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Strategic fiscal spending: Evidence from China

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Abstract

What are the effects of citizen grievances on autocrats' fiscal spending? I argue that autocrats will increase fiscal spending only when grievances may jeopardize stability. I hypothesize that when Internet penetration is high, a marginal increase in labor strikes and administrative lawsuits leads to increased spending on social welfare, health, education, and housing support. Evidence from China's 31 provinces (2006–2019) supports this hypothesis. The results are robust to instrumental variable strategies. The results may run against the expectations of the "selectorate theory" which posits that autocrats are generally disinclined to increase spending for citizens. My theory and evidence suggest that grievances will be perceived differently by autocrats according to different levels of connectivity, leading to different levels of spending.

1 | INTRODUCTION

Chinese citizens have been increasingly aggrieved with the party-state. Yet, institutional channels have not fully resolved their concerns. This means that unresolved grievances could translate into a source of instability at any time. Formal arbitration procedures often fail to keep employee discontent from boiling over into disputes (Chan, 2011). From 2006 to 2019, the reported number of strikes grew from 83 to 1305, that is, by a factor of 16 (China Labor Bulletin Map; China Strikes Information). In 2019, only 20% of cases concluded by administrative courts were adjudicated in favor of the citizens opposed to state-led urbanization and land expropriation (Ministry of Justice, 2007–2020). From 2006 to 2019, the number of administrative lawsuits rose fivefold from

43,706 to 223,712. Meanwhile, the nation's fiscal revenue, a measure of state capacity to formulate policies, rose fourfold. Given the finite fiscal resources, it is reasonable to infer that China might have chosen an efficient strategy to deal with grievances. If so, then, what are the effects of citizen grievances on autocrats' fiscal spending?

I argue that an increase in citizen grievances should result in increased fiscal spending only when grievances may jeopardize regime stability. My argument leads to the following hypothesis: a marginal increase in grievances should lead to increased spending when connectivity is high. I test this hypothesis with the data on China's 31 provinces (2006–2019). In this paper, grievances mean citizens' expressions of discontent with localities. The primary indicator that I use for grievances is the annual frequency of labor strikes, and the secondary indicator is per capita administrative lawsuits. The primary indicator that I use for connectivity is broadband Internet access rates, and the secondary indicator is Internet usage rates (2006–2016). Fiscal spending refers to per GDP government spending on social welfare, health care, education, and housing support. Using panel data analyses, I find that when Internet penetration is high, an increase in grievances leads to increased fiscal spending on social welfare, health, education, and housing support. The results are robust to instrumental variable strategies.

My results can contribute to the debates on autocrats' incentives for fiscal spending. My results show that an increase in grievances will, in some circumstances, lead to increased spending, but will not, in other cases, lead to increased spending. Yet, the literature does not explain why this can be the case. Some academics have noted that autocrats, like democratic leaders, are inclined to increase spending to win the hearts of their citizens (Benney, 2016; Guo, 2009; Piven & Cloward, 1993; Zhan, 2021). Their logic is that autocrats are motivated to deal with grievances that will threaten stability. Others have noted that autocrats, unlike democratic leaders, are disinclined to increase spending (Bueno de Mesquita et al., 2003; Hong, 2018; Xu, 2021). Their logic is that citizens do not play a key role in formal institutions and their support is not pivotal for regime survival. I demonstrate that grievances will be viewed differently by autocrats according to different levels of connectivity, leading to different levels of spending.

2 | A REVIEW OF LITERATURE ON FISCAL SPENDING

There are three primary strands in the literature on fiscal spending. The first one focuses on the incentives to increase spending that both democratic and autocratic leaders have in common. The second focuses on the different motivations between democratic and autocratic leaders. The latter adopts a principal–agent framework to explain why autocrats spend money. In the first strand, it has been noted that the need for improving their own career prospects motivates leaders to spend more (Guo, 2009; O'Brien & Li, 1999; Piven & Cloward, 1993). Both democratic and autocratic leaders will spend more in regions where citizens are more aggrieved with their leaders (Benney, 2016; Lee & Zhang, 2013; Stokes, 2005; Zhan, 2021). The assumption in this association is that growing grievances will pose threats to the regime. However, it has overlooked the possibility that grievances could be viewed differently by leaders under certain conditions. When citizens have few tools to publicize their grievances, other citizens may not receive such information. In this case, grievances will not affect the overall popular support for the regime and the need for government spending will not increase.

In the second strand, it has been noted that compared with democratic leaders, autocrats have disincentives for spending for their citizens (Bueno de Mesquita et al., 2003; Hong, 2018; Xu, 2021). It has suggested that autocrats are not incentivized to make efforts to gain support from

citizens. The reason is that citizens do not play a key role in formal institutions and their support is not pivotal for regime survival. What this logic has not addressed, however, is the possibility that the spread of information may shape autocrats' perception of their survival (Lorentzen, 2017; Pan & Siegel, 2020; Roberts, 2020). Autocrats' responses to grievances may be different in regions where citizens are more connected and in regions where citizens are less connected. In regions with higher connectivity, citizens can gather more information about whether others dislike government. In these regions, autocrats may worry that information flow among citizens might lower overall public support, motivating them to increase fiscal spending.

The third strand has examined autocrats' incentives for spending. Since many autocrats are concerned with how their superiors evaluate them, scholars have used a principal–agent framework to explain why autocrats spend money. Some has argued that, in decentralized countries, both local leaders (i.e., agents) and central leaders (i.e., the principal) have common interests in increased fiscal spending (Guo, 2009). Local leaders may spend resources to boost economic growth. Achieving economic growth, they will be rewarded by their superiors. Central leaders may view increased spending as a visible signal of how their subordinates work. In decentralized countries, many superiors have insufficient information on how their subordinates work. For these superiors, increased spending could be a visible indicator that addresses informational asymmetry. This explains how increased fiscal spending brings benefits to both superiors and subordinates (Guo, 2009). By contrast, other scholars have paid far more attention to the odds that policy preferences between principal and agent could diverge.

Subordinates might defy their superiors' mandates or at least implement these mandates according to their strategic calculations and local conditions (Chung, 2016; Huang, 2015; Jaros & Tan, 2020; Mei & Pearson, 2014). The subordinates ultimately answer to their superiors, but they do not always serve as faithful agents. Huang (2015) has found that China's provincial leaders offered social health insurance benefits according to fiscal capacity and their career prospects. She has found that insurance coverage increased when there was greater social risk. One caveat exists. She has based the variable of social risk on the number of migrants and the number of citizens not in the labor force. These citizens may not necessarily, however, all be regime opponents. When they have no grievances or are unaffected by others with grievances, the level of public support for the regime will not change. Therefore, social risk needs to be measured more closely, as I do here through measurement of both grievances and connectivity.

3 | A THEORY OF STRATEGIC FISCAL SPENDING IN AUTOCRACIES

Many autocrats are more accountable to superiors who screen candidates for promotions than to citizens with little influence on their careers (Chen, 2017; Jiang, 2018). In a decentralized country like China, local leaders are much more accountable to central leaders than they are to citizens. Local leaders know that they can reach the pinnacle of their careers if constantly moving upward (Kung & Chen, 2011). Due to lack of information, however, central leaders are often unable to assess how local leaders perform. Local leaders may wish to demonstrate their competence to central leaders by presenting visible indicators. For central leaders, the amount of fiscal spending could serve as a visible indicator of how local leaders work (Guo, 2009; O'Brien & Li, 1999). Increased fiscal spending could suggest that local leaders have endeavored to boost economic growth. What deserves our attention is that central leaders pay attention not only to local leaders' performance but also to the interests of citizens.

Central leaders know that local leaders have relatively few incentives to heed citizen concerns. However, when local leaders pay little attention to citizens, these citizens may withdraw support for not only local leaders but also central leaders. They may withdraw support for central leaders because they know that central leaders usually mobilize local leaders to accomplish long-term tasks such as enhancing regime legitimacy (Huang, 2015; Jiang, 2018; Stromseth et al., 2017). For this reason, central leaders may wish to pressure local leaders to pay greater attention to citizens. One way is to pressure local leaders to increase spending in regions where citizen grievances with localities increase. Increased local spending could dispel suspicion that local leaders are paying little attention to citizen concerns. However, increased local spending may not always generate benefits to local leaders for two reasons.

First, it may take a long time for local leaders to win the hearts of citizens (Cao & Ward, 2015). Generating tangible outcomes such as material benefits can take a long time due to administrative procedures. During this time, other factors might affect citizens' attitudes toward local leaders. Thus, the benefits of increased spending could be unclear to local leaders in the short or medium term. Second, increased spending by local leaders may generate popular support for their successors. In authoritarian regimes, many local leaders have no guaranteed terms of tenure. The benefits of increased spending may become clear after these local leaders retire or move to another region (Lei & Zhou, 2022). Thus, increased spending in regions where grievances with localities grow may not always generate benefits to local leaders. This means that the level of local spending may not be proportional to the increase in local grievances.

For three reasons, I argue that increased local grievances will not motivate local leaders to increase spending when connectivity is low. First, it is unlikely that grievances trigger unrest. It will require a long time for aggrieved citizens to spread awareness of their grievances (Ruijgrok, 2017). In regions where fewer citizens are connected, information flows among citizens will be low. It will be less likely that ordinary citizens receive information about aggrieved citizens. In such cases, local leaders will not perceive risk that a single "spark" might lead to a "prairie fire." Second, autocrats do not generally prioritize providing benefits for citizens since their survival is not necessarily contingent upon citizens' perceptions (Bueno de Mesquita et al., 2003). When connectivity is low, the odds that an increase in grievances can jeopardize stability will be low. The benefits of fiscal spending will be unclear. Third, China's local leaders face serious budget constraints. They have incentives to pursue effective spending.

In China, local governments' spending has been exceeding their revenues since 1994 (Chung, 2016; Ong, 2012). The 1994 tax system reform completed by the central government decreased the share of local fiscal revenue from 78% in 1993 to 44% in 1994 (National Bureau of Statistics of the People's Republic of China, 1994–2020). From 1994 to 2019, the amount of local fiscal "deficits" increased from 172 billion yuan (27 billion USD) to 10,266 billion yuan (1587 billion USD), that is, by a factor of 59. During this period, the amount of central fiscal "surplus" increased by 47 times, from 115 billion yuan to 5419 billion yuan. This suggests that China's local leaders face serious budget constraints. These leaders have strong incentives to pursue effective spending. My logic so far suggests that China's local leaders will be less likely to increase fiscal spending in response to increased grievances when citizen connectivity is low.

I argue, however, that local leaders will increase spending when grievances may threaten regime stability. Beijing established a system of evaluating high-ranking elites. One of the criteria has been whether regime stability has been managed effectively. Failure to deter social unrest invalidates previous achievements (*yipiao foujue*) and jeopardizes career (Shih et al., 2012). Thus, local leaders are expected to invest more resources in regions where grievances are more likely to weaken stability. When citizens are highly connected, aggrieved citizens can easily disseminate

information about their grievances to ordinary citizens. Since they know their lack of popular mandates, autocrats will become sensitive to the odds that a single "spark" might lead to a "prairie fire" (Kuran, 1991; Lohmann, 1994; Lorentzen, 2017). To prevent this scenario, local leaders may try to show that they are paying attention to citizens.

Public services for social welfare, health care, and education will allow citizens to enhance labor productivity, strengthen labor mobility prospects, and gain greater access to well-paid jobs (Hong, 2018). Public services for social welfare, health care, education, and housing support will allow citizens to cut some expenses in household budgets, freeing up some portion of income previously spent on insurance, medical care, education, and housing (Liu, 2019). These public services will help relieve the frustrations of aggrieved citizens and generate support from ordinary citizens. In this respect, I argue that when connectivity is high, local leaders will be inclined to buy off citizens that might be motivated to mobilize. From these leaders' perspective, it will be easy for ordinary citizens to ignore cases of others' grievances so far as their quality of life will improve. This logic informs my hypothesis that *a marginal increase in grievances should lead to increased fiscal spending when connectivity is high*.

My argument questions the "selectorate theory" proposed by Bueno de Mesquita et al. (2003). They have asserted that unlike democratic leaders, autocrats are disincentivized to increase spending for citizens. This is because the number of citizens whose support is pivotal for leaders' survival is small in autocracies. According to this logic, autocrats should not spend resources for policies that are not critical to their interests. Despite the significance of the selectorate theory, at least one of its assumptions needs to be reinvestigated (Gallagher & Hanson, 2015). One of these assumptions is that unenfranchized citizens do not enter into leaders' political calculations. Under this assumption, these leaders would not be concerned about the threats arising from these citizens. Of course, Bueno de Mesquita and Smith (2009) have revised their model to allow the odds of threats from these citizens. Yet, some concerns remain. For instance, autocrats are preoccupied with dealing not only with actual threats but also with "imagined" threats arising from "multiple" actors (Gallagher & Hanson, 2015).

Many autocrats remain concerned that minor complaints could escalate into major unrest (King et al., 2013). They are unaware of the ways that information flows among citizens may shape public opinion. Since the 2000s, many autocrats have been especially preoccupied with keeping minor dissent from harming public support for them. The main reason is that information flows among citizens have been facilitated through the Internet. Unlike democracies where information flows through the printed media are unimpeded, newspaper companies in autocracies do not print negative articles (Ruijgrok, 2017). Unlike the printed media, the Internet can provide alternative information such as the flaws of the autocracy. The reason is that the Internet guarantees some level of anonymity and facilitates communication among citizens. Even in autocracies executing censorship, smart netizens know how to evade censorship (Roberts, 2020). This logic can account for why autocrats remain sensitive to the odds that grievances threaten stability when many citizens utilize the Internet.

4 | DATA COLLECTION AND IDENTIFICATION STRATEGY

4.1 | Dependent variables: Government spending

I construct the level of fiscal spending operationalized by per GDP government expenditures by provinces on social welfare, medical care, education, and housing support. The data are collected

from China's Statistical Yearbook. I divide the amount of fiscal spending by the amount of GDP for the following reason. Critics claim that data on fiscal spending in China may be subject to manipulation. The huge size of China's territory often results in informational shortfalls for the central government. Due to limited capacity for monitoring subnational agents, inflated reporting on fiscal spending remains prevalent. According to Lü and Landry (2014), dividing the amount of fiscal expenditures by GDP may make it feasible to address the possibility of data manipulation. Their logic is that government officials who alter fiscal data upward may also alter GDP data upward, so that the ratio of the two might more accurately reflect the actual spending. More detailed information about government spending on social welfare, medical care, education, and housing support is available in Table A1 in the Appendix.

4.2 | Independent variables: Citizen grievances

4.2.1 | Labor strikes

A primary indicator of grievances is the annual count number of labor strikes. Strikers have been unhappy with unemployment, bad working conditions, and the government's labor policies. Staging a strike suggests that governments have failed to arbitrate the dispute between workers and management. The Labor Dispute Mediation and Arbitration Law recommends that governments should serve as an arbitrator to keep employee plight from evolving into collective disputes. Thus, any breakdown in talks may suggest that governments have not prioritized the workers' interests over those of the management. In China, strikers aim to draw attention from both governments and firms. Some strikes are directed at employers and local governments use employers as scapegoats (Chan, 2011). Others are directed more at government leaders than at firm executives. Strikes are salient forms of instability due to the ideological connection between communism and laborers (Distelhorst & Hou, 2017). Data (2006–2019) are collected from the China Labor Bulletin and the China Strikes Information.

Massive layoffs, huge wage arrears, and poor working conditions became major concerns for laborers after China implemented the policies of "grasping the large and releasing the small" ("*zhuada fangxiao*") in the late 1990s. As a result of industrial restructuring, China witnessed a surge of strikes. However, not all of strikes are threatening to the regime. According to Chen (2019), firms often choose to neutralize aggrieved workers by providing cash. Such co-optation strategies rendered mobilization fragmented and forestalled further contention. Chen (2019) has also noted that it is usually difficult to boost solidarity among Chinese workers because civic society organizations are not sufficiently strong to support labor activism. Yang and Chen (2020) have suggested that labor strikes driven by narrow economic demands are not politically daunting. These works imply that some labor strikes are not likely to pose threats to the state.

However, many strikes can still pose threats to the state. Elfstrom and Kuruvilla (2014) have suggested that Chinese strikers have begun to demand increased salary, improved labor conditions, and more respect from firms since 2008. They have suggested that China's changing economic atmosphere and media environment rendered workers assertive in their demands. The resulting unrest was often so strong that it could spur mobilization in another region. In a similar vein, Gallagher (2014) has emphasized that labor activism should be basically worrying to China's party-state for several reasons. For instance, the state is fundamentally fearful of social autonomy. Also, the state knows that democratic leaders usually succeed in insulating labor disputes through formal channels (Robertson & Teitelbaum, 2011). Thus, the outbreaks

of strikes can be viewed by Chinese citizens as a flaw in their political institutions. According to Elfstrom (2019), China's provincial governments tried to deter labor unrest not only by applying repression but also by showing responsiveness toward strikers.

4.2.2 | Administrative lawsuits

A secondary indicator is per capita (i.e., per million people) cases of administrative lawsuits filed at or below the provincial level. These lawsuits provide a metric for the number of citizens who have suffered from the unwarranted exercise of power by officials (O'Brien & Li, 2004). State-led urbanization and land takings have been the top two causes of administrative lawsuits (Ministry of Justice, 2007–2020). Localities have been over-implementing development plans, often harming the public interest. The lawsuits also provide information about those who sought help from government to address their disputes with other citizens (Liebman et al., 2020). Despite the need for dealing with citizen concerns, only 15% of cases concluded by administrative courts have been adjudicated for the citizens bringing the cases from 2006 to 2019. Some claim that increased lawsuits might be due to the series of annual legal reforms, not necessarily due to increased grievances. To partly address this concern, I include the year dummies in the models. Data (2006–2019) are from the Ministry of Justice.

Most administrative lawsuits are not physically observable to other citizens. Also, through administrative litigation, the state can keep tabs on the problematic behavior of some bureaucrats (Li, 2021). In this respect, administrative lawsuits may not be politically daunting. However, administrative lawsuits can still pose threats to the state for three reasons. First, filing a suit means that plaintiffs used a significant amount of time and money to contest the government's decisions (Fu & Distelhorst, 2018; Whiting & Ma, 2021). Second, many plaintiffs have adopted creative tactics to pressure the court to deliver its ruling in favor of them (Feng & He, 2018). Lastly, administrative lawsuits can spread and facilitate awareness of problematic policies (Distelhorst, 2017). Even when the cases are not adjudicated in favor of the citizens, the use of administrative lawsuits as a channel of "rightful resistance" can motivate many people to rethink of state-society relations in China (Baik, 2021; O'Brien & Li, 2006).

4.3 | Moderating variables: Citizen connectivity

I construct a primary measure of connectivity operationalized by % of citizens who access fixed and/or mobile broadband Internet in the population (2006–2019). A secondary measure is Internet usage rates (2006–2016). Internet usage rates are mainly based upon citizens who go online using their computers. Data for 2017–2019 are absent because the China Internet Network Information Center ceased reporting the data in 2017. Data on citizen connectivity are collected from the China Internet Network Information Center as well as China's Statistical Yearbook.

4.4 | Control variables

I control for eight variables. Information about descriptive statistics is reported in Table A1 in the Appendix. First, per capita GDP may be negatively associated with fiscal spending on public goods. Low-income citizens might conflate their income with evidence of the lack of government

accountability to citizens. In such cases, leaders will be likely to perceive larger threats in regions with lower income levels. Second, the ratio of urban population relative to total population may be positively associated with the level of government expenditures. Many autocrats are known to be concerned about instability in metropolitan areas (Wallace, 2013). Third, per GDP fiscal revenue may be positively associated with fiscal spending. Fiscally strong governments can free themselves from budgetary constraints and can inject more resources into policy formulation. Fiscal revenue refers to provinces' tax revenues and non-tax revenues such as administrative fines. In addition to fiscal revenue, fiscal transfers are also controlled for. Fiscal transfers granted from Beijing to provinces aim to relieve cross-regional fiscal disparities and to make up for insufficient resources in localities (Duan & Zhan, 2011).

Fifth, the extent to which provincial leaders are integrated with the central government is also controlled for. I employ Huang (1996)'s indicator to measure the level of provinces' bureaucratic integration with Beijing.[1] When provincial leaders are more integrated with Beijing, they are expected to act more vigorously to maintain public support. Sixth, per GDP trade may be positively linked with fiscal spending. When trade reveals the flaws of the autocratic regime, fiscal spending would increase. Seventh, the state sector's contribution to GDP may be positively linked with fiscal spending. When governments wield power over the community, they will have interactions with citizens, providing opportunities for them to observe the regime's flaws. Eighth, the number of college graduates relative to the population (i.e., per thousand people) may be positively linked with fiscal spending. When college graduates pay attention to political and social issues, autocrats may be concerned about the odds of instability. Data on provincial leaders are collected from the Baidu Encyclopedia. Data on the other seven variables are from China's Finance Yearbook and Statistical Yearbook.

4.5 | Unit of analysis: Justification of the use of provincial samples

I employ data on 31 provinces rather than lower administrative units such as prefectures. I consider central leaders (i.e., the principal more concerned about long-term tasks such as regime legitimacy) and provincial leaders (i.e., the agents more concerned about short-term tasks such as upward mobility) as strategic actors. Central leaders' interactions with provincial leaders are more direct than their interactions with prefectural leaders. Thus, compared to prefectural leaders, provincial leaders will act more vigorously to maintain public support. Political elites in the provinces constitute less than one percent of China's entire bureaucracy (Ang, 2016). This means that provincial leaders had to win power struggles to advance to their positions. Provincial leaders can reach the pinnacle of their careers if they place themselves in the central leadership. Fourteen out of the 25 Politburo members of the 19th Central Committee had served as provincial party secretaries ($N = 13$) and a governor ($N = 1$) earlier in their careers.

4.6 | Baseline identification strategy: OLS model robust to spatial dependence

I use a model with an interaction between grievances and connectivity. The interaction examines the marginal effect of grievances on spending contingent on the level of connectivity. I use an ordinary least squares (OLS) model with standard errors robust to spatial dependence (Driscoll & Kraay, 1998; King & Roberts, 2015). The reason is that there exists spatial dependence effect

within panel data. Grievances that arise in one province may spread to citizens in another province. For instance, news about strikes in one province could motivate laborers in another province to go on strike. To determine whether this effect exists, I conduct a statistical test recommended by Pesaran (2004). The result rejects the null hypothesis that the data are cross-sectionally uncorrelated, given the 95% confidence intervals. An OLS model with simple standard errors, however, assumes that the data are cross-sectionally uncorrelated.

In the model, I include the province and year dummies. The province dummies capture time-invariant factors. The year dummies can reduce the odds that the findings are driven by a common trend toward more grievances and more connectivity. Continuous variables are converted into natural log to address skewed distributions. I use the following specification:

$$\begin{aligned}\text{Log(Spending)}_{i,t} &= \alpha + \beta\text{Log(Grievance)}_{i,t} + \gamma\text{Log(Internet)}_{i,t} + \omega\text{Log(Grievance)}_{i,t} \\ &\quad \times\text{Log(Internet)}_{i,t} + \theta\delta_{i,t} + \varepsilon_{i,t}\end{aligned}$$

where $i = 1, \ldots 31$, $t = 1, \ldots 14$, $\delta_{i,t}$ is the set of control variables, and $\varepsilon_{i,t}$ is the error term. ω is the coefficient of interest. I note that multicollinearity is small since the variance inflation factor is smaller than five when the interaction is excluded (See also Table A2 in the Appendix).

5 | BASELINE RESULTS

Tables A3 and A4 in the Appendix show the results of analyses with the annual count number of strikes as the independent variable. Tables A5 and A6 show the results of analyses with per capita cases of administrative lawsuits as the independent variable. The interaction terms in Models 2 and 4 in Tables A3–A6 show the joint effect of grievances and connectivity on the level of spending, given the 95% confidence intervals. When the interaction is added, for instance, the strikes variable per se is significantly and negatively associated with spending. These results mean that an increase in strikes leads to less spending when connectivity is low. However, the interaction effect is significantly and positively associated with social spending. These results support my logic that levels of connectivity will condition autocrats' spending. Drawn according to Tables A3–A6, Figure 1 shows the marginal effects of grievances on spending conditional on broadband Internet use. Figure 1 supports my hypothesis that a marginal increase in grievances should lead to increased spending when connectivity is high (above $y = 0$).

The results mean that when connectivity is low, strikes and lawsuits may not represent a challenge to regime stability. There may exist three reasons. First, when connectivity is low, citizens in another region may not receive news about those grievances. In such circumstances, local leaders will not perceive risk that a single "spark" might lead to a "prairie fire." Second, when connectivity is low, workers may experience coordination problems (Chen, 2019). In such circumstances, firm executives may efficiently address employee plight. Third, when connectivity is low, legal institutions may effectively suppress extra-institutional grievances. These three reasons suggest that when connectivity is low, autocrats will not increase spending. Autocrats recognize that even when they decrease spending, they can still maintain stability. This is because firms and legal institutions may effectively handle labor and legal issues.

These results deliver messages similar with Hong (2018) and Xu (2021). Hong (2018) has noted that when China's local community gains benefits from resources such as coal and oil, the need for skilled workforce will disappear. As a result, local leaders will opt to decrease spending on public services such as education. Xu (2021) has noted that when autocrats possess digital

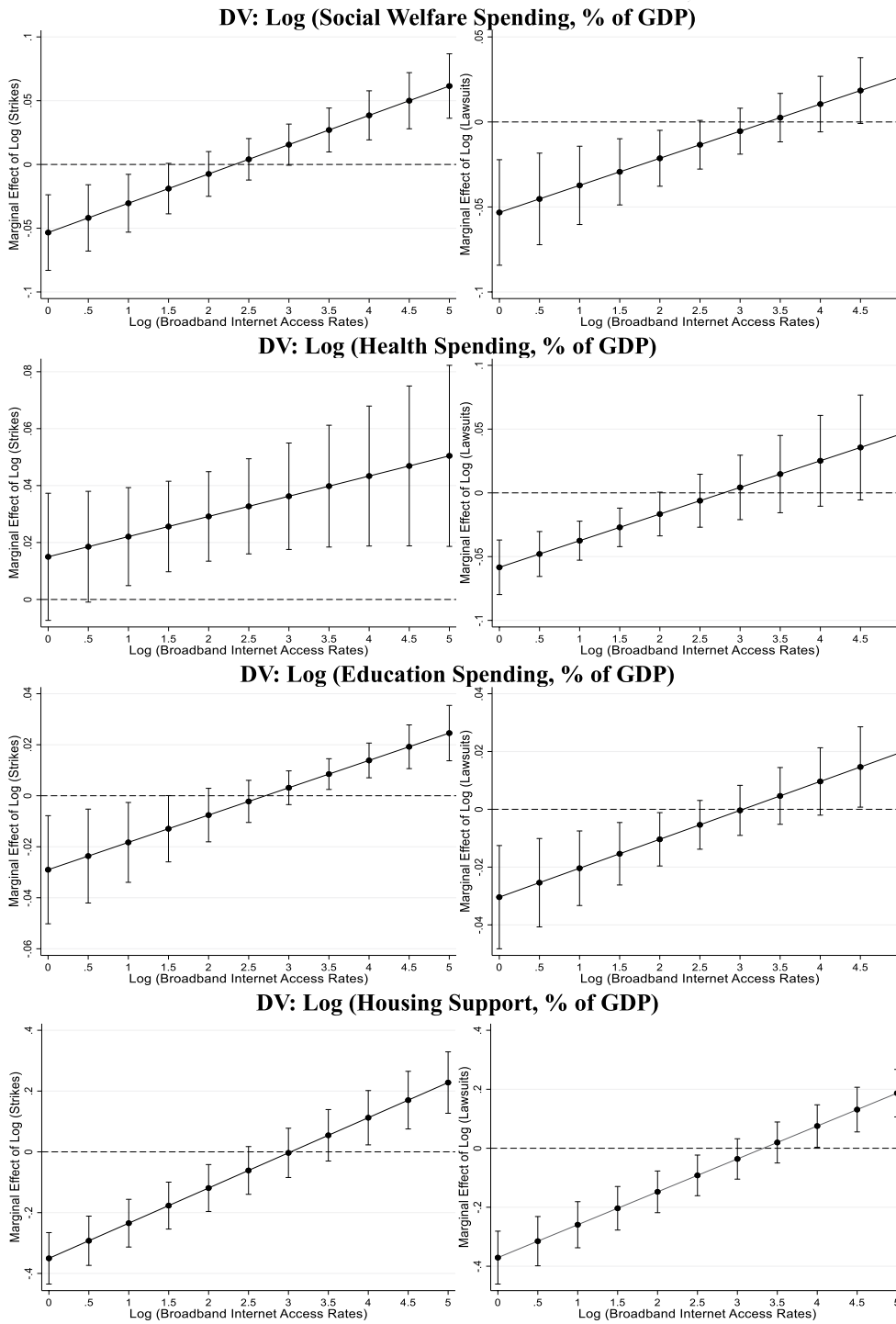

FIGURE 1 Marginal effect of grievances on fiscal spending for broadband internet access (*Baseline Model: Ordinary Least Squares Model*). 95% confidence intervals. Welfare, health, and education (2006–2019). Housing (2010–2019)

surveillance tools, the odds of locating radicals will rise. In such cases, autocrats will choose to increase spending on targeted repression but to decrease spending on public services. According to Hong (2018) and Xu (2021), autocrats can still maintain regime stability even when they decrease spending on public services. Figure 1 shows that a 1% increase in the frequency of strikes leads to an increase in per GDP spending on social welfare, health, education, and housing support by 0.06%, on average, where 55% of the population has access to broadband Internet service (i.e., log(broadband) = 4.0). The results using the baseline specification and the data on Internet usage rates are available in Tables and Figure A27–A31.

6 | ALTERNATIVE IDENTIFICATION STRATEGY: INSTRUMENTAL VARIABLE STRATEGY

An instrumental variable strategy, called two-stage least squares (TSLS) model, could address endogeneity between grievances and spending. The endogeneity means that many factors affect the occurrence of lawsuits and strikes. For instance, it is possible that fiscal spending might have already decreased the level of grievances. This issue needs to be addressed because I examine government responses to grievances. Using an instrumental variable strategy requires two preconditions (Lal et al., 2021). The first is the strength of the instrument. This precondition is testable by reporting F-statistics. When the value of F-statistics exceeds 10, scholars tend to support its strength (Lal et al., 2021; Staiger & Stock, 1997). The second is the validity of the instrument (i.e., exclusion restriction). The instrument should not directly affect the dependent variable except via the independent variable. Because this precondition is not testable, it needs to be supported theoretically. Lai et al. (2021) have also suggested that scholars need to adjust standard errors for heteroscedasticity. To address heteroscedasticity, I employ the generalized method of moments in the TSLS models, as Zhu (2017) recommends.

I choose the number of workplace accident casualties in year$_{t-1}$ (unit: thousand people) to instrument for strikes. I recognize that there may be other sources of strikes such as low pay. However, wage is strongly correlated with per capita GDP, which is already controlled for. This instrument can satisfy the above two preconditions. First, a strong connection exists between workplace accidents and strikes. Having experienced mass movements in Mao's era, Chinese workers are famous for their strong comradeship. If their colleagues are injured, laborers become angry at work environment. Second, the number of casualties is not very likely to directly affect fiscal spending except via labor strikes. Injured workers will try to receive benefits such as paid leave before staging a strike. According to Chen (2019), firms often provide benefits for aggrieved workers as a co-optation strategy to deter mobilization. The negotiation can take months. If workers are discontent with their employers, they could pursue to garner government attention. The instrument is lagged by 1 year to reduce the odds that fiscal spending already reduced negligent safety practices and decreased workplace accidents.

I use per capita (i.e., per million people) cases of administrative appeals (*xingzheng fuyi*) in year$_{t-1}$ to instrument for lawsuits for three reasons. First, there is a strong link between appeals and lawsuits. Administrative Appeal Law (*xingzheng fuyi fa*) allows citizens to ask government agencies to reconsider the policies that they made. In the first place, citizens use this process because it is cheap. If the agencies reject these requests, the citizens tend to file lawsuits. Second, filing appeals is not very likely to directly affect fiscal spending except via filing suits. The reason is that compared to administrative appeals, administrative lawsuits may generate greater threats to government leaders. Filing suits requires money to hire a lawyer, while filing appeals does

not require such effort. Also, it takes time to hire a lawyer. In China, right-protection (*weiquan*) lawyers often face persecution and refrain from providing legal service (Fu & Cullen, 2011). This means that citizens filing lawsuits have strong will to challenge state authority. Lastly and more importantly, the instrument is lagged by 1 year to reduce the possibility that fiscal spending already increased popular support and discouraged administrative appeals.

Data on workplace accidents are from China's Labor Statistical Yearbook (2006–2019). Data on administrative appeals are from the Ministry of Justice (2006–2019). In the model, I include the eight control variables used in the baseline estimation and the province and year dummies. What should be noted here is that the interaction between grievances and connectivity may also be endogenous to government spending, given that grievances may be endogenous to government spending. According to Wooldridge (2010), I instrument for the interaction between grievances and connectivity by interacting the instruments for grievances with connectivity (Dorsch & Maarek, 2019; Wooldridge, 2010). I use the following specification:

$$\text{Log(Grievance)}_{i,t} = \tau + \rho\text{Log(Instrument)}_{i,t-1} + \eta\delta_{i,t} + \varepsilon_{i,t} \tag{1}$$

$$\begin{aligned}\text{Log(Spending)}_{i,t} = \alpha + \beta\text{Log(Grievance)}_{i,t} + \gamma\text{Log(Internet)}_{i,t} + \omega\text{Log(Grievance)}_{i,t} \\ \times \text{Log(Internet)}_{i,t} + \theta\delta_{i,t} + \zeta_{i,t},\end{aligned} \tag{2}$$

where $i = 1, \ldots 31$, $t = 1, \ldots 14$, and ω denotes the coefficient of interest. Equations (1) and (2) refer to the first-stage and second-stage regressions. Robust standard errors are employed.

Tables A32–A35 indicate that the endogeneity test accepts the null hypothesis given the 95% confidence intervals. Drawn based upon these four Tables, Figure 2. shows the marginal effect of grievances on spending conditional on broadband Internet use. It supports my hypothesis. Information about the endogeneity test indicates that the grievance variables can be treated as exogenously given. The Durbin–Wu–Hausman test identifies the existence of endogeneity in the TSLS model (Guo et al., 2018). Its null hypothesis is that the endogenous regressor(s) can be regarded as exogenous variable(s). The *p*-values reported in Tables A32–A35 indicate that the endogeneity test accepts the null hypothesis given the 95% confidence intervals. This means that the OLS estimates in Tables A3–A6 should be unbiased. In addition, the values of *F*-statistics reported in Tables A32 and A33 show that there is a strong relationship between the number of workplace accident casualties in year_{t-1} and the number of labor strikes in year_t. Finally, the results using the TSLS model and the data on Internet usage rates are reported in Tables and Figure A46–A50.

7 | ROBUSTNESS CHECKS

I conduct 10 additional analyses. They present the results similar to the baseline results. First, I address the concern about the endogeneity between connectivity and spending. China has spent budgetary funds on providing the Internet to the entire nation. Increased spending might have already raised the level of connectivity. To instrument for broadband Internet access rates, I choose % of citizens who use fixed-line analog telephone networks in year_{t-1}. The results are available in Tables A51–A54 and Figure A55. Second, I address the concern that the results may be driven by outliers. For instance, broadband coverage can be over 100%. The data uses *hukou*-registered population as the denominator but includes migrants in the numerator. In 2019, broadband coverage in Zhejiang was 107%. Zhejiang is an outlier, compared with Guangdong (74%) and Shanghai (84%). To address this concern, I exclude Zhejiang and run the same

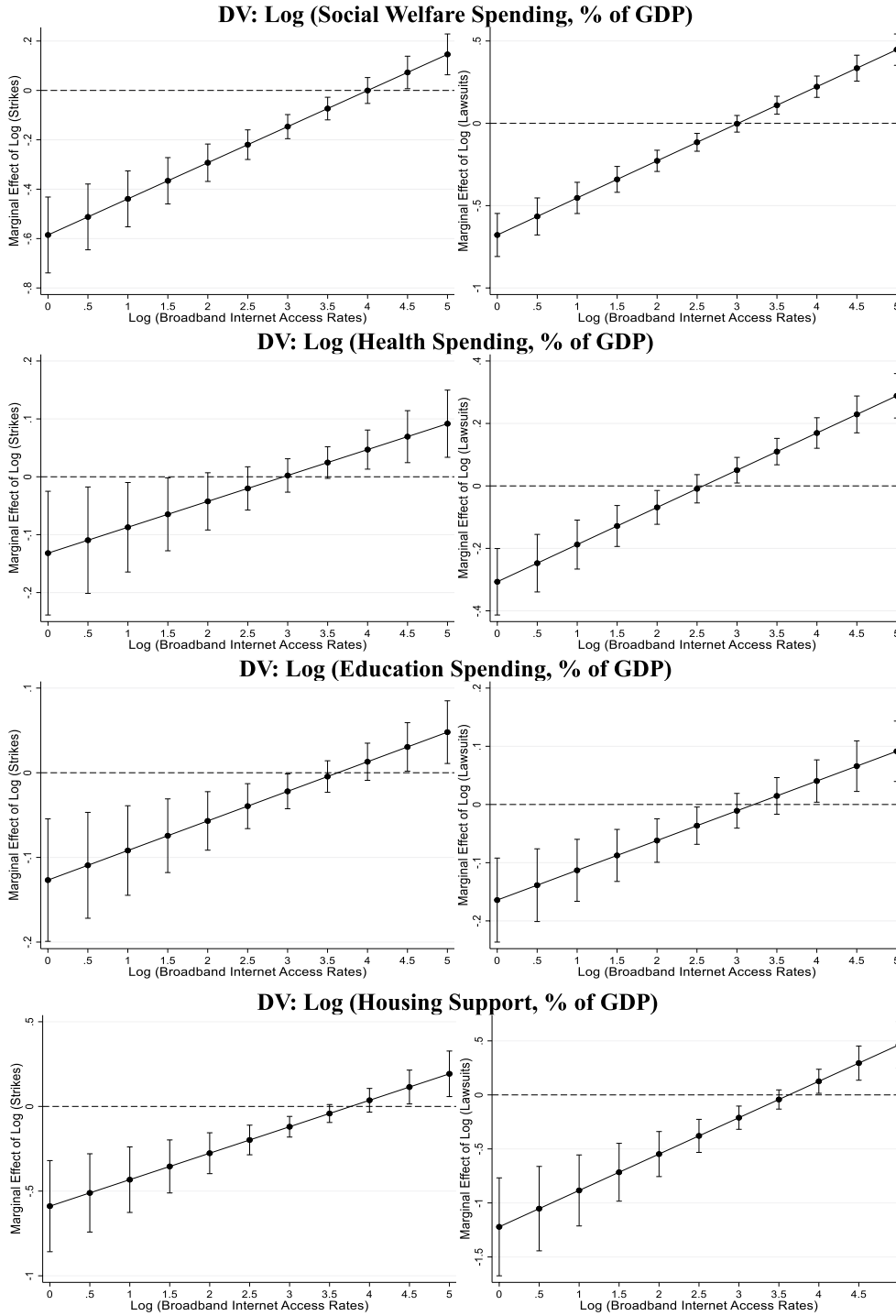

FIGURE 2 Marginal effect of grievances on fiscal spending for broadband internet access (Alternative Model: Instrumental Variable Strategy). 95% confidence intervals. Welfare, health, and education (2006–2019). Housing (2010–2019).

analyses. Third, I do not convert broadband Internet access rates into natural log. These results are available in Tables A7–A10, A22–A26, and A36–A39 as well as Figures A11, A26, and A40.

Fourth, I construct the dependent variable operationalized by the amount of public goods spending divided by population. Fifth, I also construct the dependent variable operationalized by the amount of public goods spending divided by the total amount of fiscal spending. These results are available in Tables A12–A15, A17–A20, A41–A44, and A59 as well as Figures A16, A21, A45, and A60. Sixth, I employ the data on social relief and poverty alleviation, then, construct an additional dependent variable. Investment in social relief and poverty alleviation is necessary to strengthen social safety net. The data are collected from provinces' civil affairs departments. The results are available in Tables A56–A59 and Figure A60. Seventh, I employ the data on fiscal spending on healthcare during the period 2006–2012 only, then, run the same analyses. This analysis is necessary because the amount of fiscal spending on birth planning (*jihua shengyu*) was not included in the amount of fiscal spending on healthcare in the period 2006–2012. The results are available in Tables A67 and A69 as well as Figures A68 and A70.

Eighth, I employ the data on social organizations (*shehui tuanti*, per one million people) instead of the data on broadband Internet usage rates. Some critics may assert that broadband Internet access rates are primarily reflective of the overall level of development in provinces. Broadband Internet usage rates may be high (low) in regions where development level is high (low). In these cases, broadband Internet use might not really show the level of online connectivity. I address this concern by running the same analyses but using the data on social organizations. The density of social organizations may be high (low) where development level is high (low). However, my theory does not anticipate that a marginal increase in grievances should lead to increased spending in regions where the density of social organizations is high. Results reported in Tables A71–A73 and A75–A77 and Figures A74 and A78 confirm this expectation.

Ninth, I exclude the variable of the state sector's contribution to GDP and rerun the analyses with the annual count number of strikes as the independent variable. I conduct this analysis to address the concern that my results may be driven by the link between state-owned enterprises and state intervention. Many autocrats are known to be concerned about instability in areas where there are many state-owned enterprises. Tenth and finally, I exclude the variable of college graduates and rerun the analyses with education spending as the dependent variable. I conduct this analysis to address the concern that education funding may be allocated more to regions with many universities. The results remain largely similar with the results employing the OLS analysis as well as the TSLS analysis. The results are available in Tables A61–A66.

8 | CONCLUSION

What are the effects of citizen grievances upon autocrats' fiscal expenditures? I argue that autocrats will increase fiscal spending only when citizen grievances may jeopardize stability. Evidence from China's 31 provinces from 2006 to 2019 supports my theory. I find that when Internet penetration is high, a marginal increase in labor strikes and administrative lawsuits leads to increased fiscal spending on social welfare, health, and education, and housing support. One caveat exists in this paper. It pertains to the unit of analysis (i.e., provinces). Scholars assert that a large body of the literature shows political centralization and career incentives below the provincial level. Scholars also assert that labor strikes are more likely to be directed toward county governments than toward provincial governments. Finally, they also assert that grievances are much more likely to spread among prefectures. All these points are reasonable. In this regard, I suggest that

future research needs to explore the relationship between citizen grievances and government spending by using the data on China's prefectures.

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DATA AVAILABILITY STATEMENT

Data that support the results are available in Supporting Information S1.

ENDNOTE

[1] This indicator has four ordinal scales (4: when the party secretary holds a Politburo membership at the Party's Central Committee; 3: when the party secretary has worked more than 3 years at vice-ministerial level or above prior to the assignment; 2: when s/he has worked for at least 3 years in another province prior to the assignment; 1: when s/he has worked in the same province prior to the assignment. When a new secretary is appointed between May and July, the value of that year is calculated in the following way. Take an example from the Xinjiang in 2010. The previous party secretary, Wang Lequan, held a Politburo membership in Beijing ("4"). The succeeding party secretary, Zhang Chunxian, proceeded from Hunan Province in May ("2"). Value "3" was assigned to Xinjiang in 2010).

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SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

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