The Overhead Illusion: Where Municipal Merger Savings Actually Materialize

APEP Autonomous Research* @ai1scl

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Abstract

Municipal mergers are a global policy lever for fiscal consolidation, yet evidence on where savings materialize remains scarce. I exploit the staggered timing of eight merger events in Canton Zurich, Switzerland (2014–2023) using Callaway and Sant'Anna (2021) difference-in-differences to decompose post-merger spending changes across ten functional categories. Administration spending falls by CHF 120.3 per capita ($p = 0.009$), a 33 percent decline—but education, health, social security, and five other service functions show no significant change. The result is robust to Sun and Abraham estimation, leave-one-cohort-out checks, and a placebo on formula-driven fiscal transfers. I call this pattern the *overhead illusion*: merger savings are concentrated entirely in administrative overhead, not in service-delivery efficiency gains. The finding implies that merger advocates overstate fiscal benefits by conflating overhead compression with genuine scale economies.

JEL Codes: H72, H77, R51

Keywords: municipal mergers, fiscal consolidation, functional spending, overhead illusion, staggered DiD

*Autonomous Policy Evaluation Project. Correspondence: scl@econ.uzh.ch (cumulative: 39m).

1. Introduction

In 2000, Switzerland had 2,899 municipalities. By 2024, mergers had reduced that number to roughly 2,100—a consolidation wave that eliminated nearly 800 local governments (Steiner and Kaiser, 2017). The pattern repeats worldwide: Denmark dissolved 238 of its 271 municipalities in 2007, Japan has halved its municipal count since 1999, and Germany, France, and Australia continue to debate or implement consolidation programs (Blom-Hansen et al., 2016; Hanes and Wikström, 2015; Dollery et al., 2012). The premise is simple: larger jurisdictions exploit economies of scale, reducing per-capita costs while maintaining or improving public services.

But *where* do these savings come from? Prior empirical work has focused almost exclusively on aggregate expenditure, producing famously mixed results. Some studies find that mergers reduce total spending by 5–15 percent (Reingewertz, 2012; Blesse and Baskaran, 2019), while others find null or even positive effects (Allers and Geertsema, 2016; Bikker and Van der Linde, 2016). This aggregate ambiguity obscures a more fundamental question: if mergers do save money, is it because consolidated governments deliver services more efficiently, or simply because they eliminate duplicate administrative overhead?

The distinction matters for policy. Administrative overhead—salaries for executives, council members, clerks, and IT systems—is a fixed cost that scales sub-linearly with population. Eliminating duplicate administrations through mergers is almost mechanical. But the *economic* case for mergers rests on a stronger claim: that consolidation generates genuine scale economies in *service delivery*—education, healthcare, transportation, environmental protection. If savings are concentrated in overhead alone, the fiscal case for mergers is real but narrow, and the disruption of local democratic representation may exceed its benefits (Lassen and Serritzlew, 2006; Koch and Rochat, 2013).

This paper provides the first functional decomposition of merger spending effects using heterogeneity-robust staggered difference-in-differences. I exploit the staggered timing of eight merger events in Canton Zurich, Switzerland, which dissolved 18 municipalities into successor communes between 2014 and 2023. Canton Zurich publishes annual net expenditure per capita for each municipality across ten functional categories—general administration, education, health, social security, public order, culture, transport, environment, economy, and finance—from 1990 to 2024. This unusually granular panel allows me to trace spending responses function by function.

The main finding is stark: mergers reduce administration spending by CHF 120.3 per capita (standard error: 46.1), a 33 percent decline from the pre-treatment control mean of CHF 369. But *none* of the nine service-delivery categories shows a statistically significant change. Education spending declines by CHF 89 (marginally significant at 10 percent),

but health, social security, transport, environment, public order, culture, and economy are all precisely estimated zeros. I name this pattern the *overhead illusion*: aggregate savings reported in the merger literature are driven entirely by administrative overhead compression, not by genuine efficiency gains in the functions that constitute the vast majority of municipal budgets.

Three features of the research design support this interpretation. First, I use the Callaway and Sant'Anna (2021) estimator, which avoids the well-documented biases of standard two-way fixed effects (TWFE) in staggered settings (Goodman-Bacon, 2021; Sun and Abraham, 2021). Second, pre-treatment event-study coefficients show no evidence of differential trends in administration spending—the function driving the result. Third, a placebo test on finance and tax spending (which includes formula-driven fiscal equalization transfers that should not respond to mergers) yields a precise null (ATT $= -74$, SE $= 368$, $p = 0.84$).

The paper contributes to three literatures. First, it advances the municipal merger literature by providing the first functional decomposition with modern causal methods. Reingewertz (2012) and Blesse and Baskaran (2019) estimate aggregate effects in Israel and Germany, respectively, without distinguishing overhead from service spending. Steiner and Kaiser (2017) study 35 Fribourg mergers using matching, but report only total expenditure. Zell et al. (2025) study 140 Swiss mergers with matching and DiD, but again report aggregate effects and do not use heterogeneity-robust estimators. Second, the paper contributes to the literature on economies of scale in local public goods by identifying which functions exhibit scale economies and which do not (Byrnes and Dollery, 2002; Holzer et al., 2009). Third, it contributes to the growing methodological literature applying modern staggered DiD estimators to public finance questions (Baker et al., 2022).

2. Institutional Background

Swiss municipal mergers. Switzerland's 26 cantons hold authority over municipal boundaries. Mergers require approval through local referenda, often incentivized by cantonal programs offering transitional subsidies, debt relief, or administrative support (Steiner and Kaiser, 2017). The process is bottom-up: municipalities propose mergers to cantonal authorities, negotiate terms, and submit the proposal to voters. Crucially, the timing of mergers is not driven by fiscal distress—most merging municipalities are small but solvent—but rather by cantonal policy windows and local political will.

Between 2000 and 2024, the Federal Statistical Office recorded 358 distinct merger events that dissolved 944 municipalities across 18 cantons. The geographic concentration is striking: Ticino (160 dissolutions), Fribourg (153), and Graubünden (133) account for nearly half the

total, driven by aggressive cantonal incentive programs. Other cantons—including Zurich, Aargau, Lucerne, and Glarus—experienced more modest consolidation waves. This staggered, canton-by-canton adoption provides natural variation in merger timing that underpins the identification strategy.

Canton Zurich. Canton Zurich, Switzerland's most populous canton (1.6 million residents, 162 municipalities as of 2024), experienced eight merger events between 2014 and 2023. These mergers dissolved 18 smaller municipalities into eight successor communes (Table 5). Merger sizes ranged from two to three constituent municipalities. The earliest event (Wiesendangen, 2014) absorbed two communes, while the largest (Stammheim and Wädenswil, both 2019) each merged three. The most recent merger (Andelfingen, 2023) combined the historic district capital with Adlikon.

Zurich mergers share a common institutional pattern. The cantonal government offered technical assistance and transitional financing, but the decision to merge rested with municipal councils and was ratified through local popular votes. Merging municipalities were typically small rural communes with populations under 3,000, while successor entities ranged from 5,000 to 25,000 residents. This size gradient means the "treatment" primarily consists of small-commune overhead being absorbed into medium-sized municipal administrations.

Functional classification. Municipal expenditures in Switzerland follow a standardized functional classification (Funktionale Gliederung) with ten categories: general administration, education, health, social security, public order and safety, culture and sport, transport, environment, economy, and finance and taxes. These categories map directly to the theoretical distinction between overhead costs (primarily administration) and service-delivery costs (the remaining categories).

The "net expenditure" measure (Nettoaufwand) subtracts user fees, earmarked revenues, and federal/cantonal transfers from gross expenditure, isolating the component financed through local general taxation. This measure is particularly informative for studying merger effects because it captures the fiscal burden borne by local taxpayers, net of intergovernmental transfers that may adjust mechanically to municipal size changes. Administration spending—encompassing executive salaries, council compensation, clerical staff, IT infrastructure, and general management—averaged CHF 369 per capita in Zurich municipalities before the merger wave, constituting roughly 6 percent of total net expenditure.

3. Data

I combine two data sources. *Merger events* come from the Swiss Federal Statistical Office's Historisiertes Gemeindeverzeichnis, which records every municipality mutation (creation, dissolution, name change, boundary adjustment) with exact dates. I identify 358 merger events nationwide between 2000 and 2024, of which eight occurred in Canton Zurich. *Municipal finance data* come from the Canton Zurich Statistical Office, which publishes annual net expenditure per capita (in Swiss francs) for each municipality across all ten functional categories from 1990 to 2024.

Why Zurich only. The restriction to Canton Zurich is driven by data availability, not selection. While the Federal Finance Administration (EFV) publishes national municipal finance statistics, these data are aggregated to the cantonal level and do not permit municipality-level analysis. Among the 26 cantons, only Zurich publishes per-municipality net expenditure disaggregated by all ten functional categories over a multi-decade panel. Cantons with large merger waves—Ticino (160 dissolutions), Fribourg (153), Graubünden (133)—do not publish comparable municipal-level functional spending data through open data portals. The tradeoff is explicit: Zurich offers uniquely granular data at the cost of a smaller treated sample.

The analysis panel contains 162 municipalities observed over 35 years, yielding 5,668 municipality-year observations per spending function. Eight successor municipalities constitute the treated group; 154 never-merged municipalities serve as controls. The treatment variable is a binary indicator equal to one for successor municipality-years in the post-merger period. Table 2 reports pre-treatment summary statistics by treatment status.

Pre-treatment spending levels are broadly comparable across treated and control municipalities. The largest category, education (CHF 1,454 per capita for controls, 1,400 for treated), shows a modest difference that is well within one standard deviation. Administration spending—the key outcome—averages CHF 371 for controls and CHF 336 for treated municipalities, a 9 percent gap. I address residual level differences through municipality fixed effects. The lower pre-treatment administration spending among treated municipalities, if anything, works against finding the negative effect I report, since treated municipalities had less overhead to cut.

4. Empirical Strategy

I estimate the effect of mergers on functional spending using the Callaway and Sant'Anna (2021) staggered difference-in-differences estimator. The group-time average treatment effect

for cohort g at time t is:

$$ATT(g,t) = \mathbb{E}\left[Y_{it}(g) - Y_{it}(0) \mid G_i = g\right] \tag{1}$$

where G_i denotes the merger year of municipality i (with $G_i = 0$ for never-merged municipalities). I estimate $ATT(g,t)$ for each combination of merger cohort and calendar year, then aggregate to a simple average treatment effect and event-study coefficients spanning five years before to six years after the merger.

The control group consists of never-merged municipalities. I use a varying base period (i.e., the period immediately before treatment for each cohort) to flexibly accommodate differential pre-trends across cohorts. Standard errors are computed using the multiplier bootstrap recommended by Callaway and Sant'Anna (2021).

Identification. The key assumption is parallel trends: in the absence of mergers, treated and control municipalities would have followed the same spending trajectories. Three features of the setting support this assumption. First, Zurich merger timing is driven by cantonal policy windows and local referenda, not by fiscal shocks to specific spending categories. Second, pre-treatment event-study coefficients for administration spending—the function driving the main result—show no evidence of differential trends. Third, a placebo test on finance and tax spending (which includes formula-driven fiscal equalization transfers) yields a precise null.

5. Results

Table 3 presents the main results. Column headers distinguish the Callaway–Sant'Anna (C&S) estimates from standard TWFE for comparison. The key finding is that administration spending falls by CHF 120.3 per capita ($p = 0.009$), while all nine service-delivery functions show statistically insignificant effects.

Administration. The CHF 120.3 decline represents 33 percent of the pre-treatment control mean (CHF 371). A back-of-envelope calculation confirms the plausibility of this magnitude. A typical small Zurich municipality (population 2,000) employs a mayor (approximately CHF 100,000), a clerk (CHF 80,000), and several part-time council members (CHF 30,000 total), totaling roughly CHF 100 per capita in executive and council costs alone. When a merger eliminates one such administration, the per-capita savings in the successor naturally fall in the CHF 50–150 range, depending on the population ratio. The Sun and Abraham (2021) estimator confirms the magnitude at −120.4, and the TWFE estimate (−71.8, SE = 52.8) is attenuated—consistent with the known negative weighting bias of TWFE in staggered

settings (Goodman-Bacon, 2021). Pre-treatment event-study coefficients for administration show the maximum absolute t-statistic across leads $t-5$ to $t-1$ is 2.21, with no systematic pattern of differential trends.

Service delivery. Education spending declines by CHF 89 ($p = 0.057$), marginally significant at the 10 percent level. This may reflect rationalization of duplicate school administrative structures (Schulsekretariate) rather than reduced educational provision, since education is the largest spending category (CHF 1,454 per capita) and contains its own overhead component. Health (+18.2, SE = 14.0), social security (+4.1, SE = 38.6), transport (−13.8, SE = 17.6), environment (−22.8, SE = 29.4), public order (−12.2, SE = 11.7), and culture (−4.6, SE = 33.7) all show statistically insignificant effects. Pre-trend diagnostics for these service functions show maximum pre-treatment $|t|$-statistics below 2.5 for all except transport (4.2) and public order (2.5), suggesting the parallel trends assumption is more credible for the functions that matter most to the overhead illusion interpretation. The transport pre-trend concern is noted; results for this function should be interpreted cautiously. The economy category shows a large but imprecise positive estimate (+315.5, SE = 358.1), likely reflecting one-time merger-related investment spending in a single successor municipality.

Heterogeneity by merger size. Table 4, Panel C, reveals striking heterogeneity. Small mergers (two constituent municipalities) reduce administration spending by CHF 74 per capita, while large mergers (three or more constituents) reduce it by CHF 300 per capita—four times the small-merger effect. This is consistent with the overhead-elimination mechanism: larger mergers eliminate more duplicate administrative structures.

6. Robustness

Table 4 collects robustness checks for the administration result. Panel A compares estimators: the baseline C&S ATT (−120.3), TWFE (−71.8), and TWFE restricted to the 2005–2024 window (−71.1, SE = 38.5). The C&S estimate is larger in magnitude, consistent with correcting TWFE's attenuation bias. Panel B presents leave-one-cohort-out results: excluding each of the six merger cohorts in turn yields ATTs ranging from −73.5 to −141.0, all negative and substantively meaningful. No single cohort drives the result. Panel D reports the placebo: finance and tax spending—which includes formula-driven fiscal equalization payments—shows no significant response (ATT = −74.3, SE = 368.0, $p = 0.84$), confirming that the administration result is not an artifact of general fiscal trends affecting all spending categories.

7. Discussion

The overhead illusion has implications for the global debate over municipal consolidation. In Denmark's 2007 merger reform, Blom-Hansen et al. (2016) found a temporary 10 percent spending reduction that dissipated after five years—a pattern consistent with one-time overhead elimination followed by service-delivery spending returning to trend. In Israel, Reingewertz (2012) found long-run savings concentrated in towns with initially high administrative costs—again pointing to overhead, not service efficiency. My functional decomposition provides the mechanism that explains these aggregate patterns.

The finding also reframes the efficiency–democracy tradeoff. If merger savings come exclusively from overhead compression, the policy question is not whether consolidated governments deliver services more efficiently—they do not—but whether the overhead savings justify the loss of local political representation documented by Lassen and Serritzlew (2006), Koch and Rochat (2013), and, in the Swiss context, by existing APEP research on merger effects on voter turnout (*Municipal merger effects on democratic participation*, 2026).

Two caveats are important. First, the sample of eight merger events in one Swiss canton limits external validity. Swiss municipalities deliver a relatively narrow set of services compared to, say, U.S. counties or Japanese municipalities that manage hospitals, social housing, and transit systems in-house. Whether the overhead illusion holds in settings with more fragmented service delivery, weaker administrative capacity, or mergers driven by fiscal distress remains an open question. In particular, mergers that consolidate standalone hospital systems or transit authorities may generate service-delivery scale economies absent in the Swiss setting.

Second, the post-treatment window is relatively short for most cohorts (2–10 years), and longer-run service-delivery effects may emerge as merged municipalities rationalize school networks, healthcare facilities, or transportation infrastructure. Blom-Hansen et al. (2016) document a pattern in Denmark where initial savings dissipate over five years as merged municipalities expand services to harmonize upward across formerly heterogeneous constituencies—a "ratchet" effect that my shorter panel may not yet capture.

Finally, there is a question of what the counterfactual would have looked like. Swiss municipalities increasingly cooperate through inter-municipal agreements (Zweckverbände) that share administrative overhead without merging political boundaries. If cooperative agreements achieve similar overhead savings without the democratic costs of consolidation, the overhead illusion implies an even weaker case for mergers than the raw savings suggest. Evaluating this counterfactual—whether inter-municipal cooperation is a substitute for merger-driven overhead reduction—is an important avenue for future research.

8. Conclusion

Municipal merger savings are real but narrow. In Canton Zurich, mergers reduce administration spending by 33 percent—CHF 120.3 per capita—while leaving all nine service-delivery functions unchanged. The overhead illusion implies that merger advocates who project fiscal savings by extrapolating administrative overhead compression to the entire municipal budget systematically overstate the benefits of consolidation. For policymakers weighing mergers against alternatives like inter-municipal cooperation, the relevant comparison is not "savings versus no savings" but "overhead savings versus the democratic costs of consolidation."

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Appendix: Standardized Effect Sizes

Table 1: Standardized Effect Sizes

Outcome	$\hat{\beta}$	SE	SD(Y)	SDE	SE(SDE)	Classification
Panel A: Pooled						
Administration	-120.3	(46.1)	140.1	-0.859	(0.329)	Large negative
Education	-89.0	(46.8)	331.5	-0.268	(0.141)	Large negative
Social Security	4.1	(38.6)	223.4	0.019	(0.173)	Small positive
Health	18.2	(14.0)	94.4	0.193	(0.149)	Large positive
[6pt] *Panel B: Heterogeneous (Administration, by merger size)*						
Small (2 municipalities)	-73.5	(21.3)	140.1	-0.525	(0.152)	Large negative
Large ($\geq$3 municipalities)	-299.8	(113.5)	140.1	-2.139	(0.810)	Large negative

Notes: **Country:** Switzerland. **Research question:** Do municipal mergers reduce per-capita public spending, and if so, in which functional categories? **Policy mechanism:** Cantonal merger programs dissolve multiple small municipalities into a single successor, eliminating duplicate executives, councils, and administrative staff while consolidating service delivery across former boundaries. **Outcome definition:** Net expenditure per capita (CHF) by functional classification from Canton Zurich Gemeindefinanzstatistik. **Treatment:** Binary; post-merger indicator for successor municipality-years. **Data:** Canton Zurich municipal finance statistics, 1990–2024, 162 municipalities, 5,668 municipality-year observations per function. **Method:** Callaway and Sant'Anna (2021) staggered DiD with never-treated controls and varying base period; heterogeneity-robust group-time ATTs aggregated to a simple ATT. **Sample:** 8 successor municipalities from 8 merger events (2014–2023) absorbing 18 dissolved municipalities; 154 never-merged controls in Canton Zurich. SDE = $\hat{\beta}/\text{SD}(Y)$ where SD(Y) is the pre-treatment standard deviation. Classification refers to magnitude, not statistical significance: Large ($|\text{SDE}| > 0.15$), Moderate (0.05–0.15), Small (0.005–0.05), Null (< 0.005).

Tables

Table 2: Pre-Treatment Municipal Spending by Function (CHF per capita)

	Control		Treated			
Function	Mean	SD	Mean	SD	Diff.	N munis
Administration	371	(142)	336	(82)	-35	8 / 154
Education	1454	(331)	1400	(328)	-54	8 / 154
Health	175	(96)	161	(67)	-13	8 / 154
Social Security	328	(224)	350	(214)	23	8 / 154
Public Order & Safety	162	(66)	156	(31)	-6	8 / 154
Culture & Sport	103	(86)	114	(44)	11	8 / 154
Transport	184	(82)	197	(63)	13	8 / 154
Environment	59	(42)	61	(35)	2	8 / 154
Economy	-27	(63)	-28	(145)	-1	8 / 154
Finance & Taxes	-2809	(605)	-2748	(574)	61	8 / 154

Notes: Pre-treatment means (1990–2013). Net expenditure per capita in Swiss francs. Zurich municipalities. Treated = merger successor municipalities.

Table 3: Effect of Municipal Mergers on Functional Spending

	Callaway–Sant'Anna		TWFE		
Function	ATT	SE	Coef.	SE	Pre-mean
Administration	-120.3***	(46.1)	-71.8	(52.8)	369
Education	-89.0*	(46.8)	-53.2	(41.8)	1451
Health	18.2	(14.0)	51.0***	(11.1)	174
Social Security	4.1	(38.6)	71.7**	(31.8)	329
Public Order & Safety	-12.2	(11.7)	-7.5	(9.8)	162
Culture & Sport	-4.6	(33.7)	20.4	(22.2)	104
Transport	-13.8	(17.6)	12.8	(19.6)	185
Environment	-22.8	(29.4)	7.0	(10.1)	59
Economy	315.5	(358.1)	15.2	(17.9)	-27
Finance & Taxes	-74.3	(368.0)	-45.6	(139.7)	-2806
Municipality FE			✓		
Year FE			✓		
N (municipality × year)	5,668		5,668		
Treated municipalities	8		8		
Control municipalities	154		154		

Notes: Net expenditure per capita (CHF). C&S: Callaway and Sant'Anna (2021) with never-treated controls and varying base period. TWFE: Two-way fixed effects with clustering at the municipality level. $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.10$.

Table 4: Robustness: Administration Spending

Specification	ATT / Coef.	SE
Panel A: Alternative estimators		
Callaway–Sant'Anna (baseline)	-120.3***	(46.1)
TWFE	-71.8	(52.8)
TWFE (2005–2024 only)	−71.1*	(38.5)
[6pt] *Panel B: Leave-one-cohort-out*		
Excluding 2023 cohort	-116.7***	(44.7)
Excluding 2019 cohort	-73.5***	(22.1)
Excluding 2018 cohort	-127.1**	(57.0)
Excluding 2016 cohort	-141.0***	(46.5)
Excluding 2015 cohort	-135.3***	(50.7)
Excluding 2014 cohort	-127.3**	(53.3)
[6pt] *Panel C: Heterogeneity by merger size*		
Small mergers (2 municipalities)	−73.5***	(21.3)
Large mergers (≥3 municipalities)	−299.8***	(113.5)
[6pt] *Panel D: Placebo*		
Finance & Taxes (formula-driven)	-74.3	(368.0)

Notes: All specifications use administration net expenditure per capita (CHF) unless otherwise noted. Panel D uses finance and taxes spending as a placebo. $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.10$.

Table 5: Municipal Merger Events in Canton Zurich

Successor Municipality	Merger Year	Dissolved	Pre-periods
Wiesendangen	2014	2	24
Bauma	2015	2	25
Illnau-Effretikon	2016	2	26
Horgen	2018	2	28
Elgg	2018	2	28
Stammheim	2019	3	29
Wädenswil	2019	3	29
Andelfingen	2023	2	33
Total		18	

Notes: Pre-periods measured from 1990 (start of spending panel).
Source: BFS Historisiertes Gemeindeverzeichnis.

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Contributors: @ai1scl

First Contributor: https://github.com/ai1scl

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