Political Statement Cycle

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Abstract

While re-election motives are essential to control politicians, they may result in words without actions to win elections. Using minutes of assembly meetings, we find that politicians' statements follow election cycles; during the election years, politicians temporarily change their statements (e.g. stated amount of money) in the budget-making process and their stated topics become less consistent with the realized budget. The effects are larger for those who won a narrower election. These changes are associated with a higher probability of winning in the next election. The results imply that politicians lure voters with attractive statements without changing their actual policies.

Keyword: Re-election Motives, Machine Learning, Minutes of Assembly, Political Budget Cycle
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1 Introduction

In democratic countries, people delegate the task of creating and implementing public policy to elected politicians. However, this delegation involves a cost, because voters may not be able to control the political behavior of their elected politicians adequately. For example, even in developed countries, there are many cases where elected politicians change the policies which they declared at the time of the elections, change their partisanship, and even commit acts of corruption.

There is a common view that re-election motives can be a remedy for such problems. In certain types of Political Economy models, elected politicians will be accountable because voters

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will elect other politicians in the next election, if the elected politicians do not deliver, or renege on their commitments. However, these re-election motives might distort politicians' incentive in undesirable ways. As an extreme case, they might induce politicians to use *words without actions*, which may, in turn, cast doubts on the value of democracy. For example, politicians might propose a bigger public project to attract voters, but may never implement it after being re-elected.

In this study, we use the minutes of assembly meetings and deploy text analysis methods such as machine learning. By quantifying their statements in assembly meetings with several measures such as the time horizon mentioned, the budget size proposed, and topics addressed, we look at the electoral cycle of their statements and its heterogeneity based on how close they are to lose in the previous election. This is because re-election motives are the strongest during the election periods among politicians who were in the margins during the previous election.

In investigating how re-election motives shape politicians' incentives, text data and machine learning techniques have several advantages over other conventional data analysis methods, such as budget data or effort index. First, unlike government-level outcomes such as budgets, statements in assemblies are individual data. We can examine the strength of re-election motives by referring to their share in the votes in the previous election. Also, we can investigate the reliability of such change in statements by looking at consistency with the realized budget. Second, we can look at the different types of political behavior rather than effort which is proxied by attendance or bills submitted. For example, we can quantify how myopic the politicians are by looking at a specific year. For example, a politician in office might say "By the end of 2014, we have to achieve XXX (some target)" in 2011, his first term year. However, he may become myopic in the election year, 2015, saying, "By the end of 2016, we have to achieve YYY (some target)." In this case, his mentioned time horizon becomes two years shorter in the election year. Third, the text data analysis and machine learning techniques handle large volumes of data. In our analysis, we collect 9,048 politicians' statements over 17 years, resulting in a total of 32,189 unique words after excluding stop words. Fourth, machine learning techniques allow us to analyze the latent composition of topics or the similarity between the realized budget and their statements. For example, unlike conventional methods, we can extract topics of documents by summarizing the enormous number of words in a replicable way, without subjective criteria.

We collect minutes from 41 prefectural assemblies in Japan, from 2001 to 2017, for our analysis. We specifically focus on meetings in the first regular sessions which play a critical role in their budget-making process. The characteristics of the Japanese prefectural governments enable this analysis in the following ways. First, the minutes from 2001 to date are publicly available on the prefectural government websites. Second, their fiscal and electoral regulations are uniform

across prefectures, thus making them comparable. Third, their electoral cycle is four years. It is pre-determined in our sample period so that endogeneity issues are minimal. Fourth, we can shut down other local political cycle effects because we can control for mayoral elections and local assembly in Japan is unicameral unlike national politics in Japan or the Unites States.

From the text data, we construct the following outcome variables: (1) average time horizon they mention and its ambiguity measure, (2) average amount of money and its context-wise average (proposing context or not), (3) frequency of mentioning specific districts to pork-barrel policies, (4) the proportion of topics using a machine learning technique, namely, latent Dirichlet allocation (LDA), and (5) consistency between their statements and the realized budget using another machine learning technique, namely, probabilistic latent semantic indexing (pLSI). The results show that politicians increase the average amount of stated (Japanese) Yen mostly in suggestive contexts, and the frequency of mentioning Yen in the election years. Their stated time horizon becomes shorter when they speak of the future, and they use more ambiguous expressions to refer to the future such as *someday*. Furthermore, they mention specific locations more and change the topics in their statements from the last year. Finally, the consistency with the realized budget decreases in the election years, which is natural, because the budget change little in the election years as we will see in Section 5.4.

Next, we perform a heterogeneous impact analysis to investigate whether re-election motives drive these effects or not. Using the margin of victory in the previous election, we find that politicians who are closer to the margin have a stronger election year effect, except when it comes to the change in topic. For example, a politician who is on par with the marginal loser in the previous election is estimated to increase the amount of stated Yen by 1,179.75 percent (approximately 1 digit), while a politician who has twice the votes of the marginal loser is predicted to increase it by 257.74 percent. These results are robust against including additional control variables such as age, number of terms, and party membership, to interact with the election year dummy variable.

Also, we discuss whether such statements changes are closely related with actual policies or they are just words without actions. The data suggest that in the election years actual expenditure does not increase as stated amount of Yen increases and their statements become more inconsistent with the realized budget. Moreover, we measure their effort using attendances to the committee meetings to capture their actions. Unlike the case of statement variables, we find little impact of the election years on their effort and its impact is not varied with the previous election results. These results are consistent with a view that re-election motives increase words without actions.

We analyze the relationships between the winning probability in the next election and these outcome variables further. We find that the change in the outcome variables in the election year

is associated with a higher chance of winning. For example, a politician mentioning a greater amount of Yen, particularly in the election year, is more likely to be elected in the next election. Together with the other results, this implies that politicians successfully lure voters without actually changing their policies.

This study contributes to two strands of literature. First, we contribute to the literature that specifically studies re-election motives and political cycles. The theoretical literature points out that re-election motives can lead to better political outcomes, working as a commitment device or signaling politicians' talent (Holmström, 1999; Fearon, 1999; Persson and Tabellini, 2000; Besley, 2006), while other papers point toward potential pitfalls of re-election motives such as the case where voters has a wrong belief about the optimality of policies (Maskin and Tirole, 2004; Smart and Sturm, 2013). Some empirical papers investigating re-election motives show that the re-election incentive induces less corruption (Ferraz and Finan, 2011), and lower tax rates (Besley and Case, 1995), or, affect the performance of a conditional cash transfer (de Janvry et al., 2011) or even secondary policies such as environmental policies (List and Sturm, 2006). On the other hand, some studies find a drawback in re-election motives. For example, the central government might allocate a more discretionary budget to the aligned local governments in the pre-election year for their re-election (Brollo and Nannicini, 2012). Also, shorter tenure length and term limit, which will strengthen re-election motives, might entail the campaign cost or have shorter payback time horizon effect (Alt et al., 2011; Dal Bó and Rossi, 2011; Titiunik, 2016). A slightly different but closely connected strand of literature is the political budget cycle. Re-election motives will drive political budget cycles because the marginal return in the re-election probability of providing benefits to voters would be higher in the election year. This is due to the nature of Bayesian learning that voters place heavy weight on the current signal to update their belief in the ability of politicians or the limited attention of voters (Holmström, 1999; Martinez, 2009). Empirical studies of the political cycle in economic variables such as unemployment rate, GDP, monetary policies, and fiscal policies (Nordhaus, 1975; Drazen, 2001; Alesina and Paradisi, 2017) find that fiscal expenditure increases during election periods, especially in new democratic countries (Brender and Drazen, 2005) or developing countries (Shi and Svensson, 2006). We contribute to this strand of literature by using text analysis to look at the new outcome variables to see unexplored features such as the mentioned time horizon or the relationship between the realized and mentioned policies. Through this, we obtain a further understanding of the relationship between re-election motives and political activities.

Second, this study is connected with the emerging literature using text data in Economics. For example, Gentzkow and Shapiro (2010) analyze how newspapers choose slant to maximize their

profit-facing local readers' demand. Hansen et al. (2017) studies the impact of transparency of discussions on policy making using the natural experiment of the Federal Open Market Committee (FOMC) and finds that making the minutes of FOMC meetings transparent leads to detailed statements, particularly by inexperienced members due to their career concerns.[1] There are several studies in Political Science using minutes of assemblies to investigate the position of politicians (Laver and Benoit, 2002; Laver et al., 2003), the relationship between loyalty and career path (Eggers and Spirling, 2016), and how intra-party politics affects political statements in assembly meetings (Proksch and Slapin, 2012). However, the effect of re-election motives on the time horizon mentioned, budget size proposed, and topics addressed have not been studied so far, to the best of our knowledge.

2 Background

Prefectural governments in Japan play an important role in determining their own local public policies (a) at their own discretion, (b) with substantial budgets, (c) resulting in significant voter turnout, (d) under a uniform structure. We elaborate the local government system in Japan below.

First, 47 prefectural governments perform local self-government as the first level of jurisdiction and administrative division with discretion power.[2] They provide local public goods, for example prefectural roads, high school, public health centers, and police. Second, after the intergovernmental transfers, on average between 2005 and 2016, 27.7 percent of the total revenue was allocated to the prefectural governments, 29.4 percent was allocated to the municipal governments, and 42.9 percent was allocated to the central government.[3] Third, the voter turnout in Japanese local elections has been maintained at historically high level (Horiuchi, 2005). The voter turnout for our targeted elections was 52.48 percent in 2003, 52.25 percent in 2007, 48.15 percent in 2011, and 45.05 percent in 2015. Fourth, prefectural governance is under the 1947 Local Autonomy Act, which enables us to compare individual prefectural governments within the same framework.

Each prefecture has its own assembly that comprises publicly elected members and a directly elected governor. Thus, the powers of the governor and the assembly are separated.[4] These local

[1] See Gentzkow et al. (2017) for other studies in Economics using text as data.

[2] Local self-government is a constitutional right in Japan although Japan adopts a single nation system, rather than a federation system. A series of decentralization reforms in the 1990s granted prefectural governments discretion.

[3] The total expenditure data of the central government in Japan was taken from the reports of the Ministry of Finance. The total expenditure data for the prefectural and municipal governments was taken from the reports of the Ministry of Internal Affairs and Communications.

[4] The national government in Japan is different from the local governments in that it follows the parliamentary system.

governments are established by the election rules that govern all prefectures. Prefectural assemblymen are elected under a constituency system. A citizen casts a vote for an individual candidate and not a party. This is an incentive for assemblymen to appeal on their own stand, not only using their party's manifestos.[5] In our sample dataset, the total number of electoral constituencies is 958, of candidates is 3272, and of those elected is 2284. The term of office is four years and exogenous. Institutionally, citizens are permitted to submit a petition for the dissolution of the assembly with the signatures of one-third or more eligible voters. When the petition is submitted, the assembly is dissolved. However, prefectural assemblies have never been dissolved by residents' petitions so far.[6]re[7] Out of the 47 prefectures, 41 currently hold local assembly elections in the same month each year. The election usually falls on the second Sunday of April, once every four years.[8]

Most prefectural assemblies hold four regular sessions and, if necessary, some ad-hoc sessions every year.[9] A regular session is usually held for 20 to 30 days and proceeds as follows. First, when a bill is submitted to a prefectural assembly at a plenary session, the chairperson makes it a subject for discussion, requests the proposer to explain the bill, and proceeds to representative interpellation and then, general interpellation.[10] After the interpellation, the chairperson refers it to the committees. Each committee chairperson makes it a subject for discussion, requests the proposer to explain the bill, proceeds toward interpellation and discussion, and votes on the bill. After passing the bill at the committee, the committee chairperson reports the result to the plenary session. This is followed by an interpellation and discussion with the committee chairperson. Lastly, a vote is taken on the bill at the plenary session. If the bill is passed by a vote, it will be enacted.

[5]The same election rules hold for municipalities. For more information on the budget cycle in municipalities, see (Fukumoto et al., 2018).

[6]Some city or village assemblies have been dissolved by the residents' recall.

[7]There is one exceptional case where a recall petition resulted in voluntary dissolution of assembly in the prefecture; in 1965, the Tokyo prefectural assembly decided to dissolve the assembly by itself before the recall election date that the election control commission had set in response to the petition.

[8] During this month, local politics attracts more attention than central politics. See Figure A.1 for the time series pattern of interest in local and central politics in Google Trends. Note that people's interests increase on the announcement week, implying that people show interests on the information of local politics, not only the result of the elections.

[9]As amended by the Local Autonomy Act in 2004, prefectures were given the authority to determine the frequency of the regular sessions in a year. However, most prefectural assemblies hold four regular sessions and one or two ad-hoc sessions overall. In 2011, the frequency of the regular sessions and ad-hoc sessions on average were 3.94 on and 1.66 respectively, according to the Ministry of Internal Affairs and Communications.

[10]In representative interpellation, one representative from each within-parliamentary faction of which the size is at least five assemblymen or more, have the right to ask questions. In general interpellation, a representative from all parliamentary groups that desire to ask questions can make it regardless of the size, although the time for each question may depend on the group size.

We investigate how re-election motives affect assemblymen's statements in the budget-making process. We focus on meetings in the first regular sessions that are held from February to March annually, where prefectural assemblymen review the budget plan for the next financial year (i.e., from April of the first year to March the following year) that is proposed by their governor, demand changes to the budget plan to their governor (e.g., increase or decrease revenues or expenditures for specific components or services, and/or submit the modified budget plan by themselves), and lastly determine to pass or reject the budget plan. Their right to amend the governor's proposed budget plan is not limited to decreasing the budget, but also includes the possibility of increasing the budget in a way that does not violate the governor's purport (Article 97.2 of the Local Autonomy Act). In a nutshell, the budget plan will not be enacted without the assembly's approval, except in emergency cases.

We target the 41 local assemblies having an election in the same month from 2001 to 2017. We apply a web-scraping method to gather officially-recorded minutes which are published in the local government websites and extract all the statements made by the assembly members in the first regular sessions. Additionally, we collect the information on the election results for each assembly member from newspaper websites and combine this information with the text data. In total, our data comprises 9,048 members and 32,189 unique words.

3 Framework

Re-election motives may affect the following outcomes in politicians' statements: increasing the amount of money to oversell their projects, shortening the time horizon to appeal to myopic voters, mentioning ambiguous future to show appealing but unfeasible plans irresponsibly, mentioning specific locations to hint at pork-barrel policies, and more broadly speaking, changing the topic to appeal to voters and diverging from the budgetary plans authorized by local assemblies.

Such re-election motives are expected to be the strongest in the election years. To capture these effects, we first estimate the following model:

$$y_{ijpt} = \alpha + \beta \, election_p + \varepsilon_{ijpt}, \tag{1}$$

where y_{ijpt} represents any of the outcome variables described in the last section for assembly member i elected from electoral district j in period p of electoral term t. Note that there are five electoral terms in our sample and each electoral term has four periods (or years). Our key variable is $election_p$ which denotes the dummy variable taking one if local elections are supposed to be held

in period p. More specifically, $election_p$ is always zero for $p = 1, 2, 3$ and one otherwise, regardless of electoral term t. This political cycle has been stipulated by the 1950 Public Office Election Act for our sample periods. Hence, this variable is strictly exogenous to members' statements within local assemblies.

It is unlikely that channels other than re-election motives will explain the effect of the election years (β in Equation 3). [11]However, we can test whether the effect is driven by re-election motives or not using the following model:

$$y_{ijpt} = \omega + \gamma\ election_p + \theta\ Margin\ of\ Victory_{ijt} + \tau\ election_p \times Margin\ of\ Victory_{ijt} + \epsilon_{ijpt}, \quad (2)$$

where $Margin\ of\ Victory_{ijt}$ denotes the ratio of the votes for member i in j for the last election divided by the votes for h in j who got the largest number of votes among the losers in the last election. Therefore, this variable measures how close member i was to losing, in the last election. A higher value of $Margin\ of\ Victory_{ijt}$ implies that member i experienced a narrower margin of victory than the others did, in the previous election. This fact, in turn, leads him to expect that the next election will also be highly competitive and close for him.[12] Thus, using the coefficient of interest τ, we can test whether myopic changes in statements by member i are amplified by the higher intensity of the re-election incentives or not. The members who are not elected with a vote in the last electoral year are dropped from our analyses since we cannot define the variable "Margin of Victory".[13]

Another question that then arises from the above estimations is: if member i changes his (her) statement in pursuit of re-election motives, can (s)he win the next election by doing so? To answer this question, we estimate the following equation for incumbent i who runs for office in the next election, to remain in the seat for electoral term $t + 1$:

$$win_{ijt+1} = \rho + \delta\ \overline{statement}_{ijt}^{nonelec} + \eta\ statement_{ijt}^{elec} + \mu_{ijt}, \quad (3)$$

where win_{ijt+1} is the dummy variable taking one if incumbent i successfully retains his own seat for electoral term $t + 1$ which means he runs for office and wins the election. We exclude those who are incumbent at t but bow out of the election for $t + 1$. $\overline{statement}_{ijt}^{nonelec}$ represents the average

[11] We are not aware of any other economic or political cycles correlated with this four-year election cycle. We are able to control for a mayoral election dummy as a robustness check. However, to control for year fixed effects, we are constructing other 6 prefectures' dataset that have different election timing because of past recalls or natural disasters.

[12]We confirm this relationship in our data. See Figure A.2.

[13]We use the same sample to estimate other equations for comparability.

of any of the variables for outcomes in equation (1) during the non-election years. More precisely, $\overline{statement}_{ijt}^{nonelec} = \sum_{p\in\{1,2,3\}} statement_{ijpt}/3$. $statement_{ijt}^{elec}$ is any of the variables for the outcomes in equation (1) during the election years. The coefficient of our interest is η which corresponds to how closely associated the probability of winning the election for $t+1$ is with extreme statements made by incumbent i right before the election at t. Although this specification cannot declare the causality between them, the result should still be meaningful. If the irresponsible remarks during the election years are positively correlated with the winning probability for elections, it implies that the politicians might rationally understand the advantage of extreme statements right before the elections, since it will be positively evaluated by voters. Put differently, voters fail to punish incumbents who indulge in opportunistic behavior by screening them out through the elections.

4 Data

This section describes our sample and data structures. We target 41 local assemblies out of 47 prefectures from 2001 to 2017. We apply a web-scraping method to officially-recorded minutes which are published on local government websites and extract all the statements made by the assembly members in the first regular sessions. Additionally, we collect information on the election results for each assembly member from newspaper websites and combine them with text data. Subsection 4.1 elaborates the structure of the text data in this study, and how we generate key variables, followed by Subsection 4.2 for election data.

4.1 Text Data and Construction of Key Variables

4.1.1 Basic Structure

We first stuck their statements at the level of regular sessions and individuals. We obtain 19,142 statements made by 9,048 members in total.[14] We then follow the standard procedures in text mining, and obtain a 19,142 by 32,189 *document-term matrix*. Here, 32,189 denotes the total number of unique words in the dataset. Each element in the matrix indicates the number of times a unique word appears in a document.

[14]Technically, 9,048 members had actually made more than 19,142 statements during the target periods. Each member is allowed to raise questions and propose alternative budget plans more than once within a regular meeting as long as the total time that he spends is within the permitted limit. To simplify the analysis and reduce the dimensions of the document-term matrix, we consider these multiple remarks as single statements.

We also apply the web-scraping method with the budget plan explaining the major features and budget sizes of the policies in addition to budget tables.

The most difficult challenge is extracting essential features of and trends in their words reflecting their re-election motives from a highly dimensional and sparse matrix without losing precision. To respond to this challenge, a natural-language-processing approach suggests two distinct methods: the *dictionary method* and *machine learning*.

The dictionary method works well to construct some of our outcomes, such as an average amount of stated money or time horizon in each statement. The dictionary method requires us to construct original dictionaries which contain sets of terms (Yen or year, for example) that we are interested in. Then, we count the number or identify the frequency of the words across documents based on these dictionaries to quantify the features of the statements. We can partially consider the situation of the statement by searching for additional words, such as "liability" around "Yen." The advantage of this method is that it can easily provide well-defined variables from a highly dimensional matrix.

When we seek to quantify the consistency or similarity among different documents, such as the change in the statements or the distance to the realized budget, we have to consider the whole content rather than a part. The dictionary method is insufficient since it deliberately extracts only a part of the information in the document-term matrix and leaves out all the other variations of terms that are not listed in the dictionaries.

Machine learning approaches can solve this problem. This paper relies on two machine learning algorithms, namely, *latent Dirichlet allocation* (LDA) and *probabilistic latent semantic indexing* (pLSI). An important advantage of both these algorithms over the dictionary method is that they make use of all the variations in the words to represent documents on a low-dimensional latent space. This reduction of the dimension enables us to compare the contents of documents quantitatively. The rest of this section explains the key variables that are estimated using the dictionary method and machine learning approaches.

4.1.2 Count Measures

Definitions. We choose ten types of count measures as outcomes, which are listed in Table 1. First, we generate the N-gram data set from our corpus. N-gram is a consecutive sequence of N terms from a given document comprising text. In this paper, we set $N = 2$ and keep two-gram only if it includes the sequence of any number and Yen, such as 10,000 Yen. We call this Yen-two-gram. *average amount of stated Yen (Log)* is a log of average amount of Yen that is calculated based on

Yen-two-gram for each document. Second, we return to the corpus and drop sentences that do not contain any word related to the suggestion. Then, we construct Yen-two-gram to calculate *average amount of stated Yen (Log, suggestion)* in the case where an assembly member suggests some policies or budget plans in the course of the political discussion. Third, in order to measure the average amount of stated Yen which is referred to as liabilities, the network analysis of the text data is employed wherein: (a) we identify the word "Yen" within the corpus and formulate networks around "Yen," each of which has the fifteen terms as windows to the forward and the backward, respectively; (b) we keep these networks only if they contain the word(s) related to liabilities; and (c) finally, *average amount of stated Yen (Log, liabilities)* is calculated by taking an average of total amounts of Yen in the networks for each document.[15] Fourth, *frequency of Yen* is a simple variable counting the frequency of Yen which appears in each statement.

By constructing Year-two-gram in a similar manner, we measure the time horizon, *positive time horizon* is equal to $\sum_m (year_{imp} - year_p)/n_{ip}\big|_{year_{imp}>year_p}$ and *negative time horizon* is the case of $year_{imp} < year_p$, where $year_{imp}$ denotes the mth statement on year by member i in period p; $year_p$ is the relevant year at period p; and n_{ip} is the total number of times that member i states on year conditional on $year_{imp} > year_p$ for positive time horizon (or $year_{imp} < year_p$ for negative time horizon). *Time horizon total* is an unconditional mean of these time horizon variables.

Finally, *frequency of ambiguous future* and *region* are count variables based on the dictionary methods. The former dictionary includes the terms that express ambiguous future such as "in the future". The latter includes all names of municipalities and prefectures in Japan.

Descriptive Statistics. Table 1 shows descriptive statistics for the above variables. We drop the politicians from the sample who are not elected with a vote in the last electoral year. We take the natural log of the average amounts of the stated Yen for the total, suggestion, and liabilities versions. The average amounts of stated Yen are 23.6 for total and 23.7 for suggestion. This value increases when politicians discuss liabilities. On average, they talk about money 6.7 times within their statements. When it comes to the time horizon variable, politicians refer to 3.2 years past from the year when the session is held. Frequency of year, ambiguous future, and specific regions are on average 17.0, 6.3, and 6.1, respectively.

[15] We only consider the network, not the whole sentence as in the case of the suggestion, because we want to know the context of Yen, and not the tone of the sentence. For example, the sentence "We have XXX Yen as liability this year, [...] so we have to shrink the budget size to YYY Yen next year." has two numbers. We want to pick up only the first one as the liability measure.

4.1.3 Variables Estimated by Machine Learning

Statistical models. This subsection explains the brief statistical models of the topic model. Suppose there are D documents or statements that comprise a corpus of texts with V unique terms. We also assume that each document can belong to K topics. A topic defines the likelihood of the frequency with which a word shows up in a document, and we think of a document as a mixture of multiple topics. Formally, the probability that any given word in document d is equal to the vth term is $p_{dv} = \sum_k \beta_k^v \theta_d^k$ and the overall likelihood is $\Pi_d \Pi_v p_{dv}^{n_{dv}}$, where n_{dv} is the number of times term v appears in document d. Therefore, we can estimate $\boldsymbol{\beta}_k \in \Delta^{V-1}$ and $\boldsymbol{\theta}_d \in \Delta^{K-1}$ by maximizing the likelihood with the EM algorithm. This method uses all variations of the terms in the corpus to represent the entire picture of the documents by reducing the dimension of the document-term matrix dramatically.

Estimation. In the beginning, we prepare the corpuses D_{jy}^B and D_j^S, where j denotes prefectures and y denotes periods or years. D_{jy}^B consists of all statements by members in prefecture j at y and authorized budget plan in j at y. D_j^S consists of all statements by members in prefecture j during the target periods.

We set $K = 20$ and apply the Maximum Likelihood Estimation to D_{jy}^B to estimate $\theta_{i,j,y}^k$ and $\theta_{budget,j,y}^k$, which indicate a topic k's share for member i and budget in j at year y. This is pLSI. *Consistency with the realized budget* for member i is $\sum_k \sqrt{\theta_{i,j,y}^k \theta_{budget,j,y}^k}$, which measures how similarly distributed K topics for member i in j at year y are with a realized budget plan in j at year y. This variable can measure the extent to which member i's statements are qualitatively and quantitatively reflected in budget plans.[16]

In order to calculate the *distance from the previous year topic* and *topic concentration*, we apply the same method using Bayesian inference to D_j^S and obtain π_{ijy}^k, which is a share of topic k in the statements by member i in prefecture j at year y.[17] We conduct a Bayesian inference due to a computational reason; the elements of D_j^S will change while extending the sample year unlike the elements of D_{jy}^B. This is LDA. The distance between topic distribution for i at y and $y-1$ is

[16] We can partially consider the budget size by the digit level. Japanese language has different names for different digits like billion and million in English: for example, *sen* (thousand), *man* (ten thousands), and *oku* (one hundred million). We incorporate these words in the document-term matrix in estimating pLSI.

[17] LDA places Dirichlet priors on the probability vectors for document-topic shares ($\boldsymbol{\theta}_d$) and topic-word shares ($\boldsymbol{\beta}_k$) to smooth estimation and specify a generative process of documents. More specifically, we assign a symmetric Dirichlet prior with K dimensions and hyperparameter α to each θ_d, and a symmetric Dirichlet prior with V dimensions and hyperparameter η to each β_k. We adopt the MCMC algorithm to approximate the posterior distributions over $\boldsymbol{\beta}_k$ for every k and over $\boldsymbol{\theta}_d$ for every d given K, α, and η.

$\sum_k(\pi^k_{i,j,y} - \pi^k_{i,j,y-1})^2$ and topic concentration is $\sum_k(\pi^k_{i,j,y})^2$.

Descriptive statistics. According to Table 1, an average consistency between individual statements and authorized budget plans is 0.29. In terms of topic measures, the average distance from the previous year's topic distribution is 0.14, and the average topic concentration is 0.26.

4.2 Election Data

We use web-scraping methods to extract information on electoral candidates in each election from newspaper websites.[18] We calculate the index on how close candidate i was to losing the last election, which is equal to the ratio of a vote share for candidate h in electoral district j who narrowly lost the last election divided by a vote share for candidate i in j in that election. We also have information on the characteristics of candidates such as age, partisanship, and how many times he has been elected before, etc. We combine this data set with the text data explained in the last subsection.

5 Result

5.1 Political Statement Cycle

Before showing regression results, we plot the distribution of the amount of stated for each year. Figure 1 shows clear spikes during the election years, shown by red vertical lines. This result suggest that statements changes due to re-election motives.

To see other outcomes and inferences, we plot-estimated coefficients with 95 percent confidence intervals based on Equation 1 using normalized outcome variables in Figure 2.[19] For an outcome in terms of an average amount of stated money, there is a significant increase right before elections. When compared with other terms in office, politicians increase the amount of money that they state in the prefectural assemblies by 489.75 percent in the year right before elections. According to the additional results on the amounts of money, this prominent increase is likely to be driven by the statements suggesting their budget plan, rather than the statements referring to government bonds or liabilities. More specifically, the amount of stated Yen increases by 396.57

[18] *Asahi Shimbun* for the data in 2001 and *Yomiuri Shimbun* for the data after 2001.

[19] See the odd columns Table A.1 for the regression results using the original outcome variables before normalization.

percent in the situation where assemblymen suggest alternative budget plans or policies in the regular sessions right before the elections while it does not change when the statements are related to government bonds or liabilities.

For statements on the time horizon, we find two distinct results. First, assemblymen are reluctant to mention specific years in the distant future, during the election years although this trend has not been observed for statements on specific years in the past. The frequency of the reference to specific years decreases by 1.40 times a year in the election years than in the other years (8.2 percent of the unconditional mean). The average years in the future that they mention decrease by 1.24 years in the election years (49.0 percent of the unconditional mean). Second, they are more likely to use ambiguous expressions for the future, which is consistent with their avoidance of referring to concrete time horizons. This frequency in the use of ambiguous future expression increases by 2.00 times a year (31.5 percent of the unconditional mean) during the election years. In other words, politicians mention specific short-term future plans more frequently rather than long-term ones, while they prefer vague expressions when they refer to the distant future in discussing budget plans right before the elections.

In contrast to the time horizon results, assemblymen make more frequent references to specific amounts of money 7.27 times a year (108.2 percent of the unconditional mean) as well as specific locations 1.78 times a year (29.0 percent of the unconditional mean), such as some towns or villages in their own constituencies, during the election years. Politicians, therefore, significantly intensify their involvement in the budget-making process closer to the next election.

A look at assemblymen's remarks in each session reveals that they also change their topics of focus right before the elections. Furthermore, they are likely to focus on fewer topics in their statements during the election years than in other years. In spite of these changes in their stated topics during the election years, these changes do not influence their approved budgets. Rather, the consistency between the assemblymen's statements and their approved budgets weakens during the election years.

It is noteworthy that the outcome variable decreases after the election years in Equation 1. This will mean that the statements of consecutively elected assemblymen are not consistent between the election years and their next term. However, the pattern might be driven from compositional effect; the newly elected assemblymen may lower the outcome variable. To investigate this point, we perform a similar regression analysis with Equation 1 by using only consecutively elected assemblymen and adding *After the First Term*$_{ijt}$, which takes one in his (her) second or further consecutive terms and its interaction term with the election dummy. Figure 3 shows the estimated difference of the outcome variables from the non-election years in the first term. In the top panel,

we use the variables which respond positively in Figure 2 and find that the outcome variables react in a positive direction as well in this sample and return to the original level in the non-election years after the first term. The bottom panel shows results using the variables which responds negatively in Figure 2 a similar pattern in an opposite way.[20] These patterns do not support a view that consecutively elected assemblymen are consistent between the first election year and the non-election years after the first election.

In a nutshell, the results suggest that politicians alter their statements in the assembly sessions right before the next elections and re-elected politicians return their statements after their re-election. There are two remaining issues to be addressed. The first is, are the changes in their statements the result of their re-election motives? Second, are they connected with actual policy changes or words without action? Third, do the voters evaluate politicians' aggressive statements right before voting in the elections even without actions? We examine these questions in the following subsections.

5.2 Heterogeneous Effects by the Results of the Previous Election

We test whether the electoral statement cycle above is driven by re-election motives or not. Compared with politicians that won an overwhelming victory in the last election, those who won by a narrow margin may feel some unease about their next term in office and have stronger re-election motives. To employ this idea, we estimate Equation 2 and plot the estimated effect of election year and its interaction with demeaned *Margin of Victory* (γ and τ) and their 95 percent confidence intervals in Figure 4.[21] We categorize the outcome variables depending on the direction of the change during the election years. It shows that the impacts of the election years generally intensify if a politician won in the last election with a narrow margin, setting aside the variables which do not show significant effects in Figure 4 (the past and total time horizon and the distance to the budget). For example, a politician who is on par with the marginal loser in the previous election is estimated to increase the amount of stated Yen by 1,179.75 percent (approximately 1 digit), while a politician who has twice the number of votes than the marginal loser is predicted to increase it by 257.74 percent.[22] These results are largely unchanged even after controlling for individual fixed

[20] See Table A.2 for the original regression results.

[21] See the even columns Table A.1 for the regression results using the original outcome variables before normalization.

[22] If a politician who is on par with the marginal loser has lower the amount of stated Yen during the non-election years, the log specification might overestimate the heterogeneous impact of the election years. However, their stated amount of Yen are not different during the non-election years. See columns (2) and (4) in Table A.1.

effects (Table A.3)[23] or other individual characteristics, such as age, the number of wins in the past, party fixed effects, and their interaction terms with the election year fixed effect (Table A.4).[24] This suggests that during the session right before the election assemblymen who experienced a close election last time rather than those who won a sweeping victory at the last election, change their statements more dramatically, supporting the re-election motives channel.

5.3 Robustness Check: Sample Selection Bias and Mayoral Election Cycle

Because whether a politician has a chance to state something in the assembly is not random, there might be sample selection bias in the main results. In column (1) of Table A.6, we find that in the election years politicians have less chances to have statements. Thus, these might lead to the sample selection bias where only a particular type of politicians get chances to state in the election years and it causes the statement cycle. However, the findings in Figure 2 are robust against controlling for individual fixed effects in Table A.3, contradicting the sample selection bias. Also, when we add the interaction term of the election years and margin of victory to column (1) of Table A.6, it does not show statistically and economically significant signs in columns (2)–(3). These coefficients mean that the interaction term is exogenous to the selection stage and therefore the coefficient of the interaction term in the main analysis will not be biased by the sample selection.[25]

Another concern regarding the sample selection is the representativeness of our main results. Throughout this paper, in order to make our sample consistent among our analyses, we exclude the politicians who were elected without a vote because we cannot calculate the margin of victory.[26] However, we find very similar the political statement cycles when including these sample

[23] There might be concern about sample selection in the main analysis. For example, some politicians are likely to make irregular statements always and they get opportunities to have a statement in assemblies. To get rid of such bias, we control for individual fixed effects to capture the change of statements within the same individual. The result in shows that the results are largely stable even after controlling for the individual fixed effects, implying that the main result is not driven by the sample selection channel. See subsection 5.3 for other discussions of sample selection.

[24] We also adopt a Poisson model and a Negative Binomial model for count outcomes as further robustness checks. However, the qualitative result does not change (Table A.5).

[25] Consider the following conditional expectation and the selection stage equation, $E[Y_i|\boldsymbol{D_i}, stated_i = 1] = \boldsymbol{D_i}\boldsymbol{\beta} + E[u_i|\boldsymbol{D_i}, stated_i = 1]$ and $stated_i = \mathbb{1}[\boldsymbol{Z_i}\boldsymbol{\gamma} + v_i > 0]$. The source of sample selection bias is when we vary $\boldsymbol{D_i}$ to estimate $\boldsymbol{\beta}$, $\boldsymbol{Z_i}$ varies as well because typically $\boldsymbol{D_i}$ is a subset of $\boldsymbol{Z_i}$. Because we only see sample with $stated_i = 1$, this means that v_i varies as well, which might be correlated with u_i. However, if we were interested in the coefficient of d_{1i}, a part of $\boldsymbol{D_i}$, but not a part of $\boldsymbol{Z_i}$, we could identify the β_1 with holding on the other variables in $\boldsymbol{D_i}$ ($=\boldsymbol{D_i^{-1}}$) because $E[Y_i|d_{1i} = 1, \boldsymbol{D_i^{-1}}, stated_i = 1] - E[Y_i|d_{1i} = 0, \boldsymbol{D_i^{-1}}, stated_i = 1] = \beta_1 + E[u_i|d_{1i} = 1, \boldsymbol{D_i^{-1}}, stated_i = 1] - E[u_i|d_{1i} = 0, \boldsymbol{D_i^{-1}}, stated_i = 1] = \beta_1 + E[u_i|\boldsymbol{D_i^{-1}}, stated_i = 1] - E[u_i|\boldsymbol{D_i^{-1}}, stated_i = 1] = \beta_1$.

[26] We also drop the politicians elected by by-elections because our election dataset do not cover by-elections.

as shown in Figure A.3. Overall, though our sample is not randomly selected, it does not affect the interpretation of the main results.

Additionally, we perform a robustness check about the exogeneity of the four-year election cycle. In our context, mayoral election cycle is the most relevant political cycle at the prefecture level because a local assembly is unicameral. The mayor election cycle might be correlated with our election cycles and affect our statement variables. To address this concern, we directly control for mayoral election years to Figure 4. However, we find almost identical results (Figure A.4), implying that the main result is not driven by other political cycle at the prefecture level.

5.4 Discussion: Words without Actions?

The results above imply that political statements are driven from re-election motives, but it is unclear whether such change in statements are connected with actual policy changes or they are just words without actions to lure voters. We investigate this point by the following discussions.

First, the realized budget shows a political budget cycle, but the election effect on the realized budget is much smaller than that on the state amount of Yen. Figure 5 shows smaller changes of the budget (the left panel) than the statement (the right panel) in the election years and based on a regression analysis, the expenditure is estimated to insignificantly increase 0.39 percent in the election year while the stated amount of Yen increases by 489.75 percent. This suggests that most of the statement made during the election year do not result in actual budget changes.

Second, *Consistency to Budget* directly measures the divergence between their statement and budget. If their statements changes budget, we should observe insignificant effect of the election year dummy, but the result shows divergence from the realized budget. Moreover, when we see the other statement variables, re-elected politicians do not keep their statements to fulfill their original plans they made in the previous election year. Also, the increase of *Frequency to Ambiguous Future* means that politicians does not set a clear deadline for their project. If politicians try to change budget or policy, they will clearly specify the timing.

Third, in addition to the statement variables, we obtain a proxy of effort using absences from the committees assigned to the assemblymen. After each election, the chairperson assigns all of the assemblymen to one or more committees such as financial committee and infrastructure committee. In these committees, the members have an opportunity to discuss the details of policies to give it back to the plenary sessions for the final votes. Therefore, if we do not find any impact of re-election motives on attendances to the committees, it is likely that they change statements without taking a cost to realize the statements. In Table 2, we perform a similar regression analysis with

Figure 4. We do not find the effect of election years on the attendance rate in column (1) or attendance in column (3) and the point estimates are quite small (−0.04 standard deviation and 0.002 standard deviation, respectively). Also, the impacts of the election year are not varied with the previous election results in columns (2) and (4).[27] Therefore, unlike the statement variables, re-election motives do not affect their effort significantly.

Overall, these results suggest that statements, not connected with the actual policy changes, increase during the election years to attract voters.

5.5 Impact of Assemblymen's Statements on the Next Election's Winning Probability

In this subsection, we examine whether member i who makes significant and temporal changes in his/her statements right before the election can win the next election by using Equation 3 or not.

In Figure 6, we plot-estimated coefficients after normalizing the explanatory variables of the first three years during the term of office on average and of the final year, that is, right before the elections, (δ and γ) with 95 percent confidence interval. We categorize the statement variables depending on whether the interaction term in Figure 4 responds in a positive, negative, or insignificant way (top, middle, and bottom panels respectively).[28] In general, there are two distinct findings. First, a politician's statements in the assembly sessions in the first three years during his or her term of office have little association with his or her re-election probability while those soon before elections increase the winning probability. This suggests that voters only pay attention to politicians' recent statements in the assembly and decide who to vote for in the elections accordingly. Second, the change in statements by politicians during the election years that we show above is associated with re-election probability. In the middle panel, where variables respond in a negative way to the re-election motives, we find that the 1 standard deviation decline in time horizon for the future is associated with a higher probability to win by 4.05 percent point, for example. In other words, it is rational for politicians to change their statements just before the elections to increase their re-election probability. Moreover, the results do not change qualitatively while restricting the sample to those who win more than once. Further, the change in the statement in the previous election is not penalized in the next election.[29]

Note that we need a different framework to explain the difference in the topics that a politician

[27] See Table A.7 for robustness checks in the same specification with Table A.4.
[28] See Panel A of Table A.8 for the regression results using the original explanatory variables before normalization.
[29] See Table A.9.

states in an assembly session in a year and in the previous year. As shown above, the topic difference becomes larger during the election years. However, we find that the previous election results do not intensify this change. Further, the change does not influence the re-election probability (Figure 4 and Figure 6). We conduct additional analyses to understand why the topic difference becomes larger during the election years. We find that the change is associated with whether a politician runs in the next election or not. Politicians who intend to contest in the next election are more likely to change their topics drastically during the election years.[30]

6 Conclusion

In democratic countries, the creation and implementation of public policies are delegated to elected politicians. Thus, how re-election motives affect a politician's behavior is an important question. This study investigates the role of re-election motives by using the minutes of 41 Japanese prefectural assemblies using the text analysis method. The results reveal novel findings that usually aggregated budget data cannot reveal. It is found that politicians, particularly those who are closer to loss, change their statements. They increase the amount of stated Yen mostly in suggestive contexts, increase the frequency of mentioning specific locations, present ambiguous futures, and shorten the mentioned time horizon while referring to the future. We also discuss whether all these statement changes involve policy changes, but we find in the election years (1) the amount of stated Yen increases much more than the actual budget, (2) their statements become less consistent with the realized budget, and (3) their effort measured by attendance to the committee meetings does not increase. Moreover, such changes are associated with higher chances of winning in the next election, despite there being no change in the realized budget. We confirm that the main results are robust against controlling for other covariates, sample selection bias or mayoral election cycles.

These results imply that re-election motives seem to drive politicians to attract voters without changing their actual policies. A natural question is why voters would appreciate such cheap talk and would not penalize the politicians in the next election, or after re-election. This may be due to bounded rationality, such as short-lived memory and limited knowledge. Further, the political and social environment might result in indifference to politics on part of both voters and the media, except during the election years as Figure A.1 might imply. These points are beyond the scope of this study, but represent important directions for future studies.

[30] Compare Panel A and B of Table A.8.

References

Alesina, Alberto and Matteo Paradisi, "Political budget cycles: Evidence from Italian cities," *Economics & Politics*, July 2017, *29* (2), 157–177.

Alt, James, Ethan Bueno de Mesquita, and Shanna Rose, "Disentangling Accountability and Competence in Elections: Evidence from U.S. Term Limits," *The Journal of Politics*, January 2011, *73* (1), 171–186.

Bó, Ernesto Dal and Martín A. Rossi, "Term Length and the Effort of Politicians," *The Review of Economic Studies*, October 2011, *78* (4), 1237–1263.

Besley, Timothy, *Principled Agents? The Political Economy of Good Government.*, Oxford University Press., 2006.

– **and Anne Case**, "Does Electoral Accountability Affect Economic Policy Choices? Evidence from Gubernatorial Term Limits," *The Quarterly Journal of Economics*, August 1995, *110* (3), 769–798.

Brender, Adi and Allan Drazen, "Political budget cycles in new versus established democracies," *Journal of Monetary Economics*, October 2005, *52* (7), 1271–1295.

Brollo, Fernanda and Tommaso Nannicini, "Tying Your Enemy's Hands in Close Races: The Politics of Federal Transfers in Brazil," *American Political Science Review*, November 2012, *106* (04), 742–761.

de Janvry, Alain, Frederico Finan, and Elisabeth Sadoulet, "Local Electoral Incentives and Decentralized Program Performance," *The Review of Economics and Statistics*, January 2011, *94* (3), 672–685.

Drazen, Allan, "The Political Business Cycle After 25 Years," in Ben Bernanke and Kenneth Rogoff, eds., *NBER macroeconomics annual 2000*, Cambridge, Mass.: MIT Press, 2001. OCLC: 990306665.

Eggers, Andrew C. and Arthur Spirling, "Party Cohesion in Westminster Systems: Inducements, Replacement and Discipline in the House of Commons, 1836–1910," *British Journal of Political Science*, July 2016, *46* (03), 567–589.

Fearon, James, "Electoral accountability and the control of politicians: Selecting good types versus sanctioning poor performance.," in "Democracy, Accountability, and Representation.," Cambridge University Press, 1999, pp. 55–97.

Ferraz, Claudio and Frederico Finan, "Electoral Accountability and Corruption: Evidence from the Audits of Local Governments," *American Economic Review*, June 2011, *101* (4), 1274–1311.

Fukumoto, Kentaro, Yusaku Horiuchi, and Shoichiro Tanaka, "Treated Politicians, Treated Voters: A Natural Experiment of Political Budget Cycle," Mimeo 2018.

Gentzkow, Matthew and Jesse M. Shapiro, "What Drives Media Slant? Evidence From U.S. Daily Newspapers," *Econometrica*, 2010, *78* (1), 35–71.

– **, Bryan T. Kelly, and Matt Taddy**, "Text as Data," Working Paper 23276, National Bureau of Economic Research March 2017.

Hansen, Stephen, Michael McMahon, and Andrea Prat, "Transparency and Deliberation Within the Fomc: a Computational Linguistics Approach*," *The Quarterly Journal of Economics*, October 2017.

Holmström, Bengt, "Managerial Incentive Problems: A Dynamic Perspective," *The Review of Economic Studies*, January 1999, *66* (1), 169–182.

Horiuchi, Yusaku, *Institutions, Incentives and Electoral Participation in Japan Cross-Level and Cross-National Perspectives*, Taylor & Francis, 2005.

Laver, Michael and Kenneth Benoit, "LOCATING TDs IN POLICY SPACES: WORDSCORING DÁIL SPEECHES," *IRISH POLITICAL STUDIES*, 2002, p. 15.

– **,** – **, and John Garry**, "Extracting Policy Positions from Political Texts Using Words as Data," *The American Political Science Review*, 2003, *97* (2), 311–331.

List, John A. and Daniel M. Sturm, "How Elections Matter: Theory and Evidence from Environmental Policy," *The Quarterly Journal of Economics*, November 2006, *121* (4), 1249–1281.

Martinez, Leonardo, "A theory of political cycles," *Journal of Economic Theory*, May 2009, *144* (3), 1166–1186.

Maskin, Eric and Jean Tirole, "The Politician and the Judge: Accountability in Government," *American Economic Review*, August 2004, *94* (4), 1034–1054.

Nordhaus, William D., "The Political Business Cycle," *The Review of Economic Studies*, April 1975, *42* (2), 169.

Persson, Torsten and Guido Tabellini, *Political Economics: Explaining Economic Policy*, Cambridge, Mass: The MIT Press, August 2000.

Proksch, Sven-Oliver and Jonathan B. Slapin, "Institutional Foundations of Legislative Speech," *American Journal of Political Science*, July 2012, *56* (3), 520–537.

Shi, Min and Jakob Svensson, "Political budget cycles: Do they differ across countries and why?," *Journal of Public Economics*, September 2006, *90* (8), 1367–1389.

Smart, Michael and Daniel M. Sturm, "Term limits and electoral accountability," *Journal of Public Economics*, November 2013, *107*, 93–102.

Titiunik, Rocío, "Drawing Your Senator from a Jar:Term Length and Legislative Behavior," *Political Science Research and Methods*, May 2016, *4* (02), 293–316.

Table 1: Descriptive Statistics

	Data Source (Method)	Mean	Standard Deviation	Min	Max	Observation
Margin of Victory	Election	.6724021	.2025312	.0355913	.9999041	12799
Age	Election	53.94486	9.79129	25	84	16068
Past Wins	Election	1.735465	1.686293	0	12	15979
Average Amount of Stated Yen (Log, All)	Minute (Count)	23.62168	5.875095	0	37.86301	12371
Average Amount of Stated Yen (Log, Suggestion)	Minute (Count)	23.69076	5.863821	0	37.25688	9767
Average Amount of Stated Yen (Log, Liabilities)	Minute (Count)	26.34019	4.214504	0	36.24352	2610
Frequency of Yen	Minute (Count)	6.716042	12.9823	0	302.2272	19142
Time Horizon (Future)	Minute (Count)	2.531305	4.3751	1	98	14970
Time Horizon (Past)	Minute (Count)	-8.61369	29.45988	-814	0	17364
Time Horizon (Total)	Minute (Count)	-3.1992	14.75796	-406.55	41	14331
Frequency of Year	Minute (Count)	16.99906	16.71681	0	359	19142
Frequency of Ambiguous Future	Minute (Count)	6.347247	6.865333	0	76	19142
Frequency of Specific Location	Minute (Count)	6.118222	9.580784	0	592	19142
Distance from the Previous Year Topic	Minute (Machine Learning)	.1360412	.2221564	0	2	19142
Topic Concentration	Minute (Machine Learning)	.2569203	.1496531	0	1	19142
Consistency to the Realized Budget	Minute and Budget (Machine Learning)	.2943145	.1446939	.0000408	.6271039	19142
Observations		19142				

Table 2: Their Effort Does Not Change by Re-election Motives

	Attendance		Attendance Ratio	
	(1)	(2)	(3)	(4)
Election Year	-0.0366	-0.0368	0.000218	0.000230
	(0.0318)	(0.0317)	(0.00274)	(0.00274)
Margin of Victory		-0.0723		-0.0101
		(0.0857)		(0.00749)
Election Year * Margin of Victory		0.167		0.00610
		(0.162)		(0.0129)
Constant	3.981***	3.981***	0.931***	0.931***
	(0.0197)	(0.0197)	(0.00184)	(0.00184)
Observations	12799	12799	12799	12799

Standard errors in parentheses are cluster-robust at the individual level. * Significant at the 10% level. ** Significant at the 5% level. *** Significant at the 1% level. *Margin of Victory* is demeaned. *Attendance* is defined as the number of attendances to the meeting of committees they are assigned to. *Attendance Ratio* is defined as *Attendance* divided by the total number of their committees' meeting. The mean of *Attendance* (*Attendance Ratio*) is 3.97 (0.931) and the standard deviation of *Attendance* (*Attendance Ratio*) is 1.53 (0.130).

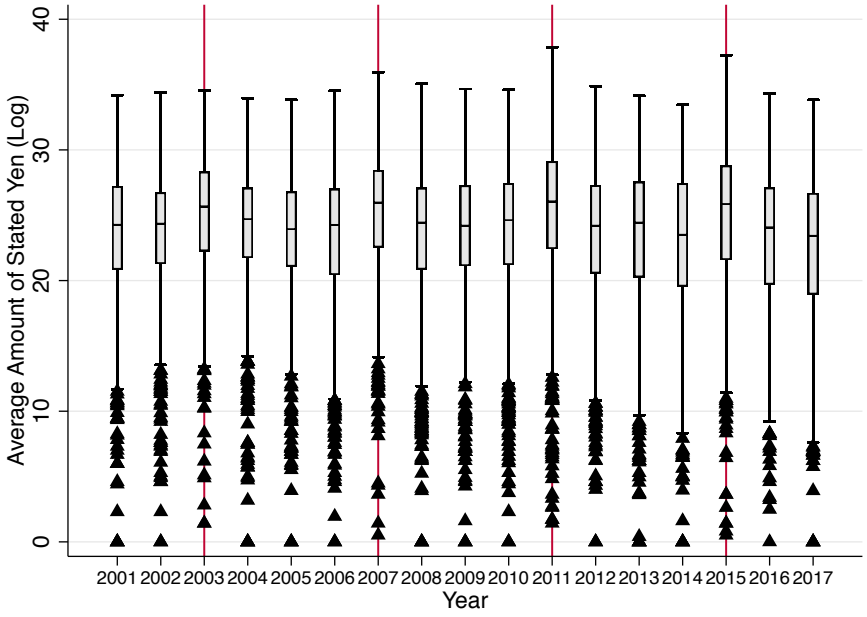

Figure 1: Political Statement Cycle (Amount of Yen)

Note: This graph shows the distribution of the average of amount of stated yen by assemblymen for each year from 2001 to 2017. The red vertical lines represent the election years. The bar shows medians and quartiles. The spikes show 1.5 times the interquartile range of the upper quartile. The triangle symbols show the outliers outside the spikes. We only use 41 prefectures here, as in the main analysis.

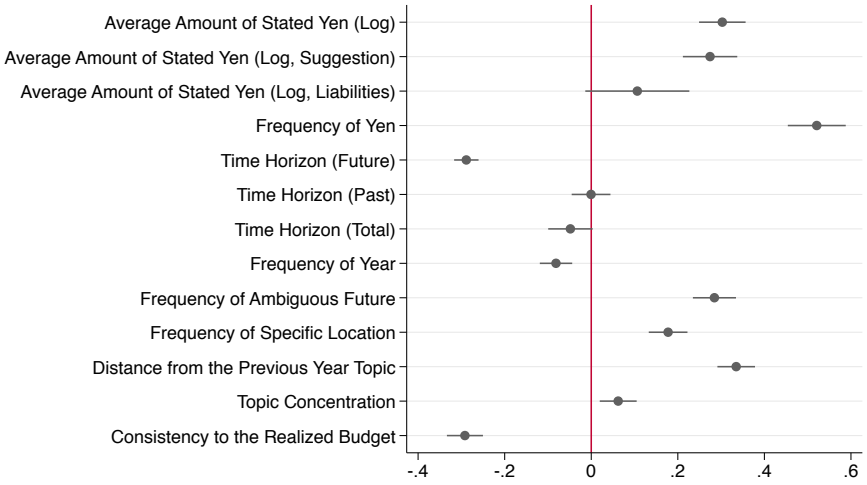

Figure 2: The Impact of the Election Years

Each symbol shows the point estimate of the coefficient while regressing a normalized statement variable in the corresponding caption on the election year dummy. Lines show 95 percent CIs calculated by individual-level cluster-robust standard errors.

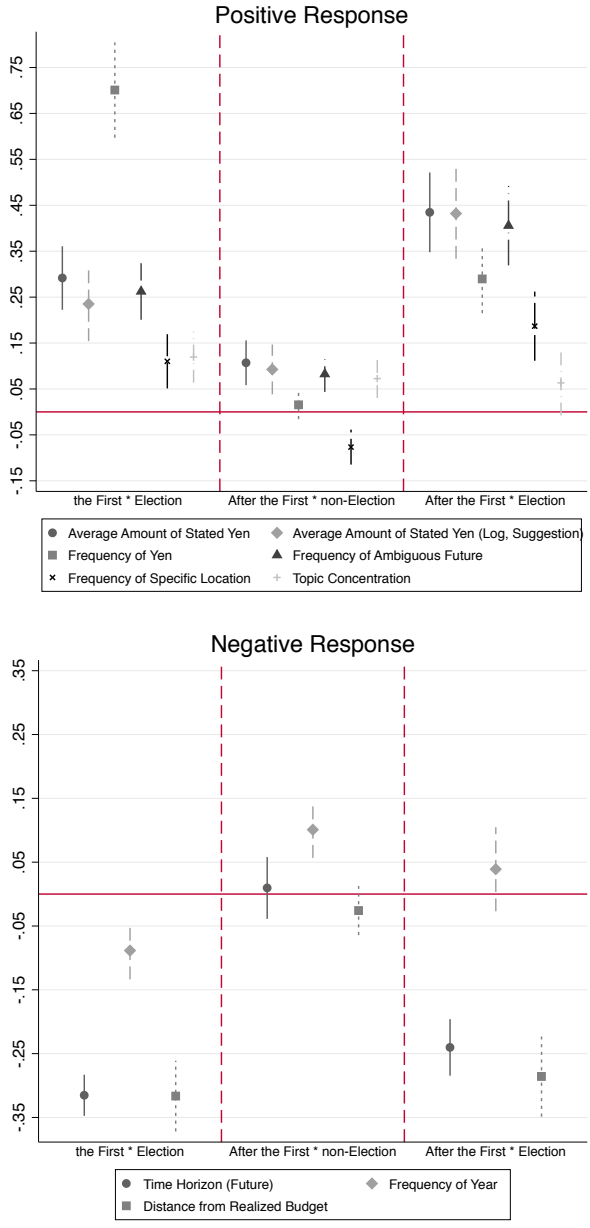

Figure 3: The Impact of the Election Years for Re-elected Politicians

Each symbol shows the point estimate of the coefficient while regressing a normalized statement variable in the corresponding caption on the election year in the first term dummy, the non-election years in the second or further terms dummy and the election years in the second or further terms dummy. Lines show 95 percent CIs calculated by individual-level cluster-robust standard errors.

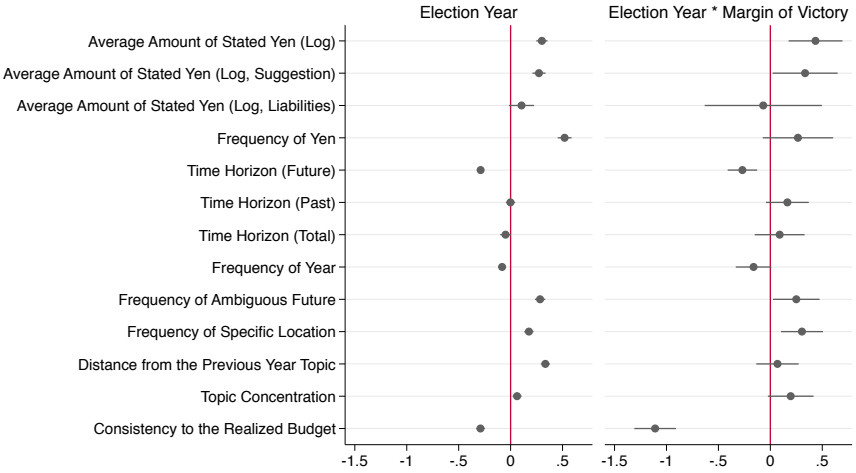

Figure 4: Re-election Motives Intensify the Impact of the Election Years

Note: Each symbol shows the point estimate of the coefficients while regressing a normalized statement variable in the corresponding caption on the election year dummy (the left panel) and its interaction term with demeaned *Margin of Victory* variable (the right panel). Lines show 95 percent CIs calculated by individual-level cluster-robust standard errors.

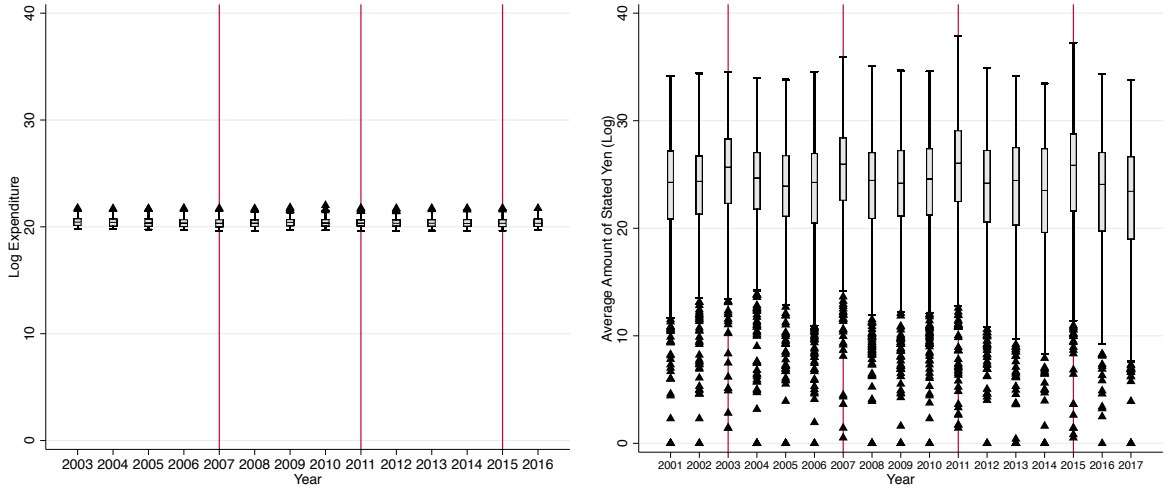

Figure 5: Political Budget Cycle and Political Statement Cycle

Source of the left Panel: Ministry of Internal Affairs and Communications of Japan. This graph shows the distribution of prefectural government expenditure for each year from 2005 to 2017. The red vertical lines represent the election years. The bar shows medians and quartiles. The spikes show 1.5 times the interquartile range of the upper quartile. The triangle symbols show the outliers outside the spikes. We only use 41 prefectures here, as in the main analysis. The right panel replicates Figure 1.

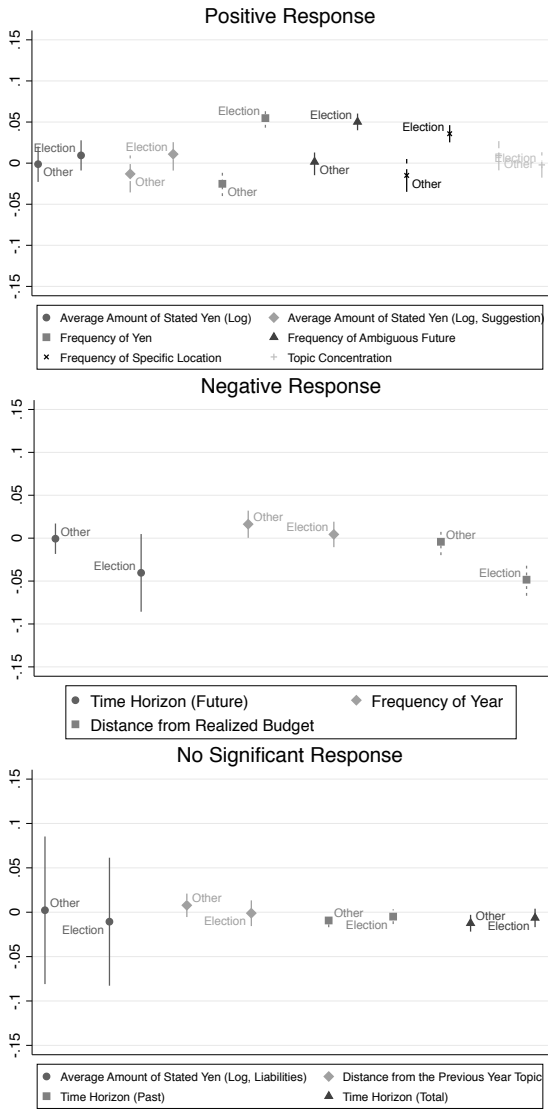

Figure 6: Statements and Winning Probability

Note: Each symbol shows the point estimate of the coefficients while regressing a dummy variable which takes one if (s)he wins in the next election and zero otherwise (missing if (s)he does not run into) on a normalized statement variable in the corresponding caption during the election year (right) and the other years (left). We categorize the statement variables depending on whether the interaction term in Figure 4 respond in a positive, negative, or insignificant way (top, middle, and bottom panels, respectively). Lines show 95 percent CIs calculated by individual-level cluster-robust standard errors.

A Appendix

Table A.1: Regression Results for Figures 2 and 4

Panel A

	Average Amount of Stated Yen (Log)							
	All		Suggestion		Liabilities		Frequency of Yen	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Election Year	1.775***	1.767***	1.603***	1.595***	0.458+	0.453+	7.266***	7.255***
	(0.161)	(0.160)	(0.187)	(0.187)	(0.263)	(0.264)	(0.476)	(0.474)
Margin of Victory		-0.126		-0.243		-1.104+		1.890**
		(0.376)		(0.429)		(0.624)		(0.613)
Election Year * Margin of Victory		2.549**		1.955*		-0.292		3.712
		(0.775)		(0.933)		(1.235)		(2.409)
Constant	23.29***	23.29***	23.39***	23.39***	26.19***	26.20***	5.686***	5.687***
	(0.0814)	(0.0815)	(0.0886)	(0.0888)	(0.131)	(0.131)	(0.150)	(0.149)
Observations	8397	8397	6569	6569	1628	1628	12799	12799

Panel B

	Time Horizon						Frequency of			
	Future		Past		Total		Year		Ambiguous Future	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Election Year	-1.237***	-1.235***	-0.0127	-0.0289	-0.743+	-0.747+	-1.396***	-1.396***	1.995***	1.991***
	(0.0617)	(0.0616)	(0.696)	(0.698)	(0.405)	(0.406)	(0.327)	(0.327)	(0.178)	(0.177)
Margin of Victory		-0.192		-0.982		-0.0202		2.176*		0.119
		(0.241)		(1.404)		(0.805)		(1.024)		(0.366)
Election Year * Margin of Victory		-1.152***		5.007		1.391		-2.770+		1.754*
		(0.311)		(3.203)		(1.896)		(1.500)		(0.801)
Constant	2.775***	2.775***	-9.035***	-9.034***	-3.306***	-3.306***	17.65***	17.66***	6.096***	6.096***
	(0.0535)	(0.0536)	(0.360)	(0.360)	(0.194)	(0.194)	(0.233)	(0.233)	(0.0859)	(0.0859)
Observations	10011	10011	11648	11648	9597	9597	12799	12799	12799	12799

Panel C

	Frequency of Specific Location		Distance from the Previous Year Topic		Topic Concentration		Consistency to the Realized Budget	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Election Year	1.780***	1.769***	0.0750***	0.0750***	0.00907**	0.00908**	-0.0423***	-0.0420***
	(0.228)	(0.227)	(0.00496)	(0.00496)	(0.00317)	(0.00317)	(0.00308)	(0.00299)
Margin of Victory		2.239***		-0.0139		-0.0278***		0.00692
		(0.496)		(0.0105)		(0.00776)		(0.00691)
Election Year * Margin of Victory		3.054**		0.0155		0.0286+		-0.161***
		(1.035)		(0.0233)		(0.0163)		(0.0148)
Constant	5.939***	5.940***	0.126***	0.126***	0.252***	0.252***	0.300***	0.300***
	(0.118)	(0.118)	(0.00218)	(0.00218)	(0.00173)	(0.00173)	(0.00145)	(0.00145)
Observations	12799	12799	12799	12799	12799	12799	12799	12799

Standard errors in parentheses are cluster-robust at the individual level. * Significant at the 10% level. ** Significant at the 5% level. *** Significant at the 1% level. The even columns correspond to Figure 2 and odd columns correspond to Figure 4. We show the result without normalizing the outcome variables unlike in the figures. *Margin of Victory* is demeaned.

Table A.2: Regression Results for Figure 3

Panel A

	Average Amount of Stated Yen (Log)							
	All		Suggestion		Liabilities		Frequency of Yen	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Election Year	1.794***	1.662***	1.782***	1.553***	0.759*	0.0761	7.912***	13.42***
	(0.189)	(0.280)	(0.218)	(0.322)	(0.316)	(0.439)	(0.561)	(1.121)
Not the First Term		0.514**		0.368*		0.0323		0.153
		(0.162)		(0.179)		(0.273)		(0.215)
Not the First Term * Election Year		0.258		0.428		1.333*		-9.600***
		(0.376)		(0.428)		(0.630)		(1.203)
Constant	23.42***	23.12***	23.53***	23.31***	26.16***	26.14***	5.741***	5.650***
	(0.0934)	(0.133)	(0.101)	(0.145)	(0.152)	(0.210)	(0.172)	(0.201)
Observations	6393	6393	5036	5036	1265	1265	9754	9754

Panel B

	Time Horizon						Frequency of			
	Future		Past		Total		Year		Ambiguous Future	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Election Year	-1.141***	-1.226***	-0.146	1.013	-0.889+	-0.547	-1.378***	-1.713**	2.318***	2.412***
	(0.0737)	(0.0885)	(0.836)	(0.897)	(0.486)	(0.517)	(0.395)	(0.545)	(0.218)	(0.319)
Not the First Term		0.239*		-1.822*		-1.080**		1.597***		0.432**
		(0.115)		(0.719)		(0.381)		(0.418)		(0.150)
Not the First Term * Election Year		0.154		-2.039		-0.610		0.651		-0.146
		(0.141)		(1.457)		(0.843)		(0.801)		(0.432)
Constant	2.700***	2.558***	-9.244***	-8.170***	-3.415***	-2.775***	17.95***	16.99***	6.234***	5.975***
	(0.0608)	(0.0832)	(0.428)	(0.559)	(0.225)	(0.267)	(0.279)	(0.344)	(0.103)	(0.125)
Observations	7638	7638	8820	8820	7308	7308	9754	9754	9754	9754

Panel C

	Frequency of Specific Location		Distance from the Previous Year Topic		Topic Concentration		Consistency to the Realized Budget	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Election Year	2.180***	1.521***	0.0764***	0.0944***	0.00733+	0.0197***	-0.0381***	-0.0390***
	(0.276)	(0.433)	(0.00593)	(0.00881)	(0.00374)	(0.00565)	(0.00360)	(0.00565)
Not the First Term		-0.712**		0.0106*		0.0109**		-0.00552+
		(0.253)		(0.00456)		(0.00343)		(0.00328)
Not the First Term * Election Year		1.118*		-0.0310**		-0.0210**		0.00135
		(0.537)		(0.0119)		(0.00748)		(0.00731)
Constant	5.811***	6.237***	0.126***	0.120***	0.253***	0.247***	0.300***	0.303***
	(0.139)	(0.244)	(0.00252)	(0.00359)	(0.00204)	(0.00264)	(0.00168)	(0.00257)
Observations	9754	9754	9754	9754	9754	9754	9754	9754

Standard errors in parentheses are cluster-robust at the individual level. * Significant at the 10% level. ** Significant at the 5% level. *** Significant at the 1% level. This table uses only consecutively elected assemblymen. *Not the First Term* takes one in his (her) second or further consecutive terms.

Table A.3: Robustness Check for Figure 2 and Figure 4 with Individual Fixed Effects

Panel A

	Average Amount of Stated Yen (Log)							
	All		Suggestion		Liabilities		Frequency of Yen	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Election Year	1.463***	1.456***	1.217***	1.207***	-0.405	-0.355	7.266***	7.260***
	(0.212)	(0.212)	(0.272)	(0.271)	(0.565)	(0.563)	(0.591)	(0.590)
Margin of Victory		0.540		0.765		0.376		0.965
		(0.738)		(0.869)		(1.839)		(1.104)
Election Year * Margin of Victory		2.656**		2.606+		-1.450		3.259
		(1.017)		(1.371)		(2.765)		(2.951)
Individual FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	8397	8397	6569	6569	1628	1628	12799	12799

Panel B

	Time Horizon						Frequency of			
	Future		Past		Total		Year		Ambiguous Future	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Election Year	-1.180***	-1.178***	0.399	0.384	-0.396	-0.402	-1.683***	-1.686***	2.008***	2.004***
	(0.0950)	(0.0953)	(0.872)	(0.874)	(0.512)	(0.512)	(0.380)	(0.381)	(0.204)	(0.203)
Margin of Victory		-0.222		0.0592		0.876		2.196		0.527
		(0.450)		(2.731)		(1.763)		(1.824)		(0.595)
Election Year * Margin of Victory		-0.876		4.663		1.691		-1.873		2.069*
		(0.547)		(3.863)		(2.367)		(1.756)		(0.900)
Individual FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	10011	10011	11648	11648	9597	9597	12799	12799	12799	12799

Panel C

	Frequency of Specific Location		Distance from the Previous Year Topic		Topic Concentration		Consistency to the Realized Budget	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Election Year	1.844***	1.833***	0.0970***	0.0970***	0.0104**	0.0104**	-0.0424***	-0.0423***
	(0.272)	(0.272)	(0.00585)	(0.00585)	(0.00374)	(0.00374)	(0.00387)	(0.00378)
Margin of Victory		2.744*		-0.0237		-0.0115		0.0189
		(1.346)		(0.0202)		(0.0142)		(0.0136)
Election Year * Margin of Victory		3.160**		0.00638		0.0179		-0.154***
		(1.184)		(0.0274)		(0.0186)		(0.0189)
Individual FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	12799	12799	12799	12799	12799	12799	12799	12799

Standard errors in parentheses are cluster-robust at the individual level. * Significant at the 10% level. ** Significant at the 5% level. *** Significant at the 1% level. We show the result without normalizing the outcome variables unlike in the figures. *Margin of Victory* is demeaned.

Table A.4: Additional Robustness Check for Figure 4

Panel A

	Average Amount of Stated Yen (Log)							
	All		Suggestion		Liabilities		Frequency of Yen	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Election Year	1.134	-0.0871	-0.110	-0.348	-0.590	2.163	19.44***	20.63***
	(1.129)	(1.530)	(1.337)	(1.995)	(1.809)	(4.362)	(2.972)	(3.681)
Margin of Victory	0.0499	0.788	-0.0682	1.004	-0.829	0.381	0.362	1.129
	(0.382)	(0.741)	(0.436)	(0.877)	(0.623)	(1.878)	(0.580)	(1.093)
Election Year * Margin of Victory	2.398**	2.307*	1.721+	2.100	-0.186	-1.693	0.447	-0.0955
	(0.783)	(1.040)	(0.947)	(1.398)	(1.202)	(2.629)	(2.342)	(2.887)
Age (* Election)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Past Wins (* Election)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Party FE (* Election)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Individual FE	No	Yes	No	Yes	No	Yes	No	Yes
Observations	8359	8359	6539	6539	1613	1613	12747	12747

Panel B

	Time Horizon						Frequency of			
	Future		Past		Total		Year		Ambiguous Future	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Election Year	-1.488**	-1.104	9.018*	4.368	3.464	1.457	-1.678	-2.876	3.144*	3.142*
	(0.480)	(0.673)	(4.119)	(5.288)	(2.454)	(3.034)	(2.268)	(2.590)	(1.238)	(1.421)
Margin of Victory	-0.268	-0.127	-1.466	0.208	-0.268	0.514	3.538**	2.613	1.020**	0.549
	(0.247)	(0.459)	(1.441)	(2.613)	(0.829)	(1.799)	(1.090)	(1.833)	(0.366)	(0.600)
Election Year * Margin of Victory	-0.987**	-0.726	5.841+	5.364	2.024	2.434	-2.847+	-2.114	2.015*	2.303*
	(0.308)	(0.544)	(3.369)	(4.065)	(2.005)	(2.510)	(1.578)	(1.834)	(0.829)	(0.936)
Age (* Election)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Past Wins (* Election)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Party FE (* Election)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Individual FE	No	Yes	No	Yes	No	Yes	No	Yes		
Observations	9966	9966	11598	11598	9553	9553	12747	12747	12747	12747

Panel C

	Frequency of Specific Location		Distance from the Previous Year Topic		Topic Concentration		Consistency to the Realized Budget	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Election Year	1.379	2.674	0.110***	0.0939*	0.0556**	0.0398	-0.0451*	-0.0547*
	(1.361)	(1.647)	(0.0324)	(0.0384)	(0.0210)	(0.0252)	(0.0204)	(0.0257)
Margin of Victory	1.992***	2.555+	-0.0174	-0.0203	-0.0197*	-0.00847	0.00330	0.0194
	(0.534)	(1.377)	(0.0108)	(0.0203)	(0.00786)	(0.0144)	(0.00708)	(0.0136)
Election Year * Margin of Victory	3.211**	3.400**	0.00429	0.0000568	0.0226	0.0166	-0.152***	-0.147***
	(1.116)	(1.271)	(0.0239)	(0.0284)	(0.0169)	(0.0195)	(0.0151)	(0.0195)
Age (* Election)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Past Wins (* Election)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Party FE (* Election)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Individual FE	No	Yes	No	Yes	No	Yes	No	Yes
Observations	12747	12747	12747	12747	12747	12747	12747	12747

Standard errors in parentheses are cluster-robust at the individual level. * Significant at the 10% level. ** Significant at the 5% level. *** Significant at the 1% level. The party fixed effects categorize the parties into six categories (the big five national parties and the other regional party. *Past Wins* is the total number of wins in the past elections for him (her). *Margin of Victory* is demeaned.

Table A.5: Robustness Check for Count Data in Figure 4

Panel A: Poisson Model

	Frequency of							
	Yen		Years		Ambiguous Future		Specific Locations	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Election Year	0.823***	0.821***	-0.0824***	-0.0821***	0.283***	0.282***	0.262***	0.253***
	(0.0360)	(0.0357)	(0.0198)	(0.0198)	(0.0225)	(0.0224)	(0.0309)	(0.0304)
Margin of Victory		0.339**		0.124*		0.0196		0.385***
		(0.111)		(0.0587)		(0.0602)		(0.0855)
Election Year * Margin of Victory		0.105		-0.161+		0.215*		0.329*
		(0.190)		(0.0904)		(0.104)		(0.144)
Constant	1.738***	1.736***	2.871***	2.871***	1.808***	1.808***	1.782***	1.779***
	(0.0263)	(0.0262)	(0.0132)	(0.0132)	(0.0141)	(0.0141)	(0.0199)	(0.0197)
Observations	12799	12799	12799	12799	12799	12799	12799	12799

Panel B: Negative Binomial Model

	Frequency of							
	Yen		Years		Ambiguous Future		Specific Locations	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Election Year	0.823***	0.820***	-0.0824***	-0.0821***	0.283***	0.282***	0.262***	0.254***
	(0.0360)	(0.0357)	(0.0198)	(0.0198)	(0.0225)	(0.0224)	(0.0309)	(0.0304)
Margin of Victory		0.326**		0.125*		0.0201		0.383***
		(0.108)		(0.0593)		(0.0618)		(0.0854)
Election Year * Margin of Victory		0.122		-0.163+		0.219*		0.304*
		(0.192)		(0.0939)		(0.106)		(0.141)
Constant	0.971***	0.968***	-0.0965***	-0.0970***	0.0144	0.0138	0.644***	0.639***
	(0.0199)	(0.0199)	(0.0186)	(0.0186)	(0.0205)	(0.0205)	(0.0211)	(0.0209)
Observations	12799	12799	12799	12799	12799	12799	12799	12799

Standard errors in parentheses are cluster-robust at the individual level. * Significant at the 10% level. ** Significant at the 5% level. *** Significant at the 1% level. Panel A adopts a Poisson model and B adopts a Negative Binomial Model. *Margin of Victory* is demeaned.

Table A.6: Who Made Statements

	Stated or Not		
	(1)	(2)	(3)
Election Year	-0.0668***	-0.0670***	-0.171***
	(0.00650)	(0.00650)	(0.0464)
Margin of Victory		0.112***	0.00927
		(0.0230)	(0.0312)
Election Year * Margin of Victory		-0.000435	0.0121
		(0.0318)	(0.0358)
Age (* Election)	Yes	Yes	Yes
Past Wins (* Election)	No	No	Yes
Party FE (* Election)	No	No	Yes
Individual FE	No	No	Yes
Observations	26184	26184	26084

Standard errors in parentheses are cluster-robust at the individual level. * Significant at the 10% level. ** Significant at the 5% level. *** Significant at the 1% level. *Margin of Victory* is demeaned. *Stated or Not* is a dummy variable that takes one if politician stated something in the assembly. The unconditional mean is 0.49.

Table A.7: Robustness Checks for Table 2

	Attendance		Attendance Ratio	
	(1)	(2)	(3)	(4)
Election Year	-0.118	-0.0998	-0.000189	-0.00859
	(0.217)	(0.265)	(0.0191)	(0.0233)
Margin of Victory	-0.0901	0.0348	-0.0103	-0.0133
	(0.0874)	(0.141)	(0.00769)	(0.0109)
Election Year * Margin of Victory	0.177	0.248	0.00751	0.00467
	(0.168)	(0.204)	(0.0132)	(0.0157)
Age (* Election)	Yes	Yes	Yes	Yes
Past Wins (* Election)	Yes	Yes	Yes	Yes
Party FE (* Election)	Yes	Yes	Yes	Yes
Observations	12747	12747	12747	12747

Standard errors in parentheses are cluster-robust at the individual level. * Significant at the 10% level. ** Significant at the 5% level. *** Significant at the 1% level. *Margin of Victory* is demeaned. *Attendance* is defined as the number of attendances to the meeting of committees they are assigned to. *Attendance Ratio* is defined as *Attendance* divided by the total number of their committees' meeting. The mean of *Attendance* (*Attendance Ratio*) is 3.97 (0.931) and the standard deviation of *Attendance* (*Attendance Ratio*) is 1.53 (0.130). See Table A.4 for the definition of the other control variables.

Table A.8: Regression Result for Figure 6

Panel A. Outcome: Win in the Next Election

	Explanatory Variables												
	Average Amount of Stated Yen (Log)			Frequency of			Distance from		Time Horizon			Frequency	Consistency to
	All	Suggestion	Liabilities	Yen	Ambiguous Future	Specific Location	the Previous Year Topic	Topic Concentration	Future	Past	Total	of Year Year	Realized Budget
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Other	-0.00468^{+}	-0.00739*	0.00394	-0.00539***	-0.00185	-0.000743	0.129^{+}	0.0320	-0.000916	-0.0000447	-0.000490	0.000630	-0.0761
	(0.00259)	(0.00287)	(0.0121)	(0.00120)	(0.00187)	(0.00152)	(0.0686)	(0.0838)	(0.00289)	(0.000370)	(0.000777)	(0.000720)	(0.0835)
Election	-0.00104	-0.000714	-0.0193*	0.00361***	0.00578***	0.00312***	0.0722*	0.146*	-0.0531***	0.000128	-0.000100	-0.00149*	-0.769***
	(0.00209)	(0.00230)	(0.00969)	(0.000332)	(0.000827)	(0.000698)	(0.0361)	(0.0597)	(0.0148)	(0.000303)	(0.000686)	(0.000639)	(0.0853)
Constant	0.877***	0.951***	0.998*	0.749***	0.727***	0.743***	0.731***	0.716***	0.843***	0.758***	0.757***	0.775***	0.940***
	(0.0724)	(0.0779)	(0.402)	(0.0116)	(0.0148)	(0.0128)	(0.0134)	(0.0231)	(0.0241)	(0.0104)	(0.0117)	(0.0158)	(0.0301)
Observations	1250	877	132	2212	2212	2212	2212	2212	1566	1950	1478	2212	2212
Testing the Difference	0.317	0.102	0.147	0.000	0.001	0.044	0.521	0.344	0.001	0.741	0.732	0.059	0.000

Panel B. Outcome: Hold the Office

	Explanatory Variables												
	Average Amount of Stated Yen (Log)			Frequency of			Distance from		Time Horizon			Frequency	Consistency to
	All	Suggestion	Liabilities	Yen	Ambiguous Future	Specific Location	the Previous Year Topic	Topic Concentration	Future	Past	Total	of Year Year	Realized Budget
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Other	-0.000243	-0.00239	0.000536	-0.00333***	0.000252	-0.00191	0.0616	0.0680	-0.000154	-0.000351*	-0.000848*	0.00106*	-0.0356
	(0.00201)	(0.00208)	(0.0102)	(0.00100)	(0.00145)	(0.00130)	(0.0532)	(0.0685)	(0.00214)	(0.000145)	(0.000329)	(0.000525)	(0.0666)
Election	0.00164	0.00189	-0.00265	0.00255***	0.00594***	0.00346***	-0.00452	-0.0142	-0.0231^{+}	-0.000189	-0.000457	0.000274	-0.421***
	(0.00163)	(0.00176)	(0.00899)	(0.000276)	(0.000613)	(0.000515)	(0.0300)	(0.0505)	(0.0132)	(0.000160)	(0.000377)	(0.000478)	(0.0826)
Constant	0.830***	0.893***	0.861*	0.861***	0.827***	0.860***	0.870***	0.863***	0.910***	0.871***	0.873***	0.853***	0.968***
	(0.0596)	(0.0614)	(0.338)	(0.00989)	(0.0128)	(0.0110)	(0.0111)	(0.0192)	(0.0198)	(0.00856)	(0.00965)	(0.0132)	(0.0248)
Observations	1070	753	99	1925	1925	1925	1925	1925	1358	1686	1278	1925	1925
Testing the Difference	0.494	0.145	0.825	0.000	0.001	0.001	0.336	0.406	0.089	0.495	0.501	0.335	0.000

Standard errors in parentheses are cluster-robust at the individual level. * Significant at the 10% level. ** Significant at the 5% level. *** Significant at the 1% level. Each column represents the statement variable to predict the outcome variable. *Election* is the statement variable in the election year and *Other* is the mean of the statement variable in the other years. *Testing the Difference* shows p-value of the hypothesis test that the coefficients are the same between *Election* and *Other*.

Table A.9: Statements and Winning Probability: Full sample vs. Excluding Freshmen

Explanatory Variable:	Average Amount of Stated Yen (Log)								
	All			Suggestion			Liabilities		
Panel A:	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Other	-0.000243	-0.00274		-0.00239	-0.00287		0.000536	0.00391	
	(0.00201)	(0.00201)		(0.00208)	(0.00225)		(0.0102)	(0.0117)	
Election	0.00164	0.000799		0.00189	-0.000423		-0.00265	-0.00482	
	(0.00163)	(0.00174)		(0.00176)	(0.00173)		(0.00899)	(0.0109)	
Past Election			-0.00215			-0.00300^{+}			0.00137
			(0.00189)			(0.00174)			(0.00658)
Constant	0.830***	0.953***	0.952***	0.893***	1.004***	0.982***	0.861*	0.843*	0.842***
	(0.0596)	(0.0614)	(0.0474)	(0.0614)	(0.0637)	(0.0426)	(0.338)	(0.413)	(0.167)
Observations	1070	599	717	753	425	582	99	58	178
Testing the Difference	0.494	0.209	0.255	0.145	0.417	0.085	0.825	0.603	0.835

Explanatory Variable:	Frequency of Yen			Frequency of Ambiguous Future			Frequency of Specific Location		
Panel B:	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Other	-0.00333***	-0.00424**		0.000252	-0.000681		-0.00191	-0.00160	
	(0.00100)	(0.00131)		(0.00145)	(0.00164)		(0.00130)	(0.00139)	
Election	0.00255***	0.00302***		0.00594***	0.00392***		0.00346***	0.00235***	
	(0.000276)	(0.000415)		(0.000613)	(0.000640)		(0.000515)	(0.000587)	
Past Election			-0.000476			0.00164*			-0.000693
			(0.000425)			(0.000829)			(0.000893)
Constant	0.861***	0.905***	0.910***	0.827***	0.883***	0.891***	0.860***	0.903***	0.908***
	(0.00989)	(0.0115)	(0.0102)	(0.0128)	(0.0146)	(0.0116)	(0.0110)	(0.0124)	(0.0105)
Observations	1925	1060	1150	1925	1060	1150	1925	1060	1150
Testing the Difference	0.000	0.000	0.263	0.001	0.021	0.048	0.001	0.016	0.438

Explanatory Variable:	Distance from the Previous Year Topic			Topic Concentration			Time Horizon (Future)		
Panel C:	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Other	0.0616	0.0902		0.0680	-0.0144		-0.000154	0.000686	
	(0.0532)	(0.0583)		(0.0685)	(0.0849)		(0.00214)	(0.00236)	
Election	-0.00452	-0.0167		-0.0142	-0.0192		-0.0231^{+}	-0.0281^{+}	
	(0.0300)	(0.0350)		(0.0505)	(0.0556)		(0.0132)	(0.0168)	
Past Election			0.0447			0.100*			0.0175***
			(0.0320)			(0.0398)			(0.00528)
Constant	0.870***	0.905***	0.894***	0.863***	0.921***	0.876***	0.910***	0.952***	0.878***
	(0.0111)	(0.0123)	(0.0117)	(0.0192)	(0.0232)	(0.0152)	(0.0198)	(0.0260)	(0.0145)
Observations	1925	1060	1150	1925	1060	1150	1358	738	843
Testing the Difference	0.336	0.189	0.162	0.406	0.967	0.012	0.089	0.087	0.001

Explanatory Variable:	Time Horizon (Past)			Time Horizon (Total)			Frequency of Year		
Panel D:	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Other	-0.000351*	-0.000379*		-0.000848*	-0.000872*		0.00106*	0.000359	
	(0.000145)	(0.000164)		(0.000329)	(0.000350)		(0.000525)	(0.000556)	
Election	-0.000189	-0.00000823		-0.000457	-0.000109		0.000274	-0.000202	
	(0.000160)	(0.000184)		(0.000377)	(0.000445)		(0.000478)	(0.000567)	
Past Election			0.000111			0.000105			0.000508
			(0.000324)			(0.000649)			(0.000482)
Constant	0.871***	0.914***	0.905***	0.873***	0.912***	0.903***	0.853***	0.909***	0.896***
	(0.00856)	(0.00962)	(0.00953)	(0.00965)	(0.0110)	(0.0107)	(0.0132)	(0.0150)	(0.0120)
Observations	1686	920	1017	1278	700	799	1925	1060	1150
Testing the Difference	0.495	0.198	0.732	0.501	0.276	0.871	0.335	0.532	0.293

Explanatory Variable:	Consistency to the Realized Budget		
Panel E:	(1)	(2)	(3)
Other	-0.0356	-0.0708	
	(0.0666)	(0.0698)	
Election	-0.421***	-0.446***	
	(0.0826)	(0.100)	
Past Election			0.141^{+}
			(0.0843)
Constant	0.968***	1.020***	0.876***
	(0.0248)	(0.0270)	(0.0196)
Observations	1925	1060	1150
Testing the Difference	0.000	0.002	0.095

Column (1) uses the full sample and columns (2) – (3) only use those who win more than once ($win_{ijk} = 1$ for some $k \leq t-1$). Columns (1), (4), and (7) in each panel replicate the result of Table A.8. Columns (3), (6), and (9) in each panel use the previous election year's statement ($statement^{elec}_{ijt-1}$) as an explanatory variable. *Testing the Difference* shows p-values when testing the coefficients of Other and *Election* are the same in columns (1), (2), (4), (5), (7), and (8). In the other columns, it shows p-values when testing *Election* is equal to zero.

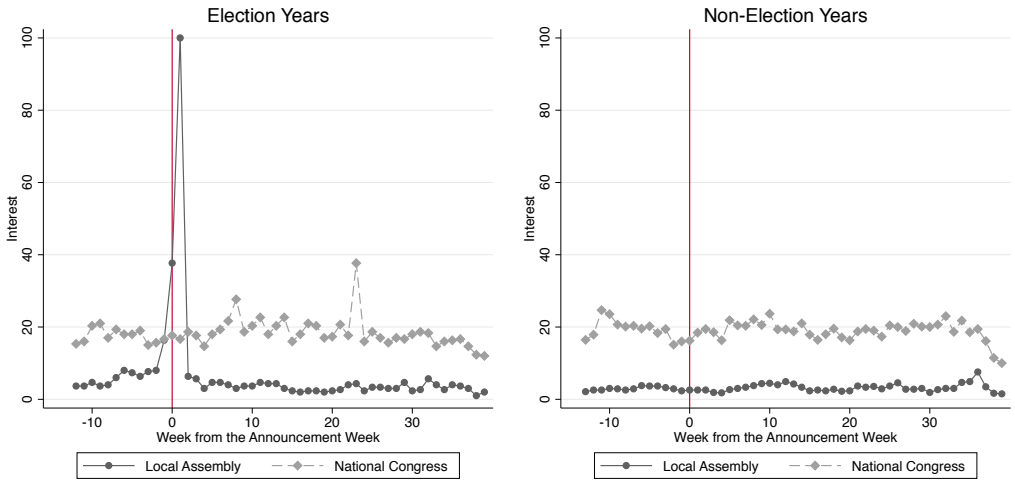

Figure A.1: Google Interest on Local and Central Politics

Notes: We construct each point by (1) obtaining relative weekly interest for each word (local assemblies or "kengikai" and national congress or "kokkai") during 2003–2006, 2007—2010, 2011–2014 respectively and (2) taking averages over the years for election years and non-reelection years respectively and (3) plotting those averages based on week from the announcement date, which the vertical line shows. We impute a typical week of announcement date (the 15th week) for non-election years. On the announcement date, candidates have to register, and the voting date is set. The voting dates are nine days after the announcement date in our sample period.

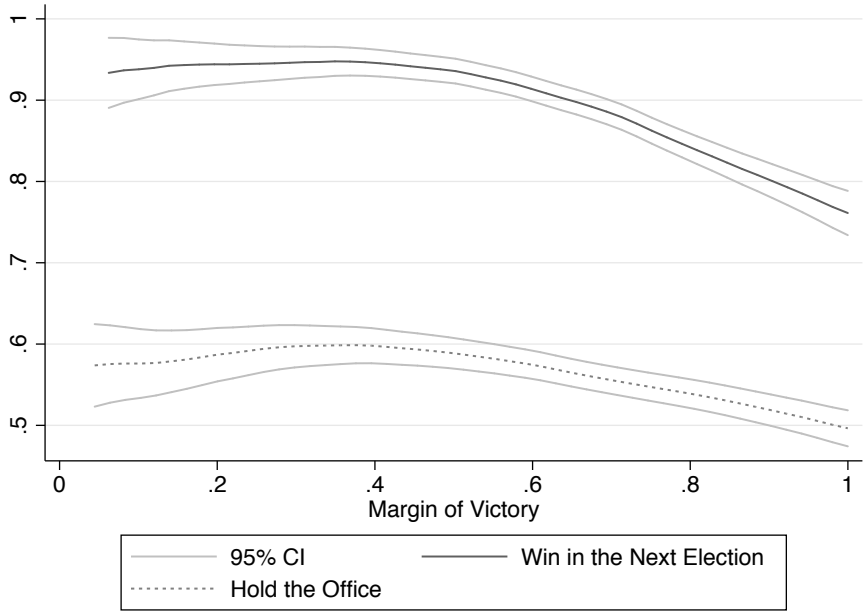

Figure A.2: Previous Election Result and Holding the Office / Winning Probability

Note: *Margin of Victory* is defined as the vote of politician i in the previous election divided by the strongest loser in politician i's electoral district in the previous election. *Win in the Next Election* takes 1 if (s)he runs for office and wins in the next election, 0 if (s)he loses in the election, and missing if (s)he does not run for office at all. *Hold the Office* takes 1 if (s)he holds office in the next term. We use local polynomial estimators to predict point estimates and 95 percent confidence intervals.

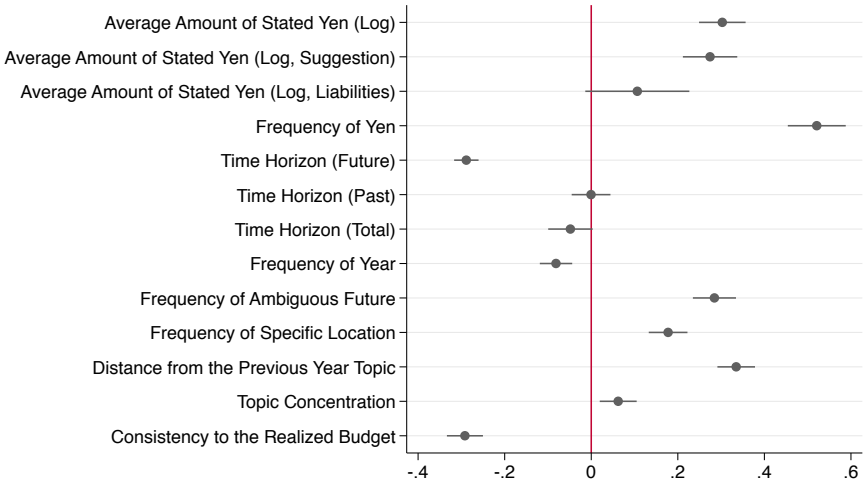

Figure A.3: Figure 2 Including Elected-without-Voting Politicians

Each symbol shows the point estimate of the coefficient while regressing a normalized statement variable in the corresponding caption on the election year dummy. Lines show 95 percent CIs calculated by individual-level cluster-robust standard errors. We include the politicians who were elected without a vote or by by-elections unlike Figure 2.

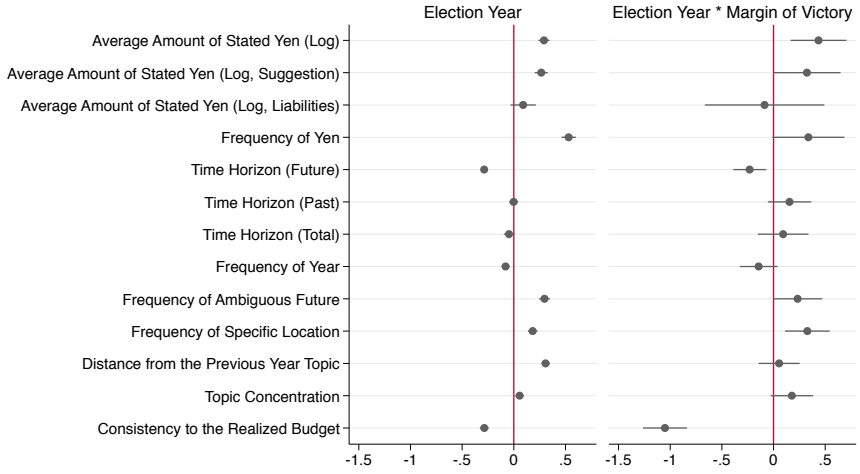

Figure A.4: Controlling for Mayor Elections to Figure 4

Note: Each symbol shows the point estimate of the coefficients while regressing a normalized statement variable in the corresponding caption on the election year dummy (the left panel) and its interaction term with demeaned *Margin of Victory* variable (the right panel). Lines show 95 percent CIs calculated by individual-level cluster-robust standard errors. We add a dummy variable that takes one if there is mayor election in the year to the analysis in Figure 4.