The effects of conflicting economic and environmental goals on local governments' responses to citizens' complaints: evidence from China

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Abstract

Purpose – The paper examines how local governments' responses to citizens' complaints about environment issues are affected when the complaints involve conflicting goals, particularly economic versus environmental goals. This study focuses on the responsiveness of provincial governments to citizen environmental complaints on the Local Leader Message Board (LLMB) in China.

Design/methodology/approach – This study collected 125,364 environment-related complaints lodged by citizens on the LLMB from 2013 to 2021 and identified complaints embodying conflicting goals through a Structural Topic Model (STM). Advanced supervised machine learning (ML) algorithms were employed to enhance the robustness of the findings.

Findings – The results indicate that provincial governments prioritize citizens' complaints across different types of issues. However, complaints embodying conflicting goals (related to environmental issues) are less likely to get a response. This relationship is moderated by an inverted U-shaped effect of economic dependence on industries. This suggests that the impact of conflicting goals on government responsiveness is dynamic, with the likelihood of provincial governments responding to conflicting complaints initially increasing and then decreasing as economic dependence on industries rises.

Originality/value – The findings enrich the understanding of the consequences of conflicting goals by highlighting their potential as a mechanism to explain the strategic reactions of governments to citizens.

Keywords Conflicting goals, Government responsiveness, Structural topic model, Machine learning algorithms, Environmental complaints, China

Paper type Research paper

Introduction

Often, public agencies and their agents are confronted with multiple goals, and sometimes even conflict with each other, imposed by themselves or their superiors (Gao, 2009). For example, effectiveness, efficiency, equity, and others are all utilized to define goals that governments must accomplish (Nam, 2019; Piatak and Jensen, 2024). Many studies investigate the antecedents and consequences of multiple goals (Chen and Jia, 2023; Zhang, 2021). However, knowledge about how multiple goals (i.e., conflicting goals) influence governments in response to public demands is still scarce. This scholarly omission is puzzling given the government's responsiveness acts as a critical characteristic of democracy (Verba and Nie, 1987). Therefore, uncovering the relationship between

conflicting goals facing governments and their responsiveness to public complaints is of great theoretical and practical significance.

In applying the theory of multiple goals in hierarchical governments, this research selects typical conflicting goals confronted by governments, namely economic growth competing with environmental governance (Chen and Jia, 2023; Zhang, 2021). According to Environmental Kuznets Curves (EKCs), environmental quality initially deteriorates with economic development, and only after transcending the peak is the association reversed (Egbetokun *et al.*, 2018). Currently, many countries stay at the left part of EKCs, indicating a wicked problem of balancing economic growth and environmental protection that needs to be handled. Taking China as an example, when making their economic decisions, both provincial-level and prefecture-level governments, often rely on the performance information of pollution reduction. Only when the goals of environmental governance are met do they tend to engage in setting higher economic goals (Zhang, 2021). This study argues that the conflicting nature of the economy-environment link also affects governments' decision-making in response to citizens' complaints. Governments are inclined to make a conscious distinction between plentiful and heterogeneous citizen complaints. They tend to be less likely to respond to complaints embodying the conflicting nature of the economy-environment. Thus, two research questions will be addressed. First, how do conflicting goals influence governments' responsiveness to citizen complaints? Second, how does economic dependence on industrialization moderate this relationship?

To answer these questions, this research focuses specifically on the empirical case of the responsiveness of local governments to citizen environmental complaints in China. Relevant data are gleaned from the Local Leader Message Board (LLMB) from 2013 to 2021, a major online participation forum launched by China's central media in 2008. The paper employs a Structural Topic Model (STM) to identify the complaints embodying conflicting economic-environment goals from over 120,000 environmental complaints. The results indicate that the responsiveness of provincial governments varies substantially, with a decrease in the probability of responding to citizens' complaints embodying conflicting goals. This reaction pattern is subject to the inverted U-shaped moderating effect of economic dependence on industrial development. This study provides a nuanced understanding of government responsiveness and adds new insights into the organizational literature by uncovering the unintended consequences caused by multiple goals.

Literature review
Government responsiveness and its potential influential factors
Government responsiveness, conceptualized as the government's ability to satisfy the public's concerns, is frequently viewed as one of the critical characteristics of democracy (Verba and Nie, 1987). Conventional wisdom has long viewed seeking re-election as an important mechanism to incentivize politicians to cater to their constituents in democracies (Cain *et al.*, 1987). However, nondemocratic governments have also shown high responsiveness to public pressure (Hassid and Brass, 2015; Jiang *et al.*, 2019; Meng *et al.*, 2017; Reilly, 2011). This is counterintuitive for scholars, and further inspires them to delve into the factors that shape government behavior in response to public demands in a non-Western context (Distelhorst and Hou, 2014; Distelhorst and Hou, 2017).

In many countries, local governments have designed numerous channels to respond to citizens' complaints conveniently. Yet, local governments tend not to treat all citizens' complaints equitably; instead, selective responsiveness is common (Su and Meng, 2016). The drivers of governments in response to societal requests selectively primarily come from accountability pressure imposed by higher authorities (Yang *et al.*, 2023). The central government sets multiple performance goals and holds local cadres accountable for them

(Wang, 2018). These local governments failing to complete the defined goals will face severe punishment. Often, economic issues and maintaining social stability (*weiwen*) are the two priorities that governments must accomplish (King *et al.*, 2013). Citizens' complaints about these issues, thus, are more likely to get more attention from governments. Some studies have consolidated the above arguments, with the collective action threats of citizens usually facilitating governments to respond to their grievances (Chen *et al.*, 2016; King *et al.*, 2013; King *et al.*, 2014).

Conflicting nature of "economy-environment" and its influence on government responsiveness
Governments and bureaucrats are said to operate within a web saturated with multiple expectations from different accountability forms, various governance logics, and multiple performance tasks (Nielsen and Andersen, 2024; Tu and Gong, 2022). Governments have now developed numerous tactics to deal with this dilemma. Bureaucrats' coping, including rule bending/breaking, prioritization, and even aggression, is a typical case (Tummers *et al.*, 2015). At the agency level, goal prioritization is commonly utilized as a reasonable choice for governments to cope with conflicting expectations. For example, Chen and Jia (2023) indicated that local governments tend to seek a balance among multiple goals by prioritizing them. They are more willing to prioritize environment-related goals only when they are outperforming in economic issues. Following this logic, this research further conjectures that the responsiveness of governments to citizens' demands is also influenced by multiple expectations they confront, particularly regarding the conflicting goals.

Often, conflicting goals delineate the negative correlation between two goals, with one goal achieved inhibiting the other. It is fairly common for governments to wrestle with multiple goals, especially conflicting goals (Christensen *et al.*, 2018; Gilad, 2015). Chun and Rainey (2005) further distinguish between two forms of conflicting goals, i.e., direct and indirect. The direct conflict may occur when achieving one goal directly impedes the accomplishment of another desired goal (Lee *et al.*, 1989); indirect conflict refers to potential competition among numerous goals in acquiring resources, usually observed when multiple goals coexist at the same hierarchical level.

The typical case of conflicting goals is the complicated relationship between the economy and the environment, which is theorized as the EKCs (Egbetokun *et al.*, 2018). This parsimonious model suggests that environmental quality initially worsens in the early development phase and gradually improves as the country attains a higher GDP. In most countries, including China, the upward curve is commonly observed because they fail to surpass the threshold value depicted by the EKCs (Dasgupta *et al.*, 2002). Hence, the trade-off between economic growth and environmental quality appears to be prominent in government decision-making in these countries. Some studies based on China reflect this argument. For illustration, one study investigates the provincial-level government decisions to set economic goals that rely on the performance outcome of obligatory pollutant emission reduction targets (Zhang, 2021).

In China, in response to citizens' environmental complaints, local governments are influenced by the conflicting nature between the economy and the environment. On the one hand, the promotion tournament model predicts that economic growth is a credible signal for local cadres and that they are more likely to be promoted only if they perform well in economic issues (Li and Zhou, 2005; Su *et al.*, 2012). This incentive mechanism powerfully enables local governments to prioritize the economic issue as their most important policy agenda, even when large-scale environmental pollution occurs (Di Tella and MacCulloch, 2008). On the other hand, governance in the environmental field has been placed at an unprecedented level since Xi Jinping's administration. The central authority holds a

zero-tolerance attitude toward local governments that perform poorly in governing environmental pollution (Zhang, 2021). The local leaders will face severe punishment and even lose their promotion opportunities once they are not up to the standards of ecological tasks (Wu and Cao, 2021). Therefore, local governments may find themselves embedded within a "cage" of conflicting goals. If they desire to increase their promotion probability, they must spare no effort to promote the economy, yet it may inevitably contradict environmental issues (Ma, 2016). Additionally, they strive to avoid severe punishment imposed by the central authority in a manner that prudently deals with pollution that potentially impedes economic growth (Chen, 2024; Krause *et al.*, 2019).

It is arguable to assume that local governments display strategic patterns when responding to citizens' environmental complaints. Specifically, they tend to consciously categorize the pooled citizens' complaints and selectively circumvent the complaints embodying conflicting goals. Resolving such complaints usually benefits the environment but largely hampers economic development. Hence, the first hypothesis is proposed.

> H1: Local governments are less likely to respond to conflicting complaints, i.e., these embody conflicting economic and environmental goals.

The generalized hypothesis appears to assume that local governments are homogeneous regarding economic dependence on industry (industrial dependence). However, this is not true in reality. Notably, China varies substantially in economic structure among its subnational units. Shanghai, Guangdong, and Beijing are very economically developed, and ICT and the tertiary sector enable their economic enhancement (Zhang, 2021). This directly reflects the low dependence of economic growth on industrialization. However, Hebei and Heilongjiang rely mainly on energy-intensive industries to promote their economic growth (Zhang, 2021), and their economic rank is relatively low.

Based on the above reasoning, the study argues that economic dependence on industry conditions the tendency of governments to respond to conflicting complaints. Drawing on the EKCs, this research hypothesizes that the responsiveness of governments to conflicting complaints is subject to the inverted U-shaped moderating effect of the level of industrial dependence. A province's low level of industrialization denotes that its contribution to the economy is not high. In that case, the provincial government may have more confidence to tackle the environmental pollution caused by industrialization. Therefore, the likelihood of responding to conflicting complaints increases even if the industry is gradually developing. However, suppose a province's economic growth mainly relies on its industry rather than the primary or tertiary sector. In that case, the provincial government is more reluctant to deal with environmental pollution caused by industrialization because the resolution of such issues hampers economic growth (Chen and Jia, 2023). Thus, conflicting complaints are less likely to be responded to with the development of the industry. As such, this study posits the second hypothesis.

> H2: The tendency of governments to respond to conflicting complaints is subject to the inverted U-shaped moderating effect of economic dependence on industry.

Local governments' responses to citizens' complaints on the LLMB in China

Recently, many governments worldwide have increasingly employed internet-based platforms to facilitate their active interaction with citizens. China is no exception. Currently, multiple channels, such as Mayor's Mailbox, 12345 hotlines, and government official Weibo (and WeChat), are used to articulate citizens' grievances and more importantly, enabling the governments to reach out to every segment of society. This research focuses on a major government-sponsored cyber participation platform named the

Local Leader Message Board (LLMB) in China, initially launched by *People's Daily* Online (www.people.com.cn) in 2008. It mainly aims to provide a convenient communication channel for citizens to express their grievances to local leaders (party secretaries and government heads) across county-, prefecture-, and province-level governments. LLMB has emerged as the most popular portal for interaction between the government and citizens in China. Public administration and political science scholars have employed it to examine classic issues in their respective fields (Jiang *et al.*, 2019; Su and Meng, 2016).

The case of the LLMB on which local governments respond to citizens' complaints has been selected to test the hypotheses based on two reasons. Firstly, according to Nie and Wang (2023), the interviewed street-level civil servants in charge of LLMB found that the LLMB could mostly reflect the level of local responsiveness compared with other channels. Other channels such as government web forums, the Mayor's Mailbox, and official Weibo (and WeChat) are, to a greater extent, controlled by the local authorities who would have more room to maneuver in deciding whether to disclose the complaints sent to these channels. Conversely, local agencies barely controlled the operation of the LLMB, and all complaints were publicly available and fully recordable. Secondly, local governments have been encouraged to enhance their responsiveness to citizens' complaints online since 2012. The provincial-level authorities have established a formal institution to guide the handling of citizens' demands sent to the LLMB. *People's Daily* has used a ranking tool to motivate local governments to actively respond to citizens' complaints on the LLMB. Hence, the LLMB is viewed as a representative case to examine the research issue of governments' responsiveness to citizens' complaints.

Nie and Wang (2023) and Su and Meng (2016) developed web crawler software to access the interaction traces between local governments and citizens. They are textual data that record the content of citizens' complaints sent to the LLMB and the corresponding responsiveness information ranging from 2013 to 2021 (N = 2,334,753). From these complaints, 125,364 environmental complaints targeting the provincial-level leaders were identified, including party secretaries and government heads, 79 percent of which received responses from the relevant local leaders.

The provincial distribution of citizens' environmental complaints on the LLMB is plotted in Figure 1. Henan and Sichuan rank the highest, with the largest number of citizen complaints concerning environmental issues. Guangdong, Anhui, and Gansu follow them. Jiangsu, Zhejiang, Xinjiang, Tibet, and others have the least number of environmental complaints, with the volume below 3500. Overall, the volume of environmental complaints appears not to be associated with the provincial economic level. Zhejiang and Jiangsu, as the economically developed provinces, received extremely few complaints. Henan is at the middle level of its economy, and yet submitted the largest volume of citizens' environmental complaints.

Research methodology
Clustering citizen environmental complaints on the LLMB by STM
The Structured Topic Model (STM) is used to capture the contents of citizen environmental complaints recorded on the LLMB. STM is an unsupervised topic model that identifies the latent dimensions (topics) of text. STM estimates topics by treating documents as a mixture of underlying topics and topics as a mixture of a latent set of words that contribute to them. In this manner, each identified topic is interpreted as a group of words that STM determines have the largest probability associated with that topic. Hence, the topic-word association is used to guide researchers in interpreting each topic by reading its associated words. Moreover, documents are categorized under similar topics. The method has been used in previous public administration research (Hollibaugh, 2019).
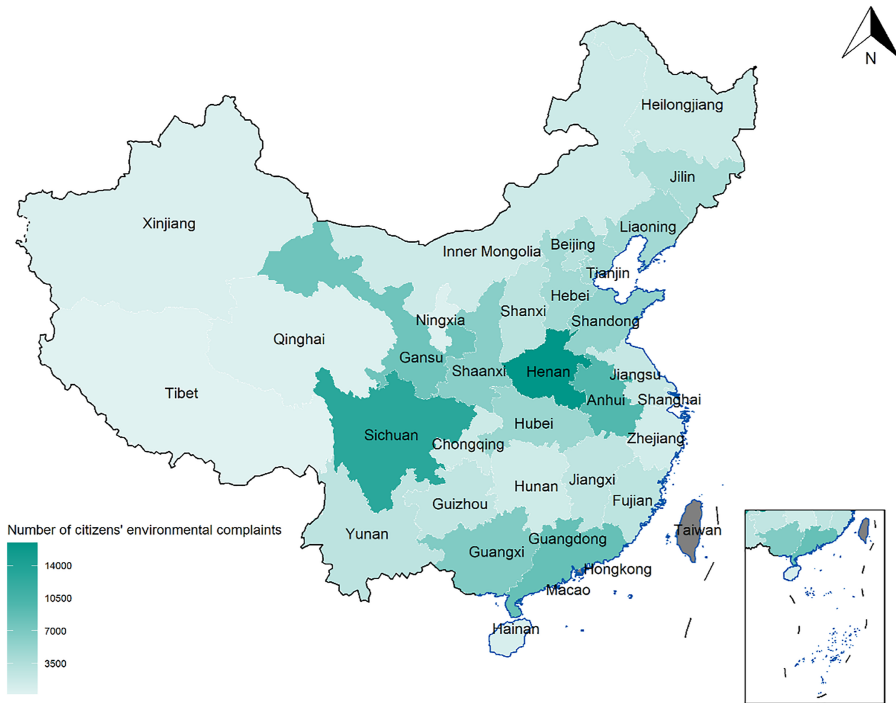
Figure 1.
Provincial distribution
of citizens'
environmental
complaints from
2013-2021

Source: By authors

With STM, researchers must first manually specify the number of topics, k (Roberts *et al.*, 2019). Four metrics, including residual fit, held-out likelihood, semantic coherence, and exclusivity, are commonly used to help researchers make such decisions (Hollibaugh, 2019). $k = 5$ is chosen as the most appropriate topic number, and an STM is estimated for the whole corpus of 125,364 preprocessed citizens' complaints. The details of the 5 topics identified by STM are presented in Table 1.

Measures, data sources, and model specifications
In line with previous research (Chen *et al.*, 2016; Distelhorst and Hou, 2014; Su and Meng, 2016), government responsiveness is defined as government behavior that "responds (or not)" to public complaints. It is measured by a dummy variable that equals 1 for a citizen complaint that is responded to.

The independent variable of interest is conflicting complaints. Following previous studies (Wu and Cao, 2021), this research argues that the topic of industrial pollution identified by STM, to some extent, reflects the conflicting nature of the economy and the environment. Industrial development is conducive to economic growth but also detrimental to the environment. A dummy variable is created, which takes a value of 1 if a complaint pertains to an industrial pollution topic. The moderating variable, economic dependence on industrialization (abbreviated as industrial dependence), is proxied by industrial value added as a share of GDP in a certain province.

Topic	Highest words	Documents
Topic 1: Noise nuisance	Noise, construction, residents, impact, rest, nuisance, night 噪音, 施工, 居民, 影响, 休息, 扰民, 晚上	The housing resettlement project is located in Yj village of Yt District, was constructed overnight. This generated noise, caused by dump trucks, disturbed residents. The roar and yellow soil was piled openly, resulting in pollution. I filed a complaint with the Ca District. Chang 'an District information center said that it is difficult for them to deal with the construction of Yangjia village resettlement housing project in Yt district across regions. Please, leadership, solve this! Yt 区 Yj 村安置房项目整晚施工, 噪音扰民, 渣土车轰鸣, 黄土露天堆放。反馈长安区, 长安区信息中心说是 Yt 区杨家村安置项目施工, 请领导解决!
Topic 2: Oily fume, particularly in the concentration of fumes from barbecues	Community, residents, fumes, owners, operations, impacts, residents 小区, 居民, 油烟, 业主, 经营, 影响, 住户	Barbecue smoke at street level, located on Ly Creek Street, seriously affects the rest of upstairs residents at night. The smoke from the barbecue makes people breathless, upset, have headaches, and cough. It is a poisonous gas, and long-term exposure is harmful to public health. The relevant departments need to help solve this problem. Thank you! Ly 溪街临街门市烧烤排烟严重影响楼上居民晚上休息, 熏得人无法呼吸, 心烦, 头疼, 咳嗽。烧烤碳烟本为有毒气体, 长期熏闻有害身体健康。有关部门帮忙协调解决。谢谢!
Topic 3: Urban and rural live environment	Community, residents, fumes, owners, operations, impacts, residents 垃圾, 小区, 环境, 生活, 居民, 影响, 道路	Dear leaders: Hello! Bu vegetable market, there is piled with garbage, and no one cleaned it up nearby the west door of Buji River Vegetable Market, located at the old Finance Bureau west entrance. It's summer and flies are everywhere. It stinks when people pass by. There are a lot of people defecating in demolition buildings. I hope the leader can send staff to manage the sanitation in this area. Thank you. 尊敬的领导: 你好! 卜吉河蔬菜市场老财政局西门口, 垃圾成堆, 无人清理, 现在正值夏天, 苍蝇到处都是, 行人从此处经过把人臭的, 还有好多人在拆迁楼里, 随地大小便。希望领导能派人清理一下, 管理一下这一块的卫生, 谢谢。

(continued)

Table 1.
Topics, relevant
highest words, and
documents

Topic 4: Industrial pollution	Pollution, residents, living, emissions, impacts, smells, production 污染, 居民, 生活, 排放, 影响, 气味, 生产	Dear leaders: Hello! The environment around the Reiqixin Jiayuan Community is unacceptable to the residents. It is opposite the Zhuoyuan heavy industry, less than 100 meters away from the residential area. It's not only disturbing the people, but also a serious threat to the health of the residents. For years, nobody managed. Why are residential buildings built in industrial areas? Please pay attention to the leadership, give a solution! 尊敬的领导：您好！瑞奇馨家园小区，周围环境老百姓无法接受，对面是桌远重工业，离居民小区不到一百米，不但扰民，而且对居民身体健康也存在严重威胁，多年来，无人问津，为什么在工业园区会建筑住宅楼？领导重视，给予解决！
Topic 5: Rural ecosystems	Villagers, government, pollution, environmental protection, construction, company, country 村民, 政府, 污染, 环保, 建设, 公司, 国家	Dear leaders, hello. I am a villager of the QL Village. What I would like to complain about is that every family in the village has tap water, which contains mud and sand all year round. In 2017, since neighbor villagers reported the problem of mud and sand, the well has been panned, and they got clear tap water. However, the problem in our village is still not solved, and the water flowing out in the past two years has remained muddy and sandy water. Water is what everyone eats and drinks every day. I hope that the leaders can pay attention to the quality of water. 尊敬的各县委领导，我是 QL 村西塬的一位村民，我要反映的是自从村里每家通了自来水以后，家里的水常年流出来的水都有泥沙，2017 年邻村的人反映泥沙问题以后淘了井，但是我们村的问题还是没有解决，这两年流出来的水依旧是泥沙水。水是大家每天都要吃喝的，望各位领导能关注一下底层村民的吃水质量问题。
Source: By authors		

Table 1.

This research also controls for issue-, provincial- and leader-level variables (Pan and Chen, 2018). Issue-level variables are complaint prevalence (1 = citizen complaints pertaining to the topic with the highest proportion calculated by the STM; 0 = otherwise), and sentiment (emotion score of citizen complaints calculated by a dictionary-based method. The larger the values, the more positive the emotion.), and collective action (1 = yes; 0 = no). Provincial controls include provincial GDP (hundreds of million-yuan, log) and population density (tens of thousands of people per square kilometer). The leader-level variable is provincial official changes, including party secretary (change occurred in a certain year = 1, otherwise = 0) and governor (change occurred in certain year = 1, otherwise = 0). The summary statistics of the variables are reported in Table 2.

Variable name	Source	N	Mean	SD	Min	Max
Responsive variable						
Complaints responded	LLMB	125364	.79	.41	0	1
Explanatory variable						
Conflicting complaints (Industrial pollution)	LLMB	125364	.17	.38	0	1
Moderating variable						
Industrial dependence	CSY	31	.32	.06	.07	.49
Industrial dependence^2	CSY	31	.11	.04	.004	.24
Control variables						
GDP (log)	CSY	31	10.31	.7	6.69	11.73
Population density	CSY	31	.04	.05	0	.4
Governor change	PD	31	.31	.46	0	1
Party sectary change	PD	31	.27	.44	0	1
Collective complaints	LLMB	125364	0	.04	0	1
Sentiment	LLMB	125364	-.24	2.97	-31	73
Top prevalence	LLMB	125364	.33	.47	0	1

Note: LLMB denotes local leader message board; CSY denotes China statistical yearbook; PD denotes online public data.
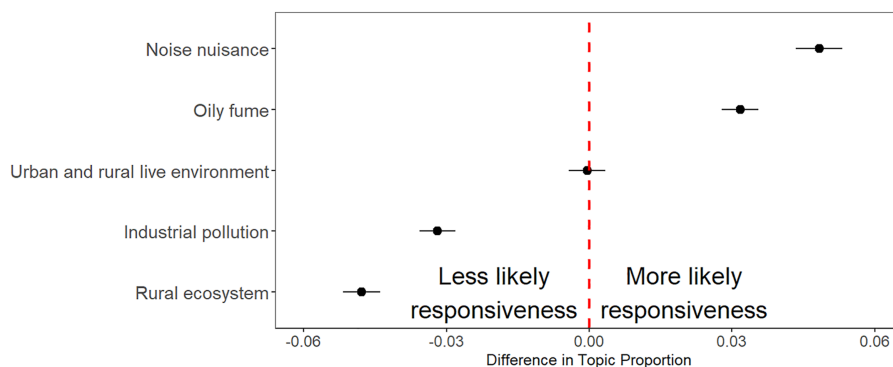Source: By authors

Considering that provincial industrial dependence and government responsiveness are two levels of variables, and the latter is nested in the former, a multilevel logit model is estimated.

Results
The results of STM
Compared with other topic models, STM allows researchers to estimate the effect of document-level variables on the proportion of a certain topic. Figure 2 visually plots the effect of government responsiveness (document-level variable) on the prevalence of five topics. The points represent the mean effect, and the horizontal lines refer to 95 percent confidence intervals. An estimate above zero indicates that topics are more likely to receive responsiveness, while an estimate below zero indicates that topics are less likely to be responded to. If the horizontal lines cross the vertical red line, this means that government responsiveness does not influence the proportion of that topic.

Source: By authors

Figure 2.
Effects of government
responsiveness on
topic prevalence

Figure 2 shows that provincial governments are less likely to respond to citizen complaints about industrial pollution and rural ecosystems. Hypothesis 1 was intuitively supported. Additionally, noise nuisance and oily fumes are more likely to receive responsiveness from local governments.

Regression results

Table 3 reports the baseline results. Model 1 only includes conflicting complaints and controls for yearly trend effects with a set of year dummy variables. Model 2 adds the provincial-, issue-, and leader-level variables, while Model 3 tests the moderating effect of industrial dependence by interacting conflicting complaints with industrial dependence and its square term (*industrial dependence^2*).

Model 1 reports a negative and significant coefficient for *conflicting complaints* (β = -0.184, t = -10.20), suggesting that provincial governments are less likely to respond to citizen complaints about industrial pollution. This is consistent with the result of Model 2 (β = -0.090, t = -4.68), which includes control variables. Thus, Hypothesis 1 is supported. Similar to logistic regression, an odds ratio of the coefficients on explanatory variables can be utilized to evaluate their effect size. The odds ratios of *conflicting complaints* are 0.832 and 0.913 in Models 1 and 2, respectively. This implies that if citizen complaints are recognized to be

	Model 1	Model 2	Model 3
Conflicting complaint (Industrial pollution)	-0.184***	-0.0900***	-1.104***
	(-10.20)	(-4.68)	(-3.77)
Industrial dependence			1.959**
			(2.33)
Industrial dependence^2			-4.351***
			(-3.07)
Conflicting complaints * Industrial dependence			7.355***
			(3.86)
Conflicting complaints * Industrial dependence^2			-12.49***
			(-4.05)
Collective action		-0.899***	-0.904***
		(-6.55)	(-6.58)
Sentiment		-0.0135***	-0.0136***
		(-5.63)	(-5.69)
Prevalence		0.0847***	0.0857***
		(5.05)	(5.11)
GDP (log)		-0.251***	-0.216***
		(-20.19)	(-15.26)
Population density		-4.247***	-4.324***
		(-31.15)	(-30.23)
Provincial party secretary change		-0.0236	-0.0292
		(-1.17)	(-1.45)
Provincial governor change		0.0950***	0.105***
		(4.73)	(5.18)
Year FE	Yes	Yes	Yes
Constant	2.316***	5.154***	4.609***
	(93.67)	(37.95)	(24.25)
Number of provinces	31	31	31
N	125364	125364	125364

Note: *t* statistics in parentheses. level of significance: *p <0.1, **p <0.05, ***p <0.01.
Source: By authors

Table 3.
Predictors of government responsiveness to citizens' complaints on the LLMB

merely related to industrial pollution, they have a 0.168 or 0.087 lower chance of being responded to.

Model 3 shows that the interaction effect of *conflicting complaints * industrial dependence* is positive and significant (β = 7.355, t = 3.86). However, the interaction effect of *conflicting complaints * industrial dependence^2* is negative and significant (β = -12.49, t = -4.05). These findings confirm Hypothesis 2 (inverted U-shaped effect). Figure 3 plots the marginal effects of conflicting complaints on the probability of government responsiveness. The symmetry axis of the curve is approximately 0.294. This means that when the industrial-added value as a share of GDP is below the threshold value, provincial governments engage in increasing the probability of responding to conflicting complaints as it increases. Conversely, if the provincial economy is more dependent on industrial development, namely the industrial-added value as a share of GDP exceeds the threshold, provincial governments tend to reduce the probability of responding to conflicting complaints as it increases.

Additionally, collective action and positive sentiment seem to decrease the likelihood of government responsiveness, while complaint prevalence is more likely to be responded to. Increased GDP and population density significantly reduce the probability of government responsiveness. The model also indicates the significant effect of provincial governor change and the null effect of provincial party secretary change.

Robustness checks

To test the robustness of the identified topic of industrial pollution by STM, an alternative method of supervised machine learning (ML) algorithms is employed to classify citizen complaints. The research randomly selected 7,240 citizen complaints as the training set and manually coded the topic of industrial pollution. Following Chen *et al.* (2023), boosted decision trees (GBDT), naive Bayes (NB), and random forest (RF) are selected as classifiers to categorize the remaining citizen complaints. Model 3 is replicated in the baseline analysis by
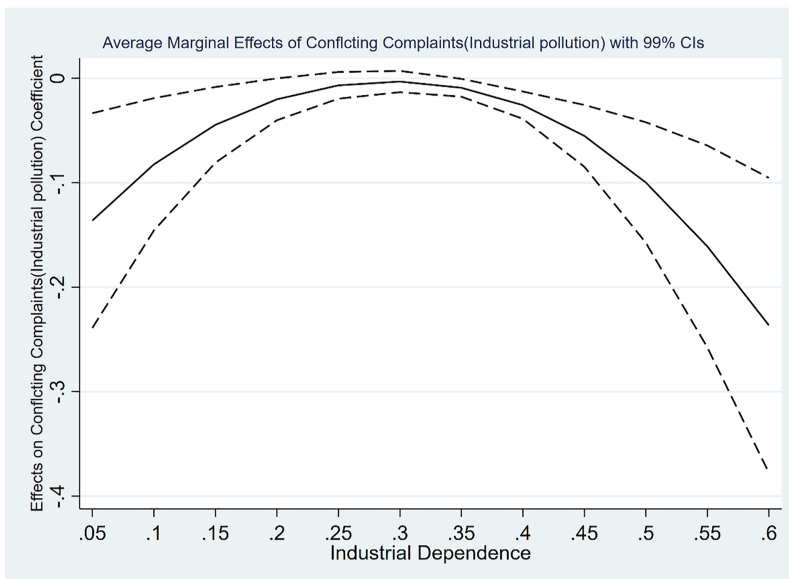
Source: By authors

Figure 3.
The marginal effects of industrial dependence on the government responsiveness coefficient

replacing the conflicting complaints captured by the STM with the ones classified by ML algorithms. The results are fundamentally consistent with previous major findings. More details are reported in Table 4.

Discussion and conclusion

Despite the continuous investigation into numerous determinants of government responses to societal demands, few studies tap into how conflicting goals influence the reaction of local governments to different citizen complaints. The study tests the arguments based on the most widely used citizen-government interaction platform, LLMB, in China, which records the contents of citizen complaints and relevant information on government responsiveness. The results confirmed the hypothesis that provincial governments are less likely to respond to citizen complaints related to industrial pollution, which embodies the conflicting nature of the economy and the environment. Moreover, the moderating effects of economic dependence on industry exhibit an inverted U-shape. The research theoretically and practically contributes to the existing literature and policy governance.

Firstly, previous studies have largely explored the salience of electoral institutions on government responsiveness (Cluverius, 2017). Government decision-making actively reflects public preference because of the strong incentive for re-election (Grossman and Slough, 2022; Kornreich, 2019). This research theorizes government responsiveness from the managerial approach perspective and further argues that governments' responses to citizen complaints are shaped by the conflicting goals facing them. This deepens the understanding of government responsiveness from the organizational managerial perspective.

Secondly, many studies have indicated that the control level of the goal may trigger strategic responses from governments and bureaucrats (Li, 2015; Muller, 2018). For example, Xiao and Zhu (2022) found that a high degree of bureaucratic control potentially reduces subnational compliance with central guidelines. This work focuses on the consequence of conflicting goals by examining how provincial governments engage in responding strategically to public demands when confronted with conflicting goals. Hence, the findings provide an extensive understanding of goal setting in governments.

	GBDT	RF	NB
Conflicting complaints	-1.055***	-0.884***	-1.288***
	(-3.56)	(-3.39)	(-5.10)
Industrial dependence	2.583***	2.356***	2.085**
	(3.12)	(2.78)	(2.43)
Industrial dependence^2	-5.620***	-5.069***	-4.640***
	(-4.05)	(-3.54)	(-3.19)
Conflicting complaints * Industrial dependence	5.579***	4.812***	7.032***
	(2.86)	(2.81)	(4.26)
Conflicting complaints * Industrial dependence^2	-8.232***	-7.694***	-10.88***
	(-2.59)	(-2.76)	(-4.05)
Controls	Y	Y	Y
Year trend FE	Y	Y	Y
Constant	2.310***	5.177***	4.550***
	(93.66)	(38.22)	(24.22)
Number of provinces	31	31	31
N	125364	125364	125364

Table 4.
The regression results of employing ML algorithms

Note: *t* statistics in parentheses. Level of significance: *p <0.1, **p <0.05, ***p <0.01.
Source: By authors

Thirdly, politicians and public managers should pay attention to the unintended, particularly unfavorable consequences of conflicting goals for governments and bureaucrats. Compared with the private sector, conflicting goals are more common for public counterparts (Chen and Jia, 2023). Regulated by multiple goals, governments often operate in a self-interested manner that may hinder the goals of public governance. The strategic responsive pattern for environmental complaints indicated in this study is one of the numerous cases in which governments cope with conflicting goals. Based on this, future researchers and practitioners are called upon to design effective mechanisms to avoid the dilemma of conflicting goals.

This study has policy implications for public governance. The findings suggest that the strategic delayed response of local governments in China to citizens' environmental complaints is caused by the conflicting nature between economic development and environmental protection. To ensure local agencies' strict compliance with environmental governance policies, the central authority needs to design a reconciled incentive mechanism that efficiently avoids the occurrence of deviation in solving citizens' environmental complaints. Further, given that the degree of reliance on local industrial development moderates the responsive pattern of local governments, there is a need to facilitate industrial transformation by developing the tertiary sector, as well as the new and advanced technology industries.

China is adopted as an empirical case in this study, which differs substantially from Western countries. Future research may replicate the study in other contexts to strengthen the generalization of the findings. Other policy domains have conflicting goals, such as economic investment, which usually competes with national welfare. It is recommended that more studies be done on other policy areas. Finally, the findings are interpreted as the generalizable responsive pattern of China's local governments to citizens' preferences. There are some other sources such as Weibo, WeChat, government reports, etc., which can also provide useful data in revealing the relationship between governments and citizens. Future research may use multiple sources to investigate the research question of this study.

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