Check for updates

Public Administration Review

PAR Public Administration Review ASPA

RESEARCH ARTICLE OPEN ACCESS

Overshooting and Adjustment: Organizational Responses to Incentives in the Public Sector

Ulrik Hvidman | Kurt Houlberg | Søren Kjær Foged

The Danish National Center for Social Research, Copenhagen, Denmark

Correspondence: Ulrik Hvidman (ulhv@vive.dk)

Received: 5 July 2024 | **Revised:** 15 August 2025 | **Accepted:** 24 August 2025

Keywords: incentives | local government | public sector

ABSTRACT

Incentives have become central to public sector management. We propose that public organizations' responses to incentives can exceed policymakers' intentions due to complex governance structures and high operational uncertainty. Through an empirical study, we examine short- and long-term impacts of a policy that gave local governments high-powered, sanction-based incentives to restrain costs. The incentives reduced government spending, but also triggered substantial overshooting—where local governments, immediately after the reform, cut spending more than intended due to uncertainty about their ability to meet budget targets. Over time, spending converged with incentivized budget targets, indicating a process of adjustment and organizational learning. Our findings highlight that incentives can provoke stronger responses than intended by policymakers—but also show that longer-term learning can moderate these effects. While particularly relevant to the public sector, the phenomenon of overshooting may extend to other settings where uncertainty is prevalent.

1 | Introduction

How to organize and manage the public sector to achieve public purposes constitutes a core question in both research and practice (Lynn et al. 2000). Throughout recent decades, there has been an increasing emphasis on performance and efficiency within the public sector (Boyne et al. 2005; Hood 1995; Moynihan and Kroll 2015; Moynihan 2006). One prevalent element of this trend is the use of incentives as a governing tool (Gerrish 2016).

Previous research has examined the use of incentives in the public sector directed at employees (Perry et al. 2009; van Triest 2024), managers (Binderkrantz and Christensen 2012), and organizations (Heinrich 1999; Schochet and Burghardt 2008; Burgess et al. 2017; Andersen et al. 2025). However, despite theoretical suggestions regarding the dynamic nature of responses to incentives (Heinrich and Marschke 2010), research examining the longer-term impacts of incentives remains limited[1].

In this article, we focus on short- and long-term responses to high-powered incentives targeting large public organizations. Drawing from previous literature highlighting differences between the public and private sectors (Dixit 2002; Rainey 2009), we offer theoretical insights into the responses of large public organizations. We propose that distinctive features of government can influence how incentives work. Specifically, goal ambiguity and complex internal governance structures pose challenges to effective management, which may shape responses to incentives.

We examine the responses to a nationwide policy implemented in 2011, which introduced a significant reform of the incentive structure faced by Danish local governments—in the form of the Danish municipalities. These municipalities are administered by political leaders elected by municipal citizens. This setting constitutes a compelling case as the municipalities represent large and multifaceted organizations with diverse goals and responsibilities, reflecting the complexity inherent in many public sector entities.

This is an open access article under the terms of the Creative Commons Attribution-NonCommercial License, which permits use, distribution and reproduction in any medium, provided the original work is properly cited and is not used for commercial purposes.

© 2025 The Author(s). *Public Administration Review* published by Wiley Periodicals LLC on behalf of American Society for Public Administration.

Summary

- Implementing incentive structures among large public organizations may trigger more pronounced behavioral responses than initially foreseen by policymakers.
- Given that incentive systems can induce adjustments in behavior over time, it is crucial to assess their long-term impact to capture their overall effect.
- The findings underscore the multifaceted nature of incentives and the importance of their design.

The 2011 policy reform introduced automatic sanctions that would reduce national government funding of all local governments if local governments as a whole did not adhere to the budget they had agreed to with the national government. If actual municipal costs exceeded the incentivized budget target, each municipality exceeding its budget would face an individual sanction and all local governments, regardless of their budget discipline, would be collectively sanctioned. Thus, as of 2011, local governments were strongly incentivized to restrain their costs to meet the budget targets.

Our primary outcome is the overall costs of each municipality. Efficiency, defined as the cost per unit of output, constitutes a key performance dimension for public organizations (Boyne 2002). Therefore, effectively managing costs is an important consideration for all public entities. To analyze the entire population of local governments over a 13-year period, we employ a comparative interrupted time series design, comparing the development in budgeted and actual costs before and after the introduction of the policy.

Our results demonstrate that the automatic incentives effectively reduced local government costs. However, the results also show significant overreactions by local governments as a whole to the incentives, resulting in large budget cuts in the first years following the reform. We also examine how local governments responded to the shock induced by the policy by studying which policy areas were most severely affected. While previous research has suggested that public organizations tend to safeguard core production and services (Berne and Stiefel 1993; Meier and O'Toole 2009; Kickert 2014), our observations indicate that salient policy areas and services for disadvantaged clientele were notably affected. Additionally, we study the response conditional on the behavior of local governments prior to the policy reform and find that even the local governments with the most significant budget overruns prior to the policy did not exceed their budget targets after the introduction of the incentives.

Importantly, when examining the longer-term local government response from 2011 to 2019, we find that they adjust their behavior such that actual spending and budgeted spending fully converge about 7 years after the 2011 policy reform. Thus, our results are consistent with a model in which large public organizations initially overreact to policy shocks, due to goal ambiguity and complex internal governance structures. Subsequently, organizations update their budget expectations and adjust their behavior on the basis of what they have learned about their own and each other's budgeting behavior.

Our study contributes to existing literature in several ways. First, we propose a previously underexplored form of unintended response to performance incentives. Prior research on performance management has identified dysfunctional consequences such as effort substitution (Benaine et al. 2020), gaming (Jacob 2005), and cream skimming of clientele (Guul et al. 2021). We propose a mechanism we term "overshooting" to describe behavioral responses that exceed the levels intended by policymakers. Such responses may be especially likely when incentive structures are implemented in large public organizations with goal ambiguity and complex internal governance structures. In doing so, our study also contributes to the literature on how public organizations create margins and buffers in response to performance targets (Heinrich 1999).

Second, our results underscore the importance of analyzing the long-term impacts of incentives. In our study, this analysis revealed that organizations adapt their behavior over time in response to incentives. While prior research has examined these dynamics primarily in terms of policymakers revising incentive schemes in response to observed behavior (Heinrich and Marschke 2010), our results highlight the dynamics of organizational responses and interactions: over time, agents learn about the performance incentives and adjust their behavior accordingly. This insight also adds to the literature on how frontline workers and organizations update their knowledge through information transfer (Andersen and Nielsen 2020; Meier et al. 2015).

Overall, our findings underscore the multifaceted nature of the mechanisms at work in incentive schemes for improving accountability practices and the importance of designing such incentives appropriately. Moreover, our results suggest that despite the initial short-term challenges of inappropriate organizational responses when such policy-driven incentives are introduced, in the longer run, organizational learning can lead to organizations adopting the policy's intended behavior.

2 | Theory

2.1 | Incentives in the Public Sector

Incentives have become a key aspect of public sector governance in many countries (Burgess and Ratto 2003; van Triest 2024). The notion behind introducing incentives is that, in the absence of extrinsic motivation, individuals within government will fail to contribute to policy goals in the manner intended by policymakers (Le Grand 2003).

Previous research has highlighted several challenges associated with the use of incentives. These challenges include the potential for unintended consequences such as multitasking (Holmstrom and Milgrom 1991), gaming (Jacob and Levitt 2003), and cream skimming of clientele (Guul et al. 2021).

Some incentive-related challenges appear particularly prevalent in the public sector (Dixit 2002). Although the degree of organizational publicness varies (Bozeman 1987; Perry and Rainey 1988), characteristics commonly associated with higher levels of public ownership, funding, or control (Rainey et al. 1976; Rainey 2009)

15406210, 0, Downloaded from https://onlinelibrary.wiley.com/doi/10.1111/puar.70035 by Therese Moeller - VIVE – The Danish Center for Social Science Research , Wiley Online Library on [06/11/2025]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

are likely to challenge the ability of public organizations to meet incentivized output targets. First, public organizations are to a higher extent than private organizations confronted with multiple goals that are often vaguely formulated and internally in conflict with each other (Wilson 1989). Second, large public organizations are characterized by complex internal governance structures due to multiple layers and specialized subdivisions (Haveman 2022).

2.2 | Can Responses to Incentives Be Too Large?

We develop a simple model to highlight why incentive responses may be more pronounced than intended by the policy designer (see Figure 1). Our starting point is a simple setting, where the principal tries to get the agent to achieve an output in accordance with the principal's preferences. The principal, or policy designer, seeks an optimal output of p^*. The principal and agent have divergent preferences. Consequently, in the absence of any incentives, the agent establishes an output goal of p^1. However, variability in outputs results in some degree of uncertainty. This uncertainty is represented by the dashed curve, which displays a probability distribution. For simplicity, we assume that it is normally distributed, centered at the target, p^1. Under this framework, there is a relatively low probability of achieving an output above p^*, evident from the area under the dashed curve to the right of p^*. Consequently, agents are likely to yield results below p^*, resulting in an expected output of p^1.

Now an incentive scheme is introduced in which agents are automatically sanctioned if their output is below p^*. Under this incentive scheme, the agent is motivated to avoid a negative performance output. However, uncertainty remains about the agent's final result. This uncertainty is represented by the probability distribution (solid curve). The shaded area indicates the probability of ending up with a result that activates the sanction. To minimize the probability of facing sanctions, the agent strategically sets a target above the policymaker's desired goal (in this stylized case equal to p^2). If an agent adopts this precautionary strategy, the agent will in most cases overshoot their target. Moreover, if all agents adopt the strategy, the collective output will exceed the principal's preferred output level, resulting in an incentive effect equal to θ rather than δ. This phenomenon ($\theta - \delta$), which we term "overshooting," illustrates how the introduction of incentives could lead to an output beyond the initial expectations of policy designers.

While incentives that target individuals may sometimes lead to overshooting, it appears particularly relevant when incentives are introduced among organizations that are complex and hard to manage, and thus, outputs are associated with a high degree of uncertainty. As evident from the review above, features of public sector organizations may further limit the ability to accurately reach an output target, making overshooting a particular concern in the public sector.

2.3 | Dynamics of Organizational Responses

The model presented above illustrates that overshooting may occur as a result of variability in public organizations' ability to reach their target. However, it does not capture potential dynamic responses and learning over time. If variability in target precision increases over time, overshooting increases, while a reduction in uncertainty reduces overshooting. For instance, if the risk of missing the target is reduced over time, the organization would be able to set its target closer to the policy designer's preferred output, p^*—and in this way the magnitude of overshooting diminishes. For example, facing rewards or sanctions may lead organizations to invest more effort in optimizing internal management practices, which could enhance their ability to predict outputs accurately (Bloom and Van Reenen 2010).

Learning may be particularly important when collective incentive schemes target a group of non-hierarchical units rather than a single unit (Holmstrom 1982). Introducing collective incentives for a group of units implies that individual-level outputs are influenced by the efforts of others (e.g., within a team of employees). Collective incentives involve the risk of free riding as the individual entity's impact on achieving the target is diminished compared to a scheme with individual incentives (Burgess et al. 2017).

Returning to our theoretical model, it becomes clear that if sanctions depend not only on an agent's own behavior but also on the behavior of others, agents face a more complex task when assessing how close to the policy designer's target p^* they should risk placing their own target, p^1. This also implies that under such collective schemes, learning over time can play a role, as greater mutual coordination and information about other actors may reduce uncertainty. For instance, if a public organization becomes more confident that the other organizations it is grouped with will meet their targets, the organization could be more willing to aim closer to the policy designer's target.

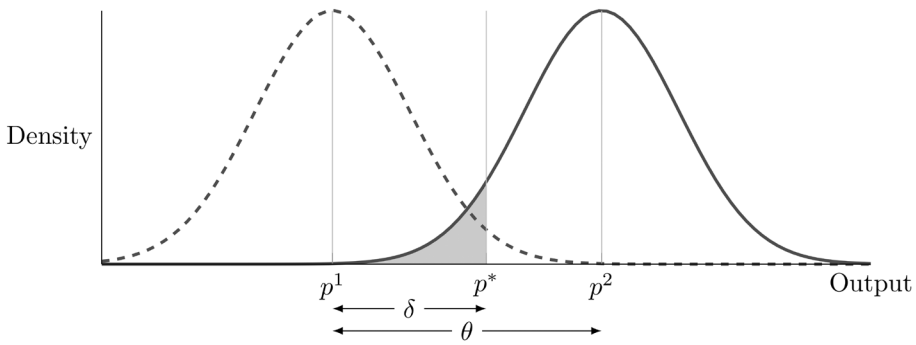


FIGURE 1 | Organizational output with and without incentives.

15406210, 0, Downloaded from https://onlinelibrary.wiley.com/doi/10.1111/puar.70035 by Therese Moeller - VIVE – The Danish Center for Social Science Research , Wiley Online Library on [06/11/2025]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

2.4 | Heterogeneity in Responses to Incentives

In addition to dynamic responses over time, variation can also be expected in how sanctions affect outputs across organizations and their various subdivisions that address specialized policy areas. When a new incentive scheme is introduced to improve target compliance, the organizations and subdivisions most likely to face strong pressure to change behavior are the ones that have had the most difficulty meeting targets prior to the new incentive scheme. Responses to incentives could therefore vary between organizations based on their prior output relative to the sanction threshold—and, thus, based on the cost of efforts to reach targets. Organizations already complying with the policy targets may seek to increase the size of the buffer between the organization's output and the threshold to reduce the risk of being sanctioned (Heinrich 1999). Nevertheless, they have relatively little incentive to alter behavior significantly. Organizations close to accomplishing the threshold would only need small improvements to avoid the sanction. Such organizations would have a strong incentive to meet the target as it would involve only a modest change in behavior. Organizations furthest below the threshold will, however, experience the strongest sanction-induced pressure for behavioral changes, as only a large improvement in performance would allow them to avoid the sanction. Thus, while organizations close to the threshold are likely to adjust their behavior to reduce the risk of being sanctioned, one might expect the largest changes in behavior among those further below the threshold.

Further potential variation in responses to incentives across organizations may stem from the multiplicity of tasks organizations often face. Incentives linked to one specific task may lead organizations to focus on that task while neglecting other tasks that are not incentivized (Holmstrom and Milgrom 1991). Organizational multitasking presents a challenge for policy designers, as specific tasks and their associated outputs may not be easily observable (Wilson 1989). When rewards or sanctions are linked to overall output targets—and not specific tasks—the organization has an incentive to prioritize areas that increase the probability of reaching the target. If an organization experiences a high level of autonomy and is not facing task-specific output targets, it may direct its efforts towards tasks and objectives it perceives as most salient and worthwhile. If thresholds and automatic sanctions are introduced, the organization might have to decrease the effort it invests, even in highly prioritized areas. Thus, in the case of local governments, there are good reasons to expect that incentives may affect policy areas differently—and that highly salient policy areas are likely to be affected the most.

3 | Methods

The purpose of this study is to explore short- and long-term responses to high-powered incentives. In 2011, automatic sanctions targeting local governments were implemented in Denmark, which provides an excellent case for several reasons. First, Danish local governments (the Danish municipalities) are large and complex entities with diverse responsibilities, reflecting the characteristics of many public sector organizations. Second, the introduction of automatic sanctions in 2011 provided Danish municipalities with strong incentives to restrain spending. Third, the availability of outcome data on budgeted and actual spending spanning multiple years for all municipalities enables us to study the impact of the incentives over time. In the following, we describe our empirical setting, research design, and empirical strategy.

3.1 | Empirical Setting: The Danish Context and the Automatic Sanctions

3.1.1 | The Danish Multi-Level Governance System

Denmark is a unitary state and among the most decentralized countries in Europe, both in terms of fiscal decentralization and local autonomy (Ivanyna and Shah 2014; Ladner et al. 2016). The three-tier system of government encompasses two levels of subnational governments besides the state level: regions and municipalities. A major structural reform in 2007 amalgamated 271 municipalities into 98 and replaced the 14 counties that existed prior to 2007 with 5 regions (Blom-Hansen et al. 2016; Houlberg and Ejersbo 2020). The regions' main task encompasses managing the hospital sector, whereas the 98 municipalities are multipurpose units responsible for a wide range of economically and politically important welfare services spanning from daycare, schools, and eldercare to labor market activities, spatial planning, roads, and culture.

Each Danish municipality is governed by a municipal council consisting of 9–55 councilors elected every 4 years for a fixed four-year term. Election periods for the national parliament have a maximum length of 4 years, with parliamentary and local elections rarely coinciding. The first post-reform municipal council elections were held in 2009 (and parliamentary elections in 2007 and 2011). Day-to-day political administration in the municipalities is carried out by the standing committees of the municipal council and overseen by the mayor, who is elected by and among the municipal councilors. The municipal council is responsible for passing an annual budget for each fiscal year, including deciding the overall level of spending as well as the budget's allocation across policy areas.

Municipal spending accounts for half of all public expenditures in Denmark, corresponding to about one fourth of the Danish gross domestic product. The municipalities' most important revenue source is local income taxes and land taxes, covering around 64% of total municipal revenues. In addition, 23% of their revenue comes from general and conditional grants from central government and 13% from fees and user charges (Houlberg and Ejersbo 2020).

Central government regulation of local fiscal autonomy is nested within the so-called "budget cooperation system" with annual budgetary and funding agreements between the central government and the association for local governments, Local Government Denmark (Houlberg and Ejersbo 2020). The budgetary and funding agreements have evolved as an institution since the beginning of the 1980s. The agreements

15406210, 0, Downloaded from https://onlinelibrary.wiley.com/doi/10.1111/puar.70035 by Therese Moeller - VIVE – The Danish Center for Social Science Research , Wiley Online Library on [06/11/2025]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

set limits for taxation levels, levels of service spending, and levels of gross investment for the 98 municipalities collectively. In principle, each municipality is able to set its own taxation rates and policies—as long as the collective limits for the municipalities altogether are not exceeded. Until 2010, the local and national governments had an implicit common understanding that the approved *budgets* were the basis for evaluating whether the agreements were kept, and though the municipalities often exceeded the agreed budget levels, the national government rarely sanctioned the municipalities for such breaches (Houlberg and Ejersbo 2020). Thus, the municipalities were allowed to increase spending if revenues from taxes or other local revenue sources increased beyond the budgeted level and/or by using liquid assets.

3.1.2 | The Introduction of Automatic Sanctions

In 2011, the national parliament implemented automatic sanctions on municipalities to avoid municipal budget overruns. The sanctions were later integrated into the so-called "Budget Act." The Budget Act stipulates a balanced budget requirement and sets an annual collective spending limit on the municipalities. Thus, the annual budget and funding agreement between central government and Local Government Denmark is tooled with statutory sanctions that are applied if the municipalities exceed their collective budget target for total service expenditures and gross investments. The sanction is constructed such that central government funding of municipalities can be cut by up to DKK 3 billion (or about USD 450 million) in the year following a collective breach of the budget and funding agreement. The potential sanctions of DKK 3 billion are substantial for the municipalities, amounting to 4.6% of total central government funding (DKK 65 billion) in the implementation year (2011). In the event of a collective budget overrun by the municipalities, 60% of the sanction's reduction in funding is imposed on the individual municipalities overrunning their budgets, while 40% is imposed on all 98 municipalities collectively as a cut in their overall collective central government funding. Thus, the statutory sanctions provide the individual municipalities with credible and strong incentives to avoid exceeding budgeted spending levels.

3.2 | Research Design

Our design exploits the dramatic shift in the incentive regime that municipalities faced following the introduction of automatic sanctions in 2011. After this policy change, municipalities were exposed to high-powered incentives to keep actual spending within budgeted limits.

While examining changes in spending over time is a natural starting point, other concurrent developments may have affected spending levels. In our design, to address such potential confounding factors, we use the changes in budgeted spending as a baseline. This leads to a *comparative interrupted time series* design that compares trends in budgeted and actual spending before and after the introduction of automatic sanctions (Dee and Jacob 2011).

3.3 | Estimation

In our estimation, we apply a long dataset with separate observations for budgeted and actual spending for each municipality in each year and estimate the following equation

$$\begin{aligned} Y_{it} = {} & \beta_0 + \beta_1 YEAR_t + \beta_2 POST_t + \beta_3 \left(POST_t \times YEAR_t \right) \\ & + \beta_4 \left(ACTUAL_i \times YEAR_t \right) + \beta_5 \left(ACTUAL_i \times POST_t \right) \\ & + \beta_6 \left(ACTUAL_i \times POST_t \times YEAR_t \right) + \beta_7 \left(\boldsymbol{X}_{it} \right) + \alpha_i + \varepsilon_{it} \end{aligned} \tag{1}$$

where Y is the level of spending, *POST* is an indicator variable for the post-policy period (equal to 1 for years as of 2011), *YEAR* is a trend variable (defined as year-2011) centered around the first year of policy implementation (i.e., the variable takes the value 0 for year 2011), *ACTUAL* is a time-invariant indicator for actual spending rather than budgeted spending, and α_i is a municipality fixed effect capturing municipality-specific factors. To account for potential changes over time, we include a vector, $\boldsymbol{X}$, of municipality-specific time-variant covariates. For example, if the socioeconomic expenditure needs increase over time, it could challenge the validity of our findings.

The two parameters of special interest are β_5 and β_6. The parameter β_5 is the *change* in the difference between budgeted and actual spending in the first year after the automatic sanctions were implemented, whereas β_6 represents the *change in the slope* of the difference between budgeted and actual spending after the policy was introduced. Thus, this model allows the policy to affect budget adherence immediately after its introduction and to have time-varying impacts. All standard errors are clustered at the municipality level.

The validity of the model relies on the crucial assumption that budgeted and actual spending would have experienced parallel developments in the absence of the policy. One concern is that other factors might have affected budgeted and/or actual spending in a way that, at least in part, explains the patterns we see.

One potential factor affecting budgeted and actual spending differently is the Great Recession and associated financial crisis. However, since we focus on *service* expenditures—and therefore disregard spending for policy areas most sensitive to economic fluctuations such as unemployment and social benefits—the potential impact of the financial crisis is modest. Moreover, a visual inspection of the data (see the results section) reveals no jump in the difference between budgeted and actual spending in 2009 when the financial crisis hit Denmark but rather in 2011. To formally test the potential impact of the financial crisis, we conducted a placebo test running the same model but using 2009 as the treatment year (see Appendix S1). While we find a modest change in the slope, there is no jump in the difference between budgeted and actual spending in the placebo year. Finally, and importantly, a supplementary analysis demonstrates that municipalities *exceeded* their budget for all of the pre-treatment years 1999–2006, a period that covers the early 2000s recession (see Appendix S2). This finding suggests that previous recessions did not lead municipalities to budget underruns.

15406210, 0, Downloaded from https://onlinelibrary.wiley.com/doi/10.1111/puar.70035 by Therese Moeller - VIVE – The Danish Center for Social Science Research , Wiley Online Library on [06/11/2025]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

TABLE 1 | Descriptive statistics.

Variable	*N*	Mean	Std. dev.	Min	Max
Budgeted spending per capita					
Total service expenditures	1209	44,932	3731	38,492	58,248
Daycare	1209	4650	896	2858	7931
Schools	1209	11,270	1530	7053	17,019
Eldercare	1209	8645	1444	3515	12,847
Children with special needs	1209	3000	648	1082	5506
Adults with special needs	1209	4752	930	2626	9027
Culture	1209	1885	547	834	4242
Roads	1209	1175	324	−21	2240
Administration	1209	6124	767	4259	9420
Other service expenditures	1209	3430	957	695	7338
Actual spending per capita					
Total service expenditures	1209	44,809	3752	37,890	59,603
Daycare	1209	4650	884	2835	7773
Schools	1209	11,354	1564	7138	17,409
Eldercare	1209	8669	1452	1725	13,789
Children with special needs	1209	3121	687	836	5753
Adults with special needs	1209	4969	921	2645	9133
Culture	1209	1871	548	831	4169
Roads	1209	1169	330	63	2236
Administration	1209	6078	790	3655	8764
Other service expenditures	1209	2928	826	723	5932
Control variables					
Fiscal pressure	1209	100.68	4.93	81.22	112.22
Socioeconomic expenditure needs	1209	95.79	23.05	45.14	185.91
Population (ln)	1209	10.77	0.60	9.40	13.34
Share of leftwing seats	1209	46.62	13.07	12.90	78.95

Note: All economic figures in DKK 2019 prices.

While we cannot rule out that some event violated the common-trends assumption, the pre-treatment period suggests this is unlikely[2]. Overall, the data lend credibility to our design and make us confident that the magnitude of any potential violation (of the assumption of a parallel development in budgeted and actual spending) does not affect our overall conclusions.

3.4 | Data

Our primary dataset contains budgeted and actual spending for all 98 municipalities for the period 2007 to 2019. As the 98 municipalities were formed in 2007, this is the first year of our panel. Given that COVID-19 had a dramatic impact on the economy of municipalities with extensive use of supplementary aid packages provided to municipalities, we focus on the period up until 2019. We focus on *service* expenditures since this is the part of operating expenditures covered by the statutory sanctions. We exclude five small island municipalities as they are not comparable to the rest of the Danish municipalities. Nevertheless, supplementary analyses demonstrate that the results are robust to including these five municipalities (see Appendix S3). Our final panel comprises 93 municipalities over 13 years, yielding 1209 municipality-by-year observations.

The data on budgeted and actual spending are merged with administrative data on demographic and socio-economic factors including population size and the socioeconomic composition of the population. Table 1 provides descriptive statistics. For measurement details see Appendix S4.

15406210, 0, Downloaded from https://onlinelibrary.wiley.com/doi/10.1111/puar.70035 by Therese Moeller - VIVE – The Danish Center for Social Science Research , Wiley Online Library on [06/11/2025]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

4 | Results

Figure 2A presents the development in budgeted and actual spending per capita for all municipalities for the period 2007 to 2019. Figure 2B shows the differences between actual spending and budgeted spending, that is, budget overruns. Figure 2A,B demonstrate that the actual spending surpassed the budgeted spending in the years leading up to the introduction of the policy in 2011. A similar pattern existed prior to the municipal amalgamation reform in 2007 (see Appendix S2). However, we see a sharp shift in the year of the policy introduction where the difference between actual and budgeted spending change, but the municipalities as a whole experience a substantial budget underrun after the introduction of the policy.

In the subsequent years, we see an adjustment process with actual spending and budgeted spending fully converging about 7 years after the introduction of the policy reform.

Table 2 provides estimates of the key parameters of Equation (1) as well as the statistical uncertainty of key estimates (see Appendix S5 for results for all estimates of the model). Model 1 provides the estimates from a simple model without municipality fixed effects and covariates, Model 2 includes municipality fixed effects, and Model 3 introduces the full vector of municipality

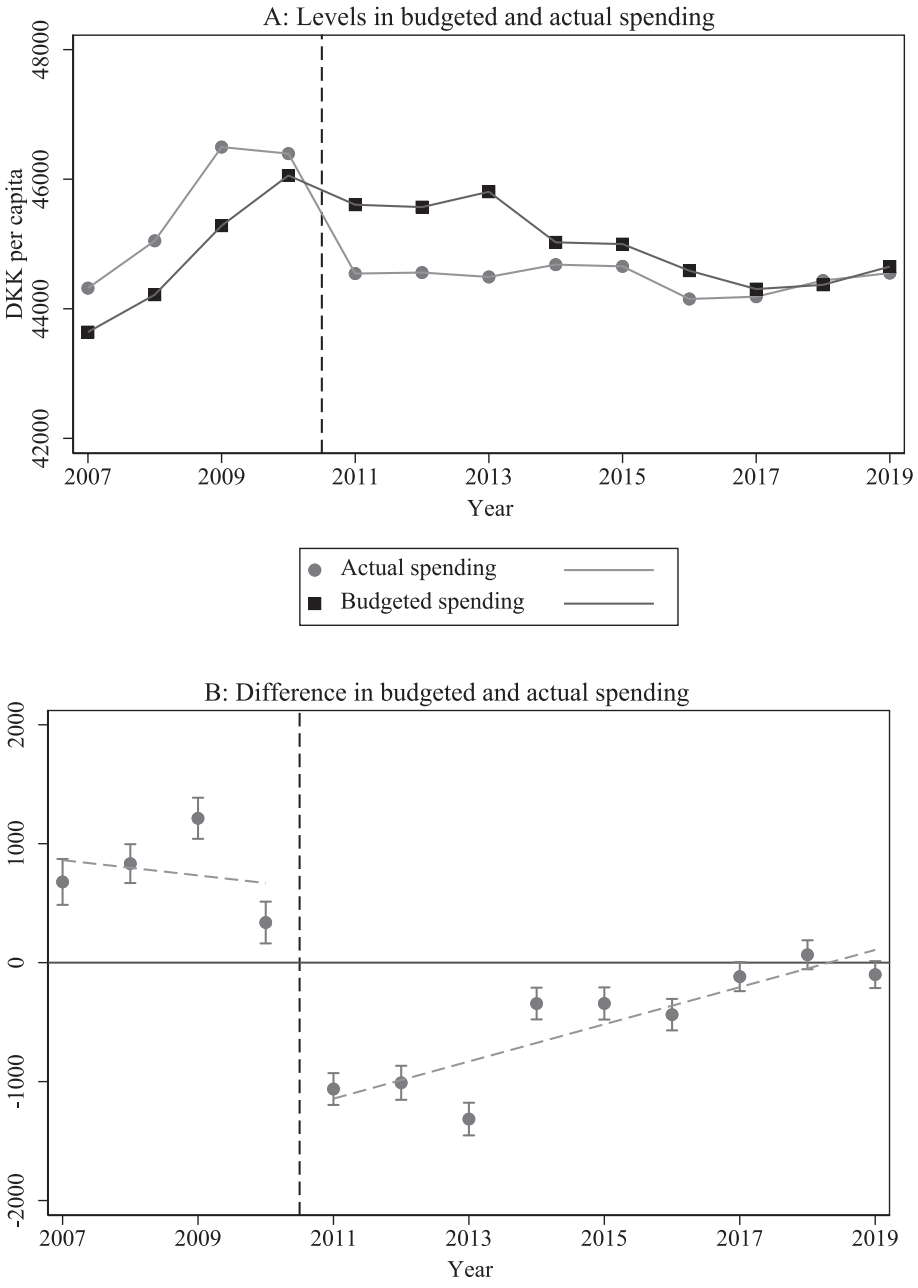


FIGURE 2 | Trends in budgeted and actual spending (A) and budget overruns 2007–2019 (B). The dashed vertical lines indicate the introduction of the automatic sanctions. (B): Outcome is the mean municipality difference between total service spending and budget. Dashed, gray lines show the parametric model. Dots show the nonparametric model with 95% confidence intervals. Standard errors are clustered at the municipality level.

15406210, 0, Downloaded from https://onlinelibrary.wiley.com/doi/10.1111/puar.70035 by Therese Moeller - VIVE – The Danish Center for Social Science Research , Wiley Online Library on [06/11/2025]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

TABLE 2 | Regression results. Difference in budgeted and actual spending.

	(1)		(2)		(3)	
$ACTUAL_i \times POST_t$	−1748.2	***	−1748.2	***	−1753.9	***
	(118.5)		(120.8)		(120.9)	
$ACTUAL_i \times POST_t \times YEAR_t$	220.6	***	220.6	***	219.2	***
	(43.4)		(44.2)		(44.3)	
Municipality fixed effects			X		X	
Controls					X	
Number of observations	1209		1209		1209	

Note: Robust standard errors in parentheses (clustered at each municipality).
***$p < 0.001$.

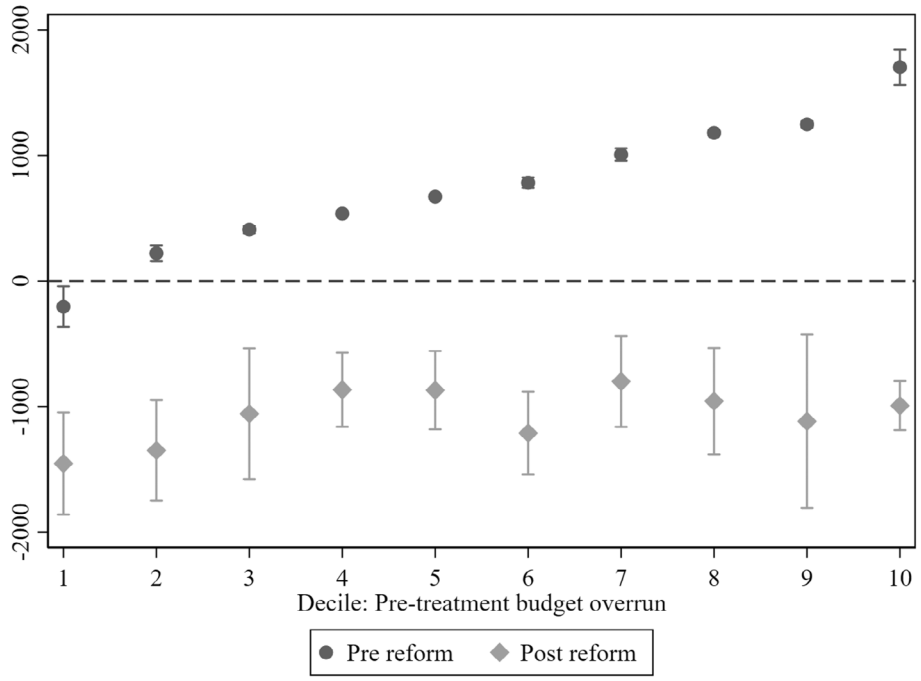


FIGURE 3 | Difference in budgeted and actual spending by deciles of pre-treatment overruns. The figure splits the municipalities into deciles based on their average budget overrun in the pre-treatment period (2007–2010) and plots the difference between budgeted and actual spending for each decile before (2007–2011) and after the reform (2011).

time-variant covariates. When comparing the estimates across models, the results are robust to the introduction of fixed effects and covariates.

In the first year following the introduction of the automatic sanction policy, we find that the policy shifted the difference between actual spending and budgeted spending by DKK 1748 per capita. This corresponds to overall lower spending for all municipalities of DKK 10.7 billion (equivalent of USD 1.5 billion), which amounts to 3.9% of the overall municipal budget. We also find that the difference in spending per capita fell by DKK 220 for each of the subsequent years following the introduction of the policy. Both estimates are highly statistically significant.

4.1 | Are There Differences in How Local Governments Responded to the Automatic Sanctions?

Given that we find such a dramatic response by the municipalities as a whole, we go on to explore whether there are signs of heterogeneity in the way municipalities responded to the policy immediately after its introduction. As discussed in the theory section, the municipalities with a history of significantly exceeding their budgets would be likely to be under the greatest pressure to change their spending behavior to avoid the sanction.

In Figure 3, we split the municipalities into deciles based on their average budget overrun in the pre-treatment period (2007–2010) and then plot the difference between budgeted and actual

15406210, 0, Downloaded from https://onlinelibrary.wiley.com/doi/10.1111/puar.70035 by Therese Moeller - VIVE – The Danish Center for Social Science Research , Wiley Online Library on [06/11/2025]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

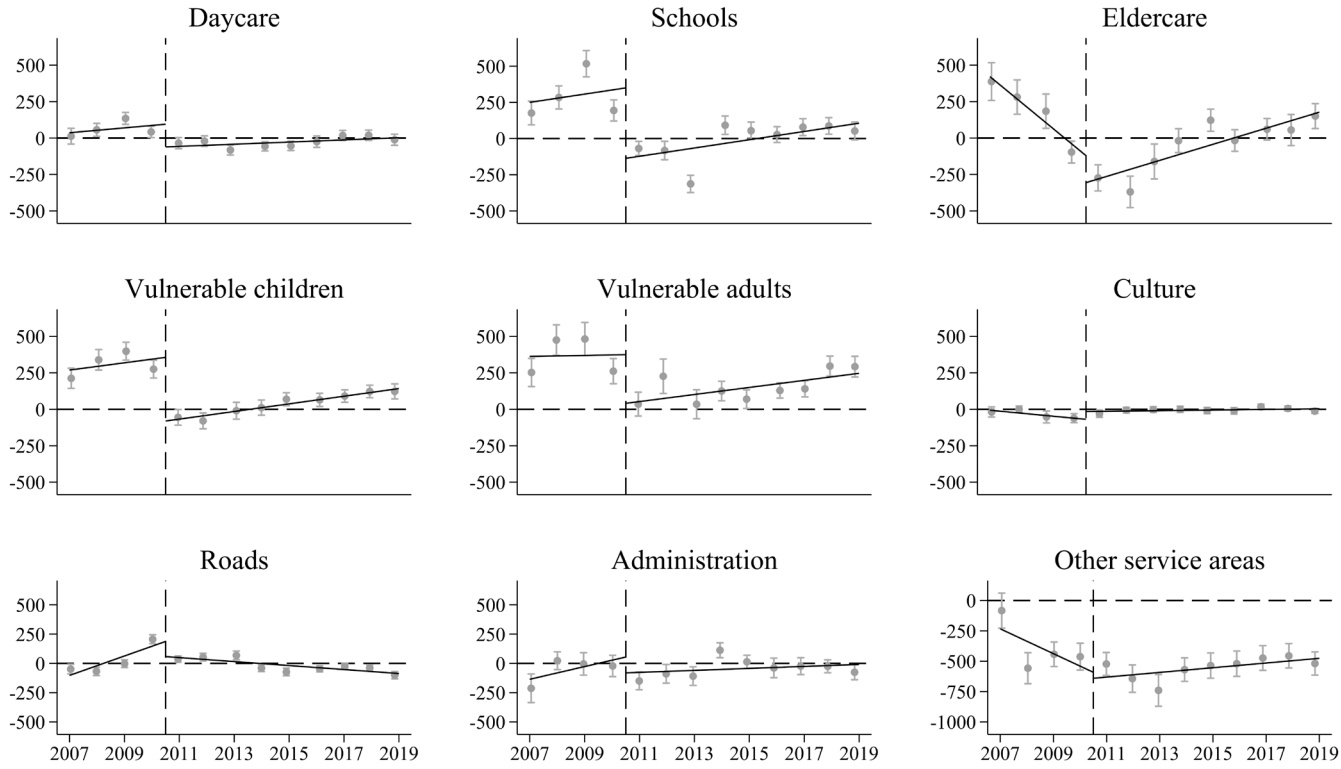


FIGURE 4 | Impact of automatic sanctions across policy areas. Budget overruns per capita for the period 2007–2019. The dashed vertical lines indicate the introduction of the automatic sanctions. *Y* axis is mean municipality difference between budgeted and actual spending. Solid lines show the parametric model. Dots show the nonparametric model with 95% confidence intervals. Standard errors are clustered at the municipality level.

spending for each decile both before and after the introduction of the policy (2011). For all deciles, we find that the municipalities had an average budget underrun after the reform. Also, the groups of municipalities that experienced the highest overruns in the pre-treatment period now on average adhered to the policy. Figure S1 in the appendix details the individual municipalities, and we see that all but six had budget underruns in 2011, despite the fact that the sanctions would only be activated if the 98 municipalities as a whole exceeded their budgets. While mean reversion could potentially be an explanation for this pattern, municipalities with the largest overruns prior to the policy may have been the most affected by automatic sanctions, as our theoretical section suggests.

In sum, we find that the policy had a substantial immediate impact, with almost all municipalities shifting from budget overruns to underruns. Also, heterogeneity is found in the municipalities' responses, with the effect driven primarily by those with the largest pre-policy overruns.

4.2 | Which Policy Areas Were Affected?

Having shown how the policy affected the overall budget overruns and spending of the municipalities, we now investigate its impact across different policy areas. As discussed in the theoretical section, one might expect variation in the extent to which the sanction would change output across policy areas.

In our setting, local politicians in a context of high autonomy and weak sanction threats are likely to prioritize politically salient policy areas such as schools, daycare, and eldercare characterized by strong spending advocates (strong users and producers) and goods with concentrated benefits (Serritzlew 2005; Houlberg et al. 2016; Foged 2022). In the absence of automatic sanctions, local politicians are, in other words, more likely to be guided by local political preferences and/or yield to political pressure and approve budget overruns in these politically salient policy areas. With the introduction of automatic sanctions, these policy areas will likely face increased pressure to improve budget discipline because credible sanctions significantly weaken the effect of otherwise strong spending advocates and political predisposition for spending (Suenson et al. 2016).

To explore heterogeneity across policy areas, we ran the model on each of nine service areas (see Figure 4). The reform had dramatic consequences for certain service areas. Schools and vulnerable groups experienced the largest cuts, while daycare and eldercare also saw significant cuts in the initial post-reform years. The shift in 2011 corresponds to 3.9% of the overall budget for schools and 7.9% of budgets for vulnerable children. For all municipalities, the total cut in school spending from 2010 to 2011 corresponds to DKK 2.5 billion (equivalent to USD 0.36 billion) and the total cut in spending for vulnerable children to DKK 1.5 billion (equivalent to USD 0.22 billion).

Before the introduction of the automatic sanctions, budget overruns in Danish municipalities occurred primarily in politically salient policy areas such as schools, daycare, and eldercare. The findings in Figure 4 confirm our theoretical expectation that

15406210, 0, Downloaded from https://onlinelibrary.wiley.com/doi/10.1111/puar.70035 by Therese Moeller - VIVE – The Danish Center for Social Science Research , Wiley Online Library on [06/11/2025]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

the spending cuts induced by the policy reform affected politically salient policy areas, whereas other areas such as culture and roads were much less affected. Thus, politically salient policy areas with strong spending advocates shifted from experiencing substantial budget overruns *before* the policy reform to demonstrating budget discipline comparable to all service areas afterward. Unexpectedly, we also observe significant cuts for vulnerable groups. This likely reflects that before automatic sanctions, vulnerable groups benefited from being considered particularly deserving of receiving additional funding (Houlberg et al. 2016). The new sanctions regime, however, limited this preferential treatment.

5 | Discussion

Our findings offer insights into how large public organizations respond to high-powered incentives. In the following, we discuss two mechanisms that may explain our findings. Our results align with a model in which (1) managing costs is challenging for large public organizations, and (2) public organizations adjust their actions over time based on organizational learning about internal governance and expectations based on the behavior of their peers.

5.1 | Overreaction as an Immediate Response to the Automatic Sanctions

Prior to 2011, local governments had relatively vague incentives to restrain spending, resulting in large budget overruns for most municipalities. With the introduction of the automatic sanction regime, local governments were sanctioned if they collectively failed to adhere to their budgets. Consequently, municipalities faced strong incentives to adhere to their budgets to avoid individual sanctions. However, local governments are complex entities, as discussed previously. The inherent goal ambiguity and complexity of such large public organizations make it difficult to reach budget targets with precision, which could explain why municipalities on average overshot their targets, resulting in a substantial collective underrun equivalent to DKK 6.9 billion in 2011 (or 2.5% of their budget). Consistent with our theoretical expectation, these findings show that implementing incentive structures among large public organizations may trigger stronger immediate responses than policymakers expect.

The collective sanctions activated only when total municipal spending exceeded the national budget limit, creating an interdependence whereby the behavior of each municipality influenced the incentives faced by others. In deciding their response, each municipality benefited from forming expectations about the behavior of the other municipalities. A logical approach for a municipality was to infer the behavior of others based on the distribution of deficits in prior years. In the years leading up to the automatic sanction regime, 92 out of 98 municipalities had budget overruns, suggesting a high probability of an overall overrun. Thus, in the initial years after the reform, municipalities faced significant uncertainty, both regarding their own ability to adhere to their budgets and whether other municipalities were able to do the same. Consequently, individual municipalities had a significant incentive to strengthen budgetary discipline to adhere to their budgets and avoid sanctions.

5.2 | Adjustment Over Time

In our theoretical model, overshooting occurs when there is uncertainty about an organization's ability to reach its target. If this uncertainty about target precision decreases over time, for example, due to learning effects, overshooting should decrease. It is likely that the gradual adjustment towards a balanced budget happened as a result of such learning effects.

At least two mechanisms could explain this pattern. First, as each municipality accumulated additional years of information on the behavior of the other municipalities and as the coordination among the municipalities increased, the municipalities became more certain about the (low) probability of sanctions. Then, as most municipalities started falling short of their budgets under the new regime, their assessment of the risk of sanctions was likely to decrease over time. This may have led the municipalities to be less cautious in their target setting. Thus, over time, the individual municipalities learned through both stronger mutual coordination and from observing the historical budget discipline of their peers. Consequently, over time, the municipalities faced a lower risk of sanctions and could aim for targets closer to zero.

Second, an internal learning mechanism may also partly explain the longer-term incentive response. Each municipality learns not only from interacting with and observing the past behavior of the other municipalities, but also from its own target achievement experience. Over time, the individual municipality may have improved its precision and, as a result, become more willing to set less cautious targets.

In sum, these results suggest that improved precision over time results from both external and internal adjustment processes. This process of adjustment demonstrates the potential dynamic nature of organizational responses to incentives and highlights the importance of learning over time.

6 | Conclusion

Incentives in government can take many forms and affect relationships within government agencies, between agencies, and between agencies and citizens. We study a policy that introduced high-powered incentives for local government—the Danish municipalities. These incentives altered municipal spending, leading to substantial budget cuts. Thus, the policy shifted the previous pattern of municipal budget overruns to a pattern of budget underruns, with spending below the incentivized budget targets. While spending initially fell below the incentivized targets, actual spending converged with the targets over time.

Our results demonstrate that incentivizing large public organizations can effectively alter their behavior, but responses to incentives may exceed policymakers' expectations. These findings

15406210, 0, Downloaded from https://onlinelibrary.wiley.com/doi/10.1111/puar.70035 by Therese Moeller - VIVE – The Danish Center for Social Science Research , Wiley Online Library on [06/11/2025]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

align with public administration theory, which highlights the goal ambiguity and complex governance structure of large public organizations. These features make achieving targets difficult, leading organizations to exercise caution when setting internal targets.

We theorize that the adjustment process could be explained by the municipalities updating expectations about each other and by internal learning that enhances target precision. Our findings highlight the importance of organizational learning and prompt us to call for further study of responses over time to organizational incentives, particularly collective incentives such as the ones examined here.

These results raise important questions about the uniqueness of the reform and institutional setting and, consequently, about external validity. First, while attempts to restrict local government spending have been widespread in various countries, previous studies examining a range of tax and expenditure limitation policies generally find such fiscal rules have little effect on the overall size of public revenues and spending (Bae and Jung 2011; Kousser et al. 2008; Mullins 2010). One explanation for the ineffectiveness of such initiatives is that the affected governments engage in revenue-shifting strategies or shift to non-limited expenditures (Mullins 2010). While the literature shows that tax and expenditure limitation policies often tend to affect the composition rather than the overall size of revenues and spending, our findings suggest that high-powered incentives can be effective in restricting the growth in local government spending. Such an expenditure-restraining effect is also found in the literature on fiscal rules at the national government level (Hallerberg et al. 2009; Raudla 2019).

Second, while the Danish multi-level government setting shares similarities with governance structures in other countries, there are also institutional and cultural differences. Specifically, the Danish system features an institutional arrangement involving annual financial and funding agreements between central and local government with collective targets for local government spending, combined with both individual and collective sanctions. In contrast, fiscal rules in most other countries are generally applied to local government budget balances, borrowing, or tax autonomy rather than directly targeting local government spending (Sutherland et al. 2005).

Nevertheless, while it is clear that the Danish case varies in some respects from other settings, we believe that our model and the empirical findings provide insights that are applicable to a broader context that goes beyond local governments. We propose that our model is particularly relevant for public organizations because there are a number of characteristics that make such organizations particularly susceptible to the overshooting phenomenon, including goal ambiguity and complex internal governance structures. However, such problems related to uncertainty could also apply to organizations other than public organizations and even to individuals. Thus, the extent to which our findings are generalizable constitutes an important question for future research.

Another caveat concerns the overall effect of the automatic sanctions. While the findings suggest that the high-powered incentives were effective in lowering municipal spending, the substantial budget cuts following the reform could have damaged output and outcomes (Boyne 2002). For example, the total cut in school spending corresponded to about 4% of the overall budget, which could have detrimental effects for the affected children's educational performance and socio-emotional learning. Whether such detrimental effects are present constitutes an important area for future research.

While some caution is warranted regarding the generalizability of our findings, we demonstrate that implementing incentive structures among large public organizations may trigger more pronounced responses than initially foreseen by policymakers. Moreover, given that incentive schemes can induce dynamic adjustments in behavior over time, future research should examine the dynamic impacts of such schemes, especially in the case of collective incentive schemes.

Conflicts of Interest

The authors declare no conflicts of interest.

Endnotes

[1] For instance, in a meta-analysis of the effect of teacher merit pay on student test scores, 75% of the included studies reported effects for fewer than 5 years despite indications that merit pay programs tend to be more effective early in their implementation (Pham et al. 2021).

[2] The financial crisis may, however, have been used as a "window of opportunity" by the Danish Ministry of Finance to secure support for introducing legal instruments–a Budget Act and automatic sanctions—which had been discussed for decades but had lacked political support (Ghin 2018).

References

Andersen, S. C., U. Hvidman, S. Y. de Junge, and B. S. Rangvid. 2025. "Performance-Based Accountability Systems at the Organizational Level: Effects of a School Program." *Journal of Public Administration Research and Theory* 35, no. 2: 216–230.

Andersen, S. C., and H. S. Nielsen. 2020. "Learning From Performance Information." *Journal of Public Administration Research and Theory* 30, no. 3: 415–431.

Bae, S., and C. Jung. 2011. "The Effects of Tax and Expenditure Limitation (TEL) Stringency on the Level of State Expenditure and Revenue." *International Review of Administrative Sciences* 77, no. 4: 647–669.

Benaine, S., S. Lorenzo, and A. Kroll. 2020. "Explaining Effort Substitution in Performance Systems: The Role of Task Demands and Mission Orientation." *Public Management Review* 22, no. 6: 813–835.

Berne, R., and L. Stiefel. 1993. "Cutback Budgeting: The Long-Term Consequences." *Journal of Policy Analysis and Management* 12, no. 4: 664–684.

Binderkrantz, A. S., and J. G. Christensen. 2012. "Agency Performance and Executive Pay in Government: An Empirical Test." *Journal of Public Administration Research and Theory* 22, no. 1: 31–54.

Blom-Hansen, J., K. Houlberg, S. Serritzlew, and D. Treisman. 2016. "Jurisdiction Size and Local Government Policy Expenditure: Assessing the Effect of Municipal Amalgamation." *American Political Science Review* 110, no. 4: 812–831.

15406210, 0, Downloaded from https://onlinelibrary.wiley.com/doi/10.1111/puar.70035 by Therese Moeller - VIVE – The Danish Center for Social Science Research , Wiley Online Library on [06/11/2025]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

Bloom, N., and J. Van Reenen. 2010. "Why do Management Practices Differ Across Firms and Countries?" *Journal of Economic Perspectives* 24, no. 1: 203–224.

Boyne, G. A. 2002. "Concepts and Indicators of Local Authority Performance: An Evaluation of the Statutory Framework in England and Wales." *Public Money & Management* 22, no. 2: 17–24 2003.

Boyne, G. A., K. J. Meier, L. J. O'Toole, and R. M. Walker. 2005. "Where Next? Research Directions on Performance in Public Organizations." *Journal of Public Administration Research and Theory* 15, no. 4: 633–639.

Bozeman, B. 1987. *All Organizations Are Public. Bridging Public and Private Organizational Theories*. Jossey-Bass.

Burgess, S., C. Propper, M. Ratto, and E. Tominey. 2017. "Incentives in the Public Sector: Evidence From a Government Agency." *Economic Journal* 127: F117–F141.

Burgess, S., and M. Ratto. 2003. "The Role of Incentives in the Public Sector: Issues and Evidence." *Oxford Review of Economic Policy* 19, no. 2: 285–300.

Dee, T. S., and B. Jacob. 2011. "The Impact of no Child Left Behind on Student Achievement." *Journal of Policy Analysis and Management* 30: 418–446.

Dixit, A. 2002. "Incentives and Organizations in the Public Sector: An Interpretative Review." *Journal of Human Resources* 37, no. 4: 696–727.

Foged, S. K. 2022. "Spending Allocations During Low and High Fiscal Stress: Priority Setters and Spending Advocates in Danish Municipalities, 2008–2015." *Public Administration* 100, no. 4: 1107–1124.

Gerrish, E. 2016. "The Impact of Performance Management on Performance in Public Organizations: A Meta-Analysis." *Public Administration Review* 76: 48–66.

Ghin, E. M. 2018. "Budgetary Reform in Denmark in Times of Austerity." In *Public Management in Times of Austerity*, edited by E. M. Ghin, H. F. Hansen, and M. B. Kristiansen, 184–202. Routledge.

Guul, T. S., U. Hvidman, and H. H. Sievertsen. 2021. "Quasi-Market Competition in Public Service Provision: User Sorting and Cream-Skimming." *Journal of Public Administration Research and Theory* 31, no. 4: 740–755.

Hallerberg, M., R. R. Strauch, and J. Von Hagen. 2009. *Fiscal Governance in Europe*. Cambridge University Press.

Haveman, H. 2022. *The Power of Organizations: Why We Should Study How Organizations Affect Society*. Princeton University Press.

Heinrich, C. J. 1999. "Do Government Bureaucrats Make Effective Use of Performance Management Information?" *Journal of Public Administration Research and Theory* 9, no. 3: 363–393.

Heinrich, C. J., and G. Marschke. 2010. "Incentives and Their Dynamics in Public Sector Performance Management Systems." *Journal of Policy Analysis and Management* 29, no. 1: 183–208.

Holmstrom, B. 1982. "Moral Hazard in Teams." *Bell Journal of Economics* 13, no. 2: 324–340.

Holmstrom, B., and P. Milgrom. 1991. "Multitask Principal-Agent Analyses: Incentive Contracts, Asset Ownership, and Job Design." *Journal of Law, Economics, and Organization* 7: 24–52.

Hood, C. 1995. "The "New Public Management" in the 1980s: Variations on a Theme." *Accounting, Organizations and Society* 20, no. 2/3: 93–109.

Houlberg, K., and N. Ejersbo. 2020. "Municipalities and Regions: Approaching the Limit of Decentralization?" In *Oxford Handbook of Danish Politics*, edited by P. M. Christiansen, J. Elklit, and P. Nedergaard, 141–159. Oxford University Press.

Houlberg, K., A. L. Olsen, and L. H. Pedersen. 2016. "Spending and Cutting Are Two Different Worlds: Experimental Evidence From Danish Local Councils." *Local Government Studies* 42, no. 5: 821–841. https://doi.org/10.1080/03003930.2016.1189414.

Ivanyna, M., and A. Shah. 2014. "How Close Is Your Government to Its People? Worldwide Indicators on Localization and Decentralization." *Economics* 8, no. 3: 1–61.

Jacob, B. A. 2005. "Accountability, Incentives and Behavior: The Impact of High-Stakes Testing in the Chicago Public Schools." *Journal of Public Economics* 89, no. 5–6: 761–796.

Jacob, B. A., and S. D. Levitt. 2003. "Rotten Apples: An Investigation of the Prevalence and Predictors of Teacher Cheating." *Quarterly Journal of Economics* 118, no. 3: 843–877.

Kickert, W. 2014. "Fiscal Squeeze in Dutch Municipalities in the 1980s: Cutback Measures and Public Management Reforms." In *When the Party's Over*, edited by C. Hood, D. Heald, and R. Himaz, 115138. Oxford University Press.

Kousser, T., M. D. McCubbins, and E. Moule. 2008. "For Whom the TEL Tolls: Can State Tax and Expenditure Limits Effectively Reduce Spending?" *State Politics and Policy Quarterly* 8, no. 4: 331–361.

Ladner, A., N. Keuffer, and H. Baldersheim. 2016. "Measuring Local Autonomy in 39 Countries (1990–2014)." *Regional and Federal Studies* 26, no. 3: 321–357.

Le Grand, J. 2003. *Motivation, Agency, and Public Policy: Of Knights and Knaves, Pawns and Queens*. Oxford University Press.

Lynn, L. E., C. J. Heinrich, and C. J. Hill. 2000. "Studying Governance and Public Management: Challenges and Prospects." *Journal of Public Administration Research and Theory* 2: 233–261.

Meier, K. J., N. Favero, and L. Zhu. 2015. "Performance Gaps and Managerial Decisions: A Bayesian Decision Theory of Managerial Action." *Journal of Public Administration Research and Theory* 25, no. 4: 1221–1246.

Meier, K. J., and L. J. O'Toole Jr. 2009. "The Dog That Didn't Bark: How Public Managers Handle Environmental Shocks." *Public Administration* 87, no. 3: 485–502.

Moynihan, D. P. 2006. "Managing for Results in State Government: Evaluating a Decade of Reform." *Public Administration Review* 66: 77–89.

Moynihan, D. P., and A. Kroll. 2015. "Performance Management Routines That Work? An Early Assessment of the GPRA Modernization Act." *Public Administration Review* 76, no. 2: 314–332.

Mullins, D. R. 2010. "Fiscal Limitations on Local Choice: The Imposition and Effects of Local Government Tax and Expenditure Limitations." In *State and Local Fiscal Policy*. Edward Elgar Publishing.

Perry, J., T. Engbers, and S. Y. Jun. 2009. "Back to the Future? Performance-Related Pay, Empirical Research, and the Perils of Persistence." *Public Administration Review* 69, no. 1: 39–51.

Perry, J. L., and H. G. Rainey. 1988. "The Public- Private Distinction in Organization Theory: A Critique and Research Strategy." *Academy of Management Review* 13: 182–201.

Pham, L. D., T. D. Nguyen, and M. G. Springer. 2021. "Teacher Merit Pay: A Meta-Analysis." *American Educational Research Journal* 58, no. 3: 527–566.

Rainey, H. G. 2009. *Understanding and Managing Public Organizations*. Fourth ed. Jossey-Bass.

Rainey, H. G., R. W. Backoff, and C. H.Levine. 1976. "Comparing Public and Private Organizations." *Public Administration Review* 36: 233–246.

Raudla, R. 2019. "Budgetary Institutions." In *Encyclopedia of Law and Economics*, edited by A. Marciano and G. B. Ramello, 154–161. Springer.

15406210, 0, Downloaded from https://onlinelibrary.wiley.com/doi/10.1111/puar.70035 by Therese Moeller - VIVE – The Danish Center for Social Science Research , Wiley Online Library on [06/11/2025]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

Schochet, P. Z., and J. A. Burghardt. 2008. "Do Job Corps Performance Measures Track Program Impacts?" *Journal of Policy Analysis and Management* 27, no. 3: 556–576.

Serritzlew, S. 2005. "Breaking Budgets: An Empirical Examination of Danish Municipalities." *Financial Accountability and Management* 21, no. 4: 413–435.

Suenson, E. L., P. Nedergaard, and P. M. Christiansen. 2016. "Why Lash Yourself to the Mast? The Case of the Danish Budget Law." *Public Budgeting and Finance* 36, no. 1: 3–21.

Sutherland, D., R. Price, and I. Joumard. 2005. *Fiscal Rules for Sub-Central Governments: Design and Impact*. OECD.

van Triest, S. 2024. "Incentives and Effort in the Public and Private Sector." *Public Administration Review* 84: 233–247.

Wilson, J. Q. 1989. *Bureaucracy*. Basic Books.

Supporting Information

Additional supporting information can be found online in the Supporting Information section. **Data S1:** puar70035-sup-0001-supinfo.

15406210, 0, Downloaded from https://onlinelibrary.wiley.com/doi/10.1111/puar.70035 by Therese Moeller - VIVE – The Danish Center for Social Science Research , Wiley Online Library on [06/11/2025]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License