Engineered Instability: How Prime Ministers Use Reshuffles to Control Government[*]

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Prime ministers (PMs) face a multiple agency problem, that is, they rely on and can suffer agency losses from two sets of agents, cabinet ministers and civil servants. We argue that PMs manage this multiple agency problem by reshuffling ministers and senior civil servants in a counter-cyclical manner. Empirical tests of this argument are carried out with data on the Canadian cabinet and civil service from 1950-2000. Our results suggest that "engineered" political instability (i.e., the systematic movement of ministers and bureaucrats by the PM across portfolios) is a key means of controlling moral hazard in parliamentary systems.

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1. INTRODUCTION

Prime ministers (PMs) sack and reshuffle their ministers for strategic reasons (Dewan and
Myatt 2007; Indridason and Kam 2007; Dewan and Dowding 2005; Kam and Indridason 2005).
Removing a minister is only half the challenge, however. New ministers have to be named and
trained, and until they are comfortable in their new departments, policy development and
implementation are likely to be retarded (Franks 1987, 248; Rose 1987; Heady 1974). The PM can
rely on the bureaucracy to keep departments on track as ministers settle in, but this is problematic
because bureaucrats may react poorly to ministerial instability (Huber and Lupia 2001), or worse,
take advantage of their new minister's inexperience to advance their own policy agendas. Thus, the
PM would seem to confront the Hobson's choice of suffering agency loss to her ministers or to the
civil service. This dilemma reflects the multiple agency problem (Holmstrom and Milgrom 1991)
that characterizes a PM's position at the centre of parliamentary government. The problem is
fundamentally different than the multiple principal problem (McCubbins, Noll, and Weingast 1987)
that American presidents confront: The PM's problem is not that the bureaucracy exploits the
division of power between the executive and the legislature, but that she is served by cabinet
ministers *and* bureaucrats, and may suffer agency losses to both sets of agents. We argue that PMs
respond to this situation by systematically reshuffling ministers and senior bureaucrats in a manner
that balances the PM's desire to avoid agency loss against the need to maintain an adequate level of
experience in each portfolio. In effect, PMs control moral hazard by engineering instability in the
cabinet and the bureaucracy, a result that we demonstrate with data on the reshuffles of Canadian
ministers and deputy ministers from 1950-2005.

The paper follows in seven sections. The second section following this introduction describes the PM's agency relationship with her cabinet ministers and outlines how PMs try to limit the moral hazard inherent in this relationship. The third section describes the relationship between Canadian PMs and their deputy ministers (DMs), their chief departmental civil servants. This relationship exists alongside the PM's relationship to the respective departmental cabinet minister and as a result the Canadian parliamentary system, perhaps more than any other, is characterized by multiple agency. The section closes by discussing the nature and form of the prime minister's agency loss in this multiple agency system. The fourth section develops these insights into a set to testable hypotheses regarding the pattern and timing of ministerial and bureaucratic reshuffles. Descriptions of the data and methods that we use to test these hypotheses follow in the fifth section. The penultimate section presents the statistical results of our tests, the final section, a concluding discussion.

2. PRINCIPAL-AGENT RELATIONSHIPS IN PARLIAMENTARY GOVERNMENT

Prime ministers occupy a central position in parliamentary politics. In Westminster parliamentary systems, the PM is clearly *primus inter pares*. This is less so in multi-party systems where the premier must contend with nearly co-equal coalition partners, but even in these cases, the PM's constitutional authority and public visibility leave the PM well-placed to impose her preferences on the cabinet. Whatever their constitutional and political powers, PMs rely on their cabinet ministers to develop and oversee policy within each portfolio (Laver and Shepsle 1994) – and cabinet ministers have inherently mixed motives with respect to the PM. This is obviously the case when the PM and minister are from different parties in a coalition, but it remains true even in single party governments (e.g., Tony Blair and Gordon Brown). On one hand, ministers' fortunes are tied to their party and the PM for the simple reason that to become a cabinet minister one must belong to

an electorally successful party. On the other hand, cabinet ministers harbor private desires, perhaps for a more important cabinet post (e.g., finance or foreign affairs) or even the premiership itself (Luebbert 1986; Weller 1994; Marsh, Richards and Smith 2001, 149). There are incentives, then, for cabinet ministers to use their departments to serve their own ambitions. Nevertheless, once a minister is installed in a portfolio, the PM is limited in her ability to monitor and control the minister's actions directly. There is, therefore, the potential for moral hazard in this relationship (Indridason and Kam 2007).

Prime ministers can limit the moral hazard on the minister's side in a number of ways. Sacking a minister is the most obvious means of discipline, but summarily firing every underperforming or wayward minister is not optimal for the PM (Dewan and Myatt 2007). Prime ministers may, therefore, rely on reshuffles, that is, lateral movements of ministers from one portfolio to another, to rein in ministers. Indridason and Kam's (2007) logic on this front is that ministers refrain from departmental empire-building and budget-padding for fear that a reshuffle will deliver the rewards of their efforts to their successor in the portfolio. Another means of ministerial control is to appoint a watchdog to the department. In many coalition governments, for example, the junior minister and cabinet minister in a given portfolio hail from different parties, an arrangement that allows the coalition parties to monitor one another's ministers (Thies 2001). These watchdog arrangements need not be limited to partisan politicians; where PMs have discretion over civil service appointments, they may also place bureaucratic agents in departments to keep tabs on ministers.

In using watchdog tactics to monitor ministers PMs alter the chain of parliamentary delegation from one characterized by singularity (Strøm 2000) to one characterized by multiple agency. Thus, instead of a single agent, the cabinet minister, reporting to a single principal, the PM, on a department's activities, several agents – the cabinet minister, junior minister, and the

bureaucratic head of the department, for example – answer to the PM. While there are advantages to the PM from these arrangements, multiple agency also complicates the principal-agent relationship:[1] The central difficulty is that agents' production functions may be non-separable, that is, one agent's production may affect another's output. Non-separable production functions amplify agents' incentives to collude or free-ride (Mookerjee 1984; Itoh 1991; Arya and Mittendorf 2004; Ting 2003) and limit the principal's capacity to deal with each agency relationship in isolation (Holmstrom and Milgrom 1991; Mookerjee 1984). Thus, especially in single-party majority governments where the PM is free of coalition obligations, the PM confronts a situation that is quite different than that faced by an American president. The American president is party to a multiple principal relationship (e.g., Moe 1987; McCubbins, Noll, and Weingast 1987; Calvert, McCubbins, and Weingast 1989; Moe and Caldwell 1994) in which the chief problem is how to prevent bureaucratic agents' from exploiting differences between the president and Congress; the PM's

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[1] The structure of multi-agency models is fairly standard, and follows the lines of the single agent models in the economics literature (e.g., Lafonte and Tirole 1991; Grossman and Hart 1983): the agent's output is a function of unobserved but costly effort and some random state variable; the principle observes the agent's output (and in some models, the state variable) and tries to structure an optimal contract. Variations on this theme involve multiple agents:

- working simultaneously on identical tasks governed by more or less strongly correlated random state variables, the principal observing total output and attempting to maximize total revenue (e.g., Mookherjee 1984; Itoh 1991);

- carrying out different tasks, some of which may have more or less difficult production environments, and which may also be more or less observable by the principal (e.g., Holmstrom and Milgrom 1991);

- completing different tasks over time, with the principal able to reassign (at some cost) the agents to a new task at the end of a production period (e.g., Arya and Mittendorf 2004).

immediate problem, in contrast, is how to motivate her agents and prevent them from colluding

free-riding when it is not clear how to apportion credit or blame among agents. Our claim is that

PMs respond to this situation by systematically reshuffling both their political agents (i.e., cabinet

ministers) and their bureaucratic agents.

3. PRIME MINISTERS, CABINET MINISTERS, AND DEPUTY MINISTERS IN CANADA

In this section we consider how multiple agency manifests itself in a real parliamentary

setting, the government of Canada. We focus on Canada not because it has a typical or modal form

parliamentary government, but because the multiple agency relationships we are interested in here

are sharply defined by the structure of Canadian parliamentary government. Canadian PMs are

incredibly powerful: Politically, they always head cohesive single-party governments (often

majorities), and have never been constrained by the need to build and maintain coalitions;

constitutionally, they have untrammeled authority to appoint, dismiss, and reshuffle their cabinet

ministers, who themselves have no constitutional standing independent of their PM. The power to

appoint, dismiss, and reshuffle personnel extends to the civil service heads of Canadian portfolios,

officials titled (confusingly) deputy ministers (DMs).[2] The political nature of their appointments

notwithstanding, DMs are career civil servants in the British tradition rather than partisan

appointees. There is no doubt, however, that DMs are prime ministerial agents rather than

ministerial subordinates (Kernaghan and Siegel 1995; Campbell 1983, 351; Bourgault and Dion

1989, 127-28). The DM's performance contract is with the PM directly, not the cabinet minister; as

one former cabinet minister told us, "I recall a Cabinet meeting where a minister was complaining to

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[2] In these respects the Canadian system resembles British, New Zealand, and Australian arrangements,

though the Canadian PM is less constrained than his British, New Zealand, and Australian counterparts in

hiring and firing ministers and senior civil servants.

the PM about his Deputy and asking for a replacement, and the PM told him that if he didn't like it, he [i.e., the minister] could leave."[3] The Canadian PM's freedom from the constraints of coalition government and her constitutional authority to appoint, dismiss, and reshuffle her cabinet ministers and deputy ministers makes clear that a) we are in no way dealing with a multiple principle problem, b) that all agents in the system are, indeed, prime ministerial agents, and c) there are two competing prime ministerial agents in each portfolio, the cabinet minister and the deputy minister.[4]

The multiple-agent structure of Canadian ministries affords the PM several advantages. First, there are potential gains from specialization with the DM overseeing the administration of the department so that the cabinet minister can focus on political issues. Second, the DM can serve as the PM's watchdog in the portfolio. This may involve the DM monitoring politically ambitious ministers, but as one parliamentarian noted it more typically involves alerting the PM to incompetence rather than disloyalty:

> …The DM's job is to keep the minister out of dirt, and so they have to make sure
> that they stop bad policy ideas from getting their minister in trouble… Indeed, they

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[3] The first author interviewed 1 current (at that time) cabinet minister, 3 former cabinet ministers, and 5 assistant deputy ministers in Ottawa in June 2003.

[4] Cabinet ministers and deputy ministers are competitive agents insofar as they all have potentially conflicting interests. For example, cabinet ministers and DMs may engage in "passing the buck" for policy failures, in essence competing against one another for the PM's mercy. Similarly, cabinet ministers may compete against one another for budget resources or the party leadership, whilst DMs compete against one another for cabinet attention for their department's projects or for promotion to the major coordinating departments (e.g., Finance or the Privy Council Office).

may go to the [Cabinet] Secretary and the PM and say, "we've got a guy who can't or won't take care of himself, and we've got to protect him from himself." [5]

In some respects, the PM can afford this heavy reliance on DMs because their relationship with their DMs is less problematic than the PMs relationship with her cabinet ministers: Whereas at least some cabinet ministers are political threats to the PM, DMs are career civil servants who are in no way political rivals to the PM. That said, prime ministerial reliance on civil servants is potentially problematic. Civil servants' preferences may not align with their political masters' preferences (Niskanen 1971; Aberbach, Putnam and Rockman 1981, 242; Horn 1995, 106; Downs 1967), and the highly technical knowledge that they posses creates information asymmetries between politician and bureaucrat. A senior cabinet minister also told us that the practice of frequently reshuffling ministers had created incentives for senior bureaucrats to outwait ministers with whom they disagreed:

> Things have changed since the days of the old style mandarins who used to stand astride Ottawa like colossuses. These were people who had spent years in a department, health say, and had come up from being a regional officer, to a national officer, and now headed the department. They spent 25 years in the same department and knew where all the bodies were buried – and had put some of them there themselves. There was a feeling that these mandarins ran their own show and didn't have to listen to Cabinet, and that this created a resistance to change.

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[5] This parliamentarian had served previously as a junior minister and departmental select committee chair. Committee chairs as a matter of course deal extensively with the deputy and assistant deputy ministers in their policy areas.

The cabinet's response to this situation, the minister continued, was "to shuffle these deputy ministers around in order to rein in departments." In theoretical terms, this was an appropriate response: Job rotation can be an effective solution to agency loss in multiple agency relationships, offering the principal a means of breaking up collusive coalitions (Tirole 1986, 201) and extracting information about the agents' task-specific production functions (Ickes and Samuelson 1987; Arya and Mittendorf 2004). Nevertheless, in reshuffling both their political agents (cabinet ministers) and their bureaucratic agents (the deputy ministers, in the Canadian context) in a portfolio, the PM creates a complex pattern of multiple agency loss. This agency loss is an interactive function of two generic variables that are present in many political systems: i) the experience differential between the political and bureaucratic agent in the portfolio, and ii) the political-bureaucratic management team's collective experience together in the portfolio. We see these variables combining to create four sources of agency loss:

i.   **A Lack of Expertise:**   If neither the political nor the bureaucratic agent has any experience in the portfolio (i.e., the team's collective experience is zero and the experience differential is zero), the portfolio is likely to suffer inefficiency as the cabinet minister and DM muddle through.

ii.   **Bureaucratic Manipulation**: If the bureaucratic agent is experienced in the portfolio relative to the political agent (i.e., the team's collective experience is low and the experience differential favors the bureaucratic agent), the portfolio may stagnate until the minister accumulates the experience required to provide the department with political direction, or worse, the DM may

manipulate or intimidate the novice minister in a way that undermines political control of the department.[6]

iii. **Political Failure:** If the political actor is experienced in the portfolio relative to the bureaucratic agent (i.e., the team's collective experience is low and the experience differential favors the political agent)**,** the result is likely to be political failure. This political failure may take the form of the minister's effectiveness (e.g., in winning cabinet approval and public support for policy initiatives) being undercut by the DM's administrative inexperience in the portfolio. Alternatively (as the quote above suggests), bad or inchoate policy ideas may be put into action because the DM lacks the experience to be an effective check on an overly ambitious or incompetent minister.

iv. **Collusion:** As both the political and bureaucratic agent accumulate experience together in the portfolio (i.e., the team's collective experience is lengthy), the potential for collusion increases. Collusion may take the form of ambitious ministers and DMs conspiring in "empire-building" efforts Downs 1967; Crossman 1975, 43; Blondel and Manning 2002) or may involve weak

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[6] As the committee chair we interviewed noted, "You can tell when ministers – there are some – who try to carve out some real political space for themselves… and then there are those who just do what the bureaucracy says. In my opinion since 1997, we've had Lyle Vanclief in Agriculture, and there's no doubt in my mind that the DM is the real power in that department. Lyle might deny or refute that, but what matters is what Sammy Watson [the DM] says and Lyle's job is to put a public face on it."

ministers "going native" (Heclo 1977; Kaufman 1960). Both of these effects, hence the potential

for agency loss, are likely to become more pronounced over time.[7]

4. HOW PRIME MINISTERS MANAGE MULTIPLE AGENCY

Over time, as ministers and DMs gain experience, the potential for and nature of the agency

loss will change. For example, while it may be problematic to place a new cabinet minister in a

portfolio that has been governed by the same for DM for twenty years, it is to the PM's advantage to

ensure that the DM has at least some experience in the portfolio. (The same would be true if the

DM were the newcomer to the department and the minister, the old hand.) Similarly, while a long

period of shared service may lead to collusion between the minister and DM, there are probably

positive returns from departmental stability in the medium term. Our logic suggests, then, that the

PM's agency loss takes on the form of the function set out in Figure 1. At one extreme, agency loss

is high due to the severe information asymmetry that exists between an experienced DM and a

novice minister. The chief danger here is bureaucratic manipulation. As the DM's experience vis-à-

vis the minister declines, the information asymmetry between political and bureaucratic agent

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[7] Indridason & Kam (2007), for example, model empire-building as an incremental budget so that

overspending in one time period allows even more overspending in the next time period. Similarly, while

"going native" is never precisely defined in the bureaucracy literature, the implication is that the probability of

an agent going native grows over time. Of course, one might argue that "going native" is not collusion as

such (and may, in addition, be impossible to distinguish empirically from empire-building), but this is not

especially important: From the PM's perspective it is moot whether agency loss is due to a minister gone

native or to a minister engaged with the DM empire-building, and in either case the agency loss that the PM

suffers increases the longer the minister and DM occupy the same portfolio and in both cases the solution

would be to break up the ministerial-DM team in question.

becomes less severe, and PM's agency loss declines. However, at some point the DM's lack of experience mirrors the minister's, and the PM's agency loss increases once again because of a lack of expertise in the portfolio. A similar dynamic occurs as the minister gains experience relative to the DM, though the agency loss is now due to the political costs of saddling an experienced minister with a novice administrator. Finally, as the team's time in the portfolio increases, the marginal effects of any experience differential diminish and give way to collusion.

[FIGURE 1 ABOUT HERE]

If PM's employ reshuffles to manage multiple agency (and that is our claim), Figure 1 can be read as a map of the predicted timing of a reshuffle of any given portfolio. Bear in mind that a far-sighted (and unconstrained) PM should reshuffle the minister or deputy minister *before* agency loss peaks in a portfolio. In game theoretic terms, the points in Figure 1 where the PM's agency loss peaks should be off the equilibrium path; ceteris paribus, reshuffling strategies that lead to these points (e.g., simultaneously replacing both the minister and DM and thereby depriving a department entirely of managerial experience) should not appear in the data. More generally, the PM's far-sightedness requires one to speak in terms of the risk of an actor i (i.e., the minister or DM) being reshuffled out of a given department as a function of a) the *Experience Differential* between i and j, the other member of department's management team, $\Delta e_{ij} = e_i - e_j$, and b) the management team's *Collective Experience* in the department, c_{ij}. Figure 2 puts the problem in these terms. With respect to the experience differential, we can say that:

a) The risk of an actor being reshuffled increases in the actor's experience differential ($\partial \mathrm{Risk}_i / \partial \Delta e_{ij} \geq 0$). In other words, the more experienced member of the management team faces a greater

risk of being reshuffled out of the department. Reshuffles that follow this pattern limit the severity of the information asymmetries that exist between the minister and deputy minister.

b) Nevertheless, the magnitude of the marginal effect of the experience differential on the risk of being reshuffled changes over the team's collective experience. At c_0, the point in time at which the management team is formed, the risk of being reshuffled is independent of the experience differential ($\partial \text{Risk}_i / \partial \Delta e_{ij} | c_0 = 0$) because having just formed a management team, the PM should not immediately dismantle it: Replacing the team's junior member (i.e., the actor for whom $\Delta e_{ij} < 0$) undercuts the junior member's accumulation of expertise and exacerbates the information asymmetry in the department; replacing the senior team member guts the department of experience. Similarly, after a long time together in the portfolio, when collusion is the chief source of agency loss, the experience differential between the actors has only a small effect on their risks of being reshuffled. Between these extremes, there is a point in the team's collective experience, c^*, when (in theory) the junior member of the team has accumulated sufficient experience to oversee the department, making the senior member transferable, and when in consequence the difference in the senior and junior members' risks of being reshuffled from the department is maximized. In short, the partial derivative, $\partial \text{Risk}_i / \partial e_{ij}$, is zero at c_0, achieves a maximum at some c^*, and then declines.

Furthermore, with respect to the management team's collective experience, we can say that:

c) The marginal effect of collective experience on the risk of being reshuffled is conditional on the actor's experience differential. For the senior team member (i.e., the actor for whom $\Delta e_{ij} > 0$) the risk of being reshuffled increases monotonically over collective time, i.e., the partial

derivative $\partial \text{Risk}_i / \partial c_{ij} > 0$. This risk rises early in the team's tenure and then flattens out (but still increases) later on as the marginal effect of the experience differential between the minister and DM diminishes, i.e., $\partial^2 \text{Risk}_i / \partial c_{ij}^2 < 0$.

d) In contrast, the risk of the junior member being reshuffled decreases early in the team's tenure (as the PM allows the junior member to gain experience), and then increases (as the danger of collusion increases). Thus, the partial derivative, $\partial \text{Risk}_i / \partial c_{ij} | \Delta e_{ij} < 0$ is initially negative but eventually becomes positive as collective time passes. Moreover, inasmuch as collusion can be solved by reshuffling either member of the team from the department, the junior and senior members' risks of being reshuffled should converge over time.

[FIGURE 2 ABOUT HERE]

From Theory to Prediction

Together these dynamics suggest an actor i's risk of being reshuffled from a given department takes the functional form:[8]

$$\text{Risk } i \text{ reshuffled at time } t = c_{ij} + \Delta e_{ij} c_{ij} + \Delta e_{ij}(c_{ij} - c_{ij}^2) \qquad [1]$$

We estimate this theoretical relationship by defining the hazard of actor i being reshuffled from the department as:

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[8] Equation 1 is simply the algebraic expression of the function shown in Figure 2.

$$h_i(T_i) = g(T_i, \beta_1 c_{ij} + \beta_2 \Delta e_{ij} c_{ij} + \beta_3 \Delta e_{ij}(c_{ij} - c_{ij}^2) + \mathbf{x}\beta_{4-m}) \qquad [2]$$

where, in addition to the variables defined above, T_i is actor i's time in the department (potentially very different from c_{ij} and Δe_{ij}) and $\mathbf{x}$ is vector of exogenous variables that might be thought to spark reshuffles generally, a sharp change in the government's popularity, for example. The precise nature of g (the baseline hazard and link function) is not an issue here (and moot given our later reliance on a Cox proportional hazards model).[9] The focus instead is on i's relative risk of being reshuffled:

$$\beta_1 c_{ij} + \beta_2 \Delta e_{ij} c_{ij} + \beta_3 \Delta e_{ij}(c_{ij} - c_{ij}^2) + \mathbf{x}\beta_{4-m} \qquad [3]$$

$$= \beta_1 c_{ij} + (\beta_2 + \beta_3)\Delta e_{ij} c_{ij} - \beta_3 \Delta e_{ij} c_{ij}^2 + \mathbf{x}\beta_{4-m}$$

which is estimated as,

$$b_1 c_{ij} + b_2 \Delta e_{ij} c_{ij} - b_3 \Delta e_{ij} c_{ij}^2 + \mathbf{x}b_{4-m} \qquad [4]$$

where b_1 is the estimate of β_1, b_3, the estimate of β_3, and β_2, recovered by subtracting b_3 from b_2.[10] Equation 4 directly tests the arguments that we set out above, to wit.

Hypothesis 1: The marginal effect of the experience differential on the risk of being reshuffled (i.e., $\partial \text{Risk}_i / \partial \Delta e_{ij}$) is zero at c_0 and increasing thereafter: $b_2 c_{ij} - b_3 c_{ij}^2 \geq 0 \; \forall \; c_{ij}$.

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[9] For the Cox model, then, equation 2 would be specified as $h(T_i) = h_0(T_i)\exp(\beta_1 c_{ij} + \beta_2 \Delta e_{ij} c_{ij} + \beta_3 \Delta e_{ij}(c_{ij} - c_{ij}^2) + \mathbf{x}\beta_{4-m})$ where h_0 is the baseline hazard.

[10] We leave out the constituent terms, Δe_{ij} and c_{ij}^2, from Equation 4 because we have strong theoretical priors as to the nature of the prime minister's loss function and (hence) the actor's risk of being reshuffled (see Kam and Franzese 2007, 64-69).

Hypothesis 2: In addition, the *magnitude* of the marginal effect of the experience differential increases and then diminishes over collective time. Put differently, $b_2 c_{ij} - b_3 c_{ij}^2 = 0$ at c_0, is maximized at some intermediate collective time, c^*, and then decreases as collective time moves beyond c^*.

Hypothesis 3: The marginal effect of collective time on the risk of being reshuffled (i.e., $\partial \text{Risk}_i / \partial c_{ij}$) is positive for experienced and equally experienced actors (i.e., those for whom $\Delta e_{ij} \geq 0$), but decreases over time: $b_1 + b_2 \Delta e_{ij} - 2 b_3 c_{ij} \Delta e_{ij} > 0 \ \forall \ \Delta e_i \geq 0, \ b_3 < 0$.

Hypothesis 4: For inexperienced actors (i.e., those for whom $\Delta e_{ij} < 0$), the marginal effect of collective time on the risk of being reshuffled, $b_1 + b_2 \Delta e_{ij} - 2 b_3 c_{ij} \Delta e_{ij}$, is decreasing and then increasing.

In addition, our argument suggests one further hypothesis:

Hypothesis 5: A department's cabinet minister and DM should not be reshuffled simultaneously. (To do so would gut the department of experience.)

Before testing our hypotheses it is worth noting that our argument has been stated as if PMs were indifferent between political failure and bureaucratic manipulation (i.e., the rates at which cabinet ministers, on one hand, and deputy ministers, on the other, impose agency loss on the PM are equal). This assumption eases the presentation of our case but is not critical to our argument. We may observe, for example, larger coefficients and more pronounced marginal effects for ministerial reshuffles (perhaps because PMs are more sensitive to the ex post opportunism of their cabinet ministers, some of whom are their direct political rivals in a way that DM never are), but

such a result is independent of whether or not the risk of a deputy ministerial reshuffle operates according to our predictions.

5. DATA AND METHODS

Data

Our data are based on the ministerial and deputy ministerial reshuffles of Canadian majority ministries from 1957-2003. Minority ministries that never attained majority status at any point in their lifetimes are excluded because they tend to be too short-lived to experience many (if any) cabinet reshuffles. We employ the constitutional term, *ministry,* as opposed to *government* to denote a continuous period of cabinet leadership by a given PM. In Canada, a ministry is not truncated by an election won by the incumbent PM, and ends only when the incumbent PM leaves office. Grouping the data in this fashion has the virtue of limiting the censoring generated by elections (because post-election reshuffles of an incumbent cabinet are counted as just that, reshuffles, rather than wholly new governments) and is sensible given our theoretical concern with the prime minister's agency loss. There are five ministries in the data set: Diefenbaker (1957-63), Trudeau I (1968-79), Mulroney (1984-93); Trudeau II (1980-84); and Chrétien (1993-2003).

Not all cabinet portfolios in each ministry provide data. Several cabinet posts, the premiership for example, do not have departments as such. There are also several multi-branched portfolios that operate with separate deputy ministers for each branch. These portfolios are excluded because it is problematic to define the life span of the management team or the experience differential when more than just a single minister and DM are involved. Finally, there are departments that have undergone such extensive reorganization over time, which have ceased to exist as independent entities, or which have come to exist only recently (e.g., Environment and Communications) as to be difficult to cover consistently. However, the main portfolios – Finance,

Defence, Justice, Industry, Foreign Affairs – exist in every Ministry as do a set of stable minor portfolios, notably, Public Works, Transport, Labour, Veterans' Affairs and Indian and Northern Affairs.

Relevant statistics on the ministries and the frequency of ministerial and deputy ministerial reshuffles are set out in Table 1 below. Censoring is not a serious problem save in one case, deputy ministerial reshuffles in the Diefenbaker era. This is not a technical problem as such; it reflects real changes in the operation of the upper tier of the Canadian civil service with deputy ministerial reshuffles becoming markedly more frequent over time. In consequence, the median time DMs spend in a given department has declined from 50 months to 36 months. This pattern does not characterize ministerial reshuffles which were reigned in under Chrétien, and this has kept the median time ministers spend in departments near a long run average of 25 months. The net effect of these trends on the experiential differential between ministers and deputy ministers is stark. In the late 1950s the median deputy minister had 36 months more experience in the department than their cabinet minister; by the 1980s and 1990s, this experience differential had declined to about 6 months.

[TABLE 1 ABOUT HERE]

Methods

We test these hypotheses with a conditional risks model Cox (or proportional hazards) regression. Proportional hazard models are familiar statistical tools in the analysis of cabinet survival, but their application to reshuffles requires modification because reshuffles, unlike cabinet failures, are repeatable events. A conditional risks model makes three modifications to the standard proportional hazards model (Box-Steffensmeier and Zorn 2002) to account for repetition. First, the risk set is constructed (and likelihoods calculated) on the assumption that later events are

encountered only after earlier events have occurred. Hence, a department is at risk of a second (deputy) ministerial reshuffle only after having seen its (deputy) minister reshuffled once previously. Second, standard errors are clustered (by department) and baseline hazards stratified (by event order) to account for event dependence in the data. Thirdly, time is measured as inter-event time, i.e., it returns to zero after each (deputy) ministerial reshuffle.

6. RESULTS

Our models of ministerial and deputy ministerial reshuffles appear in Tables 2 and 3, respectively. Each table shows four specifications. The first is a baseline model that contains only the team's collective experience and their experience differential. The second specification controls for factors generally related to cabinet reshuffles (i.e., the *Government's Popularity* as measured by monthly opinion polls; an *Election Month* dummy, and the number of *Months into the Constitutional Inter-election Period* [see Kam and Indridason 2005]), while the third specification controls for department and actor-specific characteristics (i.e., the *Portfolio's Political Salience* [Laver and Hunt 1992], the number months of *Transferable Experience* accumulated by the actor in equivalent positions in other departments, and indicators that identify the actor's *Caretaker Status* and ministers who were *Sacked or Resigned* that month).[11] The fourth specification adds the actor's *Age* to the model to control for the possibility that a reshuffle in a department is due to retirement.[12] As we are concerned here with changes in an actor's relative risk of being reshuffle rather than shifts in a baseline hazard, we present and discuss the models' coefficients rather the associated hazard ratios.

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[11] This last variable does not appear for deputy ministers because reasons for the bureaucratic departures are not public information.

[12] The drop-off in the number of cases of deputy ministerial reshuffles from Specifications 3 to 4 reflects the fact that we do not have birth dates (hence ages) for a number of deputy ministers.

[TABLES 2 AND 3 ABOUT HERE]

Ministerial Reshuffles

We start by discussing the effects of the experience differential on ministerial reshuffles. The hypotheses on this front were, first, that the marginal effect of the experience differential is nonnegative (i.e., the more experienced member of the team is at greater risk of being reshuffled) (Hypothesis 1), and second, that this effect increases early in the team's tenure, and then declines as collusion becomes the main source of agency loss (Hypothesis 2). Thus, if we graph the marginal effect of the minister's experience differential with respect to the DM over the course of their tenure together as is done in Figure 3, it should form a concave parabola that starts at zero, increases to a peak, and then declines.[13] This is exactly what Figure 3 shows. The dashed lines mark the 90 percent confidence bounds on this prediction, and the fact that the lower bound falls below zero after about two years of collective experience indicates that the marginal effect of the experience differential is not statistically different from zero beyond that point in time.[14]

[FIGURE 3 ABOUT HERE]

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[13] Understand that what is graphed here is not the minister's hazard or survival time, but the marginal effect of the experience differential ($b_2 c_{ijk} + b_3 c_{ijk}^2$) on the baseline hazard, which varies with the length of time that the minister has spent as part of a department's management team.

[14] The marginal effect is statistically significantly negative after four years, but as less than one percent of the management teams in our sample last that long this result is essentially a statistical abstraction. The median collective experience is, in fact, just one year, with 95 percent of management teams staying together three years or less.

Figure 4 is analogous to Figure 3 except that it displays the marginal effect of the management team's collective experience on the minister's risk of being reshuffled (i.e., $b_1 + b_2\Delta e_{ijk} - 2b_3 c_{ijk}\Delta e_{ijk}$) conditional on experience differentials of -54 months and +36 months (about the variable's 5th and 95th percentiles). For experienced ministers (i.e., $e_{ijk} > 0$) the marginal effect of collective experience should always be positive, though it should also decline over time. For inexperienced ministers (i.e., $e_{ijk} < 0$), in contrast, the marginal effect should be negative at first, but increase and become positive over time. In the main, these are the patterns that appears in the data. The dashed line that traces out the marginal effect for inexperienced ministers, for example, starts below the *y*-axis zero-point (though, as the confidence bounds show, just barely and not for long), and slopes upward until after 1.5 years of collective experience it is statistically greater than zero. The solid line representing the marginal effect for experienced ministers, on the other hand, starts out well above the *y*-axis zero-point and declines slowly until, at about 1.75 years of collective experience, we cannot statistically distinguish the marginal effect from zero. The decline is a direct result of $b_3 < 0$.

[FIGURE 4 ABOUT HERE]

Deputy Ministerial Reshuffles

Figures 5 and 6 trace out the same marginal effects of the experience differential and collective time for deputy ministerial reshuffles. To ease interpretation we measure the experience differential of deputy ministers by subtracting the minister's experience in the portfolio from the deputy minister's. This step keeps the coefficients for the collective experience and experience differential variables in line with the predictions set out above. Thus the pattern in Figure 5 (the marginal effect of an experience differential on deputy ministerial reshuffles) should be similar to the

one in Figure 3. Similarly, Figure 6 (the marginal effect of collective experience on deputy ministerial reshuffles) should parallel Figure 4. This is generally what we observe. In Figure 5, for example, the marginal effect of the experience differential has the same parabolic shape as is in Figure 3, and even if the effect is not quite as pronounced as it is in Figure 3, it is clearly statistically significant. The marginal effects of collective experience on deputy ministerial reshuffles, on the other hand, are somewhat muted compared to the ministerial results, with Figure 6 providing no statistical evidence that the marginal effect of collective experience on an inexperienced deputy minister's risk of being reshuffled is different from zero. Still, Figure 6 does show that that the positive marginal effect of collective time is positive for experienced deputy ministers, and clearly greater than that for inexperienced DMs.

[FIGURES 5 AND 6 ABOUT HERE]

Integrating the Results

An important implication of these results (and indeed an implication that is inherent in our theory) is that that ministerial and deputy ministerial reshuffles are mirror images of one another: When the minister's risks of being reshuffled from a given department are increasing, the deputy minister's are generally declining, and vice versa. To demonstrate this, we use the coefficients in the third specification of each model to calculate and then graph the risks of the minister and deputy minister being reshuffled out of the portfolio, in effect creating empirical counterparts to Figure 2. Cabinet ministers' and deputy ministers' "risk maps" appear in Figures 7a and 7b, respectively. In both cases, the experience differential is measured with respect to the cabinet minister. Thus, if the cabinet minister is inexperienced relative to the DM, the experience differential is negative for the former and positive for the latter. An imbalance of experience between management team members is, in fact, the most common situation. Only 6 of the 400 departmental reshuffles in our data set

(1.5 percent) involve a new minister and a new deputy minister entering the department simultaneously, hence in line with Hypothesis 5 the vast majority of reshuffles consist of a neophyte joining an old hand in the portfolio. The risk maps set out in Figures 7a and 7b give one a good sense of what happens in these situations. For an inexperienced minister, the risk of being reshuffled immediately declines. At some point in the team's collective experience, however, the minister's risks level off and being to increase very quickly. Precisely when this switch occurs depends on the experience differential between the actors. If the minister has four years less experience in the portfolio, for example, one can see that the switch occurs about one year into the minister's tenure. At the same time, the deputy minister's risk of being reshuffled is increasing monotonically. The pattern is reversed when the minister is experienced relative to the deputy minister, though it is clear that inexperienced deputy ministers' risks do not climb as quickly after bottoming out as those of inexperienced cabinet ministers. This difference in ministers' and deputy ministers' risks bears on a point that we made above, namely, that the agency losses that the prime ministers incurs at the hands of cabinet ministers and bureaucrats are not necessarily symmetric. Indeed, the fact that prime ministers appear willing to insulate inexperienced deputy ministers from reshuffles for a longer period of time and to a greater extent than inexperienced ministers suggests the political costs that come from saddling an experienced minister with a neophyte DM (see Figure 1 again) accumulate more slowly than the agency costs that arise when novice ministers are, first, manipulated by experienced civil servants and then "go native".

[FIGURES 7a AND 7b ABOUT HERE]

7. DISCUSSION

Multiple agency is one of the central organizational problems of parliamentary government. Whereas presidents have to worry about the bureaucracy exploiting the division of power between the executive and the legislature, prime ministers must grapple with fact that they are served by cabinet ministers *and* bureaucrats, and may suffer agency losses to both sets of agents. This remains true even if the chain of delegation is not parallel as in Canada, but hierarchical with the cabinet minister rather than the prime minister appointing the department's bureaucratic chief (see, e.g., Tirole 1986), an organizational pattern that is common in countries such as France, Belgium, and Italy. Multiple agency is therefore a widespread and complicated problem, one that introduces the possibility of collusion among agents and generates interdependencies among agency relationships.

The lack of a strongly institutionalized system of checks and balances would appear to leave parliamentary government ill-equipped to deal with the agency costs inherent in this situation. We have argued, however, that prime ministers may be able to use reshuffles to limit these agency costs. By reshuffling ministers and top-level civil servants in a counter-cyclical fashion so that experienced members of departmental management teams facing rising risks of being reshuffled, and the inexperienced member facing declining and then rising risks, prime ministers can limit the agency costs inherent in parliamentary government. Canadian ministerial and deputy ministerial reshuffles conform closely to this predicted pattern, implying that Canadian prime ministers reshuffle their cabinet ministers *and* civil servants in a manner that is to be expected of a principal intent on minimizing agency loss generated by the ex post opportunism of multiple agents. Conversely, were the PM reshuffling to achieve some optimal match between the portfolio, the minister, and deputy minister, we would not expect to see such a regular reshuffling. Instead, we would expect a management team to remain together if the portfolio-minister-DM match were favorable, and to be broken up only if and when it proved unfavorable (Ickes and Samuelson 1987). There is no a priori

reason to expect such matching or mismatching to take on the regularity that is reflected in our results. In consequence, our results leave us confident that we are correct in casting reshuffles as tools that prime ministers use to limit multiple agency loss generated by moral hazard. The broader implication here is that parliamentary government is better equipped to deal with ex post opportunism than scholars have previously thought (Strøm 2000).

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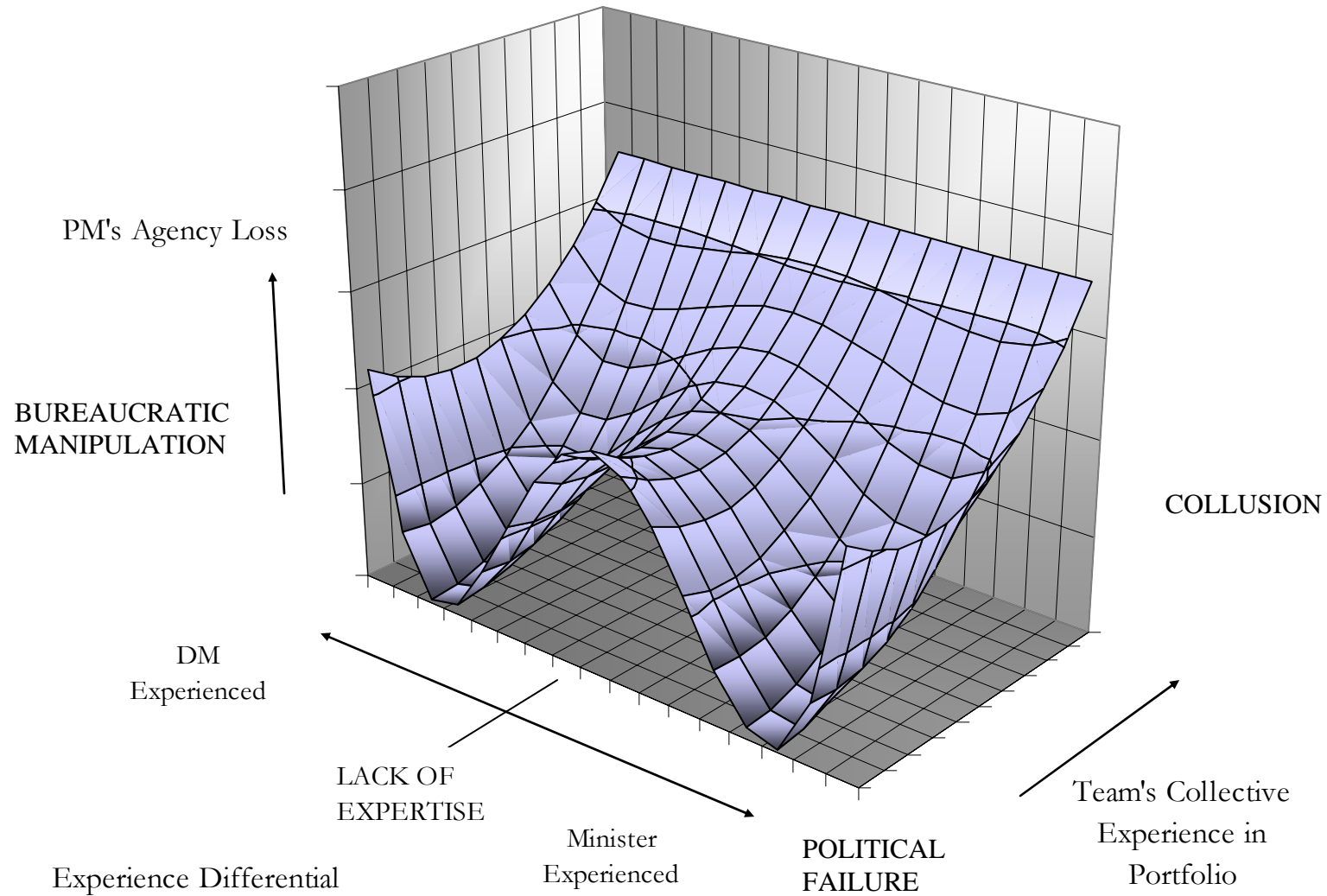Figure 1. The Pattern of Prime Ministerial Agency Loss Under Multiple Agency

Figure 2. The Risk of a Member of a Departmental Management Team Being Reshuffled
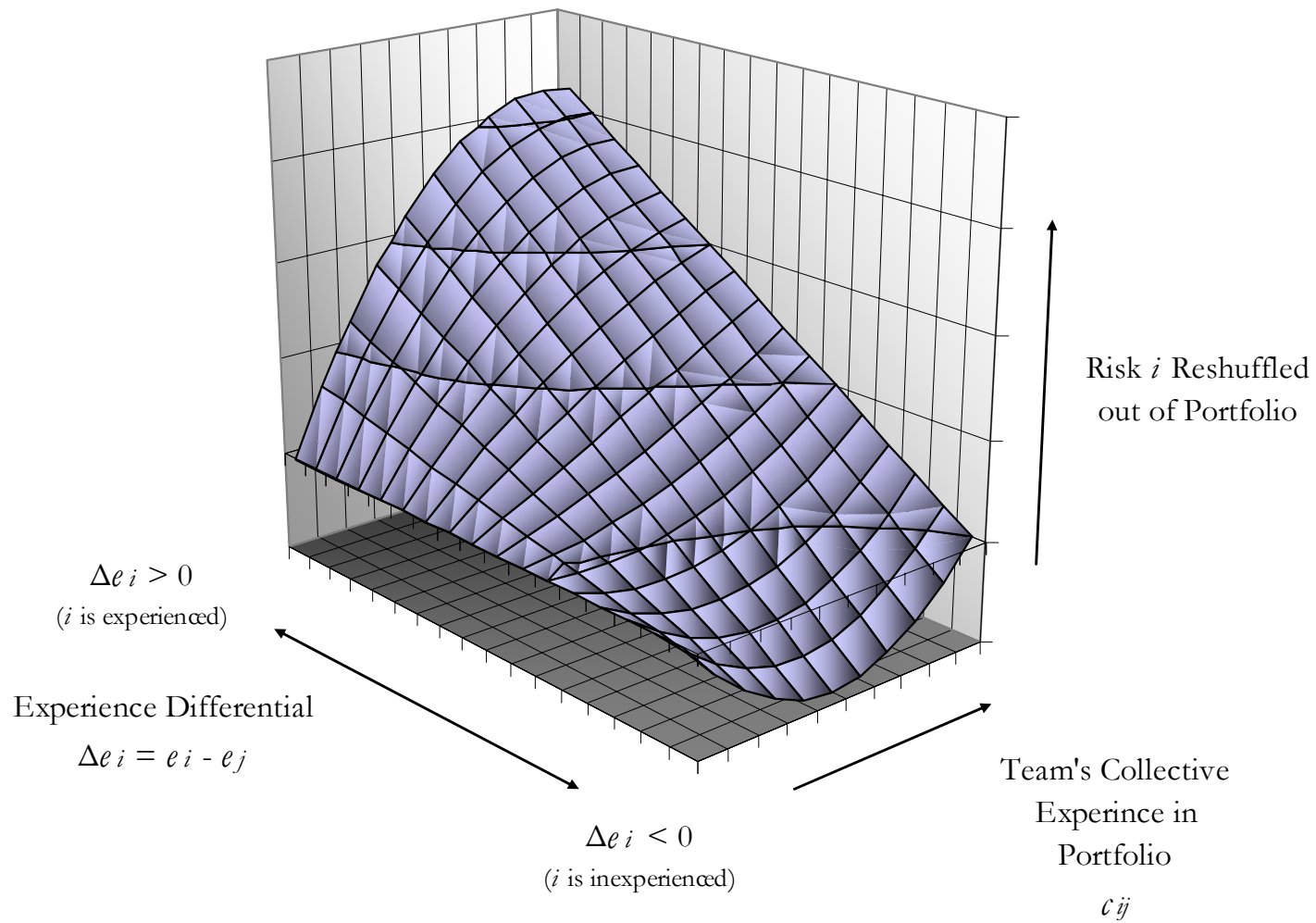

Risk i Reshuffled
out of Portfolio

$\Delta e_i > 0$
(i is experienced)

Experience Differential

$\Delta e_i = e_i - e_j$

$\Delta e_i < 0$
(i is inexperienced)

Team's Collective
Experince in
Portfolio

c_{ij}

Table 1. Summary Statistics on Ministerial and Deputy Ministerial Reshuffles

	Diefenbaker (1957-63)		Trudeau I (1968-79)		Trudeau II (1980-84)		Mulroney (1984-93)		Chrétien (1993-2003)		Total	
	Ministers	*DMs*	*Ministers*	*DMs*	*Ministers*	*DMs*	*Ministers*	*DMs*	*Ministers*	*DMs*	*Ministers*	*DMs*
Mean N Times Reshuffled from Portfolio j	1.9	0.7	4.1	2.8	1.0	1.2	3.6	2.7	2.6	2.9	2.7	2.1
Max N Times Reshuffled from Portfolio j	6	2	6	4	2	3	6	4	5	4	6	4
Median Months in Portfolio j	26.0	50.0	26.0	44.0	30.0	26.0	21.0	35.0	27.0	36.0	25.0	36.0
Spells	41	24	91	69	34	36	83	67	62	66	311	262
Failures	26	10	72	51	16	19	65	48	45	49	224	176
Total N Observations	980		2350		936		1872		2074		8212	
N Portfolios Observed	14		18		18		18		17		85	
Life Span of Ministry (Months)	70		134		52		104		122		–	
Median Months Experience Differential (cabinet minister – deputy minister)	-36		-4		-5		-11		-1		-6	
Median Months Collective Experience	14		12		11		10		12		12	

Table 2. Conditional Risks Models of Cabinet Ministerial Reshuffles

	Specification 1		Specification 2		Specification 3		Specification 4	
	b	SE	b	SE	b	SE	b	SE
Collective Experience (yrs)	.067	.077	.075	.076	.183	.080**	.184	.079**
Collective Experience (yrs) × Experience Differential (yrs)†	.082	.038**	.097	.039**	.108	.042***	.102	.041**
Collective Experience (yrs)^2 × Experience Differential (yrs)	-.030	.010***	-.033	.011***	-.036	.012***	-.034	.012***
Government Popularity			-.012	.006*	-.020	.007***	-.020	.007***
Months into CIEP			.009	.006	.009	.006	.011	.007*
Election Month			2.231	.257***	2.030	.239***	2.009	.242***
Portfolio's Political Salience					.068	.027**	.069	.028**
Minister's Transferable Experience (months)					.001	.003	.001	.003
Sacked or Resigned					4.162	.272***	4.184	.282***
Minister's Caretaker Status					3.776	.404***	3.832	.411***
Minister's Age (months)							.001	.001
N Subjects	311		307		307		303	
N Failures	224		220		220		217	
N Obs (clusters)	8212 (85)		8054 (85)		8052 (85)		8027 (85)	

†Measured as (cabinet minister i's years in portfolio k – deputy minister j's years in portfolio k)

*** $p < .01$

** $p < .05$

* $p < .01$

Table 3. Conditional Risks Models of Deputy Ministerial Reshuffles

	Specification 1		Specification 2		Specification 3		Specification 4	
	b	*SE*	*b*	*SE*	*b*	*SE*	*b*	*SE*
Collective Experience (yrs)	.206	.079***	.166	.080**	.211	.081***	.200	.082**
Collective Experience (yrs) × Experience Differential (yrs)	.056	.064	.048	.065	.109	.060*	.096	.065
Collective Experience (yrs)^2 × Experience Differential (yrs)	-.004	.020	-.002	.020	-.016	.019	-.014	.019
Government Popularity			.020	.008**	.020	.008**	.015	.014
Months into CIEP			.002	.006	-.001	.005	-.004	.007
Election Month			-.004	.593	-.324	.503	-.156	.695
Portfolio's Political Salience					-.048	.022**	-.061	.028**
DM's Transferable Experience (months)					.001	.003	.002	.004
DM's Caretaker Status					4.661	.745***	2.826	.872***
Deputy Minister's Age (months)							.001	.001
N Subjects	262		262		262		175	
N Failures	176		176		176		112	
N Obs (clusters)	8212 (85)		8054 (85)		8052 (85)		5867 (82)	

†Measured as (deputy minister *i*'s years in portfolio *k* – cabinet minister *j*'s years in portfolio *k*)

*** $p < .01$

** $p < .05$

* $p < .01$

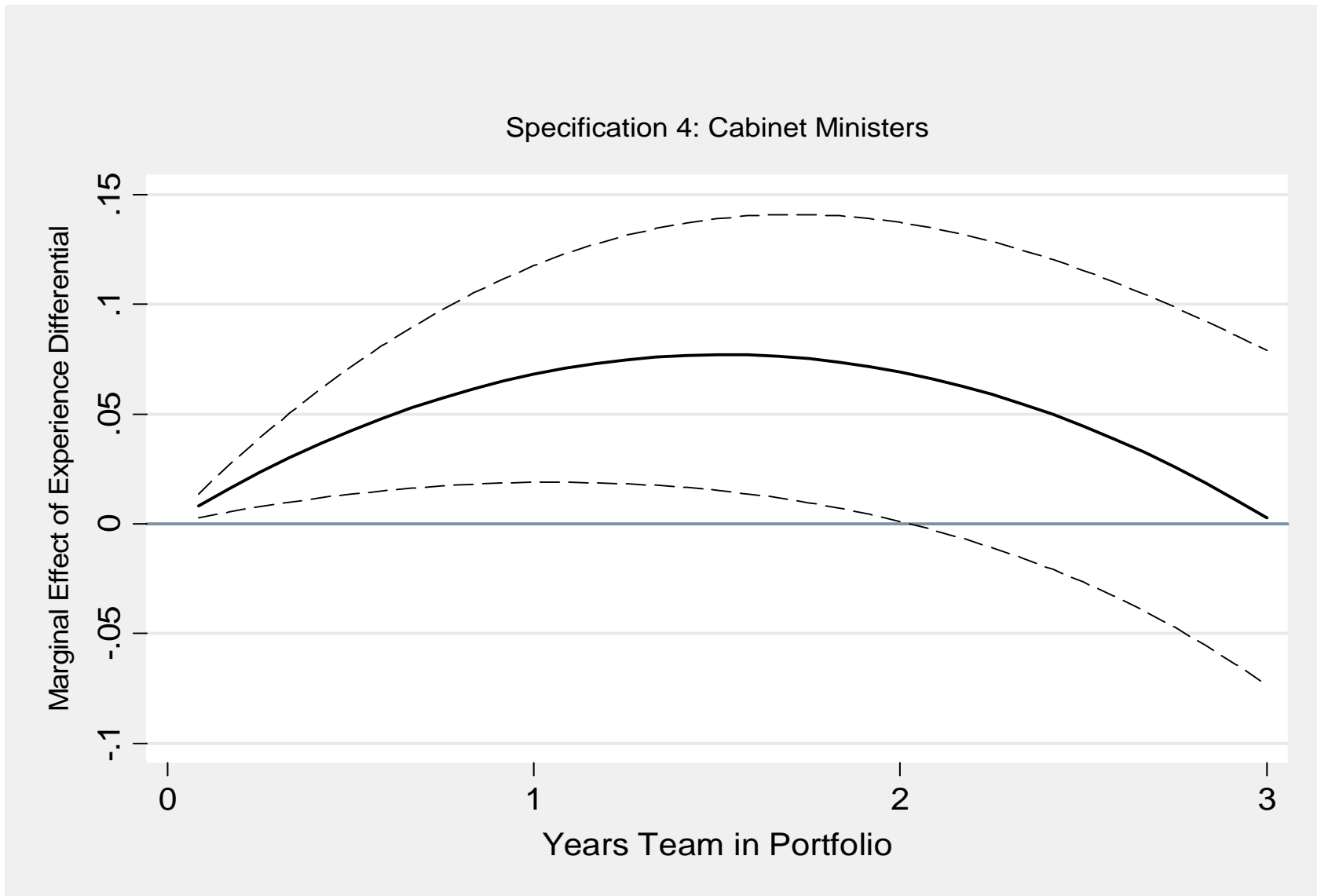Figure 3. Marginal Effect of Experience Differential on Cabinet Ministers' Risks of Being Reshuffled

Figure 4. Marginal Effect of Collective Experience on Cabinet Ministers' Risks of Being Reshuffled
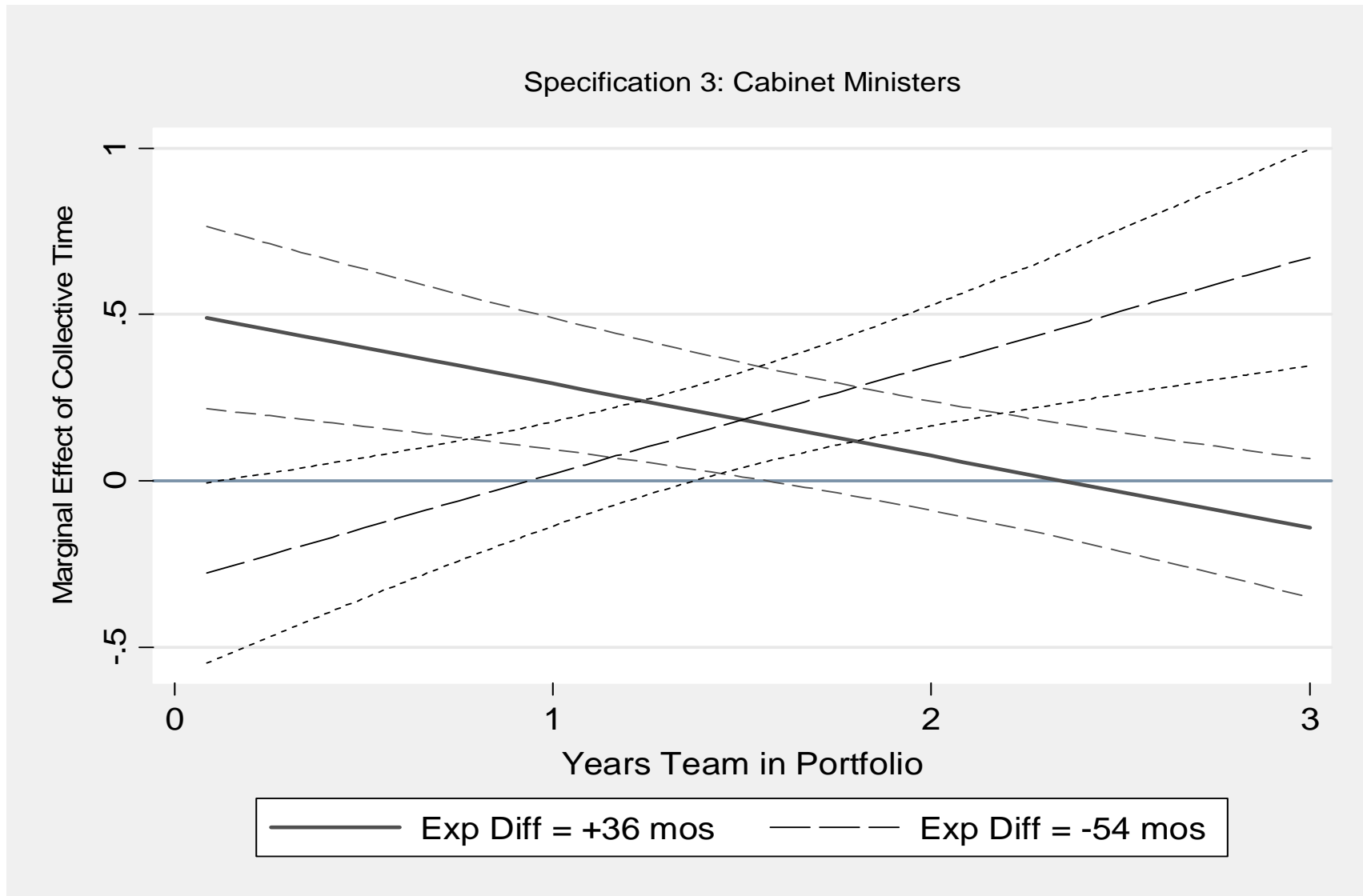
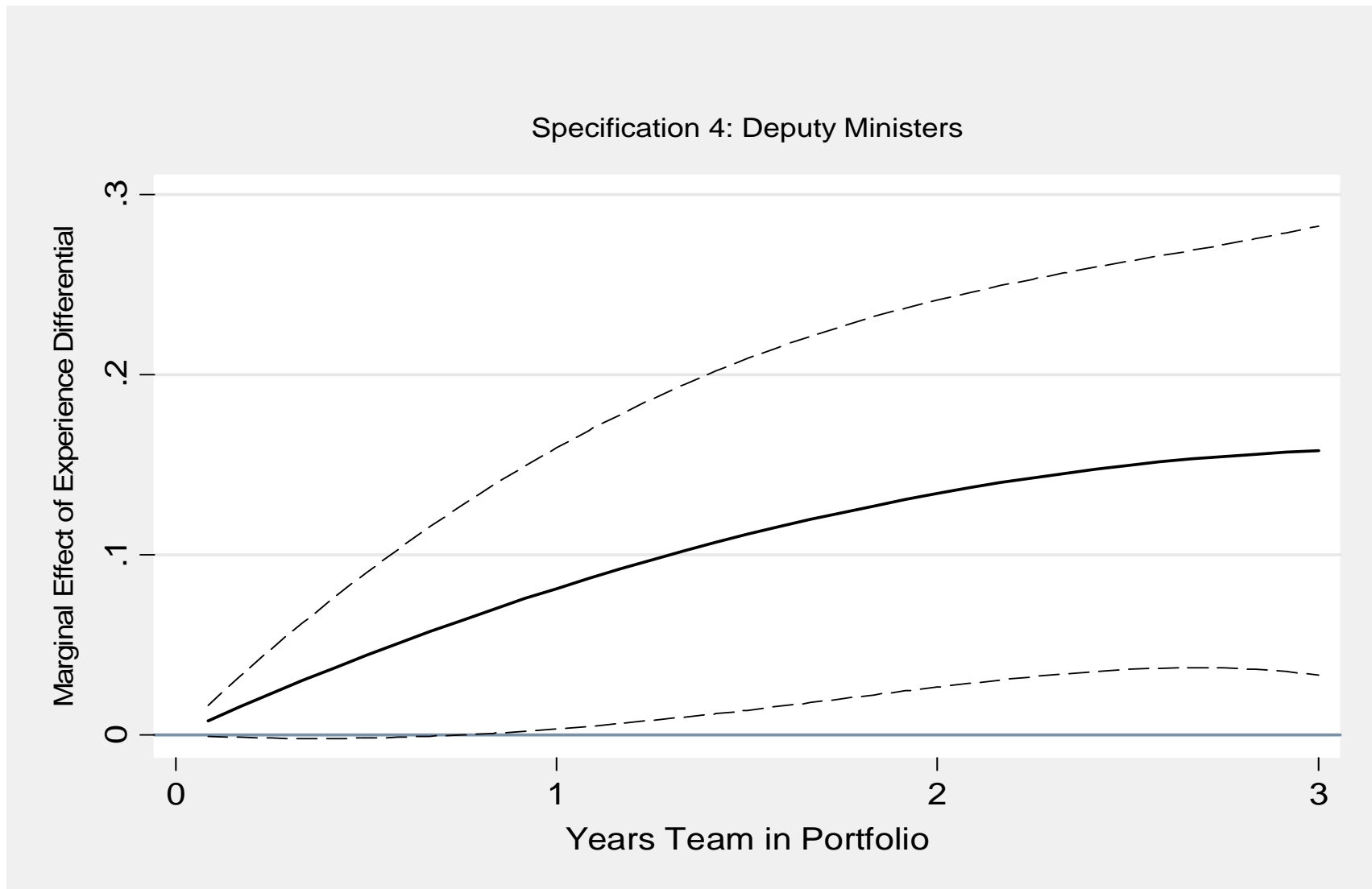Figure 5. Marginal Effect of Experience Differential on Deputy Ministers' Risks of Being Reshuffled

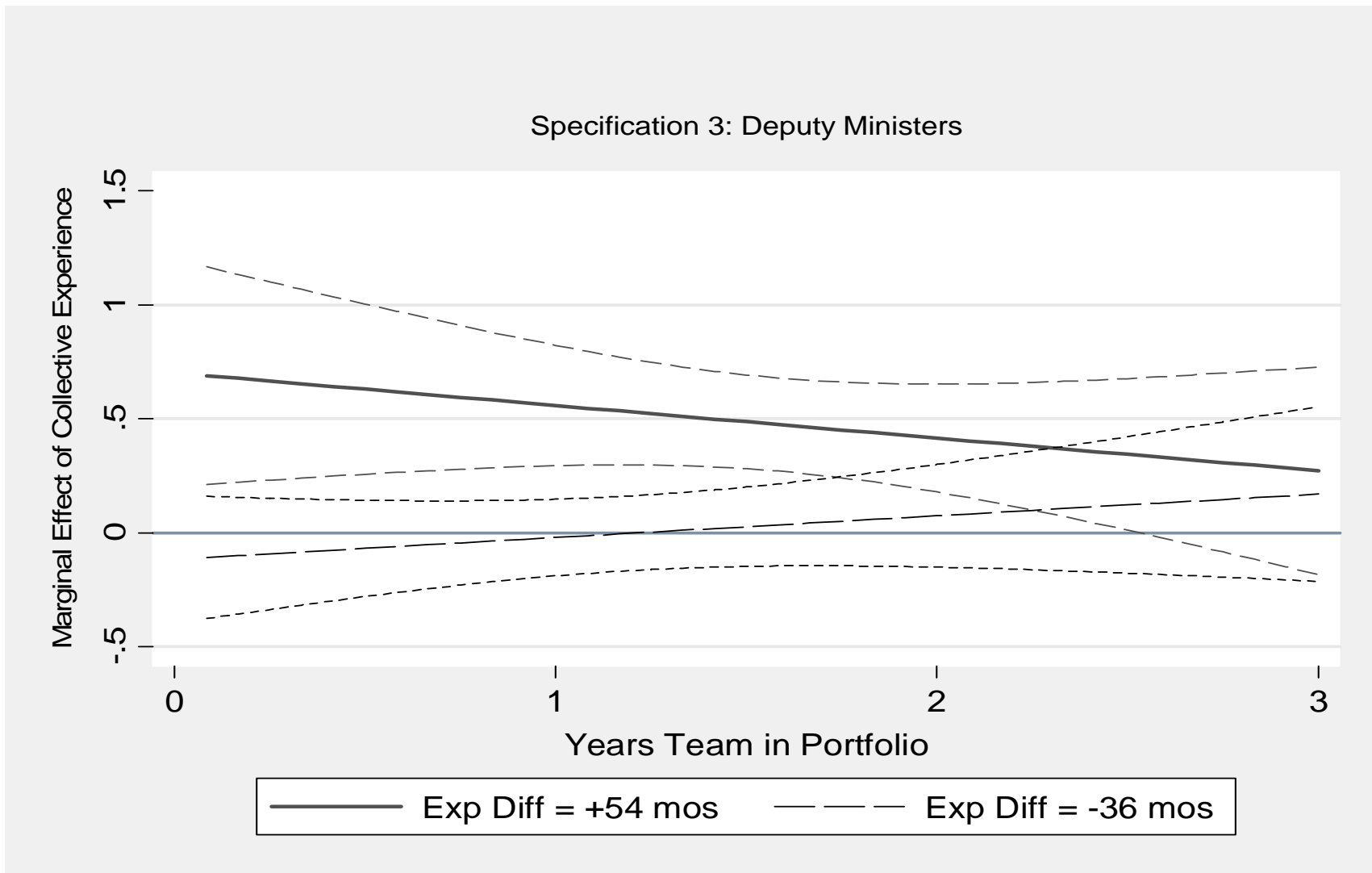Figure 6. Marginal Effect of Collective Experience on Deputy Ministers' Risks of Being Reshuffled

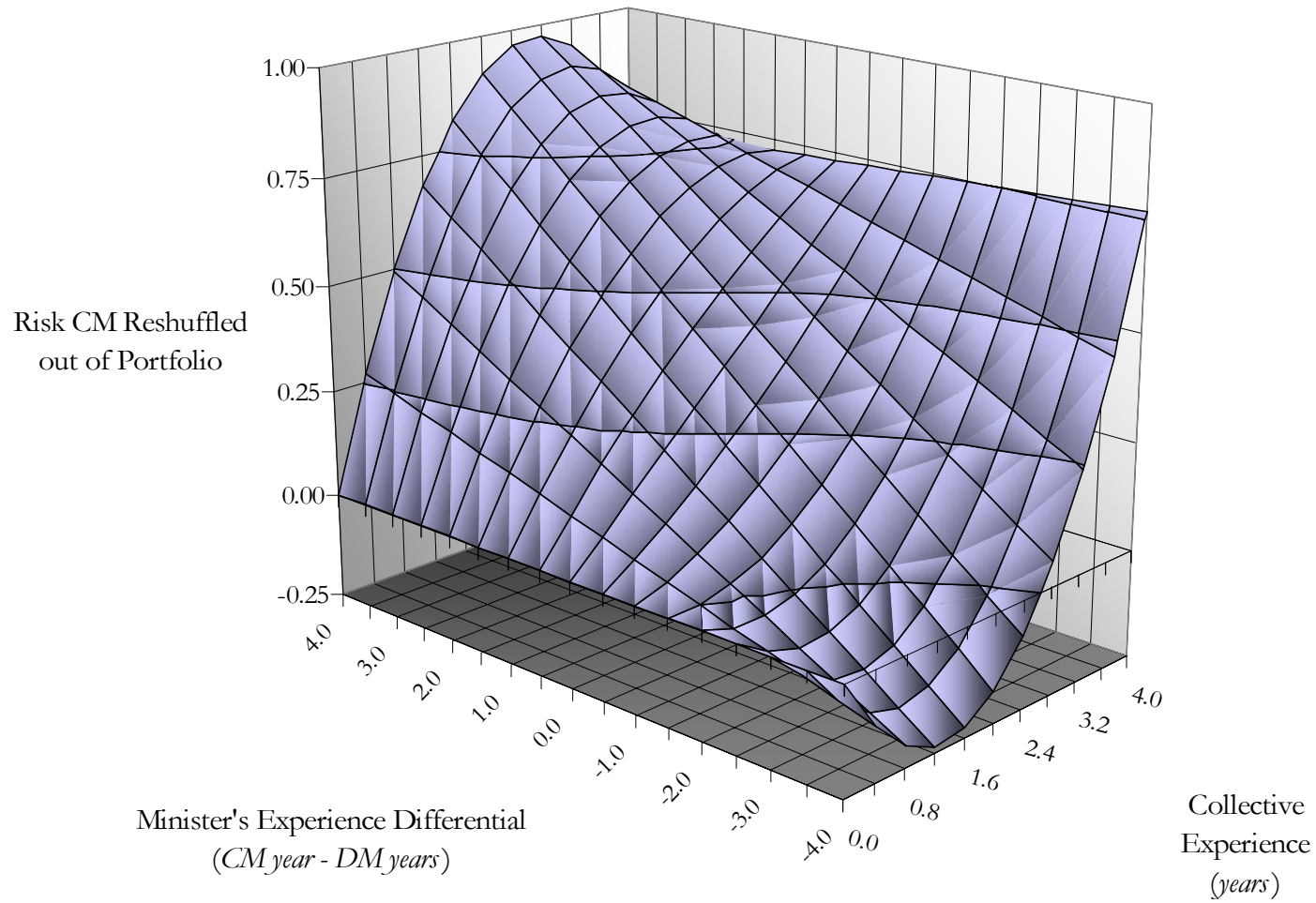Figure 7a. Cabinet Ministers' Empirical Risks of Being Reshuffled out of a Portfolio.

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Figure 7b. Deputy Ministers' Empirical Risks of Being Reshuffled out of a Portfolio.