Rule-Bound Buyers Seek Discretion Most? Procurement Discretion, Thresholds, and Supplier Selection in China*

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Abstract

Governments routinely cap discretion in public procurement by requiring open bidding above a monetary threshold. The cap is easy to evade: buyers who want flexibility can simply shrink the contract. Using more than six million Chinese government procurement records from 2013 to 2023, we document sharp bunching just below the threshold, with reported values reduced by roughly 2 to 3 percent of the cutoff. Central-government buyers bunch the most aggressively, even though they are widely viewed as the most rule-bound. To unpack this, we build a parametric selection model in which buyers weigh the cost of compressing contract value against the benefits of discretion. The model separates two motives behind the demand for discretion. Under a public motive, buyers protect contracts that channel spending toward nearby suppliers and support the local economy. Under a private motive, buyers protect contracts that generate rents for themselves. Our estimates indicate that the public motive dominates on average. Buyers who bear less of the cost of shrinking contracts bunch more, which is why central procurement bunches the most: with no local fiscal stake to protect and tighter oversight curbing private rents, both motives for guarding contract value are muted. On the supplier side, discretion shortens procurement timelines and routes contracts toward older, larger, and more often state-owned firms, but these gains do not extend to broader policy goals such as innovation, support for smaller firms, or lower resource use.

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1 Introduction

The tension between rigid rules and bureaucratic discretion is a fundamental problem in the political economy of state capacity (Acemoglu & Verdier, 2000). As a massive component of government spending worldwide, public procurement is subject to monetary thresholds that regulators routinely use to constrain bureaucrats, mandating open competition above a statutory cutoff while allowing flexible discretion below it (Bosio, Djankov, Glaeser, & Shleifer, 2022). While designed to balance transparency with administrative speed, this rigid rule is inherently vulnerable to evasion: buyers demanding discretion can systematically compress a contract's reported value to sneak below the threshold, willingly destroying economic surplus to bypass the regulation (Palguta & Pertold, 2017). A natural assumption in the literature is that such regulatory evasion is primarily driven by poorly monitored, low-level bureaucrats seeking private rents.

In this paper, we leverage over six million Chinese government procurement records to document an empirical reversal: the seemingly most "rule-bound" buyers, those at higher levels of government facing the strictest top-down oversight, are the ones who systematically manipulate these thresholds the most. By developing and estimating a structural selection model to unpack the hidden mechanics of this threshold evasion, we demonstrate that bureaucratic compliance is dictated not merely by formal monitoring, but by the endogenous opportunity cost of destroying localized fiscal spillovers.

Two empirical findings motivate our analysis. First, the distribution of procurement amounts displays a sharp spike just below the threshold: bunching contracts compress reported values by roughly 2 to 3 percent of the cutoff, a pattern robust to alternative bunching specifications, to corrections for round-number heaping, and to log-value reformulations. Second, bunching is not uniform across buyers. It is strongest among central-government buyers, and is also stronger for less standardized contracts, fourth-quarter projects, and services rather than goods.

To unpack the central-discretion puzzle, we develop a parametric selection model following Szűcs (2024). The model is essential because the procedure is chosen by the buyer and the reported value is itself a chosen object, so a direct comparison of outcomes across procedures conflates the causal effect of discretion with selection. Because the running variable can also be manipulated, even a sharp regression-discontinuity comparison around the threshold cannot separate the two. The model unwinds this by treating the procedure choice and the latent contract value as jointly informative about the buyer's demand for discretion. To use discretion on a project that would otherwise exceed the threshold, the buyer must ab-

sorb a discretionary loss equal to the gap between the project's value and the cutoff; whether this loss deters discretion depends on which part of the contract surplus the buyer values. We organize this around two channels. Under a public channel, the buyer internalizes part of the supplier-side surplus because procurement spending supports local firm activity, employment, and the local fiscal base; this channel interacts with the political and geographic distance between buyer and supplier, since closer suppliers recirculate a larger share of spending into the local economy. Under a private channel, the buyer values the share of surplus appropriable through informal transfers tied to discretionary contracting; this channel interacts with anti-corruption inspection intensity, since stronger oversight raises the expected cost of rent extraction.

Our estimates indicate that the public channel plays the larger role on average. Loss sensitivity is highest when the relevant supplier industries are politically and geographically close to the buyer, and falls when suppliers are more distant. The private channel is also present but smaller, with stronger inspection meaningfully reducing buyers' willingness to absorb the discretionary loss. Both channels are muted for central buyers, who internalize neither local fiscal returns nor private rents to the same extent as local buyers. This resolves the central-discretion puzzle: precisely because central buyers face fewer incentives to protect contract value, they have less reason to refuse the loss required to obtain discretion, and the threshold deters them less.

The model also disentangles the supplier-side consequences of discretion from the selection that drives its use. Discretionary procurement shortens procurement timelines by about seven days and shifts contracts toward more established suppliers, who tend to be older, larger, and more often state-owned. The productivity of winning firms is somewhat higher under discretion. The gains from discretion do not extend to the policy goals that often justify flexible procurement. Discretion does not raise the probability of awarding contracts to high-tech firms or to technology-based small and medium enterprises, R&D expenditure declines, and resource use is little affected. In this setting, discretion appears to deliver administrative speed and access to established suppliers without advancing industrial-policy targets.

The remainder of the paper proceeds as follows. Section 2 situates our contribution within the related literature. Section 3 describes the institutional background, and Section 4 introduces the data. Section 5 reports the bunching analysis and the local treatment effects of threshold-induced discretion. Section 6 develops the parametric selection model, and Section 7 presents the estimates. Section 8 concludes.

2 Related Literature

This paper contributes to several strands of the literature. First, it contributes to the fundamental debate on rules versus discretion in the public sector by breaking the traditional dichotomy between administrative efficiency and private rent-seeking (Bandiera, Prat, & Valletti, 2009). While existing empirical work demonstrates how procurement manipulation distorts resource allocation (Hang & Zhan, 2023), the literature largely models the demand for discretion as a monolithic desire for either operational speed or bureaucratic corruption. This framework, however, cannot explain why the most heavily monitored buyers manipulate thresholds the most. By estimating a parametric selection model building on recent structural approaches to favoritism (Szűcs, 2024), we resolve this paradox by identifying a distinct, dominant driver of bureaucratic discretion: a public fiscal motive. Using China as a setting where intergovernmental fiscal spillovers are starkly visible, we demonstrate that local officials willingly destroy contract surplus to bypass open bidding primarily to internalize supplier-side surplus, channeling spending toward geographically proximate firms to support their local economic base (Fang, Li, & Wu, 2025).

Second, we advance the empirical literature evaluating regulatory thresholds by uncovering the profound institutional heterogeneity underlying rule evasion. To evaluate the consequences of public procurement discretion, a prominent strand of research relies on regression discontinuity (RD) designs at statutory cutoffs (Coviello, Guglielmo, & Spagnolo, 2018). However, parallel work utilizing bunching estimators documents that procuring entities systematically manipulate contract values to evade these exact cutoffs (Palguta & Pertold, 2017), an endogenous behavior that fundamentally invalidates standard RD approaches. While recent structural models can correct this identification failure by accounting for the manipulated running variable (Carril, 2021; Szűcs, 2024), the existing bunching literature has primarily estimated average aggregate responses, leaving the institutional drivers of evasion in a black box. Our contribution is to unpack this heterogeneity. By structurally estimating bunching responses across different tiers of government, we trace evasion to the opportunity cost of contract compression rather than to the intensity of formal top-down oversight.

Finally, this paper contributes to the political economy literature on bureaucratic compliance and intergovernmental incentives within public procurement. A growing body of recent empirical research utilizes Chinese procurement microdata to expose the complex motives driving local officials: they systematically distort contract allocations to protect local economies (H. Li & Zhou, 2005; Wei, Yuan, & Jiameng, 2025), induce corporate capital flows through procurement-driven "local bias" (J. Li, Yuan, & Huang, 2025), and strategically ma-

nipulate purchasing behaviors to circumvent rigid fiscal constraints (Guo & Liang, 2025). Within this well-documented framework of local-level incentive distortion, it is intuitively assumed that higher-tier bureaucrats—who are more strictly monitored and insulated from these localized pressures—should exhibit greater regulatory compliance; we document the opposite. Our findings demonstrate that bureaucratic compliance is not determined solely by the intensity of top-down formal oversight, but is endogenously bounded by the hierarchical distribution of economic incentives (Jin, Qian, & Weingast, 2005; Xu, 2011).

3 Institutional Background

Like many other countries, China uses procedural thresholds to limit discretion in public procurement. The underlying rationale is to reduce the scope for corruption, collusion, and other distortions that may arise when procurement officials have greater latitude in selecting procurement methods or suppliers. Under the *Government Procurement Law of the People's Republic of China*, procurement of goods and services above a statutory monetary threshold must be conducted through open bidding. Procuring entities are explicitly prohibited from evading this requirement by splitting contracts or through other means. Below the threshold, by contrast, buyers may use alternative procedures authorized by law, including competitive negotiation, single-source procurement, and inquiry procurement.

This institutional feature creates a sharp distinction in the extent of discretion available to procuring entities. Open bidding is the least discretionary procurement method in this setting, whereas non-open methods grant buyers more flexibility in practice. As a result, the statutory threshold for open bidding serves as a natural cutoff separating procurement regimes with relatively limited discretion from those with substantially greater discretion. Details on the legal definition and implementation of each procurement method are provided in Appendix B.2.

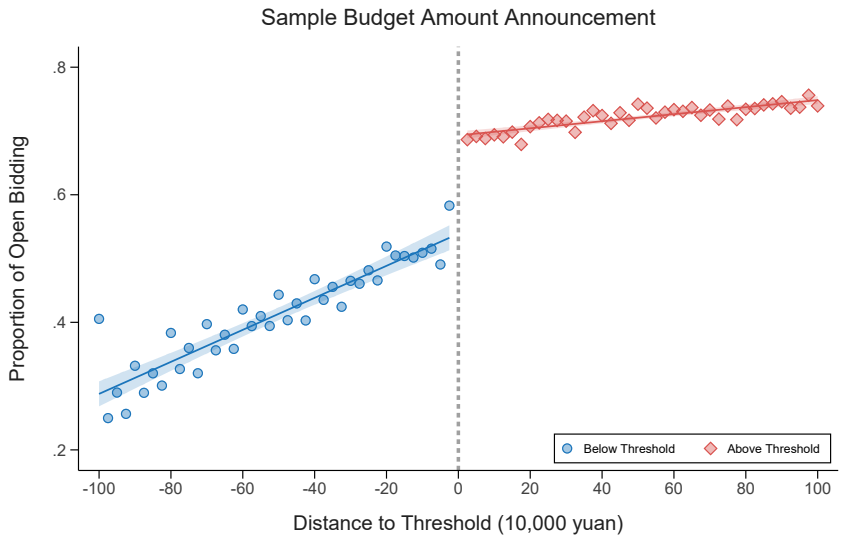


Figure 1: Discontinuity in the Use of Open Bidding around the Statutory Threshold

Notes: This figure plots the share of non-engineering government procurement orders conducted through open bidding within a RMB 1 million window around the statutory threshold over the period 2013-2023. The bandwidth is RMB 25,000. The horizontal axis measures the relative distance between the budget amount and the open-bidding threshold, and the vertical axis reports the share of procurement orders using open bidding. A value of zero corresponds to the statutory threshold. Circles denote observations below the threshold, and diamonds denote observations above the threshold. Solid lines show linear fits, and shaded areas indicate 95% confidence intervals.

Figure 1 shows that this threshold is binding in practice. Focusing on non-engineering procurement orders within RMB 1 million of the threshold, the share of procurement conducted through open bidding is 41.02 percent below the threshold and 72.15 percent above it. This implies a large and discrete increase in the use of open bidding at the cutoff. The figure therefore provides direct evidence that the statutory threshold generates a meaningful discontinuity in procurement procedures and, by implication, in the degree of discretion exercised by procurement units.

To strengthen transparency and public oversight, the Ministry of Finance requires procurement information to be publicly disclosed on designated platforms, including the China Government Procurement Network (`www.ccgp.gov.cn`). The procurement data used in this paper are drawn primarily from this source.

4 Data and Descriptive Statistics

4.1 Government procurement announcements

The core data come from the China Government Procurement Network, the official disclosure platform for government procurement notices. The records contain announcement dates, project titles, procurement categories, procuring entities, budget or transaction amounts, procurement methods, and supplier information. We collect 14.1 million announcements from 2013–2023 and focus on goods and services procurement because the open-bidding threshold for engineering projects follows a different regulatory regime. After excluding regions for which the applicable threshold cannot be consistently verified and observations without the information needed to assign a threshold, the main threshold-analysis sample contains more than six million procurement records.

Our bunching analysis employs 3.47 million ex-ante procurement announcements with disclosed budget information. To further characterize the attributes of procurement contracts, we match budget-disclosed ex-ante announcements with supplier-disclosed ex-post announcements by project name, yielding a final sample of 1.20 million observations. Both the broad and narrow sample definitions are largely free of sample selection concerns, and the baseline regression results remain consistent. Detailed robustness evidence is presented in Appendix A3.

4.2 Open-bidding thresholds

For procurement projects financed by the central budget, the open-bidding threshold is set by the State Council. For local-budget projects, the threshold is set by provincial governments through the *Government Centralized Procurement Catalogue and Standards*. These catalogues are revised periodically, and a threshold remains in force until the next version is issued. We collect the central, provincial, municipal, and county threshold schedules for goods and services procurement over 2013–2023 and assign the applicable threshold to each procurement record by region, buyer level, procurement category, and year. In the empirical analysis, the running variable is normalized relative to the applicable threshold.

4.3 Supplier and market characteristics

We merge the procurement records to Chinese business registration data and the Chinese tax survey using fuzzy matching on supplier names. The registration data provide supplier age, registered capital, ownership type, address, industry, and employment-related information; the tax survey provides financial variables such as operating revenue, net profit, total assets, R&D expenditure, and energy or water use. Because direct measures of procurement quality, such as contract breach or user satisfaction, are not consistently available, we use supplier characteristics as proxies for the type and quality of firms selected through different procedures.

The main supplier outcomes fall into three groups. The first group captures basic firm characteristics, including state ownership, firm age, registered capital, and employment. The second group captures operating performance, including TFP, revenue, assets, profits, ROA, and ROE. The third group captures policy-related outcomes, including high-tech status, technology-SME[1] status, social-security contributions, R&D expenditure, charitable donations, and resource use. We also construct potential-market characteristics at the supplier-industry level, including the number of eligible suppliers, the industry SOE share, and industry-average political distance. Political distance equals 1 for buyer–supplier pairs in the same county or district, 2 for different counties in the same city, 3 for different cities in the same province, and 10 for different provinces. The industry-average measure averages this distance across potential suppliers in the same industry.

Table 1 reports the variables used most directly in the empirical strategy and selection model. Several patterns are useful for interpreting the estimates. Services account for about 81 percent of the estimation sample, and central-level projects account for about 7 percent. The full summary statistics, including the standardized counterparts of monetary variables that enter the structural estimation, appear in Appendix Table 8.

[1]Technology-based small and medium-sized enterprise.

Table 1: Selected summary statistics

Variable	N	Mean	Median	SD	Min.	Max.
Procurement order characteristics						
Central-level project	1,197,115	0.071	0.000	0.257	0.000	1.000
Standardized procurement	1,197,115	0.211	0.000	0.408	0.000	1.000
Service contract	1,197,115	0.809	1.000	0.393	0.000	1.000
Duration (days)	1,197,115	20.56	21.00	14.14	0.000	180.00
Days to year-end	1,197,115	156.49	152.00	96.75	0.000	365.00
Inspection intensity	1,197,115	0.055	0.000	0.115	0.000	0.742
Supplier characteristics						
State-owned supplier	1,197,115	0.100	0.000	0.300	0.000	1.000
Firm age (years)	1,183,368	9.669	7.710	7.436	0.268	32.13
Registered capital (RMB '000)	1,187,935	6,160.3	800.00	26,313.4	5.000	234,075
Employment	59,775	467.51	56.00	4,135.8	0.000	528,360
TFP (OP)	34,558	−1.222	1.887	6.494	−15.51	13.93
TFP (LP)	34,558	−0.939	2.238	6.507	−14.76	13.61
TFP (ACF)	40,723	−2.885	0.175	6.641	−20.97	13.45
High-tech firm	28,960	0.161	0.000	0.367	0.000	1.000
Technology SME	28,960	0.066	0.000	0.249	0.000	1.000
Potential-market characteristics						
Industry SOE share	1,197,115	0.060	0.035	0.058	0.000	0.938
Avg. political distance ($\bar{d}_i$)	1,197,115	9.994	10.00	0.038	8.234	10.00
Eligible suppliers	1,197,115	35,177	39,152	25,015	1.000	78,588

Notes: This table reports the variables used most directly in the descriptive analysis and the selection model. Inspection intensity is reported in raw units; in the structural selection equation it is standardized before interacting with the discretionary loss, $z_i = (\text{Inspection}_i - \bar{\text{Inspection}})/\text{SD}(\text{Inspection})$. Monetary variables that enter the outcome equations in standardized or transformed form are reported in their natural units here for transparency; the full summary statistics, including the standardized counterparts and additional financial outcomes, appear in Appendix Table 8.

Table 2 provides descriptive comparisons by procurement procedure. Compared with open-bidding procurement, discretionary procurement is more common among service contracts, shorter in duration, and closer to year-end. Discretionary contracts are also more likely to be awarded to older, larger, and state-owned suppliers. The full comparison table, including all supplier and market variables, is reported in Appendix Table 9.

Table 2: Comparison of discretionary and open-bidding procurement

Variables	Full Sample			Around one million at the threshold		
	Discretionary (1)	Open bidding (2)	Mean Diff (3)	Discretionary (4)	Open bidding (5)	Mean Diff (6)
Panel A: Procurement Order Characteristics						
Standardized procurement	0.2079	0.2427	-0.0348^{***}	0.2273	0.2500	-0.0226^{***}
Service contract	0.8123	0.7708	0.0415^{***}	0.8001	0.7722	0.0279^{***}
Duration	19.8507	27.8306	-7.9800^{***}	20.4454	27.5906	-7.1452^{***}
Days to year-end	155.8922	162.6184	-6.7262^{***}	152.1530	159.7905	-7.6375^{***}
Panel B: Supplier Enterprise Characteristics						
State-owned supplier	0.1007	0.0929	0.0078^{***}	0.0910	0.0717	0.0193^{***}
Firm age	9.6931	9.4222	0.2709^{***}	9.2084	8.9735	0.2349^{***}
Employment	533.4080	395.6806	137.7274^{***}	372.1876	302.2728	69.9148
Value added (log)	2.8891	2.6006	0.2885^{***}	2.3725	1.9130	0.4595^{***}
TFP (OP)	-1.1466	-1.5473	0.4008^{***}	-1.3968	-2.0433	0.6466^{***}
TFP (LP)	-0.8672	-1.2501	0.3829^{***}	-1.1384	-1.7628	0.6243^{***}
TFP (ACF)	-2.8442	-3.0545	0.2103^{**}	-2.9911	-3.4434	0.4523^{***}

Notes: This table compares procurement orders awarded through discretionary versus open-bidding methods, before any selection correction. Mean differences are calculated as Discretionary minus Open bidding. Specifications 1 and 2 use different matched samples linking ex ante and ex post procurement records, with Specification 2 imposing tighter matching. Statistical significance is indicated by *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

5 Empirical Strategy and Results

5.1 Bunching at the open-bidding threshold

The open-bidding threshold creates a sharp incentive for buyers who seek discretion. Open bidding is slower, more procedurally rigid, and subject to greater public scrutiny than discretionary procurement methods. A buyer with a project slightly above the threshold can obtain discretion only by compressing the reported procurement amount below the cutoff. The bunching analysis quantifies this revealed demand for discretion.

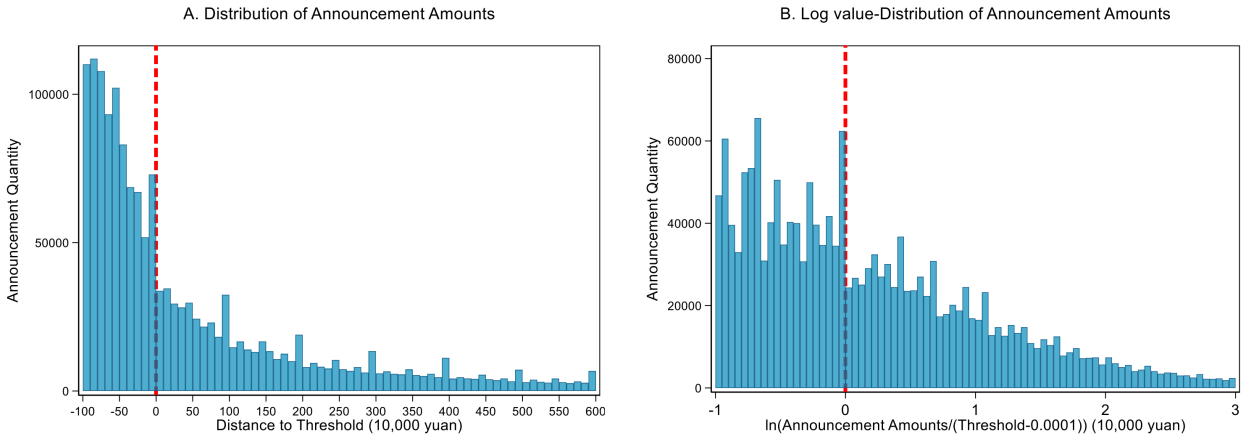


Figure 2: Distribution of procurement amounts around the open-bidding threshold

Notes: The figure displays the distribution of goods and services procurement amounts over 2013–2023. The horizontal axis measures the distance between the procurement amount and the applicable threshold. Panel B uses the logarithm of the distance after shifting the threshold leftward by one yuan to separate threshold bunching from round-number heaping.

Figure 2 shows visible excess mass just below the threshold and a corresponding missing region just above it. The raw distribution is also affected by round-number heaping because the thresholds themselves are typically round numbers. We therefore estimate both a level specification with round-number controls and a log-value specification that shifts the threshold leftward by one yuan before taking logs.

Following the bunching literature, we estimate the counterfactual distribution of procurement amounts using observations outside an excluded bunching interval. Let c_j be the number of procurement records in bin j, and let g_j denote the distance between the bin amount and the applicable threshold, normalized by bin width. The baseline specification is

$$c_j = \sum_{l=0}^{q} \beta_l g_j^l + \theta R_j + \sum_{r=y_L}^{y_R} \gamma_r \mathbf{1}\{j = r\} + \varepsilon_j, \tag{1}$$

where $q = 5$, R_j controls for round-number bins, and the fixed effects for bins in $[y_L, y_R]$ absorb the local distortion around the threshold. Comparing the fitted counterfactual distribution with the observed distribution yields the excess mass below the threshold, the missing mass above the threshold, and the implied average compression of reported values. Detailed empirical specifications are presented in Appendix B.3.

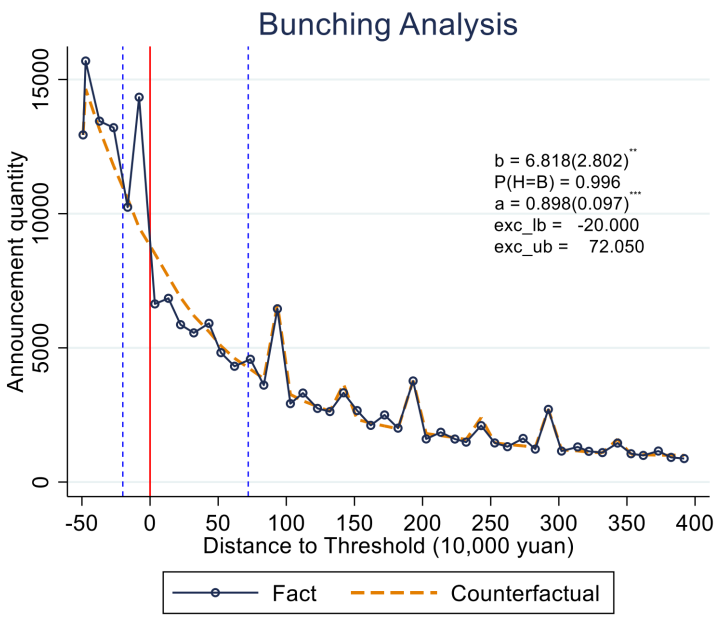


Figure 3: Bunching of procurement amounts at the open-bidding threshold

Notes: The figure plots the observed and counterfactual distributions around the open-bidding threshold. The counterfactual is estimated from observations outside the excluded bunching interval.

Table 3 reports the main bunching estimates. The baseline level specification implies 22,701 excess orders at the cutoff and an average reported-value compression equal to 3.18 percent of the average threshold. Dropping exact multiples of RMB 500,000 produces a similar estimate of 2.87 percent. The log-value specifications imply reductions of about 2.3 to 3.8 percent. Across specifications, the ratio of missing mass to excess mass is close to one, indicating that the excess mass below the threshold is matched by missing mass above it.

Beyond excluding round-number observations and adopting logarithmic distribution estimation, we conduct an array of robustness checks to rule out the impact of idiosyncratic specification choices in the bunching estimation on our baseline findings. Detailed results are presented in Appendix B. The evidence confirms that the baseline bunching estimates are robust.

Table 3: Bunching estimates around the open-bidding threshold

	(1) Level Round-number control	(2) Level Drop 500k multiples	(3) Log value Round-number control	(4) Log value Drop 500k multiples
Bunching mass B	22,701	20,304	11,602	18,340
Missing/excess ratio $\lvert M\rvert/B$	1.005	0.923	0.983	0.919
Excess mass b	6.818	6.155	0.0227	0.0375
	(2.802)	(2.347)	(0.0125)	(0.0082)
Average reduction / cutoff	3.18%	2.87%	2.27%	3.75%
Observations	900,342	806,054	1,689,122	1,493,187

Notes: Columns (1)–(2) estimate the bunching response in levels; columns (3)–(4) estimate it in log values. Column (2) and column (4) drop procurement amounts that are exact multiples of RMB 500,000. Standard errors for b are in parentheses. The level estimates report the average reduction as b divided by the average cutoff; the log-value estimates interpret b directly as the approximate proportional reduction.

5.2 Who seeks discretion most?

Table 4 summarizes the heterogeneity patterns. Central-budget procurement shows the strongest revealed demand for discretion: the implied reduction is 6.93 percent of the average threshold, compared with 4.23 percent for local procurement. The result is economically meaningful because central buyers are usually viewed as more rule-bound and better equipped to conduct open bidding. The same table also shows that buyers seek discretion more in settings where open bidding is likely to be more costly: service contracts, non-standardized purchases, and fourth-quarter procurement.

Table 4: Heterogeneity in the Revealed Demand for Discretion

	Buyer		Object		Standardization		Timing	
	Central	Local	Goods	Services	Standard	Non-standard	Oct.–Dec.	Jan.–Sep.
Average reduction / cutoff	6.93%	4.23%	3.45%	4.59%	2.34%	3.18%	3.02%	2.97%
Bunching mass / counterfactual	24.67%	18.98%	17.55%	23.94%	16.08%	17.39%	23.10%	16.18%
Excess mass b	14.95	7.99	6.96	10.71	4.80	6.90	6.33	6.42
Observations	66,128	825,819	568,009	323,938	208,911	683,036	278,779	613,168

Notes: The table reports selected bunching statistics by subsample. The average reduction is the implied reported-value compression divided by the average threshold in each subsample. Q4 denotes procurement announced in the fourth quarter.

These patterns discipline the interpretation of the model. If bunching were driven only by non-compliance or corruption, central procurement should not necessarily display the strongest response. The evidence instead points to a broader revealed demand for discretion. Buyers appear to value discretion both when it saves time or accommodates hard-to-specify projects and when it allows them to preserve relationships with suppliers that return surplus to the relevant government unit.

5.3 Effects of threshold-induced discretion on procurement outcomes

The bunching estimates show that some contracts are compressed from above the threshold to below it. We next ask how this threshold-induced discretion affects supplier outcomes near the cutoff. Following Diamond and Persson (2016) and Y. Li, Lu, and Wang (2025), we compare the observed outcomes of bunching compliers below the threshold with the counterfactual outcomes of the missing mass above the threshold. Detailed empirical specifications are presented in the Appendix B.4. Table 5 reports the complier-specific ITT estimates separately for the full sample, central-government orders, and local-government orders. The full set of outcomes is reported in Appendix Table 11.

Procurement duration. Discretion substantially shortens procurement timelines. Among central-government compliers, discretion reduces duration by 9.70 days; among local-government compliers, the reduction is 12.87 days. The pattern is robust across buyer types and points to a clear administrative benefit of the discretionary channel.

Supplier identity. The effect of discretion on supplier identity differs markedly between central and local buyers. Central discretion shifts contracts toward older firms and away from same-city suppliers. For state ownership, central compliers show a slight decline. Local procurement exhibits a distinct profile: compliers under discretion are associated with younger firms, lower same-city matching, and a marginal decline in state ownership. The reallocation away from geographically proximate suppliers under discretion is notable for both buyer types, and aligns with the view that the discretionary procedure relaxes administrative constraints that might otherwise favor local incumbents.

Productivity and scale. Discretion selects winners with higher total factor productivity. Among local-government compliers, the TFP of winning firms is 5.23 log points higher under the OP measure. Central-procurement estimates are imprecise, likely reflecting the smaller sample. Registered capital shows a sharp central-local divergence: discretion reduces registered capital by 5.52 log points among central compliers but increases it by 0.57 log points among local compliers. Net profit declines under discretion for both central and local compliers.

Policy outcomes. Discretion does not advance industrial-policy objectives. The effect on high-tech or technology-SME certification is close to zero and statistically insignificant across all samples. R&D expenditure declines sharply under discretion among local compliers. The consistent null on innovation-linked certification and the negative R&D result suggest that discretion routes contracts toward established operational suppliers rather than innovation-

oriented firms.

Interpretation. These reduced-form estimates recover the local average treatment effect for compliers—contracts that cross the threshold in response to the regulatory incentive. However, as the procedure is chosen by the buyer and the reported contract value is itself a chosen object, these ITT estimates confound the causal effect of the discretionary procedure with selection on observed and unobserved contract characteristics (Szűcs, 2024). The substantive central-local differences documented here—particularly the divergence in firm age, geographic matching, and registered capital—highlight the selection margins at work and motivate the parametric selection model developed in Section 6, which separately identifies the motives for seeking discretion from the supplier-side consequences of using it.

Table 5: Local Effects of Threshold-Induced Discretion on Procurement Outcomes

	Central	Local
Panel A: Procurement Process		
Duration (days)	-9.703^{***}	-12.867^{***}
	(1.126)	(0.868)
Panel B: Supplier Identity		
State-owned supplier	-0.061^{***}	-0.039^{***}
	(0.022)	(0.011)
Firm age (years)	0.586^{***}	-1.416^{***}
	(0.047)	(0.025)
Same-city matching	-0.206^{***}	-0.326^{***}
	(0.030)	(0.015)
Panel C: Performance		
TFP (OP)	-0.469	5.229^{***}
	(1.908)	(1.426)
Registered capital (log)	-5.524^{***}	0.565^{***}
	(0.112)	(0.043)
Net profit (log)	-2.100^{***}	-3.299^{***}
	(0.662)	(0.502)
Panel D: Policy Outcomes		
High-tech / Tech-SME	0.046	0.001
	(0.054)	(0.024)
R&D expenditure (IHS)	-1.775	-9.366^{***}
	(—)	(1.050)
Observations	28,347	228,153

Notes: ITT estimates from the complier decomposition framework of Diamond and Persson (2016) and Y. Li et al. (2025). Bootstrap standard errors in parentheses (200 iterations). *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$. Central R&D standard error suppressed due to insufficient effective sample in the merged tax-survey data. The full set of outcomes is reported in Appendix Table 11.

5.4 The Deterrent Role of Inspection Tours

The inspection system (*xunshi*) is the CPC's core intra-Party oversight institution, using dedicated bodies to monitor lower-level Party leadership teams and members. Unlike prior work relying on central inspection data, we construct novel county-level data on provincial disciplinary inspection team deployments, comprising 5,318 deployment records spanning 2016 to 2024. This enables precise micro-level analysis of inspection effects at the procurement-order level.

A growing literature documents the system's strong deterrent effects: a widely cited estimate links 60% of 2013–2017 corruption leads to inspections (Liu, 2023); Chen and Kung (2019) find inspections curbed corrupt land transactions by politically connected firms; Wang (2022) shows stricter inspections led local bureaucrats to cut discretionary spending; and Xi, Yao, and Zhang (2025) confirm inspections shifted local governance from personal discretion to rule-based procedures.

We provide direct evidence that inspections constrain the manipulation of procurement thresholds. Table 6 reports bunching estimates during and outside inspection deployment periods, separately for three time windows: the strict deployment period, the 90 days following inspection withdrawal, and the 365 days following withdrawal. Panel A covers the full sample; Panels B and C split by central and local procurement. The full set of outcomes is reported in Appendix Table 12.

Two patterns stand out. First, inspection deployment sharply reduces the revealed demand for discretion. During strict inspection periods, the normalized bunching response $b/\text{Threshold}$ falls from 5.64% to 1.44% for central procurement—a 74% reduction—and from 3.13% to 1.32% for local procurement—a 58% reduction. For local buyers, the 365-day post-withdrawal window yields the most precisely estimated effect: the excess mass b declines from 5.37 to 1.17, corresponding to a drop in the normalized bunching rate from 2.37% to 0.63%. The full-sample bunching share among counterfactual orders falls from 23.5% to 19.3% under strict inspection. While the central-procurement standard errors are larger—reflecting fewer central orders in the narrow exclusion window—the point estimates are economically large and consistent in direction across all specifications.

Second, the deterrent effect exhibits persistence. Across all three buyer categories, the bunching response during the 365-day post-withdrawal window remains below the corresponding non-inspection baseline. The pattern suggests that inspections do not produce a temporary compliance spike that reverses upon withdrawal, but instead generate a sustained shift in procurement behavior. This aligns with evidence that disciplinary oversight induces

durable changes in bureaucratic routines rather than transient avoidance (Wang, 2022; Xi et al., 2025).

These findings carry direct implications for the incentive channels in our model. The private-rent channel (Section 6) predicts that stronger anti-corruption oversight raises the expected cost of rent extraction, thereby reducing buyers' willingness to absorb the discretionary loss required to compress contract value below the threshold. The near-elimination of bunching under inspection—and the persistence of this decline after inspection teams withdraw—provides reduced-form evidence consistent with this mechanism. Buyers respond to elevated monitoring intensity by curtailing threshold manipulation, exactly as the private-channel prediction would imply. The fact that manipulation is not inherent to the procurement system but highly responsive to non-compliance costs underscores oversight's critical role in regulating procurement conduct. We incorporate this channel directly into the structural selection model, where inspection intensity moderates the sensitivity to the discretionary loss.

Table 6: Bunching Response by Inspection Status

	No Inspection		Inspection		
	b	b/Threshold (%)	b	b/Threshold (%)	N
Panel A: Full Sample					
Strict inspection	7.63	3.54	4.79	2.47	773,564 / 77,863
	(2.84)		(1.44)		
90-day post-conclusion	3.30	1.52	7.17	3.69	718,447 / 155,371
	(2.22)		(2.52)		
365-day post-conclusion	5.30	2.38	5.26	2.68	547,027 / 281,432
	(2.41)		(2.37)		
Panel B: Central Procurement					
Strict inspection	10.63	5.64	2.86	1.44	58,167 / 61,093
	(4.71)		(1.45)		
90-day post-conclusion	10.62	5.64	4.47	2.26	57,010 / 121,871
	(4.72)		(1.57)		
365-day post-conclusion	49.05	26.08	1.17	0.59	81,287 / 331,662
	(277.70)		(0.73)		
Panel C: Local Procurement					
Strict inspection	6.77	3.13	2.86	1.32	545,577 / 61,093
	(2.99)		(1.45)		
90-day post-conclusion	6.63	3.06	4.47	2.46	511,647 / 121,871
	(2.91)		(1.57)		
365-day post-conclusion	5.37	2.37	1.17	0.63	669,289 / 331,662
	(1.88)		(0.73)		

Notes: b is the estimated excess bunching mass at the open-bidding threshold. Standard errors in parentheses. The two N values report sample sizes for the No Inspection and Inspection periods. The central-procurement 365-day No Inspection estimate carries a large standard error due to limited observations in the narrow exclusion region for this subsample.

5.5 Why do central buyers seek discretion more?

The stronger revealed demand for discretion among central buyers is the central empirical puzzle. A natural prior is that central buyers should be more compliant with rules, better able to bear the administrative costs of open bidding, and less willing to circumvent procedural requirements. The data reveal the opposite pattern. Three candidate mechanisms can in principle generate it. First, discretion may be used for rent extraction; under this view, stronger anti-corruption inspection should reduce the willingness to compress contract value. Second, discretion may serve administrative efficiency, shortening timelines and matching buyers to suppliers when projects are hard to specify. Third, discretion may reflect local surplus internalization: local buyers resist compressing reported value when the supplier is politically or geographically close, because part of the supplier-side surplus recirculates within the local economy, while central buyers internalize these local fiscal returns less directly.

A direct comparison of outcomes by procedure cannot tell these stories apart, because procedure choice is endogenous and the running variable can be manipulated. We turn to a parametric selection model that uses both the procedure choice and the latent contract value to separate the demand for discretion from the supplier outcomes that follow from it.

6 Model

The bunching evidence in Section 5 establishes a revealed demand for discretion but cannot, on its own, identify either the motives behind that demand or the supplier-side consequences of using discretion. Szűcs (2024) emphasizes the source of the difficulty. When procurement procedures are chosen by the buyer rather than randomly assigned, observed differences in outcomes across procedures combine the causal effect of the procedure with the composition of contracts and buyers that select into it. The problem is sharpest near a value threshold because the running variable itself can be manipulated, so even a regression-discontinuity comparison around the cutoff confounds the procedural treatment with the kind of contract that is willing to bear the value compression. A reduced-form discontinuity in supplier outcomes at the threshold therefore cannot, by itself, be read as the causal effect of discretion. The signs of the selection correlations we estimate below confirm that this concern is more than theoretical: the selection bias that would arise without a correction goes in different directions across outcomes, so naive comparisons would understate some effects of discretion and overstate others.

We follow the parametric branch of Szűcs (2024) and treat the procedure decision and

the reported contract value as jointly informative about the buyer's demand for discretion. The parametric structure delivers two things at once. It estimates how buyer and market characteristics shift the buyer's willingness to absorb the value loss needed to obtain discretion, and it provides a selection correction for the structural effect of discretion on supplier outcomes. The model deviates from Szűcs (2024) in two ways.

The first deviation concerns the latent contract value. Szűcs (2024) treats the contract budget as an exogenous primitive whose distribution is observed. In our setting, the announced budget is precisely the object that may have been compressed to fit below the threshold, so taking it as the true project value would build the manipulation into the state variable and bias every coefficient that depends on contract size. We instead approximate the latent value by a discrete nonparametric distribution whose support is anchored in the empirical quantiles of the reported value among open-bidding observations, and whose masses $\{q_k\}$ are estimated jointly with the rest of the model by maximum likelihood. For below-threshold discretionary observations that fall in a narrow suspicious band, the reported value is treated as censored, and the likelihood integrates the latent value over support points above the cutoff.

The second deviation concerns the threshold-loss interactions that govern the buyer's incentive to use discretion. We organize them around two channels: a public fiscal channel and a private rent channel. We estimate three specifications that turn each channel on separately and then together. Table 7 summarizes the two channels; the technical derivation of the likelihood and the sandwich variance estimator is collected in Appendix A, and the full structural tables are in Appendix B.

Table 7: Incentive channels in the selection model

	Public channel	**Private channel**
Underlying motive	Local fiscal return	Rent extraction
Relevant surplus	Supplier-side local surplus	Privately extractable surplus
Moderating variable	Industry-average political distance	Inspection intensity
High loss sensitivity when	Suppliers are close to buyer	Inspection intensity is low
Low loss sensitivity when	Suppliers are far from buyer	Inspection intensity is high
Central procurement	Muted local fiscal stake	Muted private-rent channel

Notes: The public channel captures the idea that local buyers may internalize supplier-side surplus when spending returns to the local economy. The private channel captures the idea that contract surplus can create rents that are disciplined by anti-corruption inspection.

6.1 Procurement environment

Consider a cross section of procurement records indexed by $i = 1, \ldots, n$. Each record involves a government buyer and an industry-defined pool of potential suppliers. The buyer holds an internal assessment of the anticipated contract value V_i, the value the project would carry absent any procedural distortion. We do not observe V_i directly. We observe the reported transaction value, which can be smaller than V_i if the buyer compresses the contract scope to fit it under a regulatory threshold T_i.

The threshold rule is administrative. Contracts reported at or below T_i may be awarded through the discretionary channel; contracts above T_i must go through the open channel. A buyer who prefers discretion on a project with $V_i > T_i$ therefore faces a tradeoff between using the preferred procedure and reporting the full value. Let $D_i \in \{0, 1\}$ denote the discretionary-procedure indicator, with $D_i = 1$ if the contract is awarded through the discretionary channel.

6.2 The discretionary loss

Define the discretionary loss as

$$\ell_i(V_i) \;=\; \Big(\ln V_i - \ln T_i\Big)^+ \;\equiv\; \max\Big\{0,\; \ln V_i - \ln T_i\Big\}. \tag{2}$$

This is the gap that the buyer must absorb to make a discretionary procedure feasible. The loss is zero whenever $V_i \leq T_i$ and grows with V_i once the threshold binds.

The loss matters because it changes the surplus created by the procurement relationship. A contract creates surplus equal to transaction value net of the supplier's cost. When the buyer pushes the reported value below the threshold, the transaction value falls, while the supplier's cost need not fall proportionally. The surplus available to the buyer and the supplier therefore shrinks. The model allows the buyer to internalize this surplus through two channels. In the public channel, the buyer places weight on supplier revenue and residual surplus because local firm activity supports output, employment, and the fiscal base, especially in a system where local officials are evaluated partly on economic performance (Jin et al., 2005; H. Li & Zhou, 2005; Xu, 2011). In the private channel, the buyer values its own share of the surplus, for example through kickbacks, reciprocal favors, or other informal transfers associated with discretionary procurement (Acemoglu & Verdier, 2000; Shleifer & Vishny, 1993). The threshold loss is therefore informative not only about whether buyers avoid open bidding, but also about which incentive makes them willing or unwilling to compress contract value.

6.3 Two motives for protecting contract value

We organize heterogeneity in loss sensitivity around the public and private channels. Both channels start from the same idea: reducing reported value reduces surplus. They differ in which part of that surplus the buyer cares about.

Public channel: local fiscal return. In the public channel, the buyer internalizes part of the supplier-side surplus because procurement spending supports local firm activity, employment, output, and the future fiscal base. This motive is most relevant for non-central buyers, whose fiscal and political incentives are tied closely to local economic performance. When the supplier market is politically or geographically close to the buyer, a larger share of procurement spending remains within the local economy. When the relevant suppliers are farther away, more of the spending leaves the local fiscal base. A unit of contract value compressed below the threshold is therefore more costly when the industry is locally supplied.

We capture this motive using the industry-average political distance $\bar{d}_i$, computed from historical buyer-supplier links. The variable is smaller when an industry is supplied by firms closer to the buyer and larger when it is supplied by firms farther away. The public-channel prediction is that, among non-central buyers, loss sensitivity is higher when $\bar{d}_i$ is low and lower when $\bar{d}_i$ is high.

Private channel: rents tied to transaction surplus. In the private channel, the buyer values the share of transaction surplus that can be privately extracted through discretionary procurement. Larger contracts create a larger base for kickbacks, reciprocal favors, or other informal transfers. When the buyer compresses the reported value below the threshold, the supplier's revenue falls while costs need not fall proportionally, so the surplus available for private rent sharing also shrinks. The discretionary loss is therefore more costly when rent extraction is easier.

We capture this motive using the standardized inspection intensity z_i. Stronger anti-corruption inspection raises the expected cost of rent extraction and weakens the buyer's ability to appropriate contract-value-linked rents. The private-channel prediction is that, among non-central buyers, loss sensitivity is higher when z_i is low and lower when z_i is high.

Central procurement. Central buyers face a different incentive structure. The public channel is muted because central buyers do not internalize local economic spillovers in the same way as local governments. Firms in all regions contribute to the national tax base, so

the central buyer has less reason to protect the contract value of suppliers located in any particular jurisdiction. The private channel is also muted because central buyers operate under tighter formal oversight and have less scope to appropriate contract-value-linked rents through discretionary procurement. Political distance $\bar{d}_i$ and inspection intensity z_i are therefore not expected to shape central buyers' sensitivity to the discretionary loss in the same way. Table 7 summarizes the two channels.

6.4 Selection equation

The buyer's net utility from the discretionary procedure is governed by a latent index S_i, with $D_i = \mathbf{1}\{S_i > 0\}$. The general form is

$$S_i \;=\; \mu + (X_i^S)^\top \eta + \eta_V \,\ln V_i \;-\; \Psi_i(V_i;\theta) \;+\; d_i, \tag{3}$$

where X_i^S collects buyer and industry covariates, d_i is an unobserved buyer-level preference shock, and $\Psi_i(V_i;\theta) \geq 0$ is the effective deterrence from the discretionary loss. The covariate vector X_i^S includes $\bar{d}_i$ and z_i as level controls. The channel-specific content comes from how $\bar{d}_i$ and z_i interact with the loss.

Let $c_i \in \{0,1\}$ indicate a central buyer. The interactions for the public and private channels are turned on only for non-central buyers, through $1 - c_i$. Central buyers receive a separate loss differential through c_i. The effective deterrence under each specification is

$$\Psi_i^{\text{Pub}} = \Big[\, \eta_{\text{loss}} + \eta_{\text{loss,cen}}\, c_i + \eta_{\text{loss,dist}}\,(1-c_i)\,\bar{d}_i \,\Big]\, \ell_i(V_i), \tag{4}$$

$$\Psi_i^{\text{Priv}} = \Big[\, \eta_{\text{loss}} + \eta_{\text{loss,cen}}\, c_i + \eta_{\text{loss,insp}}\,(1-c_i)\,z_i \,\Big]\, \ell_i(V_i), \tag{5}$$

$$\Psi_i^{\text{Both}} = \Big[\, \eta_{\text{loss}} + \eta_{\text{loss,cen}}\, c_i + \eta_{\text{loss,dist}}\,(1-c_i)\,\bar{d}_i + \eta_{\text{loss,insp}}\,(1-c_i)\,z_i \,\Big]\, \ell_i(V_i). \tag{6}$$

The combined specification (6) lets the data assign weight to each channel after partialing out the other. Under the convention that deterrence enters the index with a negative sign in (3), the predicted signs are

$$\eta_{\text{loss}} > 0, \qquad \eta_{\text{loss,cen}} < 0, \qquad \eta_{\text{loss,dist}} < 0, \qquad \eta_{\text{loss,insp}} < 0. \tag{7}$$

These signs say that non-central buyers in locally supplied industries are most deterred by the discretionary loss, and that central procurement, remote suppliers, and stronger inspection each reduce that deterrence.

6.5 Outcome equation

Conditional on (D_i, V_i, X_i^Y), the supplier outcome is

$$y_i \;=\; \delta\, D_i + f(V_i;\gamma) + (X_i^Y)^\top \Gamma + u_i, \tag{8}$$

where $f(V_i;\gamma) = \gamma_0 + \gamma_1 \ln V_i + \gamma_2 (\ln V_i)^2 + \gamma_3 (\ln V_i)^3$ is a flexible cubic in log anticipated value. The coefficient δ is the structural effect of the discretionary procedure on the supplier-side outcome, net of the natural tendency for larger contracts to attract different kinds of firms. The cubic in $\ln V_i$ absorbs scale effects so that δ does not mechanically reflect contract size.

6.6 Latent value, bunching, and joint normality

The anticipated value V_i has a discrete nonparametric distribution $V_i \in \{v_1, \ldots, v_K\}$ with masses $\{q_k\}_{k=1}^K$ estimated jointly with the rest of the model. Support points are pinned at empirical quantiles of report value among open-bidding observations, so the distribution is anchored in the part of the data that the buyer has not had an incentive to compress. We construct a manipulation indicator M_i that flags reported values in a narrow band just below T_i. For $M_i = 0$ observations, the reported value pins V_i to its bin. For $M_i = 1$ observations with $D_i = 1$, the reported value is censored: the likelihood integrates over support points above $\ln T_i$ with the masses q_k. This step is the model-based analogue of the bunching exercise. The excess mass below the threshold and the missing mass above it identify how much latent probability sits above the cutoff for compressed contracts, and the likelihood uses that information to back out the distribution of true values for the manipulated observations.

The unobservables (u_i, d_i) are jointly normal with σ_d fixed at one for scale normalization,

$$\begin{pmatrix} u_i \\ d_i \end{pmatrix} \sim \mathcal{N}\left(\mathbf{0}, \begin{pmatrix} \sigma_u^2 & \rho\,\sigma_u \\ \rho\,\sigma_u & 1 \end{pmatrix} \right), \qquad |\rho| < 1, \tag{9}$$

and ρ is the central endogeneity parameter.

Interpretation of ρ. ρ measures the correlation between the unobserved component of the buyer's propensity to use discretion (d_i) and the unobserved component of the outcome equation (u_i). Because δ multiplies D_i in the outcome equation, ρ has a direct selection-bias interpretation. If $\rho > 0$, contracts that select into discretion on unobservables also have higher unobserved outcome components, so a comparison that ignores selection would

overstate δ. If $\rho < 0$, contracts that select into discretion have lower unobserved outcome components, so the same comparison would understate δ. The sign of ρ therefore acts as an outcome-specific diagnostic for the direction of the bias that remains after controlling for observed project, buyer, and market characteristics, and it tells us whether a naive comparison would make discretion look better or worse than it really is on each margin. Section 7 reads the ρ estimates one outcome at a time and shows that the bias points in different directions across outcomes, which is precisely why the parametric correction matters.

6.7 Estimation

We estimate the parameters $\theta = (\delta, \rho, \sigma_u, \gamma, \Gamma, \mu, \eta, \eta_V, \eta_{\text{loss}}, \eta_{\text{loss,cen}}, \eta_{\text{loss,dist}}, \eta_{\text{loss,insp}}, \{q_k\}_{k=1}^{K})$ jointly by maximum likelihood, separately for each outcome and separately under the Public, Private, and Both specifications. The three specifications share the same likelihood and differ only in the definition of $\Psi_i(V_i; \theta)$. The likelihood combines a Gaussian density for the outcome residual u_i with a probit-form selection probability that conditions on the realized procedure, and integrates over the censored support points for manipulated observations. Standard errors are robust sandwich estimates. The full likelihood, the maximum-likelihood program, and the variance formula are collected in Appendix A.

7 Estimation Results

We estimate the model separately for each supplier-side outcome under the three specifications introduced in (4) through (6). The main text reports coefficient plots for the key parameters. Appendix B reports the full tables, including all controls and standard errors.

All outcome equations include the cubic in $\ln V_i$ and controls for service contracts, service share, central-buyer status, industry SOE share, inspection intensity, industry firm count, industry-average political distance, local share, and suspicious value compression. The selection equation includes the same buyer and industry controls, together with days to year-end. The full tables report the complete set of coefficients.

7.1 Which incentive channel drives discretion?

We focus on the selection equation from the procurement-duration specification. This specification is the cleanest single setting for showing the threshold-loss incentives because procurement duration is observed directly in the procurement record and does not require merging to firm-level outcomes. It also covers the largest sample in the paper, with 898,026 observations. Figures 4 and 5 plot the key selection-side coefficients from the Public, Private, and Both specifications. The corresponding selection-equation estimates are in Appendix Table 19; the associated outcome-equation estimates are in Appendix Table 18.

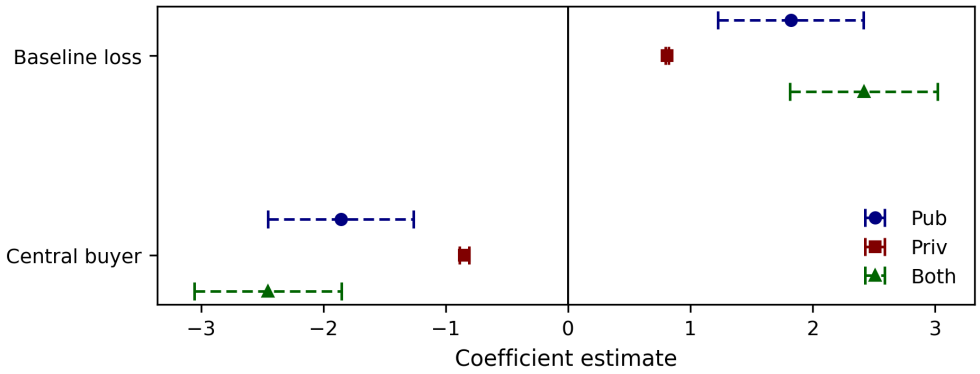


Figure 4: Selection-side baseline loss and central-buyer coefficients

Notes: Points are coefficient estimates and bars are 95 percent confidence intervals. Estimates come from the procurement-duration specification.

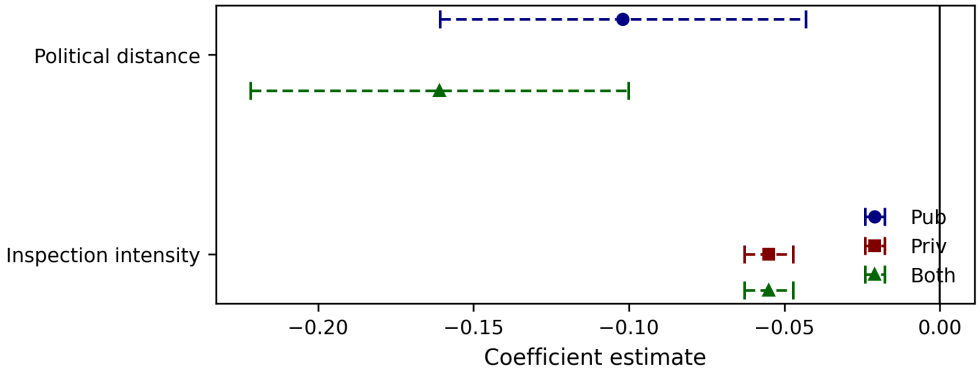


Figure 5: Selection-side public and private channel interactions

Notes: Points are coefficient estimates and bars are 95 percent confidence intervals. The political-distance interaction appears in the Public and Both specifications. The inspection interaction appears in the Private and Both specifications.

Three patterns are most relevant. First, the baseline loss coefficient is positive. In the Both specification for procurement duration, the estimate is $\eta_{\text{loss}} = 2.418$, implying that non-

central buyers are deterred by the need to compress contract value below the threshold. This is consistent with the model: when reported procurement value must be reduced to obtain discretion, buyers face a threshold loss, which lowers the incentive to avoid open bidding.

Second, the central-buyer interaction is negative and almost fully offsets this baseline deterrence. The estimate is $\eta_{\text{loss,cen}} = -2.453$, so the effective loss sensitivity for central buyers is $2.418 - 2.453 \approx -0.035$, which is essentially zero. This implies that central buyers face much weaker threshold-loss deterrence than non-central buyers. The pattern is consistent with the model's interpretation that central buyers have weaker local fiscal incentives and less scope for contract-value-linked private rents.

Third, the moderator coefficients point in the directions predicted by the two channels, but their economic magnitudes differ. In the Both specification, both the political-distance interaction and the inspection interaction are negative: $\eta_{\text{loss,dist}} = -0.161$ and $\eta_{\text{loss,insp}} = -0.055$. Since political distance and inspection intensity are measured on different scales, the raw coefficients should not be compared mechanically. We therefore interpret them using the distributions reported in Table 1. Moving from a fully local-supplier benchmark to the sample maximum offsets -1.61 points of loss sensitivity, lowering the effective coefficient from 2.418 to about 0.81. Thus, a non-central buyer in an industry whose suppliers are essentially all in another province looks much closer to a central buyer than a non-central buyer with locally supplied industries. This supports the public-channel prediction: when local fiscal spillovers are weaker, the cost of compressing contract value is lower.

The private-channel moderator is economically smaller. Even at the sample maximum of inspection intensity, 0.742, the inspection interaction offsets only $-0.055 \times 0.742 \approx -0.041$ points of loss sensitivity, lowering the effective coefficient for non-central buyers from 2.418 to about 2.38. Thus, inspection intensity provides evidence for the private-channel prediction, but its magnitude is not large enough on its own to explain why central buyers seek discretion most.

The full appendix tables show the same structure in the large-sample firm-outcome specifications, although smaller merged samples produce noisier selection-side estimates.

7.2 Effect of the discretionary procedure on supplier outcomes

We now turn to δ, the structural effect of the discretionary procedure on supplier outcomes. To keep the main text focused, Figures 6 through 11 report only the Both specification, which includes both the public and private channels. Appendix Tables 14, 16, 18, 20, 22, and 24

show that the estimates of δ are stable across the Public, Private, and Both specifications. Employment, social-security contributions, charitable donations, R&D expenditure, and energy use are measured using the inverse hyperbolic sine transformation in the estimation, although the figure labels omit that transformation for readability.[2]

Selection bias and the sign of ρ. The estimated ρ coefficients help interpret the direction of bias that would arise without the parametric selection correction. A positive ρ means that unobservables increasing the propensity to use discretion are positively correlated with the outcome; a direct comparison would therefore overstate the effect of discretion on that outcome. A negative ρ means adverse selection into discretion on that outcome; a direct comparison would bias the coefficient downward. The bias is outcome-specific. For productivity and firm-size outcomes, ρ is generally negative, so uncorrected comparisons would understate how strongly discretion shifts awards toward more productive or established firms. For high-tech status, tech-SME status, and R&D expenditure, ρ is positive, so uncorrected comparisons would make discretion look more favorable along these policy-oriented margins than it is after correction. For procurement duration, ρ is negative, meaning contracts selected into discretion already have lower unobserved duration; in that case, a direct comparison would tend to overstate the time-saving effect in absolute value. These patterns are precisely why the bunching evidence cannot be combined with simple outcome comparisons alone. The selection margin is not only present; it also points in different directions across outcomes.

Productivity. Discretionary procurement raises winner-firm TFP under the Olley–Pakes and Levinsohn–Petrin estimators, with effects of about five log points. The Ackerberg–Caves–Frazer estimate is positive but not statistically distinguishable from zero. Appendix Table 14 also shows a negative ρ for OP and LP, indicating downward selection on unobservables: without the parametric correction, the productivity gains from discretion would look smaller than they are after correction.

[2]For readability, the figure labels omit the inverse hyperbolic sine transformation. In the tables and the estimation, the variables transformed this way are employment, social-security contributions, charitable donations, R&D expenditure, and energy use.

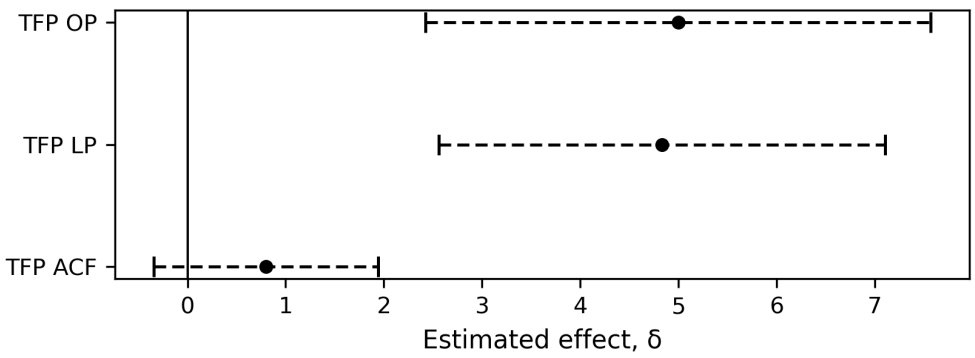


Figure 6: Effect of discretionary procurement on winner-firm productivity

Winner identity, age, and size. Discretion shifts winners toward firms that are state-owned, older, and larger. The SOE effect is about 5.2 percentage points, firm age rises by about 1.8 years, and the inverse hyperbolic sine of employment rises by about 1.05. The pattern is consistent with discretionary procurement favoring established suppliers with existing relationships rather than new entrants.

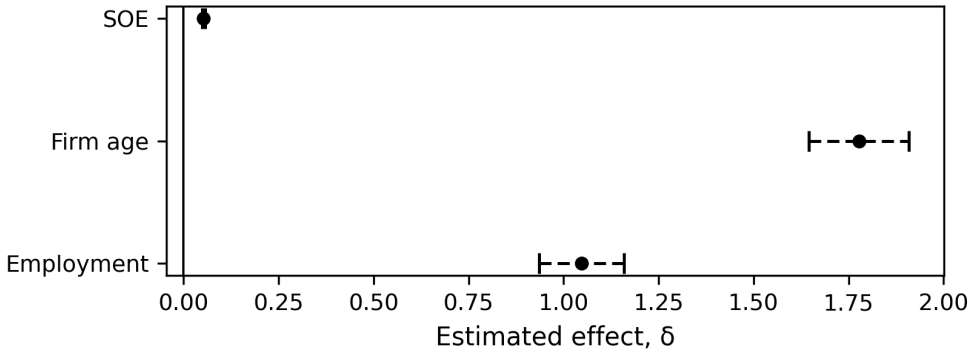


Figure 7: Effect of discretionary procurement on winner identity, age, and size

Procurement duration. The discretionary procedure shortens the procurement timeline by about 6.7 days. This is the clearest operational benefit of the discretionary channel and is likely an important part of its administrative appeal.

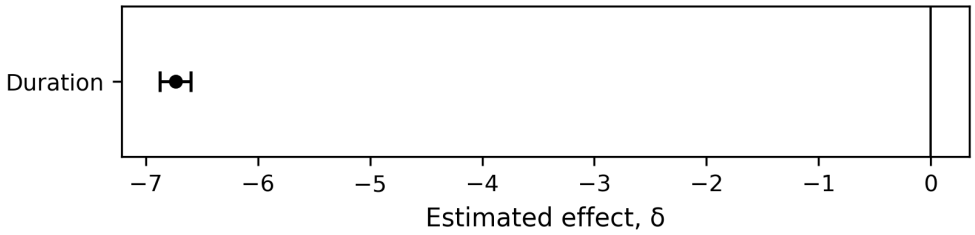


Figure 8: Effect of discretionary procurement on procurement duration

Special qualification status. Discretion does not route contracts toward firms with the qualification labels promoted by industrial policy. The small-and-low-profit coefficient is close to zero, while the high-tech and tech-SME coefficients are negative. Appendix Table 20 shows a positive ρ for high-tech and tech-SME status, so firms with these labels are positively selected into the discretionary channel on unobservables. This makes the selection correction especially important: direct comparisons would make discretion look more favorable for these policy labels than the structural estimates imply.

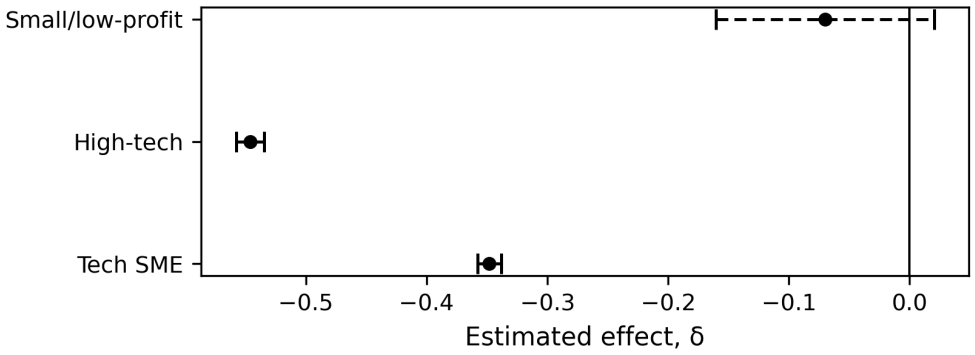


Figure 9: Effect of discretionary procurement on special-status winners

Social contributions. The social-contribution outcomes are mixed. Discretion raises charitable donations modestly, has a small negative effect on social-security contributions, and has a large negative effect on R&D expenditure. The R&D result should be read together with the positive selection parameter in Appendix Table 22: high-R&D firms are selected into the discretionary channel, but being assigned to that channel does not make winners more R&D-intensive.

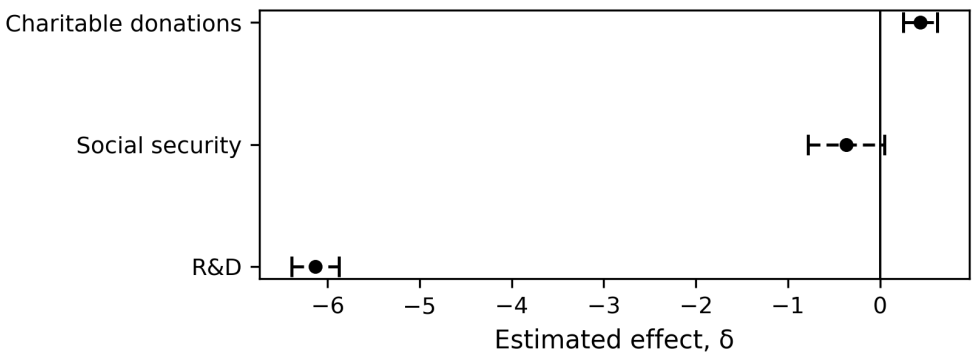


Figure 10: Effect of discretionary procurement on social contributions

Energy and water. The discretionary procedure has a small negative effect on energy use and an imprecise effect on water use. These outcomes complement the firm-performance results by describing the operational footprint of firms that win through the discretionary channel.

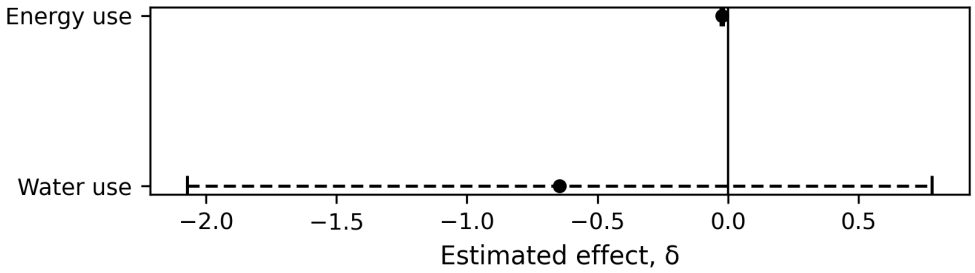


Figure 11: Effect of discretionary procurement on energy and water use

7.3 Summary of the structural estimates

The estimates deliver three main findings. First, the selection equation shows that the regulatory threshold constrains discretionary procurement through the value-compression margin. Non-central buyers are less likely to choose discretion when doing so requires pushing the reported value below the threshold. The deterrence is weaker for central buyers, and among non-central buyers it falls when suppliers are more distant and when inspection intensity is higher.

Second, the estimated effect of discretion on supplier outcomes is informative. The selection-side interactions identify the motives for using discretion, while δ captures the supplier-side consequences of the procedure after accounting for latent contract value and

selection on unobservables. The estimated signs of ρ show why this correction matters: selection is adverse for some outcomes, such as productivity and firm size, but favorable for others, such as high-tech status and R&D. After this correction, the outcome estimates suggest that discretionary procurement tends to favor more established firms: winners are more likely to be state-owned, older, and larger. Discretion also shortens procurement duration, pointing to a clear administrative benefit of the discretionary procedure.

Third, the outcome estimates do not support the view that discretion mainly reallocates contracts toward policy-favored or more innovative firms. The effects on high-tech and tech-SME status are negative, and the effect on R&D expenditure is also negative. The productivity results are more favorable: discretionary winners have higher TFP under the OP and LP measures, although the ACF estimate is smaller and imprecise. Taken together, the estimates suggest that discretion provides administrative speed and access to established suppliers, but it does not clearly advance the industrial-policy margins captured by technology status and R&D.

These findings clarify the policy tradeoff created by the threshold T_i. A low threshold limits discretion but also induces buyers who want to use the discretionary procedure to compress contract value. The compression is costly when buyers internalize local fiscal returns or private rents tied to contract surplus. A higher threshold may reduce value compression and speed up procurement, but it also expands the scope for discretionary allocation. The welfare question is therefore not whether discretion is uniformly good or bad, but how the threshold should balance administrative speed, supplier selection, and the surplus losses generated by value compression.

8 Conclusion

This paper studies how procurement thresholds shape the demand for discretion. In Chinese government procurement, contracts above a statutory cutoff must use open bidding, while contracts below the cutoff can use more flexible procedures. We show that buyers respond to this rule by compressing reported procurement amounts below the threshold. The average compression is roughly 2 to 3 percent of the cutoff, and the revealed demand for discretion is strongest among central-government buyers.

The central-buyer pattern is informative because it is not well explained by a simple non-compliance story. We develop a parametric selection model that treats the reported value and the procedure choice as jointly chosen. The model is needed as procedure choice

is endogenous and the running variable can be manipulated; a direct comparison of outcomes across procedures would mix the effect of discretion with selection into discretion. The estimated selection correlations confirm that the bias is not uniform across outcomes: direct comparisons would understate some effects of discretion while overstating others. Our specification separates two motives for seeking discretion: a public fiscal channel, in which buyers internalize supplier-side surplus that returns to the local economy, and a private rent channel, in which contract surplus can generate rents disciplined by inspection.

The estimates suggest that the public fiscal channel is quantitatively more important. Loss sensitivity falls sharply when potential suppliers are politically or geographically more distant from the buyer, while inspection intensity has a smaller but negative effect on the private channel. Central buyers are least deterred by the loss required to obtain discretion because they have weaker local fiscal incentives and less scope for private rent extraction. This explains why rule-bound central buyers can nevertheless seek discretion most strongly.

Discretion also has measurable consequences for supplier selection. It shortens procurement timelines and shifts contracts toward more established suppliers: older firms, larger firms, and state-owned firms. However, it does not appear to advance broader industrial-policy objectives. Discretion does not increase awards to high-tech firms or technology-based small and medium-sized enterprise, and it does not improve R&D or environmental outcomes. In this setting, discretion mainly buys administrative speed and access to established suppliers, rather than systematically improving innovation-oriented procurement.

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A Derivations of the Selection Model

This appendix collects the technical objects underlying the parametric selection model in Section 6. The notation follows Section 6 unless stated otherwise.

A.1 Likelihood objects

Let v_k denote a support point of the latent log-value distribution, with prior masses $\{q_k\}_{k=1}^{K}$. For each observation i and support point k, define the outcome residual and the deterministic part of the selection index by

$$u_{ik}(\theta) = y_i - \delta D_i - f(v_k;\gamma) - (X_i^Y)^\top \Gamma, \qquad m_{ik}(\theta) = \mu + (X_i^S)^\top \eta + \eta_V \ln v_k - \Psi_i(v_k;\theta), \tag{10}$$

where $\Psi_i(v_k;\theta)$ is the effective deterrence under the Public, Private, or Both specification defined in equations (4)–(6) of the main text. Conditional on u_i, the joint normality of (u_i, d_i) in equation (9) and the normalization $\sigma_d = 1$ imply

$$d_i \mid u_i \sim \mathcal{N}\Big(\rho\, u_i/\sigma_u,\ 1-\rho^2\Big),$$

so the conditional probability that the realized procedure D_i occurs at support point k is

$$p_{ik}(D_i;\theta) = \Phi\left[(2D_i - 1)\,\frac{m_{ik}(\theta) + \rho\, u_{ik}(\theta)/\sigma_u}{\sqrt{1-\rho^2}}\right]. \tag{11}$$

A.2 Latent value, censoring, and the individual likelihood

Let g_i denote the support-point index assigned to observation i when the reported value pins the latent value to its bin, and define the manipulation-and-discretion indicator

$$C_i = \mathbf{1}\{M_i = 1,\ D_i = 1\}.$$

For $C_i = 0$, the latent value enters the likelihood at its observed bin. For $C_i = 1$, the reported value is censored from above by the threshold, so the likelihood integrates over support points strictly above $\ln T_i$ using the prior masses q_k. The individual likelihood contribution is

$$L_i(\theta) = \left[q_{g_i}\,\sigma_u^{-1}\phi\left(\frac{u_{ig_i}(\theta)}{\sigma_u}\right) p_{ig_i}(D_i;\theta)\right]^{1-C_i} \times \left[\sum_{k:\, v_k > T_i} q_k\,\sigma_u^{-1}\phi\left(\frac{u_{ik}(\theta)}{\sigma_u}\right) p_{ik}(1;\theta)\right]^{C_i}. \tag{12}$$

The first bracket combines a Gaussian density for the outcome residual with the probit-form selection probability evaluated at the assigned support point. The second bracket integrates the same object over the censored support; the bunching mass below the threshold and the missing mass above it discipline the values of $\{q_k\}_{k=1}^{K}$ and therefore the latent value of each manipulated observation.

A.3 Maximum likelihood and standard errors

Stacking the individual contributions delivers the maximum-likelihood program

$$\widehat{\theta} = \arg\max_{\theta \in \Theta} \mathcal{L}_n(\theta), \qquad \mathcal{L}_n(\theta) = \sum_{i=1}^{n} \log L_i(\theta), \tag{13}$$

with the restrictions $q_k > 0$, $\sum_{k=1}^{K} q_k = 1$, $\sigma_u > 0$, and $|\rho| < 1$. We compute robust sandwich standard errors. Let $s_i(\widehat{\theta}) = \partial \log L_i(\widehat{\theta})/\partial\theta$, and let $\widehat{H}$ denote the Hessian of the negative average log-likelihood. With

$$\widehat{B} = \frac{1}{n} \sum_{i=1}^{n} s_i(\widehat{\theta})\, s_i(\widehat{\theta})^{\top},$$

the asymptotic variance estimator is

$$\widehat{\mathrm{Var}}(\widehat{\theta}) = \frac{1}{n}\, \widehat{H}^{-1} \widehat{B}\, \widehat{H}^{-1}. \tag{14}$$

B Appendix Tables for the Selection Model

This appendix collects the full structural estimates and the extended descriptive tables. The main text reports coefficient plots for the key parameters. The tables below keep all outcome-equation and selection-equation controls, robust sandwich standard errors, and effective sample sizes.

Additional descriptive tables

Appendix Table A1. This table reports the full variable summary statistics underlying the selected main-text summary table.

Table 8: Full summary statistics

Variable	*N*	Min.	Max.	Mean	Median	SD
Panel A: Procurement Order Characteristics						
Central-level project	1,197,115	0.000	1.000	0.071	0.000	0.257
Standardized procurement	1,197,115	0.000	1.000	0.211	0.000	0.408
Service contract	1,197,115	0.000	1.000	0.809	1.000	0.393
Duration (days)	1,197,115	0.000	180.00	20.56	21.00	14.14
Days to year-end	1,197,115	0.000	365.00	156.49	152.00	96.75
Central buyer	1,197,115	0.000	1.000	0.074	0.000	0.262
Inspection intensity	1,197,115	0.000	0.742	0.055	0.000	0.115
Panel B: Supplier Enterprise Characteristics						
State-owned supplier	1,197,115	0.000	1.000	0.100	0.000	0.300
Firm age	1,183,368	0.268	32.13	9.669	7.710	7.436
Registered capital (std.)	1,187,935	-0.234	8.662	0.000	-0.204	1.000
Registered capital	1,187,935	5.000	234,075	6,160.3	800.00	26,313.4
Operating revenue (std.)	59,775.0	-0.065	197.13	-0.000	-0.058	1.000
Operating revenue	59,775.0	0.000	1,240,000,000	407,305	40,477.0	6,291,180
Net profit (std.)	59,898.0	-36.19	122.58	0.000	-0.043	1.000
Net profit	59,898.0	-22,800,000	77,500,000	27,839.6	591.00	631,721
Value added (log)	34,996.0	-4.605	17.18	2.835	5.545	6.893
Value added	35,820.0	-2,664,560	28,900,000	43,016.5	140.00	424,460
TFP (OP)	34,558.0	-15.51	13.93	-1.222	1.887	6.494
TFP (LP)	34,558.0	-14.76	13.61	-0.939	2.238	6.507
TFP (ACF)	40,723.0	-20.97	13.45	-2.885	0.175	6.641
ROA	59,764.0	-16,342.0	216,220	16.91	0.024	1,294.4
ROE	59,541.0	-16,358.0	228,404	28.54	0.064	2,141.2
Total assets (std.)	59,898.0	-0.040	139.21	0.000	-0.022	1.000
Total assets	59,898.0	-1,113,930	9,150,000,000	1,494,929	37,210.5	65,700,000
High-tech firm	28,960.0	0.000	1.000	0.161	0.000	0.367
Technology SME	28,960.0	0.000	1.000	0.066	0.000	0.249
Social-security contributions (std.)	24,738.0	-0.097	141.59	0.000	-0.090	1.000
Social-security contributions	24,738.0	0.000	6,208,270	4,242.3	286.00	43,817.6
R&D expenditure (std.)	10,461.0	-0.174	29.74	-0.000	-0.174	1.000
R&D expenditure	10,461.0	0.000	763,572	4,451.9	0.000	25,525.1
Charitable donations	8,988.0	-15,735.0	26,059.0	24.03	0.000	631.27
Energy consumption	9,604.0	0.000	669,663	308.51	0.860	7,360.4
Water consumption (std.)	19,675.0	-0.087	70.27	0.000	-0.087	1.000
Water consumption	19,675.0	0.000	15,000,000	18,643.5	50.00	213,190

Variable	*N*	Min.	Max.	Mean	Median	SD
Panel C: Potential Market Characteristics						
Industry SOE share	1,197,115	0.000	0.938	0.060	0.035	0.058
Avg. political distance	1,197,115	8.234	10.00	9.994	10.00	0.038
Eligible suppliers (std.)	1,197,115	-1.376	2.190	0.000	-0.053	1.000
Eligible suppliers (std.), broad pool	1,197,115	-1.406	1.735	0.000	0.159	1.000
Industry SOE share, broad pool	1,197,115	0.000	0.882	0.058	0.033	0.057
Avg. political distance, broad pool	1,197,115	8.500	10.00	9.994	10.00	0.033
Eligible suppliers	1,197,115	1.000	78,588.0	35,176.5	39,152.0	25,014.9
Eligible suppliers, broad pool	1,197,115	1.000	78,588.0	30,321.1	29,153.0	22,039.9

Appendix Table A2. This table reports the full descriptive comparison by procurement procedure. The main text reports only the variables most directly used in the empirical strategy and parametric model.

Table 9: Full comparison of discretionary and open-bidding procurement

Variables	Full Sample			Around one million at the threshold		
	Discretionary (1)	Open bidding (2)	Mean Diff (3)	Discretionary (4)	Open bidding (5)	Mean Diff (6)
Panel A: Procurement Order Characteristics						
Central-level project	0.0745	0.0350	0.0394***	0.0981	0.0301	0.0680***
Standardized procurement	0.2079	0.2427	−0.0348***	0.2273	0.2500	−0.0226***
Service contract	0.8123	0.7708	0.0415***	0.8001	0.7722	0.0279***
Duration	19.8507	27.8306	−7.9800***	20.4454	27.5906	−7.1452***
Days to year-end	155.8922	162.6184	−6.7262***	152.1530	159.7905	−7.6375***
Central buyer	0.0664	0.1567	−0.0904***	0.1012	0.1666	−0.0654***
Inspection intensity	0.0517	0.0866	−0.0349***	0.0610	0.0860	−0.0250***
Panel B: Supplier Enterprise Characteristics						
State-owned supplier	0.1007	0.0929	0.0078***	0.0910	0.0717	0.0193***
Firm age	9.6931	9.4222	0.2709***	9.2084	8.9735	0.2349***
Registered capital (std.)	-0.0002	0.0018	−0.0020	-0.0132	-0.0501	0.0370***
Operating revenue (std.)	-0.0014	0.0061	−0.0075	-0.0160	0.0042	−0.0203**
Net profit (std.)	-0.0053	0.0232	−0.0285***	-0.0063	0.0406	−0.0469***
Employment	533.4080	395.6806	137.7274***	372.1876	302.2728	69.9148
Value added (log)	2.8891	2.6006	0.2885***	2.3725	1.9130	0.4595***
TFP (OP)	-1.1466	-1.5473	0.4008***	-1.3968	-2.0433	0.6466***
TFP (LP)	-0.8672	-1.2501	0.3829***	-1.1384	-1.7628	0.6243***
TFP (ACF)	-2.8442	-3.0545	0.2103**	-2.9911	-3.4434	0.4523***
ROA	15.5291	22.9794	−7.4503	6.3925	19.7601	−13.3676
ROE	19.9417	66.6646	−46.7228**	6.0741	39.1550	−33.0809
Total assets (std.)	-0.0060	0.0265	−0.0325***	-0.0048	0.0476	−0.0524***
High-tech firm	0.1640	0.1430	0.0210***	0.1572	0.1479	0.0094
Technology SME	0.0679	0.0581	0.0098**	0.0690	0.0629	0.0061
Social-security contributions (std.)	0.0006	-0.0032	0.0039	-0.0214	0.0129	−0.0343***
R&D expenditure (std.)	-0.0016	0.0086	-0.0102	-0.0197	0.0479	−0.0675*
Charitable donations	25.0462	18.6557	6.3905	23.6592	22.9028	0.7564
Energy consumption	315.8120	270.0033	45.8087	197.5553	331.1613	-130.0000
Water consumption (std.)	-0.0024	0.0128	-0.0152	-0.0053	0.0463	−0.0516*
Panel C: Potential Market Characteristics						
Eligible suppliers (std.)	0.0176	-0.1818	0.1994***	-0.0893	-0.2153	0.1260***
Industry SOE share	0.0597	0.0612	−0.0015***	0.0587	0.0596	−0.0009***
Avg. political distance	9.9934	9.9951	−0.0018***	9.9944	9.9953	−0.0009***
Number of orders	1,091,425	105,690		286,891	52,378	

Notes: This table compares procurement orders awarded through discretionary versus open-bidding methods, before any selection correction. Mean differences are calculated as Discretionary minus Open bidding. Specifications 1 and 2 use different matched samples linking ex ante and ex post procurement records, with Specification 2 imposing tighter matching. Standardized variables (suffix "std.") are normalized to mean zero and unit standard deviation. Statistical significance is indicated by *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Appendix Table A3. This table reports bunching estimates from our baseline specification, using two samples: the full sample of ex-ante procurement announcements with disclosed budget information, and the matched subsample that combines these ex-ante records with ex-post award and supplier-level data. The results are nearly identical across the full and subsample specifications, indicating no economically meaningful differences between the two sets of estimates.

Table 10: Bunching Analysis Results

	Full Ex-ante Sample	Subsample	
		Tender-Award	Tender-Award-Supplier
Bunching mass B	22700.6953	10204.8633	8156.83
Missing/excess ratio $\|M\|/B$	1.0049	0.9958	1.012
Excess mass b	6.8184	7.4216	7.57
	(2.8021)	(2.6212)	(2.568)
Average reduction at cutoff	3.18%	3.26%	3.29%
Observations	900342	352172	277626

Notes: Standard errors for b are in parentheses. The level estimates report the average reduction as b divided by the average cutoff; the log-value estimates interpret b directly as the approximate proportional reduction.

Appendix Table A4. This table reports the treated and counterfactual means used in the local treatment-effect exercise.

Table 11: Full ITT Estimates — All Outcomes

	Full Sample	Central	Local
Procurement process			
Duration (days)	5.638^{**}	-9.703^{***}	-12.867^{***}
	(2.387)	(1.126)	(0.868)
Supplier identity			
State-owned supplier	0.062^{***}	-0.061^{***}	-0.039^{***}
	(0.011)	(0.022)	(0.011)
Firm age	-0.072^{***}	0.586^{***}	-1.416^{***}
	(0.025)	(0.047)	(0.025)
Same-province matching	0.021	0.000	-0.579^{***}
	(0.020)	(—)	(0.010)
Same-city matching	0.008	-0.206^{***}	-0.326^{***}
	(0.052)	(0.030)	(0.015)
Repeat winner	0.014	-0.368^{***}	-0.130^{***}
	(0.032)	(0.037)	(0.012)
Performance and scale			
TFP (OP)	3.964^{***}	-0.469	5.229^{***}
	(0.754)	(1.908)	(1.426)
TFP (LP)	3.773^{***}	-0.837	5.082^{***}
	(0.754)	(1.865)	(1.438)
TFP (ACF)	1.563	-11.142^{***}	1.399
	(1.041)	(1.937)	(1.713)
Registered capital (log)	-0.407^{***}	-5.524^{***}	0.565^{***}
	(0.153)	(0.112)	(0.043)
Net profit (log)	2.320^{***}	-2.100^{***}	-3.299^{***}
	(0.483)	(0.662)	(0.502)
Policy outcomes			
High-tech / Tech-SME	0.025	0.046	0.001
	(0.035)	(0.054)	(0.024)
R&D expenditure (IHS)	-11.063^{***}	-1.775	-9.366^{***}
	(1.288)	(—)	(1.050)
Observations	256,500	28,347	228,153

Notes: Bootstrap standard errors in parentheses (200 iterations). ITT estimates follow the complier decomposition of Diamond and Persson (2016). *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

Appendix Table A5. This table reports the full regression results of inspection effects.

Table 12: Inspection and Bunching: Full Estimation Results

	Strict Inspection		90-Day Post-Conclusion		365-Day Post-Conclusion	
	No Inspection	Inspection	No Inspection	Inspection	No Inspection	Inspection
Panel A: Full Sample						
Bunching mass	28,642	1,304	11,748	3,412	14,356	6,799
Ratio (M/B)	0.976	0.953	1.020	1.016	0.962	0.950
b	7.63	4.79	3.30	7.17	5.30	5.26
	(2.84)	(1.44)	(2.22)	(2.52)	(2.41)	(2.37)
b/Threshold (%)	3.54	2.47	1.52	3.69	2.38	2.68
Bunching mass / CF orders	0.235	0.193	0.095	0.135	0.236	0.192
Observations	773,564	77,863	718,447	155,371	547,027	281,432
Panel B: Central Procurement						
Bunching mass	2,796	561	2,736	1,703	5,861	1,243
Ratio (M/B)	0.980	1.011	0.981	1.034	0.960	0.964
b	10.63	2.86	10.62	4.47	49.05	1.17
	(4.71)	(1.45)	(4.72)	(1.57)	(277.70)	(0.73)
b/Threshold (%)	5.64	1.44	5.64	2.26	26.08	0.59
Bunching mass / CF orders	0.303	0.381	0.302	0.224	0.136	0.067
Observations	58,167	61,093	57,010	121,871	81,287	331,662
Panel C: Local Procurement						
Bunching mass	18,693	561	17,134	1,703	11,156	1,243
Ratio (M/B)	1.035	1.011	0.990	1.034	1.050	0.964
b	6.77	2.86	6.63	4.47	5.37	1.17
	(2.99)	(1.45)	(2.91)	(1.57)	(1.88)	(0.73)
b/Threshold (%)	3.13	1.32	3.06	2.46	2.37	0.63
Bunching mass / CF orders	0.247	0.381	0.222	0.224	0.239	0.067
Observations	545,577	61,093	511,647	121,871	669,289	331,662

Notes: This table reports full bunching estimation results by inspection status and buyer type. The three time windows are the strict inspection deployment period, the 90-day period following inspection team withdrawal, and the 365-day period following withdrawal. Each window reports the No Inspection and Inspection subsamples. b is the estimated excess bunching mass at the open-bidding threshold; its standard error, reported in parentheses, is computed via parametric bootstrap (200 iterations). b/Threshold normalizes the excess mass by the average applicable threshold in each subsample. Bunching mass / CF orders is the ratio of bunching mass to the counterfactual number of orders in the excluded region. The polynomial order is $q = 5$, and the excluded region is determined by the iterative excess-equals-missing-mass criterion.

Robustness Test of Baseline Bunching. We implement a set of robustness checks as follows.

First, we alter the polynomial order. When estimating the counterfactual distribution via polynomial fitting, the polynomial order directly shapes curve fitting performance. We replace the fifth-order polynomial adopted in the baseline specification with sixth-order and fourth-order polynomials to examine whether the choice of fitting function alters the estimation outcomes. The corresponding results are reported in columns (1)–(3) of Table 13.

Second, we adjust the lower bound of bunching. Given the salient discontinuity at the bunching threshold, the baseline lower bound is determined via the eyeball method. To mitigate subjective judgment bias, we reset the lower bound of bunching from –200,000 yuan to –230,000 yuan and –270,000 yuan. The results are shown in columns (4)–(5) of Table 13.

Third, we modify the fitting sample interval. Sample truncation in bunching estimation may distort the fitting of the counterfactual distribution. To enhance the reliability of bunching estimates, we adjust the baseline order amount range around the cutoff from [–500,000, 4,000,000] yuan to an expanded interval of [800,000, 6,000,000] yuan and a narrowed interval of [–450,000, 3,000,000] yuan.The results are shown in columns (6)–(7) of Table 13.

Table 13: Bunching Analysis Results Under Different Specifications

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Polynomial Order	q=7	q=6	q=4				
Sample Window				[-80,600]	[-45,300]		
Bunching Lower Bound						-23	-27
Bunching Mass	27271	32029	28622	27056	32660	32152	31013
Ratio(M/B)	1.003	1.005	0.998	1.001	0.998	1.001	0.995
b	7.348	8.570	8.486	6.951	9.782	9.435	8.070
	(4.173)	(2.138)	(10.276)	(4.132)	(5.216)	(4.128)	(3.178)
b/Average Cutoff	3.43%	3.99%	3.96%	3.24%	4.57%	4.40%	3.77%
Bunching Mass/Holders	16.43%	16.54%	11.19%	19.60%	12.38%	12.45%	20.99%
Observations	910752	1301803	807865	845035	845035	910752	910752

This table presents the bunching analysis results under different specifications. Columns (1)-(3) vary the polynomial order (q=7, q=6, q=4). Columns (4)-(5) use different sample windows. Columns (6)-(7) apply different bunching lower bounds. Bunching Mass represents the estimated mass at the cutoff. Ratio(M/B) is the ratio of estimated mass to benchmark mass. b is the estimated elasticity parameter with standard errors (b_{se}).

Productivity estimates. These tables report the outcome-equation and selection-equation estimates for winner-firm productivity. The three outcomes are TFP estimated using Olley–Pakes, Levinsohn–Petrin, and Ackerberg–Caves–Frazer methods.

Table 14: Structural estimates: total factor productivity of the winning firm, outcome equation

	TFP^{OP}			TFP^{LP}			TFP^{ACF}		
	Pub	Priv	Both	Pub	Priv	Both	Pub	Priv	Both
δ (effect of D_i)	5.018***	5.051***	4.998***	4.853***	4.880***	4.833***	0.879	0.825	0.800
	(1.293)	(1.306)	(1.312)	(1.146)	(1.156)	(1.160)	(0.595)	(0.589)	(0.584)
ρ (corr d_i, u_i)	-0.371***	-0.374***	-0.369***	-0.356***	-0.358***	-0.354***	-0.035	-0.030	-0.028
	(0.109)	(0.110)	(0.110)	(0.097)	(0.098)	(0.098)	(0.054)	(0.054)	(0.053)
σ_u	6.525***	6.528***	6.523***	6.515***	6.518***	6.513***	6.495***	6.495***	6.495***
	(0.134)	(0.136)	(0.135)	(0.113)	(0.115)	(0.114)	(0.017)	(0.017)	(0.017)
γ_0 (intercept of f)	-20.276***	-20.265***	-20.284***	-21.288***	-21.279***	-21.296***	-5.271**	-5.269**	-5.267**
	(2.125)	(2.119)	(2.127)	(2.129)	(2.124)	(2.131)	(2.298)	(2.301)	(2.304)
γ_1 ($\ln V_i$)	0.010	0.011	0.009	-0.012	-0.010	-0.013	-0.036	-0.039	-0.040
	(0.109)	(0.110)	(0.110)	(0.105)	(0.105)	(0.105)	(0.089)	(0.089)	(0.088)
γ_2 ($\ln^2 V_i$)	-0.151**	-0.152**	-0.151**	-0.143**	-0.143**	-0.142**	-0.083	-0.081	-0.080
	(0.065)	(0.066)	(0.066)	(0.063)	(0.063)	(0.063)	(0.053)	(0.052)	(0.052)
γ_3 ($\ln^3 V_i$)	0.030***	0.030***	0.030**	0.029***	0.029***	0.029***	0.012*	0.012*	0.011*
	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)	(0.007)	(0.006)	(0.006)
Service	-0.872***	-0.874***	-0.871***	-0.836***	-0.838***	-0.835***	-0.918***	-0.915***	-0.914***
	(0.123)	(0.123)	(0.124)	(0.118)	(0.118)	(0.119)	(0.097)	(0.096)	(0.096)
Service share	-1.163	-1.180	-1.153	-1.119	-1.133	-1.109	0.134	0.160	0.173
	(0.837)	(0.843)	(0.845)	(0.779)	(0.784)	(0.785)	(0.552)	(0.550)	(0.549)
Central buyer	0.325	0.321	0.328	0.426	0.422	0.428	0.571**	0.578**	0.581**
	(0.283)	(0.284)	(0.284)	(0.272)	(0.273)	(0.273)	(0.218)	(0.217)	(0.217)
Industry SOE share	-3.329***	-3.330***	-3.327***	-3.087***	-3.089***	-3.086***	-5.350***	-5.349***	-5.348***
	(0.790)	(0.791)	(0.790)	(0.787)	(0.788)	(0.787)	(0.689)	(0.688)	(0.688)
Inspection intensity	-0.252***	-0.252***	-0.252***	-0.245***	-0.245***	-0.244***	-0.289***	-0.288***	-0.288***
	(0.044)	(0.044)	(0.044)	(0.043)	(0.043)	(0.043)	(0.037)	(0.037)	(0.037)
Industry firm count	-0.945***	-0.945***	-0.945***	-1.002***	-1.002***	-1.002***	-0.401***	-0.400***	-0.400***
	(0.054)	(0.054)	(0.054)	(0.054)	(0.054)	(0.054)	(0.050)	(0.050)	(0.050)
Avg. political distance	1.454***	1.452***	1.455***	1.572***	1.570***	1.573***	0.106	0.107	0.107
	(0.220)	(0.220)	(0.220)	(0.220)	(0.220)	(0.220)	(0.236)	(0.236)	(0.236)
Local share	2.252***	2.247***	2.255***	2.396***	2.392***	2.399***	1.804***	1.809***	1.812***
	(0.498)	(0.499)	(0.499)	(0.490)	(0.491)	(0.491)	(0.425)	(0.425)	(0.425)
Susp. value compression	0.572***	0.570***	0.574***	0.600***	0.598***	0.601***	0.650***	0.653***	0.655***
	(0.159)	(0.160)	(0.160)	(0.154)	(0.154)	(0.154)	(0.130)	(0.130)	(0.130)
Effective N	21,798	21,798	21,798	21,798	21,798	21,798	25,541	25,541	25,541

Notes: This table reports the outcome-equation estimates. The corresponding selection-equation estimates are reported in Table 15. Robust sandwich standard errors are in parentheses. "Pub" includes the loss–political-distance interaction; "Priv" includes the loss–inspection interaction; "Both" includes both. All specifications include the central-buyer loss interaction and fix $\sigma_d = 1$. Significance: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

Table 15: Structural estimates: total factor productivity of the winning firm, selection equation

	TFP^{OP}			TFP^{LP}			TFP^{ACF}		
	Pub	Priv	Both	Pub	Priv	Both	Pub	Priv	Both
μ (intercept)	-3.034	-3.836	-3.019	-2.941	-3.781	-2.924	-0.992	-1.821	-0.887
	(3.060)	(2.909)	(3.062)	(3.051)	(2.896)	(3.054)	(2.996)	(2.841)	(2.997)
η_V ($\ln V_i$)	-0.123***	-0.123***	-0.123***	-0.123***	-0.123***	-0.123***	-0.126***	-0.127***	-0.127***
	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)	(0.008)	(0.008)	(0.008)
η_{loss} (loss)	8.489***	0.595***	8.585***	8.864***	0.596***	8.972***	8.236***	0.587***	9.005***
	(2.161)	(0.027)	(2.158)	(2.148)	(0.027)	(2.145)	(1.726)	(0.025)	(1.716)
$\eta_{\text{loss,cen}}$ (loss $\times c_i$)	-8.094***	-0.199**	-8.190***	-8.471***	-0.203**	-8.580***	-7.899***	-0.251**	-8.669***
	(2.164)	(0.101)	(2.162)	(2.151)	(0.101)	(2.147)	(1.726)	(0.091)	(1.717)
$\eta_{\text{loss,dist}}$ (loss $\times(1-c_i)\times\bar{d}_i$)	-0.790***		-0.799***	-0.827***		-0.838***	-0.766***		-0.842***
	(0.216)		(0.216)	(0.215)		(0.215)	(0.173)		(0.172)
$\eta_{\text{loss,insp}}$ (loss $\times(1-c_i)\times z_i$)		-0.003	-0.003		-0.003	-0.004		-0.024	-0.024
		(0.018)	(0.018)		(0.018)	(0.018)		(0.016)	(0.016)
Service	0.207***	0.207***	0.207***	0.207***	0.207***	0.207***	0.209***	0.209***	0.209***
	(0.022)	(0.022)	(0.022)	(0.022)	(0.022)	(0.022)	(0.020)	(0.020)	(0.020)
Service share	1.612***	1.612***	1.612***	1.614***	1.614***	1.614***	1.580***	1.580***	1.580***
	(0.112)	(0.112)	(0.112)	(0.112)	(0.112)	(0.112)	(0.102)	(0.102)	(0.102)
Central buyer	0.312***	0.311***	0.311***	0.311***	0.310***	0.310***	0.261***	0.256***	0.256***
	(0.057)	(0.057)	(0.057)	(0.057)	(0.057)	(0.057)	(0.051)	(0.051)	(0.051)
Industry SOE share	0.185	0.181	0.185	0.186	0.182	0.186	0.063	0.062	0.064
	(0.159)	(0.158)	(0.159)	(0.159)	(0.159)	(0.159)	(0.139)	(0.139)	(0.139)
Inspection intensity	0.049***	0.049***	0.048***	0.049***	0.048***	0.048***	0.055***	0.049***	0.049***
	(0.008)	(0.009)	(0.009)	(0.008)	(0.009)	(0.009)	(0.008)	(0.009)	(0.009)
Industry firm count	0.008	0.008	0.008	0.008	0.008	0.008	0.013	0.013	0.013
	(0.012)	(0.012)	(0.012)	(0.012)	(0.012)	(0.012)	(0.011)	(0.011)	(0.011)
Avg. political distance	0.248	0.328	0.247	0.239	0.323	0.237	0.060	0.144	0.050
	(0.305)	(0.290)	(0.305)	(0.304)	(0.289)	(0.305)	(0.299)	(0.284)	(0.299)
Local share	0.382***	0.380***	0.382***	0.381***	0.378***	0.381***	0.233**	0.232**	0.235**
	(0.103)	(0.103)	(0.103)	(0.103)	(0.103)	(0.103)	(0.094)	(0.093)	(0.094)
Susp. value compression	0.200***	0.200***	0.200***	0.200***	0.200***	0.200***	0.177***	0.177***	0.177***
	(0.028)	(0.028)	(0.028)	(0.028)	(0.028)	(0.028)	(0.027)	(0.027)	(0.027)
Days to year-end	-0.096***	-0.095***	-0.096***	-0.096***	-0.096***	-0.096***	-0.108***	-0.108***	-0.108***
	(0.011)	(0.011)	(0.011)	(0.010)	(0.010)	(0.010)	(0.009)	(0.009)	(0.009)
Effective N	21,798	21,798	21,798	21,798	21,798	21,798	25,541	25,541	25,541

Notes: This table reports the selection-equation estimates. The corresponding outcome-equation estimates are reported in Table 14. Robust sandwich standard errors are in parentheses. "Pub" includes the loss–political-distance interaction; "Priv" includes the loss–inspection interaction; "Both" includes both. All specifications include the central-buyer loss interaction and fix $\sigma_d = 1$. Significance: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

Winner identity, age, and size. These tables report the outcome-equation and selection-equation estimates for winner identity, age, and size. The outcomes are SOE winner status, firm age, and asinh employment.

Table 16: Structural estimates: identity, age, and size of the winning firm, outcome equation

	SOE			FirmAge			asinh(Labor)		
	Pub	Priv	Both	Pub	Priv	Both	Pub	Priv	Both
δ (effect of D_i)	0.053***	0.052***	0.052***	1.760***	1.776***	1.777***	1.045***	1.045***	1.047***
	(0.002)	(0.002)	(0.002)	(0.067)	(0.067)	(0.067)	(0.057)	(0.057)	(0.057)
ρ (corr d_i, u_i)	-0.059***	-0.058***	-0.058***	-0.106***	-0.107***	-0.107***	-0.321***	-0.321***	-0.322***
	(0.003)	(0.003)	(0.003)	(0.005)	(0.005)	(0.005)	(0.018)	(0.018)	(0.018)
σ_u	0.285***	0.285***	0.285***	7.205***	7.205***	7.205***	1.623***	1.623***	1.624***
	(0.000)	(0.000)	(0.000)	(0.006)	(0.006)	(0.006)	(0.008)	(0.008)	(0.008)
γ_0 (intercept of f)	-0.934***	-0.933***	-0.933***	-42.747***	-42.756***	-42.756***	-11.578***	-11.579***	-11.577***
	(0.109)	(0.109)	(0.109)	(0.400)	(0.400)	(0.400)	(2.864)	(2.866)	(2.865)
γ_1 ($\ln V_i$)	-0.009***	-0.009***	-0.009***	-0.272***	-0.272***	-0.272***	-0.062***	-0.063***	-0.063***
	(0.001)	(0.001)	(0.001)	(0.015)	(0.015)	(0.015)	(0.017)	(0.017)	(0.017)
γ_2 ($\ln^2 V_i$)	0.002***	0.002***	0.002***	0.110***	0.109***	0.109***	0.022**	0.022**	0.022**
	(0.000)	(0.000)	(0.000)	(0.009)	(0.009)	(0.009)	(0.010)	(0.010)	(0.010)
γ_3 ($\ln^3 V_i$)	0.000***	0.000***	0.000***	0.001	0.001	0.001	0.004**	0.004**	0.004**
	(0.000)	(0.000)	(0.000)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Service	0.047***	0.047***	0.047***	1.790***	1.789***	1.789***	0.781***	0.781***	0.781***
	(0.001)	(0.001)	(0.001)	(0.017)	(0.017)	(0.017)	(0.019)	(0.019)	(0.019)
Service share	0.084***	0.085***	0.084***	3.074***	3.067***	3.066***	-0.300**	-0.300**	-0.301**
	(0.003)	(0.003)	(0.003)	(0.093)	(0.093)	(0.093)	(0.100)	(0.100)	(0.100)
Central buyer	0.013***	0.013***	0.013***	2.452***	2.451***	2.451***	0.574***	0.574***	0.574***
	(0.002)	(0.002)	(0.002)	(0.038)	(0.038)	(0.038)	(0.042)	(0.042)	(0.042)
Industry SOE share	1.114***	1.115***	1.115***	12.415***	12.415***	12.415***	1.540***	1.540***	1.540***
	(0.007)	(0.007)	(0.007)	(0.176)	(0.176)	(0.176)	(0.122)	(0.122)	(0.122)
Inspection intensity	-0.005***	-0.005***	-0.005***	-0.270***	-0.269***	-0.269***	-0.027***	-0.027***	-0.027***
	(0.000)	(0.000)	(0.000)	(0.008)	(0.008)	(0.008)	(0.007)	(0.007)	(0.007)
Industry firm count	0.005***	0.005***	0.005***	-0.543***	-0.543***	-0.543***	-0.455***	-0.455***	-0.455***
	(0.000)	(0.000)	(0.000)	(0.008)	(0.008)	(0.008)	(0.010)	(0.010)	(0.010)
Avg. political distance	0.079***	0.079***	0.079***	4.389***	4.389***	4.389***	1.368***	1.368***	1.368***
	(0.011)	(0.011)	(0.011)	(0.041)	(0.041)	(0.041)	(0.286)	(0.286)	(0.286)
Local share	0.024***	0.024***	0.024***	3.196***	3.193***	3.193***	1.237***	1.237***	1.236***
	(0.003)	(0.003)	(0.003)	(0.080)	(0.080)	(0.080)	(0.088)	(0.088)	(0.088)
Susp. value compression	-0.015***	-0.015***	-0.015***	-0.852***	-0.853***	-0.853***	0.003	0.003	0.003
	(0.001)	(0.001)	(0.001)	(0.031)	(0.031)	(0.031)	(0.026)	(0.026)	(0.026)
Effective N	898,026	898,026	898,026	888,308	888,308	888,308	38,361	38,361	38,361

Notes: This table reports the outcome-equation estimates. The corresponding selection-equation estimates are reported in Table 17. Robust sandwich standard errors are in parentheses. "Pub" includes the loss–political-distance interaction; "Priv" includes the loss–inspection interaction; "Both" includes both. All specifications include the central-buyer loss interaction and fix $\sigma_d = 1$. Significance: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

Table 17: Structural estimates: identity, age, and size of the winning firm, selection equation

	SOE			FirmAge			asinh(Labor)		
	Pub	Priv	Both	Pub	Priv	Both	Pub	Priv	Both
μ (intercept)	0.615	0.443	0.731	0.619	0.386	0.737	-3.891**	-4.445**	-3.861**
	(0.599)	(0.597)	(0.603)	(0.586)	(0.583)	(0.590)	(1.847)	(1.808)	(1.850)
η_V ($\ln V_i$)	-0.074***	-0.074***	-0.074***	-0.074***	-0.074***	-0.074***	-0.117***	-0.117***	-0.117***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.006)	(0.006)	(0.006)
η_{loss} (loss)	1.895***	0.810***	2.464***	2.244***	0.815***	2.832***	7.168***	0.665***	7.560***
	(0.302)	(0.006)	(0.305)	(0.308)	(0.006)	(0.313)	(1.471)	(0.021)	(1.466)
$\eta_{\text{loss,cen}}$ (loss $\times c_i$)	-1.931***	-0.846***	-2.500***	-2.285***	-0.855***	-2.872***	-6.918***	-0.416***	-7.310***
	(0.302)	(0.020)	(0.305)	(0.308)	(0.020)	(0.313)	(1.471)	(0.074)	(1.466)
$\eta_{\text{loss,dist}}$ (loss $\times(1-c_i)\times\bar{d}_i$)	-0.110***		-0.165***	-0.144***		-0.202***	-0.651***		-0.690***
	(0.030)		(0.031)	(0.031)		(0.031)	(0.147)		(0.147)
$\eta_{\text{loss,insp}}$ (loss $\times(1-c_i)\times z_i$)		-0.053***	-0.053***		-0.055***	-0.055***		-0.020	-0.020
		(0.004)	(0.004)		(0.004)	(0.004)		(0.013)	(0.013)
Service	0.231***	0.230***	0.230***	0.231***	0.230***	0.230***	0.223***	0.222***	0.222***
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.016)	(0.016)	(0.016)
Service share	2.028***	2.026***	2.026***	2.032***	2.029***	2.029***	1.503***	1.503***	1.503***
	(0.021)	(0.021)	(0.021)	(0.021)	(0.021)	(0.021)	(0.087)	(0.087)	(0.087)
Central buyer	0.263***	0.256***	0.257***	0.257***	0.250***	0.250***	0.281***	0.276***	0.277***
	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)	(0.041)	(0.041)	(0.041)
Industry SOE share	0.312***	0.311***	0.311***	0.302***	0.302***	0.302***	0.330**	0.328**	0.330**
	(0.039)	(0.039)	(0.039)	(0.040)	(0.040)	(0.040)	(0.124)	(0.124)	(0.124)
Inspection intensity	-0.121***	-0.132***	-0.132***	-0.121***	-0.132***	-0.132***	0.051***	0.046***	0.046***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.006)	(0.007)	(0.007)
Industry firm count	0.094***	0.094***	0.094***	0.090***	0.090***	0.090***	-0.004	-0.004	-0.004
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.009)	(0.009)	(0.009)
Avg. political distance	-0.178**	-0.160**	-0.189**	-0.178**	-0.154**	-0.189**	0.335*	0.390**	0.332*
	(0.060)	(0.060)	(0.060)	(0.058)	(0.058)	(0.059)	(0.184)	(0.180)	(0.184)
Local share	0.926***	0.927***	0.927***	0.919***	0.920***	0.920***	0.465***	0.463***	0.465***
	(0.020)	(0.020)	(0.020)	(0.020)	(0.020)	(0.020)	(0.077)	(0.077)	(0.077)
Susp. value compression	0.434***	0.432***	0.432***	0.432***	0.431***	0.431***	0.181***	0.181***	0.181***
	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.022)	(0.022)	(0.022)
Days to year-end	-0.058***	-0.058***	-0.058***	-0.057***	-0.057***	-0.057***	-0.106***	-0.106***	-0.106***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.007)	(0.007)	(0.007)
Effective N	898,026	898,026	898,026	888,308	888,308	888,308	38,361	38,361	38,361

Notes: This table reports the selection-equation estimates. The corresponding outcome-equation estimates are reported in Table 16. Robust sandwich standard errors are in parentheses. "Pub" includes the loss–political-distance interaction; "Priv" includes the loss–inspection interaction; "Both" includes both. All specifications include the central-buyer loss interaction and fix $\sigma_d = 1$. Significance: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

Procurement-duration estimates. These tables report the outcome-equation and selection-equation estimates for procurement duration. This specification is used for the main selection-side coefficient plot because it is observed directly in the procurement records and has the largest sample.

Table 18: Structural estimates: procurement duration, outcome equation

	Duration (days)		
	Pub	Priv	Both
δ (effect of D_i)	-6.756***	-6.735***	-6.735***
	(0.070)	(0.070)	(0.070)
ρ (corr d_i, u_i)	-0.041***	-0.042***	-0.042***
	(0.002)	(0.002)	(0.002)
σ_u	12.544***	12.544***	12.544***
	(0.040)	(0.040)	(0.040)
γ_0 (intercept of f)	-32.547***	-32.559***	-32.558***
	(0.228)	(0.228)	(0.228)
γ_1 ($\ln V_i$)	-2.061***	-2.061***	-2.061***
	(0.025)	(0.025)	(0.025)
γ_2 ($\ln^2 V_i$)	1.019***	1.018***	1.018***
	(0.016)	(0.016)	(0.016)
γ_3 ($\ln^3 V_i$)	-0.066***	-0.066***	-0.066***
	(0.002)	(0.002)	(0.002)
Service	-0.577***	-0.577***	-0.577***
	(0.028)	(0.028)	(0.028)
Service share	2.707***	2.698***	2.698***
	(0.160)	(0.160)	(0.160)
Central buyer	3.651***	3.649***	3.649***
	(0.064)	(0.064)	(0.064)
Industry SOE share	0.950***	0.949***	0.949***
	(0.259)	(0.259)	(0.259)
Inspection intensity	-0.409***	-0.408***	-0.408***
	(0.013)	(0.013)	(0.013)
Industry firm count	0.134***	0.134***	0.134***
	(0.015)	(0.015)	(0.015)
Avg. political distance	4.878***	4.879***	4.879***
	(0.029)	(0.029)	(0.029)
Local share	4.501***	4.497***	4.497***
	(0.136)	(0.136)	(0.136)
Susp. value compression	-1.574***	-1.576***	-1.576***
	(0.065)	(0.065)	(0.065)
Effective N	898,026	898,026	898,026

Notes: This table reports the outcome-equation estimates. The corresponding selection-equation estimates are reported in Table 19. Robust sandwich standard errors are in parentheses. "Pub" includes the loss–political-distance interaction; "Priv" includes the loss–inspection interaction; "Both" includes both. All specifications include the central-buyer loss interaction and fix $\sigma_d = 1$. Significance: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

Table 19: Structural estimates: procurement duration, selection equation

	Duration (days)		
	Pub	Priv	Both
μ (intercept)	0.635	0.474	0.755
	(0.601)	(0.600)	(0.605)
η_V ($\ln V_i$)	-0.074***	-0.074***	-0.074***
	(0.001)	(0.001)	(0.001)
η_{loss} (loss)	1.822***	0.811***	2.418***
	(0.304)	(0.006)	(0.307)
$\eta_{\text{loss,cen}}$ (loss $\times c_i$)	-1.857***	-0.846***	-2.453***
	(0.304)	(0.020)	(0.307)
$\eta_{\text{loss,dist}}$ (loss $\times(1-c_i)\times \bar{d}_i$)	-0.102***		-0.161***
	(0.030)		(0.031)
$\eta_{\text{loss,insp}}$ (loss $\times(1-c_i)\times z_i$)		-0.055***	-0.055***
		(0.004)	(0.004)
Service	0.229***	0.228***	0.228***
	(0.004)	(0.004)	(0.004)
Service share	2.031***	2.029***	2.029***
	(0.021)	(0.021)	(0.021)
Central buyer	0.261***	0.254***	0.254***
	(0.011)	(0.011)	(0.011)
Industry SOE share	0.304***	0.304***	0.304***
	(0.038)	(0.038)	(0.038)
Inspection intensity	-0.121***	-0.132***	-0.132***
	(0.002)	(0.002)	(0.002)
Industry firm count	0.093***	0.093***	0.093***
	(0.002)	(0.002)	(0.002)
Avg. political distance	-0.180**	-0.163**	-0.191**
	(0.060)	(0.060)	(0.060)
Local share	0.925***	0.926***	0.926***
	(0.020)	(0.020)	(0.020)
Susp. value compression	0.433***	0.432***	0.432***
	(0.006)	(0.006)	(0.006)
Days to year-end	-0.056***	-0.055***	-0.055***
	(0.002)	(0.002)	(0.002)
Effective N	898,026	898,026	898,026

Notes: This table reports the selection-equation estimates. The corresponding outcome-equation estimates are reported in Table 18. Robust sandwich standard errors are in parentheses. "Pub" includes the loss–political-distance interaction; "Priv" includes the loss–inspection interaction; "Both" includes both. All specifications include the central-buyer loss interaction and fix $\sigma_d = 1$. Significance: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

Special-status estimates. These tables report the outcome-equation and selection-equation estimates for special qualification status. The outcomes are small-and-low-profit status, high-tech status, and tech-SME status.

Table 20: Structural estimates: special status of the winning firm, outcome equation

	SME			HighTech			TechSME		
	Pub	Priv	Both	Pub	Priv	Both	Pub	Priv	Both
δ (effect of D_i)	-0.060	-0.069	-0.070	-0.546***	-0.546***	-0.546***	-0.348***	-0.348***	-0.348***
	(0.045)	(0.046)	(0.046)	(0.006)	(0.006)	(0.006)	(0.005)	(0.005)	(0.005)
ρ (corr d_i, u_i)	0.065	0.076	0.077	0.806***	0.806***	0.806***	0.792***	0.792***	0.792***
	(0.052)	(0.053)	(0.053)	(0.006)	(0.006)	(0.006)	(0.011)	(0.011)	(0.011)
σ_u	0.500***	0.500***	0.500***	0.425***	0.425***	0.425***	0.286***	0.286***	0.286***
	(0.001)	(0.001)	(0.001)	(0.003)	(0.003)	(0.003)	(0.004)	(0.004)	(0.004)
γ_0 (intercept of f)	0.811	0.809	0.809	-0.286	-0.285	-0.285	-0.360	-0.360	-0.360
	(1.106)	(1.106)	(1.106)	(0.876)	(0.875)	(0.875)	(0.484)	(0.482)	(0.484)
γ_1 ($\ln V_i$)	-0.004	-0.005	-0.005	-0.027***	-0.027***	-0.027***	-0.017***	-0.017***	-0.017***
	(0.008)	(0.008)	(0.008)	(0.005)	(0.005)	(0.005)	(0.003)	(0.003)	(0.003)
γ_2 ($\ln^2 V_i$)	0.004	0.004	0.004	0.019***	0.019***	0.019***	0.014***	0.014***	0.014***
	(0.005)	(0.005)	(0.005)	(0.003)	(0.003)	(0.003)	(0.002)	(0.002)	(0.002)
γ_3 ($\ln^3 V_i$)	-0.001	-0.001	-0.001	-0.003***	-0.003***	-0.003***	-0.002***	-0.002***	-0.002***
	(0.001)	(0.001)	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Service	-0.011	-0.011	-0.011	0.053***	0.053***	0.053***	0.017***	0.017***	0.017***
	(0.008)	(0.008)	(0.008)	(0.007)	(0.007)	(0.007)	(0.004)	(0.004)	(0.004)
Service share	0.019	0.023	0.023	0.237***	0.237***	0.237***	0.158***	0.158***	0.158***
	(0.052)	(0.052)	(0.052)	(0.041)	(0.041)	(0.041)	(0.028)	(0.028)	(0.028)
Central buyer	-0.019	-0.017	-0.017	0.098***	0.098***	0.098***	0.042***	0.042***	0.042***
	(0.019)	(0.019)	(0.019)	(0.015)	(0.015)	(0.015)	(0.009)	(0.009)	(0.009)
Industry SOE share	-0.201***	-0.200***	-0.200***	0.177***	0.177***	0.177***	0.089**	0.089**	0.089**
	(0.054)	(0.054)	(0.054)	(0.046)	(0.046)	(0.046)	(0.034)	(0.034)	(0.034)
Inspection intensity	0.001	0.001	0.001	0.007**	0.007**	0.007**	0.006***	0.006***	0.006***
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.002)	(0.002)	(0.002)
Industry firm count	-0.006	-0.006	-0.006	0.020***	0.020***	0.020***	0.012***	0.012***	0.012***
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.002)	(0.002)	(0.002)
Avg. political distance	-0.026	-0.026	-0.026	0.044	0.044	0.044	0.043	0.043	0.043
	(0.110)	(0.110)	(0.110)	(0.087)	(0.087)	(0.087)	(0.048)	(0.048)	(0.048)
Local share	0.033	0.036	0.036	0.203***	0.203***	0.203***	0.102***	0.102***	0.102***
	(0.044)	(0.044)	(0.044)	(0.035)	(0.035)	(0.035)	(0.024)	(0.024)	(0.024)
Susp. value compression	-0.011	-0.010	-0.010	0.068***	0.068***	0.068***	0.047***	0.047***	0.047***
	(0.013)	(0.013)	(0.013)	(0.011)	(0.011)	(0.011)	(0.007)	(0.007)	(0.007)
Effective N	18,966	18,966	18,966	18,966	18,966	18,966	18,966	18,966	18,966

Notes: This table reports the outcome-equation estimates. The corresponding selection-equation estimates are reported in Table 21. Robust sandwich standard errors are in parentheses. "Pub" includes the loss–political-distance interaction; "Priv" includes the loss–inspection interaction; "Both" includes both. All specifications include the central-buyer loss interaction and fix $\sigma_d = 1$. Significance: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

Table 21: Structural estimates: special status of the winning firm, selection equation

	SME			HighTech			TechSME		
	Pub	Priv	Both	Pub	Priv	Both	Pub	Priv	Both
μ (intercept)	-5.595**	-5.059*	-5.559**	-3.653	-3.478	-3.616	-4.538**	-3.678*	-4.490**
	(2.579)	(2.633)	(2.582)	(2.241)	(2.281)	(2.244)	(2.089)	(2.155)	(2.093)
η_V ($\ln V_i$)	-0.085***	-0.085***	-0.085***	-0.070***	-0.070***	-0.070***	-0.066***	-0.066***	-0.066***
	(0.009)	(0.009)	(0.009)	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)
η_{loss} (loss)	-4.387**	0.741***	-4.143**	-1.117	0.584***	-0.675	-8.707***	0.588***	-8.212***
	(1.869)	(0.031)	(1.839)	(2.266)	(0.029)	(2.249)	(1.561)	(0.031)	(1.522)
$\eta_{\text{loss,cen}}$ (loss $\times c_i$)	4.622**	-0.506***	4.378**	1.506	-0.195**	1.063	8.954***	-0.341***	8.458***
	(1.870)	(0.100)	(1.840)	(2.265)	(0.075)	(2.248)	(1.560)	(0.057)	(1.522)
$\eta_{\text{loss,dist}}$ (loss $\times(1-c_i)\times\bar{d}_i$)	0.512**		0.489**	0.169		0.126	0.928***		0.880***
	(0.187)		(0.184)	(0.227)		(0.225)	(0.156)		(0.153)
$\eta_{\text{loss,insp}}$ (loss $\times(1-c_i)\times z_i$)		-0.028	-0.028		-0.019	-0.019		-0.030*	-0.030*
		(0.019)	(0.019)		(0.016)	(0.016)		(0.016)	(0.016)
Service	0.198***	0.198***	0.198***	0.190***	0.189***	0.189***	0.151***	0.151***	0.151***
	(0.023)	(0.023)	(0.023)	(0.021)	(0.021)	(0.021)	(0.021)	(0.021)	(0.021)
Service share	1.389***	1.389***	1.390***	1.134***	1.133***	1.134***	1.165***	1.163***	1.164***
	(0.144)	(0.144)	(0.144)	(0.129)	(0.129)	(0.129)	(0.132)	(0.132)	(0.132)
Central buyer	0.341***	0.335***	0.335***	0.358***	0.354***	0.353***	0.228***	0.222***	0.221***
	(0.057)	(0.058)	(0.058)	(0.049)	(0.049)	(0.049)	(0.049)	(0.049)	(0.049)
Industry SOE share	0.568**	0.569**	0.568**	0.382**	0.382**	0.382**	0.487**	0.489**	0.486**
	(0.184)	(0.184)	(0.184)	(0.151)	(0.151)	(0.151)	(0.153)	(0.153)	(0.153)
Inspection intensity	0.058***	0.051***	0.051***	0.043***	0.039***	0.039***	0.045***	0.037***	0.037***
	(0.009)	(0.010)	(0.010)	(0.008)	(0.009)	(0.009)	(0.008)	(0.009)	(0.009)
Industry firm count	0.003	0.003	0.003	0.001	0.001	0.001	0.018	0.017	0.017
	(0.013)	(0.013)	(0.013)	(0.012)	(0.012)	(0.012)	(0.012)	(0.012)	(0.012)
Avg. political distance	0.451*	0.397	0.447*	0.273	0.256	0.270	0.371*	0.285	0.366*
	(0.257)	(0.262)	(0.257)	(0.223)	(0.227)	(0.223)	(0.208)	(0.214)	(0.208)
Local share	1.051***	1.050***	1.049***	0.931***	0.930***	0.930***	0.730***	0.730***	0.728***
	(0.122)	(0.122)	(0.122)	(0.110)	(0.110)	(0.110)	(0.112)	(0.112)	(0.112)
Susp. value compression	0.321***	0.321***	0.321***	0.277***	0.277***	0.277***	0.302***	0.302***	0.302***
	(0.034)	(0.034)	(0.034)	(0.032)	(0.032)	(0.032)	(0.032)	(0.032)	(0.032)
Days to year-end	-0.121***	-0.121***	-0.121***	-0.066***	-0.066***	-0.066***	-0.069***	-0.069***	-0.069***
	(0.011)	(0.011)	(0.011)	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)
Effective N	18,966	18,966	18,966	18,966	18,966	18,966	18,966	18,966	18,966

Notes: This table reports the selection-equation estimates. The corresponding outcome-equation estimates are reported in Table 20. Robust sandwich standard errors are in parentheses. "Pub" includes the loss–political-distance interaction; "Priv" includes the loss–inspection interaction; "Both" includes both. All specifications include the central-buyer loss interaction and fix $\sigma_d = 1$. Significance: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

Social-contribution estimates. These tables report the outcome-equation and selection-equation estimates for social contribution outcomes. The outcomes are social-security-fund contributions, R&D expenditure, and charitable donations.

Table 22: Structural estimates: social contributions of the winning firm, outcome equation

	asinh(Soc. Sec.)			asinh(R&D)			asinh(Donation)		
	Pub	Priv	Both	Pub	Priv	Both	Pub	Priv	Both
δ (effect of D_i)	-0.387*	-0.371*	-0.370*	-6.131***	-6.134***	-6.130***	0.420***	0.438***	0.437***
	(0.208)	(0.212)	(0.212)	(0.131)	(0.131)	(0.131)	(0.092)	(0.093)	(0.093)
ρ (corr d_i, u_i)	0.046	0.042	0.042	0.800***	0.800***	0.800***	-0.139***	-0.146***	-0.146***
	(0.043)	(0.044)	(0.044)	(0.011)	(0.011)	(0.011)	(0.022)	(0.022)	(0.022)
σ_u	2.743***	2.743***	2.743***	4.690***	4.691***	4.690***	1.653***	1.654***	1.654***
	(0.016)	(0.016)	(0.016)	(0.046)	(0.046)	(0.046)	(0.033)	(0.033)	(0.033)
γ_0 (intercept of f)	-10.148**	-10.144**	-10.144**	2.841	2.837	2.839	-12.029***	-12.018***	-12.020***
	(4.462)	(4.460)	(4.459)	(6.468)	(6.450)	(6.468)	(2.650)	(2.658)	(2.660)
γ_1 ($\ln V_i$)	0.007	0.008	0.008	-0.428***	-0.429***	-0.428***	-0.087*	-0.087*	-0.087*
	(0.046)	(0.046)	(0.046)	(0.094)	(0.094)	(0.094)	(0.045)	(0.045)	(0.045)
γ_2 ($\ln^2 V_i$)	0.023	0.022	0.022	0.270***	0.271***	0.271***	0.033	0.032	0.032
	(0.027)	(0.027)	(0.027)	(0.056)	(0.056)	(0.056)	(0.026)	(0.026)	(0.026)
γ_3 ($\ln^3 V_i$)	-0.004	-0.004	-0.004	-0.038***	-0.038***	-0.038***	-0.001	-0.001	-0.001
	(0.003)	(0.003)	(0.003)	(0.007)	(0.007)	(0.007)	(0.003)	(0.003)	(0.003)
Service	-0.072	-0.073	-0.073	0.643***	0.643***	0.643***	0.138**	0.137**	0.137**
	(0.047)	(0.047)	(0.047)	(0.119)	(0.119)	(0.119)	(0.046)	(0.046)	(0.046)
Service share	-0.790**	-0.797**	-0.797**	2.380**	2.380**	2.379**	-0.050	-0.055	-0.054
	(0.294)	(0.295)	(0.295)	(0.739)	(0.740)	(0.739)	(0.282)	(0.282)	(0.282)
Central buyer	0.067	0.064	0.064	1.322***	1.322***	1.322***	0.340**	0.337**	0.337**
	(0.106)	(0.107)	(0.107)	(0.259)	(0.259)	(0.259)	(0.107)	(0.107)	(0.107)
Industry SOE share	0.319	0.316	0.316	0.676	0.676	0.676	0.076	0.074	0.074
	(0.325)	(0.325)	(0.325)	(0.760)	(0.760)	(0.760)	(0.327)	(0.327)	(0.327)
Inspection intensity	0.023	0.023	0.023	0.176***	0.176***	0.176***	0.086***	0.086***	0.086***
	(0.018)	(0.018)	(0.018)	(0.048)	(0.048)	(0.048)	(0.019)	(0.019)	(0.019)
Industry firm count	0.018	0.018	0.018	0.230***	0.230***	0.230***	0.019	0.019	0.019
	(0.026)	(0.026)	(0.026)	(0.064)	(0.064)	(0.064)	(0.025)	(0.025)	(0.025)
Avg. political distance	1.637***	1.636***	1.636***	-0.147	-0.147	-0.147	1.124***	1.122***	1.123***
	(0.445)	(0.445)	(0.445)	(0.649)	(0.647)	(0.649)	(0.262)	(0.263)	(0.263)
Local share	0.710**	0.704**	0.704**	3.769***	3.770***	3.768***	1.065***	1.058***	1.059***
	(0.254)	(0.254)	(0.254)	(0.614)	(0.614)	(0.614)	(0.245)	(0.245)	(0.245)
Susp. value compression	0.178**	0.177**	0.177**	0.583**	0.583**	0.583**	-0.039	-0.041	-0.041
	(0.081)	(0.081)	(0.081)	(0.206)	(0.206)	(0.206)	(0.079)	(0.079)	(0.079)
Effective N	16,315	16,315	16,315	6,941	6,941	6,941	5,938	5,938	5,938

Notes: This table reports the outcome-equation estimates. The corresponding selection-equation estimates are reported in Table 23. Robust sandwich standard errors are in parentheses. "Pub" includes the loss–political-distance interaction; "Priv" includes the loss–inspection interaction; "Both" includes both. All specifications include the central-buyer loss interaction and fix $\sigma_d = 1$. Significance: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

Table 23: Structural estimates: social contributions of the winning firm, selection equation

	asinh(Soc. Sec.)			asinh(R&D)			asinh(Donation)		
	Pub	Priv	Both	Pub	Priv	Both	Pub	Priv	Both
μ (intercept)	-5.628**	-5.254*	-5.580**	-2.578	-1.421	-2.612	-7.316*	-6.221	-7.406*
	(2.670)	(2.716)	(2.678)	(2.168)	(2.287)	(2.168)	(3.860)	(3.987)	(3.844)
η_V ($\ln V_i$)	-0.090***	-0.090***	-0.090***	-0.084***	-0.084***	-0.084***	-0.096***	-0.096***	-0.097***
	(0.010)	(0.010)	(0.010)	(0.013)	(0.013)	(0.013)	(0.017)	(0.017)	(0.017)
η_{loss} (loss)	-3.390*	0.733***	-2.806	-10.988***	0.543***	-11.447***	-14.456***	0.675***	-15.323***
	(2.023)	(0.034)	(1.989)	(2.829)	(0.047)	(2.809)	(2.647)	(0.054)	(2.726)
$\eta_{\text{loss,cen}}$ (loss $\times c_i$)	3.611*	-0.512***	3.027	11.276***	-0.254**	11.735***	14.447***	-0.686***	15.312***
	(2.023)	(0.109)	(1.990)	(2.825)	(0.121)	(2.805)	(2.647)	(0.164)	(2.726)
$\eta_{\text{loss,dist}}$ (loss $\times(1-c_i)\times\bar{d}_i$)	0.411**		0.354*	1.154***		1.199***	1.516***		1.600***
	(0.202)		(0.199)	(0.283)		(0.281)	(0.265)		(0.273)
$\eta_{\text{loss,insp}}$ (loss $\times(1-c_i)\times z_i$)		-0.027	-0.027		0.008	0.010		0.046	0.046
		(0.020)	(0.020)		(0.028)	(0.028)		(0.033)	(0.033)
Service	0.189***	0.189***	0.189***	0.228***	0.227***	0.228***	0.172***	0.171***	0.172***
	(0.025)	(0.025)	(0.025)	(0.035)	(0.035)	(0.035)	(0.041)	(0.041)	(0.041)
Service share	1.374***	1.374***	1.375***	0.830***	0.827***	0.832***	0.942***	0.945***	0.950***
	(0.153)	(0.153)	(0.153)	(0.215)	(0.215)	(0.215)	(0.251)	(0.252)	(0.252)
Central buyer	0.369***	0.363***	0.362***	0.392***	0.395***	0.394***	0.270**	0.283**	0.281**
	(0.062)	(0.062)	(0.062)	(0.080)	(0.081)	(0.081)	(0.099)	(0.099)	(0.099)
Industry SOE share	0.654**	0.656**	0.654**	-0.058	-0.044	-0.057	0.847**	0.856**	0.851**
	(0.210)	(0.210)	(0.210)	(0.226)	(0.227)	(0.226)	(0.327)	(0.329)	(0.328)
Inspection intensity	0.060***	0.053***	0.053***	0.053***	0.056***	0.056***	0.074***	0.086***	0.086***
	(0.010)	(0.011)	(0.011)	(0.014)	(0.015)	(0.015)	(0.017)	(0.019)	(0.019)
Industry firm count	-0.012	-0.013	-0.013	-0.017	-0.017	-0.017	0.007	0.008	0.008
	(0.014)	(0.014)	(0.014)	(0.019)	(0.019)	(0.019)	(0.023)	(0.023)	(0.023)
Avg. political distance	0.457*	0.420	0.453*	0.189	0.073	0.192	0.655*	0.544	0.662*
	(0.266)	(0.270)	(0.267)	(0.215)	(0.227)	(0.215)	(0.384)	(0.397)	(0.382)
Local share	1.064***	1.063***	1.062***	1.168***	1.171***	1.169***	1.219***	1.234***	1.227***
	(0.130)	(0.130)	(0.130)	(0.177)	(0.177)	(0.177)	(0.208)	(0.208)	(0.208)
Susp. value compression	0.291***	0.291***	0.291***	0.213***	0.213***	0.213***	0.265***	0.265***	0.265***
	(0.037)	(0.037)	(0.037)	(0.056)	(0.056)	(0.056)	(0.062)	(0.062)	(0.062)
Days to year-end	-0.124***	-0.124***	-0.124***	-0.078***	-0.078***	-0.078***	-0.109***	-0.109***	-0.109***
	(0.012)	(0.012)	(0.012)	(0.014)	(0.014)	(0.014)	(0.020)	(0.020)	(0.020)
Effective N	16,315	16,315	16,315	6,941	6,941	6,941	5,938	5,938	5,938

Notes: This table reports the selection-equation estimates. The corresponding outcome-equation estimates are reported in Table 22. Robust sandwich standard errors are in parentheses. "Pub" includes the loss–political-distance interaction; "Priv" includes the loss–inspection interaction; "Both" includes both. All specifications include the central-buyer loss interaction and fix $\sigma_d = 1$. Significance: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

Resource-use estimates. These tables report the outcome-equation and selection-equation estimates for resource-use outcomes. The outcomes are asinh energy use and water consumption.

Table 24: Structural estimates: energy and water consumption of the winning firm, outcome equation

	asinh(Energy, tce)			asinh(Water)		
	Pub	Priv	Both	Pub	Priv	Both
δ (effect of D_i)	-0.023***	-0.023***	-0.023***	-0.744	-0.639	-0.645
	(0.002)	(0.002)	(0.002)	(0.791)	(0.725)	(0.728)
ρ (corr d_i, u_i)	-0.002	-0.002	-0.002	0.101	0.085	0.086
	(0.002)	(0.002)	(0.002)	(0.118)	(0.109)	(0.109)
σ_u	0.345***	0.345***	0.345***	3.935***	3.932***	3.932
	(0.004)	(0.004)	(0.004)	(0.027)	(0.024)	(0.024)
γ_0 (intercept of f)	-0.159	-0.159	-0.159	14.797**	14.774**	14.775
	(0.099)	(0.099)	(0.099)	(4.741)	(4.725)	(4.726)
γ_1 ($\ln V_i$)	0.001	0.001	0.001	-0.093	-0.088	-0.088
	(0.001)	(0.001)	(0.001)	(0.081)	(0.079)	(0.079)
γ_2 ($\ln^2 V_i$)	0.001	0.001	0.001	0.070	0.066	0.066
	(0.000)	(0.000)	(0.000)	(0.050)	(0.049)	(0.049)
γ_3 ($\ln^3 V_i$)	-0.000**	-0.000**	-0.000**	-0.008	-0.008	-0.008
	(0.000)	(0.000)	(0.000)	(0.007)	(0.006)	(0.006)
Service	0.003***	0.003***	0.003***	0.010	0.004	0.004
	(0.001)	(0.001)	(0.001)	(0.086)	(0.084)	(0.084)
Service share	-0.003	-0.003	-0.003	0.008	-0.034	-0.031
	(0.004)	(0.004)	(0.004)	(0.546)	(0.531)	(0.532)
Central buyer	0.004**	0.004**	0.004**	0.554**	0.536**	0.537
	(0.002)	(0.002)	(0.002)	(0.213)	(0.206)	(0.206)
Industry SOE share	0.016*	0.016*	0.016*	-0.640	-0.652	-0.652
	(0.008)	(0.008)	(0.008)	(0.584)	(0.583)	(0.583)
Inspection intensity	0.010***	0.010***	0.010***	-0.021	-0.023	-0.023
	(0.000)	(0.000)	(0.000)	(0.032)	(0.032)	(0.032)
Industry firm count	-0.002***	-0.002***	-0.002***	-0.087**	-0.087**	-0.087
	(0.000)	(0.000)	(0.000)	(0.042)	(0.042)	(0.042)
Avg. political distance	0.021**	0.021**	0.021**	-1.095**	-1.094**	-1.094
	(0.010)	(0.010)	(0.010)	(0.474)	(0.473)	(0.473)
Local share	-0.012**	-0.012**	-0.012**	1.311**	1.275**	1.278
	(0.004)	(0.004)	(0.004)	(0.471)	(0.459)	(0.459)
Susp. value compression	-0.004**	-0.004**	-0.004**	0.199	0.189	0.190
	(0.002)	(0.002)	(0.002)	(0.139)	(0.136)	(0.136)
Effective N	898,026	898,026	898,026	12,981	12,981	12,981

Notes: This table reports the outcome-equation estimates. The corresponding selection-equation estimates are reported in Table 25. Robust sandwich standard errors are in parentheses. "Pub" includes the loss–political-distance interaction; "Priv" includes the loss–inspection interaction; "Both" includes both. All specifications include the central-buyer loss interaction and fix $\sigma_d = 1$. Significance: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

Table 25: Structural estimates: energy and water consumption of the winning firm, selection equation

	asinh(Energy, tce)			asinh(Water)		
	Pub	Priv	Both	Pub	Priv	Both
μ (intercept)	0.655	0.494	0.773	-3.970	-3.349	-3.928
	(0.607)	(0.606)	(0.611)	(2.921)	(3.034)	(2.945)
η_V ($\ln V_i$)	-0.074***	-0.074***	-0.074***	-0.091***	-0.091***	-0.091
	(0.001)	(0.001)	(0.001)	(0.011)	(0.011)	(0.011)
η_{loss} (loss)	1.813***	0.809***	2.400***	-5.583**	0.747***	-5.234
	(0.304)	(0.006)	(0.307)	(2.316)	(0.038)	(2.287)
$\eta_{\text{loss,cen}}$ (loss $\times c_i$)	-1.851***	-0.846***	-2.437***	5.831**	-0.499***	5.483
	(0.304)	(0.020)	(0.307)	(2.317)	(0.126)	(2.288)
$\eta_{\text{loss,dist}}$ (loss $\times(1-c_i)\times\bar{d}_i$)	-0.101***		-0.159***	0.631**		0.598
	(0.030)		(0.031)	(0.232)		(0.229)
$\eta_{\text{loss,insp}}$ (loss $\times(1-c_i)\times z_i$)		-0.054***	-0.054***		-0.039*	-0.038
		(0.004)	(0.004)		(0.023)	(0.023)
Service	0.230***	0.229***	0.229***	0.231***	0.230***	0.230
	(0.004)	(0.004)	(0.004)	(0.028)	(0.028)	(0.028)
Service share	2.029***	2.027***	2.026***	1.265***	1.264***	1.265
	(0.021)	(0.021)	(0.021)	(0.171)	(0.171)	(0.171)
Central buyer	0.262***	0.255***	0.255***	0.382***	0.374***	0.373
	(0.011)	(0.011)	(0.011)	(0.070)	(0.070)	(0.070)
Industry SOE share	0.304***	0.304***	0.304***	0.499**	0.494**	0.494
	(0.038)	(0.038)	(0.038)	(0.223)	(0.223)	(0.222)
Inspection intensity	-0.121***	-0.132***	-0.132***	0.061***	0.052***	0.052
	(0.002)	(0.002)	(0.002)	(0.012)	(0.013)	(0.013)
Industry firm count	0.094***	0.094***	0.094***	-0.009	-0.009	-0.009
	(0.002)	(0.002)	(0.002)	(0.016)	(0.016)	(0.016)
Avg. political distance	-0.182**	-0.165**	-0.193**	0.304	0.243	0.301
	(0.061)	(0.060)	(0.061)	(0.291)	(0.302)	(0.293)
Local share	0.925***	0.926***	0.926***	1.025***	1.024***	1.022
	(0.020)	(0.020)	(0.020)	(0.147)	(0.147)	(0.147)
Susp. value compression	0.434***	0.432***	0.432***	0.303***	0.303***	0.303
	(0.006)	(0.006)	(0.006)	(0.042)	(0.042)	(0.042)
Days to year-end	-0.058***	-0.058***	-0.058***	-0.124***	-0.124***	-0.124
	(0.002)	(0.002)	(0.002)	(0.013)	(0.013)	(0.013)
Effective N	898,026	898,026	898,026	12,981	12,981	12,981

Notes: This table reports the selection-equation estimates. The corresponding outcome-equation estimates are reported in Table 24. Robust sandwich standard errors are in parentheses. "Pub" includes the loss–political-distance interaction; "Priv" includes the loss–inspection interaction; "Both" includes both. All specifications include the central-buyer loss interaction and fix $\sigma_d = 1$. Significance: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

B.1 Institutional Background: Regulation of Open Bidding Thresholds

The *Government Procurement Law of the People' s Republic of China* mandates that all government procurement projects exceeding the monetary threshold for mandatory open bidding must adopt open bidding procedures. Any deviation to alternative procurement methods for special circumstances requires prior approval from the corresponding government procurement supervisory authority before the procurement process commences. No entity may split a procurement project into smaller lots or use other means to evade open bidding requirements for goods or services that should be procured via open bidding.

For procurement projects financed by the central budget, the monetary thresholds for mandatory open bidding are set by the State Council. For projects financed by local budgets, thresholds are determined by the governments of provinces, autonomous regions, and municipalities directly under the Central Government. The authority to establish local open bidding thresholds rests exclusively with provincial-level governments; sub-provincial cities, prefecture-level cities, county-level cities, and county governments lack the power to formulate local thresholds and must comply with standards issued by their superior provincial governments.

Central and provincial procurement standards are codified in the *Catalog and Standards for Centralized Government Procurement* (hereafter the Catalog and Standards), which is revised every two to three years (the exact update frequency varies across central and provincial levels based on administrative needs). Prior to the issuance of a new edition, the existing threshold standards remain in effect. For example, no updated Catalog and Standards was released for central budget units in 2019, so the thresholds from the 2017–2018 edition continued to apply. In 2020, the General Office of the State Council issued the *2020 Catalog and Standards for Centralized Government Procurement for Central Budget Units*, setting the mandatory open bidding threshold at **2 million yuan** for goods and services procured by central budget units—a standard that remains in place to date.

Provincial governments formulate their own thresholds by referencing the central Catalog and Standards. Unlike the central budget, provincial and sub-provincial (prefecture/county-level) budgets may adopt distinct standards. Some provincial governments explicitly publish thresholds for both provincial-level and sub-provincial governments. For instance, the *2025 Catalog and Standards for Centralized Government Procurement of Hubei Province* stipulates that procurement projects for goods or services exceeding **4 million yuan** (single or batch value) at the provincial and Wuhan municipal levels, or **2 million yuan** at the

prefecture/county level, must use open bidding.

By contrast, some provinces only publish provincial-level thresholds in certain years. For example, Shandong Province's 2019 policy document, the *2019 Catalog and Quota Standards for Centralized Government Procurement at the Provincial Level*, exclusively set provincial-level thresholds; sub-provincial standards were determined by municipal governments.

Additionally, separate planning municipalities adopt independent open bidding thresholds, which we explicitly mark in our analysis. We also distinguish special prefecture-level standards, such as Wuhan's adoption of the same threshold as Hubei's provincial level.

We compile annual open bidding thresholds for goods and services across provincial, prefecture, and county levels from 2013 to 2023 using provincial and municipal Catalog and Standards documents. To address missing data, we implement two imputation rules: (1) if no policy document for a given administrative level and year is available, we assume the threshold remains unchanged from the previous year; (2) if prefecture/county-level thresholds are missing and no explicit deviation from provincial standards is documented, we assume they match the provincial-level threshold.

B.2 Statutory Government Procurement Methods in China and Their Differences

In accordance with Article 26 of the *Government Procurement Law of the People's Republic of China*, government procurement shall adopt the following six statutory methods: (1) open bidding; (2) invited bidding; (3) competitive negotiation; (4) single-source procurement; (5) inquiry procurement; (6) other procurement methods recognized by the competent government procurement supervision department of the State Council. Among them, open bidding is stipulated as the primary method for government procurement.

On December 31, 2014, the Ministry of Finance issued the *Interim Measures for the Administration of Government Procurement via Competitive Consultation* (Document Caiku [2014] No.214), which officially launched the competitive consultation procurement method. This method adopts an innovative two-stage procurement mechanism that defines procurement requirements prior to competitive bidding, aiming to achieve the core goal of value for money in government procurement.

In December 2021, the Ministry of Finance promulgated the *Interim Measures for the Administration of Government Procurement via Framework Agreements*, which gradually integrated traditional agreed supply and designated supplier procurement modes.

Designated supplier procurement means that central government procurement institutions select a batch of qualified designated suppliers through statutory methods such as open bidding, clarify unified standards concerning product quality, pricing and procurement procedures, and sign framework agreements with selected suppliers. Within the valid period of agreements, designated suppliers shall provide qualified goods and services in accordance with contractual provisions. It has long been a mainstream organizational form for centralized government procurement.

Agreed supply refers to confirming qualified suppliers and eligible products via open bidding. During the term of the supply agreement, procuring entities may sign formal procurement contracts with designated suppliers directly, or through supplementary negotiation and price inquiry.

The definitions and applicable scenarios of all types of government procurement methods are presented in the following table.

Table 26: Government Procurement Methods under Chinese Law

Method	Definition	Applicable Circumstances
Open Bidding (公开招标)	The procuring entity invites unspecified suppliers to bid through a public announcement.	Goods or services projects whose single procurement amount meets or exceeds the statutory open-bidding threshold.
Invited Bidding (邀请招标)	The procuring entity randomly selects three or more qualified suppliers from a statutory list and issues bidding invitations.	(1) Specialized items procurable only from a limited range of suppliers; (2) Open bidding cost is disproportionate to total project value.
Competitive Negotiation (竞争性谈判)	A panel negotiates with qualified suppliers; the procuring entity selects the lowest-price supplier from the candidate list.	(1) No valid bid after open bidding or re-bidding; (2) Technical complexity prevents detailed specification; (3) Open-bidding timeline cannot meet urgent needs; (4) Total price cannot be determined in advance.
Competitive Consultation (竞争性磋商)	A panel consults with qualified suppliers; the winner is determined by a comprehensive scoring method.	(1) Government purchase of services; (2) Technical complexity prevents detailed specification; (3) Price incalculable due to artwork, patents, proprietary technology, or uncertain timing; (4) Scientific research or technology transfer projects; (5) Construction projects outside the Tendering and Bidding Law's mandatory scope.
Inquiry (询价)	The procuring entity requests a one-time, non-modifiable price from qualified suppliers and selects the lowest.	Items with uniform specifications, sufficient spot supply, and small price fluctuations.
Single-Source (单一来源)	Direct procurement from a unique supplier.	(1) Only one supplier available; (2) Unforeseen emergency; (3) Continuity or compatibility with the original project, with additional value not exceeding 10% of the original contract.

Table 26 (continued)

Method	Definition	Applicable Circumstances
Framework Agreement (框架协议采购)	The procuring entity identifies multiple qualified suppliers through open solicitation, signs framework agreements, and awards individual contracts within the qualified shortlist as demand arises.	(1) Small-scale, sporadic catalog items and consumables; (2) Small-scale attestation or consulting services above the threshold for departmental use; (3) Government service projects requiring two or more suppliers for beneficiary choice; (4) Other statutory cases.

Notes: Open bidding is the primary procurement method stipulated by the Government Procurement Law; all other methods are collectively referred to as discretionary (non-open) procedures in this paper. Competitive consultation was introduced by the Ministry of Finance in 2014 (Caiku [2014] No. 214). Framework agreement procurement was formalized in 2021. See the Government Procurement Law and its implementing regulations for full details.

B.3 Detailed Bunching Specification.

The core principle of the bunching estimator is to compare the observed distribution of procurement values to a counterfactual distribution that would prevail in the absence of the notch. Let z denote the contract value, and let c_j denote the number of contracts in bin j. The central empirical challenge is constructing a credible counterfactual density $\hat{c}_j$ from the observed data, using only those portions of the distribution that are sufficiently far from the threshold to be unaffected by the bunching response.

Counterfactual Estimation Figure 2 illustrates the discontinuity in government procurement procedures at the open bidding threshold. When a procurement contract exceeds this statutory threshold, the procuring entity is required to adopt open competitive bidding—a process that entails substantially higher transaction costs. This discrete increase in procedural burden generates a notch in the cost schedule at the threshold, creating incentives for procurement officials to strategically cluster contract values just below the cutoff. To quantify this behavioral response, we employ a bunching design (Kleven & Waseem, 2013), which has become the standard approach for identifying behavioral elasticities around kinks and notches in policy schedules.

The key distinction between kink-based and notch-based bunching designs is that a kink induces a continuous change in marginal costs, while a notch—as in the open bidding threshold—generates a discontinuous jump. When the procurement amount crosses the threshold, the mandatory shift to open bidding produces a sudden cost increase. This implies that there exists a "strictly dominated region" (Kleven & Waseem, 2013): a range of contract values immediately above the threshold for which the additional cost of open bidding exceeds any conceivable benefit, so that no optimizing agent would choose to locate there. Consequently, the observed density should exhibit a pronounced spike (excess mass) just below the threshold and a corresponding deficit (missing mass) above it.

Following Kleven and Waseem (2013), we estimate the counterfactual distribution by fitting a flexible polynomial to the observed bin counts, excluding a region $[z_L, z_U]$ around the threshold z^* where bunching behavior is expected to distort the distribution:

$$c_j = \sum_{i=0}^{p} \beta_i (z_j)^i + \sum_{k=z_L}^{z_U} \gamma_k \cdot \mathbf{1}[z_j = k] + \varepsilon_j. \tag{15}$$

The first term is a p-th order polynomial in the contract value z_j (measured as the distance from the threshold, normalized such that $z_j = 0$ at the threshold). The second term includes

bin fixed effects for all bins in the excluded range $[z_L,\, z_U]$, so that these observations do not influence the polynomial fit. The polynomial degree p is set to 5, and the bin width is set to RMB 50,000, in line with standard practice. The indicator $\mathbf{1}[z_j = k]$ equals one if bin j lies within the excluded region and zero otherwise. By absorbing the bins in the excluded region through fixed effects, the polynomial parameters β_i are identified solely from the data outside $[z_L,\, z_U]$. The counterfactual distribution is then obtained as the predicted values from the polynomial:

$$\hat{c}_j = \sum_{i=0}^{p} \hat{\beta}_i (z_j)^i.$$

Excess Bunching and Missing Mass The excess mass B—the number of contracts that have been shifted to bunch just below the threshold—is computed as the difference between the observed and counterfactual counts within the excluded range below the threshold:

$$\hat{B} = \sum_{j=z_L}^{-1} \Big(c_j - \hat{c}_j \Big). \tag{16}$$

Correspondingly, the missing mass M above the threshold is:

$$\hat{M} = \sum_{j=0}^{z_U} \Big(\hat{c}_j - c_j \Big). \tag{17}$$

In the presence of an interior notch, the excess mass below the threshold should be approximately offset by the missing mass above it—net of any extensive-margin responses (entry or exit). We define the bunching region symmetrically around the threshold, with z_L as the lower bound of the excluded region and z_U as the upper bound. The upper bound z_U is determined by a straightforward economic logic: the missing-mass region extends to the point where the counterfactual distribution first intersects the observed distribution from above, indicating that contracts beyond this point are no longer affected by the notch.

Standard Errors via Bootstrap To obtain standard errors for all estimated quantities, we implement a residual-based bootstrap procedure with 200 replications. In each iteration, we resample with replacement from the residuals of the counterfactual regression (15) obtained from the original estimation. The resampled residuals are added back to the fitted counterfactual values to generate a new pseudo-observed distribution, from which the entire bunching estimation is repeated. The standard deviation of the resulting bootstrap distribution of each parameter provides the standard error.

Notation For clarity, we denote Z_L as the excess bunching (excluded) region below the threshold, Z_U as the missing mass (excluded) region above the threshold, and $Z = Z_L \cup Z_U$ as the total excluded region around the threshold.

Round Number Adjustment A well-known concern in bunching designs applied to financial magnitudes is the clustering of observations at salient round numbers—for instance, a contract valued at exactly RMB 200,000 rather than RMB 203,281. Such heaping behavior, if present in the data, would generate spurious density spikes that could confound the estimate of policy-induced bunching. To mitigate this contamination, we follow Kleven, Landais, and Saez (2013) and augment the counterfactual regression with indicators for round-number bins. Specifically, we include dummy variables for all bins whose midpoint is a multiple of RMB 50,000:

$$c_j = \sum_{i=0}^{p} \beta_i (z_j)^i + \sum_{k=z_L}^{z_U} \gamma_k \cdot \mathbf{1}[z_j = k] + \sum_{r \in \mathcal{R}} \rho_r \cdot \mathbf{1}[z_j = r] + \varepsilon_j, \tag{18}$$

where $\mathcal{R}$ denotes the set of bins corresponding to integer multiples of RMB 50,000. The round-number fixed effects ρ_r absorb any heaping-driven density concentration, thereby isolating the residual bunching attributable to the policy notch.

B.4 Detailed ITT Specification.

In the previous subsection, we showed that procurement units at different administrative levels—central versus local—manipulate procurement amounts by different magnitudes around the threshold. Most notably, central government procurement exhibits a larger degree of manipulation, suggesting a stronger revealed preference for high-discretion procurement methods. This raises a natural question: how does manipulation-induced discretion affect procurement outcomes?

In this subsection, we follow the logic of Diamond and Persson (2016) and Y. Li et al. (2025) to estimate the effect of obtaining discretion on outcome variables, such as supplier characteristics. The key idea is to compare the average outcome of *compliers*—that is, procurement orders whose amounts are adjusted from above the threshold to below it —under the treatment state, where the manipulated order gains access to a more discretionary procurement method, with the counterfactual state in which the order amount is not manipulated. The resulting difference identifies the local average treatment effect of manipulation-induced discretion on the outcome variable.

The key identifying assumption is that, absent manipulation of procurement amounts, the relationship between the outcome variable and procurement amount would be smooth. This allows us to estimate the counterfactual outcome distribution by fitting a polynomial to observations in the non-manipulated region, that is, outside the excluded bunching interval.

We implement the estimation in three steps.

Step 1: Counterfactual outcome First, we estimate the counterfactual relationship between procurement amount and the outcome variable using a specification analogous to equation (1), replacing the dependent variable with the outcome of interest:

$$\text{outcome}_{fi} = \sum_{k=0}^{5} \beta_k (g_i)^k + \mathbf{1}\{y_i^r \in \mathcal{N}\} \left(\theta_0 + \theta_1 g_i + \theta_2 g_i^2\right) + \omega_p + \varepsilon_i, \tag{19}$$

where outcome_{fi} denotes the value of a supplier characteristic for procurement order f in bin i. The remaining variables are defined as in equation (1). This step yields the counterfactual distribution of the outcome variable that would prevail in the absence of the open-bidding threshold policy.

Step 2: Counterfactual density of procurement amounts Second, we estimate the counterfactual distribution of procurement amounts, $f_0(y)$, using the bunching specification:

$$c_i = \sum_{l=0}^{q} \beta_l (g_i)^l + \sum_{j=y_L}^{y_r} \rho_r \mathbf{1}\{y_i^r \in \mathcal{N}\} + \sum_{j=y_L}^{y_r} \gamma_j \mathbf{1}\{y_i = j\} + \upsilon_i. \tag{20}$$

Step 3: Recover LATE for compliers Third, we recover the average counterfactual outcome of compliers in the absence of manipulation, the average treated outcome of compliers under manipulation, and their difference, which gives the local average treatment effect. Specifically, the average counterfactual outcome of compliers is

$$\text{outcome}_i^{CP,0} = \frac{\text{outcome}_i^0 \cdot f_0(y) - \text{outcome}_i \cdot f(y)}{f_0(y) - f(y)},$$

and the average observed outcome of compliers under treatment is

$$\text{outcome}_i^{CP} = \frac{\text{outcome}_i \cdot f(y) - \text{outcome}_i^0 \cdot f_0(y)}{f(y) - f_0(y)}.$$

Let

$$N^{CP} \equiv \sum_{y_i \in A_L} \Big(f(y) - f_0(y) \Big) = \sum_{y_i \in A_U} \Big(f_0(y) - f(y) \Big)$$

denote the number of compliers, that is, the number of bunching procurement orders. The local average treatment effect is then given by

$$\text{LATE} = \mathbb{E}\left[\text{outcome}_i^{CP}\right] - \mathbb{E}\left[\text{outcome}_i^{CP,0}\right],$$

or equivalently,

$$\text{LATE} = \frac{\sum_{y_i \in A_L} \Big(f(y) - f_0(y) \Big) \cdot \text{outcome}_i^{CP}}{\sum_{y_i \in A_L} \Big(f(y) - f_0(y) \Big)} - \frac{\sum_{y_i \in A_U} \Big(f_0(y) - f(y) \Big) \cdot \text{outcome}_i^{CP,0}}{\sum_{y_i \in A_U} \Big(f_0(y) - f(y) \Big)}.$$

Standard errors are computed by bootstrap.