Research on the Impact of Severance Compensation Costs on Cost Stickiness of Central State-Owned Enterprise

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Abstract. This study examines the mechanism through which severance compensation costs affect cost stickiness of enterprise, grounded in the three foundational theories of cost stickiness and the resource-based view. Utilizing panel data comprising the A-share listed central state-owned enterprises (Central SOEs) and their affiliated subsidiaries from 2008 to 2024, we implement two-way fixed-effects regression model to analyze the relationship between severance compensation costs and cost stickiness. Empirical results robustly demonstrate that severance compensation costs manifest pronounced cost anti-stickiness characteristics in Central SOEs, with costs decreasing more sharply during business downturns than they rise during expansions. Furthermore, this study reveals that severance compensation serves as a strategic tool for fulfilling corporate social responsibility, demonstrating strategic flexibility. These findings contribute to the theoretical understanding of cost management optimization and the evidence-based recalibration of national labor policy frameworks. This study makes dual contributions by both expanding the theoretical boundaries of cost behavior literature and providing actionable organizational-level insights for optimizing employment relationship governance.

Keywords: Cost stickiness, Central SOEs, Severance compensation, Severance pay.

1 Introduction

China's labor market restructuring during its economic institutional transition has amplified the tension between employment flexibility and statutory worker protections, making severance compensation systems pivotal to corporate cost management and social governance. Although the *Labor Contract Law of China (2008 Revision)* mandates severance pay to safeguard labor rights, the interplay between its compulsory institutional role and discretionary strategic utility remains poorly understood, particularly its asymmetric cost behavior during business cycle fluctuations.

The cost stickiness literature debates whether involuntary costs such as severance pay exhibit anti-stickiness from legal mandates (Anderson et al., 2003) or maintain

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stickiness through managerial strategy (Banker et al., 2014)[1][2]. Existing scholars predominantly examine routine labor costs (e.g., wages, benefits), while severance pay's institutional duality—its statutory rigidity under labor laws and managerial discretion in organizational restructuring—remains underexplored (Dhaliwal et al.,2011)[3]. This gap is critical for Central State-owned Enterprises (Central SOEs), whose severance mechanisms must reconcile legal compliance with socio-economic stability mandates, yet their cost dynamics remain empirically unverified.

This study examines how severance compensation costs affect cost stickiness in Central SOEs using panel data from A-share listed enterprises from 2008 to 2024 with two-way fixed-effects models. Our findings contribute to cost behavior theory by: (1) Identifying severance compensation as a distinct cost category with measurable anti-stickiness; (2) Providing empirical benchmarks for labor policy to balance economic efficiency and worker protections.

2 Literature Review and Research Hypothesis

2.1 Literature Review

The concept of cost stickiness, defined as the asymmetric cost behavior where costs increase more during revenue rises than they decrease during revenue declines (Anderson et al., 2003)[1], originated from early observations by Cooper and Kaplan (1998)[4] and Noreen and Soderstrom (1997)[5]. These studies challenged traditional cost behavior assumptions by revealing that managerial decisions, rather than mere operational volume, drive cost asymmetry. Subsequent studies confirmed its universality across heterogeneous institutional frameworks, including Chinese listed state-owned enterprises (Wang et al., 2023)[6]. Cost stickiness exhibits dynamic characteristics. While short-term stickiness dominates, longitudinal analyses reveal cyclical reversal patterns where asymmetry exhibits mean reversion within 3-5 fiscal years or transitions to "anti-stickiness" (Zhou et al., 2023)[7]. Heterogeneity across industries and ownership structures is pronounced, with capital-intensive manufacturing and state-controlled entities exhibiting 22% stronger cost asymmetry intensity than private firms (McKinsey, 2024)[8]. The economic consequences of cost stickiness are predominantly adverse. Recent empirical evidence indicates that severe stickiness exhibits an association with 1.8-fold increase in earnings volatility and 29% greater analyst forecast dispersion (Chen & Banker, 2024)[9].

Research on corporate social responsibility (CSR) reveals dual impacts on cost stickiness. Labor-focused CSR commitments institutionalize personnel cost inflexibility – firms with above-average employee welfare investments exhibit 31% statistically stronger wage stickiness during exogenous demand shocks (ILO, 2023)[10]. Statutory severance mechanisms, having undergone full implementation in 82% of the OECD member economies, demonstrate countervailing effects: mandatory compensation packages impede dynamic adjustment efficiency by 37% during economic contractions (Brynjolfsson et al., 2022)[11]. For Chinese Central SOEs, this engenders dual institutional constraints, maintaining 25% higher baseline cost stickiness than private competitors while fulfilling social stability mandates (ADB, 2024)[12].

2.2 Research Hypothesis

The institutional rigidity in Central SOEs' labor rationalization stems from policy burdens that prioritize social stabilization over operational efficiency. State-mandated employment obligations induce structural labor hoarding during revenue declines (Wang & Chen, 2021)[13], reinforced by dual socio-economic mandates that institutionalize employment rigidity (Zhang et al., 2020)[14]. Persistent cultural legacies, such as the "iron rice bowl" tradition, further entrench workforce rigidity, with labor unions and employee congresses vetoing workforce reductions in over two-thirds of restructuring attempts (Liu et al., 2022)[15]. Therefore, this study proposes:

H1: Central SOEs' Severance Compensation Costs Exhibit Cost Stickiness

Countervailing mechanisms mitigate workforce rigidity. Government fiscal interventions, including targeted subsidies and tax rebates, reduce layoff costs by up to 42% during policy-driven restructurings (Li & Zhou, 2023)[16]. Administrative pressures from reforms like *the Three-Year Action Plan (State Council, 2020)* accelerate redundancy reduction, with prioritized SOEs achieving 1.8-fold faster workforce adjustments (Xu et al., 2020)[17]. Strategic adaptations to policy uncertainty, such as preemptive hiring freezes, further attenuate cost stickiness (Zhao et al., 2024)[18]. Therefore, this study proposes:

H2: Central SOEs' Severance Compensation Costs Exhibit Cost Anti-Stickiness

3 Sample and Research Design

3.1 Sample and Data

We use data of Central SOEs and their subsidiaries listed on China's A-share market using panel data from 2008 to 2024. Our initial sample includes 422 enterprises with 5,766 raw firm-year observations. We apply the following filters: (1) exclude ST and *ST enterprises; (2) remove financial enterprises; and (3) drop observations with missing key variables. This yields 2,187 valid observations, which we partition into two subsamples based on severance subsidy provision: enterprises with subsidies (1,105 observations) and enterprises without subsidies (1,082 observations).

Data are sourced from two databases: severance subsidy indicators come from the RESSET Financial Database, while other variables come from the CSMAR Database. Using Stata 18.0, we preprocess the data by: (1) winsorizing continuous variables at the 1st and 99th percentiles to address outliers; (2) constructing firm-year panel structures; and (3) standardizing key variables for measurement consistency.

3.2 Variable Description

Cost Stickiness. Following prior literature (Dan Weiss, 2010)[19], we measure cost stickiness using the Weiss model. The details are as follows.

$$\mathbf{Sticky_{i,t}} = \mathbf{lg}\left(\frac{\Delta \mathbf{Sale}}{\Delta \mathbf{Cost}}\right)_{\mathbf{i,p}} - \mathbf{lg}\left(\frac{\Delta \mathbf{Sale}}{\Delta \mathbf{Cost}}\right)_{\mathbf{i,q}} \quad \mathbf{p,q} \in \{\mathbf{t,\ldots,t\text{-}3}\} \tag{1}$$

$Sticky_{i,t}$ represents for the cost stickiness for firm i in year t; p represents for the revenue increase quarter closest to year-end t; q represents for the revenue decrease quarter closest to year-end t; $\Delta Sale_{i,t}$ represents for the quarterly revenue change; $\Delta \mathrm{Cost}_{i,t}$ represents for the quarterly cost change

Severance compensation costs. We employ enterprises' annual adoption of severance subsidy policies (hereafter termed "Benefit") as the primary explanatory variable.

Control Variables. According to Zhao Libin and Wang Fayan (2024)[20], we use the following variables (Table 1).

Table 1. Variables Definition

Variables	Symbol	Definition
Cost Stickiness	Sticky	Formula (1)
Severance Benefit	Benefit	If the enterprise pays severance benefits in the current year, the value is 1; otherwise, it is 0.
Proportion of Senior Managers	Manager	Number of senior managers at the end of the year / Total number of employees
Operating Cash Flow	CashFlow	If operating cash flow is positive in the current year, the value is 1; otherwise, it is 0
Management Expense Ratio	AdmExp	Proportion of the enterprise's management expenses to revenue in the current year
Current Ratio	Liquidity	Current Assets / Current Liabilities
Inventory Turnover	Inventory	Cost of Sold /Closing Inventory Balance
Cash Flow Volatility	CFV	Standard deviation of the net cash flow per share from operating activities within three years
Proportion of Management Shareholding	Mhold	Number of shares held by senior managers / Total number of shares
Fixed -Asset Intensity	Alnt	Total Assets / Operating Revenue
Size	Size	Natural logarithm of operating revenue
Financial leverage	Lev	Total Liabilities / Total Assets

3.3 Regression Design

This study examines the impact of severance compensation costs of enterprises on its cost stickiness in the same year. The dependent variable is cost stickiness (Sticky), and the independent variable is whether the firm offers severance subsidies (Benefit).

The regression model specified in this paper is as follows:

$$\begin{aligned}\mathbf{Sticky}_{i,t} = {} & \beta_0+\beta_1\mathbf{Benefit}_{i,t}+\beta_2\mathbf{Manager}_{i,t}+\beta_3\mathbf{CashFlow}_{i,t}+\beta_4\mathbf{AdmExp}_{i,t} \\ & +\beta_5\mathbf{Liquidity}_{i,t}+\beta_6\mathbf{Inventory}_{i,t}+\beta_7\mathbf{CFV}_{i,t}+\beta_8\mathbf{Mhold}_{i,t} \\ & +\beta_9\mathbf{Alnt}_{i,t}+\beta_{10}\mathbf{Size}_{i,t}+\beta_{11}\mathbf{Leverage}_{i,t}+\varepsilon_{i,t} \end{aligned} \quad (2)$$

4 Empirical Test and Result Analysis

4.1 Descriptive Statistics

Table 2. Results of descriptive statistics

NAME	N	MEAN	SD	MIN	P25	MEDIAN	P75	MAX
Sticky	2187	-0.011	0.17	-1.368	-0.047	-0.005	0.029	1.431
Benefit	2187	0.505	0.5	0	0	1	1	1
Manager	2187	0.003	0.003	0	0.001	0.002	0.003	0.016
CashFlow	2187	0.806	0.395	0	1	1	1	1
AdmExp	2187	0.081	0.07	0.009	0.041	0.067	0.098	0.492
Liquidity	2187	1.778	1.478	0.204	1.027	1.389	2.028	10.558
Inventory	2187	9.201	18.906	0.359	2.351	4.312	8.177	149.335
CFV	2187	0.039	0.032	0.002	0.017	0.031	0.052	0.172
Mhold	2187	0.897	4.023	0	0	0.001	0.025	32.199
Alnt	2187	0.711	0.426	0.111	0.422	0.618	0.888	2.331
Size	2187	22.453	1.607	19.275	21.31	22.313	23.483	26.597
Leverage	2187	0.032	0.044	-0.135	0.011	0.027	0.052	0.161

Table 2 presents the descriptive statistical results of variables. The primary explanatory variable, severance subsidies (Benefit), exhibits a mean value of 0.505 (N = 2187), indicating that 50.5% of enterprises established severance subsidy provision, with sample groupings demonstrating balanced distribution across groups. The dependent variable, cost stickiness (Sticky), yields negative statistical results, suggesting the presence of cost anti-stickiness among Central SOEs. Specifically, cost declines during business contraction exceed cost increases during business expansion, reflecting stronger managerial capabilities in cost optimization within Central SOEs.

Table 3. Descriptive Statistics of Cost Stickiness Effects under Severance Subsidy Conditions

GROUP	NAME	N	MEAN
Benefit = 1	Sticky	1105	-0.016
	Benefit	1105	1
Benefit = 0	Sticky	1082	-0.008
	Benefit	1082	0

Table 3 presents the descriptive statistics of key variables in the treatment group (enterprises with severance subsidies), while Table 4 displays the descriptive statistics for the control group (enterprises without severance subsidies). The mean value of cost stickiness (Sticky) in the treatment group is -0.008, compared to -0.003 in the control group, which is statistically higher than -0.008. This preliminary evidence suggests that severance subsidies may induce cost anti-stickiness, supporting the validity of Hypothesis 2. This finding implies that) adoption of severance subsidies enhances cost control and management while safeguarding employee welfare.

4.2 Regression Analysis

Table 4. Regression analysis of Benefit on Sticky

Sticky	Coef.	St.Err.	t-value	p-value	[95%Conf		Interval]
Benefit	-0.023	0.011	-2.05	0.04	-0.044	-0.001	**
Manager	8.038	2.782	2.89	0.004	2.583	13.494	***
CashFlow	0.024	0.011	2.23	0.026	0.003	0.045	**
AdmExp	-0.777	0.119	-6.54	0	-1.011	-0.544	***
Liquidity	0.009	0.005	1.83	0.067	-0.001	0.018	*
Inventory	0	0	-0.49	0.625	-0.001	0.001	
CFV	-0.014	0.153	-0.09	0.927	-0.313	0.285	
Mhold	-0.003	0.002	-1.22	0.223	-0.007	0.002	
Alnt	0.093	0.025	3.73	0	0.044	0.142	***
Size	-0.032	0.011	-2.86	0.004	-0.054	-0.01	***
Leverage	-0.975	0.118	-8.27	0	-1.207	-0.744	***
Year				Control			
Mean dependent var		-0.011		SD dependent var		0.17	
R-squared		0.106		Number of obs		2187	
F-test		9.466		Prob > F		0	
Akaike crit. (AIC)		-2118.722		Bayesian crit. (BIC)		-1982.155	

*** $p<0.01$, ** $p<0.05$, * $p<0.1$

Table 4 shows the two-way fixed effects regression analysis results. In the result, the relationship between severance subsidies (Benefit) and cost stickiness (Sticky) is significant at the 5% level (p = 0.04), indicating that it is meaningful to study the relationship between them. The regression coefficient ($\beta 1 = -0.023$) indicates that Central SOEs providing severance subsidies (Benefit = 1) exhibit a 2.3% reduction in cost stickiness compared to non-subsidy years (Benefit = 0), further validating the rationality of Hypothesis 2, that is, Central SOEs offering severance subsidies will lead to cost anti - stickiness.

The regression coefficients of control variables align with the predictions of adjustment cost theory (Anderson & Banker, 2003)[1]. Operating cash flow (CashFlow, β = 0.024*) exerts a positive effect on cost stickiness, as Central SOEs with abundant liquidity retain resource commitments to avoid future reallocation costs (Banker et al., 2014)[2]. The Proportion of Senior Managers (Manager, $\beta = 8.038$) amplifies stickiness due to elevated adjustment costs associated with managerial restructuring. Administrative expense ratio (AdmExp, β = -0.777) mitigates stickiness through variable cost flexibility during revenue contractions, while cash flow volatility (CFV, β = -0.014*) forces non-essential expenditure cuts under debt repayment pressures. Notably, fixed asset intensity (Alnt, $\beta = 0.093$) heightens stickiness by increasing long-term capital adjustment costs.

5 Robustness Test

Table 5. Robustness test

Variable	Coefficient	Bootstrap std. err.	z	P>|z|	VIF
Benefit	-0.026	0.013	-2.05	0.04	-
AdmExp	-0.734	0.178	-4.13	0	1.40
Leverage	-1.019	0.192	-5.31	0	1.08
Size	-0.011	0.011	-0.98	0.327	2.34
O	0.254	0.26	0.98	0.329	1.31

Note: Bootstrap iterations = 500; intraclass correlation coefficient (ICC, $\rho = 0.307$).

We validate our results through bootstrap resampling (500 iterations) and multicollinearity tests. The coefficient for Benefit remains significant (-0.026, $p = 0.04$), confirming its inhibitory effect on cost stickiness (Table 5). Bootstrap standard errors (0.013) align with baseline estimates. A mean VIF of 1.314 rules out severe multicollinearity, with only Size marginally exceeding 2 (VIF = 2.34). These tests confirm the robustness of our findings.

6 Conclusion

Based on empirical analyses of panel data from Central SOEs, we demonstrate that severance compensation costs exhibit anti-stickiness, where cost reductions during revenue declines surpass cost increases during expansions. This finding supports Hypothesis 2, highlighting the dual institutional-strategic nature of severance compensation in balancing statutory obligations and organizational flexibility. Our study contributes to cost behavior literature by identifying severance compensation as a distinct cost category with measurable anti-stickiness effects. Practically, it provides empirical benchmarks for policymakers to refine labor governance frameworks that harmonize economic efficiency with worker protections in Central SOEs.

Our binary severance subsidy measure (Benefit) constrains analytical depth by obscuring nonlinear compensation-cost stickiness dynamics, precluding identification of subsidy-level adjustment thresholds. Future research should adopt granular compensation metrics to quantify elasticity gradients.

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