

CAN RESHUFFLES IMPROVE GOVERNMENT POPULARITY?

EVIDENCE FROM A “POOLING THE POLLS” ANALYSIS

HIROFUMI MIWA*

Abstract Scholars have recently argued that prime ministers reshuffle their cabinets strategically. Although some scholars assume that cabinet reshuffles help prime ministers increase their government’s popularity, this assumption has not been tested formally because of the endogeneity problem. In Japan, polling firms sometimes provide respondents with cues about a reshuffle when asking about cabinet approval following reshuffles, while others do not. I utilized this convention in the Japanese media to test the assumption that reshuffles increase cabinet approval ratings. Applying a dynamic linear model to pooled poll data from 2001 to 2015, I achieved high internal, external, and ecological validity. The analyses show that cues about reshuffles increase cabinet approval ratings by 2.4 percentage points on average, and the credible interval of the effect does not include zero. This result reinforces the findings of previous research on the theory of cabinet management.

A chain of delegation is the key principle of representative democracy, and the path from a prime minister (PM) to individual ministers is part of that chain (Strøm 2000). Whether and how a PM can delegate power to appropriately qualified ministers and control them are important questions in a parliamentary

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democracy. Many studies have investigated these questions through formal and empirical analyses (e.g., Dewan and Myatt 2007; Berlinski, Dewan, and Dowding 2010; Kam et al. 2010; Dewan and Hortala-Vallve 2011). Similar questions arise in a presidential democracy, and researchers of presidential countries have studied delegation and accountability between president and cabinet (e.g., Camerlo and Pérez-Liñán 2015a, 2015b).¹

Recently, scholars have focused on cabinet reshuffles as an effective way for PMs to improve their strategic government management. However, the empirical literature, with a few exceptions, has not addressed the important question of how cabinet reshuffles affect government popularity. Although this is a very simple question, it is not easy to identify the effect of reshuffles without bias, because reshuffles are strategic and thus endogenous.

This study employed a unique research design to overcome the endogeneity problem and attempted to elucidate whether cabinet reshuffles positively impact government popularity. Utilizing the Japanese media environment, which provides conditions similar to a survey experiment, I estimated how knowing that a PM has reshuffled the cabinet affects citizens' approval of their government. Although the same idea has appeared in previous Japanese literature that has considered a single reshuffle (Sugawara 2009; Suzuki 2009), I generalized the analysis for multiple cabinets and reshuffles. I employed a dynamic linear model for pooled poll data to overcome potential omitted variable bias and obtain a result with high internal, external, and ecological validity. The results show that information on cabinet reshuffles increases government popularity, implying that PMs can increase their popularity by reshuffling their cabinet.

Cause and Effect of Cabinet Reshuffles

Recent theoretical and empirical research on delegation and accountability problems with cabinet members has focused on cabinet reshuffles. Scholars have used formal models and interpreted the aim of cabinet reshuffles in various ways. Indriðason and Kam (2008) viewed cabinet reshuffles as a device through which PMs combat moral hazard. Quiroz Flores and Smith (2011; see also Quiroz Flores [2016]) interpreted that cabinet reshuffles allow leaders to deal with internal and external threats (i.e., internal party competitions and elections, respectively). From the reverse perspective, Dewan and Myatt (2007) argued that by not reshuffling (i.e., protecting) ministers hit by scandal, PMs may encourage the policy activism of clean ministers.

1. I used PMs, not presidents, as the subject of reshuffles in my research, because previous research on cabinet reshuffles focuses primarily on parliamentary democracies, and Japan, the case I study here, is a parliamentary democracy.

In addition to arguments from game theory, a number of empirical analyses have been conducted to examine when and how frequently cabinet reshuffles occur. These studies have revealed the strategic nature of cabinet reshuffles. [Kam and Indriðason \(2005\)](#) showed through cross-country analysis that reshuffles are more likely in situations where a PM's agency loss to cabinet ministers is high. [Huber and Martinez-Gallardo \(2008\)](#) argued that PMs utilize reshuffles to deal with problems of adverse selection and moral hazard by demonstrating that ministerial turnover is less likely if PMs are careful in screening ministers (e.g., the policy value of a portfolio is high), the talent pool is large, and/or the PM's ability to replace ministers is constrained by a coalition. [Quiroz Flores \(2016\)](#) confirmed the strategic cabinet change in parliamentary democracies expected from [Quiroz Flores and Smith's \(2011\)](#) formal theory, which contends that PMs are likely to depose competent ministers who might be rivals in intraparty competitions. [Bäck et al. \(2012\)](#) explored cabinet reshuffles as a valid measure of PMs' intra-executive power and identified that European integration increased the frequency of reshuffles in Sweden because it strengthened the PM's power. [Martínez-Gallardo's \(2014\)](#) and [Camerlo and Pérez-Liñán's \(2015a\)](#) analyses revealed that the strategic replacement of ministers also occurs in presidential democracies.

Some previous research has assumed that cabinet reshuffles help PMs bolster their government's popularity. For example, [Kam and Indriðason \(2005, p. 341\)](#) proposed hypotheses such as “reshuffles become more likely as the PM's personal popularity declines”; and [Burden \(2015\)](#) proposed a similar argument and analysis. While other previous research did not make such an assumption, it seems to assume that, at least, cabinet reshuffles do not harm government popularity. In fact, when researchers consider the cost of reshuffles in creating formal models, they usually do not consider the possibility that reshuffles or firing ministers per se leads citizens to form a negative image of the government ([Dewan and Myatt 2007](#); [Quiroz Flores and Smith 2011](#)).

Why, then, can cabinet reshuffles improve government popularity? [Kam and Indriðason \(2005\)](#) argued that PMs could arrest the decline in their popularity by firing scandal-hit ministers and ministers responsible for unpopular policy, while a similar view was espoused by [Bäck et al. \(2012\)](#). In fact, [Dewan and Dowding \(2005\)](#) showed that individual ministerial resignations due to scandal or policy failure recover falling government popularity. Another possible mechanism is that newness or freshness of reshuffled cabinets is, in itself, attractive for voters, as just-inaugurated cabinets or presidents usually enjoy high popularity (e.g., [Norpoth 1996](#)).

However, to the best of this author's knowledge, these arguments have not yet been tested formally. It is not self-evident that reshuffles have a positive effect on government popularity or that they do not impair a government's image. In fact, some previous studies have referred to the possibility that reshuffles might negatively impact government popularity. [Indriðason and Kam \(2008, p. 633\)](#) pointed out the possibility that “the public interprets

reshuffles as a signal of a policy failure, departmental efficiency declines, etc.” [Hansen et al. \(2013, pp. 228–29\)](#) also argued that “cabinet reshuffles and ministerial dismissal may carry considerable cost for the prime minister, such as... the possibility of signaling discontinuity and turmoil to the public.” Moreover, reshuffles prevent ministers from acquiring experience in a particular portfolio, as [Huber and Martinez-Gallardo \(2004\)](#) argued; thus, the public may not welcome reshuffles.

Researchers have most likely hesitated to tackle the question of the effect of cabinet reshuffles on government popularity because serious endogeneity originates from the strategic nature of cabinet reshuffles. If, as [Kam and Indriðason \(2005\)](#) have implied, PMs tend to reshuffle their cabinet when their popularity declines, events that negatively impact popularity are likely to coincide with reshuffles. In fact, [Hansen et al. \(2013\)](#) demonstrated that ministerial turnover is more likely when the unemployment rate is rising. Thus, simple correlation analysis may produce a negatively biased estimate of the effect of reshuffles on government popularity. Another possibility is that PMs tend to make other efforts at the same time as reshuffles in order to recover their declining popularity. In this case, even if we observe that government popularity increases after a cabinet reshuffle, it may be attributable to the PM’s other efforts. One notable exception to the hesitation shown by researchers is [Dewan and Dowding \(2005\)](#), who demonstrated, using an instrumental variable approach with ministers’ age as an instrument, that ministerial resignations have a positive effect on government popularity when there is high media coverage. Although they appear to have estimated the effect of ministerial resignations precisely, they focused on personal resignations due to “resignation issues” such as scandal and policy failure; thus, it is questionable whether it is possible to generalize their results to cabinet reshuffles.

Research Design

To deal with the endogeneity problem discussed above, I developed a novel research design that exploits the convention of opinion polls about government popularity in the Japanese mass media. Before introducing the research design, I will briefly overview Japanese politics in the period analyzed in this study (2001–2015).

During this time, there were two major parties: the Liberal Democratic Party (LDP) and the Democratic Party of Japan (DPJ). The LDP is a right-leaning party, and the DPJ is a center-left party. The LDP has been the dominant party for most of the postwar period. Although the LDP changed its coalition partners several times in the 1990s, it has maintained a coalition with Komeito from 1999 to the present day. The charismatic LDP leader Junichiro Koizumi maintained his cabinet with high popularity ratings from 2001 to 2006, but his successors—Shinzo Abe, Yasuo Fukuda, and Taro Aso—failed

to retain their popularity owing to scandals and economic depression, and their cabinets lasted for no more than 12 months. Japanese voters turned away from the LDP regime and instead chose the DPJ, founded in 1998 and the second party since then, in the 2009 general election. The DPJ formed a government with the Social Democratic Party and the People’s New Party as junior partners.² However, the DPJ demonstrated its poor ability to manage government and lack of intra-party governance; accordingly, PMs from the DPJ—Yukio Hatoyama, Naoto Kan, and Yoshihiko Noda—suffered low popularity ratings except for their honeymoon period. The LDP returned to power in the 2012 general election, and its leader Abe made a comeback as PM. Abe’s cabinet maintained relatively high popularity ratings to the end of the period analyzed in this study. Figure 1 shows weekly government popularity (cabinet approval ratings, explained below) during the period of the analysis. The method for estimating popularity is explained in the next section.

In Japan, government popularity is measured by cabinet approval. Many polling firms report a cabinet approval rating derived from their surveys. Cabinet approval is usually interpreted as the PM’s personal popularity, and it plays a critical role in securing support for the governing party and maintaining

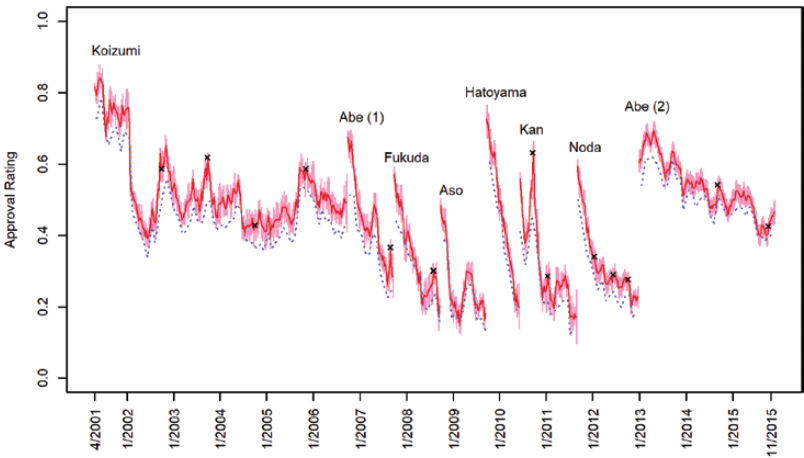


Figure 1. Estimated weekly cabinet approval ratings. Solid lines represent point estimates, and shaded bands represent 95 percent credible intervals. Cross marks indicate weeks when the PMs reshuffled their cabinet. Dotted lines indicate Jiji Press’s monthly polling results.

2. The Social Democratic Party left the coalition in May 2010 because of policy disagreement. This coalition change did not coincide with a cabinet reshuffle.

the cabinet in Japan. For example, [Krauss and Nyblade \(2005\)](#) showed that an increase in cabinet approval resulted in an increase in the LDP's share of the vote during the LDP's regime. [Maeda \(2013\)](#) reported that when the DPJ was in power, cabinet approval had a positive influence on DPJ support. [Burden \(2015\)](#) and [Matsumoto and Laver \(2015\)](#) argued that when the LDP is in power, the party applies pressure to its leader (the PM) to resign or reshuffle the cabinet when cabinet approval is low relative to the party's popularity. [Masuyama \(2007\)](#) also showed that high cabinet approval is required for the PM to maintain his government. Cabinet approval is influenced by various factors, such as support for the governing party ([Nishizawa 2001](#); [Iida 2005](#); but see also [Nakamura \[2006\]](#)), several economic indicators ([Inoguchi 1983](#)), people's economic evaluation ([Nishizawa 2001](#); [McElwain 2015](#)), media coverage ([Fukumoto and Mizuyoshi 2007](#); [Hosogai 2010](#)), and foreign disputes ([Ohmura and Ohmura 2014](#)).

Some researchers have sought to examine how cabinet reshuffles affect cabinet approval in Japan. [Nishizawa \(2001\)](#) performed a time-series analysis of monthly cabinet approval ratings and found that the coefficient of the dummy variable for cabinet reshuffles was not statistically significant. In contrast, [Nakamura \(2006\)](#) increased the sophistication of Nishizawa's time-series model and argued that reshuffles have a positive effect on cabinet approval. [Ohmura and Ohmura \(2014\)](#) also analyzed monthly cabinet approval ratings and found that cabinet reshuffles significantly increased such ratings during the Cold War period, but significantly decreased them in the post-Cold War period. However, their analysis suffers from the endogeneity problem discussed in the previous section.

Although details vary depending on polling firms, cabinet approval in Japan is commonly measured by questions such as "Do you support [the PM's surname] cabinet?" However, the wording of the polling question is sometimes modified when a significant event occurs. One such event is a cabinet reshuffle. Some polling firms provide respondents with information that is henceforth called a "reshuffle cue," such as telling respondents that the PM recently reshuffled his cabinet prior to asking for cabinet approval, while others do not. A polling firm that provides a reshuffle cue at the time of one reshuffle does not necessarily do so again at the time of another reshuffle. [Sugawara \(2009\)](#) criticized media reports about Yasuo Fukuda's cabinet reshuffle in August 2008 that were based on opinion polls with and without reshuffle cues. Sugawara pointed out that polls using different wordings for their questions cannot simply be compared and the reported rise in cabinet approval following the reshuffle was an artifact of the reshuffle cue. [Suzuki \(2009\)](#) presented the same argument as [Sugawara \(2009\)](#), independently and at almost the same time.

In contrast to [Sugawara's \(2009\)](#) and [Suzuki's \(2009\)](#) arguments, I argue that we can exploit this variation in question wording as an opportunity to examine the rise of approval ratings attributable to reshuffle cues. This is a

situation similar to a survey experiment in which the assignment to the “treatment group,” whose respondents are provided with a reshuffle cue, can be seen as random (which is potentially problematic, as discussed below), because each survey selects an independent random sample of the electorate. If cabinet reshuffles convey a positive impression to citizens, reshuffle cues will increase their focus on reshuffles and cause an increase in cabinet approval ratings. On the contrary, if cabinet reshuffles bring negative issues to citizens’ minds, such as policy failure, conflict in the government, or the appointment of inexperienced ministers, reshuffle cues will decrease cabinet approval ratings. It should be noted that because Japanese polling firms almost always put the question on cabinet approval at the top of their surveys, there is no risk of carryover effects.

Using these experiment-like conditions, we can estimate the effect of cabinet reshuffles on government popularity with high internal, external, and ecological validity. First, it is evident that the research design is ecologically valid because, unlike an experiment with fictitious stimuli, the cabinets and reshuffles concerned existed for respondents.

Second, the results obtained through this research design have high generalizability. Some readers may observe that an internally and/or ecologically valid estimate of the effect of reshuffle cues can be obtained by a temporal survey experiment conducted immediately after a reshuffle. Other readers might suspect that it is sufficient if we compare, as did [Sugawara \(2009\)](#) and [Suzuki \(2009\)](#), polling firms’ results with and without a reshuffle cue in only one reshuffle case. However, the results from such a research design cannot be generalizable to other cases, because such onetime results may be attributable to the special circumstances of the reshuffle concerned. Instead, my research design investigates the average effect of reshuffle cues over multiple cases.

Two factors, however, may jeopardize the internal validity of the design. The first is house effects. Different surveys that share survey contents and are conducted at the same point in time but by different houses (survey organizations) produce different results ([Smith 1978](#)). Differences in survey design and implementation, such as sampling procedure, question wording, answer options, and whether interviewers repeatedly ask questions, produce house effects. As discussed later in this paper, some polling firms were likely to provide reshuffle cues and others never did so, which means that house effects should be a confounding factor. To deal with this problem, I pooled a large number of opinion polls regardless of their timing, and estimated house effects as explained in the next section. Heuristically, by including the fixed effects of polling firms to eliminate house effects, we can estimate the effect of reshuffle cues accurately.

The second factor is the average approval rating of PMs, which differs widely from one PM to another. If reshuffle cues were provided more frequently when particular PMs were in power (which is factually correct

according to my data), simply comparing polling results with and without a reshuffle cue would be insufficient. However, this problem can be addressed by pooling opinion poll data as well. I modeled a latent time series of cabinet approval ratings for each PM using pooled poll data and detected the effect of reshuffle cues as a deviation from true approval. This procedure allowed me to “control” the factor of each PM’s average approval rating.

An additional important assumption for an unbiased estimation of reshuffle cues is whether the decision of a particular polling firm to provide a reshuffle cue or not is taken regardless of the expected poll result. This problem is discussed after the main results are provided.

One important caveat is that this study estimates the effect of reshuffle cues, not the effect of reshuffles per se. I investigated whether citizens tend to approve or disapprove of a cabinet when they hear it was recently reshuffled; this does not necessarily indicate that reshuffles actually increase or reduce government popularity. In the extreme case, if no one knows there has been a cabinet reshuffle, approval ratings should not change. However, I believe that this study contributes substantively to research on representative democracy because, if the analysis shows that reshuffle cues have positive effects, it will reject conclusively the possibility that, on average, reshuffles impair a government’s image. This is a significant step toward understanding governmental management, given the difficulty of estimating the effect of reshuffles per se without endogeneity, using common observational data.

Data and Methods

I used data from opinion polls conducted by 11 polling firms: Jiji Press, Kyodo News, *Yomiuri Shimbun*, *Asahi Shimbun*, *Mainichi Shimbun*, *Sankei Shimbun* and Fuji News Network (FNN), Nikkei Research, Japanese Broadcasting Corporation (NHK), Japan News Network (JNN), All-Nippon News Network (ANN), and Nippon News Network (NNN).³ I restricted the time period analyzed to between April 26, 2001 (the beginning of the first Koizumi cabinet), and November 29, 2015, for several reasons. First, few opinion polls introduced a reshuffle cue in the earlier period. Second, too long a period would undermine the assumption that house effects are constant during the period. The third, and perhaps most important, reason is that some reshuffles in the earlier period were concurrent with a change in coalition partners. Cabinet reshuffles after Koizumi’s election did not coincide with coalition changes; therefore, we can focus purely on the effect of cabinet reshuffles. There were 13 cabinet reshuffles during the study period.

I collected information from all opinion polls in the study period that contained a question about cabinet approval, irrespective of whether or not the PM

3. Details of data sources, wording of all questions containing a reshuffle cue, and supplementary information on polling data are presented in [Online Appendix A](#).

had reshuffled his cabinet just before the poll was conducted. The information includes dates, number of respondents, survey mode, and cabinet approval rating. I examined whether the question in polls conducted immediately after cabinet reshuffles contained a reshuffle cue, and found two types of wording that provide a reshuffle cue. One type (type I) has a lead sentence that tells respondents that the PM has just reshuffled his cabinet. For example, *Yomiuri Shimbun* usually asks respondents about cabinet approval as follows: “Do you support the Koizumi cabinet or not?” In contrast, a survey conducted by *Yomiuri* between October 31 and November 1, 2005, just after a cabinet reshuffle, asked a question with the lead sentence “Prime Minister Koizumi reshuffled his cabinet. Do you support Koizumi’s reshuffled cabinet or not?” The other type (type II) does not include such a lead sentence but contains the word “reshuffle” (“*kaizo*” in Japanese) or hints at this word to respondents. For example, a survey conducted by *Yomiuri* between September 27 and 28, 2004, asked, “Do you support the reshuffled Koizumi cabinet or not?” Both types contain a reshuffle cue, and an additional analysis that distinguishes the two types was conducted.

I gathered results from 1,958 opinion polls. Of the 125 polls conducted either in the week in which the PM reshuffled his cabinet or the following week, 31 provided a reshuffle cue. The statistics, disaggregated by polling firm, are shown in [table 1](#). They show that polling firms that provide a reshuffle cue in some polls did not always do so. Data sources are listed in [Online Appendix A](#).

I estimated weekly cabinet approval ratings using the dynamic linear model proposed by [Jackman \(2005\)](#) and [Beck, Jackman, and Rosenthal \(2006\)](#), named “pooling the polls” by [Jackman \(2009\)](#). This model contains two parts: an observational model and a transition model. The former represents how observed variables are generated from the latent variable, with some errors; the latter represents the temporal changes in an unobservable latent variable. In this study, the observed variables comprise the results of opinion polls, while the latent variable comprises the “true” cabinet approval rating. I also altered the original model to estimate the effect of a reshuffle cue.

The observational model shows the result of opinion poll i , q_i , about PM p ’s ($p \in \{1, \dots, P\}$) cabinet approval rating conducted by polling firm $j_i \in \{1, \dots, J\}$ by the survey mode $m_i \in \{1, \dots, M\}$ in week $t_i \in \{1, \dots, T\}$.⁴ This value is equal to an approval rating that the polling firm intended to measure μ_i plus a sampling error. Therefore, q_i follows the following distribution:

$$q_i \sim N(\mu_i, \sigma_i^2), \quad (1)$$

4. A week is defined as Monday through Sunday, and the last day of the survey period determined the week in which a survey was conducted.

Table 1. Polling result statistics by polling firms

Polling firm		Start date of the analyzed polls	Number of polls			
			Total	Immediately following a reshuffle	Providing a reshuffle cue	
					Type I	Type II
1	Jiji Press	May 13, 2001	175	7	0	0
2	Kyodo News	Apr 28, 2001	205	13	13	0
3	<i>Yomiuri Shimbun</i>	Apr 28, 2001	235	17	3	3
4	<i>Asahi Shimbun</i>	Apr 28, 2001	237	13	0	1
5	<i>Mainichi Shimbun</i>	Apr 28, 2001	165	11	0	0
6	<i>Sankei-FNN</i>	Apr 29, 2001	131	12	0	2
7	Nikkei Research	Apr 29, 2001	152	11	1	2
8	NHK	May 6, 2001	197	10	0	0
9	JNN	Apr 29, 2001	187	11	1	0
10	ANN	Sep 28, 2006	119	10	0	1
11	NNN	Dec 15, 2002	155	10	2	2
Total			1,958	125	20	11

NOTE.—The numbers that precede the polling firms’ names correspond to the indicator number in the statistical model. For *Mainichi Shimbun* and *Senkei-FNN*, the last poll from which results were collected was October 2015, and November 2015 for other firms.

where σ_i represents the sampling error. In this study, $J = 11$ and [table 1](#) shows which number corresponds to which polling firm. The surveys used here adopted face-to-face interviews or telephone interviews; no polling firms employed internet polling. Thus, $M = 2$. I coded face-to-face interviews as 1 and telephone interviews as 2.

In principle, letting n_i denote the number of respondents in poll i means the sampling error is equal to $\sqrt{q_i(1 - q_i) / n_i}$. However, some survey designs that do not use a random sample violate this formula. The problem here was that telephone surveys based on random digit dialing (RDD) or quota sampling commonly use a weighting method that causes sampling variance to deviate from the formula above. Unfortunately, we could not identify accurately the extent to which a survey design amplified the sampling error for an individual poll because details of sampling procedures and weighting methods are not available. Therefore, I added a parameter of the design effect τ introduced by [Fisher et al. \(2011\)](#) and [Pickup et al. \(2011\)](#):

$$\sigma_i = \tau_{j_i}^{d_i} \sqrt{\frac{q_i(1 - q_i)}{n_i}}, \tag{2}$$

where τ represents the ratio of the standard error of survey results based on RDD or quota sampling to the results of a random sample. d_i is equal to 1 if

survey i used RDD or quota sampling, and is otherwise zero; thus, a design effect is added only when a survey is RDD based or quota sampling based. I estimated a design effect for each polling firm.

We cannot take μ_i as the true approval rating, because it may be contaminated by other elements such as survey mode, question wording, and answer options. I considered that μ_i is composed of the true approval rating at the period t_i , α_{p,t_i} , mode effect γ_{m_i} , house effect δ_{j_i} , and the effect of a reshuffle cue λ . Therefore,

$$\mu_i = \alpha_{p,t_i} + \gamma_{m_i} + \delta_{j_i} + \lambda x_i, \quad (3)$$

where x_i is a dummy variable that equals 1 if the opinion poll i provided respondents with a reshuffle cue. I assumed that mode effects and house effects are constant throughout the analysis period regardless of PM. In addition,

I constrained $\sum_{m=1}^M \gamma_m = \sum_{j=1}^J \delta_j = 0$ for identification. Although [Jackman \(2005, 2009\)](#) and [Beck, Jackman, and Rosenthal \(2006\)](#) did not consider mode effects (see [Bowling \[2005\]](#) for a review), I consider these to be necessary here to ensure that the assumption that house effects are fixed is correct, as one polling firm switched its survey mode from face-to-face to telephone. The main purpose of the analysis was to estimate λ , which represents the difference in the results of two cabinet approval surveys; the surveys were conducted by the same polling firm using the same method in the same week, but one provided a reshuffle cue and the other did not.

In the transition model, I assumed that the true approval rating $\alpha_{p,t}$ follows the following process:

$$\alpha_{p,t} \sim N(\alpha_{p,t-1} + \kappa z_{p,t}, \omega_p^2), \quad (4)$$

where $t = 2, \dots, T_p$, T_p is the last week of PM p 's tenure, $z_{p,t}$ is a dummy variable that equals 1 if a reshuffle occurred in PM p 's week t , and κ is a coefficient parameter of $z_{p,t}$. This is a random walk-based model. I set different stochastic processes according to the PM; that is, $\alpha_{p,1}$ does not depend on $\alpha_{p-1,T_{p-1}}$.⁵ As noted earlier, we cannot interpret κ as the effect of a reshuffle on a cabinet approval rating because other events that influence cabinet approval might have occurred simultaneously.⁶

5. In Japan, a cabinet is nominally identified as before or after the PM is appointed by the emperor. I ignored this nominal distinction, however, and assumed that the same stochastic process of an approval rating continues until the PM finally resigns. However, Shinzo Abe's two discontinuous regimes (the first ended on September 26, 2007, and the second began on December 26, 2012) are distinguished from each other.

6. In fact, the term $\kappa z_{p,t}$ does not necessarily have to be included in order to estimate the effect of a reshuffle cue correctly. I included this term to emphasize that my estimation strategy is capable of solving the endogeneity problem.

The parameters to be estimated were $\alpha_{p,t}$, κ , ω_p , γ_m , δ_j , λ , and τ_m . The posterior distribution was estimated by the Markov chain Monte Carlo (MCMC) method.⁷ The prior distributions were set as follows: $\kappa, \gamma_m, \delta_j, \lambda \sim N(0, 100^2)$ and $\omega_p, \tau_m \sim U(0, 100)$. I set the prior distribution of each PM's approval rating in the first week as $\alpha_{p,1} \sim U(q_p^{init} - 0.2, q_p^{init} + 0.2)$, where q_p^{init} is the result of Jiji Press's opinion poll conducted for the first time after PM p was inaugurated. I set three chains of different initial values. For each chain, I obtained 2,000 samples at every twentieth interval after 500 iterations as adaptation and a further 500 iterations as burn-in. All chains were judged to converge, as the Gelman-Rubin statistics of all parameters were below 1.1.

Results

I first confirm that the true latent cabinet approval ratings were appropriately estimated. Figure 1 shows the estimated weekly approval ratings. Solid lines represent point estimates, and shaded bands represent 95 percent credible intervals (CIs).⁸ Cross marks indicate weeks when PMs reshuffled their cabinets. For comparison, dotted lines indicate Jiji Press's polling results. Jiji's opinion polls are often used in time-series studies of Japanese politics (e.g., Burden 2015; Matsumoto and Laver 2015) because Jiji has conducted monthly opinion polls in the same manner for many years. The estimated results are nearly parallel to Jiji's results, although Jiji's values are lower than the pooled results, as reflected in the house effect shown below. The estimated results capture detailed changes in approval ratings that cannot be derived from Jiji's monthly polls.

Figure 1 shows that in most cases, cabinet approval ratings increased when a PM reshuffled the cabinet. Indeed, the point estimate of κ , which represents the average change in approval ratings concurrent with reshuffles, was 0.027, while the 95 percent CI is [0.007, 0.049]. This implies that cabinet approval ratings increase 2.7 percentage points on average in the week of a reshuffle. However, we cannot interpret this as the causal effect of reshuffles, due to the possibility of endogeneity. It may be no more than a correlation.

Figure 2 shows the estimated effects of a reshuffle cue, house effects, and mode effects. Dots represent point estimates, and segments represent 95 percent CIs. The estimation result of λ shows that when a reshuffle cue is provided to respondents, cabinet approval ratings increase 2.4 percentage points

7. I used R version 3.3.1 (R core team 2016) to analyze the data throughout this study. I used JAGS 4.2.0 (Plummer 2003) and *runjags* package version 2.0.4–2 (Denwood 2016) to implement MCMC sampling and *coda* package version 0.18.1 (Plummer et al. 2006) to analyze MCMC samples.

8. I employed a posterior mean as a point estimate and the highest posterior density interval as a CI throughout this paper.

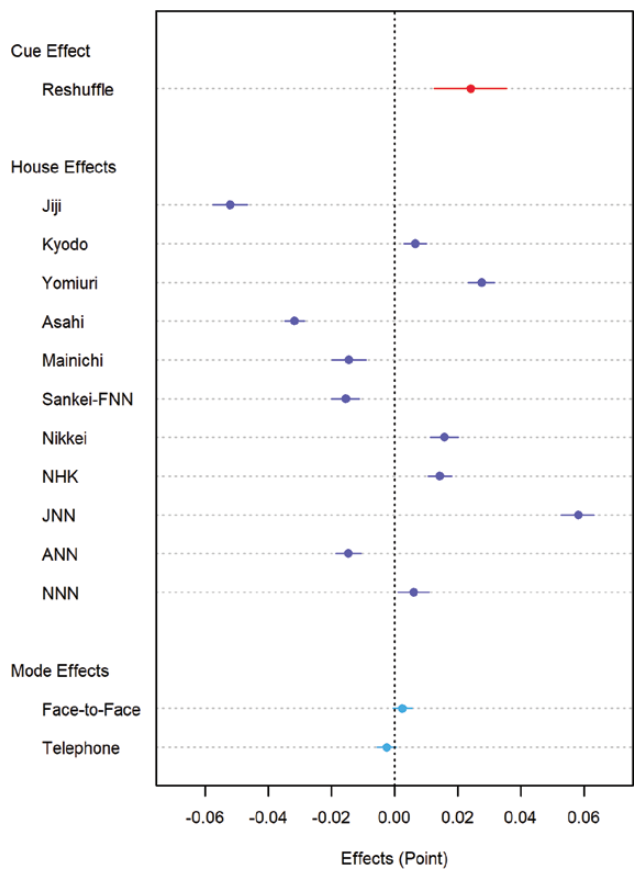


Figure 2. Estimated effects of a reshuffle cue, house effects, and mode effects. Dots represent point estimates, and segments represent 95 percent CIs.

on average. The 95 percent CI is [0.012, 0.036] and does not include zero, implying that citizens respond favorably to cabinet reshuffles.⁹

How great is this effect? According to the estimation results of the transition model, the standard deviation of weekly random shocks (ω_p) was between 0.018 and 0.038. Supposing that random shocks follow a normal distribution,

9. Some may raise concerns that this study measures the impact of additional information rather than the impact of reshuffle cues. To address such concerns, I examined the effect of additional information on the inauguration of a cabinet (indeed, polling firms modified the wording of questions only in the case of either inaugurations or reshuffles). The additional analysis showed that the effect of an inauguration cue was small and its 95 percent CI includes zero (0.006 [−0.008, 0.021]). Therefore, the increase in approval ratings found in the main analysis can be attributed not to additional information in general, but to reshuffle cues. The details are shown in [Online Appendix B](#).

a 2.4-percentage-point increase corresponds to the 74th to 92nd percentile. Therefore, the effect of reshuffle cues is substantial.

The effect of information about a cabinet reshuffle may be even greater than the effect of reshuffle cues estimated above. Some respondents hear the news of a cabinet reshuffle and change their stance to approve the cabinet before a survey. Such respondents approve of the cabinet irrespective of whether or not the poll provides a reshuffle cue. Thus, if we compare counterfactual situations—one where a cabinet is reshuffled and all citizens are informed of the reshuffle and one where a cabinet is not reshuffled and no information on a reshuffle is provided to citizens—the difference in the cabinet approval rating is likely to be greater than 2.4 percentage points on average.

This section briefly reviews the remaining results. There are significant house effects. For example, Jiji Press underestimates cabinet approval by 5.2 percentage points and JNN overestimates it by 5.8 percentage points on average. In contrast, the mode effects are small and not statistically distinguishable from zero. The results of other parameters are shown in [table A1](#) in the [Appendix](#).

SELF-SELECTION BIAS?

One caveat about the above analysis is that there might be self-selection bias. Some readers may suspect that whether polling firms add a reshuffle cue to their questions depends on how much attention the reshuffle received. Further, the effect of a reshuffle cue is overestimated if polling firms provide a reshuffle cue when they expect the public to welcome the reshuffle.

To dispel such concerns, I examined when reshuffle cues tended to be provided. [Table 2](#) shows whether each polling firm provided a reshuffle cue in opinion polls conducted following a cabinet reshuffle. Polling firms did not provide reshuffle cues after the reshuffle of the Fukuda cabinet, probably because [Sugawara's \(2009\)](#) and [Suzuki's \(2009\)](#) criticisms impacted the industry. Other than this, there is no notable pattern of cue provision. It is the case that some cabinet reshuffles cause more cue provisions, but [figure 1](#) shows that such reshuffles did not necessarily coincide with a significant fluctuation in cabinet approval ratings. Therefore, it is reasonable to assume that polling firms did not provide reshuffle cues because they expected the reshuffle to receive much attention or because it was welcomed by the public.¹⁰

10. To address further the question of whether the assignment of reshuffle cues may be ignored, I rebut the possibility that providing reshuffle cues is politically motivated; that is, whether the use of reshuffle cues relates to the ideological positions of polling firms and which party (the LDP or the DPJ) is in power. See [Online Appendix H](#) for details.

Table 2. Pattern of the provision of reshuffle cues

Polling firm	Prime minister															
	Koizumi		Koizumi		Koizumi		Abe (1)		Fukuda		Kan		Noda		Abe (2)	
	Party	LDP	LDP	LDP	LDP	LDP	LDP	LDP	LDP	LDP	DPJ	DPJ	DPJ	DPJ	LDP	LDP
Month	9	02	9	03	9	04	9	05	10	8	9	1	6	10	9	10
Year	02	03	03	04	04	05	07	08	10	08	10	11	12	12	14	15
Total	5	2	2	3	3	2	3	5	2	2	2	2	1	1	2	1
1 Jiji	-	-	-	-	-	0	-	-	-	-	0	0	0	0	0	0
2 Kyodo	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	13
3 Yomiuri	1	1*	1	1	1*	1*	1*	1*	0	0	0	0	0	0	0	6
4 Asahi	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5 Mainichi	0	0	0	0	0	0	0	0	0	0	0	0	-	0	0	0
6 Sankei-FNN	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2
7 Nikkei	0	0	0	0	0	0	1	1	1	1	0	0	-	0	0	3
8 NHK	-	-	-	-	-	0	0	0	0	0	0	0	0	0	0	0
9 JNN	1	0	0	0	0	0	0	0	-	0	0	0	0	0	-	1
10 ANN	-	-	-	-	-	-	0	1	0	0	0	0	0	0	0	1
11 NNN	-	-	-	1	1	0	0	1	0	1	1	1	0	-	0	4
Total	5	2	2	3	3	2	3	5	2	2	2	2	1	1	2	1
31																

NOTE.—Zero means that the polling firm did not provide a reshuffle cue in the poll conducted either the week that the PM reshuffled his cabinet or the following week; 1 means that the polling firm provided a type I reshuffle cue; and an underlined 1 means that the polling firm provided a type II reshuffle cue. A dash means that the polling firm did not conduct an opinion poll immediately following that reshuffle. The last row shows the number of polls that provided either a type I or type II reshuffle cue about that reshuffle, and the last column shows the number of times that a polling firm provided either a type I or type II reshuffle cue during the analysis period. An asterisk means that in either the week the cabinet was reshuffled or the following week, the polling firm conducted more than two opinion polls, one that provided a reshuffle cue and others that did not.

In addition, I reestimated the model using only the following four companies: Jiji Press, *Mainichi Shimbun*, NHK, and Kyodo News. The former three have never provided a reshuffle cue, while Kyodo News has provided reshuffle cues in every case. Thus, there is no concern about self-selection bias. The estimated model was the same as the original, except that the mode effect term was omitted because the survey mode was perfectly collinear with the four companies.¹¹ The point estimate was 0.031, slightly higher than the original result. Uncertainty increased due to the reduction of the sample size, but the 95 percent CI still did not include zero ([0.012, 0.053]). Details of this analysis are shown in [Online Appendix C](#).

WHEN IS THE EFFECT STRONG?

To examine heterogeneity in the effect size of reshuffle cues, I sought to explain it by several factors. I altered [Equation \(3\)](#) as follows:

$$\mu_i = \alpha_{p,t_i} + \gamma_{m_i} + \delta_{j_i} + \lambda_{r_i} x_i, \quad (5)$$

$$\lambda_r \sim N(\theta' w_r, \eta^2), \quad (6)$$

where $r_i \in \{1, \dots, 13\}$ is the index of reshuffles for poll i , w_r is a vector of covariates for reshuffle r , including 1 for an intercept, θ is a vector of their coefficients, and η^2 is an error variance. I considered two variables to explain the size of the effect: cabinet approval ratings in the week immediately preceding a reshuffle (estimated by the dynamic linear model [i.e., α_{p,t_i-1}]) and the number of affected ministers. If reshuffles are effective in correcting falls in popularity, as [Kam and Indriðason \(2005\)](#) and others have argued, then the effect of reshuffle cues should be large when cabinet approval is low. On the other hand, if reshuffles provide a negative signal to the public implying discontinuity and turmoil, as [Hansen et al. \(2013\)](#) have indicated, the number of affected ministers should negatively impact the effect of the reshuffle cues. Further, I included a dummy variable for the DPJ government, and estimated θ simultaneously with the other parameters of the dynamic linear model. Although this analysis does not exclude the possibility of omitted variables and the substantial sample size is too small (i.e., the number of reshuffle cases is only 13), it provides an insight into how citizens respond to reshuffles.

[Table 3](#) shows the results. The lagged cabinet approval has a negative impact on the effect of reshuffle cues; that is, the lower the cabinet approval rating, the greater the effect of the reshuffle cue.¹² This implies that reshuffles have

11. The procedure of an MCMC estimation of this analysis (and other additional analyses shown below and in the [Online Appendix](#)) was almost the same as that of the original analysis. The prior distribution of new parameters was $U(0,100)$ for variance parameters and $N(0,100^2)$ for others.

12. I conducted the same analyses with the main analysis for each PM and reached a similar conclusion. See [Online Appendix G](#).

Table 3. Estimated coefficients on the size of the effect of reshuffle cues

	Point	95% CI
Intercept	0.028	[−0.066, 0.125]
Lagged cabinet approval	−0.142	[−0.270, −0.014]
Number of altered ministers	0.005	[−0.002, 0.011]
DPJ dummy	0.008	[−0.037, 0.051]

NOTE.—The dependent variable is an estimated effect of a reshuffle cue for each reshuffle. Lagged cabinet approval is simultaneously estimated by the dynamic linear model.

a corrective effect on government popularity, which is in line with [Dewan and Dowding’s \(2005\)](#) analysis of resignations of a single minister. A positive coefficient for the number of affected ministers indicates that on average, citizens do not have a negative response to a discontinuous cabinet; rather, they welcome the freshness of reshuffled cabinets.¹³ The effect size of reshuffle cues does not depend on the governing party. Details of this analysis are shown in [Online Appendix D](#).

Additional analyses and robustness checks were conducted (see [Online Appendices E, F, and G](#)). Their results indicate that both type I and type II reshuffle cues have a positive effect on cabinet approval ratings, and that the conclusion does not change even when the effect of reshuffle cues was reestimated by a simpler frequentist approach. Further, the main results are robust to altering the statistical model and coding the data.

Conclusions

In Japan, a number of polling firms conduct opinion polls week after week to measure cabinet approval rating. When a cabinet is reshuffled, some polling companies add information on the reshuffle (a reshuffle cue) to their questionnaire on cabinet approval, while others do not. Even if a polling firm provides a reshuffle cue at the time of a particular reshuffle, it may not necessarily do so at the time of another reshuffle. I exploited this situation as an opportunity to investigate whether citizens evaluate reshuffles positively and are more likely to approve government without endogeneity. I employed the results of polls conducted from 2001 to 2015 by 11 polling firms and a dynamic linear model to consider a PM’s individual popularity, as well as house effects, mode effects, and sampling uncertainty. The results showed that reshuffle cues

13. The 80 percent CI of the coefficient of the number of affected ministers does not include zero ([0.001, 0.009]), although the 95 percent CI shown in [table 3](#) does.

increase cabinet approval ratings by 2.4 percentage points on average, and the conclusion that reshuffles can have a positive effect on cabinet approval is statistically credible. Furthermore, the supplementary analysis implies that reshuffles have a corrective effect on declining popularity and citizens favor the freshness of reshuffled cabinets.

Political scientists have studied cabinet reshuffles as a tool through which PMs effectively delegate power to ministers and successfully manage the government. However, scholars have paid insufficient attention to the potential cost of reshuffles on government popularity, while some have assumed without empirical evidence that reshuffles have a positive effect on popularity. The results of this study provide evidence in support of such assumptions and reinforce previous research on the theory of cabinet management. The results also provide some justification for game theory research on reshuffles, most of which assumes that there is at least no cost of reshuffles with respect to government popularity, but such research should include the potential benefit of cabinet reshuffles in its models in some cases.

This study has some limitations. First, it was limited to Japan; future research should investigate whether the positive effect of cabinet reshuffles on government popularity is observed in other countries. Despite conducting an exploratory analysis of the conditions that obtain when citizens welcome reshuffles, I did not fully investigate its mechanism—whether voters evaluate the competence of reshuffled cabinets, merely respond to the newness of reshuffled cabinets, or other reasons. More analyses that are free from omitted variables, such as experimental studies, are required in order to examine the psychological mechanism that leads to the positive effects of reshuffles. While my research design did not enable us to determine how long the effect of reshuffle lasts, appropriate time-series analyses may resolve this question.

Finally, the implications of this study for survey research are as follows. This study demonstrated that adding only one word to the poll question (changing “cabinet” to “reshuffled cabinet,” or “*naikaku*” to “*kaizo naikaku*” in Japanese) has a substantive framing effect and results in changes in responses. Various textbooks about survey research have repeatedly warned survey designers about this phenomenon. I have introduced a new case that shows a framing effect when subtle information is added. However, my results also imply that even when surveys contain different questions and thus are not simply comparable, we can compare and unify the results by using a suitable statistical model. Certainly, future surveys should be designed carefully to avoid unnecessary framing effects; however, on occasion, there is a need to analyze past surveys that were not necessarily designed appropriately. Statistical modeling, such as pooling the polling techniques, can satisfy this need.

Appendix

Table A1. Estimated results of miscellaneous parameters in the main analysis

	Point	95% CI
Std. dev. of noise in the random walk (ω_p)		
Koizumi	0.029	[0.026, 0.033]
Abe (1)	0.031	[0.023, 0.039]
Fukuda	0.032	[0.022, 0.042]
Aso	0.029	[0.022, 0.037]
Hatoyama	0.030	[0.020, 0.041]
Kan	0.038	[0.030, 0.047]
Noda	0.021	[0.015, 0.027]
Abe (2)	0.018	[0.014, 0.022]
Design effect (τ_j)		
Kyodo News	1.685	[1.490, 1.886]
<i>Yomiuri Shimbun</i>	2.193	[1.917, 2.484]
<i>Asahi Shimbun</i>	2.011	[1.783, 2.247]
<i>Mainichi Shimbun</i>	2.487	[2.202, 2.793]
<i>Sankei Shimbun</i> -FNN	1.832	[1.557, 2.109]
Nikkei Research	2.059	[1.775, 2.372]
NHK	2.006	[1.741, 2.299]
JNN	2.614	[2.338, 2.929]
NNN	2.039	[1.718, 2.429]

NOTE.—The design effects for Jiji Press and ANN were not estimated, because they did not employ RDD or quota sampling.

Supplementary Data

Supplementary data are freely available at *Public Opinion Quarterly* online. Replication files are available at the Harvard Dataverse (<http://dx.doi.org/10.7910/DVN/FAU3VR>).

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