

Cabinet Turnover in Parliamentary Democracies

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Introduction

Scholars have long been concerned about cabinet stability in parliamentary democracies. They have argued that unstable cabinets can lead to regime instability; that instability leads to a transfer of authority from elected politicians to unelected bureaucrats; and that instability makes it difficult for politicians to respond to the need for policy change.¹ Consequently, enormous efforts have gone into understanding the factors that influence the stability of cabinets.

The study of cabinet instability focuses on "terminal events." That is, scholars develop criteria for identifying cabinet terminations, which typically include formal defeats in confidence votes, voluntary resignations, changes in party composition, interventions by the head of state, and, sometimes, elections. After coding terminal events, one can measure the duration of cabinets as the time elapsed between terminal events, and this data can then be used to test arguments about variables that influence the likelihood of these events.

The terminal events approach has illuminated important aspects of coalition politics in parliamentary systems.² Central variables in the literature include aspects of the coalition itself (such as the number of parties, the majority status, and the ideological diversity of the parties in coalitions), institutional arrangements (such as formal investiture votes, or electoral laws that fractionalize party systems), the performance of the coalition (such as economic outcomes), and dynamic factors (such as the number of days until the next election). The impressive link between theory, data, and sophisticated estimation techniques makes this one of the most well-developed areas in the study of parliamentary government.

¹ One should note that not all scholars treat cabinet instability as a problem. Linz (1978), Powell (1982) and Strom (1990) are examples of research that treat cabinet stability as a measure of political performance. Research arguing that there is no explicit link between cabinet instability (broadly defined) and political performance include Lijphart (1984a), Sartori (1994), Siegfried (1956), and Taylor and Herman (1971).

² The literature is enormous and cannot be completely reviewed here. The most thorough treatment of the subject is Warwick (1994). Other important works in the field include Budge and Keman (1990), King, Alt, Burns, and Laver (1990), Diermeier and Stevenson (1999, 2000), Laver and Schofield (1990), Powell (1982), Strom (1990), Taylor and Herman (1971), and Warwick (1979).

Previous research also offers normative arguments about tradeoffs associated with different types of parliamentary democracies. A central theme is that majoritarian democracies (typically based on single-member-district plurality rule electoral systems) produce cabinet stability, which allows decisive policymaking and enhances accountability. By contrast, proportional or consensus systems (typically based on high district magnitude proportional representation) lead to shorter-lived cabinets, more difficulties in changing policy, but more inclusive and "fair" decision processes that represent larger majorities of citizens. Scholars thus often describe an explicit trade-off with respect to constitutional design. One can enhance cabinet stability, government decisiveness and accountability by choosing a majoritarian system or one can enhance inclusiveness and "fairness" by choosing a more proportional system. It is difficult, however, to have it both ways because the proportional systems that yield inclusiveness mitigate against stability (Powell 2000).

Despite the clear successes in this research program, there are two facts about the "terminal events" approach to cabinet duration that limit the insights we gain from this approach into parliamentary governance. First, there is a great diversity of consequences that can follow a terminal event.³ After the government falls, for example, the same parties or individuals might remain in the same portfolios, completely new parties or individuals might take office, some parties or individuals might leave and others enter, or the same parties might stay in office but change which parties or which individuals control portfolios. Scholars of the Fourth Republic have been particularly keen to focus attention on the distinction between cabinet instability and ministerial instability. What matters most, according to these scholars, is *continuity in the personnel* who hold cabinet positions. Such continuity creates the experience necessary for effective governance, and it can exist underneath high levels of cabinet instability.⁴

Second, the terminal events approach fails to account for changes in cabinet composition that occur between terminal events. In fact, changes between terminations in the individuals who hold cabinet portfolios can be quite substantial. Using data we describe below from advanced post-war democracies,

³ For an early critique in this vein of cabinet duration studies, see Lijphart (1984a, 1984b).

⁴ For a review of these arguments, see Huber and Martinez-Gallardo, forthcoming.

we find that in the ten most "important" portfolios, 27 percent of changes in cabinet personnel do not occur within three weeks of a government termination. And there is considerable cross-national variation. Italy, which has a very high level of cabinet instability, has most of its changes in the top-ten portfolios (86 percent) occur within three weeks of a cabinet termination. By contrast, Britain, typically considered one of the most stable countries by the terminal events approach, has only 42 percent of its changes in key personnel occur within three weeks of a terminal event. In fact, if we look at the average number of days that individuals hold any of the top-ten positions in the cabinet during the 1950-90 period, Italy is more "stable" than Britain: the average number of days individuals in Italy held a top-ten post is 1389, whereas in Britain this average is 1276 days. This simple comparison highlights how individual turnover can differ from cabinet duration (see Huber and Martinez-Gallardo, forthcoming).

Thus, even if we identify variables that are related to the occurrence of terminal events, it is not always clear what we have learned from the relationships that such variables reveal. On one hand, terminal events have extremely varied consequences, making it difficult to speak about the substantive importance of terminal events as a class of political events. On the other hand, there's a great deal of variation across countries in the degree to which changes in cabinet personnel occur at the time of terminal events.

This paper examines stability in cabinet government, but it focuses attention away from government terminations. Our goal is to examine the factors that influence individual turnover within the cabinet, and in particular how these factors differ from those that are known to affect cabinet stability. The perspective we explore here is one that treats turnover as the result of efforts to discover and appoint the most talented individuals to the most important tasks. We offer several arguments about how such efforts are influenced by the political context, and we test these arguments using data from 18 countries in the post-war period.

Cabinet turnover and talent searches

Implicit in most existing arguments about cabinet duration is the assumption that terminations result from the failure of equilibrium bargaining outcomes. This assumption links the study of cabinet duration to the study of cabinet formation. Early work noted, for example, that minimum winning coalitions should be more stable than other types of coalitions because surplus majority and minority governments were not "in equilibrium" to begin with (e.g. Riker 1962; see discussion in Laver and Schofield 1990 and the recent analysis in Martin and Stevenson 2001). Early arguments also stressed that the most stable governments of all will be those that enjoy single-party majorities (e.g., Powell 1982, Lijphart 1999). More recently, Laver and Shepsle (1990, 1996) have developed a model of stable portfolio allocation, and then attribute government terminations to exogenous shocks in the status quo or policy preferences.⁵ Lupia and Strom (1995) also adopt an "exogenous shock" approach, although they explicitly model termination decisions.⁶ The most sophisticated recent modeling of this process analyzes government formation and termination as related, dynamic bargaining processes, with changes in coalition bargains following exogenous shocks (see especially Diermeier and Merlo 2000; see also Merlo 1997, Baron 1998 and Baron and Diermeier 2001). What all of these different approaches share is the assumption that a government formation decision is an equilibrium outcome from policy bargaining among actors with diverse preferences, and that a government termination is a breakdown in this equilibrium that is due to some form of exogenous shock. Empirical analysis therefore focuses on identifying variables that make coalitions more or less vulnerable to shocks.

The exogenous shocks that result in government terminations will obviously be central to the study of cabinet turnover. If an election changes the majority party, to take the most obvious example, there will be a considerable turnover in the individuals that staff particular portfolios. Our study must

⁵ Other important models of coalitions as equilibrium outcomes include Austen-Smith and Banks (1988, 1990), and Baron (1991, 1993). For research on empirical issues in this approach, see Laver and Shepsle (1998, 1999), Mershon (1996, 2001b), Warwick (1999, 2001), and Warwick and Druckman (2001).

⁶ Diermeier and Stevenson (2000) offer a conceptual critique and empirical analysis of this approach.

therefore control for many of the factors that the existing literature has noted should lead to cabinet terminations. But as noted above, government terminations do not always lead to turnover, and turnover can occur without government terminations.⁷ It is therefore important to explore whether we should expect the factors that influence terminations to also influence turnover, and whether there are factors that explain turnover but that are unrelated to government breakdowns.

In this paper we view cabinet turnover as the result of a talent allocation problem faced by party leaders.⁸ We assume that party leaders face uncertainty about which specific individuals will be most dependable and effective as ministers. Sometimes the issue will be one of *trust*. Since the minister of justice can most easily influence tort reform, other ministers in the cabinet will want a justice minister they can trust to pursue the most desirable tort reform. At other times there are simple problems of *ability*. Ministers often need technical expertise regarding which policies will yield desired outcomes in a particular portfolio. Such expertise might, for example, relate to which particular tax rates will result in the optimal combination of economic growth and social justice. Ministers also need the political skills necessary to broker compromises with key actors (such as other parties or party factions), to interact effectively with the press, to defend government policies before parliament, to manage civil servants, to interact with courts, and to perform other activities that significantly influence the general success of the government.

Since party leaders will often be uncertain about which individuals have (or can easily gain) the technical expertise and political skills necessary to do their jobs well, a process of trial and error occurs to discover the best talent. This can only occur by getting rid of some ministers, bringing in new faces, and reshuffling individuals from one post to another. One task of party leaders, then, is to identify which individuals excel at which tasks, and to deploy these individuals to the posts where they are most needed. The political context should influence the way in which talent is discovered and deployed, and thus turnover patterns within and across countries.

⁷ For an analysis of cabinet turnover in presidential systems, see Martinez-Gallardo (2003).

Our goal is to identify political variables that influence the way in which the "talent allocation" process unfolds. We focus specifically on four factors related to this process: (a) the level of uncertainty about which individuals possess the most talent, (b) the importance of political skills and technical expertise among ministers, (c) the degree to which ministers can trust each other, and (d) the constraints on appointing and dismissing ministers. We discuss each in turn.

One factor that creates turnover is uncertainty among party leaders about which individuals are most talented. If this uncertainty is high, then party leaders are more likely to appoint less qualified individuals. As the low level of ability becomes revealed by their job performance, the individuals should be replaced, creating turnover. In general, uncertainty about which individuals are most likely to be successful ministers will be reduced when there is a large pool of talented individuals and a competitive process within parties or the political system allows them to identify themselves.

We consider three variables that should be related to this level of uncertainty. The first is the age of the democratic system. Uncertainty about the talent pool will be greatest during the early years of a democratic polity. When experience with cabinet government is low, there will not only be fewer individuals with governing skills and experience, there will also be less information about which specific individuals will have the attributes that lead to successful leadership in ministries. This should make it more difficult for party leaders to assign the most qualified individuals to cabinet posts.

We might also expect strong competition for leadership positions to decrease uncertainty about the talent pool by winnowing out individuals who are least qualified for minister positions. Such competition should unfold both within assemblies and within political parties. Any given assembly, for example, may have a Finance Committee, and leadership on such committees will often be a pathway to becoming a Finance Minister. Uncertainty about which individuals are good candidates for Finance Minister might therefore be reduced if there is strong competition to become a leader on the Finance Committee. One variable that might effect such competition is simply the size of the assembly. One

⁸ For a similar perspective on the tenure of political appointees in the US, see Chang, Lewis and McCarty (2000) and Gordon (n.d). For a more general theory of job matching and turnover, see Jovanovic 1979.

might argue that a large assembly creates more uncertainty about the skills and abilities of individual members. While this may be true when new individuals come to the chamber, it does not seem decisive. If the pool of talent has the same distribution of high and low quality individuals in any assembly, there should be a larger pool of talented individuals in larger assemblies, with larger committees. And if there is internal competition for the best posts within the assembly, we should therefore large assemblies to diminish uncertainty about which individuals are talented. We should therefore expect lower turnover in countries with large assemblies because in such assemblies the pool of talent will be larger and the competition for committee posts should make it easier to identify which individuals are likely to be most successful as ministers.

The same argument should operate apply to political parties. Larger parties should have a larger number of talented individuals to draw on, and stronger competition for advancement within the party. Thus, other things being equal, large parties and assemblies should reduce turnover by reducing uncertainty about which individuals are most qualified to become competent ministers.

The level of uncertainty about which individuals are talented will have the greatest impact on turnover in situations where the competence of ministers has the biggest impact on policy. This impact should vary both across political systems and across portfolios within a political system. Scholars have long recognized that the ability of ministers to use their positions to influence policy will vary across polities (e.g., Laver and Shepsle 1994, Strom 1990a, 1990b. Laver and Hunt 1992). In some countries, ministers have considerable autonomy to shape policy, both during the policy formation and policy implementation stage. In other countries, ministers have a much more administrative role, with major policy decisions being made by the collective cabinet. Ministerships in such systems are thus considered more of an "office" payoff to individuals than as the strong delegation of policymaking autonomy.

The connection between the "importance of talent" and turnover lies in how this importance influences the screening process that precedes any cabinet appointment. The screening of individuals should be most careful in situations where opportunities for policy influence are greatest. If the environmental minister is solely responsible for formulating and implementing clean air legislation, the

skills of the environment minister will have a bigger impact on policy outcomes than if clean air legislation is worked out jointly in the cabinet, and implemented by an open administrative process that allows considerable opportunity for political influence by all ministers. We should therefore expect politicians to take much greater care in the appointment of the environment minister in the first case than in the second. Since this high-intensity screening will increase the likelihood of identifying high quality individuals, we should expect that turnover will be lower in situations where ministers have substantial influence on policy.

The policy influence of ministers should vary both across systems and across portfolios. Just as some political systems create greater opportunities for ministerial influence on policy than others, some portfolios also create offer greater opportunities to influence policy outcomes, and require greater technical and political experience. We often find, for example, that the most senior and highly regarded politicians assume the most important cabinet posts of Finance Minister and Foreign Affairs Minister. Whenever the characteristics of the political system or the portfolio create greater opportunities for policy control, we should expect the assignment of such portfolios to be subject to the most intensive screening processes, and thus to be allocated to the most talented and experienced individuals. This should lead to lower turnover.

The intensity of *ex ante* screening should also be related to the third factor that we examine in our analysis of turnover – trust. An individual may be very able and experienced, but if he or she wants to take policy in a different direction than other members of the cabinet desire, then such ability and experience may not be welcomed by these other members. Thus, conditions that create distrust should also create the most careful screening. The literature on the design of legislation during delegation processes is instructive on this point (e.g., Epstein and O'Halloran 1999, Huber and Shipan 2002). When distrust is greatest, as might occur during coalition governments in parliamentary systems or divided government in presidential systems, legislative majorities constrain executive autonomy during policy implementation by writing specific details into policy, *ex ante*. The same careful *ex ante* efforts to shape policy outcomes should come into play during the assignment of individuals to portfolios. When distrust

is greatest, so will the screening that occurs, with the "distrusting parties" paying the most attention to the specific individuals that are assigned to key portfolios. Thus, we should expect distrust to *decrease* turnover.

We consider two related variables that measure distrust. The first is coalition government. If Parties A and B must divide up the portfolios, both parties will try to ensure that portfolios assigned to the other party are assigned to the specific individuals that are most trustworthy, in the sense that they have moderate preferences that will not lead to delegation losses. Thus, ministers in coalition governments should be subjected to a more intense screening process, and be more stable, than ministers in single-party majority or minority governments. Similarly, if Parties A, B and C form a coalition, with Parties A and B relatively centrist and Party C relatively ideologically extreme, then distrust will be greatest vis-à-vis Party C ministers. This will lead to the more intense *ex ante* screening of Party C candidates. We should therefore expect ministers from ideologically extreme parties to have less turnover than ministers from other parties.

Finally, it is not only important to examine the incentives and ability of party leaders to discover which individuals have the greatest potential to be effective ministers. We must also consider the ability of party leaders to make changes that they desire. Inevitably, some individuals will prove to be better than others, and when particular appoints prove unsatisfactory *ex post*, changes will be necessary. We must therefore consider how the political context constrains party leaders in general, and the prime minister in particular, from making desired personnel changes in the cabinet.

One factor that should constrain leaders from making changes is *ex ante* bargaining across parties. If coalition government includes negotiations across parties about which individuals will take which portfolios, then it will be more difficult from a prime minister to change a particular individual in a post than in single party majorities. This is because such changes might only occur if a costly, more general renegotiation of the coalition bargain occurs. These costs of renegotiation provide a second reason why we might expect there to be less turnover in coalitions than in single-party majorities. Importantly, however, the constraints on change should be greater during minimum winning coalitions

than during surplus coalitions, because surplus ministers can be terminated without bringing the government down.

Government formation rules should also influence the costs of reallocating individuals to portfolios. In countries that require investiture votes, leaders must not only more carefully negotiate the details of government formation, they face a higher cost of making any changes that would require them to seek a new investiture vote. We should therefore expect lower turnover in systems that require investiture votes.

If these arguments are correct about how coalition formation constrains prime ministers from changing minister, then we should also expect the party of the minister vis-à-vis the prime minister's party to influence turnover. In particular, the constraints should be less binding on members of the prime minister's own party. If the Christian Democrats and Liberals form a coalition headed by a Liberal prime minister, then the prime minister should have more discretion to make changes in portfolios controlled by Liberal ministers than in portfolios controlled by Christian Democrat ministers. Thus, if turnover is influenced by uncertainty in the talent allocation process, and if constraints on appointments preclude desired changes, then members of the prime minister's party should have more turnover than members of other parties.

Constraints on making changes in portfolio assignments should also influence turnover. In some parties, such as the British Conservatives, internal rules give considerable autonomy to their leaders. Other parties, such as the British Labour Party (particularly before 1997) place less institutional constraints on ministers. Generally speaking, left parties have more rigid and inclusive decision-making rules within parties, especially due to the role of organized labor in such parties. To the extent that these features constrain party leaders from making changes in the allocation of portfolios to individuals, we might expect left parties to have less turnover than right parties.

Finally, we might expect there to be a honeymoon effect following elections. After elections, parties may allow their leaders to make cabinet assignments in response to electoral change. Constraints

on change should be lowest during this time period, providing the greatest opportunity to reshuffle cabinets.

Our expectations about how uncertainty shapes turnover are summarized in Figure 1. We should reiterate that we do not believe that factors known to influence government survival will be irrelevant to our understanding of government turnover. We therefore need to examine whether our arguments about the search for talent find empirical support when we control for factors that cause government terminations. At the bottom of Figure 1, we list standard variables from the literature (e.g., Warwick 1994) that are relevant (and measurable) here.

Inspection of Figure 1 reveals that viewing cabinet turnover as the result of a talent allocation process leads to a quite different set of expectations about some of the same variables that are prominent in the cabinet stability literature. If turnover is influenced by efforts to address the uncertainty associated with assigning the most qualified individuals to the most important cabinet assignments, then we must consider how the context interferes with this process. Thus, factors like single-party majorities that lead to stable cabinets should be associated with high turnover because they create the most freedom for prime ministers to address the uncertainty that is often inherent to personnel decisions. Similarly, variables like coalition government, which are held to lead to low cabinet duration, will put breaks on the ability of party leaders to assign and reassign individuals to portfolios, making it more difficult to assign talent optimally. The same is true for investiture votes, which by raising the hurdle for coalition formation, raises the *ex ante* level of screening that occurs, as well as the costs of undoing any mistakes in the assignment of individuals to specific posts.

The talent allocation perspective also brings variables to bear on cabinet turnover that are absent from the cabinet duration literature. Factors like party size, assembly size and the age of democracy may affect uncertainty about the ability of individuals to excel as ministers, but have no obvious connection with cabinet duration (though cabinet duration in the early years of a parliamentary democracy is probably a topic that deserves more attention than it has received). And portfolio-specific factors may

influence the circumstances under which talent is most important, but not affect the duration of cabinets themselves.

Modeling Cabinet Changes Empirically

In contrast with previous work that studies *cabinet duration*, we are interested in the duration of individual ministers in their portfolios. To test our arguments about individual turnover, we have gathered data on the time that elapses between the appointment of a minister and his or her exit from the government. As we have argued above, if the political context reduces the uncertainty about which individuals are most talented, or if particular institutional variables increase the ability of ministers to shape policy outcomes or to trust each other more, we would expect party leaders to change the cabinet less. Thus, we want to explore if the duration of ministers in office is influenced by the variables that affect uncertainty, the ability of ministers to shape policy, the trust among ministers, and constraints on prime ministers and party leaders.

Duration or survival models are useful precisely when the variable of interest is the time to the occurrence of a terminal event (a *failure*) – in this case the exit of a minister from the cabinet.⁹ These types of models have become popular in political science and have gained remarkable prominence among scholars of cabinet duration in parliamentary politics.¹⁰ In this section, we briefly describe the duration model we use in the paper. In the next section, we describe the data we use to test our arguments.

The main interest in duration analysis is to relate a vector of covariates, $Z = (z_1, \dots, z_p)$ and the time to the occurrence of an event. Here, we are interested in the probability that an individual minister survives to time t , given that she has not failed (or exited the government) prior to that moment in time. This probability is given by the hazard function:

$$\lambda(t; Z) = \lim_{\Delta t \rightarrow 0} P [t \leq T \leq t + \Delta t \mid T \geq t, Z] / \Delta t$$

⁹ On survival analysis, see Prentice and Kalbfleisch 1979,

¹⁰ For a review of the use of duration models in Political Science, see Box-Steffensmeier and Jones 1997. For applications see Warwick (1992), King et al (1990), Diermeier and Stevenson (1999), and Gordon (2002).

Depending on the nature of the phenomenon we are studying, we can assume different shapes for the hazard function; we can assume that the risk of an event happening is decreasing or increasing as time goes by, or we can have reasons to expect that the risk of failure is constant over a certain period of time. In fact, there has been much debate in the literature on cabinet duration about the relationship between time dependency and the processes that lead to the collapse of a government, and much of it has centered on the shape of the hazard rate. On one hand, Browne, Frendeis and Gleiber argued that the events that tend to topple governments occur independently of the structural characteristics of the regime. Consequently, in the parlance of survival analysis, the probability of a failure is constant throughout a government's tenure and we should expect to find a constant hazard rate. On the other hand, Warwick (1992) argued that the underlying process that generates cabinet failures is not random and found evidence of positive time dependence in most European parliamentary democracies.¹¹ More recently, Diermeier and Stevenson (2000) argued that is inappropriate to estimate the hazard rate of cabinet failures without making a distinction between different types of terminal events. Indeed, they found like Warwick that the hazard rate for pooled terminations and dissolutions increases but that the shape of the hazard rate for replacements can't be predicted.¹²

In the case of turnover within the cabinet, however, it is not clear that there is a relationship between the risk to a particular minister of leaving the cabinet and time. On one hand, we could hypothesize that with time party leaders will master the art of talent allocation and thus the risk of failure for a minister that has survived up to a certain point will decrease significantly. Even in this case, it would be difficult to know exactly what this point in time is when party leaders have distributed talent in a satisfactory manner and thus it would be hard to give a specific shape to the decreasing hazard. On the

¹¹ See also King, Alt, Burns, and Laver (1990).

¹² There is further discussion in the literature about the appropriate definition of *time*. While Warwick finds that the hazard of cabinet failure increases in *elapsed* time, Diermeier and Stevenson (2000) argue that Lupia and Strom's (1995) model implies increasing hazards in time until the next regularly scheduled election. While elections are clearly terminal events in the analysis of cabinet duration, an election does not necessarily imply that ministers will

other hand, however, if external shocks to the government are randomly distributed, party leaders will respond to these changes throughout the term and there will not necessarily be a relationship between time and risk of failure. Since we do not have ex ante expectations about the distribution in time of the risk of exiting the government, the duration model we have estimated here is a Cox proportional hazards model which allows us to estimate the effect of a series of characteristics on ministerial tenures, without having to make assumptions about the shape of the hazard function. Following Cox (1972), the hazard rate for an individual, conditional on a set of covariates, can be written as follows:

$$\lambda_i(t; Z_i) = \exp(\beta' Z_i) \lambda_o(t),$$

where λ_o is an unspecified function of time (referred to as the baseline hazard function) and β is the vector of parameters to be estimated. The Cox proportional hazards model does assume, however, that whatever its shape, the hazard functions of two individuals with different covariates are multiplicative replicas of each other.¹³

A final issue we address in estimating the model arises from the fact that one of two things can happen when an individual "fails" in his or her post. One possibility is that the individual exits the cabinet, which we call a *termination*. Another possibility is that the individual exits only the portfolio, and is reassigned to another, which we call a *reshuffle*. We want to test whether the arguments we have suggested above apply equally to both types of "exit," and thus whether there are differences in the processes that underlie *terminations* and *reshuffles*. In so doing, we should note that reshuffles are relatively rare, representing 17 percent of the failures in our data.

Our arguments that relate uncertainty about individuals' ability and trustworthiness to individual "failures" do not necessarily yield clear expectations about differences in the processes that lead to terminations as opposed to reshuffles. As a practical matter, if a particular context reveals one individual

exit the government. Consequently, in our empirical models we define time as *elapsed* time between appointment of a minister and exit from the government.

¹³ We conducted proportionality tests on all the models presented in the next sections and concluded that the only variable that presents a problem is one related to large electoral swings, which we call electoral volatility. To correct

minister who is less able, and another who is more able, the less able minister may be terminated and the more able reshuffled to the less able's post. If this occurs, the same covariates will be related to both processes. But there are also reasons to believe that the processes may be different. If uncertainty leads to the appointment of less able ministers, then ministers who are found lacking in talent or skills are more likely to be terminated from the cabinet altogether than reshuffled. In this case, we would expect to find variables related to uncertainty to be more useful for understanding terminations than reshuffles.

Similarly, factors that mitigate against terminations (greater constraints on the prime minister to make changes, for example) should encourage party leaders to adjust to changing circumstances by reshuffling ministers. In this case, we would expect to find that variables that decrease the risk of being terminated might in fact increase the risk of being reshuffled. It is important, then, to consider the different modes of failure, and explore differences in the processes underlying *terminations* and *reshuffles*. To this end, we estimate a *competing risks* model.¹⁴

The competing risks framework allows us to explore the relationship between a set of variables and the rate of occurrence of failures of more than one type. When the terminating events are completely absorbing (i.e. after failure the individual leaves the study completely), we can only observe the failure from the first type of risk and standard duration analysis does not allow us to know how the variables of interest affect the risk of failing from other risks. In this paper we treat reshuffles as absorbing events.¹⁵ In this sense, since we can only observe a minister fail from whichever terminal event happens first, if we observe a minister exit her portfolio through termination we have no way of separating the effect of the government's status, for example, on the risk of being terminated and on the risk of being reshuffled –

for the effect of time on this variable we included in all models an interaction between electoral volatility and $\ln(\text{time})$ (see Box-Steffensmeier and Zorn (2001)).

¹⁴ On competing risks models, see Kalbfleisch and Prentice (1980), David and Moeshberger (1978), Chung, Schmidt and Witte (1991), Lunn and McNeil (1995). For applications in political science see Gordon (2002) and Diermeier and Stevenson (1999).

¹⁵ We observe a minister from appointment to a specific portfolio until she exits this portfolio and count a minister who gets reshuffled as a new observation. We will discuss the structure of the data with more detail below. An obvious extension of this paper is to treat reshuffles as multiple failures.

which potentially would have happened had we been able to observe the minister after the first type of failure.

Usually, competing risks is specified as a latent variables model in which we can only partially observe the underlying data-generating process.¹⁶ Let T_j be a latent random variable expressing times to failure by risk j ($j = 1, \dots, m$). Note that one can actually only observe the smallest of these variables, i.e. the time to the first failure. If we can assume that exit times are independent, we can express the overall hazard $\lambda(t; Z, \beta)$ as the sum of all risk-specific hazards:

$$\lambda_j(t; Z, \beta) = \sum_{j=1}^m \lambda_j(t; Z_j \beta_j).$$

Next, we specify the likelihood function. The contribution to the likelihood of minister i that fails due to risk j , termination for example, is the probability that i fails through termination at any point in time, given that up to that point she has survived, or not exited the government due to any other risk ($j \neq j'$) (here, being transferred to another portfolio),¹⁷

$$L_i = f_j(t_i; Z_{ij}, \beta_j) \prod_{j' \neq j} S_{j'}(t_i; Z_{ij}, \beta_{j'}).^{18}$$

For a sample of size n , let T be the vector of exit times, with corresponding failures times t_{ij} , $i = 1, \dots, n_j$, where n_j is the number of ministers that fail due to risk j . We can rewrite the likelihood as:

$$L = \prod_{j=1}^m \prod_{i=1}^{n_j} \lambda_j(t; Z_{ij}, \beta_j) S(t; Z_{ij}, \beta_j).$$

Defining a censoring indicator:

$$\begin{aligned} \delta_{ij} &= 1 \text{ if } i \text{ failed of risk } j \\ \delta_{ij} &= 0 \text{ if } i \text{ did not fail of risk } j, \end{aligned}$$

We can write:

¹⁶ See Kalbfleisch and Prentice (1980), Diermeier and Stevenson (1999) and Gordon (2002).

¹⁷ Ministers that leave the cabinet for health reasons are considered to have failed through termination.

¹⁸ The survivor function can be expressed as (integral is from 0 to t):

$$S(t; Z, \beta) = \exp \left[- \int_0^t \lambda_j(u; Z) du \right], \quad j = 1, \dots, m$$

$$L = \prod_{j=1}^m \prod_{i=1}^{n_j} \lambda_j(t; Z_{ij}, \beta_j)^{\delta_{ij}} S(t_i; Z_{ij}, \beta_j).$$

Assuming independence among risks, the estimation of the model is straightforward. Since each risk enters the likelihood function separately, the likelihood can be estimated as a standard duration analysis, calculating a separate duration model for each risk and treating all failure types different from j as censored at the individual's failure time ($\delta_{ij} = 0$).

Of course, the practical problem we face in estimating this model is the same that others have faced in similar efforts – that is, the assumption of independent risks.¹⁹ In our context, this assumption implies that the risk of an individual being terminated is independent of her risk of being reshuffled. As we have noted above, it may be that factors related to bargaining failure, uncertainty, and constraints on prime ministers may work differently for terminations than for constraints, justifying the independence assumption. But we recognize that this assumption is quite strong, and when it is violated could lead to inconsistent parameter estimates and artificially small standard errors (Gordon 2002). As a practical matter, however, we know of no good alternative to making the independence assumption in estimating the competing risks models, and Gordon's (2002) study of stochastic independence of risks finds that violations of this assumption might have trivial consequences for the results.²⁰ We therefore proceed under the independence assumption, though we also present results for the pooled "failures."

Data on Cabinet Turnover

To estimate our talent allocation model we use data on cabinet turnover in 18 parliamentary democracies between 1945 and 1999.²¹ We have used *Keesing's Record of World Events* and the *European Journal of*

¹⁹ See discussion about stochastic independence of risks in Gordon (2002).

²⁰ Gordon develops a Generalized Dependent Risks model in which the risks are related stochastically. He estimates a GDE model of cabinet duration (a replication of Diermeier and Stevenson's analysis) and finds negligible differences. He does find important improvements when he applies the GDE model to the timing of policy positions in Congress.

²¹ The countries included are: Australia, Austria, Belgium, Canada, Denmark, Finland, Germany, Iceland, Italy, Ireland, Luxembourg, Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, and the UK. Portugal and Spain enter the dataset in 1976 and 1977, respectively.

Political Research as our main sources and coded every change in the identity of an individual minister in the cabinet. The structure of the data set allows us to observe the government every week during the period of the study and record when a minister enters and leaves the government, as well as whether they exit via termination or reshuffle. It is important to note several characteristics of the data. First, the unit of analysis in our empirical analysis is a minister-portfolio. As we mentioned before, this means that ministers enter the study at the time they are appointed to a specific portfolio and they exit when they leave this portfolio, either because they leave the government or because they get transferred to a new portfolio. If a minister leaves the government and comes back in a different government or after some time, we also count this as a new observation. We have as many observations per minister as different appointments they hold during the period of our study.

Second, to maximize comparability across countries, we have only included in the dataset the top ten most important portfolios. To determine the most important portfolios for each country, we constructed an index measuring the number of days that each portfolio was occupied in the years of our study, and combined it with the rankings constructed by Laver and Hunt (1992), who asked country experts to rank the five most important portfolios in each country. The idea behind our index is that the most important portfolios will tend to be the most consistently occupied as well. Our index and the rankings in Laver and Hunt often coincide, and by using both criteria we are able to include portfolios beyond the ones mentioned in their ranking and to include portfolios that might have been important in the years before their survey.

As summarized in Figure 1, we include in the analysis several variables that measure the uncertainty that party leaders face about individual talent, the importance of skills and expertise among ministers, the degree of trust among ministers, and the constraints on appointing and dismissing ministers, as well as the variables commonly included in studies on cabinet duration. A brief description of these variables follows. Descriptive statistics can be found in Table 1.

Minority is a dummy variable that takes a value 1 if the minister served in a minority government;

Coalition is a dummy variable that takes a value of 1 if the minister served in a coalition government

Surplus takes a value of 1 if the coalition includes more parties than necessary to form a majority

Minimum Winning Coalition takes the value of 1 if every party in the coalition is necessary to maintain majority status;

Effective number of parties is calculated based on the number of parties in parliament and their share of seats;

Government Heterogeneity measures the ideological distance between the right-most and left most-party in the government, using ideological scores from Castles and Mair (1984) and Huber and Inglehart (1995) (we use the scores that is from the source most temporally proximate to the portfolio-week, and convert Castles and Mair scores to a 1-10 scale).

Electoral Volatility is the proportion of seats in the assembly that were gained and lost by all parties in government during the previous three weeks;

Last Election counts the number of weeks that have elapsed since the last parliamentary election.

Investiture is a dummy variable that takes the value 1 where a formal vote of investiture is required;

Size of Minister's Party is the proportion of seats that the minister's party holds in parliament;

Age of Democracy measures the number of years that the country has been democratic. The measure is constructed using data from Przeworski et al 2000;²²

Size of Assembly is the total number of seats in parliament

Ministerial Autonomy is a survey response by country experts who were asked to place their country on a scale that goes from 1 () where ministers have the least autonomy) to 9 (where the ministers have the most autonomy) (see Laver and Hunt 1992).

Policy value of portfolios is a survey response by country experts consulted in Laver and Hunt (1992). Laver and Hunt asked respondents "Are cabinet portfolios valued more as rewards of office or as a means to affect policy?" The scale ranges from 1-9, where 1 indicates that portfolios are valued as means of affecting policy and 9 indicates that they are valued as rewards of office.

²² For Spain and Portugal we use the 1976 and 1978 dates from Polity IV, rather than the older dates from Przeworski et al.

Finance is a dummy that takes the value 1 if the minister occupied the Finance portfolio;

Foreign is a dummy that takes the value 1 if the minister occupied the Foreign Affairs portfolio;

Agriculture is a dummy that takes the value 1 if the minister occupied the Agriculture portfolio;

Extreme Minister is the ideological distance of the minister's political party from the weighted left-right location of government, using the same sources described for *Government heterogeneity*;

Same Party as PM is a dummy that takes the value 1 if the minister is from the same party as the Prime Minister;

Minister Left-Right is the ideological score of the minister.

Results

The results of the competing risks analysis are summarized in Table 2. Column (1) estimates the model when we pool all exits from the government (reshuffles and terminations), column (2) estimates the model of terminations (so that reshuffled ministers are censored), and column (3) estimates the model of reshuffles (so that terminated ministers are censored). To interpret these results, it is important to keep in mind that the dependent variable is durations in *weeks*. If minister A enters the government in portfolio A on January 1, 1950, and leaves the government (or transfers to a different portfolio) on January 1, 1952, the value for the dependent variable is the number of weeks minister A was in government, or 104. The coefficients in Table 2 are displayed as hazard ratios. The interpretation is straightforward: the coefficient expresses the ratio of the hazards for a one-unit increase in the corresponding covariate. For a dummy variable, minority status for example, a hazard ratio of 1.30 would indicate an increase in the hazard (or instantaneous probability of failure) of 30% when the minister serves in a minority as opposed to a majority government.

Comparing the effects of the independent variables in column 1 (pooled failures) with columns 2 (terminations) and 3 (reshuffles), it is clear that pooling both reshuffles and terminations will mask important causal processes in government turnover, even though there is a preponderance of terminations

in the pooled data. Some variables, for example, are insignificant in the pooled data but significant in the other models. And the direction of the effect of some variables changes with the nature of the failure. The dummy for finance ministers is not significant when all the data is pooled but becomes significant when we look at terminations only. The same is true regarding the ideological position of the minister and the degree to which the minister is ideologically extreme. In all three cases, the variables appear insignificant when we analyze all exits because their effect on the termination hazard is actually in the opposite direction than their effect on the risk of being reshuffled. Similarly, looking only at the pooled data we would conclude that the size of the minister's party and her position on the left-right scale significantly *decrease* the hazard. However, when we look at terminations and reshuffles separately we find that these variables actually *increase* the risk of being reshuffled.

These examples, and others evident from inspection of the results, underline the fact that different processes often underlie reshuffles and terminations, making it unwise to pool these two types of "failures." We therefore look separately at the results for terminations and reshuffles.

Terminations

In Table 3 we present three additional specifications of the terminations model. Column 1 includes only the variables that are commonly used to study cabinet duration. Note that in all models, the omitted variable for coalition status is single-party majorities, so the various government status variables state the hazard for individuals in, say, minority governments relative to single-party majorities. We find that the cabinet duration variables also explain the termination of individual ministers, but they do not always work in the direction predicted by studies of government duration. Minority status, government heterogeneity and a higher number of effective parties all reduce cabinet duration and, as expected, they also reduce the duration of a minister in her post. Coalitions, however, are considered to increase bargaining complexity and lead to more crises and shorter-lived cabinets. This is not the case with individual terminations – ministers that serve in coalition governments face a *lower* risk of termination than those serving in single-party governments. This result is consistent with our contention that coalition

bargaining processes constrain prime ministers from making personnel changes, and that coalition governments encourage more careful *ex ante* screening of ministers. It is also useful to note that the existence of a formal vote of investiture appears to have the same effect on ministerial turnover than it does on cabinet duration, but this effect disappears in columns (2) and (3) when we control for the turnover variables. Although the hazard ratio on the investiture dummy is below significance in all the models we estimated ($p = .18$), the direction of its effect – when we control for the other variables -- is consistent with the notion of investiture votes working as constraints on party leaders' ability to change the membership of the cabinet.

Columns (2) and (3) offer two different specifications of the conceptual variables described in Figure 1. With respect to our arguments about *uncertainty* that party leaders face regarding which ministers are most talented, we find that larger parties, in which the talent pool is larger and competition more rigorous, affect the termination hazard in the expected direction – an increase of a single seat in the size of a minister's party decreases the hazard in 2.6%. The effect is substantial: everything equal, an increase of one standard deviation in the size of a minister's party would decrease her risk of being terminated by approximately 44%. Older democracies also have less ministerial turnover than younger one. The size of the assembly, however, has an effect in the opposite direction than we expected. The hazard ratio indicates that being part of a larger assembly *increases* the risk of being terminated, although the size of the effect is almost zero (.04% increase in the hazard for a one-seat increase in the size of the assembly).

As expected, *ex ante* screening of ministers is greater – and ministerial turnover lower – when ministers are considered to have a greater *impact on the outcomes* of the policymaking process. Where portfolios are valued as means of affecting policy, ministers tend to be more stable than in places where portfolios are considered to be office payoffs – an increase of one point on Laver and Hunt's 9-point ranking towards office payoffs increases the hazard around 19%. Screening of ministers also varies across policy areas. We expected Finance and Foreign Affairs ministers to be very rigorously screened before taking office and we do find that they are more stable than all other (top-ten) portfolios. The risk of being

terminated decreases 11% and 25% for Finance and Foreign Affairs ministers, respectively. We included a third measure of policy influence of ministers, Laver and Hunt's ministerial autonomy score, but it does not significantly affect the stability of ministers in any specification of the duration models. This might be due to the fact that this measure varies very little across countries and does not really capture the variation in ministerial influence.

The results on *trust* are mixed. It is clear that coalitions, in which ministers from different parties have to work together, go through a more rigorous *ex ante* screening process and the result is a significant decrease in the termination hazard. However, it does not seem that extreme ministers are more stable than other ministers. Our expectation was that party leaders would screen more carefully ministerial candidates from more extreme parties and this would make these ministers relatively secure once appointed. However, moving one point either way on the ideological scale away from the government's position makes ministers *less* stable. One possible explanation for this result may be that the allocation of portfolios to extreme parties will be more likely to be non-equilibrium behavior (in the sense of Laver and Shepsle 1996), and thus more unstable.

Finally, it is clear that where the prime minister and party leaders face greater constraints on their ability to make changes to the cabinet, ministers will tend to have greater job security. The first of our measures is minimum winning status. As we expected, the ability to replace incompetent cabinet members is greatly reduced when any party can credibly threaten with defecting from the coalition if one of their members is removed from her position. The risk of exiting the government is reduced by 44% when a minister is part of a minimum winning coalition. Conversely, constraints on the PM to change the members of his own party are lower and this means that ministers from his party are at a substantially higher risk of being terminated than members of other parties (the hazard increases 60%). The existence of investiture should also decrease turnover by making it more costly to make changes to the cabinet that might require a new investiture vote. This is in fact the case although, as we mentioned before, the hazard ratio on the investiture dummy is not significant at standard levels. The result for *Last election* also reveals a large honeymoon effect, with the risk of terminations declining as the distance from the last

election decreases. This may also be related to the fact that the most able ministers prove themselves over time, and thus become more likely to survive to time $t+1$ if they were able enough to survive to time t . A last constraint on leaders should be the internal structure of their party. Here we find the opposite result of our expectations, with ministers from more right-wing parties tending to be more stable than ministers from left-wing parties.

Reshuffles

The data bears out our suspicion that the talent allocation arguments are more likely to explain the termination of ministers than their transfer to a different portfolio. While most of our expectations about the effect of the political context on the incentives of and constraints on party leaders to change the composition of the cabinet are borne out by the data, this is true for ministers who leave the government but not for those who get reshuffled. In fact, the independent variables fit reshuffle exits very poorly. It is also clear that the variables that have commonly been used to explain cabinet duration do not explain the duration of ministers that exit their portfolio through reshuffle. Of these variables, only minority status is significant in explaining cabinet reshuffles. Not only is the effect of this variable substantively large, but being in a minority government increases the risk of being reshuffled twice as much as it increases the risk of being terminated – 55% versus 27%.

Among the variables that measure uncertainty, the size of the minister's party is the only variable that approaches significance ($p < .1$) and it is notable that, contrary to our expectations, it *increases* the hazard substantively – an increase of one standard deviation in the size of the minister's party (17 seats) represents an increase of around 20% in the reshuffle hazard. Although the coefficient on the age of democracy is not significant at standard levels ($p = .19$), the direction of the effect is also in the opposite direction than expected. This suggests that bigger parties and older democracies tend to reshuffle their ministers more. Measures of constraints on changing the cabinet are not significant, except for the ideological position of the minister which has the opposite effect than on terminations: moving one point to the right *increases* the risk of being transferred to another portfolio.

Two other variables are significant in explaining the risk of being reshuffled. Ministers in countries where portfolios are valued as office payoffs and not as a means of affecting policy tend to face a higher hazard of being reshuffled. This effect is in the same direction as for terminations but has a substantially larger effect for reshuffles than terminations. Finally, it is interesting to note that agriculture ministers tend to be reshuffled at a much lower rate other ministers. At this stage, we have no clear explanation of how this result fits with our framework. It may well relate to the fact this portfolio is often "owned" by a parties with links to agriculture, inducing stability in its personnel.

In sum, the results for reshuffles are a bit puzzling. While it is clear that the talent allocation model works considerably better to explain the rate at which ministers leave the government, there is also some limited evidence that some of the variables that decrease the risk of being terminated actually increase the reshuffle hazard. The poor performance of the model in explaining reshuffles is at least partly due to the way we have constructed the dataset. We are clearly losing information by treating ministers who get reshuffled as having left the government for good. An obvious extension of this paper would be to change this assumption and perform a multiple-failures analysis where we can account for the fact that these ministers actually fail more than once.²³

Conclusion

For well-understood reasons, scholars of cabinet formation and duration often make the simplifying assumption that political parties are the "unit of analysis." While this assumption has led to substantial advances in our understanding of parliamentary government, we argue in this paper that relaxing it represents an important new avenue for research on cabinet government. We do so by studying the factors associated with "individual duration" in cabinet portfolios, as opposed to cabinet duration measured by terminal events.

²³ On the analysis of multiple-failure data see Kalbfleisch and Prentice (1980) and Prentice, Williams and Peterson (1981).

The results presented are useful in two respects. On one hand, we find that traditional variables in the cabinet duration literature can work quite differently in the study of individual turnover. Most significantly, we find that ministers in coalition governments are much more stable than ministers in single-party majorities. This result calls into some question the way in which normative debates about forms of parliamentary government are framed. Coalition governments are extolled for their inclusiveness, which is said to come at a "cost" of cabinet stability. Single-party majorities are extolled for their stability and decisiveness, which is said to come at a "cost" of inclusiveness. Thus, implicit in this debate is the notion that stability is desirable. Our analysis suggests that both the empirical understanding and the normative interpretation of it could be misguided. As noted, we find empirically that much of the cabinet instability in coalition governments is unrelated to actual turnover within the cabinet, with coalition ministers more stable than those in majoritarian governments.

But is this individual stability in coalition governments a good thing? We find that as constraints on cabinet changes are loosened, more cabinet changes occur. Indeed, prime ministers have the fewest constraints when they enjoy a single-party majority, or when they are dealing with ministers in their own parties. Ministers who find themselves in these situations – in an single-party majority and/or in the prime minister's own party – are by far the most likely to "fail." Thus, if we accept that discovering and allocating the more able and trustworthy individuals is an important task for party leaders in parliamentary systems, then the constraint that coalitions impose on changes may prevent "good turnover" – that is, turnover that is the result of putting the best agents into the most important positions. Of course, not all turnover is beneficial. We nonetheless feel that the terms of the normative debate on the effects of instability can be a bit one-sided, and that our analysis draws into sharp relief some of the possible benefits of institutional contexts that make "failures" more – rather than less – likely.

On the other hand, our results are useful because they introduce a new set of variables into the study of cabinet government. These variables relate to the institutional context in which ministers and prime ministers operate, the dynamics of career paths within assemblies, and the decision-making processes with political parties themselves. We offer reasons to believe that these variables should

influence cabinet personnel decisions, and evidence that they do. Yet our measures of these variables are often crude and indirect. The results therefore suggest that an important pathway for further research will be to develop better empirical measures of how personnel decisions are made across different types of parties, of the autonomy that prime ministers have in making dismissals and appointments, and of the institutional prerogatives of ministers themselves to shape policy outcomes.

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Figure 1. Factors influencing talent allocation

<i>Argument</i>	<i>Variables</i>	<i>Measures</i>
<p><i>Uncertainty about which individuals are most competent</i> increases turnover (due to corrections necessary when low-ability individuals are appointed).</p> <p>Uncertainty increases as size of talent pool decreases and as competition for leadership positions decreases</p>	<p>Size of party (large parties have larger talent pools and more internal competition, decreasing turnover)</p> <p>Size of assembly (large assemblies have larger talent pools and more internal competition, decreasing turnover)</p> <p>Years democratic(log): Size of talent pool and uncertainty is greatest in early years of a democracy</p>	<p>Percent of seats held by party</p> <p>Number of deputies elected</p> <p>Log of years democratic</p>
<p>As <i>impact of ministers on policy outcomes</i> increases, <i>ex ante</i> screening of ministers decreasing turnover.</p>	<p>Policy influence of individual ministers in the political system</p> <p>Policy impact of portfolio</p>	<p>L&H's ministerial autonomy score</p> <p>L&H's policy versus office score</p> <p>Dummy variables for finance ministry and foreign affairs ministry</p>
<p><i>Distrust of other ministers</i> leads to more rigorous <i>ex ante</i> screening of ministers, lowering turnover.</p>	<p>Coalition government</p> <p>Ideological extremism of party</p>	<p>Dummy variable for coalition</p> <p>Ideological distance of minister's political party from weighted left-right location of government</p>
<p><i>Constraints on prime ministers</i> and party leaders to make desired personnel changes make it more difficult to replace less competent (or trustworthy) ministers, decreasing turnover.</p>	<p>Coalitions, esp. minimum winning</p> <p>Investiture votes</p> <p>Ministers from same party as Prime Minister</p> <p>Left-parties</p> <p>Election honeymoons</p>	<p>MWC dummy</p> <p>Investiture dummy</p> <p>Dummy for same party as PM</p> <p>Left-Right score of minister</p> <p>Number of weeks since the last election</p>
<p>Factors that increase the likelihood of cabinet terminations</p>	<p>Bargaining complexity in assembly</p> <ul style="list-style-type: none"> - Large number of parties increases complexity, reducing cabinet duration <p>Coalition attributes</p> <ul style="list-style-type: none"> - Majority status (minority governments are less stable) - Coalition status (coalitions are less stable than single-party majorities, minimum winning coalitions are more stable than surplus governments) - Government heterogeneity (coalitions will be less stable if composed of ideologically diverse parties) <p>Elections (changes in vote shares of parties will lead to changes in government composition)</p> <p>Investiture votes (decrease government duration because many cabinet fail at time of investiture)</p>	<p>Effective number of parties</p> <p>Minority Dummy</p> <p>Coalition dummy Surplus dummy MWC dummy</p> <p>Government Heterogeneity</p> <p>Electoral Volatility</p> <p>Investiture dummy</p>

Table 1. Descriptive Statistics

<i>Independent Variables:</i>		<i>Mean</i>	<i>Std. Dev.</i>	<i>Min</i>	<i>Max</i>
Cabinet Duration	Effective Parties	3.394	1.232	1.5	9.05
	Minority	0.224	0.417	0	1
	Coalition	0.504	0.500	0	1
	Surplus	0.129	0.335	0	1
	MWC	0.376	0.484	0	1
	Government Heterogeneity	3.1	2.7	0	9
	Electoral Volatility	0.123	1.256	0	38.3
Uncertainty	Size of Minister's Party	37.94	16.83	1	78.5
	Age of Democracy	56.07	30.54	0	130
	Size of Assembly	246.2	178.1	51	672
Minister autonomy	Minister Autonomy	4.364	0.621	3.5	5.6
	Policy Value of Portfolio	5.072	1.334	2.8	7.8
Trust	Extreme Minister	1.590	1.037	.090	4.5
Constraints	Same Party as PM	0.696	0.460	0	1
	Minster Left-Right	6.010	1.828	1	10

Table 2. Determinants of Ministerial Duration, Competing Risks[†]

		<i>Dependent Variable: Ministerial Duration, in Months (Competing Risks)</i>		
<i>Independent Variables:</i>		(1) Pooled	(2) Terminations	(3) Reshuffles
Cabinet Duration	Effective Parties	1.061 (2.48)	1.070 (2.69)	1.020 (0.28)
	Minority	1.303 (3.48)	1.274 (2.91)	1.546 (2.24)
	Surplus	0.901 (-1.07)	0.870 (-1.32)	1.117 (0.43)
	MWC	0.594 (-6.76)	0.563 (-6.8)	0.930 (-0.37)
	Government Heterogeneity	1.021 (1.77)	1.019 (1.44)	1.022 (0.75)
	Electoral Volatility	1.092 (6.2)	1.107 (6.77)	1.001 (0.03)
	Electoral Vol * <i>ln</i> (Time)	1.008 (2.58)	1.007 (2.05)	1.022 (1.79)
	Investiture	0.909 (-1.51)	0.913 (-1.33)	0.884 (-0.74)
Uncertainty	Size of Minister's Party	0.980 (-7.93)	0.974 (-9.39)	1.012 (1.64)
	Assembly	1.000 (2.98)	1.000 (2.76)	1.000 (0.6)
	Ln (Age of Democracy)	0.966 (-1.13)	0.943 (-1.78)	1.133 (1.3)
Impact on Policy	Minister Autonomy	1.004 (0.08)	0.984 (-0.31)	1.122 (0.98)
	Policy Value of Portfolio	1.221 (9.5)	1.195 (7.89)	1.368 (5.09)
	Finance	0.915 (-1.57)	0.880 (-2.07)	1.215 (0.93)
	Foreign Affairs	0.764 (-3.66)	0.741 (-3.73)	0.855 (-0.86)
	Agriculture			0.500 (-2.83)
Trust	Extreme Minister	1.047 (1.84)	1.064 (2.34)	0.944 (-0.81)
Constraints	Last Election	0.990 (-23.78)	0.989 (-22.9)	1.000 (0.79)
	Same Party as PM	1.490 (5.32)	1.611 (5.9)	0.989 (-0.06)
	Minster Left-Right	0.987 (-0.99)	0.966 (-2.41)	1.100 (2.38)
N		353682	353682	353682
<i>Ln</i> (L)		-15853	-13370	-2435

[†] Coefficients are hazard ratios. Z statistics are shown in parentheses.

** The hazard ratios for coalitions are .6312 (-6.09) for pooled hazards, .6005 (-6.16) for terminations, and .9723 (-0.15) for reshuffles.

Table 3. Determinants of Ministerial Duration, Terminations[†]

		<i>Dependent Variable: Ministerial Duration, in Months (Terminations)</i>		
<i>Independent Variables:</i>		(1)	(2)	(3)
Cabinet Duration	Effective Parties	1.148 (7.48)	1.091 (3.51)	1.070 (2.69)
	Minority	1.304 (4.05)	1.405 (4.17)	1.274 (2.91)
	Surplus		0.873 (-1.28)	0.870 (-1.32)
	MWC		0.572 (-6.62)	0.563 (-6.8)
	Coalition	0.832 (-2.59)		
	Government Heterogeneity	1.037 (3.47)	1.028 (2.20)	1.019 (1.44)
	Electoral Volatility	1.098 (6.53)	1.105 (6.69)	1.107 (6.77)
	Electoral Vol * <i>ln</i> (Time)	1.007 (2.29)	1.006 (1.86)	1.007 (2.05)
	Investiture	1.222 (4.22)	0.917 (-1.27)	0.913 (-1.33)
Uncertainty	Size of Minister's Party		0.986 (-7.42)	0.974 (-9.39)
	Assembly		1.000 (3.22)	1.000 (2.76)
	Ln (Age of Democracy)		0.930 (-2.22)	0.943 (-1.78)
Impact on Policy	Minister Autonomy		0.964 (-0.71)	0.984 (-0.31)
	Policy Value of Portfolio		1.170 (7.10)	1.195 (7.89)
	Finance		0.866 (-2.33)	0.880 (-2.07)
	Foreign Affairs		0.714 (-4.24)	0.741 (-3.73)
Trust	Extreme Minister			1.064 (2.34)
Constraints	Last Election	0.989 (24.87)	0.989 (23.7)	0.989 (-22.90)
	Same Party as PM			1.611 (5.9)
	Minster Left-Right			0.966 (-2.41)
N		371187	359201	353682
<i>Ln</i> (L)		-14913	-13516	-13370

[†] Coefficients are hazard ratios. Z statistics are shown in parentheses.