	

Figure 2: Social Classes of the Fathers 1949-2009

Figure 2 shows that the percentage of the upper class is higher than 50 percent on average. While the maximum value of approximately 70 percent is reached in 1983, the minimum value is approximately 30 percent in 2002.

Age

The age at inauguration means the age of a person at the beginning of each new cabinet. As Table 3 shows, the minimum age at inauguration in this sample is twenty-eight, while the maximum is eighty-five. The average age at inauguration is 53.24 years with a standard deviation of 7.92 years.

Table 3: Descriptive Statistics of the Age at Inauguration

Variable	Obs.	Missing	Mean	Standard Deviation	Minimum	Maximum
Age at Inauguration	299	0	53.24	7.92	28	85

Focusing on the average age at the time of inauguration and its development, we observe some change but no clear trend over time. While in 1949 the average age at inauguration is fifty-six, the minimum average age at inauguration is fifty in 1972. Conversely, the maximum average age at inauguration of fifty-seven years was reached in 2002. In 2009, the average age at inauguration was nearly fifty-two.

Human Capital

Educational Human Capital

The composition of educational human capital is defined here by the final grade achieved by each person measured on an ordinal scale. We also differentiate between high school and university graduates. In Germany, there are three types of secondary school diplomas. The lowest one is a lower certificate of secondary education (*Hauptschulabschluss*), the middle one a general certificate of secondary education (*mittlere Reife*) and the highest one the university-entrance diploma (*Abitur*). For higher education we distinguish between a normal university degree, a doctoral degree (*Promotion*), and a postdoctoral qualification (*Habilitation*)–the highest possible level. An overview of the distribution within our dataset is given in Table 4.

Table 4: Frequencies of Educational Human Capital

Educational Achievement	Observations	Percentage
Lower Certificate of Secondary Education	24	8.03
General Certificate of Secondary Education	17	5.69
University-Entrance-Diploma	17	5.69
University Degree	105	35.12
Doctoral Degree	124	41.47
Postdoctoral Qualification	12	4.01
Total	299	100.00

A large majority of government members achieved a university or even doctoral degree. A minority of approximately four percent had a postdoctoral qualification. Only 19.41 percent did not study at the university and achieved only a high school diploma.

Over time, only few fluctuations of the average degree of educational human capital are observable within the cabinets. Starting in 1949, the average of educational human capital is four from six possible points, equivalent to a university degree. This value reaches its minimum in 1969 with 3.50 points and its maximum in 1983 with 4.72 points, showing a higher percentage of governmental members with a doctoral degree. From this year on, the average degree of educational human capital falls steadily until 1998 when it reached 3.63 points. Afterwards, this value increased slightly to 3.88 points in 2009.

Economic Human Capital

The economic human capital of the cabinet members is measured by the membership or chairmanship on the executive or supervisory board of a

German business company or another incorporated, nonpolitical organization–like nonprofit organizations, registered organizations, or foundations–before the appointment to the federal government. Due to the fact that an individual can maintain more than one membership or chairmanship before his or her appointment to the cabinet, we built a point system that weighs the higher importance of a chairmanship in contrast to a membership and allows the aggregation of all exercised mandates by each person. Table 5 shows how the points have been allocated and Table 6 presents the resulting empirical distribution.

Table 5: Points for Economic Human Capital

Points	Characteristic Value
0	No Membership or Chairmanship on a Board
1	Membership on an Executive or Supervisory Board
2	Deputy Chairmanship of an Executive or Supervisory Board
3	Chairmanship of an Executive or Supervisory Board

Table 6: Frequency Table of Economic Human Capital

Economic Human Capital in Points	Observations	Percentage
0	182	60.87
1	20	6.69
2	6	2.01
3	56	18.73
4	15	5.02
5	5	1.67
6	6	2.01
7	6	2.01
8	1	0.33
9	1	0.33
11	1	0.33
Total	299	100.00

More than 60 percent of the investigated politicians held no board positions before entering into the federal government. Nearly seven percent achieved one point while nearly 19 percent of the sample reached three points. Eight to eleven points were achieved only once each. The average level of economic human capital in each cabinet shows a volatile change over time between 1949 and 2009. With an average starting value of 1.21 points in 1949 the average degree of economic human capital rose steadily until 1965 to a maximum value of 1.91 points. In the following years, this value decreased dramatically from 1.63 points in 1969 to 0.88 points in 1972 and 0.76 points in 1980. By contrast, a slight increase can be observed until 1987 with 1.74 points. Finally, the average degree of economic human capital fell to 1.31 points in both 2005 and 2009.

Political Human Capital

In this study, the political human capital of the cabinet members is defined by the years of membership in their particular parties or in the German federal parliament. Table 7 illustrates the descriptive statistics of both variables.

Table 7: Descriptive Statistics of the Political Human Capital

Variable	Obs.	Missing	Mean	Standard Deviation	Minimum	Maximum
Years of Party Membership	298	1	21.55	11.46	0	48
Years of Membership in Parliament	299	0	10.21	8.24	0	48

The average duration of party membership is 21.55 years in the current sample. By contrast, the average duration of membership in the German parliament is 10.21 years. Over time, both variables show different developments concerning their average value per government. First, the years of membership show a general increasing trend within the investigated period. In 1949 the mean of the government was 3.36 years because the parties in the government were newly founded. It rose to 30.26 years in 1987. Then the average duration of party membership fell to 24.56 years on average in 1998. The maximum value of 31.13 years was reached in 2009. Second, the average years of membership in the German Bundestag started with a mean of zero years in 1949 and increased to 12.13 years in 1969. While in 1972 the mean went back to 9.53 years, this value rose again up to a maximum of sixteen years in 1987. Afterwards the average duration of membership in the German Bundestag fell steadily to six years in 1998. Finally, this value increased to 12.88 years in 2009.

Empirical Results

Differences among the featured characteristics are investigated through pairing the groups of chancellors, vice chancellors, the inner cabinet and the residual cabinet with the help of several tests. While nominal items are tested by using Fisher's exact test,[15] ordinal items will be tested by using the Mann-Whitney-U-test.[16] The t-test for independent samples[17] is used to analyze metric items.

Women in Governmental Positions

In this section, we present the results of Fisher's exact test. The results indicate whether or not the percentage of men is significantly different in hier-

archically higher ministries than in comparably lower ones. Table 8 shows the cross tabulations and corresponding exact significances.

Table 8: Cross Tabulations and Significances of Fisher's Exact Tests

| | Gender | | | Fisher's Exact Test | |
	Male	Female	Total	Exact Sig. (2-tailed)	Exact Sig. (1-tailed)
Vice Chancellor	17	0	17	.485	.242
Chancellor	15	2	17		
Total	32	2	34		
Inner Cabinet	80	5	85	.330	.330
Chancellor	15	2	17		
Total	95	7	102		
Residual Cabinet	149	31	180	.743	.432
Chancellor	15	2	17		
Total	164	33	197		
Inner Cabinet	80	5	85	.587	.394
Vice Chancellor	17	0	17		
Total	97	5	102		
Residual Cabinet	149	31	180	.080	.047
Vice Chancellor	17	0	17		
Total	166	31	197		
Inner Cabinet	80	5	85	.012	.007
Residual Cabinet	149	31	180		
Total	229	36	265		

Obviously, significant differences exist in the percentage of women for the pairwise comparisons of the groups of the residual cabinets versus vice chancellors, as well as inner cabinets versus residual cabinets. Not surprisingly, the exact significance (1-tailed) indicates that the percentage of women is significantly (at the 5 percent level) lower in the group of vice chancellors than in residual cabinets because no woman has yet been a vice chancellor. Interestingly, the percentage of women in inner cabinets is significantly lower (at the 1 percent level) than the percentage in residual cabinets. This result corresponds to the descriptive result that women have typically led ministries in the residual cabinet since 1961, while the first woman to head a ministry of the inner cabinet was in 1992. The other results are not statistically significant.

Other Findings

In the following, the results for the pairwise comparisons regarding the other variables are presented, beginning with the results of the comparative tests for chancellors and their deputies (see Table 9).

Table 9: Results of the Mann-Whitney-U- and t-Tests for Chancellors vs. Vice Chancellors

Variable	Mean Rank (for Age and Party Membership Mean) of Chancellor	Mean Rank (for Age and Party Membership Mean) of Vice Chancellor	t-Values for H_0: Mean Chancellor = Mean Vice Chancellor	Mann-Whitney-U-Values for H_0: Mean Rank Chancellor = Mean Rank Vice Chancellor
Social Class of the Father	18.00	17.00		136.00
Age at Inauguration	63.06	55.24	2.76	
Education	20.56	14.44		92.50#
Economic Human Capital	13.00	22.00		68.00**
Party Membership	26.29	22.00	0.99	
Membership in the German Parliament	16.44	18.56	126.50	

*# and ** denote significance at the 10 percent and 1 percent levels respectively.*

The results reveal that chancellors are significantly distinguished from vice chancellors only by their educational and economic human capital. Chancellors reach a significantly higher average degree of education, but this result is only weakly significant at the 10 percent level. In addition, vice chancellors reach a higher mean rank of economic human capital than chancellors at a higher significance level of 1 percent. No significant differences can be found for the social class of the father and the age at inauguration.

Table 10 presents the results of the pairwise comparisons of chancellors with the members of the inner cabinet.

Table 10: Results of the Mann-Whitney-U- and t-Tests for Chancellors vs. Inner Cabinets

Variable	Mean Rank (for Age and Party Membership Mean) of Chancellor	Mean Rank (for Age and Party Membership Mean) of Inner Cabinet	t-Values for H_0: Mean Chancellor = Mean Inner Cabinet	Mann-Whitney-U-Values for H_0: Mean Rank Chancellor = Mean Rank Inner Cabinet
Social Class of the Father	42.03	51.82		561.50
Age at Inauguration	63.06	53.49	4.73	
Education	48.53	52.09		672.00
Economic Human Capital	31.50	55.50		382.50**
Party Membership	26.29	22.91	0.96	
Membership in the German Parliament	54.88	50.82		665.00

*** denotes significance at the 1 percent level.*

Here, significant differences between chancellors and the members of the inner cabinet are found for only one item: members of the inner cabinet

show a significantly (at the 1 percent level) higher degree of economic human capital than chancellors. This means that members of the inner cabinet more frequently led nonprofit organizations and business corporations than chancellors. Hence and surprisingly, these hierarchically lower members of the federal government show significantly more leadership expertise outside politics than the heads of government do.

The results of the comparisons of chancellors with the residual cabinet are given in Table 11.

Table 11: Results of the Mann-Whitney-U- and t-Tests for Chancellors vs. Residual Cabinets

Variable	Mean Rank (for Age and Party Membership Mean) of Chancellor	Mean Rank (for Age and Party Membership Mean) of Residual Cabinet	t-Values for H_0: Mean Chancellor = Mean Residual Cabinet	Mann-Whitney-U-Values for H_0: Mean Rank Chancellor = Mean Rank Residual Cabinet
Social Class of the Father	88.88	89.57		1358.00
Age at Inauguration	63.06	52.01	4.34***	
Education	107.06	98.24		1393.00
Economic Human Capital	65.00	102.21		952.00**
Party Membership	26.29	20.30	1.78#	
Membership in the German Parliament	116.06	97.39		1240.00

#, ** *and* *** *denote significance at the 10 percent, 1 percent and 1 per mill levels respectively.*

The comparisons of the residual cabinet with the group of the chancellors show significant differences for three of six items. Chancellors are significantly (1 per mill level) older than members of the residual cabinet. Furthermore, members of the residual cabinets show a significantly (1 percent level) higher mean rank of economic human capital than the chancellors. Finally, chancellors show on average a significantly (10 percent level) longer party membership than members of the residual cabinet.

Table 12 presents the results for the pairwise comparisons of vice chancellors with members of the inner cabinet.

These comparative tests indicate significant differences for the items regarding the social class of the father and education. Members of the inner cabinet stem from a significantly (5 percent level) more elitist social background than vice chancellors. Moreover and surprisingly, members of the inner cabinet reach a significantly (5 percent level) higher degree of education than vice chancellors.

Table 13 shows the results of the pairwise comparisons of vice chancellors and members of the residual cabinets.

Table 12: Results of the Mann-Whitney-U- and t-Tests for Vice Chancellors vs. Inner Cabinets

Variable	Mean Rank (for Age and Party Membership Mean) of Vice Chancellor	Mean Rank (for Age and Party Membership Mean) of Inner Cabinet	t-Values for H_0: Mean Vice Chancellor = Mean Inner Cabinet	Mann-Whitney-U-Values for H_0: Mean Rank Vice Chancellor = Mean Rank Inner Cabinet
Social Class of the Father	39.59	52.73		520.00*
Age at Inauguration	55.24	53.49	0.96	
Education	36.41	54.52		466.00*
Economic Human Capital	36.41	54.52		716.00
Party Membership	22.00	22.91	-0.29	
Membership in the German Parliament	59.85	49.83		580.50

* denotes significance at the 5 percent level.

Table 13: Results of the Mann-Whitney-U- and t-Tests for Vice Chancellors vs. Residual Cabinets

Variable	Mean Rank (for Age and Party Membership Mean) of Vice Chancellor	Mean Rank (for Age and Party Membership Mean) of Residual Cabinet	t-Values for H_0: Mean Vice Chancellor = Mean Residual Cabinet	Mann-Whitney-U-Values for H_0: Mean Rank Vice Chancellor = Mean Rank Residual Cabinet
Social Class of the Father	84.15	90.07		1277.50
Age at Inauguration	55.24	52.01	2.177*	
Education	82.50	100.56		1249.50
Economic Human Capital	110.56	97.91		1333.50
Party Membership	22.00	20.30	0.57	
Membership in the German Parliament	129.35	96.13		1014.00*

* denotes significance at the 5 percent level.

There are only two significant differences between vice chancellors and members of the residual cabinet. First, vice chancellors are significantly (at the 5 percent level) older at inauguration. Second, vice chancellors are significantly (at the 5 percent level) longer members of the Bundestag than members of the residual cabinets.

Finally, Table 14 shows the pairwise comparisons of members belonging to the inner cabinet versus members of the residual cabinet.

Table 14: Results of the Mann-Whitney-U- and t-Tests for Inner vs. Residual Cabinets

Variable	Mean Rank (for Age and Party Membership Mean) of Inner Cabinet	Mean Rank (for Age and Party Membership Mean) of Residual Cabinet	t-Values for H_0: Mean Inner Cabinet = Mean Residual Cabinet	Mann-Whitney-U-Values for H_0: Mean Rank Inner Cabinet = Mean Rank Residual Cabinet
Social Class of the Father	138.31	114.35		5369.00**
Age at Inauguration	53.49	52.01	1.516	
Education	145.19	127.24		6613.50#
Economic Human Capital	143.28	128.14		6776.00#
Party Membership	22.91	20.30	1.675#	
Membership in the German Parliament	141.02	129.21		6968.50

*# and ** denote significance at the 10 percent and 1 percent levels respectively.*

Members of the inner cabinet differ from members of the residual cabinet on four of the six tested items. The results reveal that members of the inner cabinet reach significantly (at the 1 percent level) higher mean ranks of the social class of the father. Furthermore, members of the residual cabinet reach lower mean ranks of education than members of the inner cabinet with a weak significance (at the 10 percent level). Moreover, members of the inner cabinet show significantly (at the 10 percent level) higher mean ranks of economic human capital than the reference group. Finally, members of the inner cabinet were on average significantly (at the 10 percent level) longer party members than members of the residual cabinets.

Conclusions

The quantitative investigations of the sociodemographic characteristics as well as the educational, economic and political human capital have interesting implications for the hypotheses formulated above.

First, concerning gender quotas, hypothesis H_1 is trivially confirmed for the pairwise comparisons of vice chancellors versus residual cabinets because there are no female vice chancellors at all. More substantially, the share of women in the inner cabinets is on average significantly lower than in residual cabinets. Second, with hypothesis H_2 we tested whether a higher hierarchical position corresponds to a higher average age at inauguration. This hypothesis is supported for the two pairwise comparisons of chancellors and residual cabinets, as well as vice chancellors and the same refer-

ence group. Third, according to hypothesis H_3 we investigated whether top politicians with higher positions stem from significantly higher status social backgrounds. Chancellors hail from a significantly better social background than vice chancellors. Surprisingly and by contrast, the group of vice chancellors reaches a significantly lower mean rank than members of the inner cabinets such that the hypothesis has to be rejected in this case. In addition, members of the inner cabinet stem from a significantly better social background than ministers of the residual cabinets.

Fourth, hypothesis H_4 that the chancellors have a higher degree of human capital than the vice chancellors as well as the inner and residual cabinets was tested by several pairwise tests. In sum, chancellors solely have a higher mean rank of education than vice chancellors. Surprisingly, the hypothesis has to be rejected for the economic human capital because all reference groups reach significantly higher degrees than the chancellors. Because chancellors do not clearly lead the subgroups of their cabinets in even one of the tested items, their superiority in human capital cannot be confirmed. Fifth, hypothesis H_5 tested whether vice chancellors show a qualitatively better degree of human capital than the inner and residual cabinets. Interestingly, vice chancellors show a significantly lower mean rank of education than members of the inner cabinet. By contrast, vice chancellors reach a significantly higher mean rank of membership in the Bundestag than members of the residual cabinets. No significantly higher degrees of human capital are found for any other item, such that this hypothesis is not supported, too. Sixth, we tested hypothesis H_6 that members of the inner cabinets have a higher degree of human capital than their colleagues from the residual cabinets. Indeed, members of the inner cabinets reach significantly higher average degrees of education as well as economic and political (duration of party membership) human capital than members of the residual cabinets.

In conclusion, the question whether team leaders, in this case chancellors, are really better qualified or educated than their team or whether hierarchical higher ministers outdo lower ones cannot be answered definitely. No clear outperformance in every type of human capital can be identified for any hierarchical level over lower ones. Inner cabinets, however, show the strongest superiority over residual cabinets, whereas chancellors outperform vice chancellors. One problem of all presented tests is that some individuals belong to different groups at different times. Some ministers of the residual cabinet were promoted to the inner cabinet or became vice chancellor and later on chancellor.

Further research could control for other factors like popularity and electability that might have an influence on the selection of potential candi-

dates. Parties do not choose candidates for the highest political offices because of their objective qualifications. As far as other factors are more important, the assumed hierarchical approach of this paper is only valid for the distinction between ministers of the inner and residual cabinets, whereas chancellors and vice chancellors do not have to be better qualified than their ministers.

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Notes

1. See Mattéi Dogan and John Higely, ed., *Elites, Crises and the Origins of Regimes* (Lanham, 1998).
2. See Axel Dreher, Michael J. Lamla, Sarah M. Lein, and Frank Somogyi, "The Impact of Political Leaders' Profession and Education on Reforms," *Journal of Comparative Economics* 37 (2009): 169-193.

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