Does Affluence Influence Authoritarian Responsiveness? Evidence from Urban China *

Jiawei Fu †
Zeren Li ‡
Haibing Yan §

Abstract

While research on advanced democracies highlights unequal political responsiveness favoring the affluent, less is known about such bias in authoritarian regimes without competitive elections. This paper analyzes how wealth affects bureaucratic responsiveness in an authoritarian context. By matching administrative data on municipal service records with apartment complex-level housing prices in downtown Shanghai, we show mixed findings on unequal responsiveness. Local governments resolve issues faster for residents in wealthier areas, which indicates a priority bias. However, residents in poorer areas receive equally positive resolutions as those in richer neighborhoods. Using interviews and a formal model, we interpret these mixed findings as an outcome of the dual mandates street-level bureaucrats face: efficiency pressure and social stability concerns.

Keywords: Government Responsiveness, Bureaucracy, Inequality, Housing Price, Authoritarianism, China

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†Assistant Professor, Duke University, garyfujiawei@gmail.com.
‡Assistant Professor, National University of Singapore, zeren.li@nus.edu.sg.
§Associate Professor, East China University of Political Science and Law, 2183@ecupl.edu.cn.

Government responsiveness has long been viewed as a core feature of representative democracies, where politicians respond to the preferences of citizens (Dahl, 1971; Przeworski et al., 1999). Recently, a growing body of literature has shown that government responsiveness not only appears in countries with competitive elections (Berliner et al., 2021; Besley and Coate, 2003; Sances, 2016), but also emerges in autocracies that lack meaningful political representation (Chen, Pan and Xu, 2016; Jiang and Zeng, 2020; Lueders, 2021). Despite the prevalence of political responsiveness in different regimes, governments by no means respond to citizens equally (see the review by Elkjær and Klitgaard, 2021). Scholars have identified two sources of unequal responses. The first arises from elected politicians favoring the affluent and well-educated, often due to factors such as voter turnout, interest group donations, and tax contributions (Gilens, 2005; Erikson, 2015; Schlozman, Verba and Brady, 2012; Sances, 2016). The second stems from bureaucratic biases that manifest in daily administrative tasks, resulting in favorable treatment of businesses (Yackee and Yackee, 2006), and biases against marginalized groups, such as immigrants and ethnic minorities (Einstein and Glick, 2017; Olsen, Kyhse-Andersen and Moynihan, 2022).

While evidence shows that unequal responsiveness appears in both mature and emerging democracies, we know little about the magnitude and mechanism of such inequality in authoritarian countries, where meaningful representation, as an institutionalized channel through which the affluent might influence the public policy, is absent. On the one hand, authoritarian leaders may prioritize equal responsiveness, as they tend to use efficient governance to replace election as the source of regime legitimacy. They may command bureaucrats to respond to all groups of citizens, especially the poor, and thus reduce concerns about civil disobedience (Chen, Pan and Xu, 2016; Distelhorst and Hou, 2017; Mittiga, 2022). On the other hand, unequal bureaucratic responsiveness can be more severe under authoritarian rule, where political leaders fail to monitor bureaucrats who pander to the rich due to a lack of electoral incentives (Slough, 2021*a*; Wirsching, 2022).

In this study, we address this debate by examining how the affluent influence government responsiveness in an authoritarian context. We analyze how spatial inequality manifests itself in the responses of municipal services in China's largest city, Shanghai. Using quantitative analysis of

administrative data, interviews with street-level bureaucrats, and a formal model, we demonstrate a mixed pattern of unequal responsiveness: the government exhibits a priority bias in that the rich receive faster responsiveness, even if this does not translate into a higher likelihood of issues resolution.

In our main empirical analysis, we draw on a unique administrative dataset of all 12345 hotline petition records between 2016 and 2019 in downtown Shanghai, China. Like the 311 services in the United States and Canada, the 12345 hotline is a non-emergent municipal service platform that allows citizens to submit complaints to local governments. By dialing 1-2-3-4-5, citizens can complain to the municipal government about various issues, such as public infrastructure, environment, housing, schools, and local businesses. Local governments typically respond to these complaints within two weeks with a resolution. Our administrative data include detailed information on each petition, including its call transcript, caller's address, time of resolution, case type, resolution outcome, and responses to a follow-up survey. Following the existing literature on government responsiveness (Christensen and Ejdemyr, 2020; Dipoppa and Grossman, 2020; Lueders, 2021), we use the resolution time and the decision to measure responsiveness — the former measures the priority of petition resolution and the latter measures the actual resolution. We gauge wealth inequality by focusing on its spatial variation, using housing prices as a proxy for the wealth status of the caller. Specifically, we match the caller's residential address with apartment-complex-level property price data.

We estimate the disparity in bureaucratic responsiveness to residents in rich and poor areas. By controlling for petition topics and other confounders, our main specification shows that citizens from a rich community receive significantly quicker resolutions than their peers in poor communities. However, the government does not provide more positive resolutions to complaints of the rich than to those of the poor, given the same petition topic. We address the causal concern in identifying the effect of housing prices on responsiveness using an instrumental variable approach. We use the historical foreign settlement boundary as the instrumental variable (IV) to perform a two-stage least squares (2SLS) estimation. Our 2SLS result shows that the response time decreases by 0.25

work days if the property price where the caller resides is 20% higher. In other words, those who live in high-end apartments with the top 5% property price receive a response at least one working day earlier than a resident in an apartment priced at the district average. Given that the law requires a government response within 15 working days, the magnitude of the quicker response is nontrivial. In addition to the IV estimate, we conduct several robustness checks by analyzing the exclusion restriction, identifying outliers, using alternative outcome measures, and applying spatially clustered standard errors.

To explain the mixed findings on unequal responsiveness, we provide a competing mandate explanation, combining a formal theoretical framework with evidence from fieldwork interviews.[1] On the one hand, bureaucrats face efficiency concerns, as they have limited time and resources to resolve complaints. Consequently, they strategically allocate their efforts based on anticipated responses from citizens. Some citizens can impose extra costs on bureaucrats–by filing lawsuits or directly complaining to political leaders they know–forcing bureaucrats to allocate additional time and effort to these cases. We argue that this capacity is closely linked to socioeconomic status. According to our semi-structured interviews, bureaucrats believe the property value of petitioners is the best available indicator of socioeconomic status, leading to the observed priority bias. On the other hand, bureaucrats must also prevent protests in their jurisdiction, which is a key component of their performance evaluation as mandated by upper-level political leaders. While this is uncommon, citizens may protest if their complaints are not resolved through municipal services or other legal channels. To prevent such collective action, bureaucrats must address the concerns of both the rich and the poor equally in the final resolution.

In addition to demonstrating the dual mandate explanation, we conduct analyses that exclude several alternative explanations for the observed priority bias. First, we address the concern of petition heterogeneity in government-labeled types. Structural topic models and similarity analyses show that the distribution of petition topics from the rich and poor is highly homogeneous. Another concern is that the rich may be more able to send strong verbal signals than the poor. We analyze

[1] We include details of our interviews in the Supplementary Information (hereafter referred to as SI; see SI A).

four types of verbal signals that might affect government responsiveness: (1) legal knowledge, (2) threats of collective action, (3) reporting to the upper-level government, and (4) demonstration of party membership. We show that callers rarely mention keywords related to these signals when using the 12345 hotline. The corresponding regression analysis indicates that the rich do not use these verbal signals more often than the poor. Moreover, we show that the priority bias is not driven by discrepancies in demand, such as claims that the rich call less frequently than the poor. We also exclude the possibility that disparities in local funding result in richer neighborhoods receiving quicker responses. Using government budget reports and local spending data, we show that richer areas neither receive more funding from the upper-level government nor spend more. Lastly, we examine the effect of property management companies, another important stakeholder in citizens' petitions. The results on priority bias remain robust after we control for the quality of property management, which support the validity of our key findings.

The urban context of China serves as a particularly intriguing case for studying the effect of wealth inequality on government responsiveness. While achieving rapid economic growth, China has faced severe inequality in recent decades, with its Gini coefficient reaching 0.73 in 2012 (Xie and Jin, 2015). Despite rising inequality, China exemplifies an authoritarian regime that advances responsiveness without competitive elections. The government has established various venues for responding to citizens, such as online consultation and petition forms, mayor mailboxes, and legislative deputy services (Dimitrov et al., 2014; Truex, 2017; Manion, 2015; Distelhorst and Hou, 2017; Jiang, Meng and Zhang, 2019; Ding, 2020). Contributing to the growing scholarship, we examine the effect of wealth on government responsiveness. The observed pattern of unequal responsiveness in urban China may provide broader insight into authoritarian governance, especially in contexts marked by increasing inequality and weak electoral accountability. According to Numbeo (2024), a database that specializes in quality of life and property prices, nine of the ten cities with the highest property price-to-income ratios are in authoritarian countries, such as Ho Chi Minh City in Vietnam; Beijing and Shanghai in China; and Tehran and Shiraz in Iran. The incentive structures of bureaucrats in urban China mirror those in other nondemocratic regimes,

where advancing political responsiveness and preventing collective action are essential for regime stability. Our findings, leveraging within-city spatial variation in property prices to examine unequal responsiveness, can be generalized to other urban settings under authoritarian rule where spatial inequality coexists with authoritarian governance. Furthermore, our micro-level analysis holds macro-socioeconomic confounders constant, which ensures internal validity.

This paper also advances the literature on the selectiveness of authoritarian responsiveness by suggesting that non-democratic governments selectively respond to citizens' demands based on petition topics, particularly those related to issues with collective action potential or threats from upper-level political supervisors (Chen, Pan and Xu, 2016; Meng, Pan and Yang, 2017; Zhang, N.d.). Our paper shifts the focus from petition topics to the type of petitioner, as revealed by the information petitioners report to the government. We show that bureaucrats strategically allocate effort to resolve petitions based on the wealth status of petitioners. The documented priority bias also echoes a bureaucratic oversight problem inherent in government responsiveness (see discussion in the review by Grossman and Slough, 2022). While the government employs various channels, such as online petition platforms (Jiang, Meng and Zhang, 2019), social media (Hassid, 2015), and smartphone applications (Callen et al., 2020), to enhance responsiveness, the competing mandates of preventing collective actions and ensuring resolution efficiency lead to selective responsiveness in favor of wealthy residents.

Broadly, our paper contributes to a comparative understanding of the unequal distribution of government responsiveness along two dimensions. First, it speaks to a growing literature that highlights the political and distributive implications of housing and property prices (see review by Ansell, 2019). We show that property prices serve as a status symbol that marginally improves access to public services, even in a context where local funding does not depend on property taxes. Moreover, our study reveals a new mechanism through which the wealthy influence political responsiveness. This scholarship, predominantly based on evidence from advanced democracies, demonstrates that affluent citizens receive more policy responses due to their ability to influence politics through means such as lobbying, financial support for campaigns, or tax contributions

(Erikson, 2015; Schlozman, Verba and Brady, 2012; Sances, 2016). Our study reveals that such bias in authoritarian regimes is not driven by the direct political influence of the affluent, as elections and political representation are not meaningful. Instead, the wealthy enjoy a priority advantage in the bureaucratic processes of public service delivery due to efficiency concerns among front-line bureaucrats.

Our paper is organized as follows. We first introduce the background of China's rising inequality and the 12345 municipal service platform. We then present the empirical strategy and key findings on the priority bias toward the wealthy. Next, we discuss why this priority bias exists in the municipal service. The following section provides evidence to rule out alternative explanations. Finally, we conclude by discussing the scope conditions of this study and its policy implications for managing street-level bureaucrats.

Background

Rising Inequality in Urban China

Along with its rapid economic growth, China has experienced rising inequality in the past few decades. According to Xie and Zhou (2014), the income inequality in China has increased significantly, with a Gini coefficient ranging from 0.53 to 0.55. The unequal distribution of wealth is even more pronounced. According to a nationally representative survey, the wealth Gini coefficient reached 0.73 in 2012 (Xie and Jin, 2015). The top 1% of the wealthiest individuals own over one-fourth of the national household wealth, while the household wealth of the poorest 25% accounts for only 2% of total household wealth.

Although the urban-rural divide and regional disparity are two primary contributors to China's inequality, within-city inequality is also salient. Our case, Shanghai, is not only the wealthiest city in China but also one of the most unequal municipalities in the country. According to Bhattacharya et al. (2018), Shanghai's within-city Gini coefficient ranked second among China's 31 provincial units in 2012 (Figure F.1). In another cross-city comparison by Chen, Liu and Lu (2018), the Gini

coefficient of Shanghai ranked 7th out of 252 Chinese cities.

In the urban context of China, housing is a significant component of wealth inequality. In 1988, China initiated housing reforms to privatize urban housing. The reform transitioned the nature of urban housing from a benefit provided by working units (danwei) to a commodity. While urban residents do not own the land, they can purchase and sell their apartments at market prices (Zhu, 2018). Housing privatization has aggravated the wealth disparity among urban residents in China. Housing capital gains have fueled the accumulation of wealth in households (Wang et al., 2020). The median housing price in Shanghai saw a 13-fold increase over 19 years, rising from 3,659 RMB in 2001 to 50,199 RMB in 2019. In this paper, we use housing prices as a proxy for the wealth status of urban residents for two reasons. First, housing assets account for the largest portion (over 70%) of urban household wealth in China (Xie and Jin, 2015). Second, most Chinese people own private housing: private housing ownership surged from 50% in 1978 to more than 95% in 2015 (Piketty, Yang and Zucman, 2019).

12345 Municipal Service

We examine the urban unequal responsiveness using the case of 12345 municipal service records. 12345 hotline is the most prevalent nonemergent government service system among Chinese municipalities. The Shenyang municipal government in Liaoning Province was the first to introduce a major hotline in 1983, allowing citizens to request municipal services. Later, various government agencies and local governments opened separate hotlines in their jurisdictions to respond to the requests of citizens (Meng and Su, 2021). Beginning in 2010, Chinese municipalities integrated all government service hotlines into the 12345 system so that citizens only needed to call one number to request municipal services. In 2021, 313 of the 333 Chinese municipalities had opened 12345 hotlines for citizens.[2]

Our empirical analysis centers on the 12345 municipal service in the H District, Shanghai. The H district constitutes the traditional urban core of Shanghai — it is the seat of the Shanghai

[2] http://www.gov.cn/fuwu/2021-01/07/content_5577726.htm

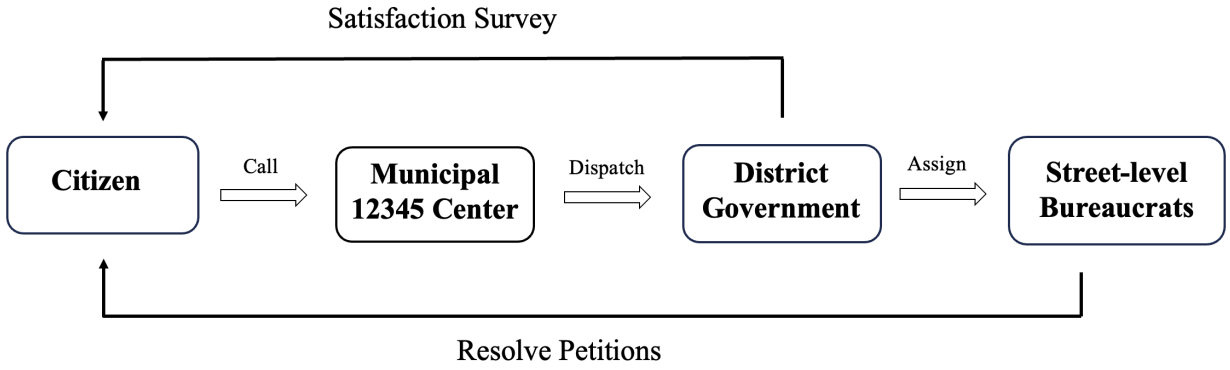


Figure 1: 12345 HOTLINE WORKFLOW

municipal government, and a part of it used to be the French Concession and the International Settlement. According to the 2020 Census, the H district has 660 thousand residents in a living area of 7.4 square miles. Its population density (89.18 thousand residents per square mile) is one of the highest in the world (Manhattan in New York City is 77 thousand per square mile). In 2021, the H district was also the wealthiest urban district in China, with a GDP per capita of 438 thousand RMB (67 thousand USD), more than 2 times that of Shanghai and 5 times that of China.[3]

The Shanghai municipal government opened the 12345 hotline in October 2012, combining over 230 separate government service phone numbers into one unified system. During the first decade, the Shanghai 12345 hotline received over 30 million petitions through various channels, including phone calls, smartphone applications, and website platforms.[4]

Figure 1 illustrates the workflow of the Shanghai 12345 hotline service. Typically, a case is handled by three tiers of governmental agencies: the municipal-level 12345 center, the district government, and street-level bureaucrats who work in district departments or neighborhood cadres. Initially, the municipal 12345 center accepts a petition and opens a case in the system. Table F.1 displays the channel through which citizens access the 12345 hotline service. Our data suggest that the vast majority of citizens reach out to the municipal service by phone (98.1%).

Operating as a nonemergency 24-hour hotline, the platform categorizes complaints into nine

[3]The GDP per capita of Shanghai was 173.6 thousand RMB (27.2 thousand USD) and that of China was 81 thousand RMB (12.5 thousand USD) in 2021.

[4]https://finance.sina.com.cn/tech/2022-04-02/doc-imcwiwss9581356.shtml

types: (1) Infrastructure and Transportation, (2) Public Security, Politics, and Law, (3) Social Management, (4) Science, Education, Culture, and Health, (5) Safety and Regulation, (6) Utilities, (7) Economy, (8) Social Organization, and (9) Others. Figure F.2 depicts the distribution of these case types in the H district between 2016 and 2019. Each year, the H district government receives over 10,000 cases from residential areas, on average. Of the various case types, complaints concerning infrastructure and transportation are the most prevalent (77%), followed by public security, politics, and law complaints (8%) and then social management complaints (7%). In the subsequent step, the municipal 12345 center directs the cases to the appropriate district-level agency based on the location of the case. For instance, if a resident complains about an infrastructure issue in H District, the H district government takes responsibility and channels it to the pertinent agency within its jurisdiction, in this scenario, the construction and management commission. Bureaucrats in these departments and dispatched agencies that manage the cases can view the case records, which include the address details, giving them insights into the potential wealth status. Once the case is addressed, bureaucrats report back to the district government and offer feedback to the citizen via phone. The district government also sends an invitation asking the citizen to complete a satisfaction survey regarding the quality of service after the bureaucrats provide a resolution. Based on our interviews (Interviewee 3), government responsiveness plays a crucial role in performance evaluations, where the higher-tier government prioritizes three metrics: (1) the total number of cases received and processed, (2) the average response time, and (3) the overall satisfaction rate.

We present an example to show how the response appears in the administrative records. The example is a noise complaint recorded in 2017. The 12345 hotline center recorded the case description as follows: *"Caller reflects that location A conducts major home repair around 6:00 am every day, which has been going on for more than a month. The same construction is carried out during the long holiday, affecting residents' normal rest and life. Appeal: Carry out construction at a specific time. (Reply required)"*

In this case, the district bureau of housing safety and management took 13 days to respond to the caller and stated that the petition was valid but lacked a legal or policy foundation. The

official response was as follows: *"After receiving the petition, our bureau promptly contacted the construction unit. This is a major renovation project for the entire building, and the construction unit has adjusted the work schedule to minimize disturbances. Additionally, we have strengthened on-site management."*

The 12345 municipal service center monitors the entire resolution process and logs pertinent information, including call pick-up time, address, phone number, description, type of complaint, response time, resolution decision, and citizen evaluation. We utilize comprehensive data from these administrative records to explore inequality in 12345 municipal services. The subsequent section details the data and variables employed in our quantitative analysis. In undertaking this, we fully acknowledge that our research is conducted in an ethical fashion. The study has been approved by the Institutional Review Board of the affiliated institutions of the authors, and we have strictly complied with all regulations to ensure the protection of individual rights, privacy, and confidentiality. The final dataset used for quantitative analysis and replication purposes does not contain any personally identifiable information.

Empirical Strategy

We use administrative records from the 12345 hotline in district H, Shanghai, China. H district recorded over 120,000 complaints between 2016 and 2019. Although we are interested in how spatial inequality, measured by property prices, influences district-level government responsiveness, an empirical concern is that the reported issue might not have occurred in the residence of the petitioner. To address this concern, we employ a spatial matching method to pinpoint petitions originating in residential areas.[5] Using the address of each case, we gathered spatial information from Google Maps API, which includes longitude and latitude. After accessing these geographic data, we determined the residential addresses by merging the data with apartment-complex polygons. Figure 2 offers an illustration: the red dot represents a residential address located within

[5]Respondents are asked about the place of the incident. According to petition cases from administrative records, most callers either record issues near their residential addresses or report their residential addresses.

residential areas, while the black dot indicates a case that occurred in nonresidential areas. Using this matching method, we identified over 43,000 cases that occurred in residential zones, accounting for approximately 37% of all petitions.

Figure 2: IDENTIFYING RESIDENTIAL ADDRESS

Note: This figure illustrates how we identify residential addresses. The red dot indicates that the caller is at a residential address, while the black dot indicates a non-residential address. The purple polygon represents all residential areas in H district.

Variables

We employ two measures of responsiveness as outcome variables. First, following previous studies (Chen, Pan and Xu, 2016; Su and Meng, 2016; Dipoppa and Grossman, 2020; Erlich et al., 2021; Lueders, 2021), we measure the priority of responsiveness by focusing on resolution time. As Dipoppa and Grossman (2020) suggests, response time is an objective measure that suffers less from manipulation and has abundant spatial and temporary variation. While our administrative records do not provide information on the precise time spent on each resolution, the district

government assigned a label to indicate the extent to which the petition is delayed. Petition cases are categorized into four types with different colors. The cases with green labels were addressed on time, which means that the complaints were resolved within 10 working days. Those that experienced minor (10-13 working days) and intermediate (13-15 working days) delays are labeled yellow and orange, respectively. "Red" cases refer to complaints with significant delays, for which the governmenttook more than 15 business days to provide feedback to citizens. The left panel of Figure 3 shows the distribution of the response time. In our sample, 73% of the petitions were resolved on time, while 23% and 3% experienced minor and intermediate delay. Less than 1% of the cases were resolved with significant delay, taking the government more than 15 working days to respond. In our regression analysis, we assign the mean value of each category as a continuous measure of response time (in days). Specifically, on-time cases are coded as 5 days, cases with minor delay as 11.5 days, cases with intermediate delay as 13.5 days, and cases with significant delay as 15 days. We also check the robustness using an ordinal measure (Table F.3).

Another outcome of interest is the extent to which the government positively responds to the petition. In our administrative data, resolution decisions are categorized into four types: "actually resolved (*shi ji jie jue*)"; "show explanation" (*jie shi shuo ming*); "demand is too high" (*su qiu guo gao*), and "record it for reference and record" (*can kao bei an*). Examples of each type of resolution are shown in SI C. In the baseline specification, we use a conservative approach that only considers cases with actual resolution as a positive response. In doing so, we use a binary indicator, coding the positive resolution as 1 and 0 otherwise. The right panel of figure 3 shows the distribution of case resolutions. Between 2016 and 2019, the H district government provided positive resolution to a small portion of cases (17.2%) based on our conservative measure (summary statistics in Table F.2).

Despite the widespread use of these two measures in the literature, we empirically verify that resolution time and positive resolution are both important and coherent indicators of government responsiveness in China. First, we show a strong correlation between these two measures and overall citizen satisfaction in a follow-up survey conducted by the district government overseeing

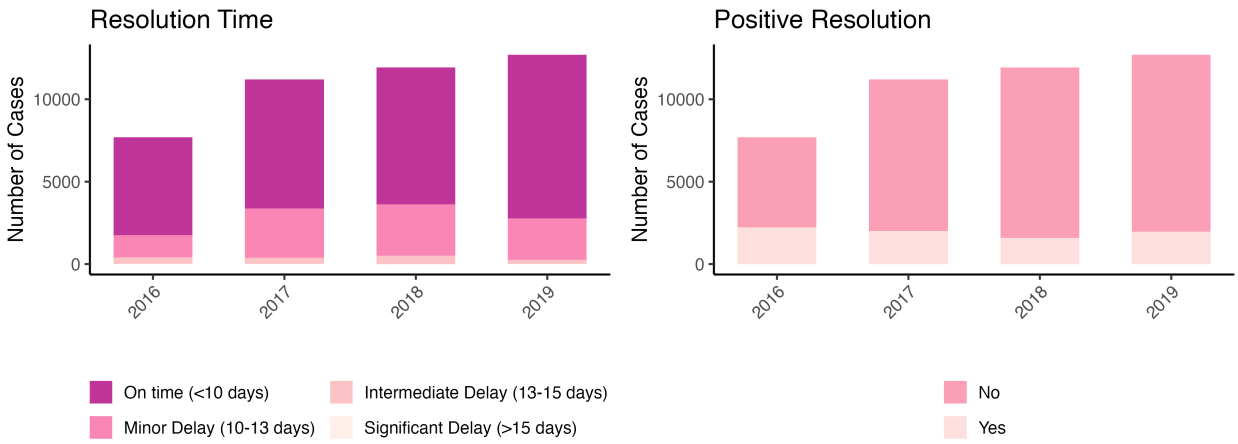


Figure 3: DISTRIBUTION OF ALLOCATION DURATION AND RESOLUTION
Source: H 12345 hotline records.

street-level bureaucrats (see details in SI D). Table D.1 shows that petitions with short resolution times and favorable outcomes receive higher satisfaction ratings from the citizens in the survey. Furthermore, using a correlation analysis, we confirm that both response time and positive resolution are coherent measures of government responsiveness. Table F.4 shows that shorter response time is associated with more positive resolution, both with and without controls for petition type and year-month fixed effects.

We use housing price as the key variable of interest to document the spatial variation in wealth inequality. We scraped the housing price data from *Fangtianxia.com*, a major real estate brokerage in China that is publicly listed on the New York Stock Exchange (Fang Holdings Ltd, NYSE: SFUNY).[6] Housing prices are at the apartment complex level (xiao qu). In Chinese cities, most residents live in apartment complexes maintained by property management firms (wu ye). Considering that new real estate sales are undervalued due to government restrictions on new sales, we use pre-owned housing prices. In our sample, the preowned property price in H district varies across different apartment complexes, ranging from 6,900 to 144,000 RMB per square meter (approximately 92 to 1,858 USD per square foot).

[6]Notably, we do not have the time-variant, apartment complex-level housing price. The apartment complex price data were scraped in a batch in late 2017. Using such micro-level, cross-sectional data enables us to measure the spatial variation in housing prices. We verify that the spatial variation in housing prices remains stable over time using aggregate-level, time-variant data. Moreover, we show that most residential areas (ban kuai), a real estate term that refers to a cluster of apartment complexes, have a similar trend over time (Figure F.3).

We control for a set of petition-level confounders. We first consider gender bias by controlling for a binary variable that is coded as 1 if the caller is female and 0 otherwise. We also control for bias against native origins. In China, bias toward nonlocals prevails in major cities because of the relatively low social and economic status of people who do not have local hukou, a home registration indicator that distinguishes locally born residents. We account for this confounder by developing a proxy for the local residential status. While the 12345 database does not ask for the hukou status of the caller, we use a telephone search engine developed to extract the registration location of each phone number. We use a binary measure, coding telephone numbers registered in Shanghai as 1 and 0 otherwise. Moreover, we account for bias toward foreigners. In China, non-Chinese foreigners and overseas Chinese enjoy preferential treatment in various policy domains, including housing, family planning, and banking (Bork-Hüffer and Yuan-Ihle, 2014). To control for the preferential treatment of foreigners, we develop a binary proxy for foreign or overseas Chinese status by coding whether the case description mentions a set of keywords related to foreigners or overseas Chinese.[7] We consider the anonymity of the call. Anonymous callers might have different concerns about petitions than non-anonymous callers. For example, scholars show that anonymous users are more likely to voice politically sensitive concerns than non-anonymous users (Chen, 2021). The 12345 hotline allows callers to remain anonymous but still records addresses. We construct a binary indicator, coding an anonymous caller as 1 and nonanonymous caller as 0. Lastly, we control for the distance in kilometers from the petition location to the neighborhood service center, where street-level bureaucrats are based. This adjustment helps account for a potential mechanical effect, as street-level bureaucrats may be located closer to higher-priced apartments, making it easier for them to resolve petitions from wealthier residents.

In addition to case-level covariates, we account for the effect of the political cycle on responsiveness. The literature shows that authoritarian leaders enhance responsiveness before elections to enhance political legitimacy (Lueders, 2021). In the context of China, government behavior, including tax collection, repression, and public spending, also reflects a cyclical pattern (Guo, 2009;

[7]Keywords related to foreigners and overseas Chinese include huaqiao, haiwai, taibao, Taiwan, HongKong, waiji, waiguoren, and other nationality, such as American, Canadian or Japanese citizens

Pan, 2019; Chen and Zhang, 2021). Following the practice in the literature, we develop proxies for local and national political cycles by focusing on the sessions of the People's Congress and the People's Political Consultative Conference (two sessions) at the national and local levels (Guo, 2009). We use two binary indicators of national and local sessions, coding the case as 1 if the reporting date is one month before or during the period of the national and local sessions. In addition to condering the cycles of two sessions, we take into account the political turnover of chief executives (district party secretaries and district chiefs), a crucial determinant of public resource allocation in China (Hou and Li, 2023; Li, Li and Zhang, 2023). In the context of this paper, changes in the leadership of these district governments might also affect government responsiveness. For example, district leaders who face promotion may accelerate responsiveness to demonstrate their competence. To account for this political turnover effect, we create a binary indicator that is coded as 1 if the case is recorded in the month when district leaders have experienced political turnover.

Table F.2 presents the summary statistics for the outcome variables, treatment, and covariates. An exploratory analysis of the bivariate correlations between our treatment and outcome variables, as well as case-level covariates, is shown in Figure F.4. Consistent with our key hypotheses, housing price is negatively correlated with resolution time but shows no significant correlation with positive resolution. We also find that female, local, and anonymous callers tend to come from wealthier areas, while foreigner status does not show a strong correlation with housing price. Additionally, high-priced apartments tend to be located farther from the neighborhood center. We control for all of these covariates in the regression analysis.

Effect of Housing Price on Bureaucratic Responses

We estimate the effect of housing prices on government responsiveness using over 40,000 hotline petitions recorded from 2016 to 2019. As a key empirical concern is that residents who live in poor or rich neighborhoods might raise different complaints, we choose to use a case-type fixed effects specification that allows us to compare how bureaucrats respond to the rich and the poor given the

same issue. The model is specified as follows:

$$Y_{i(jt)} = \beta_1 log(Price_{i(jt)}) + \delta_1 X_i + \gamma_j + \zeta_t + \epsilon_{ijt},$$

where $Y_{i(jt)}$ denotes the two forms of responsiveness measures: response time (number of days) and resolution of case i with type j that is handled in year t. $log(Price_{i(jt)})$ is the logged housing price of the caller's apartment complex. X_i denotes the set of case-level covariates and political cycle variables. We control for case type fixed effects γ_j to address the concern about issue heterogeneity. We also control for year-month fixed effects (ζ_t) to exclude year-month specific shocks, such as seasonal trends and national and traditional holidays. The standard errors are clustered at the apartment complex level.

Table 1 shows the effects of housing prices on two measures of responsiveness. Columns 1 to 3 report the results for the response time (in days). We begin the analysis by regressing the response time directly on housing price in Column 1, controlling for type and year-month fixed effects. The model yields a negative and significant estimate of housing price, suggesting that callers from wealthy neighborhoods receive a quicker response than their poor counterparts. In Columns 2 and 3, we gradually add case-level covariates and political event controls. Estimates of housing price increase slightly and remain statistically significant. In contrast to the significant estimates in Columns 1 to 3, the estimated effects of housing price on positive resolution in Columns 4 to 6 are small and statistically indistinguishable from zero.

In addition to the key finding on priority bias, some intriguing patterns among covariates are revealed in our baseline estimation. First, female petitioners receive significantly faster and more favorable responses. Complaints from local residents receive slower responses than complaints from nonlocal residents. A plausible explanation for this counterintuitive pattern is that locals may have more demanding requests, even within similar types of petition, which could delay the response process. Additionally, the use of phone numbers to identify local status might lead to measurement errors if non-local petitioners switch to a local carrier. We also find that anonymous

callers experience worse treatment, with more delayed and negative responses, which suggests that government agencies may be less responsive to petitioners who do not disclose their identity.

We further examine the temporal dynamics of responsiveness and reveal varying patterns during local and national legislative sessions. District governments respond more slowly to petitioners during the national "Two Sessions", likely because bureaucrats prioritize suppressing collective actions over efficiently providing municipal services during this sensitive period, the former of which could cost their careers. In contrast, we find shorter resolution times during local "Two Sessions", possibly because bureaucrats focus more on efficient municipal service delivery, which aligns with the priorities of local political leaders and legislators attending these local sessions. Finally, bureaucratic responsiveness declines when the district government undergoes political turnover. This delay may be due to the new leadership that implements organizational and personnel changes in local agencies and thereby reduces the efficiency of petition resolution.

While the baseline OLS estimation provides compelling evidence on the priority bias toward the rich, such estimation might be biased for several reasons. First, OLS estimation may suffer from the reverse causality problem that hotline responsiveness quality can affect housing prices; for example, people pay a premium for better public service. Second, we might suffer from biases from omitted variables, such as citizens' preferences, that fail to be captured by the government-coded case types. To address these concerns, we use an instrumental variable (IV) approach to estimate the effect of housing prices on responsiveness. Our IV analysis exploits a historical determinant of housing prices in central Shanghai: the foreign settlement area that consists of the French Concession and the International Settlement established after the Qing government, which opened Shanghai as a treaty port to westerners.[8] The left panel of Figure 4 shows the geographical boundary. The International Settlement (yellow area) is located in the north, and the French Concession (red area) is in the middle. The green part is the nonsettlement area, which used to be called the "Southern City" (nan shi) and is located in the southern part of the current H dis-

[8]For example, Miguel and Roland (2011) use geographical boundaries as an IV to estimate the effect of US bombings on economic development.

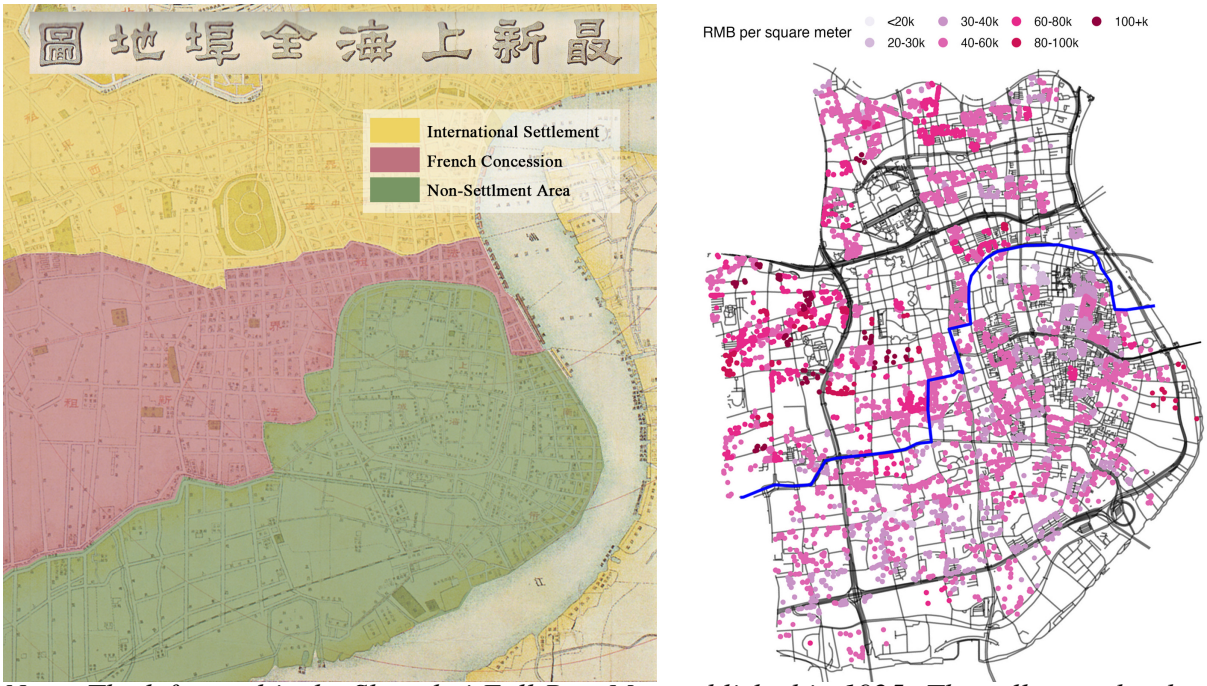
Table 1: Main Result

	Resolution Time			Positive Resolution		
	(1)	(2)	(3)	(4)	(5)	(6)
Price	-0.200^{**}	-0.224^{**}	-0.224^{**}	0.005	-0.001	-0.001
	(0.096)	(0.093)	(0.093)	(0.010)	(0.010)	(0.010)
Female		-0.105^{***}	-0.103^{***}		0.031^{***}	0.031^{***}
		(0.040)	(0.040)		(0.005)	(0.005)
Local		0.745^{***}	0.744^{***}		0.009	0.009
		(0.060)	(0.059)		(0.006)	(0.006)
Foreign		0.075	0.077		-0.026	-0.026
		(0.304)	(0.305)		(0.024)	(0.024)
Anonymous		0.176^{***}	0.175^{***}		-0.076^{***}	-0.076^{***}
		(0.057)	(0.057)		(0.006)	(0.006)
Distance to Neighborhood Center		-0.003	-0.002		0.003	0.003
		(0.084)	(0.084)		(0.008)	(0.008)
National Two Sessions			0.497^{***}			0.040^{**}
			(0.147)			(0.016)
Local Two Sessions			-0.482^{***}			0.014
			(0.113)			(0.014)
Executive Turnover			0.703^{**}			0.028
			(0.294)			(0.035)
Type FE	Y	Y	Y	Y	Y	Y
Year-month FE	Y	Y	Y	Y	Y	Y
N	43,498	43,495	43,495	43,500	43,497	43,497
Adjusted R^2	0.030	0.037	0.038	0.053	0.062	0.063

Notes: Standard errors clustered at the apartment-complex level are reported in parentheses. FE denotes fixed effects. *p<0.1; **p<0.05; ***p<0.01.

trict.[9] The price premium of the settlement area emerged in the late 19th and early 20th centuries. According to Wang (2009), housing prices in the settlement area soared compared to the nonsettlement area because of (1) the immigration of rich gentries in Jiangsu and Zhejiang fleeing from the war against the Taiping army; (2) foreign investment in real estate; (3) better infrastructure, such as street lights, sewage, and various aspects of public services; and (4) legal protection under the rule of the settlement agency. Lu Xun, a prominent leftist writer who lived in Shanghai in the 1930s, wrote in a letter to a friend that the primary reason he preferred renting a house but paying higher rents in the settlement area was safety.[10]

Figure 4: HOUSING PRICE IN H DISTRICT



Note: The left panel is the Shanghai Full Port Map published in 1925. The yellow and red areas denote the two parts of the settlement area: the French Concession and the International Settlement (Concession Internationale). The green part is the Non-Settlement Area. In the right panel, darker colors denote addresses with higher prices. The blue line denotes the settlement boundary.

Although foreign settlement was abolished during World War II and the new government ruled by the Communist Party of China replaced the housing market with a housing allocation system in

[9]The French Concession expanded over time in the late 19th and early 20th centuries. We use the latest boundary (1914) as the geographical cutoff for causal identification. A detailed description of the settlement is provided in SI E.

[10]Lu Xun, the letter to Cao Jinhua, 1936.

the 1950s, housing prices re-emerged after the readoption of the commercialized housing market in the 1990s. Currently, many celebrities, professionals, entrepreneurs, and ex-pats live in townhouses and apartments in the former settlement area. Two reasons account for the persistence of the price premium of the settlement area. First, the establishment of settlements shapes the urban landscape of downtown Shanghai. The municipal government of Shanghai, People's Park (former Shanghai Race Club), the Bund, and many historical architectures, high-end apartments, and townhouses are located in the former settlement area. In addition to having an effect on the urban landscape, foreign settlement has a cultural heritage. Native Shanghainese call the settlement area the "upper corner" (Shang Zhi Jiao), which means a high-end neighborhood, and the nonsettlement area the "lower corner" (Xia Zhi Jiao), which means a slum-like community (Shen, 2015). For these reasons, the settlement boundary formed in the early 20th century predominantly determines the spatial variation of housing prices in central Shanghai, albeit with a considerable amount of new construction. The right panel of Figure 4 shows the current disparity in housing prices across the settlement boundary. The blue line denotes the boundary between the settlement area and the nonsettlement area.[11] We use darker colors to denote residential addresses with higher housing prices, and we observe a clear pattern that housing prices in the area that used to be the settlement are significantly higher than those in the nonsettlement area.

In addition to the eyeball test of price disparity, we estimate a 2SLS model as follows.

$$log(Price_{i(jt)}) = \alpha_1 Settlement_{i(jt)} + \delta_1 X_i + \gamma_j + \zeta_t + \epsilon_{ijt}$$
$$Y_{i(jt)} = \beta_1 log(\widehat{Price}_{i(jt)}) + \delta_2 X_i + \gamma_j + \zeta_t + \epsilon_{ijt}$$

where the outcome variable in the first stage, $log(Price_{i(jt)})$, is the logged housing price of the address where the caller of case i with type j reports in year t. The instrumental variable $Settlement_{i(jt)}$ is a binary indicator that is coded as 1 if the call is from the settlement area and 0 otherwise. In the second stage, we regress the two outcome variables on the predicted housing

[11] The settlement area experienced several waves of expansion. We use the latest boundary established in 1914 as the border.

price using the first-stage specification. Again, we also control for all baseline covariates (X_i).

Table 2 presents the results of the 2SLS estimation. Column 1 shows the first stage, showing a positive estimate for $Settlement$, which is statistically significant at the 1% level. The estimate suggests that housing prices in the settlement area are approximately 30% higher than those in nonsettlement areas. After presenting the first-stage result, we show the second-stage estimation of the response time in Column 2. Consistent with the OLS estimate in Table 1, the coefficient on housing price is again negative and significant at the 1% level, suggesting that the response time is 0.25 working days shorter if the housing price of the place where the caller lives is 20% higher. In the context of central Shanghai, our estimation suggests that on average, a resident who lives in an apartment with a district average price (48,000 thousand RMB per square meter) is expected to receive a response at least one working day later than a resident who lives in a high-end apartment with a price over 86,000 RMB per square meter (approximately 5% of H apartment complexes have this price). Columns 4 and 5 report the results of petition resolution using IV and reduced-form estimations, respectively. In contrast to the significant estimates in Columns 2 to 3, the estimated effects of $Price$ on the positive response are small and statistically insignificant. Taken together, our analysis provides compelling evidence on the priority bias toward the rich neighborhood in terms of response speed. However, the district government does not favor the rich over the poor areas in the decision on petition resolution.

Despite the absence of significant bias in the resolution of the petition, the shorter response times observed for petitions — mostly pertaining to infrastructure and transportation issues in urban China — are substantive. Quick responses to these types of petition can significantly influence citizens' evaluations of public services. For instance, delays in repairing a broken traffic light or fixing a leaking pipe can cause considerable inconvenience and leave residents with a negative impression of government efficiency. Furthermore, street-level bureaucrats are aware that response time is one of the three key indicators of responsiveness performance used by their supervisors for evaluation, as highlighted in our interviews (Interviewee 3). Combined, this awareness and the substantial impact on citizens' daily lives reveal a bias against residents in poorer areas.

Table 2: 2SLS Estimation

	Price	Resolution Time		Positive Resolution	
	First Stage	IV	RF	IV	RF
	(1)	(2)	(3)	(4)	(5)
Settlement	0.298***		−0.384***		−0.007
	(0.036)		(0.072)		(0.008)
Price		−1.263***		−0.023	
		(0.300)		(0.025)	
F Statistics	69.03				
Type FE	Y	Y	Y	Y	Y
Year-month FE	Y	Y	Y	Y	Y
Controls	N	Y	Y	Y	Y
N	43,500	43,495	43,495	43,497	43,497
Adjusted R^2	0.238	0.027	0.041	0.062	0.063

Notes: Standard errors clustered at the apartment-complex level are reported in parentheses. FE denotes fixed effects. IV, RF denote instrument variable and reduced form specifications respectively. Controls are female, local, foreign, anonymous, distance to neighborhood center, local two sessions, national two sessions, and executive turnover. *p<0.1; **p<0.05; ***p<0.01.

Robustness

We conduct several other tests to demonstrate robustness. Our first concern is about the differences between the OLS and IV estimates. We address this concern following the most recent guidance on IV estimates and diagnose our estimates with various refined methods suggested by Lal et al. (2021). The results are shown in Figure F.5. All estimates are similar to the baseline estimate, reducing our concern about the weak instrument.

Second, a key premise of the IV approach is the exclusion restriction that the instrument affects the outcome through only our key independent variable conditional on controls. While this assumption is not empirically testable, we provide suggestive evidence that the exclusion restriction holds, and the effect of historical settlement does not influence government responses through other channels. We show that the settlement boundary is not strongly correlated with petition-level covariates (female, local, anonymous, foreign, and distance to neighborhood center) (Table F.5).

In addition to analyzing the demand side, we are concerned that the results might be driven by idiosyncratic cases sent through channels other than phone calls, such as website messages or WeChat. We show that all results hold using the phone call-only sample (Table F.6).

Moreover, Table F.7 shows that our baseline results are robust to alternative measures, such as a binary measure of resolution time, dispatch duration, and minute-level response time, which is available only between September 2018 and August 2019. Both IV and OLS estimates are negative and significant, consistent with our baseline specifications.

Finally, we address the concern about the clustering nature of our data. In addition to clustering standard errors at the apartment complex level, we use the spatially adjusted standard errors proposed by Conley (1999). The results are similar to our baseline findings (Table F.8). In general, these analyses provide consistent evidence for a priority bias in response time.

Discussion: Why Does Only the Priority Biases Exist?

Our findings show that bureaucrats prioritize petitions from the rich over those from the poor, but do not discriminate against the poor regarding petition resolution. To explain these mixed findings, we offer a competing mandates explanation: bureaucrats not only need to ensure efficiency but also have to maintain social stability. Moreover, we show that housing price serves as a meaningful signal that helps bureaucrats strategically respond to these petitions and thereby induce selective responsiveness toward wealthy residents, who can influence bureaucratic efficiency. We provide the main setup and key arguments here and place the proofs for the citizen-bureaucrat interaction model in SI B.

When handling the same types of petitions, street-level bureaucrats determine the amount of effort or resources to allocate to cases raised by different citizens. In doing so, bureaucrats face dual mandates. One is the efficiency concern, as their performance is evaluated based on whether they resolve complaints within a set time frame and by the satisfaction ratings of citizens. As the volume of petitions through the hotline-based municipal service has increased dramatically in

China, front-line bureaucrats have limited time and resources to resolve these petitions. Given these constraints, bureaucrats must strategically allocate their efforts in different cases. The strategy of a bureaucrat is influenced by how citizens might react to resolution decisions. In China, citizens who are unsatisfied with the 12345 petition outcome or long waiting time can seek alternative channels to influence bureaucrats' response. For example, a leader of a district-level hotline platform (Interviewee 3) suggests that "*citizen-initiated lawsuits can significantly impact our work efficiency*." In addition, the release of petitions to the media may lead to public grievances, and incur reputational costs. Unsatisfied citizens can also use their personal connections to tattle to upper-level leaders, who may punish street-level bureaucrats. Clearly, not all citizens have the same capacity to use these alternative channels. Bureaucrats strategically prioritize cases from citizens with higher capacity, leading to two primary outcomes: they respond to petitions by high-capacity citizens in a more prompt manner and invest greater effort in petition resolution.

While allocating more effort to cases by high-capacity citizens, bureaucrats have another concern when making resolution decisions: maintaining social stability (*wei wen*). Such pressure stems mainly from political leaders who view collective action by citizens as a significant threat to their rule. While difficult and costly, protests may still occur if citizens are extremely dissatisfied with government responses. This poses a fundamental threat to authoritarian rule (Acemoglu and Robinson, 2001; Wasserstrom and Perry, 1994; O'brien and Li, 2006). In China, officials who fail to maintain social stability face a "one-vote veto" for career advancement (Yue, 2012; Feng, 2013). Consequently, while bureaucrats may prioritize the interests of the affluent, they do not neglect other citizens in petition resolution, as ignoring these cases could potentially lead to unrest.

As citizen capacity plays a crucial role in determining the allocation of bureaucratic effort in petition resolution, the following question arises: How do bureaucrats distinguish between high- and low-capacity citizens? While such capacity depends on their social networks, knowledge of policies and laws, and other relevant factors, it is not directly observable. In the urban context of China, bureaucrats can infer the capacity of a citizen using the property prices of the petitioner's

residence. Housing prices serve as a credible proxy for several reasons. First, China has extremely high housing ownership, and housing assets account for the majority of household wealth (Piketty, Yang and Zucman, 2019). This pattern also echoes the findings in the literature that property prices are positively correlated with education, income, social status, connections, and family background (Sampson, Morenoff and Gannon-Rowley, 2002; Glaeser and Gyourko, 2005; Bourdieu, 2018).

Moreover, citizens must accurately report their address or apartment complex name to the 12345 hotline to receive a government response. In other words, there is no incentive for them to misrepresent this information, as bureaucrats may visit the location to resolve the issue in person. In the context of this paper, both street-level bureaucrats and citizens are familiar with local housing areas and the associated housing prices. Based on our interviews (Interviewee 4), local bureaucrats are well informed about the specifics of their jurisdiction, including real estate properties — a pattern consistent with the literature (Tomba, 2014; Read, 2000). Furthermore, the recorded address of a case sometimes mentions the name of the apartment complex, allowing bureaucrats to better infer the potential property value. For example, if the property name contains "Garden" (*hua yuan*) or "Riverside" (*bing jiang*), it is likely a high-end commercial property. Conversely, if the case address mentions "New Village" (*xin cun*), it can be inferred to be an older Soviet-style apartment building established before the housing was commercialized.

In summary, bureaucrats can effectively infer capacity based on housing prices. Accordingly, they exert more effort in more expensive areas because higher property prices serve as a signal of high capacity. However, failure to address petitions from the poor can increase the probability of collective action. Therefore, in equilibrium, bureaucrats do not discriminate against the poor in petition resolution.

Alternative Explanations

Our theory suggests that the priority bias toward the rich is driven primarily by bureaucrats' strategic reactions to a credible signal — the housing price. However, there exist several alternative

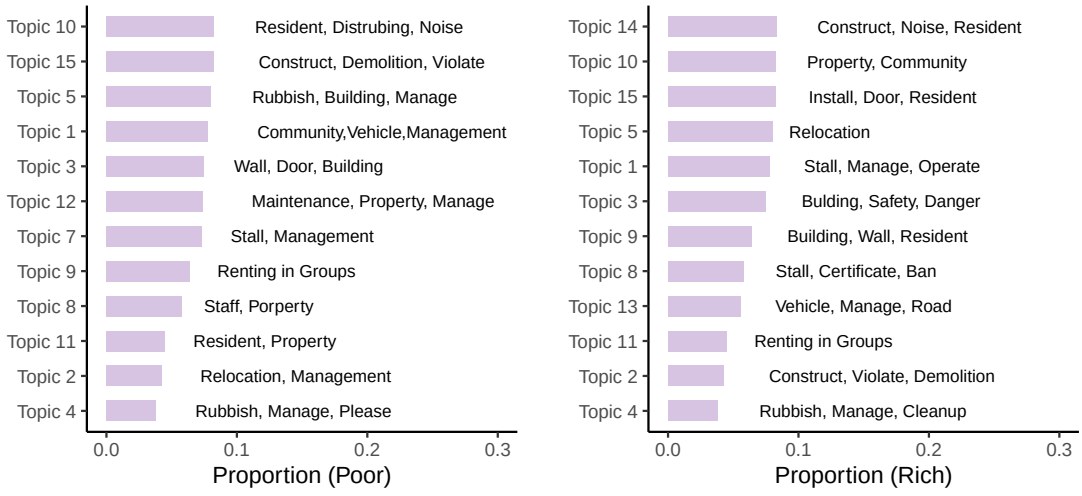
explanations, including (1) petition heterogeneity beyond the type of petition, (2) verbal signaling, (3) discrepancies in public expenditure between the rich and the poor, (4) demand-side discrepancy, and (5) the impact of other stakeholders in petition resolution. We address each of these as follows.

Petition Heterogeneity

It is possible that slower responses to the poor arise because their petitions are more challenging to resolve. Despite controlling for government-labeled petition types in previous analyses, petitions under the same type might be heterogeneous. To address this concern, we conduct a set of text analyses on petition transcripts to gauge issue the similarity between the rich and the poor.

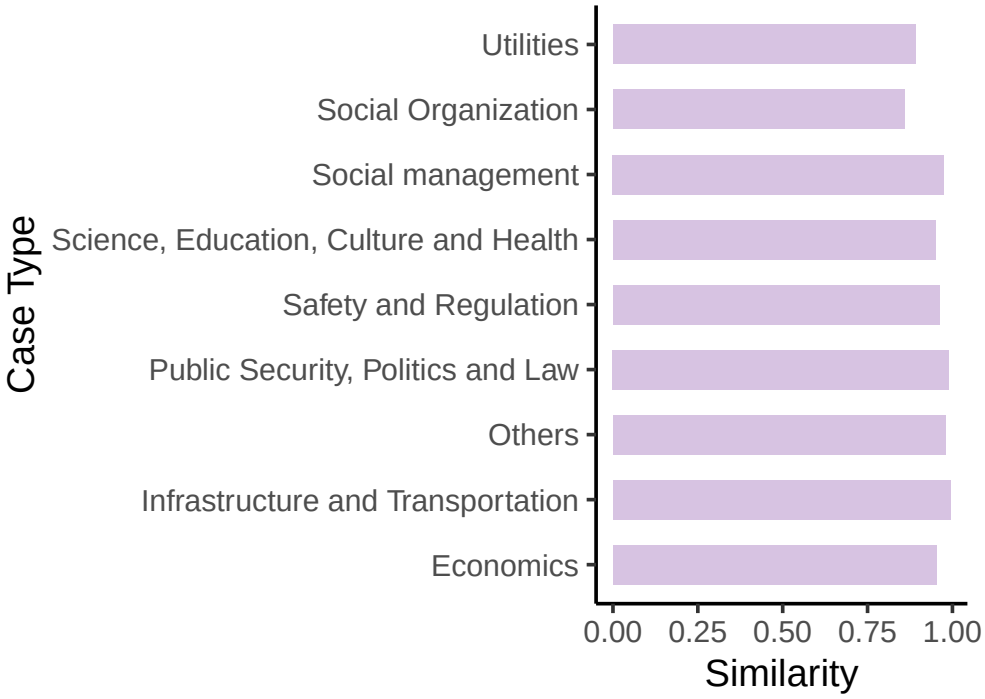
We first analyze petition topics between the rich and the poor using a structural topic model. The groups are coded based on whether the property price of the caller's address is above or below the average. Focusing on the modal case type—Infrastructure and Transportation—Figure 5 displays the top words in 12 topics, derived after the removal of three non-meaningful topics from the original 15. Overall, the petitions and their distributions are highly homogeneous. Common complaints from both groups include issues related to noise, trash, walls, property management, relocation, stalls, and shared rental housing.

Figure 5: PETITION TOPICS



We then gauge the similarity of requests from poor or rich callers using cosine similarity, a metric that ranges from 0 to 1, with a larger value indicating greater textual similarity. Figure 6 presents the results comparing petitions from individuals residing in areas with housing prices either above or below the average. Across the nine types of cases labeled by the government, petitions from the high-price group (property price above the average) and the low-price group (property price below the average) exhibit substantial similarity, with cosine similarities between 0.86 and 0.99. Additionally, in SI G, we compare the similarity of petition transcripts between top and bottom 30% regarding housing prices and find similar results. Overall, we show that issue heterogeneity within government-coded petition types is rare. This implies that our baseline within-type estimation is not adversely affected by unobserved case heterogeneity, reaffirming our foundational findings.

Figure 6: TEXT SIMILARITY



Verbal Signaling

Our second concern is about the verbal signal in citizens' complaints. In the real world, citizen's capacity is not observed. Residents could send a costless message when they complain through the public service system. For example, in a field experiment, Chen, Pan and Xu (2016) finds that if people submit requests online with collective action threats, county governments are more likely to respond and provide informative responses. In our municipal service system, however, rational citizens with lower capacity can tell a lie to imitate citizens with higher capacity. For example, the poor may also threaten the government by reporting an issure to journalists or bragging about their connections to the upper-level government. The main reason is that communication through phone calls is almost costless: anyone can threaten to take legal action or announce that they have a personal tie with higher officials. Therefore, we expect no significant difference in how citizens signal in their calls to show their underlying capacity. We empirically test this implication by developing several measures of the signal conveyed by callers.

First, citizens can signal to bureaucrats their ability to use legal channels if their complaints are not resolved. Rightful resistance is common in China; citizens use legal means to challenge government rulings (O'brien and Li, 2006). In the case of the 12345 hotline petition, callers can threaten to sue the local government if their complaint is not fully resolved. Although not all citizens, especially those with lower capacity, can afford the high legal cost, the verbal threat of using the legal channel to defend their rights is costless. In addition to the use of laws, Chen, Pan and Xu (2016) identifies three other types of verbal signals: (1) collective action; (2) threats of tattling to upper-level authorities; and (3) showing loyalty by mentioning Communist Party membership.

Using the transcripts of the petition calls, we conduct a text analysis to develop measures for the four types of verbal signals: legal, collective action, tattling to the upper government, and CCP membership (details of the coding rule are provided in SI H). We extract the keywords related to each signal from the transcripts of the 12345 calls. We construct four binary measures for these signals, coding them as 1 if the citizen mentions such keywords in the call and 0 otherwise.

Consistent with our expectations, citizens rarely use verbal signals in municipal services in China, as shown by the summary statistics of each signal (Table F.9). Only approximately 3%, 0.8%, 1.8%, and 0.1% of the callers mention legal terms, collective actions, reporting to upper-level government, and CCP membership when using the 12345 hotline. Furthermore, we perform a 2SLS analysis using these four verbal signals as outcome variables. Table 3 presents the results. All estimates of the price are small and statistically insignificant, suggesting that wealthier citizens do not use verbal signals on legal terms, collective action motives, upper authority pressure, or political loyalty to obtain better responsiveness.

Table 3: Analysis of Verbal Signal

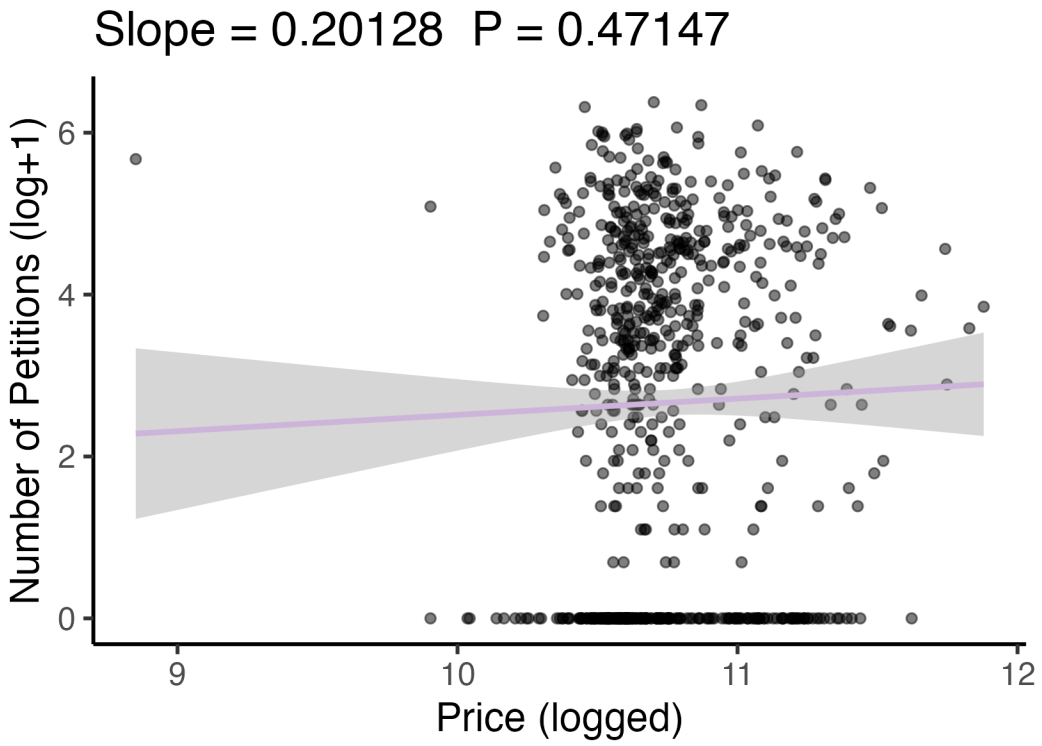
	Legal		Protest		Upper Gov		CCP Member	
	OLS	IV	OLS	IV	OLS	IV	OLS	IV
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Price	0.008	0.005	0.001	−0.001	0.0003	−0.00000	0.0004	0.001
	(0.005)	(0.013)	(0.003)	(0.007)	(0.003)	(0.006)	(0.001)	(0.002)
Type FE	Y	Y	Y	Y	Y	Y	Y	Y
Year-month FE	Y	Y	Y	Y	Y	Y	Y	Y
Controls	Y	Y	Y	Y	Y	Y	Y	Y
N	43,497	43,497	43,497	43,497	43,497	43,497	43,497	43,497
Adjusted R^2	0.006	0.006	0.010	0.010	0.007	0.007	0.001	0.001

Notes: Standard errors clustered at the apartment-complex level are reported in parentheses. FE denotes fixed effects. *p<0.1; **p<0.05; ***p<0.01.

Demand-side Discrepancy

Furthermore, we address the concern that the bias in response time is driven by demand-side factors. Specifically, we consider whether wealthy individuals might use the 12345 hotline less frequently than their less affluent counterparts because they have other channels to voice their concerns. Fewer petitions from wealthy neighborhoods could lead to quicker responses given a similar level of bureaucratic capacity. To address concerns about this alternative explanation, we conducted a correlational analysis by aggregating our 12345 petition data at the apartment-complex

Figure 7: CORRELATION BETWEEN HOUSING PRICE AND PETITION CALL FREQUENCY



level. The bivariate analysis is presented in Figure 7. The results, visualized in the figure, show no strong correlation between price and petition frequency (slope = 0.2, P-value = 0.47), suggesting that wealthy residents do not call the 12345 hotline more or less often than poorer residents. We also regressed various measures of petition frequency, including its raw value, logged form, raw value per capita, and logged value per capita, against the logged housing price. Again, Table F.10 shows no correlation between housing price and 12345 call frequency, which suggests that the wealthy do not call more or less often than the poor and thereby rejecting the explanation that the priority bias toward the rich is driven by weak demand.

Local Funding

Another plausible explanation for the quicker response to the affluent could be a mechanical reason: their neighborhoods might have more funding than their less affluent counterparts. While such a mechanism is prevalent in countries with robust local property tax systems that fund local

governments, it does not apply to urban China for several reasons. First, although Shanghai was among the pioneer Chinese cities in adopting property taxes, its enforcement remains lax, with the majority of homeowners enjoying exemptions. Additionally, while district governments have the authority to collect taxes, their subdivisions, known as neighborhoods (*jie dao*), the lowest administrative units, lack the authority to distribute revenue. Instead, they can only receive transfers from district governments. Furthermore, we calculated the per capita transfers and expenditures for each neighborhood from the district government and aligned them with the caller's addresses. Table 4 indicates that the spatial distribution pattern of public transfers and expenditures is progressive. The correlation analysis shows that residents in less rich neighborhoods, on average, receive more funding from district governments and have higher public expenditures than those in wealthier neighborhoods (Columns 1 and 2). In addition, public expenditure is positively correlated with resolution time (Columns 3 and 4) but does not show a strong relationship with the final resolution decision (Columns 5 and 6). This suggests that neither district transfers nor expenditures are behind the faster responses in wealthier neighborhoods. These findings negate a local funding mechanism that drives the priority bias highlighted in our primary analysis.

Table 4: Public Expenditure Analysis

	Price		Resolution Time		Positive Resolution	
	(1)	(2)	(3)	(4)	(5)	(6)
District Govt. Transfer	-0.181^{***}		0.771^{***}		-0.005	
	(0.065)		(0.157)		(0.014)	
Expenditure		-0.190^{**}		0.737^{***}		-0.008
		(0.080)		(0.167)		(0.019)
Type FE	Y	Y	Y	Y	Y	Y
Year-month FE	Y	Y	Y	Y	Y	
Controls	N	N	Y	Y	Y	Y
N	40,540	40,540	40,538	40,538	40,540	40,540
Adjusted R^2	0.030	0.028	0.040	0.039	0.063	0.063

Notes: Standard errors clustered at the apartment-complex level are reported in parentheses. FE denotes fixed effects. $^{*}p<0.1$; $^{**}p<0.05$; $^{***}p<0.01$.

Other Stakeholders

Last, the quicker response to the rich can be attributed to the higher-quality property management of these expensive apartments. For instance, in a neighborhood noise case where the noise is from another apartment unit, bureaucrats may first contact the property management company. In China, an apartment complex typically hires a single property management company to handle maintenance tasks, such as cleaning, repairs, and gardening. More expensive apartments usually provide premium service, which may be more responsive to requests from both residents and street-level bureaucrats when issues affect their residents. If this assumption holds, observed differences in resolution times could be explained by the quality of these property management companies.

To address this concern, we use the property management fees homeowners pay to these companies as a proxy for the quality of property management.[12] We obtained property management fee data for each apartment complex from Fangtianxia.com, the same source used for housing price data. In total, 70.4% of apartment complexes have available information on property management fees.

In Table 5, we first regress the two response measures to property management fees from Columns 1 and 3. Property management fees are negatively correlated with resolution time, with a significance level of 10%. In Columns 2 and 4, we include property management fees as an additional control in the main specification. This estimation yields a consistent negative estimate of price on resolution speed, which suggests that any bias toward wealthier residents is not driven by the quality of property management.

In summary, we find no evidence that property management firms, as important stakeholders in addressing issues raised by residents, have a salient impact on resolution speed.

[12] In China, property management fees are charged in RMB per square meter.

Table 5: Housing Management Quality

	Resolution Time		Positive Resolution	
	(1)	(2)	(3)	(4)
Price		−0.380**		0.007
		(0.148)		(0.010)
Property Management Fee	−0.020*	−0.007	−0.002	−0.002*
	(0.012)	(0.011)	(0.001)	(0.001)
Baseline Controls	Y	Y	Y	Y
Type FE	Y	Y	Y	Y
Year-month FE	Y	Y	Y	Y
N	29,954	29,954	29,955	29,955
Adjusted R^2	0.041	0.042	0.066	0.066

Notes: Standard errors clustered at the apartment-complex level are reported in parentheses. FE denotes fixed effects. *p<0.1; **p<0.05; ***p<0.01.

Conclusion

This paper unveils a form of spatial inequality through a standardized bureaucratic procedure handling citizens' complaints. Using detailed administrative data from Shanghai, China's largest and wealthiest city, we show mixed findings on unequal responsiveness — while government agencies display no explicit bias against the less wealthy in resolving their petitions, they implicitly prioritize the rich by offering them faster responses.

Although the empirical evidence is mainly from China's largest city, the wealth bias in municipal services likely extends to the broader urban context of China, where over 65% of the population (approximately 0.9 billion people) resides. This generalization is supported by two reasons. First, Shanghai exemplifies China's urban development, with surging housing prices that not only constitute the majority of household financial assets but also drive rising wealth inequality across the country. Similar patterns are observable in other emerging cities that experienced housing price booms in the late 2010s. Second, our findings from central Shanghai may represent a lower-bound estimate of the wealth bias in municipal services. As China's largest city, Shanghai benefits from abundant fiscal resources and a well-educated civil service, which help moderate disparities in pub-

lic service provision. Nevertheless, unequal responsiveness persists. This disparity may be even more pronounced in other cities with weaker fiscal capacity and lower-quality governance.

Broadly, our research emphasizes the crucial role of street-level bureaucrats in public service delivery, a literature stream pioneered by Lipsky (1980). While voters may sanction biased politicians through periodic elections, they regularly interact with street-level bureaucrats for routine governmental services, such as licensing, parking tickets, and infrastructure maintenance. The well-being of citizens, particularly those of lower socioeconomic status, can be significantly impacted by biases within the bureaucratic system, especially prevalent in authoritarian regimes that lack meaningful bureaucratic oversight.

Therefore, policy interventions should address the biases exhibited by these street-level bureaucrats. However, such biases are often opaque to both citizens and external observers, making them challenging to identify and rectify. One potential solution involves bolstering transparency, shown to positively impact legislative responsiveness in authoritarian regimes (Todd et al., 2021). Another approach worth exploring is the enhancement of top-down monitoring, an institutional reform aimed at countering unequal bureaucratic responsiveness. Scholars demonstrate the efficacy of this monitoring in mitigating corruption and curbing the preferential treatment of politically affiliated firms (Olken, 2007; Ni and Su, 2019). Finally, bureaucratic performance evaluations should pivot toward objective metrics, such as response times, rather than subjective indicators prone to manipulation, such as self-reported satisfaction or resolution rates. Future studies should delve deeper into these proposed policy instruments to minimize biases in governmental responsiveness.

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Supplementary Information

A Semi-Structured Interview and Ethical Statement

In this study, we conducted an in-person semi-structured interview with two bureaucrats from the 12345 hotline centre. The research receives approval from an exemption review (ID: 2000033480, IRB-FY2023-6816) from the authors' home institutions. Prior to the interview, we provide clear and comprehensive information on the research and how the data will be collected, used, and saved. Each participant will read and sign the consent form before the interview.

Each interview involved 30 minutes. It consists of several prepared questions. We take all necessary measures to minimize any potential harm to participants. There were no known risks associated with participants because (1) we would not reveal any confidential information and (2) we did not ask any subjective questions. All questions are related to administrative procedures, data information, policy implementation, and performance evaluation criteria. The specific information we get is mentioned in the main text. The following table summarizes details of our four interviews.

Interviewee	Date	Role	Approach
1	02/12/2022	Administrator of District-level hotline platform	face-to-face
2	04/12/2022	Staff handling hotlines at District-level department	Online
3	08/09/2023	Leader of District-level hotline platform	face-to-face
4	08/09/2023	Administrator of District-level hotline platform	face-to-face

Table A.1: Details of interviews

For data processing, the decision to include only apartment complex-level data was made precisely to avoid the potential risks associated with sharing more detailed information. By aggregating the data at the apartment complex level, we effectively removed the possibility of identifying individual callers. This allowed us to analyze trends and patterns without compromising the privacy of the individuals involved. All personal identifiers, including phone numbers and precise addresses, were stripped from the dataset during our reprocessing stage, long before any analysis took place. Access to the data will be restricted to three authors.

We obtained the data through legal channels and in compliance with all relevant regulations and ethical guidelines. The raw data was handled only by a small and carefully trained team, following strict protocols to ensure confidentiality. Once the data was anonymous and aggregated, it was then used for our research.

B Formal Model of the Unequal Responsiveness

We develop a model to analyze how two survival logic in the authoritarian regime distort the government responsiveness. The model setup is stated as follows. In the municipal, $k \geq 2$ citizens

suffer disutility $\overline{S}$ and ask for the service from the government. Their complaints (e.g., noise, environment, education) are assigned to a department, where B is a street-level bureaucrat. B decides how much effort or resource r_i to use to address the petition. There is also a political leader (P) who is the direct principal of the bureaucrat; P could be the district mayor or party secretary in the context we study. The political leader P supervises bureaucrat B.

Due to limited resources and complex administration, it takes a few days $t > 0$ for bureaucrats to resolve a petition. As in Ting (2021), waiting time t reflects the governance service quality. Therefore, if citizens use the petition system, the utility of citizens is discounted depending on the efficiency (government quality) t. We assume common discount factor $\delta \in (0, 1)$. Thus, the utility function of citizen i who receives resource r_i can be represented by $u_i = s(r_i)\delta^t$. Increasing and concave function $s(r_i)$ measures citizens' satisfaction after receiving r_i. According to the follow-up survey and interview [13], satisfaction is also related to the bureaucrat's performance evaluation. Therefore, $s(r_i)$ is also a part of $B's$ utility.

Instead of using the public service system, citizens have two alternative means to fulfill their demand. First, they can use private resources $y \in [0, 1]$. We use parameter $\theta \in [0, 1]$ to gauge citizen's ability, including social networks, the knowledge of policies and laws, etc. Specifically, θ represents the marginal effect of y. It is natural to think that citizens incur additional cost ηy for B when using alternative channels (filing lawsuits or directly complaining to connected leaders (Slough, 2021*b*)). For example, bureaucrats have to spend additional effort to address the lawsuit. We use $\eta > 0$ to denote the marginal cost. In extreme cases, citizens can also choose a costly form of petition–protest–that is often responded to by authoritarian governments because it is the primary threat to autocratic rules (Acemoglu and Robinson, 2001).

For the model of municipal service, if citizens use the complaint system, they must decide to spend private resource ($A = 0$) or protest ($A = 1$) after receiving feedback from the bureaucrat. If $A = 0$, citizens should also decide how much y to use according to the increasing and convex cost function $c_0(y)$. They capture the remaining utility $\overline{S} - s(r_i)$, which is proportional to the resource y spent and is affected by θ. We assume $\overline{S} > s(\overline{r})$. If $y = 0$, citizens accept the current response; we let $c_0'(0) = 0$. If they protest $A = 1$, citizens capture all remaining utility with a sizable cost $c_1(\theta)$. Because protest itself is not our main focus, we suppress the uncertainty of success and strategic consideration of collective action into a single parameter c_1. Thus, the complete utility function of citizen i is

$$u_i = s(r_i)\delta^t + \begin{cases} [(\overline{S} - s(r_i))\theta_i y - c_0(y_i)\delta^{-t'}]\delta^{t+t'} & \text{if } A_i = 0 \\ [(\overline{S} - s(r_i)) - c_1\delta^{-t'}]\delta^{t+t'} & \text{if } A_i = 1 \end{cases} \tag{1}$$

[13] See SI A

where $t' \in [0, t)$ denotes the efficiency of private resources. A key assumption is that the municipal service is less efficient $t < t'$. We multiply the cost by $\delta^{-t'}$ to indicate that citizens exert effort first and then receive feedback after t' days.

Political leader P receives fixed rent R if is not deposed and given concern about career advancement. Both depend on whether collective action occurs in the area. P can prevent such action by supervising whether bureaucrat B successfully addresses complaints from citizens. Specifically, P decides whether to check ($D \in \{1, 0\}$) how B responds to citizen i with fixed cost c_P for each case. Political leaders can learn whether the demand is well responded to; if not, they can re-send the case to the department and order someone to reconsider the response, a pattern mentioned by the bureaucrat we interviewed. In the model, we assume P observes the effort r_i if they check the case. It is possible for P to learn r_i by carefully tracking the entire process of municipal services. Therefore, the utility function for P can be represented by

$$u_P = RI_{[\sum_{i=1}^{k} A_i = 0]} - \sum_{i=1}^{k} c_P D_i \tag{2}$$

where $I_{[\sum_{i=1}^{k} A_i = 0]}$ is an indicator function that equals 1 if the condition $\sum_{i=1}^{k} A_i = 0$ is true. $I_{[\sum_{i=1}^{k} A_i = 0]} = 1$ if and only if no single citizen protests. D_i is a binary decision variable for the politician for complaint case i. For simplicity, we assume that the rent is sufficiently high to maintain the supervising mechanism: $R \geq kc_p$.

Bureaucrat B has different career concerns that are evaluated primarily based on completion of their administrative work, as confirmed by our interview. It is natural to assume the cost of exerting effort is an increasing and convex function $c_B(r)$. Since no standard procedures guide how bureaucrats allocate effort, numerous biases can arise when bureaucrats have discretion in allocating effort and resources (Lipsky, 1980). Their utility function if $A_i = 0$ is stated as follows:[14]

$$u_B = \sum_{i=1}^{k} s(r_i) - c_B(r_i) - \eta y_i \tag{3}$$

If $A_i = 1$, a bureaucrat has probability q of being removed from the government and afford cost $\Delta > 0$.

The timing is as follows:

1. Nature draws θ_i from the distribution F_θ; the distribution F_θ is common knowledge.
2. Bureaucrat B allocates resource r_i to each citizen i and reports to P.
3. Political leader P decides whether to check case i. If $D_i = 0$, the case is ended; if $D_i = 1$,

[14] Since in the model t is exogenous, the discount factor will not affect the bureaucrat's incentive. Therefore, we do not add it to the utility function. A more complicated model can let t be a decision variable, though we think our model captures the main intuition.

the case is re-sent to other bureaucrats.

4. Each citizen i decides action A_i. If $A_i = 1$, the citizen also decides the value of y_i.

Notably, citizens make decisions only after they call 12345 and receive feedback. It is likely that there always exists a small group of citizens extremely with high capacity (θ) who find that the public service system is not efficient enough. Because the public complaint system serves all citizen and takes time t to respond, citizens who have extremely higher θ may find that it is dominated to use the public system; instead, they can bypass this stage and directly use private resources to obtain the service, which takes only $t' < t$ days.

Proposition B.1. *In the call-based municipal service, there exists $\overline{\theta} > 0$ such that citizens whose $\theta > \overline{\theta}$ is dominant to bypass the public service and use the private approach. Moreover, as t' decreases (public service becomes more efficient), the cut-off $\overline{\theta}$ decreases.*

Proof. Suppose citizen i with θ bypass the 12345 hotline and directly use a private approach; the utility is

$$u_i = [\overline{S}\theta y - c_0(y)]\delta^{t'}$$

The optimal resource y_1 satisfies $c_0'(y_1) = \overline{S}\theta$. Similarly, if citizen i with θ use 12345 and possibly private approach later, the utility function is

$$u_i = s(r_i)\delta^t + [(\overline{S} - s(r_i))\theta y - c_0(y)\delta^{-t'}]\delta^{t+t'}$$

The optimal choice y_2 satisfies $c_0'(y^*) = (\overline{S} - s(r_i))\theta_i\delta^{t'}$ given r chosen by B.

Now let us find $\overline{\theta}$ such that $u_i(y_1) \geq u_i(y_2|r_i)$. Simple algebra shows

$$\theta[\overline{S}y_1 - (\overline{S} - s(r_i))y_2\delta^t] \geq s(r_i)\delta^{t-t'} + c_0(y_1) - c_0(y_2)\delta^{t-t'}$$

Note that since c_I is increasing and $[\overline{S} - s(r)] \leq \overline{S}$ by assumption, we get $y_1 \geq y_2$. Then it is easy to see both sides are positive.

Thus, define $\overline{\theta}$ as $\frac{s(r_i)\delta^{t-t'} + c_0(y_1) - c_0(y_2)\delta^{t-t'}}{\overline{S}y_1 + (\overline{S} - s(r_i))y_2\delta^t}$ and set $r_i = \overline{r}$ to maximize formula (note y_2 is also a function of r_i), we prove the first part of the proposition B.1. The comparative statics is straightforward.

□

Also, in the data, we cannot observe the missing callers with the extremely high θ. Therefore, it is without loss of generality to assume people use private resources only after they receive feedback from bureaucrats. Suppose θ is public information. Political leader P hopes to design the best supervising strategy that can both prevent protests and minimize the supervision cost. In the last

stage, collective action is not a credible threat if and only if the net benefit from private approach y^* exceeds that from protesting:

$$\begin{aligned}(\overline{S} - s(r_i^*))\theta_i y_i^* - c_0(y_i^*)\delta^{-t'} &\geq (\overline{S} - s(r_i)) - c_1\delta^{-t'} \\ s(r_i^*) &\geq \overline{S} - \frac{[c_1 - c_0(y_i^*(\theta_i, r_i^*))]\delta^{-t'}}{1 - \theta_i y_i^*(\theta_i, r_i^*)}\end{aligned} \tag{4}$$

The above inequality shows the lower bound on effort r_i for bureaucrat B assigned to case i for protest prevention in equilibrium. Intuitively, protest cost c_1 decreases the lower bound. Based on the bureaucrat's action, it is optimal for political leader P to check only cases with a lower θ. We conclude it in the following perfect information equilibrium:

Proposition B.2. *Suppose θ is public information. There exists the pure-strategy subgame perfect equilibrium that citizens do not protest on the equilibrium path. Moreover, it has the following two properties:*

(1) The optimal resource/effort r_i^* assigned by bureaucrat B is increasing in θ_i: $\frac{\partial r_i^*}{\partial \theta_i} > 0$

(2) There exists a $\tilde{\theta}$ that politician P checks and re-assigns cases $D_i = 1$, where $\theta_i < \tilde{\theta}$.

Proof. For our complete and perfect information game, the pure-strategy subgame perfect equilibrium exists by backward induction and well-behaved citizens' utility function. We focus on the equilibrium that citizens do not protest if the net benefit from $A = 1$ equals the optimal net benefit from $A = 0$.

In equilibrium, politician chooses $D_i = 1$ if the equation 4 does not satisfies. Because we assume $R \geq kc_P$, the politician is always beneficial to do so. Now, since $A_i = 0\ \forall i$, given r_i, citizen i maximizes utility function and finds y_i^* that balances benefit and cost:

$$c_0'(y^*) = (\overline{S} - s(r_i))\theta_i\delta^{t'}$$

We can see $\frac{y^*}{\partial\theta} > 0$. The optimal y^* is also a function of r_i, which needs to be determined. It is determined by the optimization problem for B,

$$\sum_{i=1}^{K}[s(r_i) - c_B(r_i) - \eta y_i(r_i, \theta_i)]$$

The optimal solution r_i is only a function of θ_i. For each i, we can easily calculate the optimal choice $r_i^*(\theta)$. Tedious algebra shows the comparative statics that $\frac{\partial r^*}{\partial\theta} = \frac{-\eta\frac{s'(r)\delta^{t'}}{c_0''(y)}}{s''(r) - c_B''(r) + \eta\frac{s''(r)\theta\delta^{t'}}{c_0''(y)}} > 0$. This proves statement (1).

For statement (2), we need further study equation 4 in the main text:

$$s(r_i^*) \geq \overline{S} - \frac{[c_1 - c_0(y_i^*(\theta_i, r_i^*))]\delta^{-t'}}{1 - \theta_i y_i^*(\theta_i, r_i^*)} \tag{5}$$

The LHS is increasing in θ; and we know $RHS = \overline{S} \geq s(r_i^*)$ if $\theta = 0$. Then $\tilde{\theta}$ can be determined by the intersection of RHS and LHS. The value of $\tilde{\theta}$ and whether $\tilde{\theta}$ is unique depend on how RHS changes with θ: (1) If RHS is monotonically decreasing in θ, we can expect one unique $\tilde{\theta} \in [0, 1]$ or $\tilde{\theta} = 1$ if there is no intersection; (2) if RHS is not monotonic, then $\tilde{\theta}$ may have multiple values. Because we do not assume specific function form, it is hard to determine how $\frac{[c_1 - c_0(y_i^*(\theta_i, r_i^*))]\delta^{-t'}}{1 - \theta_i y_i^*(\theta_i, r_i^*)}$ behaves. The difficulty lies in $\frac{\partial y^*(\theta, r^*)}{\partial \theta}$ can be negative or positive. In the equilibrium of our interest, we assume c_1' is large enough so that $\frac{[c_1 - c_0(y_i^*(\theta_i, r_i^*))]\delta^{-t'}}{1 - \theta_i y_i^*(\theta_i, r_i^*)}$ is monotonically increasing. This assumption means that the opportunity cost of protest is pretty high. Therefore, under the assumption, we can find $\tilde{\theta}$ from equation 5 and $\underline{r} = r^*(\underline{\theta})$. See a numerical example in the main text.

To summaries, in the above non-protest pure strategy sub-game perfect equilibrium,

(1) Politician P only check and re-assign cases $D_i = 1$ if $\theta_i < \tilde{\theta}$ and order bureaucrat B continue to invest effort;

(2) Bureaucrat B assign r_i^*;

(3) Citizens i does not protest if $r_i^* \geq \underline{r}$. □

Signaling through costless messages. In the real world, θ is not observed. The first available method for residents is to send a costless message when they complain through the public service system. In our call-based municipal service system, however, rational citizens with lower θ can tell a lie to imitate citizens with higher θ. The main reason is that communication through phone calls is costless and unverifiable: anyone can threaten to take legal action or announce that they have a personal tie with higher officials.

We add a simple cheap talk phase before the basic call-based municipal service model. By revelation principle, we assume the message space is exactly the space of θ, i.e. $M = \Theta$ [15]. The strategy of citizen i is a mapping $m_i : \Theta \to \triangle\Theta$. The bureaucrat, after observing message profile $\times_{i=1}^{k}\Theta$, assigns a vector of resource $(r_1, ..., r_k)$ to citizens. As standard in the literature, we focus on the Perfect Bayesian Equilibrium. As shown in the proof, however, our result is satisfactory for any further refined solution concepts. We use $\beta(\theta_i|m)$ to denote bureaucrat's updated (equilibrium) belief of i's type based on (equilibrium) message strategy and observed signals.

Proposition B.3. *In the call-based municipal service with pregame cheap talk, all equilibria are noninformative.*

[15] To avoid technical difficulty which does not add any intuition, WLOG, we assume Θ is finite here.

Proof. First to note, in the optimization problem for B,

$$\sum_{i=1}^{K} \mathbb{E}_{\beta_i}[\alpha w_i - c_B(r_i) - \eta y_i(r_i, \theta_i)]$$

the optimal solution r_i is only a function of θ_i (β denotes the distribution of θ under updated belief). And the type θ_i of sender i is independent of others. Therefore, in equilibrium, $\beta(\theta_i|m) = \beta(\theta_i|m_i)$.

The key logic depends on citizens' similar preference on r for all types θ. To be specific, their utility is all increasing in r. To see this, from $c_I'(y_2) = [\overline{S} - s(r)]\theta$, we get $\frac{\partial y_2}{\partial r} = -\frac{\theta s'(r)}{c''(y)} < 0$. Then it is easy to see $\frac{\partial u_i}{\partial r} > 0$.

WLOG, by Proposition B.1, we assume $\Theta \in [0, \overline{\theta}]$ and in equilibrium all $\theta \in \Theta$ is used.

Because $\beta(\theta_i|m) = \beta(\theta_i|m_i)$, let us focus on one sender i. Now, suppose there is a PBE that senders use strategy $(m_1(\theta), ..., m_k(\theta))$ where, sender i, $\exists j, k \in \Theta$ such that $m_i(\theta_j) \neq m_i(\theta_k)$. This means that for sender i, when i's type is θ_j, the message strategy is different from the message if i's type is θ_k.

Since $m_i(\theta_j) \neq m_i(\theta_k)$, with probability measure one, $\beta(\theta_i|m_i(\theta_j)) \neq \beta(\theta_i|m_i(\theta_k))$ and so $\mathbb{E}r_i(\theta_j) \neq \mathbb{E}r_i(\theta_k)$. Then, because $\frac{\partial u_i}{\partial r} > 0$, sender i has incentive to deviate. □

Therefore, there is no Nash equilibrium in which citizens truthfully reveal θ with pure communication.

Unequal Responsiveness to Wealth Status. Since citizens with low θ always have an incentive to report a higher type, the politician P and bureaucrats B must rely on other information to effectively learn their types.[16] In China's urban context, we argue that θ is highly related to wealth status, and we use housing price p to approximate wealth.[17].

The key assumption of the separating signal can be easily constructed. For example, consider a simple Pre-game decision problem: As housing is the largest individual investment for most people (Ansell, 2019), the housing price p reflects the overall conditions that we are concerned including location, safety, transportation, education, community life and et al. Thus, the benefit of certain property $b(p)$ is an increasing and convex function of price. Although everyone hopes to have a good house, the huge cost $c(p, \theta)$ drives individuals with different types θ to make different decisions. Suppose we only consider two types $\theta_L < \theta_H$. Following the literature, we assume the single crossing condition $c_p(p, \theta_L) > c_p(p, \theta_H)$, i.e. the marginal cost of housing price for lower type θ_L is higher than θ_H. Then, it is straightforward to see the optimal choice p for type θ_L is lower than θ_H.

[16]The established scholarship shows several meaningful signals that convey information. For example, people use verbal signals (like accents) to discriminate against immigrants (Wolfson and Manes, 1985; Kayaalp, 2016).

[17]See more discussions on θ, wealth, and housing prices in the background section.

Therefore, we assume, for each case, that bureaucrat B and political leader P observe a noisy signal of θ_i, the housing price$p = \pi(\theta) + \epsilon$, where $\epsilon \sim N(0, \sigma^2)$, [18] and $\pi : [0,1] \to \mathbb{R}^+$ is a known affine and increasing function.

Proposition B.4. *In the call-based municipal service with noisy signal, the non-protest pure-strategy subgame perfect equilibrium has the following properties:*

(1) Allocated resource r_i^* from bureaucrat B is increasing in the housing price p : $\frac{\partial r_i^*}{\partial p_i} > 0$.

(2) There exist a housing price $\tilde{p}$ for which the politician re-sends cases $D_i = 1$ such that housing price $p_i < \tilde{p}$.

Proof. We maintain all assumptions in the proof of B.2. Similar to the equilibrium in Proposition B.2 In the last stage, citizens do not protest if $r_i^* \geq \underline{r}$. Statement (1) follows straightforwardly.

For statement (2), suppose linear function $\pi(\theta)$ has the form $\pi(\theta) = a\theta + b$. Then, when B and P observe signal p, they believe $\theta \sim N(\hat{p}, \hat{\sigma}^2)$ where $\hat{p} = \frac{p-a}{k}$ and $\hat{\sigma} = \frac{\sigma}{k}$. We use Φ to denote the cumulative distribution function of the standard normal distribution. Then the optimal response of bureaucrat B becomes the expected value: $r^* = \int r(\theta) d\Phi(\frac{\theta - \hat{p}}{\hat{\sigma}})$.

For the optimal strategy for politician P, we still need to explore the equation 5:

$$s(r_i) \geq \overline{S} - \frac{[c_1 - c_0(y_i^*(r^*, \theta_i))]\delta^{-t'}}{1 - \theta_i y_i^*(r^*, \theta_i)}$$

We realize that, given p, any $\theta \in [0,1]$ is possible under distribution $\theta \sim N(\hat{p}, \hat{\sigma}^2)$. Given optimal $r^* = \int r(\theta) d\Phi(\frac{\theta - \hat{p}}{\hat{\sigma}})$, the RHS of above equation is decreasing in θ under the assumptions in proof of B.2. Therefore, there is a θ' that citizens with $\theta_i < \theta'$ do not satisfy the equation, so they will protest. The probability that $\mathbb{P}[\theta < \theta']$ is exactly $\Phi(\frac{\theta' - \hat{p}}{\hat{\sigma}})$.

For each case i, $D_i = 1$ if and only if the utility is higher than $D_i = 0$:

$$R - c_P \geq \Phi(\frac{\theta' - \hat{p}}{\hat{\sigma}}) \times 0 + (1 - \Phi(\frac{\theta' - \hat{p}}{\hat{\sigma}})) \times R$$

that is $\Phi(\frac{\theta' - \hat{p}}{\hat{\sigma}}) \geq \frac{c_P}{R}$. Notice that the numerator $\theta' - \hat{p}$ is monotonically decreasing in p; thus we can find a $\tilde{p}$ that if $p \geq \tilde{p}$, then $\Phi(\frac{\theta' - \hat{p}}{\hat{\sigma}}) \leq \frac{c_P}{R}$. In equilibrium, Politician P only $D_i = 1$ if $p < \tilde{p}$. This proves the first part of the statement (2).

For the second part, we first to note that $\frac{c_P}{R} \leq \frac{1}{2}$, because $R \geq kc_p$ and $k \geq 2$. Therefore, given $\tilde{p}$, we expect $\theta' - \hat{p} \leq 0$. Then, for any $\sigma_1 \geq \sigma_2$, we have $\Phi(\frac{\theta' - \hat{p}}{\sigma_1}) \geq \Phi(\frac{\theta' - \hat{p}}{\sigma_2})$. Thus, to maintain the equation $\Phi(\frac{\theta' - \hat{p}}{\hat{\sigma}}) = \frac{c_P}{R}$, $\tilde{p_1} \geq \tilde{p_2}$.

□

[18] Precisely, because housing price $p \geq 0$, we can view $p = \pi(\theta) + \epsilon$ as a latent variable; the realized housing price $p' = 0$ if $p < 0$.

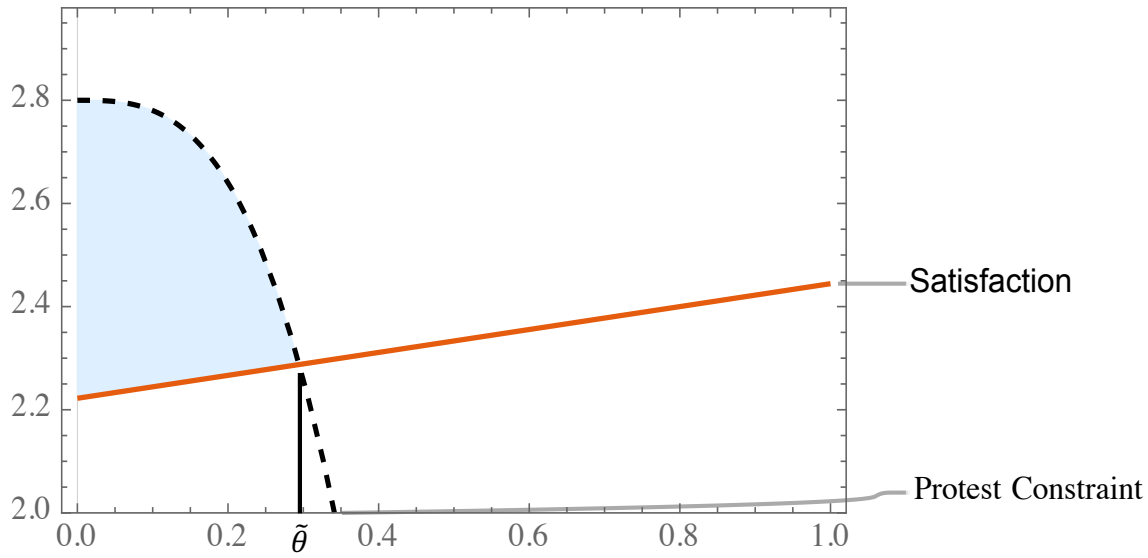


Figure A.1: DUALITY OF UNEQUAL RESPONSIVENESS: NUMERICAL EXAMPLE

Figure A.1 illustrates the two results with a numerical example with $\overline{S} = 2.8$,$c_0(y) = \frac{1}{2}y^2$, $s(r) = 2r$, $\delta^{t\prime} = 0.1$, $c_B(r) = \frac{9}{10}r^2$, $\eta = 1$, $c_1 = 2\theta^3$ (one can also set c_1 as a large constant), π is the identity function, and we let $\epsilon = 0$ for simplicity. The horizontal line represents the housing price p. The upward solid curve denotes the satisfaction that a citizen with wealth p receives in equilibrium. This reflects that the rich can obtain more favors from the bureaucracy. The dashed curve denotes the lower bound of satisfaction needed to prevent protest in equilibrium. The intersection determines the critical value $p = \tilde{\theta}$. Citizens whose wealth $p_i < \tilde{\theta}$ are not satisfied with the response from the bureaucrat. Their intensity of dissatisfaction is reflected by the height of the light blue area. The political leader must send such complaints back to bureaucrats to prevent protests.

Further Discussion: The model above is based on insights from our interviews. However, as noted by anonymous reviewers, it seems unrealistic for bureaucrats to disregard the risk of protest. To address this, we propose a more streamlined model that removes the role of the supervising politician, especially since our hypothesis and empirical findings do not directly involve political figures. Specifically, we add a cost term associated with protest to bureaucrat B's utility function:

$$\sum_{i=1}^{K}[s(r_i) - c_B(r_i) - \eta y_i(r_i, \theta_i)] - \gamma I_{[\sum_{i=1}^{k} A_i = 0]}$$

where the last term $\gamma I_{[\sum_{i=1}^{k} A_i = 0]}$ captures the impact of protest threats on bureaucrats. In the

original model, this factor was included in the utility of politician P. With this adjustment, our main findings and hypotheses remain consistent. It is straightforward to observe that in the non-protest pure strategy subgame perfect equilibrium, the optimal resource allocation, r_i^* maintains a similar form and is increasing in θ_i. The difference is that no politician reassigns cases to bureaucrat B; instead, bureaucrats themselves automatically allocate the minimum effort $\underline{r}$ (shown in the proof of the proposition B.2) to these cases, as the threat of protest is now directly factored into their utility.

C Examples of Resolution

1. **Actually resolved (shi ji jie jue)**: Resolution Definition: 市民反映的诉求合理、合法，已经得到完全解决The petitions of the citizens are reasonable and legal, and have been completely resolved.

Petition Case: 市民来电反映：上述地址为小区，小区内有一个会所，将装修垃圾堆放在26号门口，长期无人清理。诉求：希望管理部门尽快核实协调清理垃圾。（需回复）Citizens called to report: The above address is a residential community. There is a clubhouse within the community where building rubbish has been dumped at the 26 entrance and left there long-term without cleanup. Request: I hope the management department can verify and coordinate garbage cleanup as soon as possible. (Reply required)

Response: 已联系该处物业，目前已经清理干净。We have contacted the property management, and the building rubbish has been cleaned up now.

2. **Show explanation (jie shi shuo ming)**

Resolution Definition: 市民反映的诉求合理但不合法、不合理不合法或者当前不具备解决的条件，不属实或没有法律、政策依据，承办单位通过解释、说明的工作方法进行告知. The petitions raised by the citizens are reasonable but not legal, unreasonable and currently not feasible to solve, false or without legal and policy basis. The responsible unit informs with explanation and clarification.

Petition Case: 市民来电反映：XX区XXX路XXX弄X号楼每天6:00左右就进行大修房屋的施工，已经持续一个多月，长假期间也是这样施工，影响居民的正常休息和生活了。诉求：按照规定时间进行施工。（需回复）Citizens called to report: Building X, Lane X, XXXX Road, H District, conducts major repairs on houses at around 6:00 every day, which has been going Citizens called to report: Building 1, Lane 108, Beijing West Road, H District, conducts major repairs on houses at around 6:00 every day, which has been going on for more than a month. The same construction is carried out during the long holiday, affecting residents' normal rest and life. Appeal: Carry out construction according to the specified time. (Reply required)

Response: 接单后我局即联系施工单位。该处为房屋全项目大修项目，目前施工单

位已调整施工时间，尽量减少扰民，同时加强了现场管理。After receiving the order, our bureau immediately contacted the construction unit. This is a major renovation project for the entire house, and the construction unit has adjusted the construction time to minimize disturbance and strengthen on-site management.

3.**Demand is too high (su qiu guo gao)**

Resolution Definition: 市民反映的诉求有悖社会公德、存在政策限制、明显不合理The petitions expressed by the citizens are contrary to social ethics, subject to policy restrictions, and clearly unreasonable.

Petition Case: 市民来电反映：其上述地址小区原来有三扇门，其中两扇为消防门。市民称其中一扇消防门被物业擅自砌称了墙。市民对此表示不认可。诉求：希望管理部门核实，对该处的消防门恢复原样。（需回复）Citizens called to report: In the above-mentioned address, there used to be three doors in the residential area, two of which were fire doors. The citizen claimed that one of the fire doors was illegally blocked by the property management. The citizen does not agree with this. Appeal: Hope the management department can verify and restore the fire door to its original state. (Reply required)

Response: 经向物业方面了解情况，物业表明该小区自竣工以来一直是两个出入口（含消防通道），不存在第三个消防通道。如诉求人对物业行为有异议可通过信访或司法途径进行申诉。According to the property management, since the completion of the community, there have always been two entrances (including fire exits), and there is no third fire exit. If the complainant has any objections to the behavior of the property management, they can file a complaint through letters or legal channels.

4.**Record it for reference and record (can kao bei an)** Resolution Definition: 指市民反映的诉求属于建议类的，可以留作参考备案The concerns reflected by the citizens belong to the suggestion category, they can be kept for reference and record.

Petition Case: 市民来电反映：其XXXX年X月XX日去上述地址的饭店吃饭然后饭店的地板上有油，摔了一跤，导致尾骨移位，医生表示要求不要上班，但是市民因此单位需求还是工作，但是尾骨是无法恢复的，现在一个多月了，和饭店协商表示不认可，不愿意协商。诉求：要求管理部门为其协调约谈补偿的问题。需回复。A citizen called to report: On XXXX year X month XX day, they went to the aforementioned address to dine at the restaurant. The restaurant's floor was oily, and they slipped and fell, resulting in a displaced tailbone. The doctor advised against working, but the citizen still had to work due to job demands. However, the tailbone cannot recover. Now, more than a month has passed, and the restaurant has refused to acknowledge or negotiate. Request: The citizen asks the management department to coordinate and discuss compensation. A response is needed.

Response: 我单位于XXXX年X月XX日接单，于X月XX日首次通过电话先行联系来电人，告知其问题已经收悉，正在我单位进行办理。X月XX日，由我单位南东所，对来电

人所反映的情况进行核实。并通知该消费者把有关的身份证明、有关发票和医院的证据证明等有关复印件送致我所。XX月X号再了解具体情况后，我所就组织双方进行调解，因投诉方的要求和被诉方的理赔之间的相差太远，双方未能达成协议。我所决定终止调解。我所对投诉人就该问题进行了解释说明，现投诉人决定通过司法途径解决。我所现就将此案件参考备案。Our department accepted the order on September 28, 2016. On X month XX day, we first contacted the caller by phone to inform them that their issue had been received and was being processed by our department. On X month XX day, our Nandong office verified the situation reported by the caller. We then notified the consumer to provide copies of relevant identification, related invoices, and hospital evidence to our office. On XX month X day, after understanding the specifics, our office organized mediation between the two parties. However, due to the significant difference between the complainant's demands and the defendant's compensation offer, the two sides could not reach an agreement. Our office decided to terminate the mediation. We explained the issue to the complainant, who has now decided to pursue a judicial solution. Our office will now file this case for reference.

D Does Government Responsiveness Enhance Satisfaction?

This section checks the validity of our two response measures by showing their strong correlation with the quality of resolution. To measure such quality, we utilize the follow-up survey conducted by district-level government. In this survey, the government inquires about callers' satisfaction levels with the provided resolution. Despite participation in the survey being entirely voluntary, over 60% of callers provide feedback. We regress the caller's satisfaction evaluation on two outcome measures of government responsiveness: response time and resolution decision. This regression is controlled for petition type and year fixed effects. We have coded the satisfaction levels in an ordinal manner: satisfied (4), basically satisfied (3), okay (2), and unsatisfied (1).

Table D.1 presents the results. As expected, the positive correlation between resolution time and satisfaction in Column 1 suggests that citizens are more content when the government agency resolves their concerns promptly. Furthermore, Column 2 displays a positive and significant correlation between satisfaction and a favorable response from the government. Columns 3 and 4 combine both resolution time and decision into a single model, and the estimates remain consistent with the earlier results in Columns 1 and 2. Lastly, Columns 5 and 6 factor in the interaction between resolution time and positive resolution, both with and without covariates. The full model with baseline covariates produces a significant estimate for the interaction term. In conclusion, the results underscore the significance of allocative duration. In general, citizens exhibit greater satisfaction with their cases when they undergo a shorter processing time.

Table D.1: Satisfaction Analysis

	Satisfaction					
	(1)	(2)	(3)	(4)	(5)	(6)
Positive Resolution	0.444***		0.411***	0.408***	0.299***	0.296***
	(0.020)		(0.020)	(0.020)	(0.049)	(0.049)
Resolution Time		−0.038***	−0.032***	−0.032***	−0.034***	−0.034***
		(0.003)	(0.003)	(0.003)	(0.004)	(0.004)
Resolution Time*Positive Resolution					0.019**	0.019**
					(0.008)	(0.008)
Type FE	Y	Y	Y	Y	Y	Y
Year-month FE	Y	Y	Y	Y	Y	Y
Controls	N	N	N	Y	N	Y
N	26,228	26,226	26,226	26,226	26,226	26,226
Adjusted R^2	0.070	0.061	0.075	0.076	0.075	0.076

Notes: Standard errors clustered at the apartment-complex level are reported in parentheses. FE denotes fixed effects. IV, RF denote instrument variable and reduced form specifications respectively. Controls are female, local, foreign, anonymous, distance to neighborhood center, local two sessions, national two sessions, and executive turnover. *p<0.1; **p<0.05; ***p<0.01.

E Settlements in Shanghai

The establishment of foreign settlements in Shanghai began after the Opium War. In 1842, the Qing empire signed the treaty of Nanking with Britain, permitting it to open five treaty ports. Shanghai was one of these treaty ports that allowed foreign merchants to reside, trade, and enjoy extraterritoriality and consular jurisdiction. Three years later, the British settlement was established in the south of Suzhou Creek and the west of Huangpu River, under the agreement of the Shanghai Land Regulation (1854). The British settlement merged with the American settlement in 1863, forming a new international settlement. In addition to the British and American settlements, the French Consul obtained a proclamation to establish a concession in 1849. The French Concession is in the south of the International Settlement and north of the old Shanghai city, where Chinese residents lived. While these settlements remained under Chinese sovereignty, the Consul-General of France and Shanghai Municipal Council were the administrative authority for the French Concession and the International Settlement, respectively, providing public services such as water, drainage, street light, and paved road. Compared to the old Chinese city (华界), the foreign settlements (French Concession and the international settlement) have better infrastructure, extraterritoriality, and a dense population of foreigners and wealthy Chinese.

F Figures and Tables

Table F.1: Frequency of Channels to the 12345 Hotline

	n	%	val%
Phone	42867.00	98.50	98.60
Website	440.00	1.00	1.00
Hotline initiated	164.00	0.40	0.40
Fax	11.00	0.00	0.00
WeChat	1.00	0.00	0.00
NA	36.00	0.10	

Table F.2: Summary Statistics

Statistic	N	Mean	St. Dev.	Min	Max
Resolution Time	43,517	6.83	3.09	5.00	15.00
Positive Resolution	43,519	0.18	0.38	0	1
Satisfaction	26,245	3.10	1.28	1	4
Price (RMB per squared meter)	43,519	48,209.78	15,138.77	6,981	144,214
Female	43,519	0.38	0.48	0	1
Local	43,519	0.81	0.39	0	1
Foreign	43,519	0.004	0.06	0	1
Anonymous	43,519	0.26	0.44	0	1
Distance to Neighborhood Center (km)	43,497	0.66	0.42	0.00	4.41
National Two Sessions	43,519	0.06	0.24	0	1
Local Two Sessions	43,519	0.07	0.26	0	1
Executive Turnover	43,519	0.06	0.24	0	1

Table F.3: Ordinal Measure of Outcome Variables

	Resolution Time (Ordinal)			Positive Resolution (Ordinal)		
	OLS	IV	RF	OLS	IV	RF
	(1)	(2)	(3)	(4)	(5)	(6)
Price	-0.037^{**}			0.005		
	(0.015)			(0.013)		
Settlement			-0.064^{***}			0.012
			(0.012)			(0.011)
Price		-0.211^{***}			0.039	
		(0.050)			(0.036)	
Type FE	Y	Y	Y	Y	Y	Y
Year-month FE	Y	Y	Y	Y	Y	Y
Controls	Y	Y	Y	Y	Y	Y
N	43,495	43,495	43,495	43,497	43,497	43,497
Adjusted R^2	0.036	0.027	0.039	0.087	0.086	0.087

Notes: Standard errors clustered at the apartment-complex level are reported in parentheses. FE denotes fixed effects. OLS, IV, RF denote ordinal least squared, instrument variable, and reduced form specifications respectively. To construct the ordinal measure of resolution time, we code green, yellow, orange, and red label cases as 1,2,3,4 respectively. We coding cases "actually resolved" as 3; "show explanation" as 2 and "demand is too high" as 1 as the ordinal measure of resolution decision. Controls are female, local, foreign, anonymous, distance to neighborhood center, local two sessions, national two sessions, and executive turnover. *p<0.1; **p<0.05; ***p<0.01.

Table F.4: Correlational Analysis

	Positive Resolution		
	(1)	(2)	(3)
Resolution Time	-0.019^{***}	-0.017^{***}	-0.017^{***}
	(0.001)	(0.001)	(0.001)
Type FE	N	Y	Y
Year-month FE	N	N	Y
N	43,517	43,498	43,498
Adjusted R^2	0.022	0.043	0.071

Notes: ***Significant at the 1 percent level.
**Significant at the 5 percent level.
*Significant at the 10 percent level.

Table F.5: Exclusion Restriction

	Female	Local	Anonymous	Foreign	Distance to Neighborhood Center
	(1)	(2)	(3)	(4)	(5)
Settlement	0.011	0.017	−0.024	0.002	0.154
	(0.008)	(0.014)	(0.022)	(0.002)	(0.118)
Type FE	Y	Y	Y	Y	Y
Year-month FE	Y	Y	Y	Y	Y
N	43,500	43,500	43,500	43,500	43,497
Adjusted R^2	0.004	0.011	0.027	0.002	0.037

Notes: Standard errors clustered at the neighborhood level are reported in parentheses. FE denotes fixed effects. *p<0.1; **p<0.05; ***p<0.01.

Table F.6: Analysis Using Phone-call Only Sample

	Resolution Time			Positive Resolution		
	OLS	IV	RF	OLS	IV	RF
	(1)	(2)	(3)	(4)	(5)	(6)
Price	-0.233^{**}			0.0005		
	(0.094)			(0.010)		
Settlement			-0.388^{***}			-0.007
			(0.072)			(0.008)
Price		-1.274^{***}			-0.022	
		(0.301)			(0.025)	
Type FE	Y	Y	Y	Y	Y	Y
Year-month FE	Y	Y	Y	Y	Y	Y
Controls	Y	Y	Y	Y	Y	Y
N	42,843	42,843	42,843	42,845	42,845	42,845
Adjusted R^2	0.038	0.027	0.041	0.063	0.063	0.063

Notes: Standard errors clustered at the apartment-complex level are reported in parentheses. FE denotes fixed effects. OLS, IV, and RF denote ordinal least squared, instrument variable, and reduced form specifications respectively. Controls are female, local, foreign, anonymous, distance to neighborhood center, local two sessions, national two sessions, and executive turnover. *p<0.1; **p<0.05; ***p<0.01.

Table F.7: Using Alternative Measure of Resolution

	Late Resolution (Binary)		Allocation Time		Precise Resolution Time (Aug 18- July 19)	
	OLS	IV	OLS	IV	OLS	IV
	(1)	(2)	(3)	(4)	(5)	(6)
Price	-0.034^{**}		-0.095^{**}		-27.196^{***}	
	(0.014)		(0.039)		(4.683)	
Price		-0.181^{***}		-0.348^{***}		-99.018^{***}
		(0.043)		(0.096)		(17.870)
Type FE	Y	Y	Y	Y	Y	Y
Year-month FE	Y	Y	Y	Y	Y	
Controls	Y	Y	Y	Y	Y	Y
N	43,495	43,495	43,497	43,497	12,467	12,467
Adjusted R^2	0.037	0.027	0.020	0.018	0.043	0.007

Notes: Standard errors clustered at the apartment-complex level are reported in parentheses. FE denotes fixed effects. OLS, IV, denote ordinal least squared and instrument variable specifications respectively. Controls are female, local, foreign, anonymous, distance to neighborhood center, local two sessions, national two sessions, and executive turnover. *p<0.1; **p<0.05; ***p<0.01.

Table F.8: Spatial-adjusted Standard Errors

	Resolution Time	
	(1)	(2)
	OLS	IV
Price	-0.224***	-1.263***
	(0.079)	(0.287)
Observations	43,495	43,495
R-squared	0.008	-0.002
Type FE	Y	Y
Year-month FE	Y	Y
Controls	Y	Y

Notes: Standard errors clustered using Conely (1999)'s approach and is implemented using 'acreg' in Stata. The spatial cutoff is set to be 2 km. FE denotes fixed effects. $^{*}p<0.1$; $^{**}p<0.05$; $^{***}p<0.01$.

Table F.9: Summary Statistics of Verbal Signals

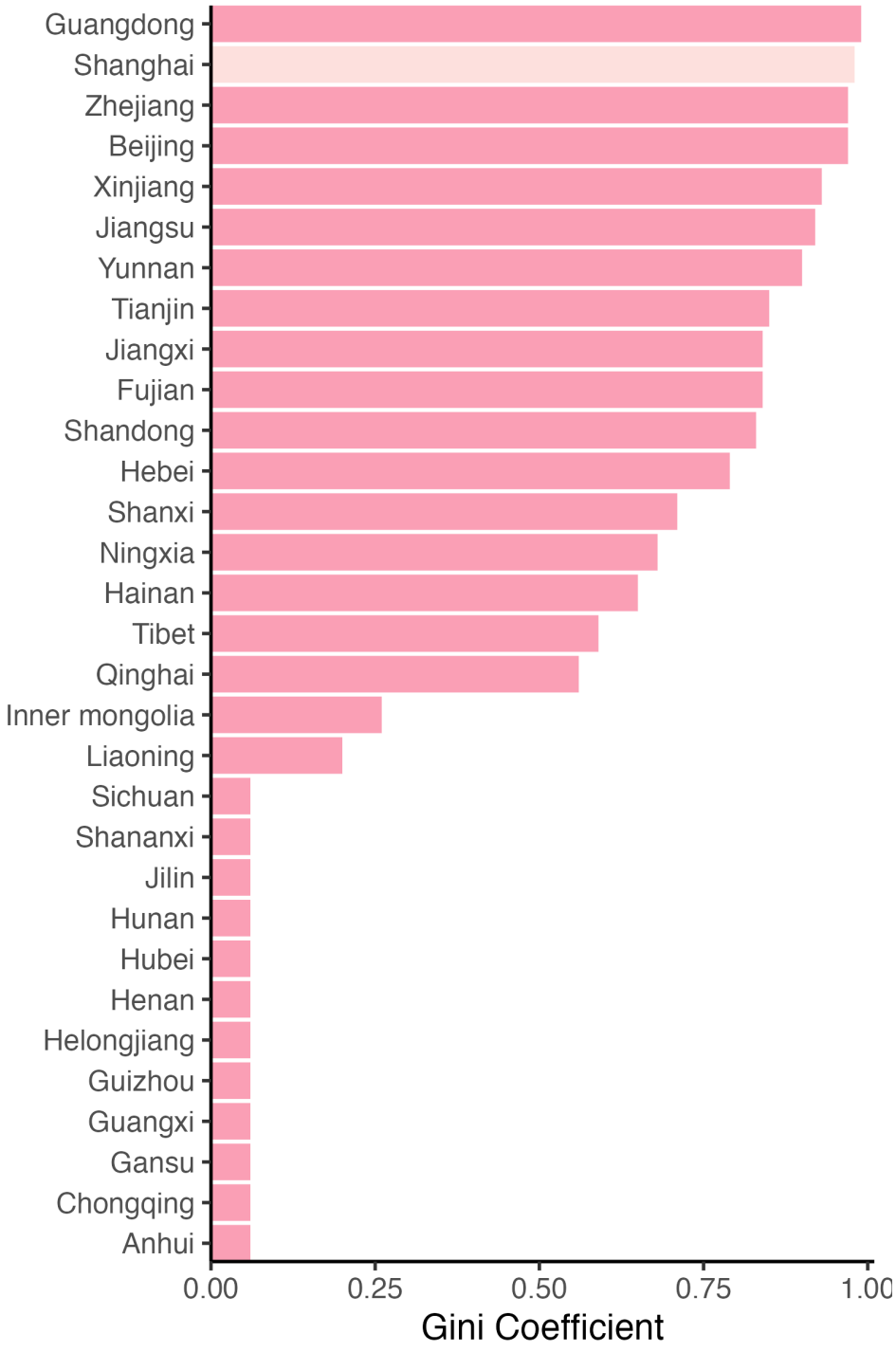
Statistic	N	Mean	St. Dev.	Min	Max
Legal	43,519	0.034	0.182	0	1
Collective Action	43,519	0.008	0.090	0	1
Upper Government	43,519	0.018	0.134	0	1
CCP Member	43,519	0.001	0.037	0	1

Table F.10: Correlation Between Housing Price and Petition Frequency

	Number of Petitions		Petitions Per Capita	
	raw	logged	raw	logged
	(1)	(2)	(3)	(4)
Price	−9.443	0.201	0.181	0.087
	(12.086)	(0.279)	(0.184)	(0.073)
N	687	687	273	273
Adjusted R^2	−0.001	−0.001	−0.0001	0.001

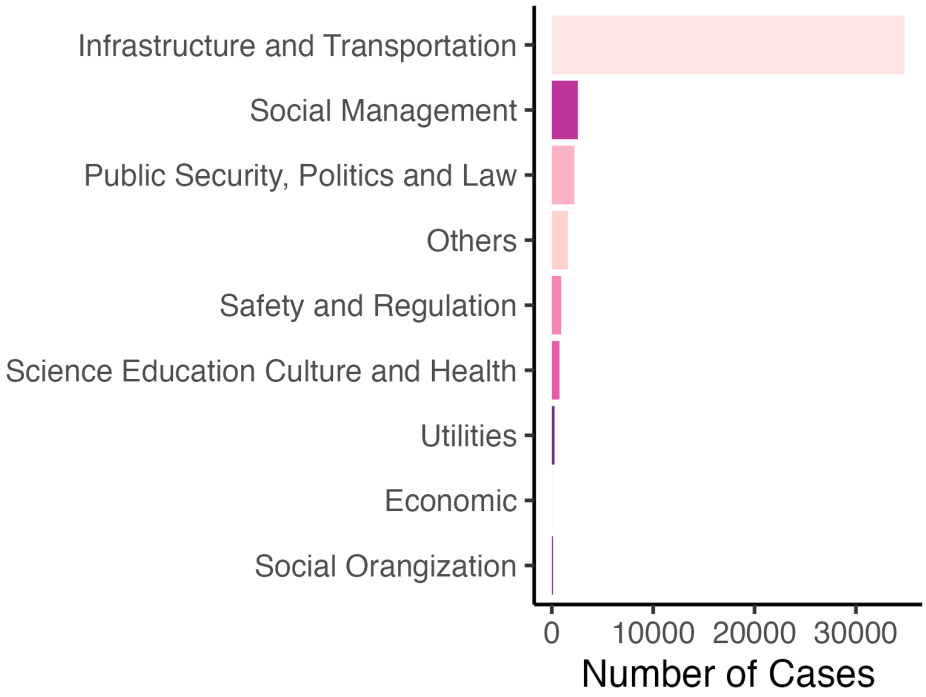
Notes: *p<0.1; **p<0.05; ***p<0.01.

Figure F.1: PROVINCIAL-LEVEL GINI COEFFICIENT



Source: Bhattacharya, Prabir, Javier Palacio-Torralba, and Xinrong Li. "On Income Inequality within China's Provinces." Chinese Studies 7.02 (2018): 174.

Figure F.2: CASE TYPES



Source: H District 12345 hotline records.

Figure F.3: BANKUAI-LEVEL HOUSING PRICE TREND

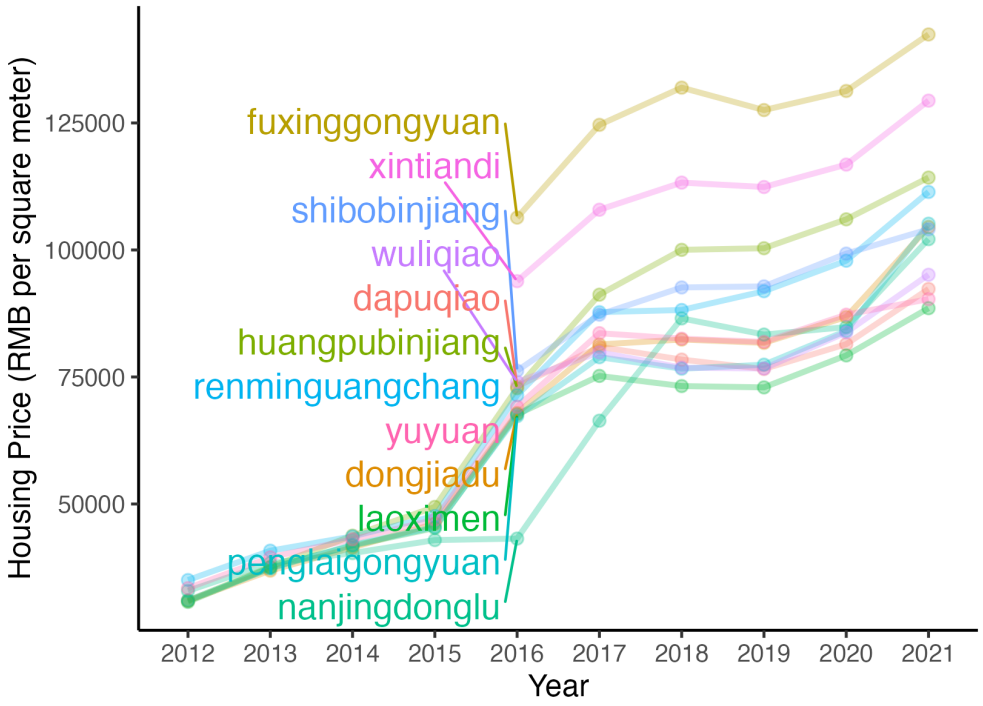


Figure F.4: BIVARIATE CORRELATION ANALYSIS

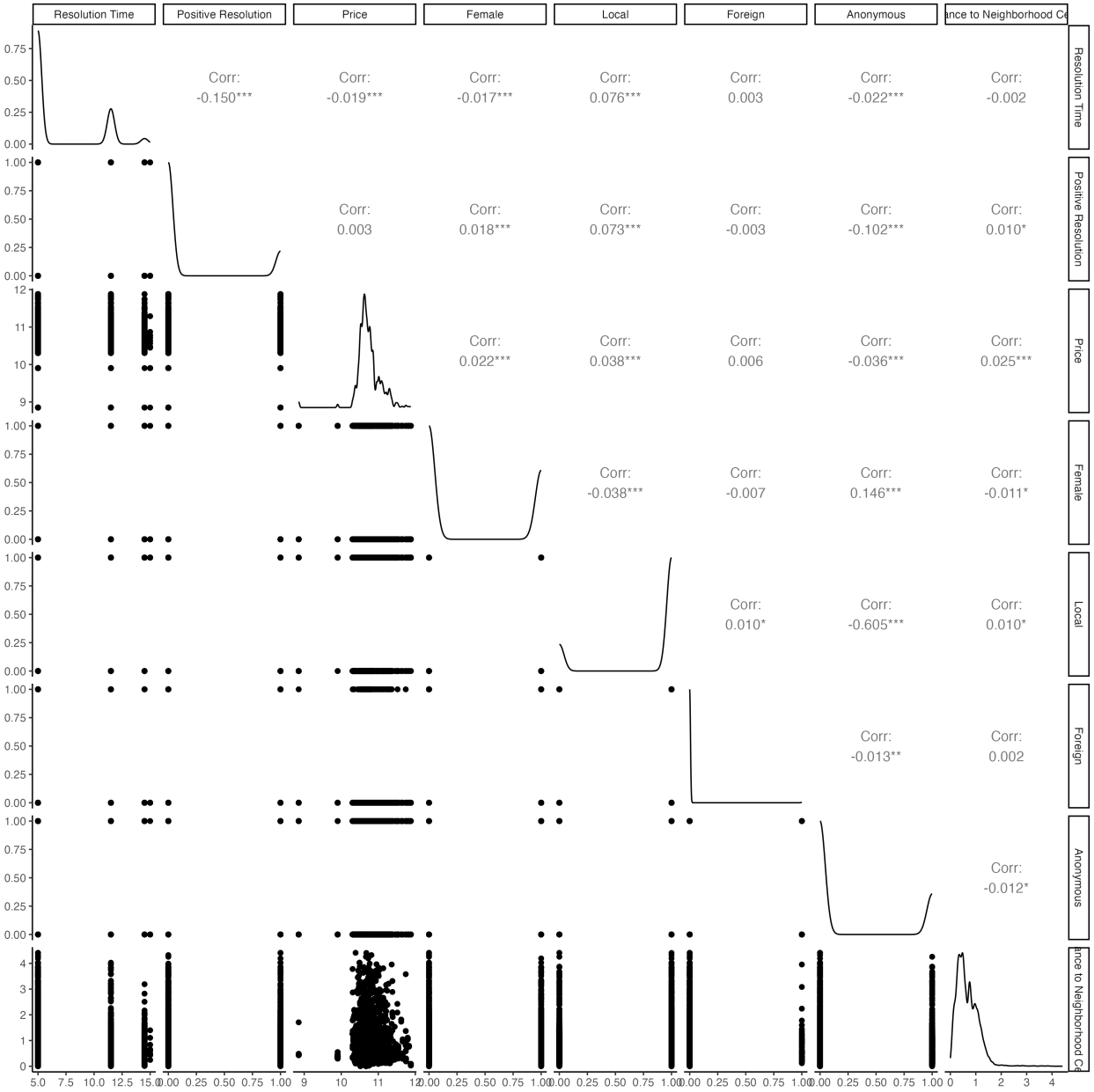
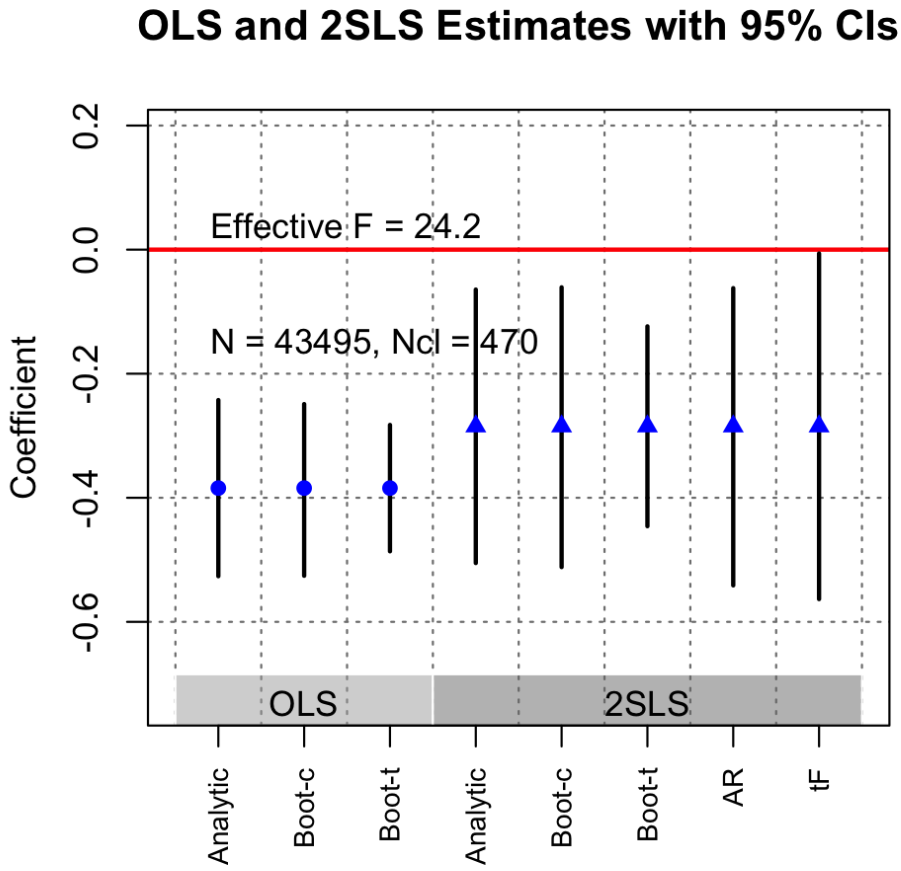


Figure F.5: ESTIMATION AND DIAGNOSTIC OF INSTRUMENTAL VARIABLES

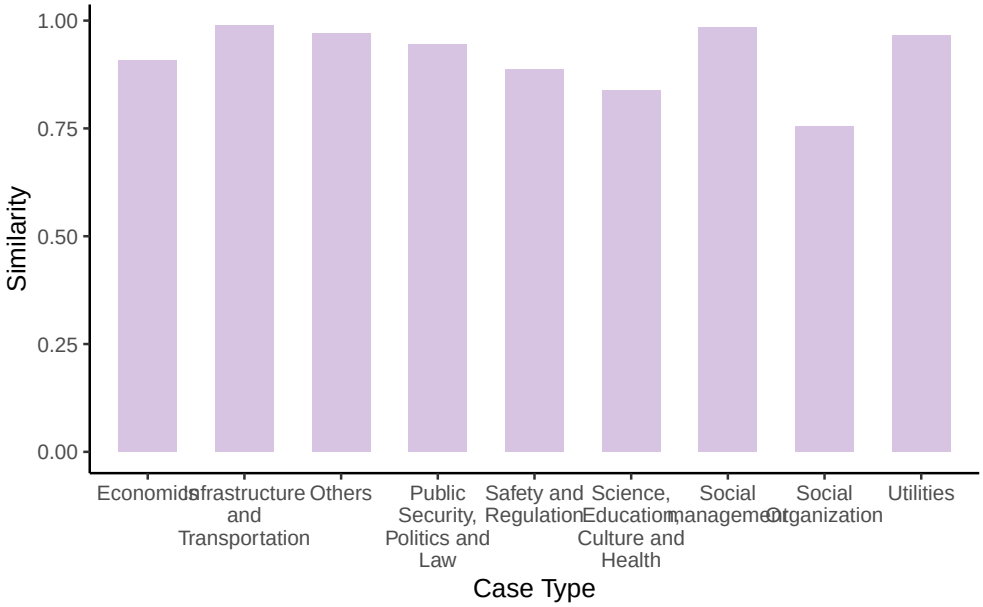


The estimation uses ivDiag package in R. The model specification here is the same as column (2) in table 2. The figure reports robust estimation of OLS and 2SLS under different robust adjustments, including bootstrapped confidence intervals, effective F-statistic, Anderson-Rubin test and valid-t ratio test. All point estimates are similar and significant at the level of 0.05.

G Text Similarity

We conduct a text analysis of all petition transcripts to measure text similarity between the rich and poor. In the main text, we define the rich and the poor according to whether their housing price is above or below the average price. Here, we further examine the petition similarity between the top and bottom 30%. We extract the petition description of cases submitted by callers Then, we compute the Cosine similarity, which measures the text similarity that ranges from 0 to 1 for each case type (Infrastructure and Transportation, Public Security, Politics and Law, Safety and Regulation, Others, Utilities, Social management, Science, Education, Culture and Health, Economics, Social Organization). The higher Cosine similarity means the more similarly the petition texts are. Figure G.1 shows the result of the text similarity analysis. Texts of petitions from the rich and the poor are pretty similar, with a Cosine similarity ranging from 0.85 to 0.99. The mode petition type, Infrastructure and Transportation, has the highest similarity (0.99). The evidence shows that petition texts of callers who are richest and poorest are not statistically different, suggesting they face homogeneous demand for public services.

Figure G.1: TEXT SIMILARITY



H Coding Rule of Verbal Signals

"...The new campus is located at the intersection of Road A and Road B. There is no sidewalk along the school. The school is shared with a nursing home. The

overall environment has a major hidden danger to the personal safety of grade one pupils.According to Article 16 of Chapter III "schools" of the compulsory education law of the people's Republic of China, it is clearly stipulated that the construction of a school shall comply with the school running standards stipulated by the state, and the construction shall ensure the safety of students and teaching staff..."

Keywords for Verbal Signals

Law: 条例,法律,依法,规定,合法
Party Membership Keyword: 党员
Upper-level Government: 上级,领导,市政府
Collective Actions: 上访,抗议,访民,信访