



Analysis of configuration of influencing factors of government information disclosure based on adaptive structure theory.

- -Take the thirty-one provinces, for example

Rumeng Jin

College of Industrial Technology, Chengdu University of Science and Technology, Yibin, 644000, China

2735780242@qq.com

Abstract. Information disclosure is both a focus of public management and a challenging issue in contemporary Chinese government management practice. This paper adopts the fsQCA methodology and innovatively applies adaptive structuration theory to explore the driving paths affecting the level of government information disclosure by selecting six factors from three aspects: information technology structural sources, internal structural sources, and external structural sources, using the level of information disclosure of 31 provincial governments in China as the outcome variable. The results of the study are as follows. (1) The six factors cannot be seen in isolation as necessary conditions for the level of government information disclosure (2) There are four driving paths for high government information disclosure level. (3) There is a synergy of multiple factors behind government information disclosure. The findings of this paper help to develop a rational understanding of the complex interplay of multiple factors behind the level of government information disclosure in China and provide useful practical insights into the construction of government information disclosure.

Keywords: Government Information Disclosure Adaptive Structuration Theory Driving Paths Configuration Analysis

1 Introduction

Disclosure of information is an important means of good governance¹ and an important concept and focus of public management. Many scholars at home and abroad have studied the issue of government information disclosure, but most of them stay in theoretical analyses² and lack the support of empirical data³. However, the factors affecting not independent, but a combination effect. Thus, this paper proposes an analytical framework based on the adaptive structuration theory and the actual situation of the Chinese government and takes 31 provincial governments as examples to reveal the conditional groupings and mechanisms of the differences in the level of

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government information disclosure through fsQCA. This study broadens the research horizons of the level of government information disclosure, deepens the understanding of the paths and mechanisms of improving the level and helps comprehensively promote the modernization of government governance.

2 Literature inquiry and analysis framework

There are many domestic and international studies on the level of government information disclosure. In a study of a city in New Jersey (USA), the level of education was positively associated with transparency⁴. Zhang Ming found that supporting capacity, urbanization level, and citizens' quality have a significant influence⁵. Ma Liang found that the government's ability, superior pressure, institutionalization, and citizens' quality are significantly positively related to information disclosure⁶. Li Chunge investigates from five aspects: institution, organization, power, market, and public opinion⁷. Overall, research on government information disclosure has attracted great attention from the academic world. However, there is a lack of harmonization between views, most of which are not empirically analyzed and ignore the complexity of causal combination. Therefore, the conditions and mechanisms still need to be further clarified and more convincing explanations provided. Schwieger, in his MIS research, proposed a revised research adaptive structural theories model: external structural sources, internal structural sources, information technology structural sources, and the linkages between the three in the process of technology adoption⁸. This study applies the theory to investigate. First, information technology structural sources. The initial definition is more on the creation of rules and mechanisms⁹, which this study specifies as institutional provisioning and organizational structure. Some researchers found that system construction is a key factor affecting the level of information disclosure¹⁰. Organizational structure is the carrier of government power. To some extent, the government relies on its management agencies to ensure the disclosure of information⁷. Second, the internal structure sources. This paper selects policy concerns and open culture. What determines the way of government behavior is the government's concern¹¹. Especially in China, the number of policy documents directly reflects the degree of attention¹². Openness is the core culture of the digital age. It is difficult to achieve digital governance performance if it lacks openness¹³. Three, external structural sources. This paper selects citizens' demands and neighbor pressure. Studies have shown that citizen demand is an important force driving the disclosure of government information¹⁴. Citizen demand is influenced by a variety of factors, including, to a greater extent, access to education information¹⁵. The competition of the same level based on geographical proximity is an important factor affecting the behavior of local government¹⁶. By combining the above, this paper establishes a model of factors affecting the level of government information disclosure. See figure 1.

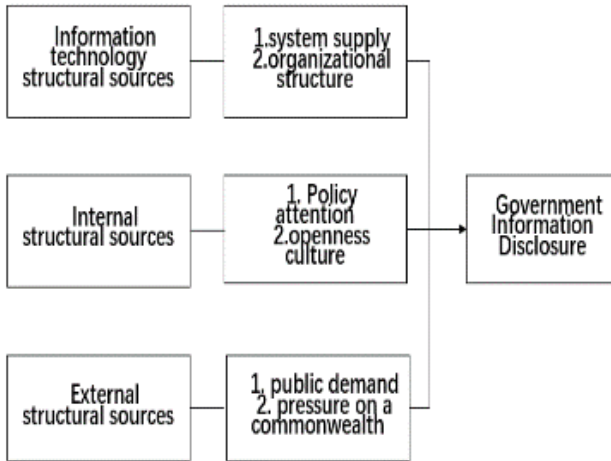


Fig. 1. article framework

Table 1. variable indicators

	Measuring indicators	data sources
Level of information disclosure	Provincial government information disclosure evaluation score	The Chinese Government Transparency Index Report was released in 2021
institutional supply	Number of local regulations and regulations ¹⁸	Peking University magic weapon
organization structure	The "Party and government institutions" score ¹³	Digital Government Development Index Report 2020
Policy attention	Number of normative policy documents on big data ¹²	Peking University magic weapon
Open culture	Marketization index ¹⁹	China Province by Province Market Index Report (2018)
public demand	Educational level of the citizens	State Statistical Bureau
Neighbor pressure	Government information disclosure evaluation scores for provinces with the same economic belt and borders	The Chinese Government Transparency Index Report was released in 2020

3 Research method and variable design

The fsQCA analysis used is based on the following considerations: (1) continuity variables in this study are more suitable for fsQCA. (2) fsQCA is suitable for some combinations of asymmetric relationships that arise in influencing factors (3) By im

plementing the calibration of the data, it can make the influencing factors more effective, thus making the conclusion more reasonable¹⁷. The outcome variable of this paper is the level of government information disclosure, and the dependent variables are institutional supply, organizational structure, policy concerns, open culture, public demand, and neighboring government pressure. For variables treated as in Table 1. This study uses secondary data because, on the one hand, the sample for this study covers the whole country and is expensive to collect; on the second hand, government information disclosure is a sensitive topic, and it is not possible to obtain data through large empirical surveys. In this paper, the direct calibration method has set the 95% quantile, 50% quantile, and 5% quantile as calibration anchors, which represent full affiliation, intersection, anfullnon-membership²⁰. See table 2.

Table 2. calibration point

condition variable	High-level of information disclosure		Low level of information disclosure	
	consistency	coverage	consistency	coverage
High institutional supply	0.708	0.761	0.522	0.539
Low institutional supply	0.571	0.554	0.768	0.717
High tissue structure	0.669	0.741	0.515	0.548
Low tissue structure	0.592	0.559	0.756	0.688
Strong policy attention	0.651	0.729	0.533	0.574
Weak policy attention	0.620	0.580	0.749	0.673
High open culture	0.804	0.822	0.509	0.500
Low open culture	0.511	0.520	0.818	0.801
Strong public demand	0.619	0.711	0.582	0.643
Weak public demand	0.689	0.631	0.739	0.651
Strong neighbor pressure	0.730	0.800	0.495	0.521
Weak neighbor pressure	0.563	0.537	0.810	0.743

Table 3. necessity analysis

Variable name	calibration		
	Fully subordinate	cross point	Not subordinate at all
Information disclosure level	85.08	75.47	65.555
System supply	171060	76657	32276.5
organization structure	6	5	2
Policy attention	111.5	26	5
Open culture	9.895	6.75	3.735
Public demands	30.406	14.88	10.9855
neighbor pressure	76.2375	67.8267	55.4283

4 DA

This paper first tests whether a single condition (including its non-set) constitutes a necessary condition for government information disclosure. The test results are shown

in Table 3. If the judgment criterion for the necessary condition analysis is that the consistency level is higher than 0.9, the condition variable can be regarded as the necessary condition of the outcome variable²⁰. The table below shows the results of the necessary conditions test for high and non-high levels of government information disclosure analyzed by the fsQCA 3.0 software. As can be seen, the level of agreement for all conditions is less than 0.9. Therefore, there is no necessary condition to affect the government of non-elevated level and elevated level of government information disclosure. The consistency threshold is set to 0.80, and the frequency threshold is set to 1. Furthermore, to avoid the simultaneous subset relationship of a configuration in the result and the result negation, the PRI consistency threshold value should not lower than 0.5. In this paper, 0.73 is set as the PRI consistency threshold. The results are drawn according to the debriefing form of mainstream QCA. The results are shown in table 4.

For all four groupings, the level of consistency is above the minimum acceptable standard of 0.75, with an overall solution consistency of 0.94, which means that 94% of all cases that satisfy the four show a high level. The coverage of the overall solution is 0.57, indicating that the four groupings can adequately represent the antecedent combinations of high levels and the results are reliable. In group 1, provinces with strong public demand and a significant degree of marketization have a sound organizational structure, and if the government can provide more institutional supply, the province will have a higher level. The pathway can explain about 36% of high-level cases. In addition, about 3% of the high-level website construction performance cases can only be explained by this path. Configuration 2 shows that in a province with a significant degree of marketization and strong demand of citizens, if the provincial big data management agency can be established earlier, the government information disclosure can reach a best level. This path can explain 36.4% of the elevated level cases and 3.5% of the cases can only be explained by this path. Configuration 3 shows that if a province has good organizational support, good system supply, high attention to the big data of government affairs, and faces greater competitive pressure from neighboring government, it does not need public demand, and regardless of the conditions of organizational openness, the development level is relatively high. This path can explain 36.7% of the high level of government information disclosure cases and 12.8% of the cases can only be explained by this path. Configuration 4 indicates that if a province has a significant degree of marketization, strong demand from citizens, perfect system supply, high policy attention and greater pressure, it can have a better effect. This path can adequately explain 33.0% of the cases and 5% of the cases can only be explained by this path.

This paper changes the consistency threshold and PRI consistency. First, after appropriately improving the consistency (from 0.8 to 0.85), the new result is the same as above (not shown here again). Second, the consistency was still set to 0.80, the PRI consistency was improved from 0.73 to 0.74, as shown in the table 5, the new results are broadly consistent with the above. Therefore, the study conclusions can be considered robust.

5 Concluding recommendations and shortcomings

This paper adopts fsQCA and adaptive structuring theory to explore the driving paths that affect the level of government information disclosure. The results are as follows. (1) None of the six factors can be regarded as a necessary condition (2) There exist four paths leading to a high level of government information disclosure, and each of them has different core elements, so each place should follow the path that is suitable for itself according to its own actual situation. (3) The results show that the core elements affecting the openness of government information are system supply, organizational structure, policy concern, open culture, public demand, and pressure of proximate government. The results suggest the following policy recommendations: First, local governments should strengthen the union between IT structural sources, internal structural sources, and external structural sources. Based on its existing conditions, the government can focus on the adaptation of multiple conditions under the "holistic perspective". Second, localization. The core conditions of the four configurations are not the same, and each place should formulate reasonable policies according to its own.

The study still has its limitations. First, although it includes more variables to be evaluated, there are still omissions. The analytical framework was limited by data availability and did not include individual management-level influences. Second, the study used secondary, publicly available data and was limited to the macro level. Did not reveal the influence mechanism of micro-level information disclosure. Finally, this study focused only on provincial governments, and further research is needed to determine whether the results can be extended below the provincial level.

Note: All tables and images in the article are self-produced.

Table 4. configuration path

Condition configuration	1	2	3	4
System supply	●		●	●
organization structure	●	●	●	
Policy attention			●	●
Open culture	●	●		●
Public demand	●	●	⊗	●
neighboring pressure		●	●	●
consistency	0.93	0.96	0.95	0.93
coverage	0.36	0.36	0.37	0.33
Unique coverage	0.03	0.03	0.13	0.05
Concordance of solutions	0.94			
The coverage of the solution	0.57			

Table 5. robustness check

Condition configuration	1	2	3	4
System supply	●		●	●
organization structure	●	●	●	

Policy attention		⊗	●	●
Open culture	●	●		●
Public demand	●	●	⊗	●
neighbor pressure		●	●	●
consistency	0.93	0.95	0.95	0.93
coverage	0.36	0.28	0.37	0.33
Unique coverage	0.03	0.03	0.13	0.05
Concordance of solutions	0.94			
The coverage of the solution	0.57			

References

1. Rutherford A, Wightman G B. Inside the push for good governance: Institutional predictors of administrative transparency in public organizations [J]. The American Review of Public Administration, 2021, 51(8): 590-604. <https://doi.org/10.1177/02750740211031925>
2. Zhu Hongchan, Chen Nenghua. Complexity Analysis and Implications of Government Information Disclosure under the Perspective of Information Divide[J]. Intelligence Theory and Practice, 2010(9): 4.DOI: CNKI: SUN: QBLL.0.2010-09-013.
3. Liu Jie, Zhang Jianfeng, Zhang Qi. Analysis of the Countervailing Dynamics of Government Operation on Information Disclosure[J]. Journal of Public Administration, 2012(4): 8.DOI: 10.3969/j.issn.1672-6162.2012.04.003.
4. Piotrowski S J, Bertelli A M. Measuring Municipal Transparency [C/OL].14th IRSPM Conference. Bem, Switzerland, 2010. <http://www.irspm2010.com/workshops/papers/31-measuring- municipal. Pdf>
5. Zhang Ming. Research on the Influential Factors of Government Information Disclosure under the Perspective of Entrusted Agents--An Empirical Analysis Based on Chinese Provincial Panel Data[J]. Journal of Party School of Hangzhou Municipal Committee of the Communist Party of China, 2015(2): 7.DOI: CNKI: SUN: HZSW.0.2015-02-006.
6. Ma Liang. Influencing Factors of Government Information Disclosure: An Empirical Study of Prefecture-Level Cities in China[J]. Journal of Intelligence, 2012, 31(9):6.DOI: 10.3969/j.issn.1002-1965.2012.09.027.
7. Li Chung. Influencing factors of government information disclosure in China[J]. Journal of the Party School of the Central Committee of the Communist Party of China,2013, 17(3): 4.DOI: CNKI: SUN: ZGXB.0.2013-03-014.
8. Schwieger D, Melcher A, Ranganathan C, et al. Appropriating electronic billing systems: Adaptive structuration theory analysis[J]. Human Systems Management, 2004, 23(4): 235-243.DOI:10.3233/HSM-2004-23405.
9. Fan Bo, Yu Yuanting. Research on the Influencing Factors of Government Data Quality Based on Adaptive Structuring Theory--Taking Government 12345 Hotline Data as an Example [J]. Library Intelligence Knowledge, 2021, 38(2): 13-24. DOI: 10.13366/j.dik.2021.02.013.
10. Han Wanqu. Administrative self-regulation absorbing the pressure of rule of law: local government information disclosure performance and its generation mechanism[J]. China Admin., 2020, 000(007): 56-63.DOI: 10.19735/j.issn.1006-0863.2020.07.08.
11. Ren Jantao. Making Provisions before Troubles Occur: The Technological Revolution and Great Changes in State Governance [J]. Jiangsu Social Science,2020(5): 72-85,238. <https://www.dps.tsinghua.edu.cn/info/1114/2122.htm>

12. Li Jiangping, Yao Yifan, Ye Zhonghua. The Determinants and Development Paths of Provincial Governmental Big Data Under TOE Framework--Based on Empirical Research of fsQCA [J]. *Journal of Information*, 2022(1). https://xueshu.baidu.com/usercenter/paper/show?paperid=1v6tf0ge00v7q0vs06g4h04309f360284&site=xueshu_se
13. Wei Bin, Chen Yongzhou. What Promotes the Performance of Government Digital Governance? QCA Method Based on Complex Causal Perspective[J]. *Science and Management*, 2022, 42(3): 10. <https://xueshu.baidu.com/usercenter/paper/show?paperid=1q5608e0bp3j0tp0te0x06103u624604>
14. Piotrowski S J, Van Ryzin G G. Citizen Attitudes Toward Transparency in Local Government[J]. *American Review of Public Administration*, 2007, 37(3): 306-323. DOI:10.1177/0275074006296777.
15. Xu Chunhua. Research on Influencing Factors of Government Website Performance [D]. Lanzhou University, 2020. https://xueshu.baidu.com/usercenter/paper/show?paperid=1k7e04s0nu5n0er05a460xd00x036040&site=xueshu_se
16. Berry W D, Baybeck B. Using geographic information systems to study interstate competition[C]//Meeting of the Midwest-political-science-association. Cambridge University Press, 2005: 505-519. DOI:10.1017/s0003055405051841.
17. Shen Junxin, Li Shuang, Zhang Jingyang. Research on Influencing Factors of Big Data Industry Development Capability - Based on fsQCA Method[J]. *Research on Science and Technology Management* 2019(7): 8. DOI: 10.3969/j.issn.1000-7695.2019.07.020.
18. Zhang Fang. Determinants of Local Governments' Information Disclosure: A Dynamic QCA Analysis Based on Provincial Panel Data[J]. *Journal of Intelligence*, 2023, 42(1): 133-141, 207. www.sinomed.ac.cn/article.do?ui=2023165007
19. Han, Nana. Generative logic and patterns of online government service capacity of Chinese provincial governments: A fuzzy-set qualitative comparative analysis based on data from 31 provinces[J]. *Public Administration Review*. 2019, 12 (4) : 82-100, 191-192. <https://www.cnki.com.cn/Article/CJFDTOTAL-GGXZ201904008.htm>
20. RAGIN C C. Redesigning social inquiry: fuzzy sets and beyond Chicago: University of Chicago Press, 2008 DOI:10.7208/chicago/9780226702797.001.0001

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