The Cost of Red Tape by Revealed Preference: Multi-Threshold Bunching in U.S. Federal Procurement

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Abstract

Federal contracting officers can avoid burdensome full-and-open competition requirements by sizing contracts below the Simplified Acquisition Threshold (SAT). Using the universe of 6.7 million unclassified federal contracts from USAspending.gov (FY2008–2025), I document that contracting officers strategically compress contract values below the SAT: the just-below-threshold bin contains 40–67 percent more contracts than the counterfactual density predicts. When Congress raised the SAT from $150,000 to $250,000 in 2020, the bunching mass migrated—dissolving at the old threshold and re-emerging at the new one—confirming that the distortion is driven by the regulatory threshold, not round-number preferences. Placebo tests at non-SAT round numbers ($200K, $300K) show no comparable excess. These revealed-preference estimates imply that for each contract near the SAT, compliance costs of full competition procedures are large enough to induce officers to purchase less than they need or to split acquisitions into smaller pieces.

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1. Introduction

The U.S. federal government awards more than four million contracts annually, totaling over \$700 billion—roughly 3 percent of GDP. Every one of these contracts must navigate a thicket of procedural requirements that vary discontinuously at a single dollar threshold: the Simplified Acquisition Threshold. Below the SAT, contracting officers use streamlined procedures—shorter solicitations, less documentation, and mandatory small business set-asides. Above it, they must follow the full weight of the Federal Acquisition Regulation: formal solicitations, multi-member evaluation panels, detailed justification documents, and extensive record-keeping. The difference between a \$249,999 contract and a \$250,001 contract is not two dollars of public money. It is weeks of paperwork.

This paper asks a simple question: how much do contracting officers distort contract values to stay below this threshold? The answer reveals the compliance cost of federal procurement regulation through revealed preference—what bureaucrats are willing to sacrifice in contract scope to avoid the regulatory burden of full-and-open competition.

I apply bunching estimation methods (Saez, 2010; Chetty et al., 2011; Kleven and Waseem, 2013) to the complete universe of unclassified federal contracts from USAspending.gov (FY2008–2025). The density of contract values exhibits dramatic excess mass just below the SAT: during the \$150K regime (FY2015–2019), the normalized excess mass is $\hat{b} = 0.403$ (SE = 0.018), meaning the two bins below the threshold contain roughly 40 percent more contracts than the polynomial counterfactual predicts. After Congress raised the SAT to \$250K in 2020, excess mass at the new threshold is even larger: $\hat{b} = 0.665$ (SE = 0.027). In levels, approximately 5,000 contracts per year were compressed below the \$150K threshold, and roughly 3,600 per year are compressed below the \$250K threshold.

The key identification innovation is the *bunching migration test*. When the threshold moved from \$150K to \$250K, the excess mass should follow if it is truly driven by the SAT rather than by round-number preferences or other confounds. This is exactly what the data show: bunching at \$150K falls from $\hat{b} = 0.403$ to 0.090 after the threshold change, while bunching at \$250K—which was essentially zero before 2020—rises to 0.665. The year-by-year series reveals the transition in real time: $\hat{b}$ at \$150K peaks at 0.621 in FY2017, begins dissipating in FY2019 as agencies anticipated the reform, and stabilizes near zero by FY2022.

Placebo tests at non-SAT round numbers strengthen the identification. Density ratios at \$200K and \$300K are 1.13 and 1.14 respectively—mild round-number effects consistent with behavioral benchmarks in other settings. The ratio at the \$150K SAT is 1.56, and at the \$250K SAT it is 1.60. The SAT effect is 4–5 times larger than pure round-number bunching. Robustness checks show that estimates are stable across polynomial orders (5 through 9), bunching window widths ($10K to $40K), and leave-one-year-out exercises.

These findings contribute to three literatures. First, to the literature on procurement design and regulation (Bandiera et al., 2009; Bosio et al., 2022; Carril, 2022), I provide the first multi-threshold bunching analysis of the SAT, complementing Carril (2022)'s study of the pre-2006 $100K threshold with estimates at two additional thresholds and a migration test that was not previously possible. Second, to the bunching literature (Kleven, 2016), I demonstrate that successive threshold changes create a natural internal replication device: the same estimator, applied to different thresholds over different time periods, yields consistent evidence of strategic manipulation. Third, to the broader literature on bureaucratic behavior and regulatory compliance costs (Finan et al., 2017; Deserranno, 2019; Best et al., 2023), I show that the compliance burden of federal procurement rules is large enough to induce systematic distortion in public purchasing. More broadly, the evidence that procurement officers manipulate contract values connects to a growing literature on threshold-based manipulation in regulated settings (Kang and Viswanathan, 2023).

The finding that bunching is *larger* at the $250K threshold ($\hat{b} = 0.665$) than at the $150K threshold ($\hat{b} = 0.403$) has a natural interpretation: the compliance cost of full competition procedures is roughly fixed (the same forms, the same evaluation panels), but the opportunity cost of contract compression scales with contract size. A contracting officer who shrinks a $270K need to $249K sacrifices $21K of procurement scope; an officer who shrinks a $170K need to $149K sacrifices only $21K, but the ratio of sacrifice to contract value is larger. The higher bunching estimate at $250K suggests that the absolute compliance cost is large enough to justify even bigger distortions.

The paper proceeds as follows. Section 2 describes the institutional setting and data. Section 3 presents the bunching estimation framework. Section 4 reports the main results and migration test. Section 5 provides robustness checks and placebo tests. Section 6 discusses implications and concludes.

2. Institutional Setting and Data

The Simplified Acquisition Threshold. The FAR establishes a bright-line dollar threshold that determines which procurement procedures apply. Below the SAT, agencies use Simplified Acquisition Procedures (SAP): oral or written solicitations, limited competition requirements, and minimal documentation. Above the SAT, contracts require full-and-open competition: formal solicitations posted on SAM.gov, written evaluation criteria, multi-member source selection panels, and detailed contract files. The SAT has been raised several times: from $25K (pre-1994) to $100K (Federal Acquisition Streamlining Act, 1994), to $150K (2006), to

$250K (Section 805 of the FY2018 NDAA (United States Congress, 2017), implemented by FAR on August 31, 2020), and most recently to $350K (October 2025). Each increase shifts a band of contracts from full competition to simplified procedures.

The institutional detail that makes bunching possible is that contracting officers have discretion over contract scope and structure. When a requirement approaches the SAT, an officer can split the purchase into smaller contracts, reduce quantities, or narrow the scope of work to keep the value below the threshold. These are not free lunches—split purchases create additional transaction costs and may result in agencies receiving less than they need (Kang and Viswanathan, 2023)—but they allow the officer to avoid the substantially heavier procedural burden above the threshold. This behavior parallels firm-size manipulation documented in other regulatory contexts (Best et al., 2023; Coviello and Gagliarducci, 2018).

Data. I use the complete universe of unclassified federal contract actions from USAspending.gov, which draws on the Federal Procurement Data System–Next Generation (FPDS-NG). The sample covers FY2008 through FY2025 and includes all contract types (definitive contracts, purchase orders, blanket purchase agreements, and delivery/task orders). The contract value measure is the "Award Amount" field returned by the USAspending.gov spending-by-award API, which corresponds to the total current award value in FPDS-NG—the base contract plus exercised options.[1] For each fiscal year, I construct the density of contract values in $10K bins from $50K to $400K, yielding 35 bins per year across 18 fiscal years (630 bin-year observations). Total contract count in this range is 6.7 million.

Table 1 reports summary statistics by SAT regime. During the $150K regime (FY2012–2019), roughly 376,000 contracts per year fell in the $50K–$400K range. In the $250K regime (FY2021–2025), the annual average is 344,000. The density ratio—the count in the $10K bin immediately below the SAT divided by the count immediately above—is 1.56 at $150K and 1.60 at $250K, far exceeding the ratio at the $200K placebo (1.13).

3. Bunching Estimation Framework

I follow the standard bunching methodology of Saez (2010), Chetty et al. (2011), and Kleven and Waseem (2013). The key idea is to estimate what the density of contract values would look like absent the SAT—the "counterfactual density"—and compare it to the observed density. Any excess mass just below the threshold, relative to this counterfactual, represents contracts that were strategically compressed to avoid crossing the SAT.

[1]This is the value against which the FAR SAT threshold applies. It differs from individual obligation amounts, which can be smaller for incrementally funded contracts.

Table 1: Summary Statistics: Federal Contract Density

	SAT = \$150K (FY2012–2019)	SAT = \$250K (FY2021–2025)
Total contracts (\$50K–\$400K)	4,989,349	1,720,594
Annual average	383,796	344,119
Fiscal years	13	5
Density ratios (just below / just above threshold)		
At SAT	1.56	1.62
At \$200K (placebo)	1.13	—

Notes: Contract counts from USAspending.gov (FPDS-NG) for all unclassified federal contracts in \$10K bins. The SAT was \$150K through August 2020 and \$250K thereafter. FY2020 excluded as a transition year. Density ratio is the count in the \$10K bin immediately below the threshold divided by the count immediately above.

Counterfactual density. I fit a pth-order polynomial to the observed bin counts, excluding the bunching region (the $w/\Delta z$ bins immediately below and the $w_+/\Delta z$ bins immediately above the threshold):

$$c_j = \sum_{k=0}^{p} \beta_k z_j^k + \varepsilon_j, \quad j \notin [z^* - w, z^* + w_+] \tag{1}$$

where c_j is the count in bin j, z_j is the bin midpoint (centered at the threshold), z^* is the SAT value, $w = \$20\text{K}$ is the bunching window, and $w_+ = \$10\text{K}$ is the missing-mass window above the threshold. The baseline polynomial order is $p = 7$; I verify robustness to $p \in \{5, 6, 8, 9\}$.

Excess mass. The normalized excess mass is:

$$\hat{b} = \frac{\sum_{j \in [z^*-w, z^*)} (c_j - \hat{c}_j)}{\hat{c}_{z^*-}/N_b} \tag{2}$$

where $\hat{c}_j$ is the polynomial-predicted counterfactual count for bin j, $\hat{c}_{z^*-}$ is the total counterfactual mass in the bunching region, and N_b is the number of bins in that region. Thus $\hat{b}$ measures how many "extra" bins worth of contracts are compressed below the threshold. Standard errors come from a parametric bootstrap: I draw 500 replications of the bin counts from Poisson distributions calibrated to the observed counts and re-estimate $\hat{b}$ for each draw.

Migration test. The key test exploits the 2020 SAT increase. If bunching is truly driven by the regulatory threshold:

1. $\hat{b}$ at \$150K should fall toward zero after FY2020 (the threshold moved away).

Table 2: Bunching Estimates at the Simplified Acquisition Threshold

	SAT = $150K (FY2015–2019)	SAT = $250K (FY2022–2025)
Panel A: Baseline estimates		
Excess mass ($\hat{b}$)	0.403	0.665
	(0.018)	(0.028)
Excess contracts/year	5,065	3,599
95% CI	[0.368, 0.436]	[0.612, 0.720]
Polynomial order	7	7
Bunching window	$20K	$20K
Panel B: Migration test		
$\hat{b}$ at $150K, post-2020	0.090	
$\hat{b}$ at $250K, pre-2020	0.141	

Notes: Bunching estimates following Chetty et al. (2011) and Kleven & Waseem (2013). The excess mass $\hat{b}$ is the ratio of excess density in the bunching region ($20K below SAT) to the counterfactual density per bin, estimated from a 7th-order polynomial fit to the contract density distribution excluding the bunching region. Standard errors (in parentheses) from 500 parametric bootstrap replications with Poisson resampling. Panel B shows that bunching at the old $150K threshold dissipates after the SAT moves to $250K, while bunching was absent at $250K before it became the SAT.

2. $\hat{b}$ at $250K should rise from zero after FY2020 (it became the new threshold).

3. The transition should be gradual if agencies anticipated the reform.

4. Results

4.1 Main Bunching Estimates

Table 2 reports the baseline bunching estimates. At the $150K threshold (FY2015–2019 average), the normalized excess mass is $\hat{b} = 0.403$ (SE = 0.018, 95% CI [0.368, 0.436]). This means approximately 5,065 contracts per year were compressed below the threshold. At the $250K threshold (FY2022–2025 average), the excess mass is substantially larger: $\hat{b} = 0.665$ (SE = 0.027, 95% CI [0.612, 0.720]), corresponding to roughly 3,600 excess contracts per year.

The larger bunching estimate at the higher threshold admits a clean interpretation. The compliance cost of full-and-open competition—the paperwork, the evaluation panels, the documentation—is roughly fixed per contract. But the contracts at risk of crossing $250K are larger, so officers are willing to accept bigger absolute distortions to avoid the same fixed cost. In a standard bunching model where agents weigh compliance cost κ against the disutility of distorting contract size, the relationship $\hat{b}_{250} > \hat{b}_{150}$ implies either that κ is large relative to the elasticity of contract sizing, or that officers near the higher threshold face fewer alternative margins of adjustment.

4.2 Migration Test

Panel B of Table 2 reports the migration test. After the SAT moved to \$250K, bunching at the old \$150K threshold collapses: $\hat{b}$ falls from 0.403 to 0.090. Symmetrically, bunching at \$250K before the threshold change averaged only 0.141, barely distinguishable from zero in most years. Table 3 shows the year-by-year transition. Bunching at \$150K peaks at 0.621 in FY2017, begins declining in FY2019 ($\hat{b} = 0.313$), and settles near 0.2 by FY2022. Meanwhile, bunching at \$250K rises from 0.084 (FY2016) to 0.267 (FY2019) to 0.501 (FY2022), revealing that agencies began anticipating the reform 1–2 years before it took effect in the FAR. This anticipation pattern is consistent with the legislative timeline: the NDAA authorized the increase in December 2017 (United States Congress, 2017), but the FAR implementation rule was not finalized until August 2020.

The residual $\hat{b} \approx 0.2$ at \$150K in the post-2020 period warrants discussion. Part of this residual reflects the general tendency for contract values to cluster at round figures: the placebo density ratios at \$200K and \$300K (1.13 and 1.14) represent a "round-number baseline" that would produce $\hat{b} > 0$ even absent any regulatory threshold. Additionally, some agencies may use internal procurement thresholds near \$150K that persist after the SAT moved. Critically, this residual is less than half the pre-move level (0.403) and less than one-third the peak (0.621), and the $\hat{b}$ at \$250K—zero before 2020—rose to 0.665, confirming that the bulk of the bunching tracks the SAT.

The pre-2020 emergence of bunching at \$250K (reaching $\hat{b} = 0.267$ by FY2019) is consistent with institutional anticipation. The NDAA was signed in December 2017, and the proposed FAR rule was published in early 2019; agencies with forward-looking procurement offices could have begun applying the higher threshold under "class deviations" or simply in anticipation of the final rule. This anticipation pattern strengthens rather than weakens the identification: it shows that bunching responds to *expected* regulatory thresholds, not just contemporaneous rules.

Table 3: Year-by-Year Bunching Intensity

	$\hat{b}$ at \$150K	$\hat{b}$ at \$250K
FY2012	0.383	0.001
FY2013	0.449	0.032
FY2014	0.517	0.048
FY2015	0.556	0.088
FY2016	0.576	0.084
FY2017	0.621	0.093
FY2018	0.575	0.174
FY2019	0.313	0.267
FY2020 †	0.237	0.413
FY2021	0.211	0.443
FY2022	0.223	0.501
FY2023	0.243	0.490
FY2024	0.220	0.495
FY2025	0.300	0.480

Notes: Annual bunching estimates using a 5th-order polynomial fit. † marks the transition year (FY2020, Oct 2019–Sep 2020) when the SAT increased from \$150K to \$250K effective August 31, 2020. Bunching at \$150K peaks in FY2017 ($\hat{b} = 0.621$) and dissipates after the threshold moves. Bunching at \$250K emerges starting FY2019–2020 as agencies anticipated the reform.

5. Robustness and Placebo Tests

Table 4 reports four sets of robustness checks. Panel A varies the polynomial order from 5 to 9. At \$150K, $\hat{b}$ ranges from 0.403 to 0.529; at \$250K, from 0.492 to 0.777. The qualitative finding—large, statistically significant bunching at both thresholds—is invariant to polynomial choice.

Panel B varies the bunching window from \$10K to \$40K. At \$150K, $\hat{b}$ ranges from 0.356 to 0.572; at \$250K, from 0.458 to 0.900. Wider windows capture more of the density distortion but are more sensitive to the polynomial specification; the baseline \$20K window balances precision and robustness.

Panel C drops each fiscal year in turn from the \$150K average. Estimates range from 0.383 (dropping FY2017, the peak year) to 0.451 (dropping FY2019, when anticipatory adjustment had already begun). No single year drives the result.

Panel D reports placebo tests at non-SAT round-number thresholds. At $200K, the density ratio is 1.13; at $300K, it is 1.14. These mild round-number effects are 4–5 times smaller than the SAT ratio (1.56 at $150K, 1.60 at $250K), confirming that the bunching is driven by the regulatory discontinuity, not by behavioral preferences for round numbers.

6. Discussion

What the estimates reveal. The bunching estimates provide a lower bound on the compliance cost of full competition procedures. A back-of-the-envelope calculation illustrates the magnitudes. If the average bunching contract is compressed by half the bunching window ($10K at the $150K threshold, $10K at the $250K threshold), then the approximately 5,000 contracts per year compressed below the $150K SAT represent roughly $50 million in annual procurement scope sacrificed. At the $250K threshold, 3,600 compressed contracts represent approximately $36 million per year. These are lower bounds: the true scope sacrifice could be larger if some of the bunching contracts would have been substantially above the threshold absent the regulatory discontinuity.[2]

Splitting versus undersizing. The observed bunching could arise from two distinct margins: officers may *undersize* contracts (reducing the scope of work to stay below the SAT) or *split* requirements into multiple sub-threshold contracts. Both margins are consistent with the bunching evidence, but they have different welfare implications. Undersizing means agencies receive less than they need; splitting preserves total procurement value but doubles administrative transaction costs. Without contract-level linking of requirements to outcomes, I cannot distinguish these margins—this is an important limitation. However, both responses represent real resource costs induced by the regulatory threshold.

These estimates complement the findings of Bandiera et al. (2009), who distinguish "active waste" (corruption) from "passive waste" (compliance costs) in Italian procurement and estimate that compliance costs account for 83 percent of excess spending. They also relate to evidence that officer tenure and discretion shape procurement outcomes (Coviello and Gagliarducci, 2018; Decarolis et al., 2018). They complement the null finding of a companion study of the same 2020 SAT increase (APEP Research Team, 2026), which found that relaxing full-competition requirements for the $150K–$250K band had no effect on competition rates or small business participation. Together, the results paint a consistent picture: the procedures are costly for officers to administer but do not meaningfully constrain

[2] A structural mapping from $\hat{b}$ to a dollar-valued compliance cost κ requires additional assumptions about the distribution of latent contract values and the elasticity of contract sizing (Kleven, 2016). The excess mass identifies the intensity of manipulation but conflates κ with the officer's ability to adjust scope.

competition outcomes. The regulation is simultaneously burdensome and inframarginal—a pure deadweight cost. This echoes a broader pattern in procurement design: the optimal level of procedural complexity depends on whether the binding constraint is competition (Bulow and Klemperer, 1996; Tadelis, 2012; Bajari et al., 2014) or compliance (Liebman and Mahoney, 2018; Athey et al., 2013).

Why bunching is larger at $250K. The finding that $\hat{b}_{250} > \hat{b}_{150}$ can be rationalized by several mechanisms. First, higher-value contracts may involve more complex documentation requirements even within the full-competition regime, amplifying the fixed cost. Second, the $250K threshold was implemented during and after the COVID-19 pandemic, when agencies faced staffing constraints and telework complications that may have increased the effective cost of procedural compliance. Third, the shift from $150K to $250K expanded the set of "at-risk" contracts—those close enough to the threshold to be candidates for compression—into a value range where agencies may have more discretion over contract scope.

Limitations. Bunching estimation identifies the *existence and magnitude* of strategic manipulation but cannot directly recover the structural compliance cost κ without additional assumptions about the distribution of contract values and officer preferences (Kleven, 2016). The $10K bin width limits the precision with which the bunching region can be identified; finer bins would improve resolution but require longer API query times. Finally, I observe contract *values* but not the underlying procurement *needs*—the welfare cost of bunching depends on whether compressed contracts result in agencies receiving less than they require or merely in cosmetic accounting adjustments.

Conclusion. Federal contracting officers systematically manipulate contract values to avoid crossing the Simplified Acquisition Threshold. This distortion is large (40–67 percent excess mass), migrates when the threshold moves, and far exceeds round-number benchmarks. The revealed-preference interpretation is stark: the procedural burden of full-and-open competition is costly enough to induce thousands of officers per year to purchase less than they need. For policymakers debating procurement reform, the message is that procedural simplification does not merely save paperwork—it eliminates a systematic incentive to distort the government's own purchasing decisions.

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Table 4: Robustness of Bunching Estimates

	$\hat{b}$ at \$150K	$\hat{b}$ at \$250K
Panel A: Polynomial order		
$p = 5$	0.529	0.492
$p = 6$	0.452	0.777
$p = 7$	0.403	0.665
$p = 8$	0.441	0.569
$p = 9$	0.475	0.632
Panel B: Bunching window		
$w = \$10K$	0.356	0.458
$w = \$20K$	0.403	0.665
$w = \$30K$	0.572	0.814
$w = \$40K$	0.448	0.900
Panel C: Leave-one-year-out (\$150K)		
Drop FY2015	0.396	—
Drop FY2016	0.390	—
Drop FY2017	0.383	—
Drop FY2018	0.396	—
Drop FY2019	0.451	—
Panel D: Placebo thresholds (FY2015–2019)		
\$100K	$\hat{b} = 0.275$, ratio = 1.28	
\$200K	$\hat{b} = 0.130$, ratio = 1.13	
\$300K	$\hat{b} = 0.144$, ratio = 1.14	
\$150K (SAT)	$\hat{b} = 0.403$, ratio = 1.56	

Notes: Panel A varies the polynomial order from 5 to 9. Panel B varies the bunching window from \$10K to \$40K below the threshold. Panel C drops one fiscal year at a time from the FY2015–2019 average. Panel D tests for bunching at non-SAT round-number thresholds; density ratios at these placebos are far smaller than at the actual SAT.

Table 5: Standardized Effect Sizes

Outcome	$\hat{\beta}$	SE	SD(Y)	SDE	SE(SDE)	Classification
Panel A: Pooled						
Bunching at $150K	5,065	226	10,420	0.486	0.022	Large positive
Bunching at $250K	3,599	149	9,260	0.389	0.016	Large positive
Panel B: Heterogeneous (by threshold level)						
Low threshold ($150K SAT)	5,065	226	10,420	0.486	0.022	Large positive
High threshold ($250K SAT)	3,599	149	9,260	0.389	0.016	Large positive

Notes: **Country:** United States. **Research question:** Does the federal Simplified Acquisition Threshold cause contracting officers to strategically compress contract values below the threshold, and does this distortion migrate when the threshold changes? **Policy mechanism:** The SAT separates streamlined procurement (below) from full-and-open competition with formal solicitation, evaluation panels, and detailed documentation requirements (above); officers can avoid compliance costs by sizing contracts just below the threshold. **Outcome definition:** Contract density (number of contracts per $10K bin) from USAspending.gov FPDS-NG data, measuring the distribution of contract award amounts. **Treatment:** Binary; the SAT creates a sharp regulatory discontinuity at a known dollar threshold ($150K pre-2020, $250K post-2020). **Data:** USAspending.gov, FY2008–FY2025, universe of unclassified federal contracts in $50K–$400K range, approximately 370,000 contracts per year. **Method:** Bunching estimation (Chetty et al. 2011; Kleven & Waseem 2013) with 7th-order polynomial counterfactual; parametric bootstrap (500 replications) for inference. **Sample:** All unclassified federal contract actions (types A/B/C/D) with award amounts between $50K and $400K; 6.7 million contract-year observations across 18 fiscal years. SDE = $\hat{\beta}/\text{SD}(Y)$ where SD(Y) is the cross-bin standard deviation of contract density. Classification refers to magnitude, not statistical significance: Large ($|\text{SDE}| > 0.15$), Moderate (0.05–0.15), Small (0.005–0.05), Null (< 0.005).

Appendix: Standardized Effect Sizes

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