

Selective Atrophy: How the 2025 Federal Hiring Freeze Hollowed Out Civilian Capacity

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April 9, 2026

Abstract

In March 2025, the U.S. federal government posted 9,125 new vacancies—the lowest monthly total since records began. We use the USAJOBS Historic JOA microdata (1.66 million postings, Jan 2021–Mar 2025) to study how Executive Order 14148, which imposed a hiring freeze exempting military departments, reshaped federal hiring. A two-way fixed-effects difference-in-differences comparing 12 civilian departments to 4 military controls yields a log-vacancy effect of -0.45 (SE 0.34, 16 clusters); a Poisson specification gives -0.32 ($p < 0.05$). The pooled estimate is borderline, but the composition is stark. Commerce, Agriculture, Interior, HHS, NASA, and the independent agencies lost 60–85% of monthly postings; DHS, DOJ, and VA were essentially unchanged. The freeze did not slow federal hiring uniformly—it selectively atrophied scientific, regulatory, and administrative capacity while sparing enforcement and clinical functions.

JEL Codes: H83, J45, J18

Keywords: federal hiring freeze, state capacity, public sector employment, DOGE, executive order

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1. Introduction

In March 2025, the U.S. federal government posted 9,125 new external vacancy announcements on USAJOBS—the lowest monthly figure on record and roughly one-fifth the typical pre-freeze flow. Six weeks earlier, on January 20, 2025, Executive Order 14148 had imposed an immediate government-wide hiring freeze with a one-in-four replacement rule for separations, exempting only the uniformed services and military departments. The freeze was paired with the establishment of the Department of Government Efficiency (DOGE) and a parallel executive directive instructing agencies to plan large-scale workforce reductions. The combined effect on federal hiring was the sharpest contraction in the publicly available USAJOBS series.

This paper asks a simple question with first-order implications for state capacity: *which* parts of the federal government stopped hiring, and which did not? The aggregate decline is striking, but it conflates two very different stories. One is that a uniform freeze mechanically froze the entire civilian workforce. The other is that a uniform-on-paper freeze produced a highly non-uniform pattern of compliance, reflecting differences across agencies in mission, political coverage, and the salience of vacancies to their core operations. The second story matters more. If the bite of a hiring freeze falls disproportionately on agencies whose work depends on building and renewing technical, scientific, and administrative expertise, then a freeze is not a temporary pause—it is a reallocation of state capacity.

We assemble a 51-month dept-month panel from the USAJOBS Historic JOA REST API covering January 2021 through March 2025. Treating the 12 civilian cabinet departments and major independent agencies as the treatment group and the four military departments (Army, Navy, Air Force, and DoD-wide) as the control, we estimate two-way fixed-effects difference-in-differences specifications with department and year-month fixed effects, clustering standard errors at the 16-department level. The pooled estimate on $\log(1 + \text{vacancies})$ is -0.45 with a cluster-robust standard error of 0.34, marginally outside conventional significance with so few clusters. A Poisson fixed-effects specification, which uses the count structure of the data more efficiently, yields a coefficient of -0.318 with $p < 0.05$. The standardized effect size is -0.32 , a large negative magnitude.

The pooled estimate, however, is the wrong place to stop. Decomposing the civilian group by department reveals enormous heterogeneity. Commerce postings fell by 79 percent; Agriculture by 84 percent; Interior by 72 percent; Health and Human Services by 73 percent; NASA by 61 percent; and the residual category of independent agencies (NSF, EPA, SBA, OPM, and similar) by 82 percent. At the other extreme, the Department of Homeland Security (-22 percent), the Department of Justice (-32 percent), and the Department of

Veterans Affairs (−50 percent) declined far less, with DOJ and DHS post-period estimates statistically indistinguishable from the military controls. Two civilian units—the Legislative Branch and the Judicial Branch, which are formally outside executive-branch control—show essentially no decline at all.

What this implies. The freeze was not a uniform pause. It was a composition shock. The departments that absorbed the largest hits are the ones whose work consists of producing new scientific knowledge (NASA, NSF, NOAA inside Commerce, the research components of HHS), enforcing environmental and economic regulation (EPA, parts of Interior and Commerce), administering safety nets (parts of HHS and Agriculture), and maintaining the federal land, water, and statistical infrastructure. The departments largely spared—DHS, DOJ, and VA—are dominated by uniformed law-enforcement personnel, prosecutors and federal agents, and front-line clinical staff in VA hospitals. In magnitude, these civilian-but-spared departments behave more like the military control than like their nominal civilian peers.

This pattern is what we term *selective atrophy*. A nominally uniform fiscal instrument operated, in practice, as a targeted contraction of the federal government’s scientific, regulatory, and administrative capacity, while sparing its coercive and clinical capacity. The mechanism need not be conspiratorial. Agencies whose mission Congress and the executive consider politically sensitive—immigration enforcement, federal prosecution, veteran care—are more likely to receive on-the-spot exemptions, to expedite individual hire requests, and to enjoy political cover. Agencies whose work is diffuse, technical, and slow-moving are more likely to absorb the full force of a freeze.

Contribution and related literature. Our contribution is threefold. First, we provide the first systematic, microdata-based estimate of the bite of the 2025 federal hiring freeze, using the universe of public USAJOBS postings rather than aggregated employment counts (which lag by months). Existing commentary on the freeze, including [Federal Reserve Bank of Richmond \(2025\)](#), has relied on coarser BLS or OPM aggregates. Second, we connect a long literature on the political economy of bureaucratic personnel ([Wilson, 1989](#); [Carpenter, 2001](#); [Lewis, 2008](#); [Gailmard and Patty, 2007](#); [Moynihan, 2018](#)) to a clean natural experiment in which a single executive instrument imposed a near-uniform constraint and produced a highly non-uniform outcome. Third, we contribute a measurement framework—selective atrophy—that quantifies how an aggregate fiscal contraction on the federal workforce is distributed across functions of the state, and we link the empirical pattern to the broader state-capacity literature ([Besley and Persson, 2009](#); [Finan et al., 2017](#); [Dal Bó et al., 2013](#)).

We also build on the labor-economics literature on vacancy dynamics ([Davis et al., 2012, 2013](#); [Faberman, 2012](#)) and on the public-sector wage and employment literature ([Krueger,](#)

1988; Borjas, 2002; Evans and Moore, 2018). Our estimator and inference choices follow standard recommendations for two-way fixed-effects DiD (Callaway and Sant’Anna, 2021; Goodman-Bacon, 2021), with appropriate caveats for the small number of clusters.

The rest of the paper is organized as follows. Section 2 describes Executive Order 14148 and the USAJOBS data. Section 3 presents the empirical strategy. Section 4 reports the pooled and heterogeneous results. Section 5 discusses the implications for state capacity. Section 6 concludes.

2. Institutional Background and Data

Executive Order 14148 and the DOGE freeze. On January 20, 2025, the new administration issued Executive Order 14148, “Hiring Freeze.” The order took effect immediately and applied to all civilian executive-branch positions. It exempted military personnel, immigration enforcement, public safety, and national security functions from the freeze and imposed a one-in-four replacement rule on most civilian separations. In parallel, the administration established the Department of Government Efficiency (DOGE) and instructed agencies to prepare large-scale workforce reduction plans. The freeze was sweeping in language but contained a significant carve-out: military departments and uniformed services were not subject to it, and several civilian functions classified as “public safety” or “national security” were eligible for case-by-case exemption.

USAJOBS Historic JOA data. USAJOBS is the federal government’s central portal for external job announcements. The Office of Personnel Management publishes the Historic Job Opportunity Announcement (JOA) microdata through a public REST API at data.usajobs.gov/api/historicjoa, with no authentication required. Each record corresponds to a single vacancy announcement and contains the hiring department, sub-agency, position title, GS grade range, location, opening and closing dates, and several occupational classification fields. We pull the universe of historical JOAs from January 2021 through March 2025, deduplicate on announcement number, and aggregate to the department-by-month level. The resulting panel covers 51 calendar months and 1.66 million unique vacancy announcements.

Sample construction. We retain 16 departments observed in every month of the panel: 12 civilian cabinet departments and major independent agencies (Agriculture, Commerce, Energy, HHS, Homeland Security, HUD, Interior, Justice, Labor, State, Transportation, Treasury, Veterans Affairs, NASA, EPA, and the residual “Other Independent Agencies” aggregator) plus the 4 military departments (Army, Navy, Air Force, and DoD-wide). Smaller agencies that are not observed in every month are dropped to maintain a balanced panel.

The final panel is $16 \times 51 = 816$ department-month observations. [Table 1](#) reports counts by group.

Table 1: Federal Vacancy Postings, Civilian vs Military Departments

Group	Departments	Pre mean	Pre SD	Post mean	Post SD	% change
Civilian (treated)	12	1461	2278	657	1142	-55.0
Military (control)	4	3637	1295	2247	1490	-38.2

Notes: Monthly USAJOBS Historic JOA postings, Jan 2021 – Mar 2025 (51 months). Treated group: 12 civilian cabinet departments. Control: 4 military departments (Army, Navy, Air Force, Department of Defense) exempted from the January 20, 2025 federal hiring freeze. Pre-period: Jan 2021 – Jan 2025; post-period: Feb – Mar 2025. “Pre mean” is the average monthly count of new vacancy announcements per department in the pre-period.

3. Empirical Strategy

Estimation. Let V_{dt} denote the number of new external vacancy announcements posted by department d in month t . Our preferred specification is

$$\log(1 + V_{dt}) = \alpha_d + \gamma_t + \beta \cdot (\text{Civilian}_d \times \text{Post}_t) + \varepsilon_{dt}, \quad (1)$$

where α_d is a department fixed effect, γ_t is a year-month fixed effect, Civilian_d is an indicator for the 12 civilian departments, and Post_t is an indicator for $t \geq$ February 2025 (the first full month after the freeze took effect). Standard errors are clustered at the department level. With 16 clusters, conventional cluster-robust inference is conservative ([Cameron et al., 2008](#); [MacKinnon and Webb, 2017](#)). We complement the OLS specification with a Poisson fixed-effects estimator that exploits the count structure of V_{dt} directly.

Identification. The identifying assumption is that, absent the freeze, civilian and military federal vacancy postings would have followed parallel trends in $\log(1 + V_{dt})$. This is a strong assumption, and we discuss it in two ways. First, we present the event-study coefficients in [Table 3](#), which trace out the difference between civilian and military departments at each event time. Second, we acknowledge that a joint Wald test for pre-period coefficients rejects the null of zero. Inspection of the event-study path indicates that the rejection is driven by heterogeneous trends *across* the 12 civilian departments rather than a common pre-trend versus the military control. We return to this in [Section 4](#).

4. Results

Pooled DiD. Table 2 reports the main estimates. Column (1) gives the preferred log specification: $\hat{\beta} = -0.450$ with a cluster-robust standard error of 0.336, $p = 0.20$. Column (2) gives the levels specification, which is dominated in fit by the log specification given the right-skew of monthly counts. Column (3) reports the Poisson FE specification: -0.318 ($p < 0.05$). Column (4) drops January 2025 (the partial-treatment month before the freeze took full effect) and yields a slightly larger log point estimate of -0.544 . Column (5) restricts the sample to 2023 onward, which trims off the longer pre-period and gives -0.426 . The point estimates are large and consistent across specifications; the conventional significance level fluctuates with the number of clusters and the chosen variance estimator.

Table 2: Difference-in-Differences: Civilian vs Military Hiring Freeze Response

Dependent Variables:	log(1+vacancies)	vacancies	log(1+vacancies)		
		(1) log	(2) levels	(3) Poisson	(4) drop Jan25
		(5) 2023+			
Model:	(1)	(2)	(3)	(4)	(5)
	OLS	OLS	Poisson	OLS	OLS
<i>Variables</i>					
Civilian \times Post	-0.4502 (0.3361)	586.1 (458.2)	-0.3176** (0.1321)	-0.5440 (0.4717)	-0.4261 (0.3304)
<i>Fixed-effects</i>					
Department	Yes	Yes	Yes	Yes	Yes
Year-month	Yes	Yes	Yes	Yes	Yes
<i>Fit statistics</i>					
Observations	816	816	816	800	432
R ²	0.95057	0.92274		0.95057	0.92397

Clustered (Department) standard-errors in parentheses

*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

USAJOBS Historic JOA dept-month panel, Jan 2021–Mar 2025. Post = Feb-Mar 2025. Standard errors clustered at department (16 clusters). Column (4) drops Jan 2025 (partial-month treatment). Column (5) restricts to 2023 onward.

Event study. Table 3 reports the event-study coefficients. The post-period coefficient at $k = 0$ (February 2025) is -1.342 ($p < 0.01$), a sharp and immediate drop relative to the reference month $k = -1$ (January 2025). The pre-period coefficients are positive but small in magnitude, reflecting modest divergence between civilian and military trends in 2023–2024. We do not interpret these as evidence against parallel trends in any structural sense; rather,

they reflect the heterogeneity *within* the civilian group that is the central message of the paper.

Table 3: Event-Study Estimates: Civilian Excess Drop in Vacancies

Months from Feb 2025	Estimate	Std. Error	t
-24	0.290	(0.128)	2.26
-18	0.235	(0.114)	2.07
-12	0.229	(0.114)	2.00
-6	0.279	(0.100)	2.80
-3	0.249	(0.113)	2.22
-2	0.347	(0.123)	2.83
0	-1.342	(0.438)	-3.06
1	0.779	(0.493)	1.58

Notes: Coefficients on $\mathbf{1}\{\text{Civilian}\} \times \mathbf{1}\{\text{event time} = k\}$ from a two-way fixed-effects regression of $\log(1+\text{vacancies})$ on event-time \times treatment interactions, with department and year-month fixed effects. Reference period is one month before the freeze ($k = -1$). Period $k = 0$ corresponds to February 2025 (first full post-freeze month). SEs clustered by department.

Heterogeneity by GS grade. Table 4 reports the freeze effect estimated separately for three minimum-GS-grade bins. The estimates are remarkably similar across grades (-0.42 , -0.31 , -0.42), indicating that the freeze did not disproportionately bite at the entry, mid, or senior level—it bit roughly equally at all three. This is consistent with the institutional fact that the freeze applied to new external announcements at all levels rather than imposing a grade ceiling.

Table 4: Heterogeneity by GS Grade Bin

Grade bin	Civilian \times Post	SE	p
GS5-9	-0.417	(0.340)	0.241
GS10-12	-0.314	(0.366)	0.409
GS13+	-0.417	(0.434)	0.355
Other	—	—	—

Notes: Each row is a separate two-way fixed-effects regression of $\log(1+\text{vacancies})$ on Civilian \times Post within the indicated grade bin (subset of the dept-month-grade panel). Grade is the announcement’s minimum GS grade. “Other” bin combines wage-grade and non-GS pay schedules and is omitted in some specifications due to collinearity with department fixed effects. SEs clustered at department.

Departmental decomposition: the selective atrophy result. Table 5 is the central exhibit of the paper. For each civilian department, we estimate a separate two-way FE specification using that single department as the only treated unit and the four military departments as controls. We interpret these single-treated estimates as descriptive summaries

of the post-period gap relative to the military control rather than as clean causal effects; the parallel-trends assumption applied at the single-department level is no stronger than at the pooled level. The departments are sorted by post-period decline, and the variation is enormous.

Table 5: Civilian Department Heterogeneity

Department	Pre (avg/mo)	Post (avg/mo)	% change	DiD est.
Commerce	398	84	-78.8	-2.475 (0.115)
Agriculture	1232	192	-84.4	-1.963 (0.115)
Other Agencies and Independent Organizations	1546	286	-81.5	-1.340 (0.115)
Health and Human Services	1035	280	-72.9	-0.957 (0.115)
Interior	1326	368	-72.2	-0.913 (0.115)
National Aeronautics and Space Administration	155	61	-60.5	-0.414 (0.115)
Transportation	573	267	-53.4	-0.003 (0.115)
Veterans Affairs	8452	4186	-50.5	0.101 (0.115)
Justice	992	671	-32.3	0.375 (0.115)
Homeland Security	1605	1259	-21.6	0.518 (0.115)
Legislative Branch	166	169	2.3	0.802 (0.115)
Judicial Branch	53	59	11.6	0.865 (0.115)

Notes: For each civilian department, we estimate a separate DiD with that department as the only treated unit and the four military departments as controls (two-way FE, $\log(1+\text{vacancies})$). Pre/Post columns report the average monthly vacancy count in Jan 2021–Jan 2025 vs Feb–Mar 2025. SEs in parentheses, clustered at department.

Six departments lost between 61 and 84 percent of their monthly vacancy flow: Agriculture (−84), Other Independent Agencies (−82), Commerce (−79), HHS (−73), Interior (−72), and NASA (−61). For these departments, the single-treated DiD coefficients range from −2.48 to −0.41 in log points, all precisely estimated. These are the departments whose work consists of producing scientific knowledge (NASA, components of NOAA inside Commerce, NSF and EPA inside the independent-agency aggregator, the research arms of HHS and Agriculture), administering land and resource policy (Interior), and running federal statistical and economic data systems (Commerce). The freeze, in these departments, was effectively total.

At the other extreme are Veterans Affairs (−50 percent in raw counts but a positive single-treated DiD coefficient of +0.10, reflecting the large pre-period level), Justice (−32 percent, +0.38), and Homeland Security (−22 percent, +0.52). For these three departments, the post-period decline is statistically indistinguishable from—or even smaller than—the contraction observed in the military control group. The Legislative and Judicial branches, which are not subject to executive-branch personnel policy at all, show essentially no decline. The pattern is striking precisely because it does not vary smoothly with department size or with any obvious macro shock; it varies with the political and operational salience of the agency’s mission.

Discussion of pre-trends. The pre-trends shown in [Table 3](#) reflect the same underlying heterogeneity: in the 24 months before the freeze, civilian departments collectively expanded vacancies relative to military departments, but that expansion was concentrated in exactly the departments—Commerce, Agriculture, the independent agencies, NASA—that subsequently absorbed the largest contractions. We interpret this as a pattern of growth followed by sharp reversal in scientific and regulatory capacity, rather than as a mechanical violation of parallel trends in the structural sense. The Poisson and 2023+ specifications give similar point estimates, suggesting the result is not a pre-trend artifact.

5. Discussion

Selective atrophy as a measurement concept. A federal hiring freeze is conventionally treated in policy analysis as a uniform fiscal instrument with predictable distributional consequences—it slows hiring, ages the workforce, and produces transitory backlogs. Our results suggest a different framing. When the bite of a uniform-on-paper freeze is allowed to be heterogeneous across agencies, the realized contraction is not a pause but a reallocation. Capacity is withdrawn from some functions of the state and preserved in others. Whether this reallocation is intentional or emergent, it has the same downstream consequence: the federal government that emerges from a freeze is not a smaller version of what entered—it is a structurally different government, weighted more heavily toward enforcement and clinical functions and less toward scientific, regulatory, and administrative ones.

Mechanisms. Three mechanisms can rationalize the heterogeneity we document. First, *exemption salience*: agencies whose work is politically vivid (immigration enforcement, federal prosecution, veteran medical care) are easier to exempt under the EO’s “public safety” carve-out, and political principals are more attentive to backlogs in those functions. Second, *vacancy intensity of the production function*: agencies whose work depends on continuous external recruitment (scientific labs, regulatory inspectors, statistical staff) are more sensitive to a freeze than agencies whose work depends on a stable career workforce. Third, *political cost*: the political cost of a backlog at the VA or at DHS is higher than the political cost of a backlog at NSF or EPA, so political principals expedite exemptions where political costs are concentrated. We do not adjudicate among these mechanisms here; the data support all three, and they are mutually reinforcing.

Implications for state capacity. The state-capacity literature ([Besley and Persson, 2009](#); [Finan et al., 2017](#); [Dal Bó et al., 2013](#)) emphasizes that bureaucratic capacity is built slowly and lost quickly. Our results suggest that a single executive order can effect a meaningful one-

quarter contraction in the scientific and regulatory components of the U.S. federal workforce flow without a corresponding contraction in the coercive and clinical components. If the freeze persists for several quarters, the cumulative effect on the stock of scientific and regulatory expertise will be substantially larger than the flow estimates here imply, given that natural attrition is roughly 5–8 percent per year in these agencies.

Limitations. Five caveats apply. First, with only 16 clusters our cluster-robust inference is unreliable in the conventional sense (Cameron et al., 2008; MacKinnon and Webb, 2017); pooled OLS significance levels should be interpreted with caution, and even the Poisson p -values are not bulletproof to wild-cluster bootstrap concerns. Second, the joint Wald test on pre-period event-study coefficients rejects, and we do not claim a clean parallel-trends causal interpretation for the pooled DiD; the descriptive composition pattern we emphasize as the paper’s central contribution does not depend on parallel trends. Third, the post-period is only two months long, and the event study suggests partial month-to-month rebound; we view our estimates as measuring an acute short-run contraction rather than a steady state. Fourth, USAJOBS captures external vacancy announcements but not internal reassignments or detail assignments, so we measure the freeze’s effect on *external recruitment flow*, which is the margin most directly affected by the EO. Fifth, our heterogeneity is tracked at the department label level rather than at the occupational-series level (e.g., 0400 scientific or 1800 inspection), which would more directly measure functional capacity; we leave the occupational decomposition to future work as additional post-period months become available.

6. Conclusion

A uniform-on-paper federal hiring freeze produced a sharply non-uniform contraction in federal hiring. Civilian scientific, regulatory, and administrative agencies absorbed declines of 60–85 percent in monthly vacancy postings; civilian enforcement and clinical agencies were largely spared. The principle is general: the bite of a fiscal instrument on the federal workforce is determined less by the language of the instrument than by the political economy of who can claim an exemption. A government that freezes hiring for one quarter does not get a smaller version of itself when the freeze is lifted—it gets a different government, with different competencies and different blind spots. Whether the 2025 freeze persists or is reversed, the composition shock documented here is already on the books.

Acknowledgements

This paper was autonomously generated using Claude Code as part of the Autonomous Policy Evaluation Project (APEP).

Project Repository: <https://github.com/SocialCatalystLab/ape-papers>

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A. Standardized Effect Sizes

Table 6: Standardized Effect Sizes (SDE)

Outcome	$\hat{\beta}$	SE	SD(Y)	SDE	SE(SDE)	Classification
<i>Panel A: Pooled</i>						
log(1+vacancies)	-0.450	0.336	1.393	-0.323	0.241	Large negative
<i>Panel B: Heterogeneous (sample splits by GS grade bin)</i>						
log(1+vac), GS13+	-0.417	0.434	1.217	-0.342	0.357	Large negative
log(1+vac), GS5-9	-0.417	0.340	1.491	-0.280	0.228	Large negative

- Notes:** **Country:** United States. **Research question:** Did the January 20, 2025 federal hiring freeze and DOGE workforce contraction differentially reduce vacancy postings in civilian departments relative to exempt military departments? **Policy mechanism:** Executive Order 14148 imposed an immediate government-wide hiring freeze with a one-in-four replacement rule, exempting military departments and uniformed services. Federal HR offices stop publishing new external job announcements during a freeze; the USAJOBS feed therefore mechanically reflects the policy’s bite. **Outcome definition:** Monthly count of unique new vacancy announcements per department from the USAJOBS Historic JOA microdata, log-transformed as $\log(1 + \text{vacancies})$. **Treatment:** Binary – 12 civilian cabinet departments treated; 4 military departments (Army, Navy, Air Force, DoD) as control. **Data:** USAJOBS Historic JOA REST API; 51 monthly observations per department (Jan 2021 – Mar 2025); 816 dept-month observations covering 1.66 million vacancy announcements. **Method:** Two-way fixed-effects OLS with department and year-month fixed effects; SEs clustered at department (16 clusters). Panel B reports the same specification within grade bins (split sample). **Sample:** Balanced panel of departments observed in every calendar month; minor independent agencies dropped to maintain balance. $\text{SDE} = \hat{\beta}/\text{SD}(Y)$ where $\text{SD}(Y)$ is the pooled standard deviation of $\log(1 + \text{vacancies})$. 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).