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Redefining political discourses and reconstructing social bonds: How Japanese Diet Members use Twitter as a complement to their political activities

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Abstract

The aim of this paper is to redefine online political activities and reconstruct social bonds by focusing on social media, particularly Twitter. The focus is on Diet members' activities, comparing and contrasting their online Twitter activity and offline statements in the National Diet (consisting of the House of Representatives and House of Councillors) to discern how the former may or may not complement the latter. We examine how the abovementioned redefinition and reconstruction stems from the differences between the two worlds. In terms of methodology, this paper employs a coding analysis of policy topics and political topics to examine how Diet members deploy them in the Diet and on Twitter. We assume that Diet members generally speak of policy topics in the Diet and political topics on Twitter, since the Diet committees call for specialized and technical policy debates, whereas, due to the public nature of Twitter, they will speak in more generally understandable terms on that platform in order to appeal to their audience. We analyze these hypotheses according to the coding rules for policy and political statements, as well as explore how the differences occur according to party, regions of constituency, numbers being elected, age, job before becoming a Diet member, and membership of committees.

Keywords: Japanese politics, political discourses, political communication, Twitter, social media, coding analysis, qualitative and quantitative text analysis

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1. Introduction

Many Diet members engage in online platforms, such as Twitter, Facebook, and blogs, as part of their political activities. What do they say on these platforms? Are their online discourses different from those in the real world, for example, in Parliament? The aim of this paper is to redefine online political discourses and the reconstruction of social bonds among Diet members' followers. We compare and contrast members' online Twitter activity and offline movements in the National Diet (consisting of the House of Representatives and House of Councillors) to determine how the former complements (in other words, redefines and reconstructs) the latter.

This paper focuses on Twitter, which is one of the most popular social networks in Japan; one tenth of all Twitter users are from Japan, and one quarter of the Japanese population uses this platform. Accordingly, it is one of the best tools that Diet members can use to gain popular support. As stated above, we focus on members of the Diet (hereafter referred to as Diet members) to analyze the similarities and differences between their statements, ideas, arguments, and discourses online (on Twitter) and offline (in the Diet). Diet members usually belong to several committees, which are organized according to policy issues, such as the budget, foreign affairs, financial affairs, judicial affairs, and so on. They are assigned to a particular committee on the basis of their policy expertise and experience. In these committees, members debate and develop policy arguments in order to affirm or oppose proposed bills. In contrast, in social media networks, such as Twitter, they address their supporters on broad topics and are not confined to their area of expertise. By comparing offline and online discourses, this paper attempts to reformulate the definition of online political debate and assess the reconstruction of social bonds.

The methodology employed in this paper is a quantitative text analysis using the coding of texts according to policytopics (such as diplomacy, security, and economy) and politicaltopics (such as cabinet, government, and election issues). The concept behind this coding is that the former relate to statements concerning specific policies, whereas the latter encompass utterances on the current political situation and the broader interests of society. This paper explores which topics (policy or political) are dominant in the Diet and on Twitter. Through this examination, this paper evaluates how online discourse complements (or otherwise relates to) offline conversations by broadening the scope of Diet members' policy positions and political support.

The remainder of this paper is organized as follows. Section 2 examines previous studies on politics and social media. Section 3 proposes the four hypotheses tested in this research. Section 4 explains the methodology for comparing Diet and

Twitter activities. Section 5 presents the key findings, and finally, Section 6 offers some concluding remarks.

2. Previous Studies

There have been numerous notable studies that have focused on the role and function of social media as it is used for political activities. Many of these studies in political communication have focused on election campaigns and the related political engagement of citizens.

McClurg's studies provide a theoretical basis. He has not focused on social media but examined social networking as a whole in exploring and improving political participation. He particularly has examined how social interactions create opportunities for individuals to gather information about politics.[1]

For social media, there are many studies that have focused on election campaigns. Carlisle and Patton examined the 2008 presidential election in the United States and the use of Facebook for political engagement and participation.[2] Likewise, Conover et al. focused on the 2010 U.S. congressional midterm elections and uncovered how social media shaped the networking public sphere and promoted political communication.[3] Aragón et al. also focused on Twitter in the 2011 Spanish national election,[4] and Effing et al. examined the 2011 election in the Netherlands, focusing on social media platforms that increased political participation (Twitter, Facebook, and YouTube).[5]

There are also non-election studies that have discussed political participation. Obar et al. focused on advocacy groups and how they have used social media to increase civic engagement and initiate collective action.[6] Van Der Meer et al. discussed

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1 Scott McClurg, "Social Networks and Political Participation: The Role of Social Interaction in Explaining Political Participation," *Political Research Quarterly*, 56(4), 2003, pp. 449-464.

2 Juliet Carlisle and Robert Patton, "Is Social Media Changing How We Understand Political Engagement? An Analysis of Facebook and the 2008 Presidential Election," *Political Research Quarterly*, 66(4), 2013, pp. 883-895.

3 M. D. Conover, J. Ratkiewicz, M. Francisco, B. Goncalves, A. Flammini, F. Menczer, "Political Polarization on Twitter," *Proceedings of the Fifth International AAAI Conference on Weblogs and Social Media*, 2011, pp. 89-96.

4 Pablo Aragón, Karolin Eva Kappler, Andreas Kaltenbrunner, David Laniado, and Yana Volkovich, "Communication Dynamics in Twitter During Political Campaigns: The Case of the 2011 Spanish National Election," *Policy and Internet*, 5(2), 2013, pp. 183-206.

5 Robin Effing, Jos van Hillegersberg, and Theo Huibers, "Social Media and Political Participation: Are Facebook, Twitter and YouTube Democratizing Our Political Systems?," *Electronic Participation: Third IFIP WG 8.5 International Conference, ePart 2011, Delft, The Netherlands, August 29 – September 1, 2011. Proceedings*, 2011, pp. 25-35.

6 Jonathan Obar, Paul Zube and Clifford Lampe, "Advocacy 2.0: An Analysis of How

government agencies and how government has used and implemented e-Government programs in order to improve government-citizen dialogue.[7] More interestingly, Conway et al. focused on the 2012 presidential primary candidates of the United States, but they went further to examine Twitter feeds as agenda-setting effects: the candidates' twitter feeds indicated the necessary and future political agendas, and they influenced traditional media and other offline political activities.[8]

In these previous studies, two things should be noted. First, most of the studies have focused on election campaigning and its process of political participation. Secondly, non-election studies also have explored political engagement and participation. This means that previous studies have concentrated on political communication from the recipient side rather than the donor side, in that they have examined how people receive messages from governments and political agencies and react toward them in political situations. By contrast, the present study focuses on the donor side: how do politicians, more specifically Diet members, use Twitter as a tool in their political activities. In particular, this study compares their utterances within the Diet and on Twitter.

This study is unique in that it attempts to focus on everyday political communication rather than election-focused communication from the donor's side by looking at how politicians exploit social media for their political activities. By focusing on those aspects, we can explore everyday's practices between the donors and recipients of political messages (i.e., politicians and the people) and uncover how political power functions in social media.

3. Hypothesis

In this study, we investigate the statements of Diet members, both in the Diet and on Twitter, through two different frameworks: policy topics and political topics. Detailed explanations will be given in the Methodology section, but briefly, policy topics relate to utterances concerning concrete policies, whereas political topics denote those regarding current political situations and the wider interests of society. There are four hypotheses to be examined below.

Advocacy Groups in the United States Perceive and Use Social Media as Tools for Facilitating Civic Engagement and Collective Action," *Journal of Information Policy*, vol. 2, 2012, pp. 1-25.

[7] Toni G.L.A. van der Meer, Dave Gelders and Sabine Rotthier, "e-Democracy: Exploring the Current Stage of e-Government," *Journal of Information Policy*, vol. 4, 2014, pp. 489-506.

[8] Bethany A. Conway, Kate Kenski, and Di Wang, "The Rise of Twitter in the Political Campaign: Searching for Intermedia Agenda-Setting Effects in the Presidential Primary," *Journal of Computer-Mediated Communication*, vol. 20, 2015, pp. 363–380.

Hypothesis 1: Policy topics outnumber political topics in the Diet.
The first two hypotheses are very simple, concerning which topics (policy or political) dominate in the Diet (hypothesis 1) and on Twitter (hypothesis 2). First, we assume that Diet members talk much more about policy than political topics in the Diet, because they belong to specialized committees and tend to participate in refined and technical policy debates.

Hypothesis 2: Political topics outnumber policy topics on Twitter.
By contrast, we can assume that political topics are discussed to a greater extent than policy topics on Twitter. This is simply because, as Diet members speak to the general public and voters in each constituency via Twitter, they will speak about political issues and situations in far broader terms that most people will understand.

By combining hypotheses 1 and 2, we can formulate the following:

Hypothesis 3: Diet Members tend to speak about policy topics in the Diet and political topics on Twitter.
However, variations are, of course, possible. Some Diet members may combine their activities in both environments and speak of policy or political topics both in the Diet and on Twitter (e.g. alternative hypothesis). We can easily imagine that Diet members use Twitter to appeal to the public and as an advertising tool for their Diet activities (see Table 1).

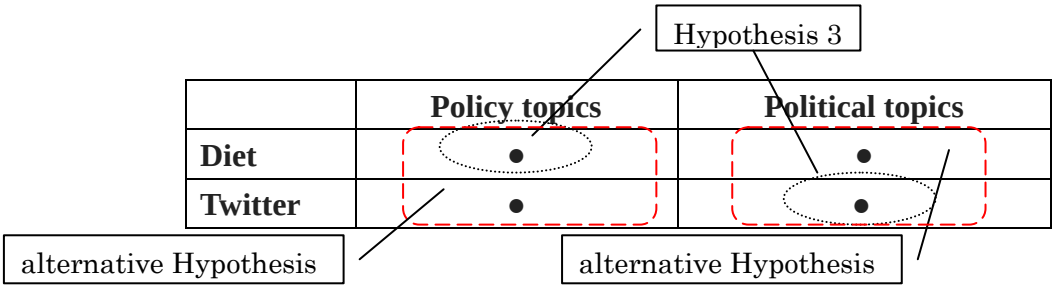


Table 1: Hypothesis 3 and alternative hypotheses

For the purpose of examining these hypotheses, this paper examines the proportion of policy and political topics in the Diet and on Twitter according to a number of attributes of Diet members, such as party, constituency, numbers of those elected, age, jobs before becoming a Diet member, and Diet committees to which they belong.

Hypothesis 4: The governing party tends to converse on policy topics in the Diet and political topics on Twitter, whereas the opposition parties stick to political

topics in both.

This hypothesis focuses largely on party politics. It is based on the following argument. Because the governing party possesses the majority of seats in the Diet and can overrule the others at will, the opposition parties have nothing to gain from policy debates and Diet management. Accordingly, their best strategy is to mobilize public opinion and pressure the governing party. Against this backdrop, they speak broadly of political topics in both arenas to criticize the present cabinet and current political situation.

This paper will investigate these four hypotheses by examining and comparing Diet members' utterances in Diet and on Twitter. We will explain the methodology in detail in the next section.

4. Methodology for comparing Diet and Twitter

This section explains the methodology for comparing statements in the Diet and on Twitter. The first part shows how we obtain data from the Diet and Twitter, the second part contends the search engine for using the preliminary survey, and finally, the third part explains the analyses using coding rules, and policy rate and political rate, which describe the proportion of policy and political topics.

4.1 The data

4.1.1 National Diet Members of Japan

The data used in this study are Twitter posts (tweets) and statements in parliament of National Diet members of Japan. We first created a list of Diet members from the Diet official website.[9] Subsequently, we created a list of Diet members' Twitter accounts based on profile searches on Twitter and information provided on the official websites of Diet members. We also searched official databases and made a list of members' parties, their constituencies, numbers of those elected, ages, previous jobs before becoming Diet members, and Diet committees to which they belong.

4.1.2. Getting tweets

To obtain the Twitter data, Twitter Rest API[10] was employed through Python using the Tweepy library. This API allowed us to collect tweets when the twitter ID was specified.

9 The following pages were used to make the list of Diet members. For House of Representatives, http://www.shugiin.go.jp/internet/index.nsf/html/index.htm; for House of Councillors, http://www.sangiin.go.jp/ All Diet information, including its members, is based on 28 April 2016 on the House of Representatives, and on 17 May 2016 on the House of Councilor. In addition, the Last modify date for all websites this paper refers to is 22 August 2016. The same shall apply hereinafter.

10 https://api.twitter.com/1.1/search/tweets.json

Tweepy then downloaded the tweets by each Diet member in text format one by one. We excluded retweets and replies,[11] because they usually do not contain meaningful information. The target period was from January 24, 2014 to June 1, 2016 (this period is in accordance with Diet sessions). Of the Diet members, 247 out of 727 members had twitter accounts and 228 had tweets during that period. The total number of tweets collected was 178,706, with an average number of 784 tweets per person.

4.1.3. Getting statements in the Diet

There is an official online database of statements in parliament.[12] An API[13] is available for searching statements containing particular keywords and by individual. Using the list of members who had tweets in the target period, the search results for these members were obtained in XML format, which were then converted to plain text format using a Perl XML parser called XML::LibXML. Note that the same target period (January 24, 2014 – June 1, 2016) was selected for statement data. As a result, 246 members were identified as making statements during this period, with a total number of statements of 1,294.

4.2 Constructing a search engine

To observe the collected data in more detail, a search engine was created based on a program called GETA.[14] The sentences were divided into words and POS-tagged using MeCab, a morphological analyzer.[15] During this process, we created a list of compound nouns from the words tagged as nouns, and the list was used as a dictionary. This made it possible to treat noun chunks properly. For example, Kokkai Giin (Diet members) was treated as one word, which leads to more natural chunking in terms of meaning. Simultaneously, this included meaningless combinations, such as Kokkai To (Diet party), but these combinations can be ignored in the analysis because of their low frequency. The coding rules were integrated into this search engine with which we could conduct specific searches.

The search engine was used mainly for preliminary surveys. For example, by looking at the keyness of the words, which is calculated by the system, we could obtain a

11 This category includes "mention" or to comment upon another tweet (In twitter, "reply" is a response to somebody's tweet, and "mention" is to comment or refer to somebody as as an original tweets).
12 http://kokkai.ndl.go.jp
13 http://kokkai.ndl.go.jp/api/1.0/speech?{search_condition}
14 http://geta.ex.nii.ac.jp/geta.html
15 http://taku910.github.io/mecab/ Since there is little clear boundary between words in Japanese language, Mecab is needed to divide words based on dictionary.

list of keywords for each party or for each generation of Diet members. These results opened avenues for further analyses, which will be discussed below.

4.3 Analyses using coding rules

4.3.1 Coding Rules

Our coding rule is shown in Appendix I (table 5). The coding rule consists of two parts: the policy index and the political index. The policy index includes 23 subsidiary codes. We created this coding rule based on the code book of the *Comparative Agendas Project*.[16] The basic concept is to signify which words typically indicate particular policies.

The political index consists of five subsidiary codes. We created this coding rule using the following steps. First, one of our co-author, an expert in Political Science, specified four main categories of political topics: "politics," "election," "government," and "cabinet," which were assumed to be key utterances describing Japanese politics. Secondly, we used search engines for Diet and Twitter utterances, as mentioned in 4.2, and listed frequently used words for each of the four categories of political topics. Then, we selected keywords for each category. In addition, the category "discourse" was added; it lists the cabinet slogan and the political discourses by the LDP and the Abe administration. (We also searched for and listed frequently used words in such discourses).

4.3.2. Analyses of Policy Rate and Political Rate

We analyzed Diet members' deviation of policy/political indexes in both Diet and Twitter utterances based on each attribute of Diet members: party, constituency, numbers of those elected, age, job before becoming a Diet member, and Diet committees to which they belong.[17] According to the coding rule (Appendix I), we calculated the appearances of relevant key words in policy/political indexes and evaluated policy rates based upon the ratio of the appearance of the relevant key words.[18] The policy rate was calculated as follows:

16 http://www.comparativeagendas.net/pages/master-codebook

17 For the purpose of comparing the utterances between the Diet and Twitter, we only focused on the Diet members who made statements in the Diet and tweeted during the period between January 24, 2014 – June 1, 2016.

18 In this methodology, we calculated the appearances of relevant words for each code. As some keywords overlapped in several codes (e.g. tax, regulation, support), these words are counted by several codes and would be statistical evidence, including numbers of appearances of other words. That is, (1) it does not make statistical differences between codes including

$$\text{Policy Rate} = \frac{\text{numbers of words for Policy index}}{\text{numbers of words for Policy index} + \text{numbers of words for Political index}}$$

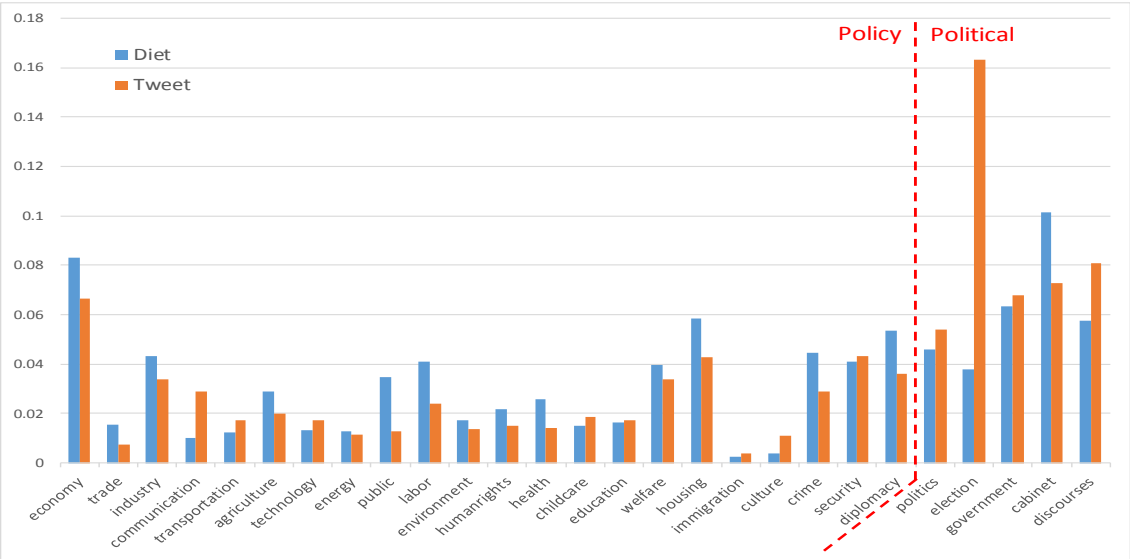
On the other hand, the political rate was calculated as follows:

$$\text{Political Rate} = \frac{\text{numbers of words for Political index}}{\text{numbers of words for Policy index} + \text{numbers of words for Political index}}$$

This means that the sum of the policy rate and the political rate will always be 1. (1- policy rate) should be the political rate. In the measurements of this paper, we always use policy rate for analyses. Because policy rate and political rate are in inverse proportion, we can know the proportion of policy rate and political rate by the calculated policy rate.

4.3.3 Tendency of each code

According to the coding rule of Appendix I, the following graph shows the ratio of words in each code for Diet and Twitter utterances. The ratio was calculated as follows: the frequency of the words in each code divided by the number of utterances. The graph shows majority of policy coding was uttered in the Diet and the majority of political coding was uttered on Twitter (we will explain later in more detail in Section 5).



Graph 1: Tendency of each code in the Diet and on Twitter

overlapped words, and (2) a code with overlapped words is statistically significant to a code without such words.

5. Key findings and Examinations

As Section 3 shows the four hypotheses and Section 4 explains the key methodology for our analyses, this Section confirms the key findings, examines the validity of the hypotheses, and attempts to examine the content analysis of tweets.

5.1 Background Information

This part of the section summarizes the basic background of this study, especially the proportion of Diet members using Twitter. Further general information is attached in Appendix II: the proportion of Diet members using Twitter by party, regions of constituency, numbers elected, age, job before becoming a Diet member, and membership in committees. Accordingly, around 30% of members in the House of Representatives and 40% of those in the House of Councillors have registered Twitter accounts. As mentioned in Section 4.1.2, 247 out of 727 Diet members have accounts, and 228 tweeted during the period between January 24, 2014, and June 1, 2016 (so the active participation rate is more than 90%).

Table 6-1 of Appendix II focuses on the proportion of Twitter users by party. Regarding the major parties in the Diet, KOMEI scores (37.14%) and the Democratic Party (DP, 40.63%) are much higher than average (31.58%) in the House of Representatives, though the Liberal Democratic Party (LDP, 31.03%) is below average.[19] In the House of Councillors, the KOMEI (80%), DP (40.63%), Communist Party (JCP, 54.55%), and Osaka Restoration Association (OSAKA, 50%) are higher than average (40.33%), while the LDP (31.03%) is below that. For the proportion using Twitter, the House of Councillors is higher than the House of Representatives and the opposition party (with the exception of KOMEI).

Table 6-2 shows the proportion of Twitter users by regions of constituency. The regions of constituencies, such as South-Kanto (the electoral zone of the House of Representatives, 51.52%; that of the House of Councillors, 60%; and regional zones for proportional representation in the House of Representatives, 36.36%), Tokyo (60%, 60%, 52.94%), and Kinki (41.67%, 71.43%, 31.03%) are higher than the average score. In the House of Councillors, the electoral zones of Hokkaido (50%) and Tokai (53.33%) have a high score. That is, Diet members from urban areas tend to have Twitter accounts, for example, Tokyo, South-Kanto (including Yokohama), Kinki (including Osaka and Kyoto), and Tokai (including Nagoya).

Table 6-3 shows the proportion of Twitter users by number of years elected. In the House of Representatives, first-time elected members have a low score (11.90%),

19 The LDP and KOMEI have constituted the governing party in Japan since December 2012.

but second- (32%) and third-time members (50.91%) have high scores. After the fourth election, scores are moderate at around 30%, with the exception of eighth- (39.13%) and twelfth-time members (42.86%). This partially indicates that the proportion of members using Twitter gradually increases from the first and third times elected; afterwards, these figures become modest. Likewise, in House of Councillors, the first-time (43.44%) and second-time (43.28%) members already have high scores, and the fourth-time members' scores are quite high (53.33%).

Table 6-4 indicates the proportion of Twitter users by age. The trend is not big, but the younger generation has higher scores than the older one (80s has a high score, but it is a very limited sample). In the House of Representatives, those in their 30s (30%), 40s (37.29%), and 50s (36.36%) have high scores, and in the House of Councillors, the same generations have high scores (55.56%, 46.81%, and 50.00%).

Table 6-5 shows the proportion of users by previous job. Although it is somewhat difficult to discern a tendency here, Public Office (House of Representatives 39.73%, House of Councillors 54.84%), Employee (53.57%, 60.87%), Judicial (35%. 58.33%), Media (33.33%, 57.14%), Business (37.50%, 42.86%), and Professor (80%, 33.33%) have high scores.

Finally, Table 6-6 shows the proportion of Twitter users by Diet Committee. Diet members in the committees of Cabinet (50%, 45%), General Affairs (37.50%, 48%), Finance (45%, 56%), Health, Labor, and Welfare (HLW, 40%, 44%), Environment (30%, 40%), and Budget (42%, 52.11%), have very high scores. Moreover, committees like Foreign Affairs (House of Representatives, 60%), Security (House of Representatives, 40%), Foreign Affairs/Defense (House of Councillors, 42.86%), and Oversight (House of Councillors, 43.33%) indicate high scores.

5.2 Key Findings and Examinations of Hypothesis 1 and 2

As we explained in Section 3, Hypothesis 1 is that policy topics outnumber political topics in the Diet. Hypothesis 2 posits that political topics outnumber policy topics on Twitter. Section 4.3.3 shows the tendency of each code, compared between the Diet and Twitter. Graph 1 shows the frequency of policy and political topics both in the Diet and on Twitter. Tables 2 and 3 below indicate the concrete numbers of utterances for policy and political topics in the Diet and on Twitter and their policy and political rates, respectively. Policy coding outweighs political coding in the Diet and on Twitter, and thus, we can demonstrate the validity of hypothesis 1 but not of hypothesis 2. However, we can also note that while the political rate is less than 50% in the Diet and on Twitter, it is significantly higher on Twitter compared with that of the Diet (i.e., the political rate

on Twitter is greater than that of the Diet). Thus, for both the Diet and Twitter, policy topics are dominant. (The dominance of the policy rate is shown by the fact that the coding words for policy are much greater in number than those for the political [see Appendix I]; therefore, utterances categorized as policy utterances are much greater in number than those categorized as political.) However, the ratio of political topics on Twitter is much higher than that in the Diet. Hypothesis 1 is demonstrated, and we can slightly revise hypothesis 2: the policy rate is higher than the political rate, but the political rate on Twitter is significantly higher than in the Diet.

	Diet	Twitter
Policy topics	733,539	168,059
Political topics	323,140	131,119

Table 2: Utterances for policy and political topics in the Diet and on Twitter

	Diet	Twitter
Policy rate	0.694193	0.561736
Political rate	0.305807	0.438264

Table 3: Policy and political rates in the Diet and on Twitter

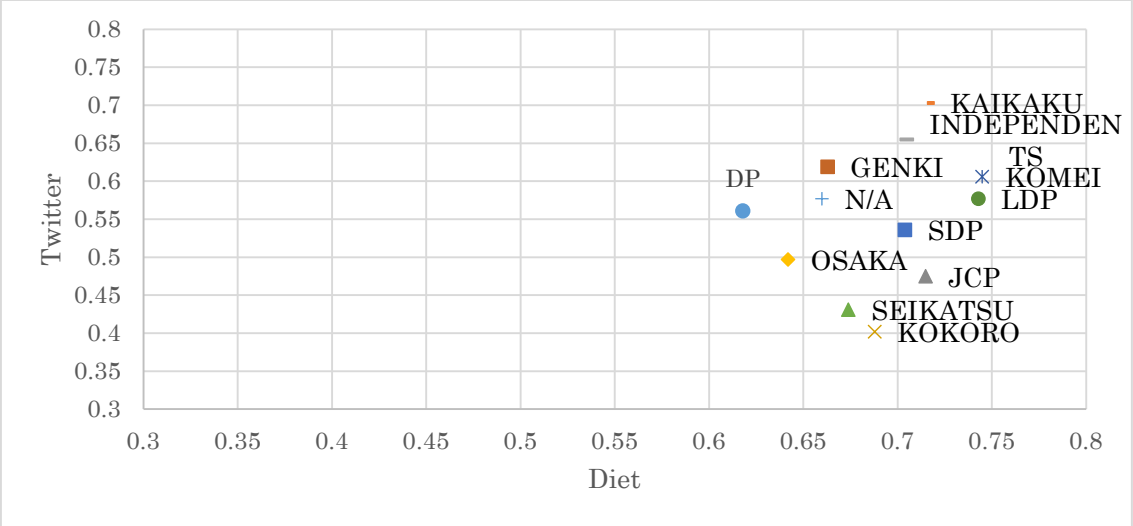
5.3 Key Findings and Examinations of Hypothesis 3

Hypothesis 3 argues that Diet members tend discuss policy topics in the Diet and political topics on Twitter. Section 4.3 introduces the coding rule and how we can calculate the policy rate (and the opposite rate of the political rate). Accordingly, we can test Hypothesis 3 by examining the policy rate of the Diet members (As we revised hypothesis 2: the policy rate is higher than the political rate, but the political rate on Twitter is significantly higher than in the Diet, hypothesis 3 may be need to be revised). The following passages describe how the Diet members tend to discuss to policy topics in the Diet and political topics on Twitter, according to party, regions of constituency, numbers of times elected, age, job before becoming a Diet member, and membership in committees.

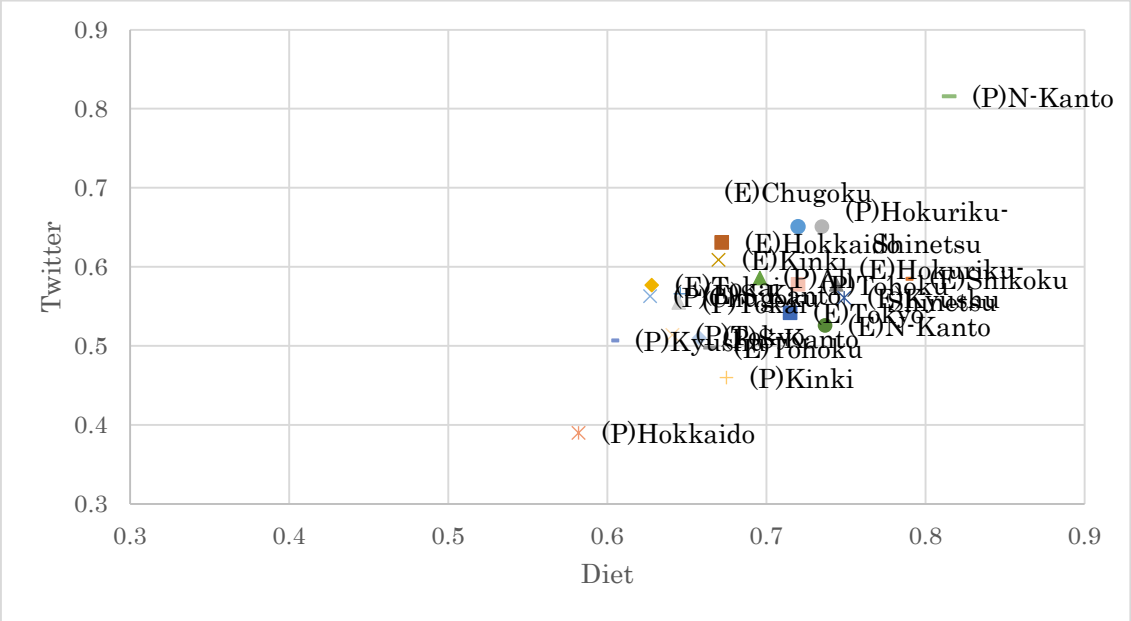
Graph 2 shows the policy rate by party. For the purpose of examination, we can group up the parties into four categories. The first category is the parties that tend to have high scores in the Diet and low scores on Twitter (conversely, it means the political rate is low in the Diet and high on Twitter). JCP is typical in its high policy rate in the Diet and low on Twitter, LDP and KOMEI have similar results. The second category is the parties that maintain comparatively low scores both in the Diet and on Twitter (such

as DP and OSAKA). The third category is, on the contrary, the parties that maintain high policy rates both in the Diet and on Twitter (as for KAIKAKU and INDEPENDENTS). Furthermore, the fourth category is the parties that have a high policy rate on Twitter and low in the Diet, but no party is applied to this category.

By the same token, Graph 3 shows policy rate by the regions of constituency. Most of constituencies have a high policy rate in the Diet and comparatively low rate on Twitter, such as (P)Hokkaido, (P)Kinki, (P)Kyushu, and (E)Tohoku. However, there are exceptions. (P)N-Kanto has high policy rate both in the Diet and on Twitter. (E) Hokkaido, (E)Tokai, and (E)Hokuriku-Shinetsu have similar rates in the Diet and on Twitter.



Graph 2: Policy rate by party

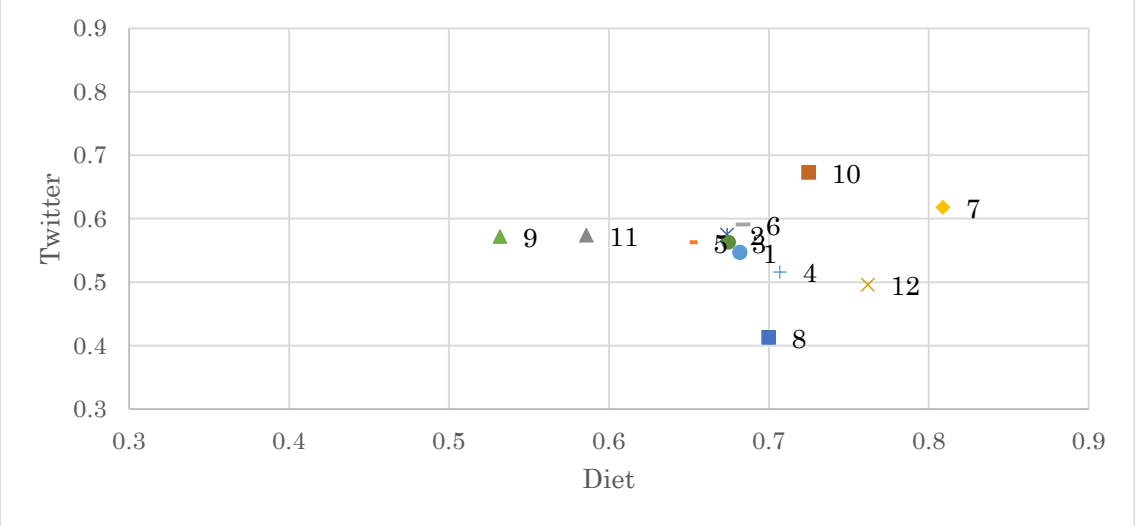


Graph 3: Policy rate by the regions of constituency

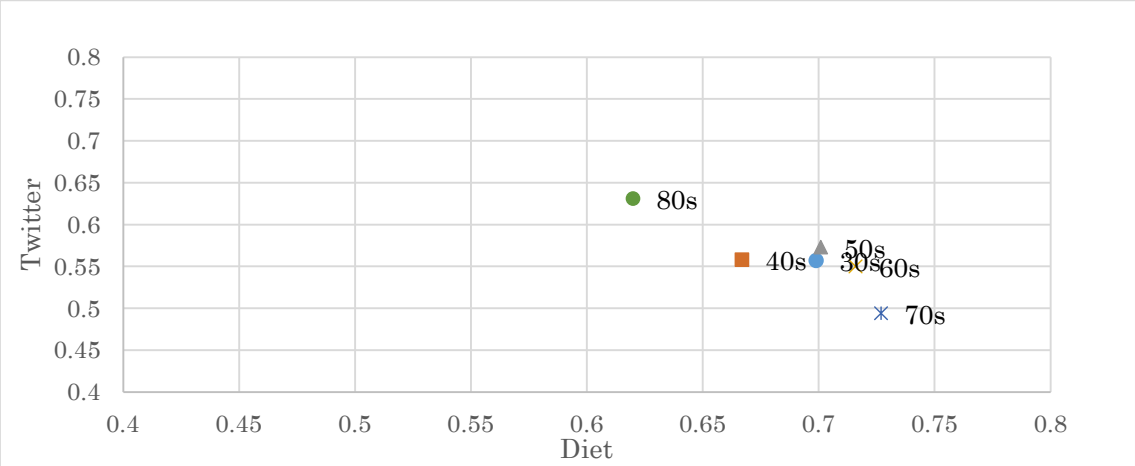
Graph 4 and Graph 5 show similar results. In Graph 4, most categories indicate a high rate in the Diet and a low rate on Twitter, with the exception of ninth- and eleventh-time members that show similar ratios between the Diet and Twitter. In Graph 5, most generations indicate a high policy rate in the Diet and a low policy rate on Twitter, with the exception of those in their 80s.

Graph 6 shows that most categories indicate a high policy rate in the Diet and low policy rate on Twitter. Exceptions are Professor and Organization, which have similar scores between Diet and Twitter.

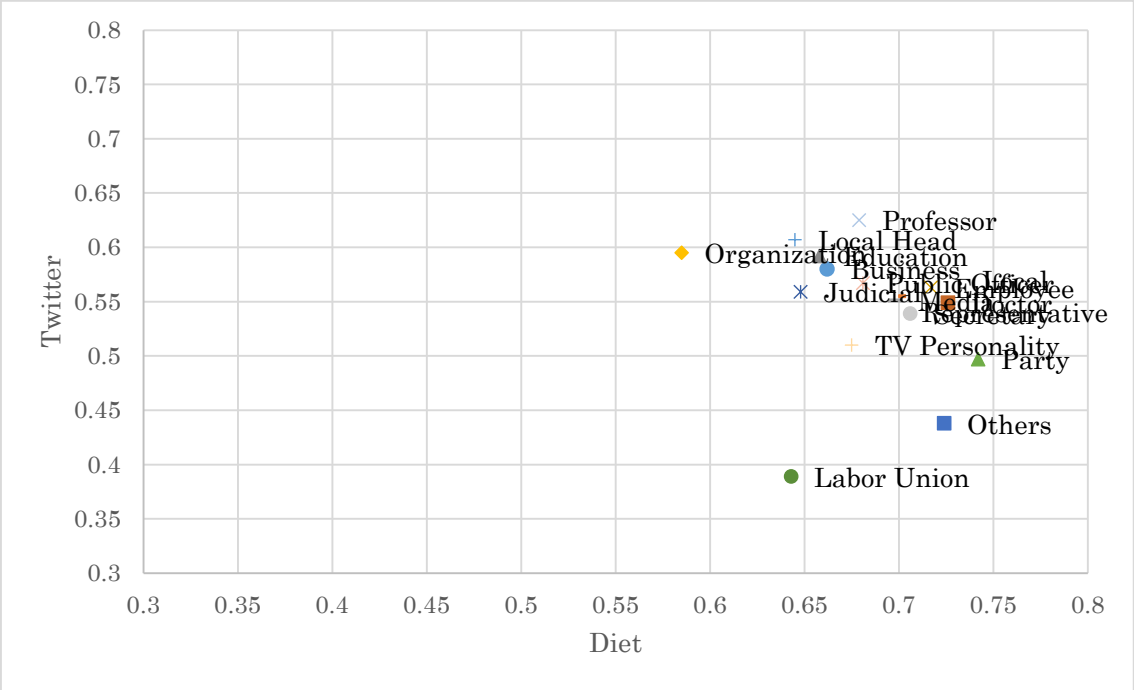
Graph 7 shows similar results. Most categories indicate a high policy rate in the Diet and low policy rate on Twitter. The exception is the Judicial and Audit/Oversight committee, which have similar scores to the Diet and Twitter.



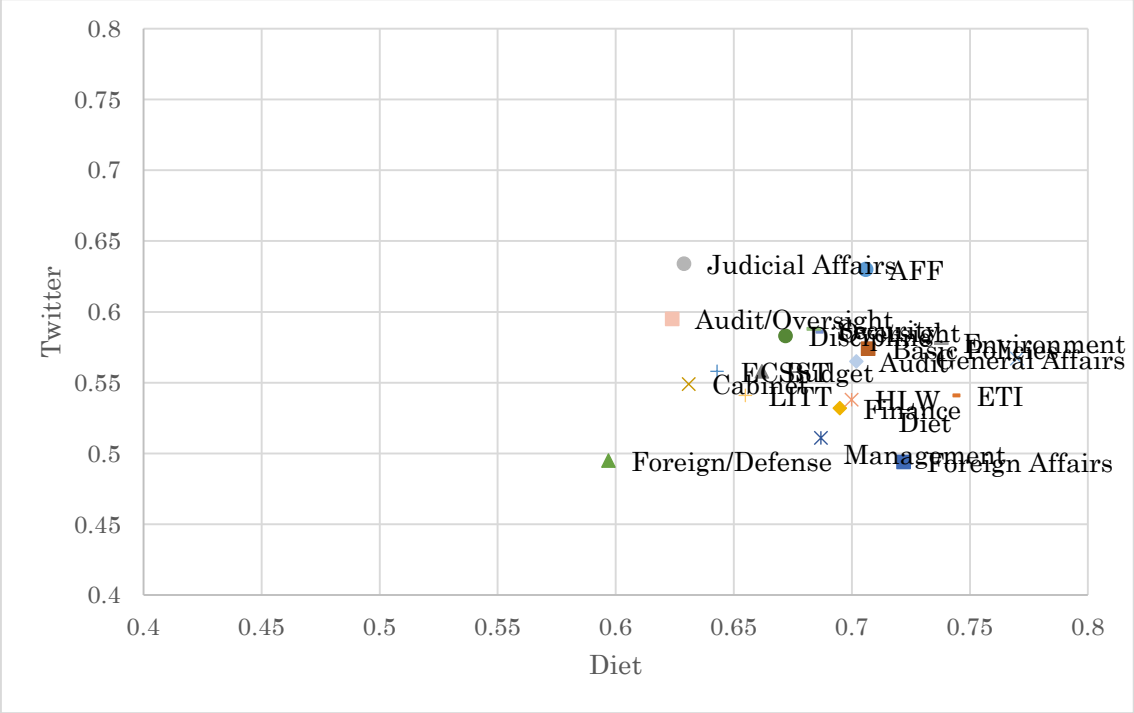
Graph 4: Policy rate by the numbers being elected



Graph 5: Policy rate by age



Graph 6: Policy rate by previous job



Graph 7: Policy rate by Diet Committee

Through these examinations, the general tendency coincides that Diet members score a high policy rate in the Diet and a comparatively low policy rate, meaning a high political rate, on Twitter. However, we also need to note that, according to the revised hypothesis 2, policy rate is totally higher than political rate in the Diet and on Twitter.

Thus, we also revised Hypothesis 3: Diet members tend to discuss policy topics in the Diet and on Twitter, while the ratio of political topics on Twitter is significantly higher than in the Diet. On the other hand, there are some exceptions that cannot be explained in this hypothesis, such as (E) Hokkaido, (E) Tokai, and (E) Hokuriku-Shinetsu for regions of constituency, ninth and eleventh-time elected members, members in their 80s, previous jobs as professors or in organizations, and members of the Judicial and Audit/Oversight Diet committees. We need to explain why these exceptions occur. Therefore, for the next hypothesis, we focus on party politics and analyze the differences and deviations between government and opposition parties.

5.4 Key findings and Examinations of Hypothesis 4

Hypothesis 4 signifies that the governing party tends to converse on policy topics in the Diet and political topics on Twitter, whereas the opposition parties predominantly discuss political topics in both. To examine this hypothesis, we return to Graph 2 and can group the four categories as follows:

	Diet/High Policy rate	Diet/Low Policy rate
Twitter/High Policy rate	KAIKAKU INDEPENDENTS	
Twitter/Low Policy rate	LDP, KOMEI SDP, JCP, SEIKATSU KOKORO	Democratic Party OSAKA

Table 4: Party politics in policy and political rate

Key findings above are that the governing party (LDP and KOMEI) converse on policy topics in the Diet and political topics on Twitter, and JCP, the next largest opposition party, and other small sized opposition parties pursue similar strategy. To the contrary, the Democratic Party and OSAKA, the first and third opposition parties, have low policy rates both in the Diet and on Twitter. KAIKAKU and INDEPENDENTS possess high policy rates both in the Diet and on Twitter.

The tendencies of the governing party (LDP and KOMEI) and the opposition party (DP and OSAKA) coincide with the hypothesis. The best strategy for governing party is to discuss policy topics in the Diet and political topics on Twitter, and to focus their utterances on narrow policy issues in the Diet and broader political issues on Twitter. By contrast, the opposition party needs to mobilize public opinion and put pressure on the governing party. Therefore, it is natural that their strategy maintains

political topics on both in the Diet and on Twitter.

However, this strategy of opposition is not necessarily common: KAIKAKU and INDEPENDENTS maintain high policy rates in the Diet and on Twitter, which means they do not employ the strategy to mobilize public opinion; JCP and other small parties also debate policy topics in the Diet and political topics on Twitter, which means they do not necessarily utter political topics in the Diet.

5.5 The content analysis of the tweets in political context

In the previous part, it was demonstrated that politicians tweet "political" issues more than "policy" issues. In this part, we identify the details of "political" tweets by examining the content based on the coding categories of cabinet, discourses, election, government, and politics. The data used in this section are the relative frequencies of each category per utterance by members of each party. To reveal the characteristics of the Japanese political parties, two kinds of statistical analysis were conducted.

First, cluster analysis was carried out to examine the closeness of the parties based on the content of their tweets. The Euclidean distance was calculated from the contingency table of the relative frequencies, and the "hclust" function of R (ver. 3.2.4) was used for the current analysis using Ward's method. The results are shown in Figure 1.

It can be observed that the governing parties (LDP and KOMEI) are grouped into one small cluster. This fact clearly indicates the closeness between the government parties. N/A and SDP also appear in this cluster showing that these groups are similar in the use of Twitter regarding political topics. Other opposition parties are mainly divided into two categories: OSAKA, DP, and GENKI formulate one cluster and JCP, KOKORO, and SEIKATSU are in another. KAIKAKU seems to be unique in this respect.

Second, correspondence analysis was conducted to see the relationships between parties and "political" categories. Correspondence analysis enabled us to plot both parties and categories of political coding rules in the same two-dimensional chart and to visualize the relatedness of each label. The "corresp" function of the MASS library of R (3.2.4) was employed for this analysis and Figure 2 was generated using the "plot" function.

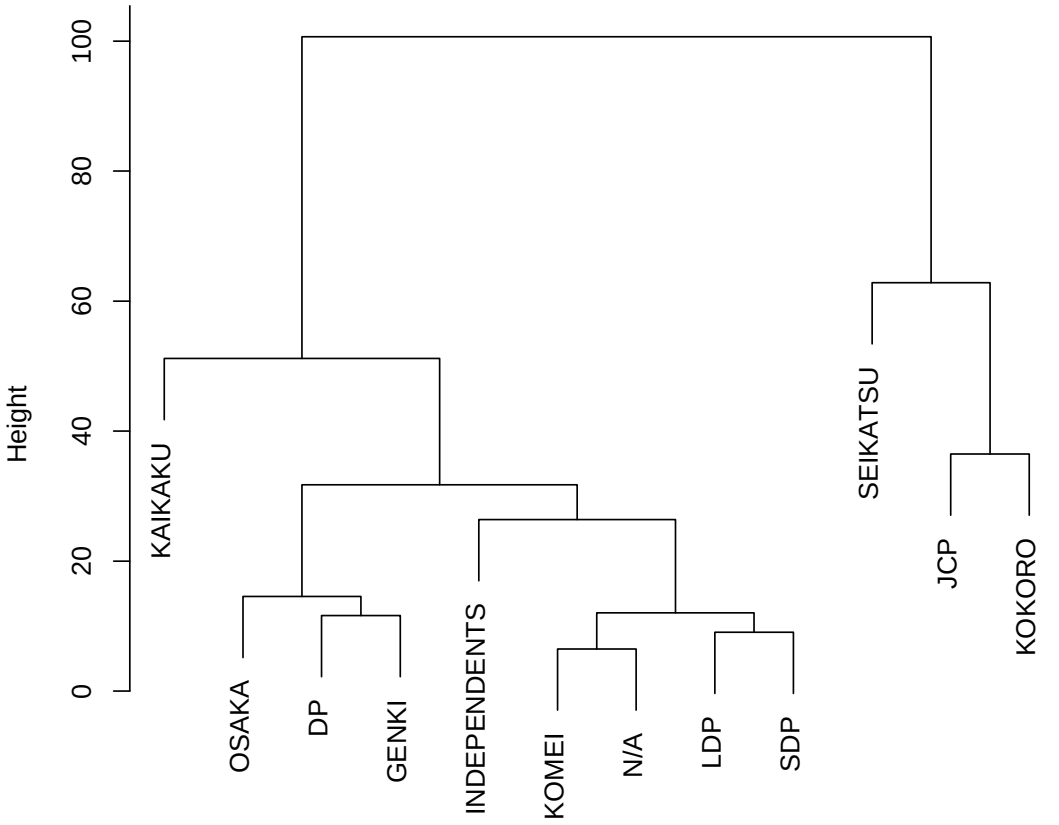


Figure 1: Dendrogram of parties on relative frequencies of "political" categories

Figure 2 shows that KAIKAKU distinctively tweets more about cabinet issues, and in this sense, this party seems to employ a unique strategy in using Twitter. Also, SEIKATSU displays a characteristic tendency to post tweets related to the government. The rest can be categorized roughly into two groups. While the majority parties (LDP and KOMEI) and GENKI, KOKORO, N/A, and NON are concerned with election and discourses, DP, JCP, and OSAKA are tied to the category of politics (SDP seems to be neutral in this respect).

It can be inferred from these results that the governing parties (LDP and KOMEI) apply a similar strategy in using Twitter when they talk about political issues. Specifically, these parties tend to put emphasis on election and discourses issues. Also, it has been shown that opposition parties have their own characteristics regarding the content of their tweets in a political context. Some (GENKI, KOKORO etc.) have similar tendency to the governing parties and others are related to other political categories that the governing parties do not highlight.

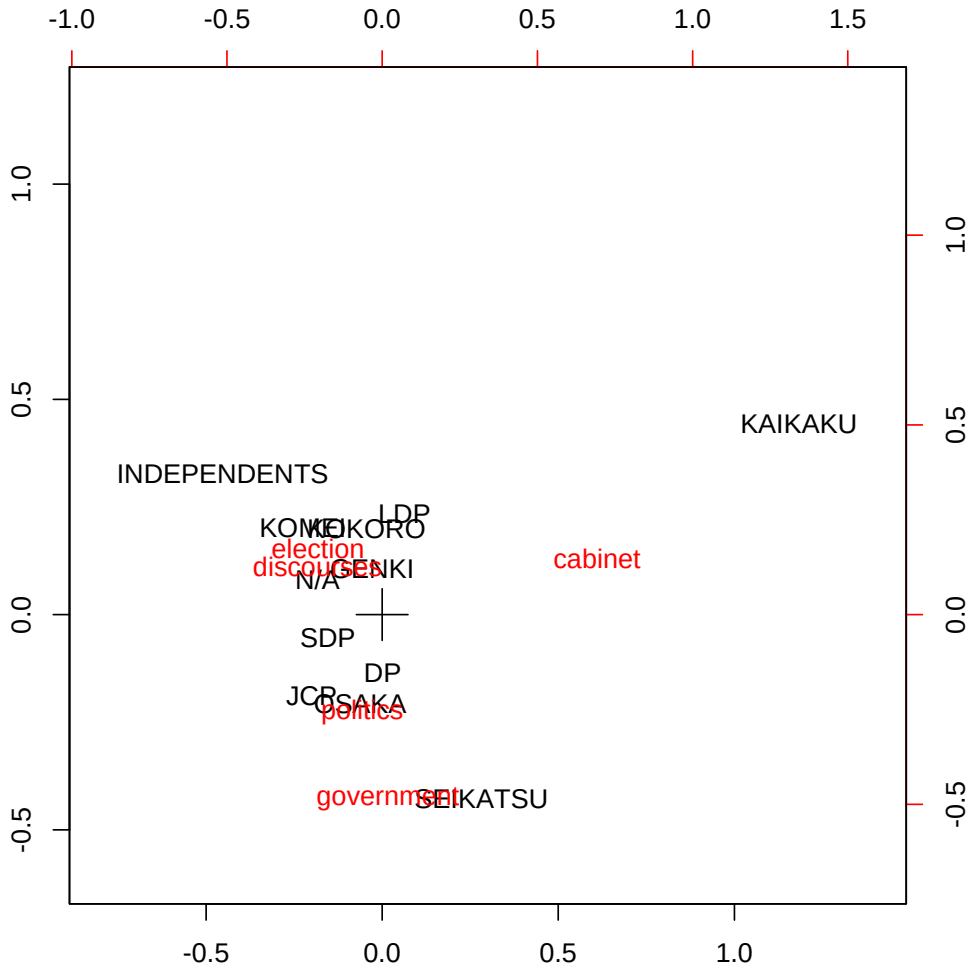


Figure 2. Correspondence analysis of parties and "political" categories

Conclusions

This paper employs a coding analysis of political and policy related topics and examines how and of what Diet members speak in the Diet and on Twitter. The four proposed hypotheses question whether the Diet members' tweets connect and complement their Diet activities. By examining these hypotheses, we found that the two governing party (LDP and KOMEI), the JCP and other minor opposition parties tend to keep to a discussion of policy topics in the Diet and comparatively less policy topics (which mean more political topics) on Twitter. In contrast, major opposition parties like the DP and OSAKA maintains comparatively low policy rate in the Diet and on Twitter. This means,

these two parties speak more on political—rather than policy—topics both in the Diet and on Twitter, compared with governing party, the JCP and other minor opposition parties. Furthermore, The KAIKAKU and INDEPENDENTS discuss policy more than political topics in both the Diet and on Twitter. This demonstrates that the governing party and JCP use Twitter for topics not discussed in the Diet; there is a division of labor between the Diet and Twitter. However, DP/OSAKA and KAIKAKU/INDEPENDENTS use Twitter to continue conversations from the Diet on political activities: They have similar strategy in the Diet and on Twitter. Our content analysis also uncovered similar convergence among party actions. The LDP/OSAKA and LDP/KOMEI are very similar in the nature of their tweets.

Although the approach differs among the parties, the key findings of this paper are that the parties use Twitter to support their political strategies, and that they redefine political discourses and reconstruct social bonds and networks to complement offline activities. "Redefining" in this context means that the parties, after already having done so in the Diet, define and develop their policy related and political arguments again on Twitter. By "reconstructing," they speak to a broader audience to mobilize public support. The governing party's strategy complements Diet policy debates with tweets. The former proceeds policy agendas, and the latter attracts and articulates public support for the party. Thus, they redefine political discourses through online activities and reconstruct any social bonds and networks that may have disagreed with offline political activities. Opposition parties, like DP/OSAKA and KAIKAKU/INDEPENDENTS, consistently pose policy or political topics, linking them in the Diet and on Twitter. The DP/OSAKA advocates political topics to mobilize public support, while the KAIKAKU/INDEPENDENTS argue policy topics to penetrate their party policy. They employ different strategies, but all use Twitter as a tool to redefine political discourses and reconstruct social bonds and networks to gain public support.

This paper provides macroscopic views to link political activities in both the Diet and on Twitter. Later sections of the paper focus on party politics and how the parties use Twitter for political activities born in the Diet. This paper illustrates how the parties employ different strategies when using Twitter for their political activities.

The future of this research is threefold. First, while this paper quantitatively analyses conversations held in the Diet and on Twitter, it is also necessary to examine Diet statements and Tweets through in-depth content analysis and discourse analysis. Second, this paper mainly focuses on party politics, but future research might also examine variables such as constituency, numbers elected, age and generation of elected members, their previous jobs, and those of the Diet Committees. By examining other

indicators, further research might further explore the connection between online and offline political activities and how they complement each other. Third, this study contrasts and compares different strategies among government and opposition parties, but we must examine and evaluate which strategy is most effective in mobilizing public support. Using the key findings of this study, we will develop these remaining tasks.

Appendix 1: Coding Rules

index:	code:	Keywords
Policy	**administration**	administration, ministry, agency, local government, bureaucracy, public officer, appointment, government project, supply, purchase, budget, treasury, national purse, tax, scandal, public opinion, statistics, government ordinance, policy, administrative litigations,
	Economy	economy, physical policy, income, interest rate, unemployment, finance, budget, tax, industry, price, inflation, deflation, reflation,
	Trade	trade, agreement, export, investment, competitiveness, custom, import, exchange,
	Industry	commerce, bank, security, consumer, bankruptcy, project, corporate, copy rights, patent, disaster, reconstruction, support, travel, sports,
	communication	communication, broadcasting, media, newspaper, radio, TV, internet, SNS,
	transportation	traffic, transportation, transfer, highway, regulation, aviation, train, marine, shipping, infrastructure,
	Agriculture	agriculture, trade, farmer, inspection, market, sales, animal, grain, rice, food, fishery,
	Technology	science, technology, weather, earthquake, forecast, prediction, precognition, computer, artificial intelligence,
	Energy	energy, nuclear, electric power, gas, oil, coal, recyclable, preservation,
	Public	public utility, public, project, water, park, flood, land, resource,
	Labor	labor, employment, training, welfare, benefit, labor standard, young worker, seasonal labor,
	Environment	environment, regulation, water, pollution, recycle, reuse, hazard, species, forest, preservation, biodiversity, sustainability,
	human rights	human rights, discrimination, minority, gender, female, LGBT, disability, elderly, vote, expression, regulation, privacy,
	Health	health, care, medicine, medical, hospital, recuperation, human resources, prevention, mental, prolonged hospitalization, long-term care, cigarette, smoking, dependence,
	Childcare	child, childcare, nursing, nursery, kindergarten,
	Education	education, higher, secondary, primary, university, high school, junior high school, primary school, entering school, career education, special class, selection, excellence,
	Welfare	welfare, social welfare, livelihood protection, care, support, volunteer
	Housing	housing, community, local, region, city, suburb, loan, support,

	Immigration	immigration, refugee, foreigner, citizenship
	Culture	culture, tradition, history, cultural policy, identity,
	Crime	crime, law, criminal law, civil law, police, illegal, trial, justice, juvenile crime, abuse,
	Security	security, defense, alliance, intelligence, information, secret, nuclear power, military power, Self-Defense Force, Self-Defense Officials, supply, armament, arms, ammunition, reserve, reserve Self-Defense official, civilian, civil service, overseas dispatch, operation,
	Diplomacy	diplomacy, aid, foreign policy, resource, developing country, international, international economy, international finance, development, ODA, nation, United Nations, international organization, international human rights, treaty, terror, diplomat,
political	**Politics**	politics, politician, change, believe, real, center piece, begin, image, sense, inquire, mistake, quit, reality, never,
	Election	election, member, election fight, constituency, candidate, vote, ballot counting, final, last, notification, effort, support, organization, assembly,
	Government	government, administration, destroy, modify, pressure, constitution, constitutionalism, constitutional reform, Abe, runaway, dictatorship, firmly, will of people, ignorance, enemy,
	Cabinet	cabinet, intention, electorate, Abe cabinet, minister, confidence, minister, agency, secretariat, public relations, reshuffle, direction, Prime Minister, agenda, approval rating,
	Discourses	Promoting Dynamic Engagement of All Citizens, Regional Revitalization, Tourism Promotion, Proactive Contribution to Peace, Abenomics, Diplomacy, panoramic perspective, world map, hope, alliance, Women's Active Participation to Society, women, shine, young people, growing, promoting, Japan, Asia, bridging, peace nation, the Prime Minister statement, Innovation,

Table 5: coding rules for Policy and Political Index

Appendix II: Background information for Diet and Twitter

	Numbers of Diet Members					
	House of Representatives			House of Councillors		
	No. of Members	No. of Members using Twitter	Proportion of Members using Twitter	No. of Members	No. of Members using Twitter	Proportion of Members using Twitter
LDP	291	82	28.18%	116	36	31.03%
KOMEI	35	13	37.14%	20	16	80.00%
DP	96	39	39.58%	64	26	40.63%
JCP	21	6	28.57%	11	6	54.55%
OSAKA	14	5	35.71%	8	4	50.00%
SDP	2	0	0.00%	3	1	33.33%
SEIKATSU	2	2	100.00%	3	1	33.33%
GENKI	0	0	0.00%	4	2	50.00%
KOKORO	0	0	0.00%	3	1	33.33%
KAIKAKU	0	0	0.00%	2	1	50.00%
INDEPENDENTS	0	0	0.00%	2	1	50.00%
N/A	14	3	21.43%	6	2	33.33%
Total	**475**	**150**	**31.58%**	**242**	**97**	**40.08%**

Table 6-1: Proportion of Diet members using Twitter by Party

LDP: Liberal Democratic Party
KOMEI: *Komeito* [the Party of Fairness and Justice]
DP: Democratic Party
JCP: Japanese Communist Party
OSAKA: *Osaka Ishin no Kai* [Osaka Restoration Association]
SDP: Social Democratic Party
SEIKATSU: The People's Life Party & Taro Yamamoto and Friends [*Seikatsu* signifies life in English]
GENKI: The Assembly to Energize Japan [*Genki* signifies energize in English]
KOKORO: The Party of Japanese Kokoro [*Kokoro* signifies mind in English]
KAIKAKU: New Renaissance Party [*Kaikaku* signifies mind in English]
INDEPENDENTS: Group of Independents
N/A: Non-partisan members

	Numbers of Diet Members					
	House of Representatives			House of Councillors		
	No. of Members	No. of Members using Twitter	Proportion of Members using Twitter	No. of Members	No. of Members using Twitter	Proportion of Members using Twitter
(E)Hokkaido	12	1	8.33%	4	2	50.00%
(E)Tohoku	25	8	32.00%	15	5	33.33%
(E)N-Kanto	32	5	15.63%	14	4	28.57%
(E)S-Kanto	33	17	51.52%	15	9	60.00%
(E)Tokyo	25	15	60.00%	10	6	60.00%
(E)Hokuriku-Shinetsu	19	8	42.11%	14	3	21.43%
(E)Tokai	33	10	30.30%	15	8	53.33%
(E)Kinki	48	20	41.67%	21	15	71.43%
(E)Chugoku	20	11	55.00%	12	1	8.33%
(E)Shikoku	11	4	36.36%	8	3	37.50%
(E)Kyushu	37	6	16.22%	18	2	11.11%
(P)Hokkaido	8	1	12.50%	0	0	0.00%
(P)Tohoku	14	4	28.57%	0	0	0.00%
(P)N-Kanto	20	1	5.00%	0	0	0.00%
(P)S-Kanto	22	8	36.36%	0	0	0.00%
(P)Tokyo	17	9	52.94%	0	0	0.00%
(P)Hokuriku-Shinetsu	11	1	9.09%	0	0	0.00%
(P)Tokai	21	3	14.29%	0	0	0.00%
(P)Kinki	29	9	31.03%	0	0	0.00%
(P)Chugoku	11	5	45.45%	0	0	0.00%
(P)Shikoku	6	0	0.00%	0	0	0.00%
(P)Kyushu	21	4	19.05%	0	0	0.00%
(P)All	0	0	0.00%	96	40	41.63%
Total	**475**	**150**	**31.58%**	**242**	**97**	**40.08%**

Table 6-2: Proportion of Diet Members using Twitter by the regions of constituency

In Japanese electoral system, House of Representatives has 475 members and elected them for a four-year term. Among them, 295 are elected from single-member electoral zone (described by (E) in Table 6-1) and 180 members are elected from 11 multi-member regional zones (see Figure 3) by a party-list system of proportional representation (described by (P) in Table 6-1). (P) region is the actual system of proportional representation, while (E) region is fictitious unit which is made for expedient to analyses (in reality, electoral zones are divided into 295 electoral zones). For instance, the region of Hokkaido has 12 single-member electoral zones (thus elected by 12 members, as (E)Hokkaido) and also elected by 8 members in the regional proportional representation (as (P)Hokkaido)

Likewise, The House of Councillors has 242 members and elected from for a six-year terms. Only half of the members are elected at each election: the election is taken place in every three years, and 121 members are subject to be elected each time. Among Them, 73 are elected from the 47 prefectural electoral zone (described by (E) in Table 6-1) and 48 are elected from a nationwide list by proportional representation (described by (P)All in Table 6-1). For instance, (E)Tokyo means Tokyo Prefectural electoral zone elected 5 members respectively in every three-year elections, and (P)All means proportional representation elected 48 members respectively in every three-year elections.

House of Representatives can be dissolved by the Prime Minister or the passage of a non-confidence motion, whereas House of Councillors cannot be dissolved. Also, dual candidacy between electoral zone and proportional representation is possible in House of Representatives, though it is impossible in House of Councillors.

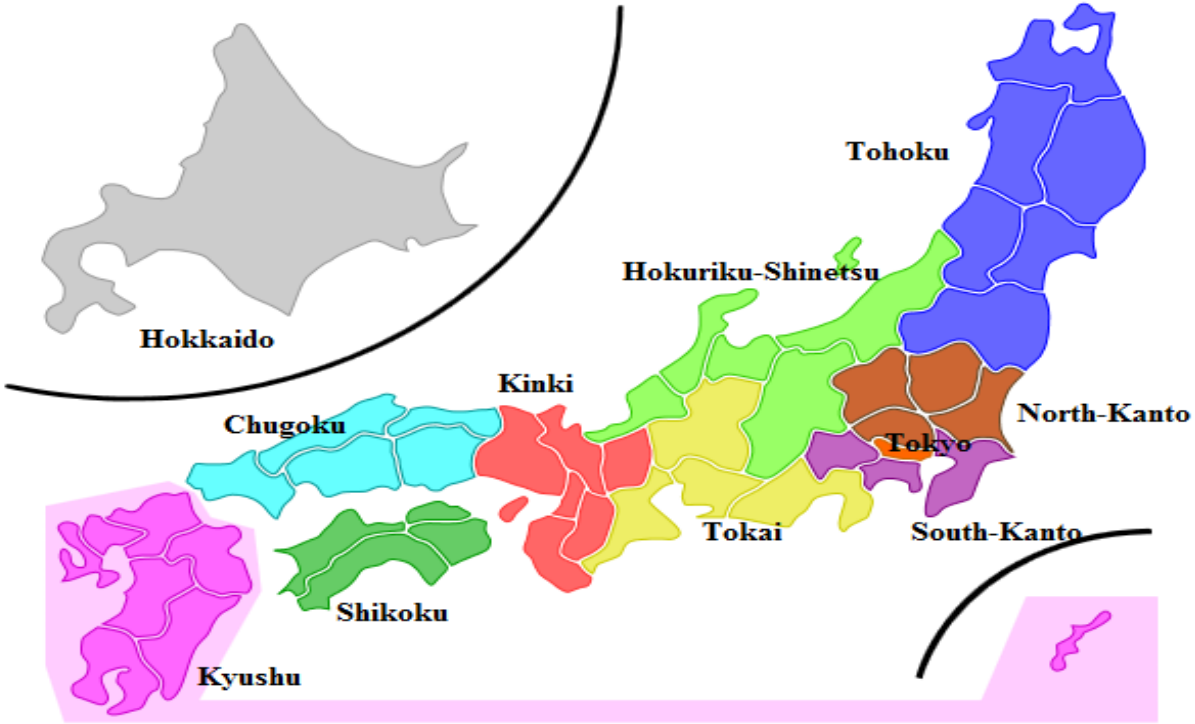


Figure 3: 11 regional zones for proportional representation in House of Representatives

	Numbers of DMs					
	House of Representatives			House of Councillors		
	No. of Members	No. of Members using Twitter	Proportion of Members using Twitter	No. of Members	No. of Members using Twitter	Proportion of Members using Twitter
1	42	5	11.90%	122	53	43.44%
2	150	48	32.00%	67	29	43.28%
3	55	28	50.91%	34	7	20.59%
4	39	13	33.33%	15	8	53.33%
5	42	13	30.95%	3	0	0.00%
6	40	11	27.50%	0	0	0.00%
7	43	10	23.26%	1	0	0.00%
8	23	9	39.13%			
9	13	3	23.08%			
10	6	2	33.33%			
11	9	3	33.33%			
12	7	3	42.86%			
13	4	1	25.00%			
15	1	0	0.00%			
16	1	1	100.00%			
Total	**475**	**150**	**31.58%**	**242**	**97**	**40.08%**

Table 6-3: Proportion of Diet Members using Twitter by numbers being elected

	Numbers of DMs					
	House of Representatives			House of Councillors		
	No. of Members	No. of Members using Twitter	Proportion of Members using Twitter	No. of Members	No. of Members using Twitter	Proportion of Members using Twitter
30s	30	9	30.00%	9	5	55.56%
40s	118	44	37.29%	47	22	46.81%
50s	165	60	36.36%	88	44	50.00%
60s	117	25	21.37%	61	18	29.51%
70s	44	11	25.00%	35	7	20.00%
80s	1	1	100.00%	2	1	50.00%
Total	**475**	**150**	**31.58%**	**242**	**97**	**40.08%**

Table 6-4: Proportion of Diet Members using Twitter by age

	Numbers of DMs					
	House of Representatives			House of Councillors		
	No. of Members	No. of Members using Twitter	Proportion of Members using Twitter	No. of Members	No. of Members using Twitter	Proportion of Members using Twitter
Local Representatives	134	32	23.88%	53	13	24.53%
Public Officer	73	29	39.73%	31	17	54.84%
Secretary	64	11	17.19%	16	8	50.00%
Employee	56	30	53.58%	23	15	60.87%

Party	22	7	31.82%	6	3	50.00%
Judicial	20	7	35.00%	12	7	58.33%
Organization	19	6	31.58%	15	5	33.33%
Media	18	6	33.33%	14	8	57.14%
Business	16	6	37.50%	7	3	42.86%
Local Head	13	3	23.08%	13	1	7.69%
Doctor	13	3	23.08%	5	3	60.00%
Professor	5	4	80.00%	6	2	33.33%
Education	4	1	25.00%	3	1	33.33%
Labor Union	1	0	0.00%	20	4	20.00%
Sports	1	0	0.00%	5	1	20.00%
Others	16	5	31.25%	9	5	55.56%
TV Personality	0	0	0.00%	4	2	50.00%
Total	**475**	**150**	**31.58%**	**242**	**97**	**40.08%**

Table 6-5: Proportion of Diet Members using Twitter by Previous job

Local Representatives: members in Local parliament
Secretary: Secretary to Diet member
Party: Officer in political parties
Organization: Officer in public and private Organizations
Business: President or CEO of corporate
Doctor: Medical doctor
Education: teaching jobs in educational institute
Sports: Athlete
Others: any other jobs listed above

Public Officer: Public officers in Local and Central Governments
Employee: employee in private corporate
Judicial: Lawyer, Prosecutors, Judges
Media: employee in mass media
Local Head: Governor or Mayor of the local governments
Professor: Professor in higher education institutes
Labor Union: Officer in Labor Union
TV Personality: Television character, actor, actress

	Numbers of DMs					
	House of Representatives			House of Councillors		
	No. of Members	**No. of Members using Twitter**	**Proportion of Members using Twitter**	**No. of Members**	**No. of Members using Twitter**	**Proportion of Members using Twitter**
Cabinet	40	20	50.00%	20	9	45.00%
General Affairs	40	15	37.50%	25	12	48.00%
Judicial Affairs	35	7	20.00%	20	5	25.00%
Foreign Affairs	30	18	60.00%	N/A	N/A	N/A
Foreign Affairs/Defense	N/A	N/A	N/A	21	9	42.86%
Finance	40	18	45.00%	25	14	56.00%
ECSST	40	7	17.50%	20	7	35.00%
HLW	45	18	40.00%	25	11	44.00%
AFF	40	7	17.50%	20	4	20.00%
ETI	40	11	27.50%	20	5	25.00%
LIT	45	7	15.56%	29	9	31.03%
Environment	30	9	30.00%	20	8	40.00%
Security	30	12	40.00%	N/A	N/A	N/A
National Policies	30	11	36.67%	20	5	25.00%
Budget	50	21	42.00%	45	23	51.11%
Audit/Oversight	39	11	28.21%			
Audit	N/A	N/A	N/A	30	11	36.67%
Oversight	N/A	N/A	N/A	30	13	43.33%
Diet Management	25	4	16.00%	25	7	28.00%
Discipline	19	5	26.32%	10	2	20.00%
Total	**618**	**201**	**32.52%**	**405**	**154**	**38.02%**

Table 6-6: Proportion of Diet Members using Twitter by Diet Committee

ECSST: Committee on Education, Culture, Sports, Science and Technology (This is the name of the committee in House of Representatives. House of Councillors has same committee with slightly different name: Committee on Education, Culture and Science).
HLW: Committee on Health, Labour and Welfare (In House of Councillors, Committee on Health, Welfare and Labour).
AFF: Committee on Agriculture, Forestry and Fisheries.
ETI: Committee on Economy, Trade and Industry (In House of Councillors, Committee on Economy and Industry).
LITT: Committee on Land, Infrastructure, Transport and Tourism.

- The Diet Member normally belongs to several committee, therefore total numbers of table 6-6 are more than the Diet members.
- Committee on Foreign Affairs/Committee on Security/Committee on Foreign Affairs and Defense
  In House of Representatives, Committee of Foreign Affairs and Security is divided, while they are united as Committee on Foreign Affairs and Defense in House of Councillors.
- Committee on Audit and Oversight of Administration/ Committee on Audit/ Committee on Oversight of Administration
  House of Representatives has Committee on Audit and Oversight of Administration, though it is divided in House of Councillors: Committee on Audit/ Committee on Oversight of Administration.