

Escaping Pay-for-Performance

Jason Chen, Auburn University

Jakub Hajda, HEC Montréal

Joseph Kalmenovitz, University of Rochester

How Do Regulators Respond to Performance Pay?

POLITICS | POLICY

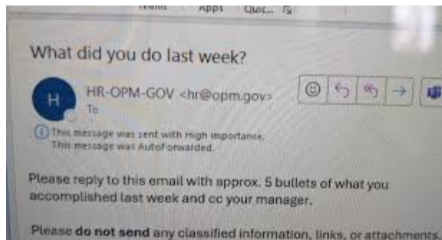
Air-Traffic Controllers With Perfect Shutdown Attendance to Get \$10,000 Bonuses

Transportation Department said 776 controllers and technicians will receive bonuses, suggesting only a fraction didn't miss work

By [Dean Seal](#) [Follow](#) and [Andrew Tangel](#) [Follow](#)

Updated Nov. 20, 2025 8:36 pm ET

[Share](#) [Bookmark](#) [Print](#) [220](#) [Gift unlocked article](#) [Listen \(4 min\)](#)



- Since the 2024 election, federal regulators are under a harsh spotlight; great interest in **monitoring how well they do their jobs**
- What happens when you **tie their pay to performance**?
- As the market for directors shapes firms, the market for regulators can shape the governance of financial system
- P4P may raise effort but also breed dissatisfaction & **distort incentives**
- We study the **unintended consequences** with new data, a natural experiment & a model

Summary of the Paper

- **New dataset** on 32,000 U.S. financial regulators:
 - Hand-built from payroll records, the Federal Register, LinkedIn, employee surveys
 - Careers (in & out of government), pay, performance, job satisfaction, ...
- **Quasi-natural experiment**: staggered adoption of performance pay
 - U.S. financial agencies gradually shift to performance pay
 - Empirical setting suggests that **exits rise by $\approx 50\%$** vs. sample mean
 - **Out-of-sample**: federal executives respond similarly to an independent reform
- **Interpretation**: P4P raises the relative value of the **outside option**
 - Channel #1: outside pay \uparrow (more effort \Rightarrow higher private-sector pay)
 - Channel #2: public sector preference \downarrow (income risk, distrust of evaluation)
- **Model**: interpret channels together & study counterfactual pay policies

Overview of the talk

- 1 Data
- 2 Impact on Exits
- 3 Channels
- 4 Structural Model
- 5 Conclusion

Data: Three Linked Sources

1. **Federal payroll**; all employees of ten U.S. financial agencies, 1973–2013
 - **31,871 regulators**; agency, occupation, hiring date, location, & compensation
 - FOIA-released to BuzzFeed (e.g., [Simkovic et al., 2023](#))
 - Typical regulator: 42 y/o, 11 years in gov't, postgrad degree, \$124k pay
2. **Rulemaking** from the Federal Register* → **effort channel**
 - **724 regulators** contributing to 2,980 regulatory documents
 - 18% initiate at least one new rule per year, averaging 1.9 new drafts when active
3. **Career histories** from Revelio Labs → **outside option at entry & exit**
 - **4,011 regulators**; pay, organization type, industry, & seniority
 - 85% of leavers move to for-profits (finance 36%, legal 35%), more than double pay

* This dataset is increasingly used to study the economics of regulations (e.g., [Duchin et al., 2024](#); [Chen et al., 2025](#); [Chen and Kalmenovitz, 2024](#); [Kalmenvitz et al., 2025](#)).

Overview of the talk

- 1 Data
- 2 Impact on Exits**
- 3 Channels
- 4 Structural Model
- 5 Conclusion

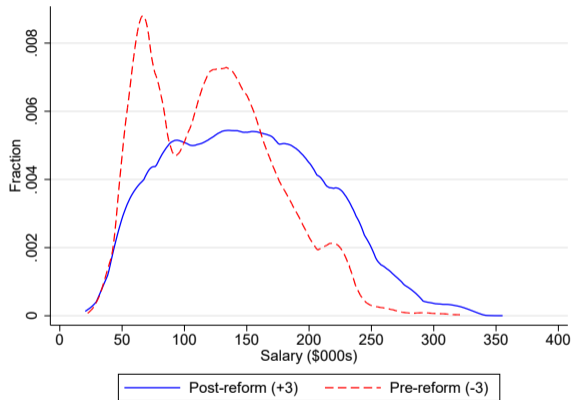
How We Identify the Effect: A Natural Experiment

- Nine agencies switched to performance pay at **different times**, driven by outside legislative events and each agency's statutory authority, **not turnover**
- **Natural experiment**: compare agencies that *just* switched against those that *haven't yet*, before vs. after (stacked diff-in-diff*)
- Outcome: did the regulator **leave government** the following year?
- We compare like with like: same occupation, same year, controlling for pre-reform pay & tenure, **cross-agency differences** (e.g., baseline turnover), **time-varying occupational shocks** (e.g., labor market for lawyers), ...

*Stacked diff-in-diff over a 7 yr. window: $Exit_{c,i,a,t} = \beta Post_{c,t} \times Treated_{c,a} + \gamma' X_{c,pre,i} + \alpha_{c,o,t} + \alpha_{c,a} + \varepsilon_{c,i,a,t}$, with agency \times cohort and occupation \times year \times cohort fixed effects. Adopters: OCC 1981; NCUA, OTS 1991; OFHEO 1992; FCA 1993; IRS 2000; SEC 2002; FDIC 2003; CFTC 2006. FinCEN never adopted. We drop agencies with other major pay changes in the window, like the FDIC's 1989 reform.

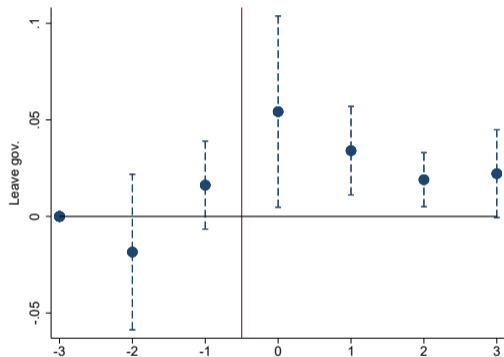
Did the Reform Bite? Pay Gets Spread Out

- After agencies switched, the salary distribution **widened substantially**
- SD of pay rose 26%; the 90th–10th percentile gap expanded by $\geq 30\%$
- Confirms the reform had **real effect, not cheap talk**: pay became more dispersed & merit-based
- In line with the goals of the reform



The figure plots the inflation-adjusted salary distribution of affected agencies three years before (red dotted) and three years after (blue solid) adopting pay-for-performance, in constant 2023 dollars.

Performance Pay Increases Exits by $\approx 50\%$



- Exits jump right after the reform, with **no pre-trends**; then dissipates
- Effect of $\approx 43-57\%$ above average exit rate **full results**
- Treated & control **balanced beforehand**; not retirement, serial dependence, or partial adoption **balance** **robustness**
- **Out-of-sample**: independent 2004 reform for 24,000 federal executives raised exits by $\approx 40\%$ **SES**

Dynamic stacked difference-in-differences: each point is the difference in exit rates between treated and control agencies, by year relative to the reform. Vertical bars are 90% confidence intervals.

Overview of the talk

- 1 Data
- 2 Impact on Exits
- 3 Channels**
- 4 Structural Model
- 5 Conclusion

Why Did the Outside Option Become More Valuable?

- **Puzzle:** pay reforms meant to **reward** & **retain** talent, yet exits increased
- P4P adds upside to the government wage (like a call option) \Rightarrow should make staying **more** attractive
- Exits still rise \Rightarrow P4P raises value or desirability of **outside option** even more
- Two channels:
 - (1) **Outside pay** \uparrow (effort & private-sector pay)
 - (2) **Public sector preference** \downarrow (income risk, evaluation aversion, weak motivation)

Performance Pay Raises Effort and Outside Pay

P4P raises return to effort \Rightarrow regulators **work harder** & raise their **market value**

- **Effort** \uparrow : treated regulators produce more rules ($\approx 60\text{--}68\%$ above the mean)
 - Performance pay substantially increased rulemaking **results**
 - Consistent with **higher effort** under stronger incentives
- **Private-sector pay** \uparrow : treated leavers earn $53\text{--}69\%$ higher starting salaries
 - Substantial increase in private sector pay upon exit **results**
 - Consistent with the reform **increasing outside pay** through visible effort

\Rightarrow Outside option becomes **more lucrative**

Performance Pay Weakens Public Sector Preference

P4P makes public job **less attractive**, separate from outside option

- **Income risk** ↑: promotions & large pay cuts roughly doubled results
 - **Aversion to evaluation**: more exits where appraisals are opaque, peers are few (noisier), or pre-reform abnormal pay is low results
 - **Weak ex-ante attachment**: more exits among recession hires & those who gave up little salary to join results
- ⇒ **Selective attrition**: those with better outside options & weaker motivation find leaving more desirable

Overview of the talk

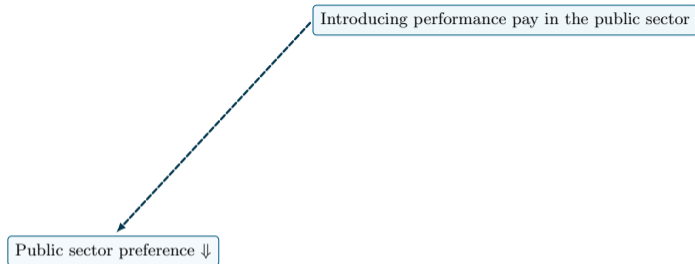
- 1 Data
- 2 Impact on Exits
- 3 Channels
- 4 Structural Model**
- 5 Conclusion

Mechanisms Linking Performance Pay to Effort and Exit

Introducing performance pay in the public sector

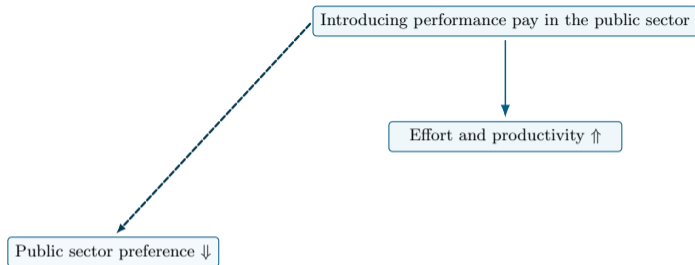
Setup: A regulator has a public sector preference but also an outside option (private sector job). Government pay has a floor & ceiling, while private sector pay does not. Each period, the regulator decides on exit & effort.

Mechanisms Linking Performance Pay to Effort and Exit



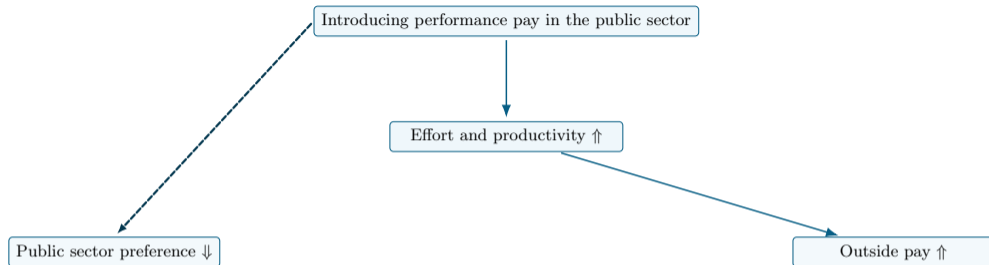
Setup: A regulator has a public sector preference but also an outside option (private sector job). Government pay has a floor & ceiling, while private sector pay does not. Each period, the regulator decides on exit & effort.

Mechanisms Linking Performance Pay to Effort and Exit



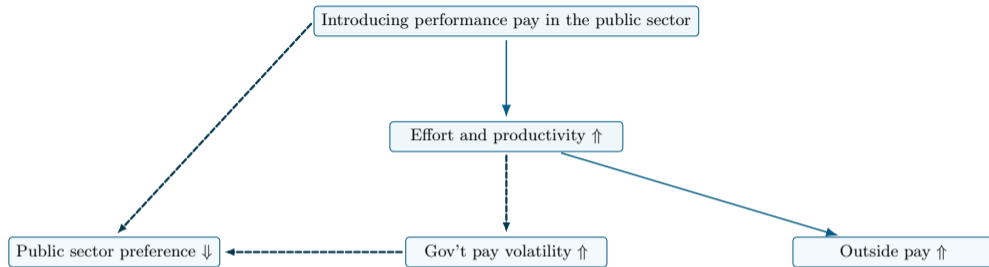
Setup: A regulator has a public sector preference but also an outside option (private sector job). Government pay has a floor & ceiling, while private sector pay does not. Each period, the regulator decides on exit & effort.

Mechanisms Linking Performance Pay to Effort and Exit



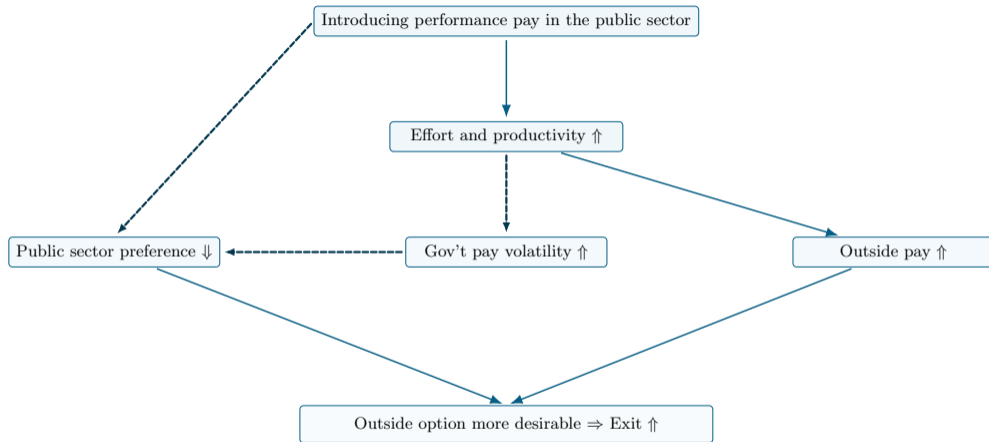
Setup: A regulator has a public sector preference but also an outside option (private sector job). Government pay has a floor & ceiling, while private sector pay does not. Each period, the regulator decides on exit & effort.

Mechanisms Linking Performance Pay to Effort and Exit



Setup: A regulator has a public sector preference but also an outside option (private sector job). Government pay has a floor & ceiling, while private sector pay does not. Each period, the regulator decides on exit & effort.

Mechanisms Linking Performance Pay to Effort and Exit



Setup: A regulator has a public sector preference but also an outside option (private sector job). Government pay has a floor & ceiling, while private sector pay does not. Each period, the regulator decides on exit & effort.

Overview of the talk

- 1 Data
- 2 Impact on Exits
- 3 Channels
- 4 Structural Model
- 5 Conclusion**

What Did We Learn from the Paper?

Performance pay improves regulators' outside option \Rightarrow they quit

- Regulators react to the **pay structure**
 - Existing studies focus on **pay levels** (Dal Bó et al., 2013; Kalmenovitz, 2021)
 - We show that performance incentives jointly affect effort & exits (revolving door)
- The pay structure affects **the revolving door**
 - Novelty in this literature (deHaan et al., 2015; Lucca et al., 2014; Tabakovic and Wollmann, 2018)
 - Gov't internal organization spills over to the private sector
- Performance pay affects an **understudied & influential** group
 - Existing studies focus on **private sector** executives (Yermack, 2004)
 - Regulators perform complex & economically meaningful tasks; abundance of microdata

* In an extension, we structurally estimate the model to quantify the policy implications. For instance, a range of “zero-quit” policies to induce effort without increasing the revolving door.

Appendix

Performance Pay Increases Exits: Full Results

[BACK](#)

Outcome:	<i>Exit</i>				
	(1)	(2)	(3)	(4)	(5)
Treated×Post	0.034*** (0.008)	0.034*** (0.009)	0.037*** (0.010)	0.042*** (0.011)	0.045*** (0.009)
Controls	Yes	Yes	Yes	Yes	Yes
Cohort×Agency FE	Yes	Yes	Yes	Yes	Yes
Cohort×Occupation×Year FE	Yes	Yes	Yes	Yes	Yes
Cohort×Education×Year FE	No	Yes	Yes	Yes	Yes
Cohort×Manager×Year	No	No	Yes	Yes	Yes
Cohort×AgeBin×Year FE	No	No	No	Yes	Yes
Cohort×City×Year FE	No	No	No	No	Yes
R^2	0.058	0.059	0.063	0.096	0.104
N	246,311	246,311	246,311	246,287	244,294
Effect (%Mean)	43.14	44.10	47.25	53.92	57.35

Stacked difference-in-differences across ten agencies, seven-year window. $Exit = 1$ if a regulator leaves in year $t + 1$; $Treated = 1$ for adopters in that cohort; $Post = 1$ after adoption. Controls are pre-reform pay & tenure. Effect (%Mean) is the coefficient over the sample mean. SE clustered at the agency level.

	Control	Treated	Difference	<i>p</i> -value
<i>Pay</i> (\$)	105,139.2	127,635.6	-\$22,496.3	0.136
ΔPay (%)	0.087	0.104	-0.017	0.382
<i>Manager</i>	0.213	0.248	-0.034	0.431
<i>Exit</i>	0.085	0.079	0.006	0.674
<i>Retire</i>	0.011	0.008	0.003	0.333
<i>Age</i>	41.826	40.962	0.864	0.796
<i>Tenure</i>	11.874	12.538	-0.665	0.845
<i>College</i>	0.806	0.870	-0.064	0.137

This table compares pre-reform characteristics between treated and control groups. The treated group consists of employees in agencies that adopted pay-for-performance (P4P) during the sample period, while the control group includes agencies that had not yet implemented P4P in the same event window. All variables are measured in the three-year period preceding each agency's reform. *Pay* denotes the employee's annual salary in constant 2023 USD. ΔPay is the annual percentage change in salary. *Manager* is an indicator equal to one if the employee holds a managerial position in year t and zero otherwise. *Exit* equals one if the employee leaves the government in year $t+1$, and *Retire* equals one if the employee leaves the government in year $t+1$ at age 60 or older. *Age* is the employee's age, and *Tenure* measures the number of years since joining federal service. *College* is an indicator equal to one if the employee has completed a college degree, and *Postgrad* equals one if the employee has a postgraduate degree.

Sample:	Full	Full	Collapsed	Exclude 2000
Outcome:	$Exit_{age \leq 60}$	$Exit_{age > 60}$	$Exit$	$Exit$
	(1)	(2)	(3)	(4)
Treated \times Post	0.032*** (0.008)	0.002 (0.001)	0.053** (0.018)	0.033*** (0.009)
$\log(Pay_{pre})$	-0.117*** (0.028)	-0.004* (0.002)	-0.207*** (0.055)	-0.121*** (0.024)
$\log(Tenure_{pre})$	-0.047*** (0.009)	0.008*** (0.002)	-0.037** (0.015)	-0.042*** (0.010)
Cohort \times Agency FE	Yes	Yes	Yes	Yes
Cohort \times Occupation \times Year FE	Yes	Yes	-	Yes
Cohort \times Occupation \times Post FE	-	-	Yes	-
R^2	0.068	0.018	0.080	0.060
N	246,311	246,311	102,733	200,358

Findings not driven by retirements (cols. 1–2), serial dependence (col. 3), or partial coverage (col. 4)

In column (1) (2), the dependent variable equals 1 if the regulator exits the government in year $t + 1$ and is younger (older) than 60. Column (3) implements the collapse test of [Bertrand et al. \(2004\)](#) to address concerns about serial correlation inflating t -statistics. For each cohort, we collapse the data into at most two observations, one for the pre-treatment period and one for the post-treatment period, with the outcome equal to 1 if the individual exited the government in any year of that period. Column (4) excludes the 2000 cohort, in which the treated agency is the IRS. $Post = 1$ denotes the period after P4P adoption, and $Treated = 1$ for agencies that adopted the P4P system in a given cohort. $\log(Pay_{pre})$ and $\log(Tenure_{pre})$ are the logarithms of average pre-reform pay and tenure, respectively. SE, clustered at the agency level, are in parentheses.

Out-of-Sample Evidence: Executives' P4P Increases Exits by 40%

[BACK](#)

- We collect separate data on 24,000 **federal executives** (“SES”) across 397 agencies descriptive
- Exploit an independent 2004 reform tying their pay to performance
- Respond very similarly to financial regulators

Outcome:	Exit			
	(1)	(2)	(3)	(4)
Treated×Post	0.041** (0.017)	0.042** (0.017)	0.040** (0.016)	0.042*** (0.016)
Controls	Yes	Yes	Yes	Yes
Agency FE	Yes	Yes	Yes	Yes
Occupation×Year FE	Yes	Yes	Yes	Yes
Education×Year FE	No	Yes	Yes	Yes
AgeBin×Year FE	No	No	Yes	Yes
City×Year FE	No	No	No	Yes
R ²	0.027	0.027	0.058	0.057
N	34,924	34,924	34,922	33,972
Effect (%Mean)	39.63	40.80	39.18	40.71

The sample covers the years 2001-2007. $Exit = 1$ if the executive leaves the government in year $t + 1$, $Post = 1$ for years $t \geq 2004$ (when performance pay was adopted), and $Treated = 1$ for executives employed under the SES pay system prior to the reform. The control group consists of managerial employees in agencies that were not part of the SES system. Controls include average pre-reform pay and tenure. All regressions include agency and occupation×year fixed effects. Effect (%Mean) reports the coefficient on $Treated \times Post$ as a percentage of the sample mean, indicating the proportional increase in exit rates among treated executives after the reform. SE clustered at the agency level are in parentheses.

Statistic:	Avg.	Median	S.D.	Min	Max	Obs.
<i>Pay</i> (\$)	212,929.5	217,500.0	21,909.4	167,916.0	251,080.7	156,634
Δ <i>Pay</i>	1.3	0.2	5.2	-9.4	23.3	130,816
<i>Tenure</i>	16.5	16.0	9.2	0.0	40.0	156,634
<i>Age</i>	51.5	52.0	8.3	22.0	75.0	156,633
<i>Exit</i>	10.8	0.0	31.0	0.0	100.0	151,902
<i>College</i>	96.6	100.0	18.1	0.0	100.0	156,634
<i>Postgrad</i>	75.4	100.0	43.1	0.0	100.0	156,634

The sample includes all federal executives who held an executive position between 1973 and 2013, focusing on the years in which they served in such positions. *Pay* denotes the executive's annual salary in constant 2023 USD, and Δ *Pay* is the year-on-year change in salary, both winsorized at the 1st and 99th percentiles. *Tenure* is the number of years since entering the public sector, and *Age* is the executive's age. *Exit* = 1 when the executive leaves government service, regardless of rank at the time of departure. *College* = 1 and *Postgrad* = 1 indicate whether the executive holds a college or postgraduate degree, respectively.

Adoption of Performance Pay Increases Rulemaking Activity

Outcome:	#RegDoc			1(RegDoc)		
	(1)	(2)	(3)	(4)	(5)	(6)
Treated×Post	0.590** (0.246)	0.561** (0.226)	0.576*** (0.209)	0.147** (0.046)	0.151** (0.049)	0.160** (0.041)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Cohort×Agency FE	Yes	Yes	Yes	Yes	Yes	Yes
Cohort×Occupation×Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Cohort×Education×Year FE	No	Yes	Yes	No	Yes	Yes
Cohort×Manager×Year	No	Yes	Yes	No	Yes	Yes
Cohort×AgeBin×Year FE	No	No	Yes	No	No	Yes
Cohort×City×Year FE	No	No	Yes	No	No	Yes
Model	Poisson	Poisson	Poisson	OLS	OLS	OLS
R ²				0.061	0.064	0.042
N	3,833	3,833	3,830	3,833	3,833	3,830
Effect (%Mean)				62.52	64.21	68.39

- Regulator-level data on rulemaking (724 individuals)
- Performance pay **substantially increased rulemaking**
- Consistent with higher effort under stronger incentives

Restricted to individuals who contributed to at least one rule, 2002/2003/2006 cohorts. #RegDoc is the count of new regulatory documents per year; 1(RegDoc) = 1 if any new draft. Poisson (cols. 1–3) and OLS (cols. 4–6). Effect (%Mean) is the coefficient over the sample mean. SE clustered at the agency level.

Outcome:	$\text{Log}(\text{Pay}^{\text{private,base}})$	$\text{Log}(\text{Pay}^{\text{private,total}})$	$\text{Log}(\text{Pay}^{\text{private,P4P}})$
	(1)	(2)	(3)
Treated×Post	0.430*** (0.098)	0.525*** (0.113)	0.304* (0.139)
Cohort×Agency	Yes	Yes	Yes
Cohort×Exit Year	Yes	Yes	Yes
R^2	0.210	0.162	0.032
N	1,198	1,198	1,191

- Compare pay for ex-regulators before & after the reforms
- Substantial increase in private sector pay upon exit
- **Reform raises outside pay** through visible effort

Regulators with matched Revelio data for whom government and first post-government salaries are observed. Dependent variables: log base pay, total pay, and performance pay (1 minus base share of total). SE clustered at the agency level. Revelio imputes compensation from job characteristics (Dorn et al., 2025).

	<i>Promotion</i>			<i>Large Pay Cut</i>		
	(1)	(2)	(3)	(4)	(5)	(6)
Treated×Post	0.009*	0.009*	0.008*	0.034**	0.038**	0.021**
	(0.004)	(0.004)	(0.004)	(0.013)	(0.015)	(0.009)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Cohort×Agency FE	Yes	Yes	Yes	Yes	Yes	Yes
Cohort×Occupation×Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Cohort×Education×Year FE	No	Yes	Yes	No	Yes	Yes
Cohort×Manager×Year	No	Yes	Yes	No	Yes	Yes
Cohort×AgeBin×Year FE	No	No	Yes	No	No	Yes
Cohort×City×Year FE	No	No	Yes	No	No	Yes
R^2	0.056	0.203	0.203	0.272	0.281	0.345
N	246,047	246,047	244,030	229,964	229,964	228,008
Effect (%Mean)	190.08	200.54	180.63	106.09	118.28	65.87

- Likelihood of promotions & large pay cuts roughly doubled
- **Stable gov't pay gives way to volatility; weakens public sector preference**

Dependent variables: indicator for promotion to senior rank (cols. 1–3); indicator for a real pay cut $\geq 2.95\%$ (95th percentile; cols. 4–6). Effect (%Mean) is the coefficient over the sample mean. SE clustered at the agency level.

Exits Increase with Aversion to Performance Evaluation

Outcome:	<i>Exit</i>					
	Employee Survey		#Peers		Abnormal Pay	
Measure:	Opaque	Transparent	Few	Many	Low	High
Sample:	(1)	(2)	(3)	(4)	(5)	(6)
Treated×Post	0.038*	-0.008	0.041***	0.026***	0.039**	0.015**
	(0.015)	(0.014)	(0.010)	(0.008)	(0.017)	(0.005)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Cohort×Agency FE	Yes	Yes	Yes	Yes	Yes	Yes
Cohort×Occupation×Year FE	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.069	0.047	0.055	0.062	0.034	0.024
N	143,123	33,408	122,639	115,760	112,737	113,017
P-value (vs. previous column)		0.05		0.00		0.01

Columns (1)-(2) use the 2008 Federal Employee Viewpoint Survey to classify agencies as opaque (transparent) when a high (low) share of employees report that performance appraisal standards are unclear. Columns (3)-(4) use the number of peers – employees working in the same office×occupation one year before reform – as a proxy for appraisal precision. Employees with few (more) peers face noisier (more precise) evaluations. Columns (5)-(6) split the sample by pre-reform abnormal pay. Employees with below-median FE historically received lower pay than predicted and likely view government evaluation processes as unfavorable. $Exit = 1$ if a regulator leaves government service in year $t + 1$, $Post = 1$ in post-reform years, and $Treated = 1$ for agencies adopting P4P. Controls include average pre-reform tenure and pay. p -values test equality with the preceding column. SE clustered at the agency level.

Outcome:	<i>Exit = 1</i>			
Measure:	Economic environment		Salary Forgone at Entry	
Subsample:	Recession	Non-Recession	Small	High
	(1)	(2)	(3)	(4)
Treated×Post	0.052*** (0.007)	0.029 (0.016)	0.041*** (0.011)	-0.081 (0.063)
Controls	Yes	Yes	Yes	Yes
Cohort×Agency FE	Yes	Yes	Yes	Yes
Cohort×Occupation×Year FE	Yes	Yes	Yes	Yes
R^2	0.077	0.094	0.030	0.095
N	70,983	115,171	2,600	2,643
<i>p</i> -value (vs. previous column)		0.10		0.07

- P4P drives out employees with lower ex-ante preference
- Suggests that exits are driven by a hit to public sector preference

Columns (1)-(2) split the sample by whether employees entered government service during a recession, defined using official NBER recession dates. Entering during a downturn proxies for weak intrinsic motivation, as private sector options were temporarily limited. Columns (3)-(4) classify employees by the salary forgone upon entering government service (difference between last pre-entry salary and initial federal salary). We split the sample into small (below median) and large (above median) forgone salary groups, consistent with weaker (stronger) ex-ante public sector preference. $Exit = 1$ if a regulator leaves government service in year $t + 1$, $Post = 1$ for post-reform years, and $Treated = 1$ for agencies adopting P4P in each cohort. We control for average pre-reform pay and tenure. *p*-values report tests of equality with the preceding specification. SE, clustered at the agency level, are in parentheses.