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Socio-Demographic Characteristics and Human Capital of the German Federal Government's Members

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Socio-Demographic Characteristics and Human Capital of the German Federal Government's Members

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Abstract

Currently, background, qualification and training of German top politicians are widely discussed by scholars and media. This paper provides new insights to this discussion by analysing significant differences between the chancellors, vice chancellors as well as ministers of the inner and residual cabinets of the German federal governments between 1949 and 2009 with respect to their socio-demographic backgrounds and educational, economic and political human capital. Applications of different statistical methods reveal that the ministers of the inner cabinet have the most advantageous social background and the best education. Vice chancellors score highest with regard to their economic human capital, measured here by board seats before their current offices. The average tenure in the federal government as well as the expertise in the actual headed department is highest for chancellors.

JEL-Codes: C81, J24, L88, M53, O52

Soziodemographische Eigenschaften und Humankapital der Mitglieder der deutschen Bundesregierung

Zusammenfassung

Aktuell werden die Herkunft, Qualifikation und Bildung deutscher Spitzenpolitiker rege von Wissenschaftlern und Medien diskutiert. Dieses Papier trägt zu dieser Diskussion bei, indem signifikante Unterschiede hinsichtlich soziodemographischer Eigenschaften und (hoch)schulischen, ökonomischen sowie politischen Humankapitals zwischen den Gruppen Kanzler, Vizekanzler und Ministern des inneren und äußeren Kabinetts für alle Kabinette von 1949 bis einschließlich 2009 analysiert werden. Die Anwendung verschiedener statistischer Methoden zeigt, dass die Minister des inneren Kabinetts über den vorteilhaftesten sozialen Hintergrund und die beste Bildung verfügen. Vizekanzler erreichen den höchsten Grad an ökonomischem Humankapital, gemessen in Vorstands- und Aufsichtsratsmandaten vor dem betreffenden Regierungsamt. Die durchschnittliche Amtszeit in der Bundesregierung und im derzeitigen Amt ist bei Bundeskanzlern am längsten.

Im Internet unter:

http://www.wiwi.uni-muenster.de/io/forschen/downloads/DP-IO_02_2012.pdf

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Socio-Demographic Characteristics and Human Capital of the German Federal Government's Members

1. Introduction

We aim[*] to analyse important aspects of the members of the successive federal government in the Federal Republic of Germany. After some explanation of the institutional framework and the data used by us in the next chapter, the third chapter looks at some socio-demographic characteristics of German chancellors and their ministers. The fourth chapter analyses different aspects of human capital. Chapter five concludes.

2. Institutional Framework and Sample

The German government at the federal level consists of the chancellor, his or her deputy and several ministers. In the following we distinguish between an inner and a residual cabinet. The inner cabinet consists of the minister of foreign affairs, the minister of the interior and the minister of economics. The ministers of finance, justice and defence belong to the inner cabinet as well. All other ministers (like e.g. the minister of family affairs, senior citizens, women and youth) are categorised as the residual cabinet.

Our sample of data is collected for 21 periods of different governments (after elections or mayor changes) from 1949 to 2009. The focal point is the identification of all cabinets, its chancellors, deputies and ministers at the opening of each period. Finally, the sample contains 157 persons whose personal data are collected from the database "Munzinger Archive" and the official homepages of the ministries.

The personal data are classified in four different groups of characteristics. These groups include demographic characteristics, educational, economic and political human capital. The following sub-chapters will describe the characteristics of each item first. These descriptions are followed by some descriptive statistics. Differences of the featured characteristics are investigated between the groups of the federal chancellors, the vice chancellors, the inner cabinet and the residual Cabinet with the help of several tests. Ordinal items will be tested by

[*] This discussion paper is work in progress and we appreciate any suggestions and discussion. We presented a former version of this paper at the SASE Annual Conference 2011 in Madrid and thank the participants for many valuable suggestions. We are responsible for any remaining errors.

using the Kruskal-Wallis-Test and the Mann-Whitney-U-Test (see Black 2010, pp. 678 et seq.; Hoyle 1999, pp. 144 et seq.; Weiers 2011, pp. 521 et seq.). The t-test for independent samples is used to analyse metric items (see Levin 1998, pp. 24 et seq.). Every chapter will end with a short summary of the results of the respective empirical test.

3. Socio-Demographic Characteristics

This chapter focuses on demographic characteristics. These are illustrated by the percentage of women in governmental positions, the highest occupation of the father and the age of inauguration.

3.1 Women in Governmental Positions

The percentage of women in each cabinet is determined by counting the number of resorts that have female ministers. First of all, it should be noticed that Angela Merkel is the first female chancellor in the history of Germany since 2005. No woman has ever been chancellor or vice chancellor before her.

The first woman worked in high-level governmental positions in 1961. Elisabeth Schwarzhaupt was the first to lead the ministry of health. The percentage of females in the residual cabinet rose from 7.1 per cent 1961 to the highest percentage so far of 71.4 per cent in 1998. Afterwards, the percentage of women in the residual cabinet decreased to 31.3 per cent in 2009.

During the whole period from 1949 to 2009 the percentage of women in the residual cabinet exceeded the percentage of the inner cabinet. The first woman obtaining a position inside the inner cabinet is Sabine Leutheusser-Schnarrenberger, who headed the Ministry of Justice in 1994. The percentage stayed around 20 per cent until 2005, after which it fell to 16.7 per cent. In 2009 the percentage of women inside the inner cabinet reached its current maximum at 33.3 per cent.

Focusing on numbers of the complete cabinet, the percentage of women accounted for 4.8 per cent in 1961. The percentage rose up to 12.5 per cent in 1976. From 1980 to 1982 the percentage decreased to 5.9 per cent and even reached zero per cent in 1983. At the beginning of 1987 10.5 per cent of the then current ministers were female. The maximum percentage of

women was reached in 2002, where it accounted for 42.9 per cent. Until 2009 this value fell to 31.3 per cent.

This development is illustrated in Figure 1:

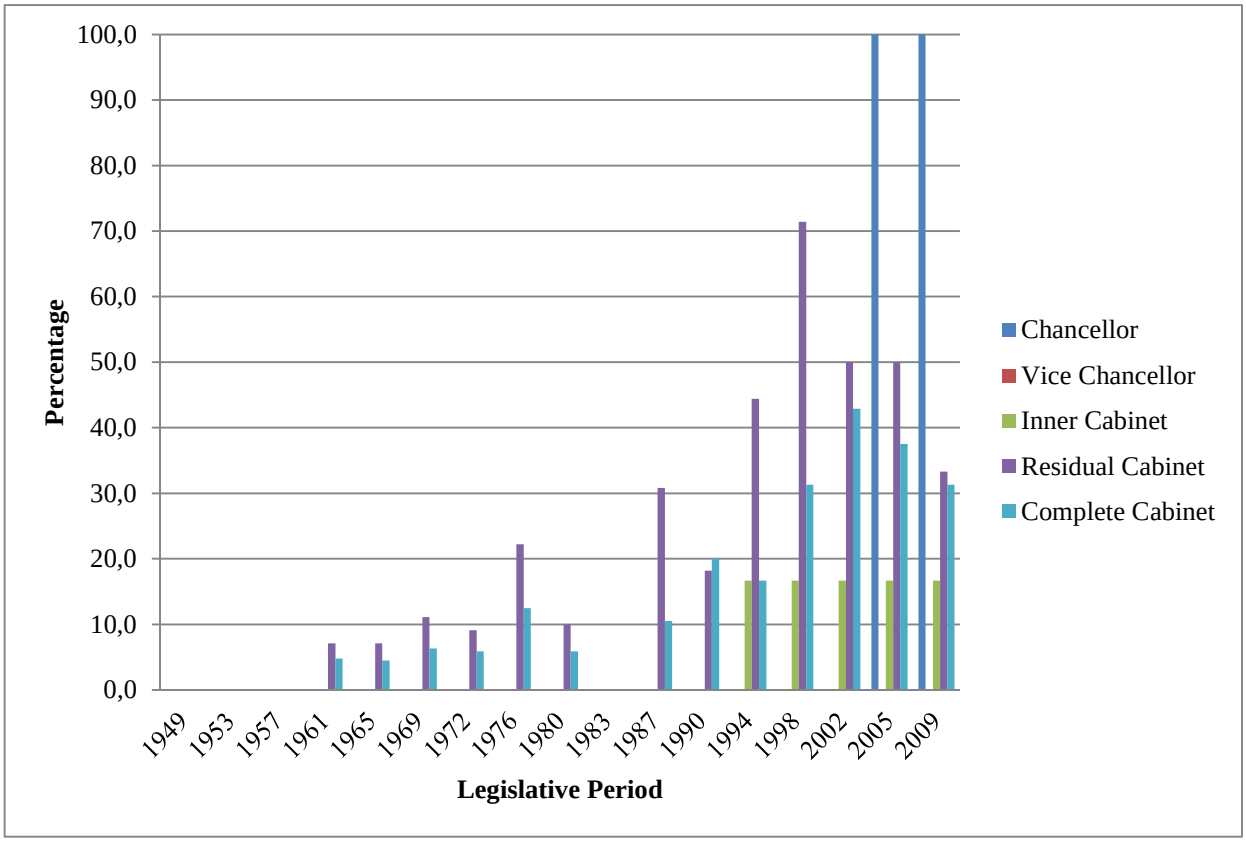

Figure 1: Percentage of Women in Governmental Positions

3.2 Highest Occupation of the Father

The social background is illustrated by the occupation of the father of each minister because the parents of the analysed individuals lived in a predominantly patriarchal culture. The majority of women was staying at home as housewives or worked part-time at most, while their husbands were the ones working to feed the whole family.

The jobs are categorised in eleven ordinal segments, beginning with workers, farmers, lower employees or appointees, middle employees or appointees. Small self-employed, business people, academic freelancers and upper officers comprise the categories five to eight. The last four occupational fields include upper officers or landholder, upper appointees, chief executives and upper entrepreneurs (see Hartmann 2002, pp. 33-34)

Figure 2 shows the distribution of the occupational fields of fathers for each governmental cabinet from 1949 to 2009.

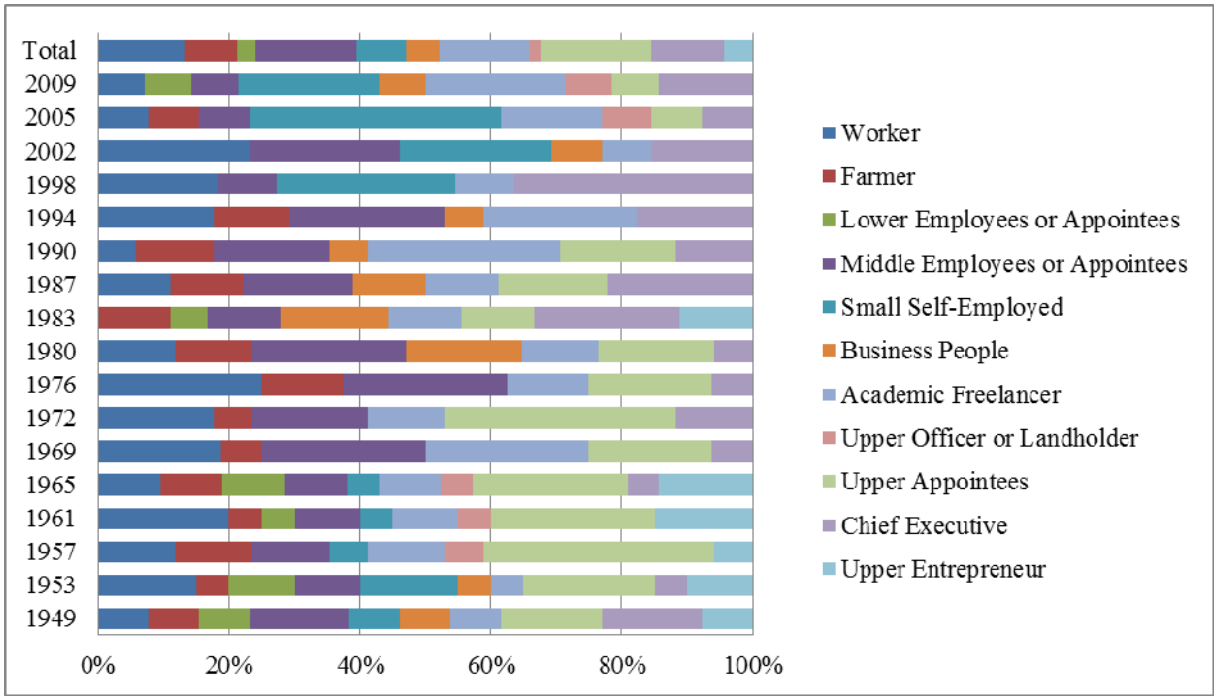

Figure 2: Fields of the Highest Father's Occupation 1949 to 2009

The data show that not every occupational area is covered in each cabinet. The segment of upper entrepreneurs first arose in 1949. Between 1969 and 1983 no member of the federal government originated from a family whose father was an upper entrepreneur. The same occurred for all cabinets after 1983. A similar development can be identified for the lower employees or appointees as well as upper officers or landholders.

One general finding shown in this graph is that nearly fifty-five per cent of the total distribution consists of job fields which can only be reached with a certain degree of higher education. These upper ranks of the scale begin with the occupational segment of the business people and end at the upper entrepreneurs. Consequently, less than half of the governmental members had fathers whose jobs only required lower qualification or skills.

Using the Kruskal-Wallis-test, we investigate whether the mean ranks of this variable of the four groups are similar.

H_1: The mean ranks of the occupational fields of the fathers of chancellors, vice chancellors, inner cabinet and residual cabinet are similar to each other.

The below-mentioned table shows the mean ranks of each group.

Group	N	Mean Rank
Chancellor	17	143.18
Vice Chancellor	17	102.00
Inner Cabinet	83	156.81
Residual Cabinet	161	134.15
Total	278	

Table 1: Ranks of Highest Father's Occupation

The mean rank of the vice chancellors accounts to 102 and is the lowest. There is evidence to suggest that this group reached the lowest scales compared to the other groups. With a mean rank of 134.15, the residual cabinet reaches the third place in this ranking. The second best mean rank was accomplished by the chancellors (143.18). Finally, the inner cabinet achieved the highest scales of the ‘Best Father’s Education’ with a mean rank of 156.81.

The following table gives an overview about the statistics of this test:

Chi-Square	8.429
DF	3
Asymptotic Significance	0.038

Table 2: Kruskal-Wallis-Test Statistics of Highest Father's Occupation

The null hypothesis can be rejected with a chi-square of 8.429, three degrees of freedom and an asymptotic significance of 3.8 per cent. So we can sum up the first result that the mean ranks of the highest father’s occupation differ between the different groups in the cabinet.

To get deeper knowledge about the differences of the social background between these groups the following results of the Mann-Whitney-U-Test will be shown (cf. e.g. Black 2010, pp. 678 et seq.). Through pairwise comparisons of chancellors, vice Chancellors, the inner cabinet and the residual cabinet it can be tested whether the groups have significant different social

background. This method tests the hypothesis whether the distribution of one group conforms to the distribution of another group:

H_2: The distribution of the first group conforms to the distribution of the second group.

The results are illustrated in the table shown below:

Group	N	Mean Rank	Sum of Ranks	Mann-Whitney-U	Wilcoxon-W	Z	Asymptotic Significance (2-tailed)
Chancellor	17	20.65	351	91	244	-1.885	0.059
Vice Chancellor	17	14.35	244				
Total	34						
Chancellor	17	44.06	749	596	749	-1.017	0.309
Inner Cabinet	83	51.82	4301				
Total	100						
Chancellor	17	96.47	1640	1250	14291	-0.593	0.553
Residual Cabinet	161	88.76	14291				
Total	178						
Vice Chancellor	17	33.65	572	419	572	-2.669	0.008
Inner Cabinet	83	53.95	4478				
Total	100						
Vice Chancellor	17	72	1224	1071	1224	-1.484	0.138
Residual Cabinet	161	91.35	14707				
Total	178						
Inner Cabinet	83	135.04	11208	5641	18682	-2.007	0.004
Residual Cabinet	161	116.04	18682				
Total	244						

Table 3: Mann-Whitney-U-Test for the Highest Father's Occupation

The chancellors reach a higher sum of ranks (351) than the vice chancellors (244). This in an indicator for the assumption that chancellors reached higher values on the scale from one to eleven of the highest occupation of their fathers than the vice chancellors. Accordingly, the mean rank of the chancellors outscores the mean rank of the vice chancellors with 20.65 to 14.35. This difference is confirmed by the Mann-Whitney-U-value of 91. The calculated Z-value is -1.885. The hypothesis of no difference can be rejected with an asymptotic significance of 5.9 per cent.

The pairwise comparisons of the chancellors with the inner cabinet and with the residual cabinet do not show any statistically significant differences.

Vice chancellors reached a lower sum of ranks (572) than the inner cabinet (4478). This might be caused by the higher number of persons who belong to the latter group. There are 17 vice chancellors whereas 83 persons belong to the inner cabinet. However, the mean rank of the vice chancellors (33.65) is also lower than the corresponding value of the inner cabinet (53.95). This difference is significant on the one per cent-level. The Mann-Whitney-U-value is 419 and the Z-value -2.669.

In conformity with hypothesis H_2 the distributions of vice chancellors and the residual cabinet are similar.

Opposed to this, the distribution of the inner cabinet and residual cabinet differ. The sum of ranks of the residual cabinet outscores the ones of the inner cabinet. As mentioned above, this phenomenon is associated with the higher number of group members. The residual cabinets count 78 more persons than the inner cabinets. However, the inner cabinets reach a higher mean rank than the residual cabinet with 135.04 to 116.04. The appropriate Mann-Whitney-U-value accounts to 5641. The Z-value is about -2.007. Therefore, the hypothesis H1 cannot be confirmed with an asymptotic significance of 4.5 per cent.

The above-analysed eleven categories can be pooled into two social classes. Accordingly to Michael Hartmann, the first five categories from workers to small self-employed are integrated as the (lower) middle class or working class. The second class includes all categories from business people to upper entrepreneurs and is called upper class (see Hartmann 2002, pp. 33-34)

Figure 3 illustrates the distribution of the social classes within the total Governments.

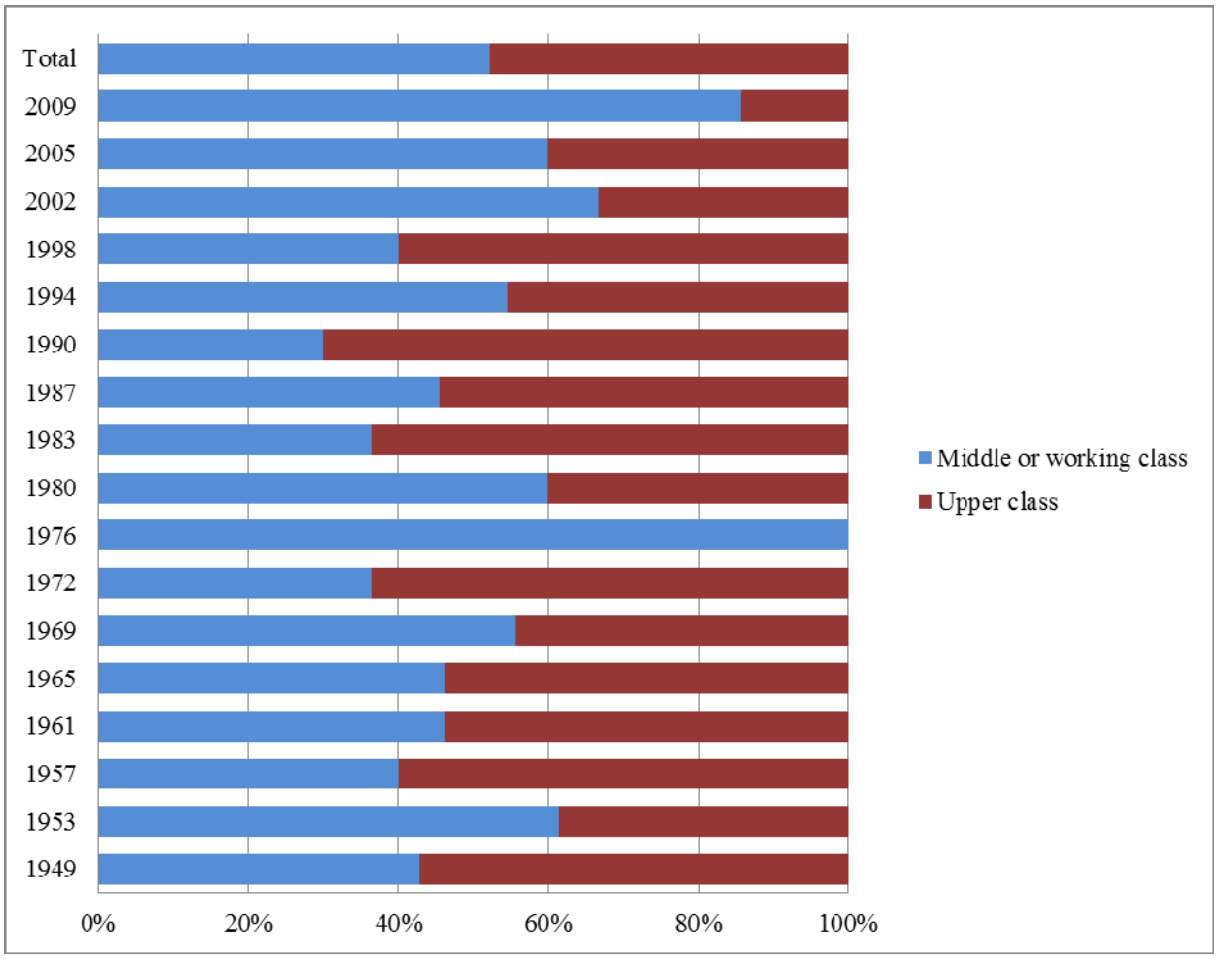

Figure 3: Social Classes of the Highest Father's Occupation 1949-2009

As already mentioned above, the percentage of the upper class is higher than fifty per cent on average. Therefore, one can conclude that on average more than half of the members of the government have some kind of elitist social background.

In the following, we analyse whether any differences between the four groups of the chancellors, the vice chancellors, the inner cabinets and residual cabinets can be identified. The social classes are measured on an ordinal scale due to the assumption that the membership in the upper class is better than an origin in the middle or working class.

The results of the Kruskal-Wallis-test show that the chancellors and their deputies register the two worst mean ranks of 122.74 and 130.91. Not significantly better than that of the vice chancellors is the mean rank of the residual cabinets with 131.98. The highest mean rank is reached by the inner cabinets with 159.28.

Group	N	Mean Rank
Chancellor	17	130.91
Vice Chancellor	17	122.74
Inner Cabinet	83	159.28
Residual Cabinet	161	131.98
Total	278	

Table 4: Ranks of Social Classes

The null hypothesis that the mean ranks of these four groups are equal for the 'social classes' in the basic population has to be declined with a chi-square of 9.866, three degrees of freedom and an asymptotic significance of 2 per cent.

Chi-Square	9.866
DF	3
Asymptotic Significance	0.02

Table 5: Kruskal-Wallis-Test Statistics for Social Classes

The aggregated results of the Mann-Whitney-U-tests are presented in the following table:

Group	N	Mean rank	Sum of ranks	Mann-Whitney-U	Wilcoxon-W	Z	Asymptotic Significance (2-tailed)
Chancellor	17	18	306	136	289	-0.340	0.734
Vice Chancellor	17	17	289				
Total	34						
Chancellor	17	42.03	749	561.5	714.5	-1.589	0.112
Inner Cabinet	83	51.82	4301				
Total	100						
Chancellor	17	88.88	1511	1358	1511	-0.060	0.952
Residual Cabinet	161	89.57	14420				
Total	178						
Vice Chancellor	17	39.59	673	520	673	-2.035	0.042
Inner Cabinet	83	52.73	4377				
Total	100						
Vice Chancellor	17	84.15	1430.5	1277.5	1430.5	-0.521	0.602
Residual Cabinet	161	90.07	14500.5				
Total	178						
Inner Cabinet	83	138.31	11480	5369	18410	-2.913	0.004
Residual Cabinet	161	114.35	18410				
Total	244						

Table 6: Mann-Whitney-U-Tests for Social Classes

Four of six Mann-Whitney-U-tests do confirm the null hypotheses. So the equality of the distribution of the variable social class cannot be rejected for the pairwise comparisons of chancellors with vice chancellors, the inner cabinets with the residual cabinets and the vice chancellors with the residual cabinets.

Significant distributional differences of the social classes can be identified for the comparisons of vice chancellors with the inner cabinets and the inner cabinets with the residual ones. The inner cabinets show a higher mean rank than the group of vice chancellors with 52.73 to 39.59. This difference is significant at the five per cent-level with a Mann-Whitney-U-value of 52 and a Z-value of -2.035. The inner cabinets also score a mean rank 23.96 points higher than the residual cabinets. This gap between the different parts of the cabinet can be confirmed with a confidence level of 99.6 per cent. The related Mann-Whitney-U-value is 5369 and the Z-value -2.913.

3.3 Age of Inauguration

This section presents the results concerning the age of the members of the German Federal Government. The age at inauguration describes the age of each person at the beginning of each new cabinet or election period.

Along the same lines as before, this socio-demographic characteristic and its development will be analysed comparing the four groups of chancellors, their deputies and ministers in the residual as well as inner cabinets.

Group	N	Mean	Standard Deviation	Standard Error Mean
Chancellor	17	63.06	10.232	2.482
Vice Chancellor	17	55.24	5.641	1.368
Inner Cabinet	85	53.49	7.006	0.76
Residual Cabinet	180	52.01	7.622	0.568

Table 7: Statistics for the Age at Inauguration

The chancellors are on average nearly eight years older than their deputies and even more compared to the rest of their cabinets. The vice chancellors have an average age at inauguration of 55 years. The youngest members on average are those of the residual cabinet with 52 years, followed by the inner cabinet with nearly 53.5 years.

To find out whether the average age at inauguration is equal in a pairwise comparison, we build the following null hypothesis for six cases:

H_3: The average ages of inauguration of the first and second group are equal.

The results of each pairwise comparison are summed up in table 8:

Group		**Levene's Test for Equality of Variances**		**t-Test for Equality of Means**				
		F	**Sig.**	**t**	**df**	**Sig. (2-tailed)**	**Mean Difference**	**Std. Error Difference**
Chancellor	Equal variances assumed	4.899	0.034	2.761	32	0.009	7.824	2.834
Vice Chancellor	Equal variances not assumed			2.761	24.903	0.011	7.824	2.834
Chancellor	Equal variances assumed	5.016	0.027	4.728	100	0.000	9.565	2.023
Inner Cabinet	Equal variances not assumed			3.685	19.11	0.002	9.565	2.595
Chancellor	Equal variances assumed	3	0.085	5.534	195	0.000	11.048	1.996
Residual Cabinet	Equal variances not assumed			4.34	17.717	0.000	11.048	2.546
Chancellor	Equal variances assumed	0.393	0.532	0.963	100	0.338	1.741	1.808
Inner Cabinet	Equal variances not assumed			1.113	26.909	0.276	1.741	1.565
Vice Chancellor	Equal variances assumed	1.774	0.184	1.699	195	0.091	3.224	1.898
Residual Cabinet	Equal variances not assumed			2.177	21.935	0.041	3.224	1.481
Inner Cabinet	Equal variances assumed	1.723	0.19	1.516	263	0.131	1.483	0.978
Residual Cabinet	Equal variances not assumed			1.563	178.027	0.12	1.483	0.949

Table 8: t-Tests for the Age at Inauguration

There are no significant results for the tests of the pairs vice chancellors and inner cabinets as well as inner cabinets and residual cabinets.

The average age at inauguration of the chancellors is statistically significantly different to the means of the groups vice chancellors (t = 2.761, sig. = 0.009), inner cabinets (t = 4.728, sig. = 0.000) and residual cabinets (t = 5.534, sig. = 0.000). Consequently, the null hypotheses have to be rejected in these three cases. The average ages at inauguration of the vice chancellors and the members of the residual cabinets differ significantly on the five per cent level (t = 2.177).

4. Human Capital

In this chapter we analyse three different kinds of human capital, educational, economic and political. The key concept of human capital and important differentiations can be looked up in Becker (1964).

4.1 Educational Human Capital

The composition of educational human capital is determined by the final graduation of each person measured on an ordinal scale. In detail, we differ between levels of graduation at school or university. There are three general certificates of secondary education. The lowest one is a “Hauptschulabschluss”, the middle on a “Realschulabschluss” and the highest one the “Abitur”, the general qualification for university entrance. For higher education we distinguish between three other levels, beginning with a normal university degree, topped by a doctoral degree, whereas a postdoctoral lecture qualification (“Habilitation”) is the highest possible level.

The Kruskal-Wallis-test investigates whether the mean ranks of the educational levels are equal for the four groups. In the results, the vice chancellors reach the lowest mean rank of this item with an amount of 115.35. The second lowest result of 145.04 is reached by the members of the residual cabinets. The inner cabinets realise the highest mean rank with 165.81, followed by the chancellors with 158.15. The results are shown in the table 9:

Group	N	Mean Rank
Chancellor	17	158.15
Vice Chancellor	17	115.35
Inner Cabinet	85	165.81
Residual Cabinet	180	145.04
Total	299	

Table 9: Ranks of Educational Levels

The null hypothesis cannot be confirmed, the mean ranks of the educational levels of these four groups are not equal. This conclusion is supported with a chi-square-value of 7.14, three degrees of freedom and an asymptotic significance of 6.8 per cent.

Chi-Square	7.14
DF	3
Asymptotic Significance	0.068

Table 10: Kruskal-Wallis-Test Statistics for Educational Levels

Similar to the other chapters before, a pairwise Mann-Whitney-U-test has been done for the ordinal variable of the highest educational level. The final results are summed up in table 11:

Group	N	Mean Rank	Sum of Ranks	Mann-Whitney-U	Wilcoxon-W	Z	Asymptotic Significance (2-tailed)
Chancellor	17	20.56	349.5	92.5	245.5	-1.921	0.055
Vice Chancellor	17	14.44	245.5				
Total	34						
Chancellor	17	48.53	825	672	825	-0.499	0.618
Inner Cabinet	85	52.09	4428				
Total	102						
Chancellor	17	107.06	1820	1393	17683	-0.645	0.519
Residual Cabinet	180	98.24	17683				
Total	197						
Vice Chancellor	17	36.41	619	466	619	-2.481	0.013
Inner Cabinet	85	54.52	4634				
Total	102						
Vice Chancellor	17	82.5	1402.5	1249.5	1402.5	-1.311	0.19
Residual Cabinet	180	100.56	18100.5				
Total	197						
Inner Cabinet	85	145.19	12341.5	6613.5	22903.5	-1.893	0.058
Residual Cabinet	180	127.24	22903.5				
Total	265						

Table 11: Mann-Whitney-U-Tests for the Educational Level

In half of the six cases there are no statistically significant differences. The chancellors compared to the inner and the residual cabinets as well as the vice chancellors compared to the residual cabinets reached more or less the same educational level.

The educational levels of the chancellors and their deputies differ significantly at the ten per cent level. The mean rank of the chancellors is higher with 20.56 compared to 14.44. The inner cabinets reach higher mean ranks than the groups of the vice chancellors and the residual cabinets.

4.2 Economic Human Capital

The economic human capital of the chancellors, their deputies and the other ministers is measured here by the membership or chairmanship in any board of German business companies or incorporated organisations before the appointment to the federal government. Due to the fact that an individual can administer more than one membership or chairmanship before his or her appointment to the cabinet, we built a point-system that weights the higher importance of a chairmanship in contrast to a membership and allows to the aggregation of all exercised mandates of each person.

Points	**Characteristic Value**
0	No membership or chairmanship of a board of any German business company or association
1	Membership of the executive or supervisory board of a German business company or association
2	Deputy Chairmanship of the executive or supervisory board of a German business company or association
3	Chairmanship of the executive or supervisory board of a German business company or association

Table 12: Points for Economic Human Capital

In more detail, a person gets assigned zero points if there are no memberships or chairmanships in any board of a German business company or incorporated organisation. A membership of the executive or supervisory board in German business companies is weighted with one point. Two points are assigned to persons who were a former deputy chairman of the executive or supervisory board of German business companies or associations. Finally, the highest score of three points identifies a former chairmanship of the executive or supervisory board. Points from different companies are summed up.

Now the null hypothesis of the Kruskal-Wallis-test is that the mean ranks of the four groups are equally for the economic human capital defined in this way.

The table 13 shows that the chancellors have the lowest mean rank of this item with 91.5. A better result is realised by the residual cabinets with a mean rank of 147.26. The mean ranks of the inner cabinets and the vice chancellors are the best for this item and very close to each other. The vice chancellors reach a slightly higher mean rank of 165.68 compared to the mean rank of 164.36 of the inner cabinets' members.

Group	N	Mean Rank
Chancellor	17	91.5
Vice Chancellor	17	165.68
Inner Cabinet	85	164.36
Residual Cabinet	180	147.26
Total	299	

Table 13: Ranks of Economic Human Capital

The differences in the mean ranks are significant on the one per cent level with a chi-square-value of 14.159 and three degrees of freedom. Hence the null hypothesis of equal ranks cannot be confirmed.

Chi-Square	14.159
DF	3
Asymptotic significance	0.003

Table 14: Kruskal-Wallis-Test Statistics for Economic Human Capital

Moreover, it was tested whether there are differences between the mean ranks of the groups in a pairwise comparison. Therefore, we applied Mann-Whitney-U-tests. Table 15 gives an overview of the results:

Group	N	Mean Rank	Sum of Ranks	Mann-Whitney-U	Wilcoxon-W	Z	Asymptotic Significance (2-tailed)
Chancellor	17	13	221	68	221	-3.431	0.001
Vice Chancellor	17	22	374				
Total	34						
Chancellor	17	31.5	535.5	382.5	535.5	-3.475	0.001
Inner Cabinet	85	55.5	4717.5				
Total	102						
Chancellor	17	65	1105	952	1105	-3.045	0.002
Residual Cabinet	180	102.21	18398				
Total	197						
Vice Chancellor	17	36.41	619	716	869	-0.063	0.949
Inner Cabinet	85	54.52	4634				
Total	102						
Vice Chancellor	17	110.56	1879.5	1333.5	17623.5	-1.001	0.317
Residual Cabinet	180	97.91	17623.5				
Total	197						
Inner Cabinet	85	143.28	12179	6776	23066	-1.693	0.09
Residual Cabinet	180	128.14	23066				
Total	265						

Table 15: Mann-Whitney-U-Tests for Economic Human Capital

In summary, the results of the Kruskal-Wallis-test are confirmed. The chancellors realised significantly lower mean ranks than their deputies and the members of their inner and residual cabinets. The differences of these pairwise tests are significant on the one per mill to one per cent level. Moreover, the inner cabinets achieved a higher mean rank of 143.28 than the residual cabinets with 128.14. This result is statistically significant on the ten per cent level with a Mann-Whitney-U-value of 6776 and a Z-value of -1,693.

4.3 Political Human Capital

In this paper, brand-specific political human capital will be measured by the years of tenure in the federal government. Job-specific political human capital will be illustrated by the expertise in the actual department someone is working in, measured in years. A performance-indicator for the members of the federal government is the number of changes of the chancellor they experience. The more changes of chancellor a minister politically survived, the better is the assumed quality of his or her political human capital.

4.3.1 Tenure in the Federal Government

The tenure in the federal government is measured by the number of years that a person is part of the government.

Group	N	Mean	Standard Deviation	Standard Error Mean
Chancellor	17	6.82	4.613	1.119
Vice Chancellor	17	7	6.538	1.586
Inner Cabinet	85	3.14	3.478	0.377
Residual Cabinet	180	2.48	2.992	0.223

Table 16: Statistics for the Tenure in the Federal Government

On average, the vice chancellors have the longest tenure in the federal government with a mean of seven years. Close to this timespan, the average tenure of the chancellors is 6.82 years. Members of the inner and residual cabinets have only half of this timespan. For the inner cabinets the mean is 3.14 years and for the residual cabinets nearly two and a half years.

The average tenure in Federal Governments of these four groups is illustrated below ranging from 1949 to 2009:

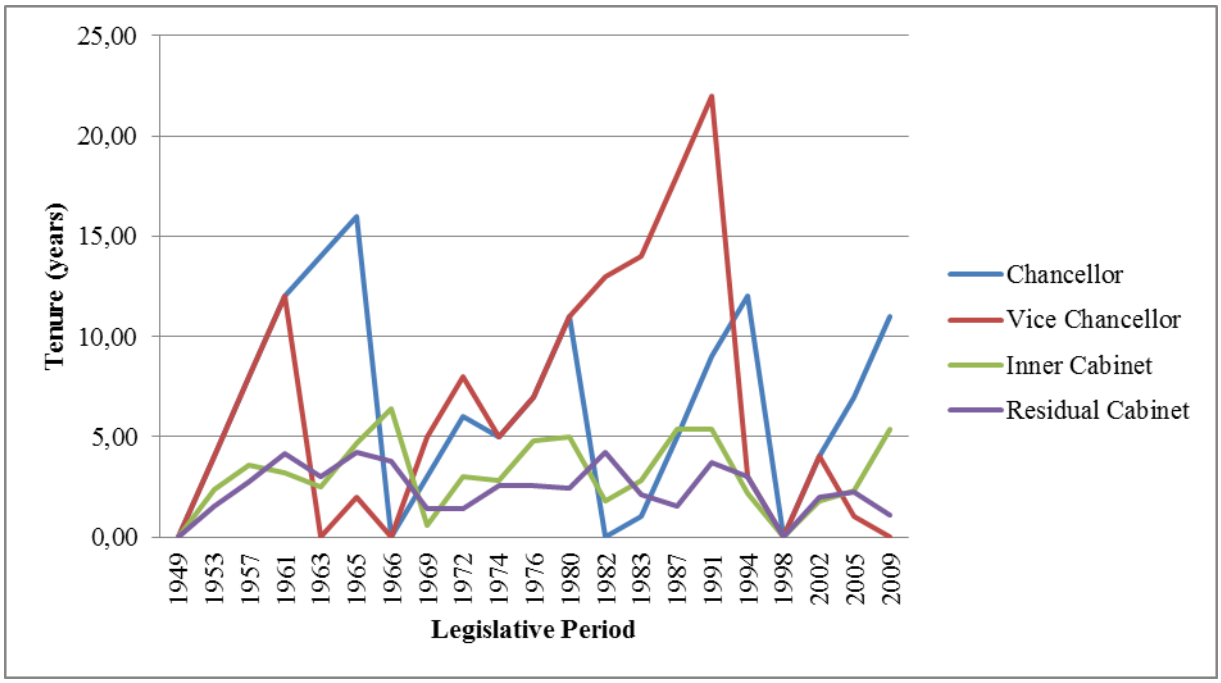

Figure 4: (Average) Tenure in Federal Government

With the help of a t-test for independent samples, the null hypothesis will be tested if the average tenure in the federal government of two groups is equal. The results can be found in the table 17:

Group		Levene's Test for Equality of Variances		t-test for Equality of Means				
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
Chancellor	Equal variances assumed	1.736	0.197	-0.091	32	0.928	-0.176	1.941
Vice Chancellor	Equal variances not assumed			-0.091	28.766	0.928	-0.176	1.941
Chancellor	Equal variances assumed	2.808	0.097	3.763	100	0.000	3.682	0.979
Inner Cabinet	Equal variances not assumed			3.119	19.797	0.005	3.682	1.181
Chancellor	Equal variances assumed	7.838	0.006	5.425	195	0.000	4.346	0.801
Residual Cabinet	Equal variances not assumed			3.809	17.295	0.001	4.346	1.141
Vice Chancellor	Equal variances assumed	13.868	0.000	3.522	100	0.001	3.859	1.096
Inner Cabinet	Equal variances not assumed			2.367	17.852	0.029	3.859	1.63
Vice Chancellor	Equal variances assumed	29.238	0.000	5.204	195	0.000	4.522	0.869
Residual Cabinet	Equal variances not assumed			2.824	16.639	0.012	4.522	1.601
Inner Cabinet	Equal variances assumed	1.919	0.167	1.597	263	0.111	0.663	0.415
Residual Cabinet	Equal variances not assumed			1.514	144.685	0.132	0.663	0.438

Table 17: t-Tests for Tenure in the Federal Government

These t-tests generated the result that for four of these six pairs the null hypothesis of equal tenure in the federal government has to be rejected. So the chancellors have a significantly higher average tenure than the members of the inner cabinets (t = 3.763, sig. 0.000) and the residual cabinets (t = 5.425, sig. = 0.000). Likewise, the tenures of the vice chancellors

significantly differ from those of the inner cabinets (t = 3.522, sig. = 0.001) and the residual cabinets (t = 5.204, sig. = 0.000).

No significant results could be found for the pairwise comparison of the chancellors with the vice chancellors and the inner with the residual cabinet, such that their tenure is more or less equal on average.

4.3.2 Expertise in the Currently Headed Department

The expertise in the currently headed department measures the number of years that a member of the government works in his or her current resort. Table 18 presents the descriptive statistics for this item.

Group	N	Mean	Standard Deviation	Standard Error Mean
Chancellor	17	4.24	3.993	0.968
Vice Chancellor	17	3.94	4.905	1.19
Inner Cabinet	85	1.64	1.883	0.204
Residual Cabinet	180	2.05	2.92	0.218

Table 18: Statistics for the Expertise in the Currently Headed Department

The chancellors and their deputies have a comparably high expertise of their current department with means of about four year. The mean gap between these two groups and the other two groups accounts to nearly two years. Figure 8 shows the development of this item for every group over time:

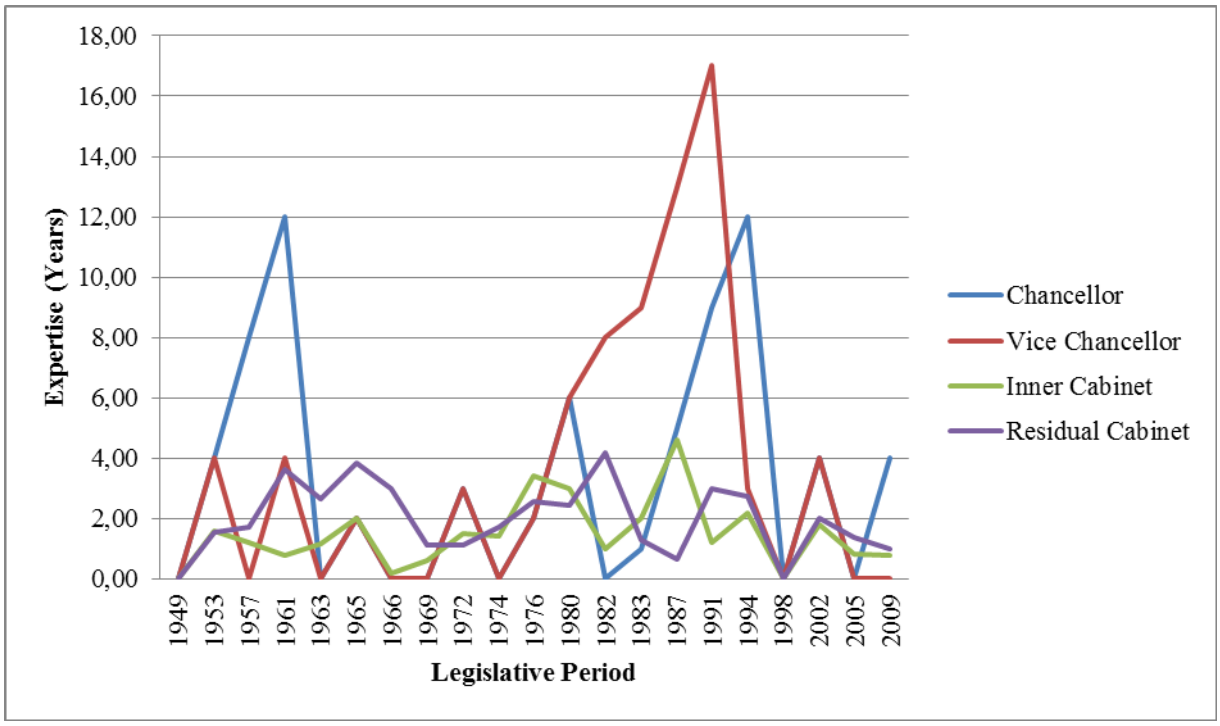

Figure 5: Expertise in the Currently Headed Department

In the following, the null hypothesis is tested whether the average expertise in the currently headed department is equal in a pairwise comparison with t-tests for independent samples. The results are presented in table 19:

Group		Levene's Test for Equality of Variances		t-test for Equality of Means				
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
Federal Chancellor	Equal variances assumed	0.111	0.741	0.192	32	0.849	0.294	1.534
Vice Chancellor	Equal variances not assumed			0.192	28.766	0.849	0.294	1.534
Federal Chancellor	Equal variances assumed	5.341	0.023	1.795	100	0.076	0.212	0.118
Inner Cabinet	Equal variances not assumed			1.609	20.869	0.123	0.212	0.132
Federal Chancellor	Equal variances assumed	3.261	0.072	2.849	195	0.005	2.185	0.767
Residual Cabinet	Equal variances not assumed			2.202	17.654	0.041	2.185	0.993
Vice Chancellor	Equal variances assumed	18.744	0.000	3.322	100	0.001	2.306	0.694
Inner Cabinet	Equal variances not assumed			1.91	16.954	0.073	2.306	1.207
Vice Chancellor	Equal variances assumed	5.515	0.02	2.381	195	0.018	1.891	0.794
Residual Cabinet	Equal variances not assumed			1.564	17.088	0.136	1.891	1.209
Inner Cabinet	Equal variances assumed	9.694	0.002	-1.196	263	0.233	-0.415	0.347
Residual Cabinet	Equal variances not assumed			-1.39	238.719	0.166	-0.415	0.298

Table 19: t-Tests for Expertise in the Currently Headed Department

The t-tests for equality of means calculated no significant results for the comparison of the groups chancellors and vice chancellors as well as members of inner and residual cabinets. However, the t-tests for the other four pairwise comparisons reject the null hypotheses of equal expertise. The average expertise of chancellors is significantly higher than that of the members of inner cabinets, although the significance is with 7.6 per cent rather weak (t = 1.795). The significance is stronger for the difference of expertise between chancellors and the residual cabinets (t=2.849, sig. = 0.005). The same results were found for the comparison of the vice chancellors with the inner cabinets (t = 3.332, sig. = 0.001) and the residual cabinets (t = 2.381, sig. = 0.018).

4.3.3 Experienced Changes of a Chancellor

The experienced changes of a chancellor measure the numbers of former chancellors that a member of a specific federal government worked for. It is an indicator for the sustainability or specific qualification of a minister which might be the reason for the reappointment (besides mere luck and political reasons) even though a new cabinet was built up.

This item has a metric scale. Therefore, the following descriptive statistics can be analysed by calculating means.

Nearly half of the chancellors and vice chancellors were members of a previous federal cabinet and consequently experienced one to two changes of the chancellor. Another result is that the members of the inner cabinet have a higher mean probability to be reappointed after a change of the chancellor compared to members of the residual cabinet. Figure 9 illustrates this.

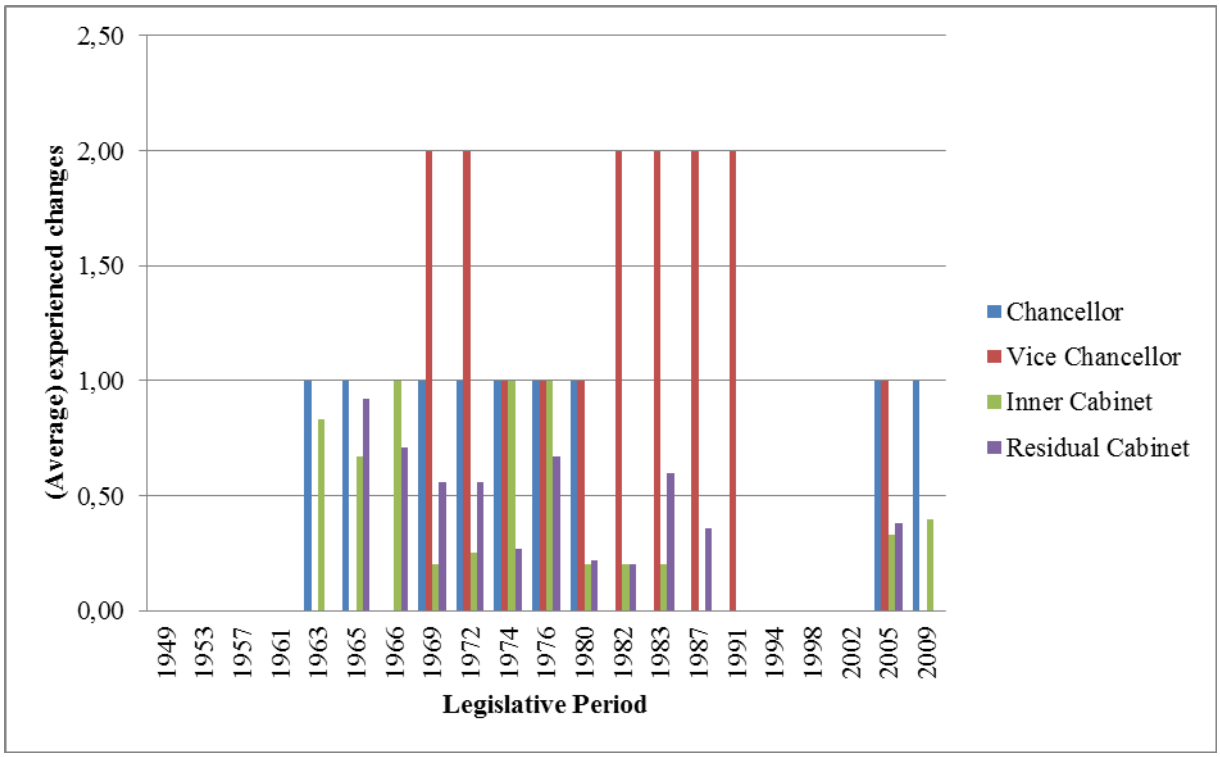

Figure 6: Experienced Changes of the Federal Chancellor

However, the item is not normally distribution. Consequently, t-tests cannot be applied to analyse differences between the groups. Therefore, the characteristic values were treated like ordinal items. The following results of the Kruskal-Wallis-test are significant on the per mill level and correspond with a chi-square of 18.31 and three degrees of freedom. According to this, the residual cabinet has the lowest mean rank of experienced changes with a value of 143.08. A slightly higher mean rank is calculated for the inner cabinet with a score of 148.82. Chancellors reach the second best mean rank with 181.12. The best mean rank accounts to 198.02 and belongs to the vice chancellors.

Group	**N**	**Mean Rank**
Federal Chanellor	17	181.12
Vice Chancellor	17	198.09
Inner Cabinet	85	148.82
Residual Cabinet	180	143.08
Total	299	

Table 20: Ranks of Experienced Changes of the Chancellor

Chi-Square	18.31
DF	3
Asymptotic Significance	0.000

Table 21: Kruskal-Wallis-Test Statistic for Experienced Changes of the Chancellor

Along the same lines the variable experienced changes of the chancellor was tested with the help of the Mann-Whitney-U-test. The four groups were compared pairwise. The results are presented in table 22.

	N	Mean Rank	Sum of Ranks	Mann-Whitney-U	Wilcoxon-W	Z	Asymptotic Significance (2-tailed)
Federal Chancellor	17	15.97	271.5	118.5	271.5	-1.003	0.316
Vice Chancellor	17	19.03	323.5				
Total	34						
Federal Chancellor	17	60.79	1033.5	564.5	4219.5	-1.957	0.05
Inner Cabinet	85	49.64	4219.5				
Total	102						
Federal Chancellor	17	122.35	2080	1133	17423	-2.698	0.007
Residual Cabinet	180	96.79	17423				
Total	197						
Vice Chancellor	17	65.62	1115.5	482.5	4137.5	-2.1913	0.004
Inner Cabinet	85	48.68	4137.5				
Total	102						
Vice Chancellor	17	131.44	2234.5	978.5	17268.5	-3.697	0.000
Residual Cabinet	180	95.94	17268.5				
Total	197						
Inner Cabinet	85	136.5	11602.5	7352.5	23642.5	-0.799	0.424
Residual Cabinet	180	131.35	23642.5				
Total	265						

Table 22: Mann-Whitney-U-Tests for Experienced Changes of the Chancellor

Four of the six pairwise comparisons have significant results. The chancellors experienced significantly more changes of a former chancellor than members of the inner cabinet or the residual cabinet. The difference between the mean ranks of the chancellors and the inner cabinet is scored with 11.15. Similarly, the gap between the chancellors and the residual cabinet is about 25.56.

Likewise, the vice chancellors score higher mean ranks than the members of the inner and residual cabinets. The difference of the mean ranks is 16.94 compared to the inner cabinet and 35.5 compared to the residual one.

No significant results could be found for the pairwise test of the chancellors and their deputies and also between the inner cabinet and the residual one.

5. Conclusions

The investigations of the educational, economic and political human capital besides the socio-demographic characteristics expand the findings about the differences in qualification within the German federal government.

Regarding the socio-demographic characteristics, the members of the inner cabinet have a significantly better social background than the rest of the cabinet. Depending on the focus on the occupational field or the social class, the second and third places change between the chancellor and the residual cabinet. The lowest mean rank in this category is reached by the vice chancellors. These results are confirmed by the analysis of the occupational fields and the social classes of the fathers of the politicians. Another result is that the chancellors are older at their inauguration compared to their deputies, the inner cabinet as well as the residual cabinet. Furthermore, the vice chancellors had reached a higher age of inauguration on average than members of the residual cabinet. Women started working in governmental positions in 1961. Since 2005, Angela Merkel is the first female chancellor of Germany.

Concerning the educational human capital, the members of the inner cabinet reached the highest mean rank. The group of chancellors ranked on second place, followed by the residual cabinet. The lowest mean rank was assigned to the vice chancellors. Pairwise tests of these four groups calculated that the inner cabinet reached a significantly higher mean rank than the group of vice chancellors and the residual cabinet. In addition, the vice chancellors reached lower mean ranks than the chancellors. The vice chancellors achieved the highest mean rank of economic human capital. The second-best rank was reached by the inner cabinet, the third-best by the residual cabinet. Consequently, the chancellors had the worst mean rank of economic human capital.

Finally, the political human capital was tested for the items tenure in the federal government, expertise in the currently headed department and the experienced changes of a chancellor. The

average tenure in federal government of the chancellors and their deputies was significantly longer that those of the inner and residual cabinets. The same is true for the expertise in the currently headed department, which is significantly longer for chancellors and their deputies compared to the other members of the cabinet. Vice chancellors experienced the most changes of a chancellor. Chancellors achieved the second best mean rank in this regard, followed by the inner cabinet.

We are still working on better tests, their interpretation and possible practical conclusions. Any suggestions are very welcome.

Literature

Becker, Gary, 1964, Human Capital – A Theoretical and Empirical Analysis, with Special Reference to Education. Columbia University Press, New York and London.

Black, Ken, 2010, Business Statistics for Contemporary Decision Makin. Sixth edition, John Wiley & Sons, Hoboken.

Hartmann, Michael, 2002, Der Mythos von den Leistungseliten. Campus, Frankfurt a.M.

Hoyle, Rick H., 1999, Statistical strategies for small sample research. SAGE Publications, Thousand Oaks, London and New Delhi.

Levin, Irvin P., 1998, Relating statistics and Experimental Design: An Introduction. Sage University Papers Series on Quantitative Applications in the Social Sciences, 07-125, SAGE Publications, Thousand Oaks, London and New Delhi.

Weiers, Ronald, 2011, Introduction to Business Statistics. South-Western Cengage Learning, Mason.

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