How to explain ministerial turnover: macro-political factors or biographic determinants – an event history analysis of the East German Länder ministers (1990-2011)

Sebastian Jäckle (University of Freiburg)

Paper prepared for the ECPR Joint Session of Workshops in St. Gallen, April 12th – 17th 2011

Workshop No.6:

Ministerial turnover and ministerial career paths in contemporary democracies

WORK IN PROGRESS – PLEASE DO NOT QUOTE

Dr. Sebastian Jäckle
Seminar für Wiss. Politik
Werthmannstr. 12
79098 Freiburg i. Br.
phone: +49 - 761 - 203 9368
e-mail: sebastian.jaeckle@politik.uni-freiburg.de
http://www.sebastianjaeckle.de

1. Introduction

In the last few years we have observed two remarkable trends in the comparative analysis of governments. The first was a shift away from a purely institutional focus, bringing the individual back into the analysis both as a dependent and independent variable. The second trend denotes the rise of studies attempting to gain a broader and deeper understanding of the underlying mechanisms governing the fate of cabinets. This was done by expanding the observed samples from originally only Western nation states either to Central and East European countries or to the sub-national level. This paper incorporates both trends as it tries to explain the determinants of ministerial turnover within the six Eastern German Länder governments (Berlin, Brandenburg, Mecklenburg-Vorpommern, Saxony, Saxony-Anhalt and Thuringia) during the period from 1990 to 2011. To achieve this I will borrow from the already quite extensive body of government survival literature and test whether the factors found in these works, explaining the durability of governments in general, are also important for individual ministers' careers. Moreover, I will investigate if they even show very different effects from the ones detected on the level of the whole government. The paper thus follows the seminal works of Huber and Martinez-Gallardo (2004, 2008). In addition to factors which arise predominantly from classic institutional theory, I will incorporate biographic data which has previously been analyzed in a purely qualitative and descriptive manner. However, the descriptive single case studies employed in these works do not allow for the systematic testing of factors that determine ministerial turnover. It is therefore necessary to include political and biographic data as well as socio-demographic characteristics of the ministers into a large-N research design. The analysis conducted in this paper is based on a newly compiled dataset for the German Länder ministers, combining classical political and institutional variables on the government level (e.g. type of government or policy-distance) with characteristics of the individual ministers (e.g. sex, age, education, experience in earlier cabinets). The method used is a Cox proportional hazard model that has a number of advantages over fully parametric event history models. It has become quite popular in the field when it comes to explaining the durations of governments and will also work well for ministerial turnover (Box-Steffensmeier & Jones, 2004; Box-Steffensmeier & Sokhey, 2009; Cox, 1972).

2. Research question, definitions and differences to existing research

In contrast to government survival literature (Jäckle, 2009, 2011; King, Alt, Burns, & Laver, 1990; Saalfeld, 2008; Warwick, 1994, 2006) this paper focuses exclusively on the fate of individual

ministers. This individual-based perspective thus separates it from other works that approach ministerial turnover from the perspective of the prime minister, asking under which conditions and for what reason she reshuffles her cabinet, demotes or promotes ministers and induces individual ministers resignations (Dewan & Dowding, 2005; Indridason & Kam, 2008).

Instead the lead question is, how long a minister is able to remain in some cabinet position and which factors determine her duration in power. The rationale underlying this question is that we often witness a multitude of factors when it comes to the end of a ministers' life time. Many of these factors are contingent on the minister herself as well as on the political sphere in which she operates rather than solely on the political will of the prime minister. For example with their record of coalition governments the prime ministers[1] autonomy for cabinet reshuffles or demotions is much weaker in the German Länder than it is in Great Britain or Australia – two countries often discussed in ministerial turnover literature (Weller, 1999; Woodhouse, 1993). Thus the context of coalition governments is one of the aspects that must be taken into account when analyzing ministerial turnover.

The definition of what constitutes a case is crucial for any statistical analysis. Especially in event history analysis this definition is not completely self-evident as there is always the question which events are considered terminal. In this study a case is defined as a person who has been part of a cabinet without interruption, regardless how many different ministerial positions she has been holding during her time in government.[2] Thus neither elections nor reshuffles[3] automatically serve as terminal events; only when a minister definitely leaves cabinet (for any reason) her ministerial spell ends. When the same person reenters the cabinet after some time, during which she was not part of the government, this is counted as a new case. The focus on the individual ministers also speaks against a definition often used for reshuffles counting only simultaneous changes of two or more ministers as a reshuffle (Budge, 1985, p.330). In the present analysis every minister leaving the cabinet is counted, regardless if she has left alone or together with several of her colleagues. For every case starting and ending time, biographic information about the minister and information about

---

[1] For reasons of simplicity the *Ministerpräsidenten* of the five territorial Länder as well as the governing mayor (*Regierender Bürgermeister)* in Berlin are called prime ministers for the remainder of the paper.

[2] Only full ministers are counted, state secretaries without a vote in the cabinet are not included in the analysis.

[3] For example in their study on the prime ministers ability to cope with ministerial drift Indridason and Kam regard all reshuffles – transfers (a minister moving from one portfolio to another), redefinitions of a minister's portfolio, promotions of new cabinet members as well as demotions – as defining for their cases (Indridason & Kam, 2008, p. 639 f.). In contrast this study focuses on ministers really leaving the cabinet and transfers as well as redefinitions will only be included as independent variables in terms of the number of changes a minister personally had to face during her time in office. Promotions constitute the starting point for a new ministerial spell and are thus relevant as well.

the political-institutional setting of the last government of the respective ministerial spell are recorded.

3. Data and descriptive analysis

The compiled dataset covers Eastern German Länder ministers that had been in office between the first free elections on 10.14.1990 (for Berlin the elections to the last mere West-German *Abgeordnetenhaus* from 01.29.1989 are the starting point) and 01.31.2011. The restriction to this period and to Eastern Germany is at first attributed to the time consuming data gathering process especially regarding the biographic information. In addition, there are valid theoretical arguments for restricting the analysis to Eastern Germany: a comparable socio-economic surrounding, a specific political culture, the common heritage of "bloc-parties", a large influence of the PDS – the former Socialist Unity Party of Germany (SED) – and the import of West German politicians as so called *development helpers*. However, an enlargement of the dataset to the Western German Länder as well as to the time before 1990 (of course only for Western Germany) is currently in progress. Applying the above mentioned definition for terminal events 291 cases can be identified which is sufficient for reasonable statistical analysis.

4. Method

The study applies event history analysis (EHA). This method is appropriate as we are not only interested in the question *if* a certain minister leaves the cabinet (this kind of question could also be answered using a logit model), but also *when* this event takes place. Therefore we model the so called **hazard rate λ** (Lawless, 1982, p.8) – from a statistical point of view a combination of the so called survival and the probability density functions. The hazard rate can be regarded as the conceptual core of any EHA. It is defined as the number of dropped out units at time t divided by the quantity of units being alive just shortly before t and thus still being at risk of failing. In other words the hazard rate represents the instantaneous risk that an event will occur, meaning a minister will leave the cabinet, during the extremely short interval Δt, under the condition that she has not left until time t. A number of studies on government termination (Cioffi-Revilla, 1984; King et al., 1990) have used fully parametric models that specify a certain time dependency function (baseline hazard). The problem with such models is that a misspecification of the functional form of the time dependence biases the overall estimation.[4] Therefore recent studies on government termination

---

[4] Fully parametric models (e.g. Weibull, Gompertz, Log-Logistic) try to model the time dependence in event history data directly through setting up a function describing the dependency between elapsed time and the survival period. A correct

mostly rely on the semi-parametric **Cox-model** (Jäckle, 2011; Saalfeld, 2008; Warwick, 1994, 2006). The Cox-model enables researchers to estimate the influence of attributes on the hazard rate, without knowing the functional form of the baseline hazard and thus without the danger of introducing error into the model through a misspecification of this underlying hazard (Yamaguchi, 1991, p.101f). It is therefore the best choice for the estimation of ministerial turnover hazards. Basis of the model is the hazard rate for the i-th unit:

$$\lambda_i(t) = \lambda_0(t) \exp(\beta_1 x_{1i} + \beta_2 x_{2i} + \ldots + \beta_{ki}) = \lambda_0(t) \exp(\beta' x), \qquad [1.1]$$

with $\lambda_0(t)$ being the baseline hazard function and the term $\beta' x$ containing the covariates and regression parameters (Box-Steffensmeier & Jones, 2004, p.48). The Cox-model belongs to the proportional hazard family, meaning that according to (1.1) hazard rates are multiplicatively linked and thus the quotient from the hazard rates of any two units i and j are no longer dependent on the baseline hazard, but on the k relevant covariates (Garczorz, 2004, p.98-99). The Cox-model requires this quotient called *hazard ratio* to be constant over time (Hosmer & Lemeshow, 2008, p.70). In other words the Cox-model implicitly supposes that the covariates can only cause proportional changes of the hazard rate, but cannot alter its basic functional form. This assumption, when unjustified, would result in biased estimates. It is therefore necessary to test the model globally as well as every single covariate for proportional hazards (Blossfeld et al., 2007, p.223; Grambsch & Therneau, 1994).

For the estimation of the β-coefficients in (1.1) Cox introduced the partial likelihood method which differs from maximum likelihood estimation insofar, as it uses only part of the information contained in the event history data (Cox, 1975). Not the exact survival times are used for the estimation but the ascending order of these durations. Hence the Cox-model assumes the absolute differences between the survival times not to contain any further information regarding the dependency between

---

specification of this baseline hazard is indispensible for a meaningful estimation. With regard to the two possible causes of time-dependency, real dependence of time and "unreal" time-dependence because of unobserved heterogeneity (Blossfeld, Golsch, & Rohwer, 2007, p.184; Vermunt, 1997, p.189), it becomes clear that especially adopting the second view, it is impossible to determine the baseline function a priori on theoretical grounds. When it comes to ministerial turnover, probably both causes of time dependence are of some relevance: a high biological age can definitely be a cause for leaving the cabinet, but one could imagine other factors not being directly observable but correlated with time that impact on leaving the government. Therefore no specific baseline hazard can be theoretically determined. An inspection of the empirical hazard rates via the life-table-method can also at best give some hints about the functional form of the baseline hazard, but cannot be used for an exact definition. Therefore the functional specification of the baseline hazard constitutes the most serious drawback for the use of fully parametric models (Box-Steffensmeier & Jones, 2004, p.85-87).

covariates and hazard rate.[5] The first step in estimating a Cox-model is to compile an ascending sequence of all cases according to their durations (Warwick, 1994, p.23 f). After this, it has to be asked: what is the probability of one specific case (say j) to terminate exactly with the survival time T_i? This probability can be expressed as follows (Box-Steffensmeier & Jones, 2004, p.51):

$$\Pr\left(t_j = T_i \middle| R(t_i)\right) = \frac{\exp(\beta' x_i)}{\sum_{j \in R(t_i)} \exp(\beta' x_j)}. \qquad [1.2]$$

The term $R(t_i)$ indicates the risk set of cases that are still alive at time t_i and hence at risk of failing. It constitutes the condition for the probability function. For the understanding of this formula it is of further importance to recognize that x_i is the covariate value, for a unit terminating at time t_i, whereas x_j is the x-value for the j-th unit of analysis (Cox, 1975, p.272). For the estimation of the betas the product of these conditional probabilities over all observations is calculated, denoted by Cox as the partial likelihood:

$$L_p = \prod_{i=1}^{K} \left[\frac{\exp(\beta' x_i)}{\sum_{j \in R(t_i)} \exp(\beta' x_j)} \right]^{\delta_i}. \qquad [1.3]$$

For reasons of practicability we gain the estimates through maximizing not the product itself, but the log of this likelihood. The superscript δ_i distinguishes between censored and non-censored observations. Censoring in EHA does not imply losing the whole information a case contains, instead censored observations enter the model not with their empirically observed duration, but with a somewhat longer duration, estimated by the survival function. Although it is not possible to exactly predict how long these censored ministerial spells would have lasted, the survival function gives the probability that a censored minister would have had a duration at least as long as observed, or even longer. Figure 1 illustrates the different possibilities for censoring:

---

[5] For most studies this loss of information, compared to fully parameterized models, does not pose a relevant problem, as the differences between the exact survival times and the ordering of these durations vanish with growing sample size.

Figure 1: Different kinds of censoring
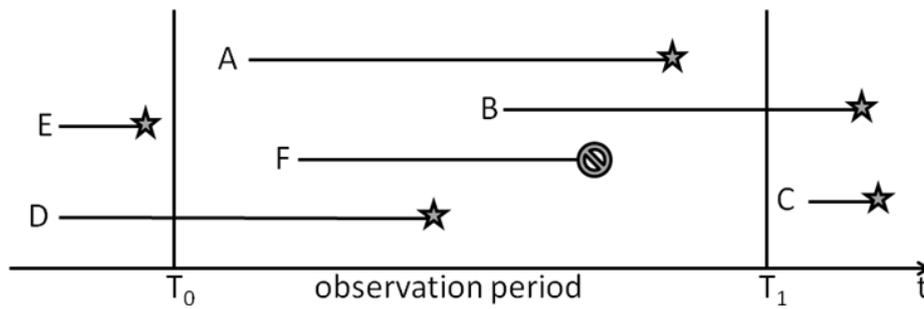
The illustration shows the six observations A, B, C, D, E and F. The star at the right end of the lines that indicate the risk periods represents an event of interest, whereas the crossed out circle stands for an event that is not the one of interest. Author's diagram adapted from Yamaguchi (1991, p.4).

Observation *A* is the case researchers would clearly prefer. The beginning, as well as the transition point, is within the observation period, so that the entire information about the transition process can enter the model. In contrast the observations of *B* and *D* only contain partial information. *B* is called right censoring, as only the starting point of the transition process is known, but the event occurs after the end of the observation period at T_1. Correspondingly an observation like *D* is called left censored, when the event of interest is observed for a unit whose event history begins before T_0. Even though the partial information resulting from censoring confronts the modeling of event history data with difficulties, EHA is still better suited to handle such a data structure than regular statistical instruments like OLS regression analysis. In the present study however – because the exact starting points for all analyzed ministerial spells is known – only right censoring is relevant. At the end of the observation period – which is the same day (01.31.2011) throughout the whole sample – in every cabinet there are still ministers in power whose spells have not ended yet. This is the classical case of right censoring exemplified in case *B*. This leads us to observation *F* which from the statistical point of view is treated in exactly the same way as a classical right censored observation (*B*), although it terminates within the observation period like *A*. The reason for this treatment is based on a different kind of terminating event. Observation *F* does not end because of the event of interest – a minister leaving the cabinet for some political reason – but because of some other event. Hence its duration would have been longer, if this (other) event had not happened. It is therefore censored. For example the death of a minister is such a terminal event that should be treated as censored, because the minister would have been longer in power if she had not died. The same holds true for resignations due to illness or the voting out of a governing party at elections. In these three circumstances it is not a political reason concerning a specific minister that ends her ministerial spell. A study on government terminations by Damgaard (2008) distinguishing between "technical and discretionary

terminations" serves as a blueprint for the classification of censored and non-censored cases in this paper. While technical terminations "are beyond the control of the players", discretionary terminations "are deliberately brought about by the actors involved, even if these actors may feel that they have no other options" (Damgaard, 2008, p. 303 f.). The relevant players in this game are first and foremost the minister leaving office, the prime minister and the coalition partners' parliamentary factions. The following table 1 provides an overview of the types of terminal events and their frequencies within the dataset:

Table 1: Types and frequencies of terminal events by *Bundesland*

	BE	BB	MV	SN	ST	TH	sum
voting out of government party (at elections)	4	5	10	2	23	7	**51**
Death	0	0	0	0	0	0	**0**
ill health	0	2	4	0	2	1	**9**
change to other political/state position (e.g. federal government, other state government, central bank)	7	9	2	5	2	5	**30**
change into private business/deliberately exiting politics	8	2	0	0	1	3	**14**
problems within the governing coalition (whole party leaving the government)	3	0	0	0	0	0	**3**
problems within the own party	1	1	5	0	1	1	**9**
scandal[6]	3	7	2	7	8	5	**32**
partial ministerial reshuffle after elections	8	1	5	2	2	4	**22**
lost vote of no confidence against prime minister	5	0	0	0	0	0	**5**
other terminal event (politically induced)	9	8	3	20	6	13	**58**
still in office at 31.01.2011	9	10	9	9	10	10	**58**
Sum	**57**	**45**	**40**	**45**	**55**	**49**	**291**

**BE: Berlin, BB: Brandenburg, MV: Mecklenburg-Vorpommern, SN: Saxony, ST: Saxony-Anhalt, TH: Thuringia.
The grey rows indicate technical terminal events which are censored in the statistical analysis.**

The categories for the classification of the terminal events are used in a mutually exclusive manner, although in research reality it is often not possible to determine the real, single cause of a ministerial turnover (Fischer, Kaiser, & Rohlfing, 2006, p.712). In contrast, we often face an accumulation of different reasons resulting in the end of a ministerial spell (Dowding & Kang, 1998, p.426). This phenomenon is known from the analysis of government terminations where it is also a complex issue to determine exactly the type of terminal event (Budge & Keman, 1990, p. 178 f.; Jäckle, 2011, p. 38-41). The categorization is thus based on the most relevant type of termination – knowing that this decision is subjective and far from being clear without ambiguity. The categorization of terminal events is first of all necessary for the censoring. While it is hard to determine the exact type of discretionary termination – the numbers in the white rows in table 1 should therefore be interpreted

---

[6] This category subsumes all types of scandals. The large majority of them are nevertheless either of financial or political nature. However, sexual scandals which according to Dowding and Kang (1998, p.419-425) make up a considerable portion of British ministerial resignations especially in recent years and exclusively for conservative politicians are apparently no big issue in the East German Länder.

with some caution – the dichotomous classification between censored and non-censored cases can be done without significant error. Only for the ministerial spells ending due to bad health of the minister, it is questionable whether these reasons were not just put forward to divert from other political problems. The following analysis assumes these terminations not to be politically induced and thus they are censored. Baring the above mentioned problems in mind, some preliminary conclusions can be drawn from the table: About one sixth of all ministers had to leave their office because their party was voted out of power. This holds especially true for the case of Saxony-Anhalt where we could observe nearly all types of party governments during the last 20 years (CDU/FDP, SPD/Greens, SPD, CDU/SPD). While no minister died during her time in cabinet nine had to leave government because of health reasons. Especially in Berlin and Brandenburg ministers often left the cabinet to advance their careers – changing to either another political position or into private business.[7] Only once in Berlin one of the coalition parties decided to break the coalition due to policy differences. As a result of a SPD-initiated vacation of seized buildings all three green ministers resigned from their positions in the SPD-Green-government shortly before the first joint elections for the Berlin chamber of deputies were held in December 1990. Moreover, Berlin witnessed the only case where a vote of no confidence launched against a prime minister resulted in a ministerial turnover. In 2001 four ministers together with the governing mayor Eberhard Diepgen, subjected their fate to a vote of no confidence and as a consequence left the government when the majority of the parliamentarians did no longer support Diepgen who represented the scandal shaken political landscape of West-Berlin like no other. A lack of support from the own party can only be made responsible for the turnover in a small number of cases whereas political scandals account for more than ten percent of all the terminations of ministerial spells. In more than one fifth of all cases it is simply not possible to determine which of the discretionary types of termination is at work – at least with the informational basis (*Munzinger Archiv*) available.

5. Hypotheses and operationalization

Following theoretical and empirical works on ministers' lifetimes and government survival two main blocs of factors can be identified as potentially relevant when it comes to the causes of ministerial turnover (Berlinski, Dewan, & Dowding, 2007, p. 247; Huber & Martinez-Gallardo, 2008;

---

[7] For example the former senator of finance in Berlin, Thilo Sarrazin, left office in 2009 when he was appointed as member of the executive board of the *Deutsche Bundesbank* – a position he had to give up just the following year in the wake of a scandal regarding his positions about immigration. Burkhard Dreher, minister of economy in Brandenburg from 1994 to 1999 left government for becoming CEO at the VEW, back then a large utility company representing an example for a minister moving into private business.

Indridason & Kam, 2008; Laver, 2003; Warwick, 1994). First, there are attributes of the institutional and political setting determining the arena in which the ministers act and second, biographic information about the respective minister are supposed to have an influence as well. Biographic data includes personal and socio-demographic characteristics (sex, age, education) but as well political characteristics of the minister, like her record of earlier ministerial spells. An overview of the political & institutional and biographic factors tested in the following analysis is provided in the following table.

Table 2: Institutional and biographic factors to be tested

political & institutional factors	biographic factors
type of government (SPG, MWC, minority cabinet)	age at end of ministerial spell
majority (percentage of parliamentary seats of the government party/parties)	regional rootedness (birthplace in the same *Bundesland* as the ministerial job)
policy distance between the coalition partners	Sex
important ministry	Doctorate
	same party as prime minister
	lengths of time of party membership
	career changers (did the minister come from private business) & party affiliation
	member of one of the bloc-parties in the former GDR
	import from West-Germany
	prime minister
	number of different cabinet positions (portfolios) during the ministerial spell
	number of spells the minister has served before the actual spell

5.1. Political and institutional factors

Studies of government survival have shown that single party majority governments (SPG) and minimal winning coalitions (MWC) are the most durable types of cabinets (Dodd, 1974; Warwick, 1994), even though they reveal significant differences in their kinds of terminations: while SPG more frequently exercise the option of dissolution of parliament followed by early elections, MWC show a higher hazard for replacements (Jäckle, 2011, p.111; Kayser, 2005, p.17; Strom & Swindle, 2002, p.585-589). The underlying logic of this phenomenon can also be applied to the question of ministerial turnover. In a SPG the prime minister possesses a much bigger autonomy in reshuffling her cabinet. Moving ministers from one portfolio to another can help to reduce agency loss (Indridason & Kam, 2008), but in some instances there is probably no more option to leave a minister who is either mired in a scandal or pursuing policies too far away from the prime ministers own policy position as a member of the cabinet. In these cases it should be easier for a prime

minister of a SPG to replace the problematic minister or at least to induce her resignation[8] than for a prime minster who is bound by coalition politics (Budge, 1985). For these coalition governments a distinction has to be made: when the minister is member of the same party as the prime minister, her turnover can probably be pushed through as easy as in a SPG or even easier, as the coalition partner normally should have no reason to adhere to a politician from another political party. In contrast the coalition partner will generally try to keep its own minister in power. The following hypothesis can be formulated:

H1: *In SPG and for those ministers in coalition governments that belong to the prime minister's party the hazard for ministerial turnover should be higher than for ministers in coalition governments that belong to the small coalition partner(s).*

Minority governments are unusual in the German Länder. In the East German sample there were only three instances of such minority cabinets. In Saxony-Anhalt Reinhard Höppner for the first time built a minority government comprised of SPD and Greens in 1994 that was tolerated by the PDS. This so called *Magdeburg model* continued also in 1998 when the Greens did not manage to reenter the parliament with a SPD single party minority government supported by the PDS. With the same kind of PDS tolerated minority cabinet Klaus Wowereit led a SPD/Greens-government in Berlin between the vote of no confidence against Eberhard Diepgen in 2001 and the early elections in 2002. However with these tolerating policies the three minority cabinets fairly resemble standard coalition governments and should therefore show similar rates of ministerial turnover. Nevertheless the statistical analysis controls for minority governments.

In their study on ministerial tenure in Great Britain Berlinski and Dowding showed that majority size does not show any influences on ministerial turnover (2007, p.256-257). We assume to find the same in the German Länder.

H2: *We do not expect to find differences between the hazard rates of ministers serving in governments that hold a large and those building only on a small parliamentary majority.*

Partisan differences could play a role. For testing this assumption data on the political positioning of the parties on the two dimensions *economy* and *society* as well as data on the salience of these two

---

[8] Fischer et al. have shown, that at least for the German federal ministers, the role of the Federal Chancelor is often decisive for the minister's fate when the opposition or the media confront cabinet ministers with demands for resignation (Fischer et al., 2006, p.730).

dimensions for the respective parties were used (Debus, 2008).[9] The salience-weighted Euclidean distance of the coalition parties on these two dimensions serves as a proxy for intra-coalitional policy differences. The assumption is that the higher the policy differences in coalition governments, the more often these differences will impact on the personal level, leading to personal changes within the cabinet.

H3: *The higher the salience-weighted Euclidean distance between the coalition parties, the higher should the hazard for ministerial turnover be.*

Clearly there are differences in between the ministries according to their importance. Although this importance is possibly a function of the parties' ideology (Greens will probably assign more weight to the ministry of environment, whereas Social Democrats might deem the ministries of labor and social welfare more important) we can nevertheless identify a certain core of ministries, which are of crucial importance for the functioning of every German Länder government. These are the ministries of finance, education, labor, social welfare and economic affairs. Especially in these important ministries a personal continuity is essential and parties can be expected to appoint their best personal to these positions. Both factors support the view that these ministers should have longer durations in power.

H4: *Ministers holding an important cabinet position should have a lower hazard for turnover.*

5.2. Biographic factors

Biographic information constitutes the second set of factors potentially determining a minister's duration in cabinet. The age of the minister definitely has to be controlled, because old ministers may have just reached retirement age or may feel – especially when confronted with political pressure – "to have reached the highest rung on the ladder and so [are] more willing to leave office to take a look at those outside options" (Berlinski et al., 2007, p.258). On the other hand, a minister who has reached an old age had at least potentially more time to serve as minister than one of her very young colleagues. Thus we hypothesize:

H5: *The older a minister is at the time when she leaves office the lower her hazard for leaving the cabinet should be.*

---

[9] To gain salience-values and policy positions Debus applied the wordscore-technique on electoral programs (Debus, 2008). His period of investigation covers 1994 to 2006. As a consequence it was only possible to determine the policy distance for about half of the cases in this study (151 in 282).

Women are still underrepresented in political positions. However the percentage of female ministers is significantly higher than the percentage of female prime ministers, showing that the realization of equal opportunities is a stepwise process starting at lower political levels. A comparison with government/prime minister survival is nevertheless instructive at this point: while controlling for sex does not result in significant differences in the hazard rates between governments led by a man and those led by a female prime minister, a closer inspection of the latter reveals two types of women that hold this position. First there are women with a strong personality and a sizable backing within their party, like Margaret Thatcher or Gro Harlem Brundtland who also show government durations considerably above (male) average. The second type of women prime ministers reveals on the other hand durations that are below average. These women are often taken as caretaker or compromise candidates (Jäckle, 2011, p.253-256). Applied to ministerial turnover we assume to see a similar pattern.

H6: *At the aggregate level there should be no difference between hazard rates of women and men. When looking at the single cases of female ministers two groups can be expected: One consisting of women that have a long duration in cabinet and another group with clearly below average durations.*

Education is another personal attribute that could influence the turnover rate. Berlinski and Dowding have shown for Britain that there seems to be a difference between cabinet members with public and those with a private school education, and especially ministers that have studied in Oxford or Cambridge reveal a lower turnover hazard than those not having such an "Oxbridge background" (Berlinski et al., 2007, p.254). According to them the type of school attended by a minister serves as a proxy for "characteristics of the minister such as acquired skills, latent ability or access to social networks" (Berlinski et al., 2007, p.257). While in theory these characteristics can be seen as relevant for the performance at the ministerial job as well as for a possible later job in the private business – and hence could work in both directions – empirical evidence indicates that an elitist education decreases the minister's hazard for turnover. In Germany nevertheless there is no such strict distinction between clear elite universities as Cambridge or Oxford and average ones. Therefore in this study we distinguish between ministers holding a Dr./PhD and those without.[10] The argument thus has to be slightly adapted: the PhD first of all shows apart from the higher level of education a certain dedication the minister has put into his career, often during times when she was already politically active. Therefore the PhD can at least to some extent be seen as a proxy for drive and

---

[10] Distinguishing between ministers without tertiary education and those holding a university degree does not produce meaningful variance. Only three ministers in the whole sample did not attend university.

assertiveness enhancing the chances to stay in power when problems arise. We formulate the following hypothesis:

H7: *Ministers holding a PhD should have lower hazard rates.*

Being regionally rooted in the *Bundesland* where the minister holds office could have a positive impact on the duration in cabinet. The same should be the case for ministers that can look back on a long party membership and thus ceteris paribus have a stronger backing within their own party than new members.

H8: *Ministers serving in the same Bundesland, where they were born should have a lower hazard for turnover than those lacking these regional roots.*
H9: *The longer a minister has been a member of her party the lower the hazard should be.*

Some particular eastern German aspects have to be considered as well. When the GDR ceased to exist, the bloc parties merged into their western counterparts.[11] These bloc parties that had been centralized in the National Front were politically entirely dependent on the SED. In the wake of the political events in 1989/90 members of the bloc parties who had worked together with the political leadership of the GDR before turned their coats and became "flawless democrats". A significant portion of the new political establishment in eastern Germany had thus already been part of the old system. Ministers with such a bloc party background should therefore be more often confronted with rumors about collaboration with the *Stasi* and mired in other political scandals. Thus we assume:

H10: *Ministers that had been members of a bloc party should have a higher hazard for turnover.*

Another specific of the Eastern German political landscape was the systematic "import" of politicians from the western part of Germany. Those so called *development helpers (Aufbauhelfer)* were nevertheless only needed for the first years, when there was a real lack of sufficiently qualified and at the same time not politically tainted personal:

H11: *Ministers who were imported from western Germany as development helpers should have a higher hazard for leaving the cabinet.*

---

[11] CDU-East and the Democratic Farmers party of Germany (DBD) became part of the West CDU, while the Liberal Democratic Party of Germany (LDPD) and the National Democratic Party of Germany (NDPD) merged into the FDP. There was no SPD bloc-party, because the social democrats had in 1950 been forced to merge with the communist party (KPD) into the ruling SED. The lack of an organizational structure to build on as provided by the bloc parties for CDU and FDP, was one of the most serious difficulties the social democrats had to face after 1990 in the new *Länder*.

A similar argument can be made for career changers coming from private business, bureaucracy or the academia that are appointed as expert-ministers. In the new Länder prime ministers often used this option to gain expertise for their cabinets. In addition these expert-ministers frequently are also no party members which results in a more fragile backing in times of conflict.

H12: *Ministers that were appointed as expert-ministers, coming from private business, bureaucracy or academia should have a higher hazard. The same should be true for non-party ministers.*

At least when it comes to ministerial turnover prime ministers are more than just a *primus inter pares* within government. On the one hand they have the power to dismiss ministers within their cabinets, but on the other hand they cannot be dismissed that easily. The only possibility for a (forced) turnover of a prime minister (apart from voluntary resignations) is losing a vote of no confidence or a motion of confidence.[12] In addition, a change of the prime minister is always more severe than the turnover of any other minister as it is synonymic to a government termination. Therefore the assumption is clear:

H13: *Prime ministers should have a lower hazard rate than the other cabinet members.*

The last biographic factor to be controlled is the amount of expertise a minister has accumulated during her political career. Two operationalizations will be tested: first, the number of ministerial spells a minister has served before the actual spell and second, the number of different cabinet positions the minister held during the actual spell. While someone returning to cabinet office, after some time where she was out of government, can probably be regarded as powerful and should thus have a lower hazard for turnover,[13] the consequences of a high number of cabinet positions held during the ministerial spell are not that clear. Shuffling from one portfolio to another can have different reasons: Either the minister does not satisfy the expectations of the prime minister and hence has to change office. This would be an indication for a lack of support that could in the end result in a short duration in power. But someone who is a very good crisis manager and generalist could also be employed each time when the government faces political trouble. Such a minister would probably have a lower hazard for leaving the cabinet as she is one of the pillars of the

---

[12] According to the constitutions of the *Länder* a motion of confidence is only possible in Brandenburg, Mecklenburg-Vorpommern, Saxony-Anhalt and Thuringia.

[13] This argument resonates with Dewan and Myatts study (2010), claiming that the talent pool of potential ministers is not infinite. Therefore, from the perspective of a prime minister, wishing to work with the most talented personal, recourse to ministers that have already proven their qualities in earlier governments often makes sense.

government and central for its performance. We therefore cannot make a clear prediction about the direction of influence for the number of cabinet positions a minister held during her spell. Both directions of influence are theoretically possible. With regard to the first operationalization of ministerial expertise this is nevertheless feasible:

H14: *The higher the number of spells a minister has served in the cabinet before the actual spell, the lower her hazard for turnover should be.*

6. Statistical analysis

6.1. Descriptive analysis

Before starting to test the above proposed hypotheses a short and more descriptive analysis is useful. The boxplots in graph 1 give a first impression about the durations of the ministerial spells. They show that there is some variation between the six Bundesländer but still the within variation is definitely larger. The median duration for a minister staying in government is between 1330 days in Saxony and 1464 days in Mecklenburg-Vorpommern and the skew for all six Länder is slightly positive. Some ministerial spells even last for more than 10 years but one minister clearly stands out: Volker Sklenar has been the minister of agriculture in Thuringia for more than 19 years, and hence almost the whole sample period, when he left office in 2009.

Graph 1: Durations of the ministerial spells
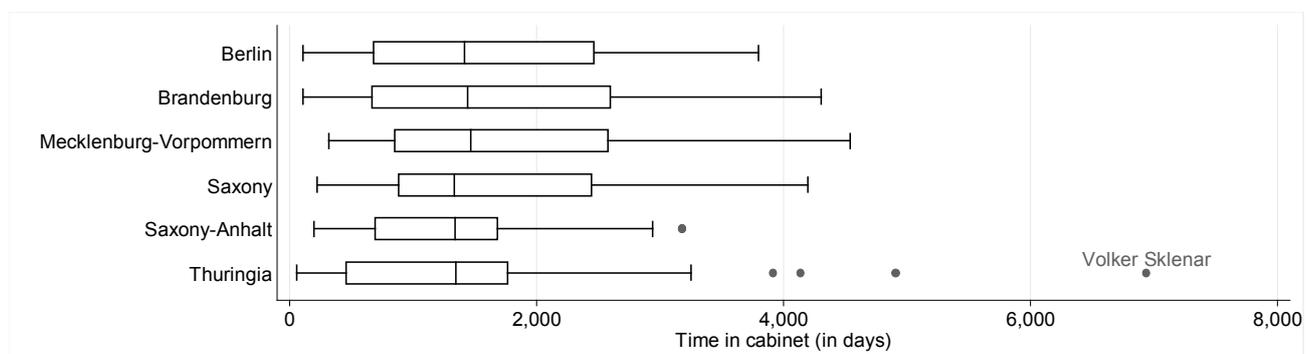
For the purpose of a simple comparison other graphical visualizations like the product limit estimator developed by Kaplan and Meier (1958) are convenient especially as they allow for comparing the empirical survival functions of different sub groups (Elandt-Johnson & Johnson, 1980, p.172-174; Kalbfleisch & Prentice, 1980, p.10-16; Lawless, 1982, p.71-74).[14] Graph 2 shows the Kaplan-Meier survival functions for two groups of ministerial spells: the first one contains spells that ended before

---

[14] The life table method, having its roots in demographic research, is another non-parametric event history technique that could be used here. This approach nevertheless has its problems dealing with right-censored data (Elandt-Johnson & Johnson, 1980, p.83-93; Lawless, 1982, 53-68).

12.31.1995 the other one those cases that ended after that date. Looking at the two functions and taking into consideration their confidence intervals we see that the probability of survival for ministers decreases much faster in the first years after the reunification. After 1000 days approximately 50% of the ministers of the first time interval had already left the government, while half of those ministerial spells ending after 12.31.1995 lasted for about 2500 days.

Graph 2: Kaplan-Meier estimates by date of termination (+ 95% confidence intervals)
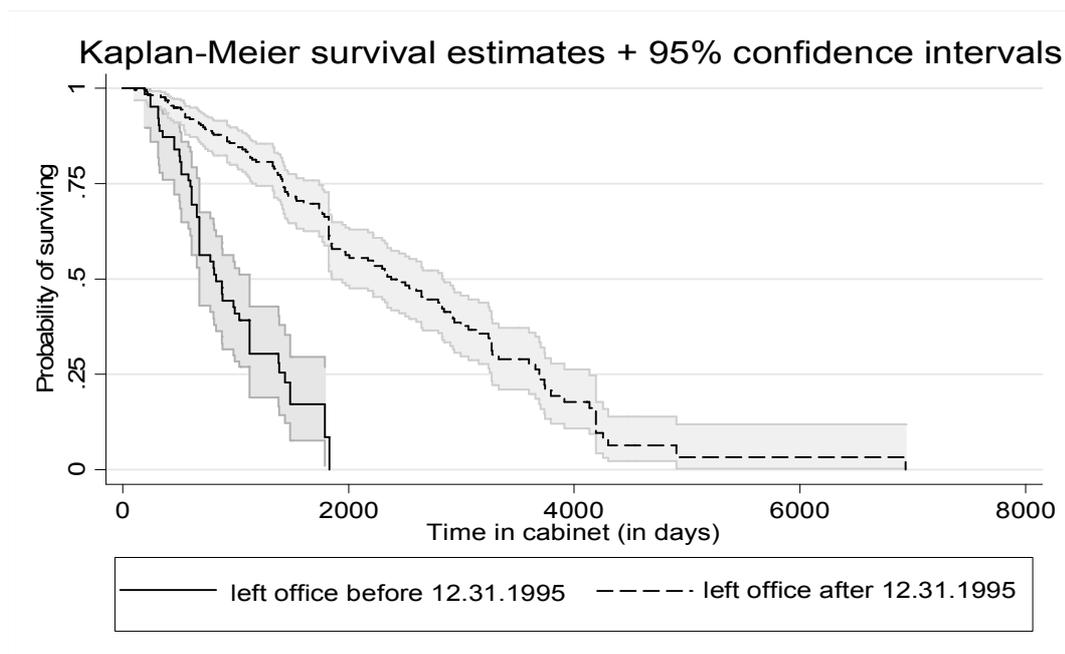
Three more Kaplan-Meier curves are presented in the annex. Graph A1 shows that there is no significant difference between male and female ministers. According to graph A2 there seem to be at least some minor differences for party membership, although the big steps in the functions of the small parties (FDP, Greens, PDS/Linke) indicate a large uncertainty for this assertion.[15] In graph A3 the empirical survival functions are plotted for the six Bundesländer. Again we do not see large differences. Only for Berlin the function decreases slightly faster. In Mecklenburg-Vorpommern the situation is inverted. In this context it becomes evident that the probability of survival does not drop to zero. This is due to right censoring. In contrast to Thuringia, where the minister with the longest duration (Volker Sklenar) regularly left the cabinet, in Mecklenburg-Vorpommern the four ministers

---

[15] The steps originate from the fact that the Kaplan-Meier estimator for the probability of survival can only be calculated at those points in time when an event has taken place. Therefore with few events the steps, as well as the uncertainty of the estimation, grow. The confidence intervals that, for the sake of clarity, were not presented in graph A2 would thus overlap widely especially for the small parties.

with the longest durations either left the cabinet due to health reasons or are still in office and are hence right censored.

6.2. Multivariate Analysis

In the following tables the results of the Cox-models are presented. The first model tests the political and institutional factors described in hypotheses H1-H4. The picture is somewhat surprising. None of the political and institutional factors show any significant influence on the duration of ministerial spells. This is also the case when because of multicollinearity either *SPG* or *ideological distance* – which are correlated with quite high – are omitted from the model. In addition, dropping the ideological distance measure that, due to data restrictions, is only available for 151 cases furthermore increases the N. Nevertheless, even when tested in the complete sample, no significance emerges for the political-institutional variables. These results point to the fact that for the individual ministers' duration in cabinet the political and institutional setting is not as decisive as studies have shown for the survival of the whole government (Jäckle, 2011; Laver, 2003; Warwick, 1994).

model 1

```
No. of subjects =            151          Number of obs    =        151
No. of failures =            107
Time at risk    =         287672
                                          LR chi2(5)       =       0.49
Log likelihood  =    -415.48886           Prob > chi2      =     0.9924
------------------------------------------------------------------------
        _t | Haz. Ratio   Std. Err.      z    P>|z|     [95% Conf. Interval]
-----------+------------------------------------------------------------
       spg |   .7682662    .3196613    -0.63   0.526     .3398933    1.736524
coal_pm-party|  .9328452    .2553206    -0.25   0.800     .5455505    1.595087
parl_strength|  1.304014   1.865795     0.19   0.853     .0789544    21.53717
 ideol_dist |   .9999043   .0002138    -0.45   0.654     .9994854    1.000323
important_min|  .9709271   .1916752    -0.15   0.881     .6593971    1.429638
------------------------------------------------------------------------
```

The second model tests the first hypotheses regarding the biographic attributes. Here we see that *PhD* and *sex* do not impact on the hazard rate,[16] whereas *age*, *regional roots* and the *length of party membership* show significant effects: The older a minister, when she leaves office, the lower is her hazard rate; or put the other way round: a minister who leaves the cabinet in her younger days serves ceteris paribus shorter than his older counterpart. This is in line with the expectations. Serving as a minister in the same Bundesland where one is born reduces the hazard rate as predicted by H8. A

---

[16] According to our expectation we find two groups of women: those with a comparatively long duration and the majority having short spells (see graph 4 in the annex).

long party membership prior to becoming a minister does obviously not help – it even increases the hazard for ministerial turnover.

model 2

```
No. of subjects =           274              Number of obs    =          274
No. of failures =           159
Time at risk    =        443640
                                             LR chi2(5)       =        34.72
Log likelihood  =    -681.16542             Prob > chi2      =       0.0000
-----------------------------------------------------------------------------
         _t | Haz. Ratio   Std. Err.      z    P>|z|     [95% Conf. Interval]
------------+----------------------------------------------------------------
    age_end |   .9327728   .0117011    -5.55   0.000     .9101187    .9559907
        phd |    1.20622   .2024517     1.12   0.264     .8680822    1.676069
        sex |   1.048259   .2126581     0.23   0.816     .7043483    1.560092
regional_root|   .6933488   .1225952    -2.07   0.038     .4902816    .9805233
partymembersh|   1.024329   .0084714     2.91   0.004     1.007859    1.041067
-----------------------------------------------------------------------------
```

The third model tests the hypotheses regarding the political experience of ministers. Prime ministers ceteris paribus can be expected to have longer spells than ordinary ministers. As expected ministers that had been members of one of the bloc parties before the reunification have a higher hazard for turnover. In contrast hypotheses H11 and H12 have to be rejected: Neither West German politicians that were appointed as *development helpers*, nor experts from academia, bureaucracy or private business and also not non-party ministers show a hazard rate significantly different from the reference category. Ministerial experience operationalized as the number of ministerial spells before the actual one shows at least the right direction although the level of significance is clearly insufficient to speak of a real effect. In contrast, the number of different portfolios a minister held during the actual spell is of some relevance: the more cabinet positions she served, the lower her hazard for turnover.

model 3

```
No. of subjects =           279              Number of obs    =          279
No. of failures =           162
Time at risk    =        454918
                                             LR chi2(7)       =        36.71
Log likelihood  =    -693.56299             Prob > chi2      =       0.0000
-----------------------------------------------------------------------------
         _t | Haz. Ratio   Std. Err.      z    P>|z|     [95% Conf. Interval]
------------+----------------------------------------------------------------
 bloc_party |   1.652951   .4036844     2.06   0.040     1.024186    2.667723
west_import |   1.077843   .2418041     0.33   0.738     .6943784    1.673072
career_change|   1.074326   .2832072     0.27   0.786     .6408368    1.801045
  non_party |   1.264812   .4737143     0.63   0.530     .6070476    2.635296
   prime_min |   .4614727   .1632391    -2.19   0.029     .2306992    .9230939
spells_before|   .6469265   .2473007    -1.14   0.255     .3058201    1.368497
  portfolios |   .4330077   .0815122    -4.45   0.000     .2994057    .6262263
-----------------------------------------------------------------------------
```

The fourth and final model combines the factors from the previous models. Two aspects are remarkable: First, the political-institutional variables become more significant when the model controls for biographic factors. Now ministers that are member of the major coalition party show the expected higher hazard rates. The same tends to be true for SPG. The other effects in general stay the same as in models 2 and 3. Only the significance of the variables *regional rootedness* and *prime minister* is slightly reduced.

model 4

```
No. of subjects =           266                Number of obs   =          266
No. of failures =           152
Time at risk    =        438274
                                               LR chi2(14)     =        72.88
Log likelihood  =    -630.22769                Prob > chi2     =       0.0000
-----------------------------------------------------------------------------
         _t | Haz. Ratio   Std. Err.      z    P>|z|     [95% Conf. Interval]
------------+----------------------------------------------------------------
        spg |   1.542881    .4439427     1.51   0.132     .8778308    2.711776
coal_pm-party|  1.757658    .4176523     2.37   0.018     1.103248    2.800243
parl_strength|  .2902572    .2971397    -1.21   0.227     .0390299     2.15858
important_min|  1.005155     .176497     0.03   0.977     .7124744    1.418068
    age_end |   .9260851    .0128821    -5.52   0.000     .9011777     .9516809
        phd |   1.001705    .1814072     0.01   0.992     .7024067    1.428536
        sex |   1.207019    .2655233     0.86   0.392     .7842676    1.857649
regional_root| .8149044    .1579392    -1.06   0.291     .5573559    1.191463
partymembersh| 1.031068    .0098161     3.21   0.001     1.012007    1.050488
 west_import |  .8679411    .2435728    -0.50   0.614     .5007432    1.504407
career_change|  1.17152    .3546481     0.52   0.601     .6472472    2.120457
   prime_min |  .5354628    .2056547    -1.63   0.104     .2522372     1.13671
spells_before|  .8298865    .3292635    -0.47   0.638     .3813276    1.806089
  portfolios |    .35517    .0708232    -5.19   0.000     .2402709    .5250147
-----------------------------------------------------------------------------
```

Non party minister **and** *ideological distance* **had to be dropped because of multicollinearity,** *bloc party* **was dropped because of non proportional hazards according to the Grambsch-Therneau test (Therneau & Grambsch, 2000, p.132-136).**

7. Conclusion

The paper has analyzed factors determining the duration of East German Länder ministers in cabinet. The main result is that parameters describing the political and institutional landscape play a minor role when it comes to ministerial turnover. We only find ministers serving in coalition governments to have higher hazards for turnover if they are from the same party as the prime minister and the same at least tends to be true for ministers in single party governments. The other variables tested – parliamentary strength and ideological distance of the government parties – does not show significant effects. This could at least for the ideological distance measure derive from the lack of

data, considerably reducing the sample size. For the biographic factors we found effects for age, the length of party membership, the number of different portfolios a minister has served during her spell, membership in a former bloc party and for being prime minister. The results are nevertheless not very robust. Further tests, especially concerning the proportionality assumption have to be carried out. An estimation of stratified models (Blossfeld, Hamerle, & Mayer, 1986, p.57-58), the partitioning of the time axes (Therneau & Grambsch, 2000, p.145-152) or the use of interaction effects between the variables causing the non-proportionality and some function of time (Box-Steffensmeier & Jones, 2004, p.136-137) could be a solution when non-proportionality turns out to be a severe problem. In addition the sample should be extended to West German Bundesländer and to the period before 1990 as some of the effects that did not turn out to be significant in the present analysis could emerge as relevant ones in a larger sample. Furthermore a closer look towards the operationalization of the independent variables and the applied censoring regime seems to be necessary.

References

Berlinski, S., Dewan, T., & Dowding, K. (2007). The Length of Ministerial Tenure in the United Kingdom, 1945-97. *British Journal of Political Science, 37*(2), 245-262.

Blossfeld, H.-P., Golsch, K., & Rohwer, G. (2007). *Event History Analysis with Stata*. Mahwah: Lawrence Erlbaum Associates.

Blossfeld, H.-P., Hamerle, A., & Mayer, K. U. (1986). *Ereignisanalyse* (Vol. 569). Frankfurt: Campus-Verlag.

Box-Steffensmeier, J. M., & Jones, B. S. (2004). *Event History Modeling*. Cambridge: Cambridge University Press.

Box-Steffensmeier, J. M., & Sokhey, A. E. (2009). Event History Methods. In K. T. Leicht & J. C. Jenkins (Eds.), *Handbook of Politics. State and Society in Global Perspective* (pp. 605-618). New York: Springer.

Budge, I. (1985). Party Factions and Government Reshuffles: a General Hypothesis Tested against Data from 20 Post-war Democracies. *European Journal of Political Research, 13*(3), 327-333.

Budge, I., & Keman, H. (1990). *Parties and Democracy. Coalition Formation and Government Functioning in Twenty States*. Oxford: Oxford University Press.

Cioffi-Revilla, C. (1984). The Political Reliability of Italian Governments. An Exponential Survival Model. *The American Political Science Review, 78*(2), 318-337.

Cox, D. R. (1972). Regression Models and Life-Tables. *Journal of the Royal Statistical Society. Series B (Methodological), 34*(2), 187-220.

Cox, D. R. (1975). Partial Likelihood. *Biometrika, 62*(2), 269-276.

Damgaard, E. (2008). Cabinet Termination. In K. Strom, W. C. Müller & T. Bergman (Eds.), *Cabinets and Coalition Bargaining. The Democratic Life Cycle in Western Europe* (pp. 301-326). Oxford: Oxford University Press.

Debus, M. (2008). Parteienwettbewerb und Koalitionsbildung in den deutschen Bundesländern zwischen 1994 und 2006. In U. Jun, O. Niedermayer & M. Haas (Eds.), *Parteien und Parteiensysteme in den deutschen Bundesländern* (pp. 57-78). Wiesbaden.

Dewan, T., & Dowding, K. (2005). The Corrective Effect of Ministerial Resignations on Government Popularity. *American Journal of Political Science, 49*(1), 46-56.

Dewan, T., & Myatt, D. P. (2010). The Declining Talent Pool of Government. *American Journal of Political Science, 54*(2), 267-286.

Dodd, L. C. (1974). Party Coalitions in Multiparty Parliaments. A Game-Theoretic Analysis. *The American Political Science Review, 68*(3), 1093-1117.

Dowding, K., & Kang, W.-T. (1998). Ministerial Resignations 1945-97. *Public Administration, 76*, 411-429.

Elandt-Johnson, R. C., & Johnson, N. L. (1980). *Survival Models and Data Analysis*. New York: Wiley.

Fischer, J., Kaiser, A., & Rohlfing, I. (Writer) (2006). The Push and Pull of Ministerial Resignations in Germany, 1969-2005 [Article], *West European Politics*: Routledge.

Garczorz, I. (2004). *Adoption von Online-Banking-Services*. Wiesbaden Deutscher Universitäts-Verlag.

Grambsch, P. M., & Therneau, T. M. (1994). Proportional Hazards Tests and Diagnostics Based on Weighted Residuals. *Biometrika, 81*(3), 515-526.

Hosmer, D. W., & Lemeshow, S. (2008). *Applied Survival Analysis*. Hoboken: Wiley.

Huber, J. D., & Martinez-Gallardo, C. (2004). Cabinet Instability and the Accumulation of Experience. The French Fourth and Fifth Republics in Comparative Perspective. *British Journal of Political Science, 34*(1), 27-40.

Huber, J. D., & Martinez-Gallardo, C. (2008). Replacing Cabinet Ministers: Patterns of Ministerial Stability in Parliamentary Democracies. *American Political Science Review, 102*(02), 169-180.

Indridason, I. H., & Kam, C. (2008). Cabinet Reshuffles and Ministerial Drift. *British Journal of Political Science, 38*(04), 621-656.

Jäckle, S. (2009). Determinanten der Regierungsbeständigkeit. Eine Event-History-Analyse von 40 Parlamentarischen Demokratien. *Zeitschrift für Vergleichende Politikwissenschaft, 3*(1), 6-32.

Jäckle, S. (2011). *Determinanten der Regierungsbeständigkeit in parlamentarischen Systemen*. Berlin u.a.: LIT.

Kalbfleisch, J. D., & Prentice, R. L. (1980). *The Statistical Analysis of Failure Time Data*. New York: Wiley.

Kaplan, E. L., & Meier, P. (1958). Nonparametric Estimation from Incomplete Observations. *Journal of the American Statistical Association, 53*(282), 457-481.

Kayser, M. A. (2005). Who Surfs, Who Manipulates? The Determinants of Opportunistic Election Timing and Electorally Motivated Economic Intervention. *American Political Science Review, 99*(01), 17-27.

King, G., Alt, J. E., Burns, N. E., & Laver, M. (1990). A Unified Model of Cabinet Dissolution in Parliamentary Democracies. *American Journal of Political Science, 34*(3), 846-871.

Laver, M. (2003). Government Termination. *Annual Review of Political Science, 6*(1), 23-40.

Lawless, J. F. (1982). *Statistical Models and Methods for Lifetime Data*. New York: Wiley.

Munzinger Archiv. (2011). Internationale Biographische Archiv – Personen aktuell.

Saalfeld, T. (2008). Institutions, Chance, and Choices. The Dynamics of Cabinet Survival In K. Strom, W. C. Müller & T. Bergman (Eds.), *Cabinets and Coalition Bargaining. The Democractic Life Cycle in Western Europe* (pp. 327-368). Oxford: Oxford University Press.

Strom, K., & Swindle, S. (2002). Strategic Parliamentary Dissolution. *American Political Science Review, 96*(3), 575-591.

Therneau, T. M., & Grambsch, P. M. (2000). *Modeling Survival Data. Extending the Cox Model*. New York: Springer.

Vermunt, J. K. (1997). *Log-Linear Models for Event Histories*. Thousand Oaks: Sage.

Warwick, P. V. (1994). *Government Survival in Parliamentary Democracies*. Cambridge: Cambridge University Press.

Warwick, P. V. (2006). *Policy Horizons and Parliamentary Government*. Basingstoke: Palgrave Macmillan.

Weller, P. (1999). Distangling Concepts of Ministerial Responsibility. *Australian Journal of Public Administration, 58*(1), 62-64.

Woodhouse, D. (1993). Ministerial responsibility in the 1990s: when do ministers resign? *Parliamentary Affairs, 46*(3), 277-292.

Yamaguchi, K. (1991). *Event History Analysis*. Newbury Park: Sage Publications.

Annex:

Graph A1: Kaplan-Meier estimates by sex (+95% confidence intervals)
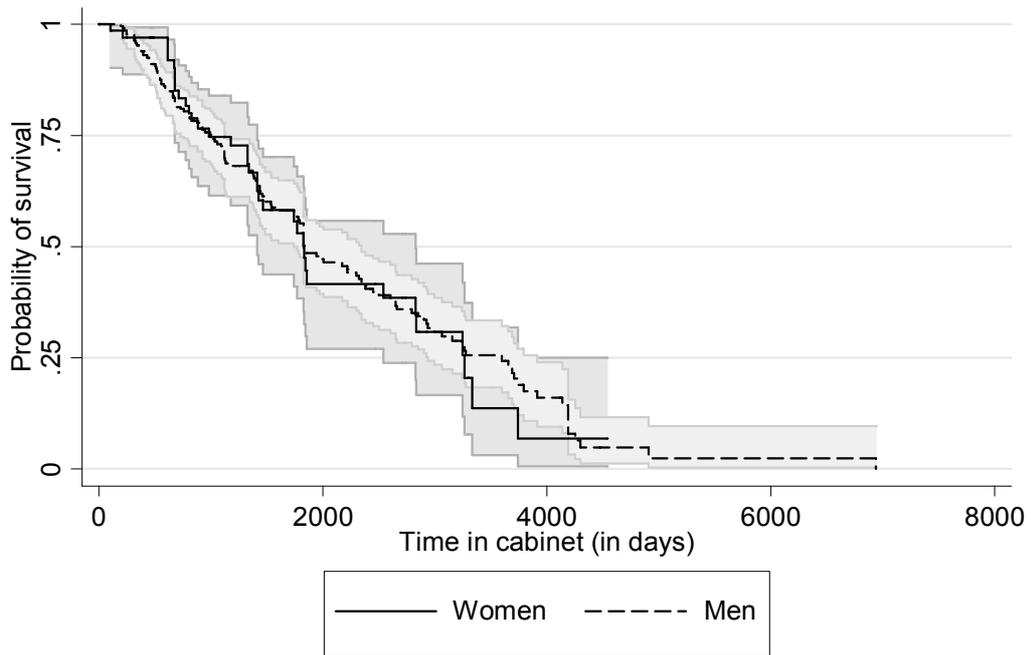
Graph A2: Kaplan-Meier estimates by party membership
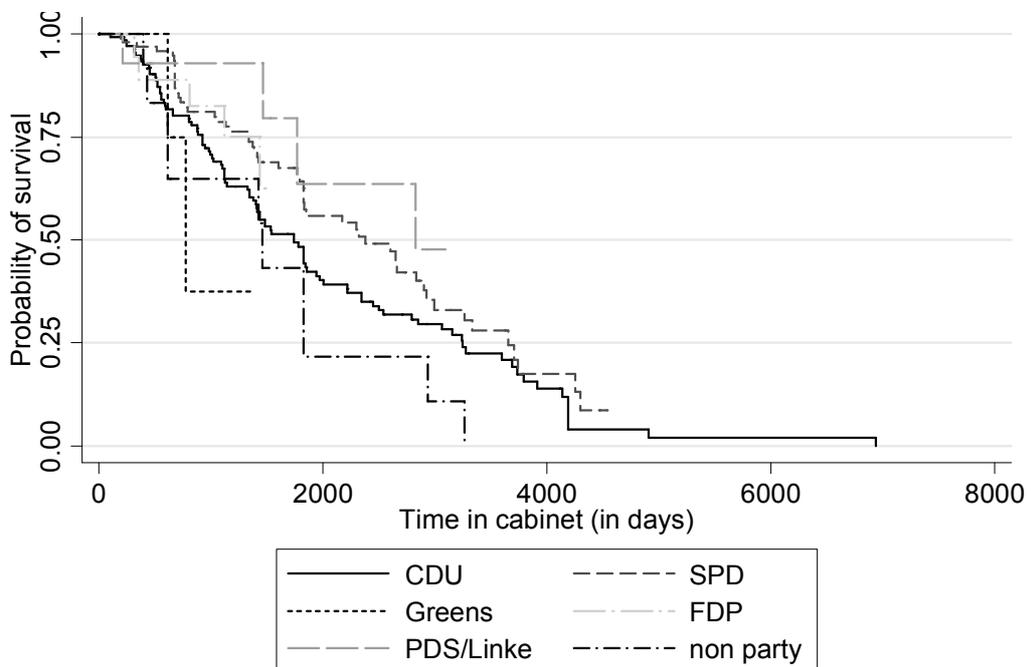
Graph A3: Kaplan-Meier estimates by Bundesland
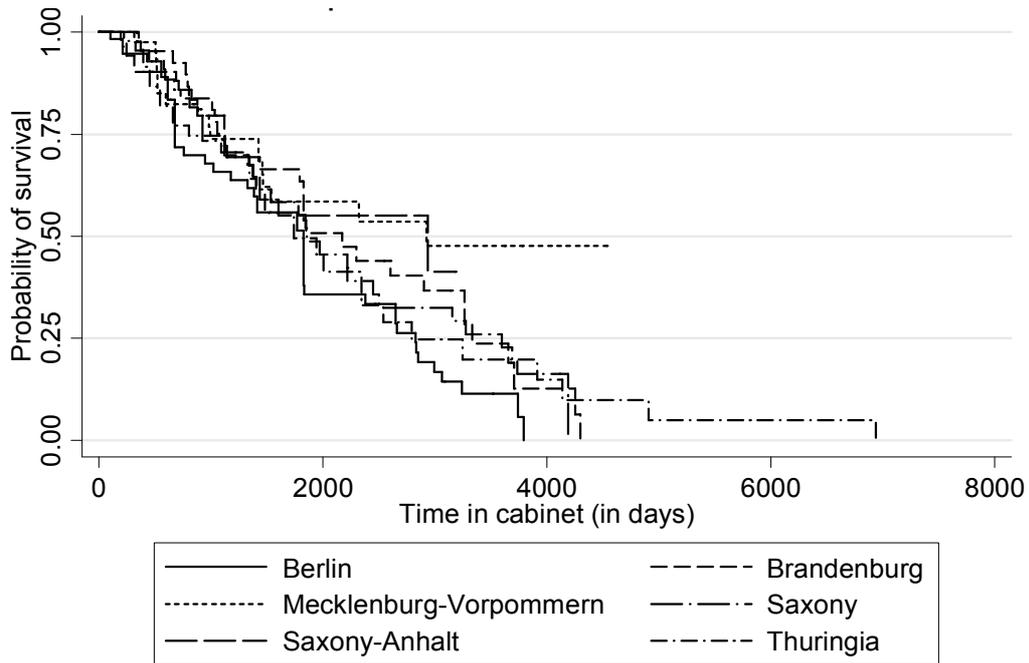
Graph A4: Histograms by sex