Research on the Effect of Government Responsiveness of The Chinese E-Government—Based on the Local Leader Message Board (LLMB) Data of RenMinWang Website

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Abstract. Based on the data collected from the Chinese most authoritative website RenMinWang(人民网, a national website of China official media)'s forum Local Leaders Message Board (LLMB), using logistic regression model, the author analysis 100788 appeal texts on LLMB, covered 30 Chinese provinces. This paper use Big Data and text mining method to analysis the influencing factors of the satisfaction on the interaction between government and netizen.

The empirical results show that: the efficiency of government responsiveness significantly improves netizen's satisfaction. In the government response text, the higher the policy complexity is, the lower satisfaction it will get from the netizen. The network interaction between the government and the netizen meets the expectation-value theory. The netizen's appeal to the Chinese provincial leaders will get a lower satisfaction level of the government's response, it maybe caused by their appeal's complexity of solving. Also if the government response text are to long, and if there are more policy and laws, it will get a lower probability of satisfaction.

1. Research Background

In recent years, online political inquiry has become a hot topic. The Chinese government departments have established many online platforms of political interaction with netizen, such as microblogs, wechat, TV, mobile apps. All those platforms can provide a new channel for the Chinese citizen to express their opinions and consult questions to the government's departments. With the coming of the digital era, some researchers believe that network makes up for the shortcomings of traditional democratic mechanism and bureaucratic system, which realizes the electronic democracy.[1] However, some researchers believe that there is still some problem in the network interaction between the government and the netizen. For the netizen, some researchers point out that their opinions are often irrational.[2] For the government, some researchers point out that the government departments take online interaction as a show for the public, but there are few government put the netizen's opinion and suggestion in real action.[3]

At present, what is the effect of the online public interaction between the government and the netizen; does the online interaction improve the public's satisfaction to the government; what effect the satisfaction of the netizen, these questions are still need farther research.

This paper adopts the big data method, using the empirical data collected from LLMB, analyzes the mechanism of the effect of network politics.

2. Literature Review: Research Framework and Hypothesis

2.1. Measurement of Government Responsiveness and Effect

Government responsiveness means that in the process of public management, the government responds to the demands of the public, and proposes solutions to problems. By communicating with the citizen, the government maintain social stability and promote social development.[4]

At present, it has become a mainstream method to collect data from a certain platform and conduct data mining with the help of text content analysis. For example, the Chinese researcher named Sha Yongzhong use the data of "Luzhou online government forum", and Meng Tianguang research on LLMB data of RenMinWang (人民网, a national website of China official media).

2.2. Theoretical Framework and Research Hypothesis Of Government Response Effect

There is a "Pressure-Response" model in the field of political agenda around the world, which is increasingly common in China.[5] Studies have shown that there is "selective response" to the citizen in government, and the Chinese government is more inclined to respond to the appeals that may cause collective events.[6] Although the public's evaluation of the government's response may be the consideration of response to the citizen, but at the same time, some researchers point out that the citizen's evaluation can be emotional and irrational, and the citizen has their own benefits and strategies.[7] At the same time, the interaction between government and the public can be affected by the manner of the government, such as the honesty and patience when the government treat the citizen's appeal.[8] This study constructs the theoretical framework of the online interaction of government and netizen on the network platform of government policy forum.
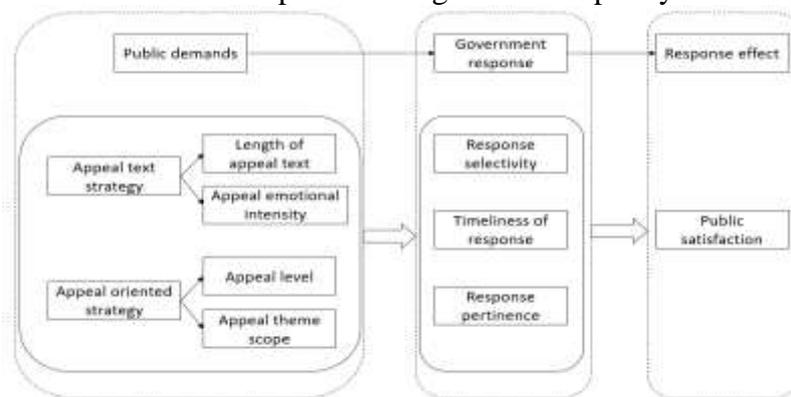

Figure 1. Response effect analysis framework of message board of network political leaders (made by the author).

2.2.1. Public Appeal Strategy and Government Response Satisfaction

(1) The behavior characteristic of public appeal: Li Feng and others believe that people tend to use "internal collective words" and "virtuous words" to highlight the urgency of strengthening demands and increase the probability of government response.[9] There are also many researchers who think that the public are emotional and irrational on online politics interaction.[8] Chen et al. mentioned in their research that threatening to complain to higher authorities can improve the government's responsiveness.[7] Moreover, people's trust in the government has a ladder like feature of "the central government is strong and the local government is weak".[10-11] People are more likely to believe that the superior government has the ability to mobilize resources to solve their problems. This study proposes the following hypotheses.

H1a: the higher level of netizen appeal to the local leaders, the higher satisfaction they will get from the government's response.

Studies have shown that online media political platforms have a low effect in solving people's livelihood problems.[12] Compared with the netizen's "complaint" and "consultation", the probability of getting response of "suggestion" is lower.[13] Therefore, proposes the following hypotheses

H1B: the suggestion appeals may have a lower response satisfaction

(2) The language strategy of netizen's appeal: In fact, Internet politics is "digital petition", which is equivalent to the traditional "petition mode" in China.[6] Netizen have changed from petition to "online". The way of appeal has changed, but the essence of appeal has not changed. In the process of online political inquiry, the public also hopes to attract the attention of government departments and improve the probability of getting a reply by increasing the emotional intensity of the appeal text. At the same time, the emotion of the people's appeal text can also reflect the urgency of the

problem. Therefore, this study puts forward the following hypotheses.

H2: Appeal text strategy affects the satisfaction of government response. Specifically: **H2A:** The longer the length of the text, the higher the satisfaction of the appeal; **H2B**: the more positive of the text is, the more probability of the appeal will get replied and the more satisfaction will be.

2.2.2. Government Response Strategy and Response Satisfaction

(1) The research shows that there is a relationship between the government response efficiency and public satisfaction. For online collective events, if the government discloses in time and makes the information open and transparent, it will improve the credibility of the government and help to prevent the occurrence of public opinion.[9] Up to now, many local governments in China have establish rules and regulations to face the online public opinions.[14]

This study proposes the following hypotheses

H3a: the more rapid the government's response, the higher satisfaction will get.

Although the problem cannot be solved in time, the network itself provides a platform for the dialogue mechanism between the government and the public. The network itself makes up for the lack of government functions.[15] The combination of online governance and offline governance can improve the efficiency of government departments.[4]

H3b: the more clearly the government's response is, the higher the people's satisfaction is.

3. Research Methods and Variable Measurement

3.1. Research Methods and Data Sources

This study uses big data method and web crawler technology to collect the information of "local leaders message board (LLMB)" on RenMinWang's website. The standard of sample selection in this study is to select the interaction texts between government and netizen which covered the whole process of appeal, response and evaluation. Finally, we get 100788 cases cover 30 provinces of China after data cleaning.

In this study, the effect of government response is the outcome variable, and logit regression model is used as the analysis tool

$$Y_i = \beta_0 + \sum \beta_i X_i + \varepsilon_i$$

In this study, the dependent variable Y_i is response effect, in which, β_0 is a constant term, β_i is its coefficient, X_i is the explanatory variable, ε_i is the random error.

3.2. Variable Operation and Description

3.2.1. Dependent Variable

Most of the existing studies take the variable of whether the government responds to the netizen as the dependent variable. However, this study believes that whether the government responds or not is only a process of network political interaction, the final measure of the effect of the government response is the public evaluation. Therefore, this study takes the satisfaction of public evaluation as the dependent variable. In the LLMB, it gives 5 choices for the netizen to evaluate the government's response: very satisfied, satisfied, basically satisfied, dissatisfied and very dissatisfied. Due to the polarization phenomenon of public evaluation, it is divided into two categories. The three former choices are assigned into 1 and the after two are assigned into 0.

3.2.2. Measurement of Independent Variables

The length of the appeal text uses the length of the public appeal text. The emotional score is a continuous value from 0 to 1, 1 represents the most positive, 0 represents the most negative. According to the level of appeal, this study chooses the city and the province as the dichotomous variables, 0 for the city and 1 for the province.

In response to timeliness, this study uses natural days as the measurement scale, subtracting the date of the government's response from the date of the public's appeal, and taking days as the measurement unit. In this study, the number of policies in the government's response and whether

the relevant departments' contact numbers are mentioned in the response are used as the measurement standards. If there are relevant policies or contact numbers of relevant departments in the reply text, it is recorded as 1, otherwise it is 0, and the extraction method is regular expression extraction.

4. Research Results and Analysis

4.1. The Distribution of Public Satisfaction with Government Response

From the perspective of people's satisfaction with the government's response, more than half of the people were very satisfied with the government's response (50.37%), the proportion of satisfied(17.96%) and basically satisfied(16.02%) yield 80% more. People's evaluation of the government's reply turns out to be a slowly descending trend of satisfaction.

Table 1. Total satisfaction of government response.

Satisfaction of government response	frequency	percentage (%)
Very satisfied	50774	50.37
Satisfied	181 00	17.96
Basically satisfied	161 47	16.02
Dissatisfied	807 3	8.01
Very unsatisfied	769 4	7.63

4.2. Regression Model

In this paper, the dependent variable is the public's satisfaction with the government's response. The satisfaction is divided into two categories: very satisfied, satisfied and basically coded as 1, and dissatisfied and very dissatisfied were coded as 0.

Table 2. Regression model of the satisfaction on the government response.

	model1		model2		model3	
	coef	std	coef	std	coef	std
Appeal text length	-0.0008***	4.17E-05			-0.0007***	4.3-05E
Appeal text sentiment	0.1588***	0.019			0.1728***	0.019
Appeal level(1=provincial)	-0.3447***	0.015			-0.3028***	0.015
Appeal type(1= consultation)	-1.601***	0.17			-1.4837***	0.17
Appeal type (1= Suggestions)	-1.5703***	0.171			-1.4422***	0.171
Appeal type (1= Complaints)	-2.6359***	0.169			-2.504***	0.17
Appeal type (1= Ask for Help)	-2.1557***	0.169			-2.0313***	0.17
Days after netizen appeal			-0.0091***	0.000	-0.0077***	00.000
Reply text length			-0.0004***	3.3-05E	-0.0002***	3.4-05E
Reply text contains policy or law (1=yes)			-0.0311***	0.007	-0.0419***	0.007
Reply text contains contact phone number(1=yes)			0.0487***	0.021	0.0564***	0.021
intercept	3.1326***	0.169	0.9832**	0.012	3.2038***	0.17
Pseudo R-squ.	0.0437		0.01113		0.05075	
Log-Likelihood	-61772		-63876		-61317	
LLR p-value	0.000		0.000		0.000	

Each model has statistical significance test, and each model has explanatory power as a whole. Some of the hypotheses in the theoretical framework proposed in this paper have been empirically supported.

In model 1, people's evaluation of the reply of provincial leaders is less likely to be satisfied. This finding negates H1a, that is, the higher the level of people's demands, the higher the people's

satisfaction. In the process of appeal, Chinese people do have a trust structure of "the central government is strong and the local government is weak". However, from the perspective of the whole process of network politics, people's demands for provincial leaders are often difficult to solve. Although the government gives a reply, but the problems that appeal to the provincial leaders may involve more resources to solve. This shows that the psychological structure of people's political trust is not contradictory to their practical emotion of seeking problem solving.

In terms of the types of appeals, complaints and help seeking appeals are less likely to get satisfactory responses. This confirms H1B.

The longer the appeal text, the less likely they are to be satisfied with the government's response. In terms of emotion, the more positive the people's appeal is, the more satisfied they are with the government's response. Generally speaking, whether the people are satisfied with the demands of the government, this follows the Expectation-Value theory. If their expectations are not met, they will tend to give a negative evaluation of the government's response. This confirms our hypothesis H2A and H2B. On the whole, model1 verifies H2, that is, people's appeal strategies affect their evaluation of the government's response.

In model2, the longer the response days of government departments, the lower the satisfaction of the public to the government response. This reversely shows that the more timely the government's response, the higher the public's satisfaction, which verifies h3a. It can be seen from the above that the speed of government's response depends on the difficulty of solving people's demands, which also further proves that the higher the difficulty of demands, the higher the difficulty of solving, and the more people tend to give negative comments on the government's credibility and services.

The longer the text of the government's reply, the more dissatisfied people are with the government's reply. This leads to the paradox of the government's reply. On the one hand, the long text of the government's reply shows that the government patiently explains the demands of the people, reflecting the sincerity of the interaction between the government and the people. But on the other hand, the reply text is long, which often brings poor reading experience to the public, and gives the public the feeling that the government departments "only talk but not practice". This result negates our hypothesis H3B.

If the government's response text contains one or more fixed telephone or mobile phone numbers, then it is considered that the government's reply is department specific. And if the government's reply contains policy texts, the public will be dissatisfied with the reply. On the contrary, if the reply text contains contact information, the public's satisfaction with the government's reply will be improved. This result also shows the complexity of people's evaluation of government services. On the one hand, the public shows the aversion to the policy text; on the other hand, the public hopes that their problems can get the attention of the specific responsible person or relevant departments. This finding shows that in the influence of people's satisfaction with the government, it is possible that the influence of people's satisfaction "varies from person to person", rather than from policy or law, that is, "to people and not to things". Therefore, H3B was partially verified by this study.

In Model3, the above hypothesis is further verified. This shows that in the two processes of people's demands and government's response, people's behavior strategies and government's response methods have an impact on people's satisfaction.

5. Conclusions and Suggestions

With the rise of Internet politics, people are full of expectations for the interaction between the Internet and the government. Our government also shows an open attitude, hoping to improve the legitimacy of the government and the efficiency of serving the people through Internet politics. On the whole, the public's satisfaction with the government's response is high. The empirical results of this study show that: the government response achieves the effect of satisfying the public, improves the legitimacy of the government, and provides a technical path for the realization of "online mass line(网上群众路线)".

Through the analysis of the influencing factors of public satisfaction, this study found that:

People's satisfaction with government services is affected by their own emotional factors. The more emotional factors in people's demands, the more likely they are to be affected by emotional factors in the later evaluation of the government. This suggests that we should guide people to express their demands rationally and evaluate government performance reasonably. Moreover, the public shows a "complexity aversion" to the service of government departments. If the government departments' reply to the public contains too many policy documents or laws and regulations, the public's satisfaction with the government's reply will be reduced. There are many reasons for this "complexity aversion". On the one hand, too many policy texts lead to poor reading experience and increased psychological burden for people to understand. On the other hand, people have a kind of ambivalence, and tend to avoid understanding the formal laws or policies of the country, hoping to contact the relevant departments or individuals directly. This poses a new challenge to the rule of law in China. In the face of this situation, on the one hand, we should strive to improve the quality of our people's rule of law, on the other hand, we should standardize the system construction of government departments, so as to make network politics play a greater role.

There are also some limits on this research. As we all know the government response of the public's appeal are selected, some research show that the selective responsiveness is affected by a lot of factors. Our data are based on the replied and evaluated data, it needs more attention to pay on the whole process of the interaction of the government and the public.

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