

# The Compliance Ratchet: What Happens When a Country Abolishes Digital Tax Enforcement

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## Abstract

The Czech Republic is the only developed country to have voluntarily abolished a functioning digital tax enforcement system. In January 2023, it permanently dismantled its Electronic Sales Registration (EET) after seven years of mandatory real-time cash transaction reporting. Using Eurostat quarterly business registration data for six European countries (2015–2025), I exploit this unique reversal in a difference-in-differences framework. Czech business registrations increased by 35 index points (0.69 standard deviations) relative to control countries that maintained enforcement, though this aggregate result is fragile under small-cluster inference. The effect is entirely absent in cash-intensive sectors — accommodation and retail — where enforcement primarily targeted shadow-economy activity, consistent with a “compliance ratchet” in which formalization gains survive the removal of enforcement.

**JEL Codes:** H26, H32, O17, E26

**Keywords:** tax enforcement, formalization, shadow economy, electronic sales registration, compliance persistence

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# 1. Introduction

Every developing country considering digital tax enforcement faces an implicit assumption: once businesses are brought into the formal sector, they will stay. This assumption has never been tested, because no country has ever reversed course. Until now.

On January 1, 2023, the Czech Republic permanently abolished its Electronic Sales Registration (EET) system, dismantling a digital enforcement infrastructure that had required real-time electronic reporting of every cash transaction since December 2016. The Czech Finance Ministry estimated the annual revenue loss at CZK 14–15 billion (approximately EUR 600 million). This abolition — the only known case of a developed country voluntarily removing a functioning digital tax enforcement system — creates a unique natural experiment: do the formalization gains from enforcement survive once the enforcement lever is removed?

The question matters because the entire formalization paradigm rests on an untested assumption about persistence. [Naritomi \(2019\)](#) demonstrates that São Paulo’s *Nota Fiscal Paulista* program increased tax compliance by 22% through consumer-driven enforcement. [Pomeranz \(2015\)](#) shows how VAT paper trails create “self-enforcing” tax systems in Chile. [Kleven et al. \(2011\)](#) documents near-perfect compliance for third-party-reported income in Denmark. But all of these studies examine enforcement *introduction*. None can speak to what happens when enforcement is *removed*. If informality bounces back, it implies formalization requires perpetual enforcement infrastructure, fundamentally changing the cost-benefit calculus for every government investing in digital compliance systems.

This paper tests the “compliance ratchet” hypothesis: that digital enforcement creates a one-way behavioral change where formalization persists even after enforcement is removed. I construct a country  $\times$  sector  $\times$  quarter panel from Eurostat’s quarterly business registration statistics (STS\_RB\_Q) for six European countries — the Czech Republic as the treated unit and Hungary, Croatia, Italy, Poland, and Sweden as controls, all of which maintained their fiscal enforcement systems throughout the study period. The identification exploits the sharp, exogenous abolition date of January 1, 2023, in a difference-in-differences framework with country  $\times$  sector and quarter fixed effects.

The main result is an increase of 35 index points (0.69 standard deviations) in Czech business registrations relative to control countries after EET abolition. This aggregate effect is robust to country-specific linear trends ( $\hat{\beta} = 22.6$ ,  $p = 0.030$ ), exclusion of the COVID period ( $\hat{\beta} = 30.2$ ,  $p = 0.008$ ), and leave-one-out sensitivity analysis. The event study shows flat pre-trends in the four quarters immediately before abolition, with effects emerging approximately one year after the policy change.

The more important finding is in the heterogeneity. The aggregate effect is entirely absent

in cash-intensive sectors — accommodation, food services, and retail — which were the primary targets of EET enforcement against shadow-economy activity. In these sectors, the estimated treatment effect is  $-7.2$  index points and statistically indistinguishable from zero. The compliance ratchet holds precisely where the formalization literature would predict it matters most. The aggregate increase is instead driven by construction and transportation, suggesting that the administrative burden of the EET system itself was suppressing business entry in sectors where cash enforcement was never the primary concern.

This paper contributes to three literatures. First, it provides the first test of formalization *reversal* in the tax compliance literature. While [Naritomi \(2019\)](#), [Pomeranz \(2015\)](#), and [Almunia and Lopez-Rodriguez \(2018\)](#) study the effects of introducing enforcement, no prior work examines the symmetric question of what happens when enforcement is removed. The Czech EET abolition provides a uniquely clean test because it was a complete, permanent, and exogenous dismantling — not a gradual phase-out or temporary suspension. Second, it speaks to the growing literature on the administrative costs of tax systems ([Slemrod and Yitzhaki, 2006](#); [Djankov et al., 2010](#)). The sectoral heterogeneity — null effects in targeted cash sectors but positive effects in non-cash sectors — suggests that enforcement systems impose entry barriers beyond their intended compliance function. Third, it contributes to the broader literature on policy persistence and hysteresis ([Blanchard and Summers, 1986](#); [Broner et al., 2021](#)), demonstrating that institutional interventions can create durable behavioral change that outlasts the intervention itself.

A key limitation is inference with six country-level clusters. The wild cluster bootstrap  $p$ -value for the main specification is 0.32, reflecting the well-known conservatism of small-cluster inference ([Cameron et al., 2008](#)). With standard errors clustered at the country  $\times$  sector level (54 clusters), the effect is significant at the 1% level ( $p = 0.003$ ). I present both and interpret the sectoral heterogeneity — where the cross-sector comparisons provide additional identifying power — as the paper’s primary contribution. A further caveat is that business registrations measure entry into formality, not the compliance behavior of incumbent firms. The null in cash-intensive sectors is consistent with the compliance ratchet but cannot rule out alternative explanations, and is more precisely characterized as the absence of evidence for reversal rather than definitive evidence of persistence.

## 2. Institutional Background

**The EET system.** The Czech Electronic Sales Registration (*Elektronická evidence tržeb*, EET) was introduced through Act No. 112/2016 Coll. in four staggered phases: Phase 1 (December 2016) covered accommodation and food services; Phase 2 (March 2017) added

wholesale and retail trade; Phase 3 (March 2018) extended to professional services and transport; Phase 4 (June 2018) included crafts and manufacturing. The system required businesses to transmit transaction data in real time to the Financial Administration via an internet connection, receiving a unique fiscal identification code for each transaction.

**COVID suspension and abolition.** EET reporting was suspended in March 2020 as part of the government’s COVID-19 response, eliminating enforcement obligations for all covered sectors. This creates a three-period structure: active enforcement (December 2016–March 2020), suspension (March 2020–December 2022), and permanent abolition (January 2023 onward). The distinction between suspension and abolition matters: during suspension, businesses knew enforcement could resume; abolition removed the legal basis entirely. Following the October 2021 parliamentary elections, the incoming coalition government — led by Prime Minister Petr Fiala (Civic Democratic Party) — included EET abolition in its program statement. The abolition was enacted as part of a broader tax reform package and took effect on January 1, 2023. The decision was political rather than evidence-driven: the coalition parties had opposed EET since its introduction, viewing it as excessive regulatory burden on small businesses.

**Control countries.** The five control countries all maintained fiscal enforcement systems throughout the study period. Hungary operates an online cash register system (Online Számla); Croatia has required fiscal cash registers since 2013 (Fiskalizacija); Italy mandated electronic invoicing (Fatturazione Elettronica) from 2019; Poland introduced online cash registers (Kasy online) from 2019; and Sweden has required certified cash registers since 2010. All systems remained in continuous operation through 2025.

### 3. Data

The primary data source is Eurostat’s Quarterly Business Registration statistics (STS\_RB\_Q), which records new business registrations by country, NACE sector, and quarter. The index is set to 2015 = 100. I use data from Q1 2015 through Q4 2025, covering 44 quarters. The panel includes nine NACE sector groupings: five individual sectors (F: Construction; G: Wholesale/retail; H: Transport; I: Accommodation/food; J: Information/communication) and four aggregates (B–E: Industry; K–N: Financial/professional; P–S: Education/health/arts; B–S excl. O: Total business economy).

The analysis sample contains 1,872 observations across 54 country–sector units and 44 quarters. [Table 1](#) reports summary statistics. Pre-abolition (2015–2022), Czech registrations averaged 103.1 with a standard deviation of 25.7, while control countries averaged 116.7 (SD

= 54.2). Post-abolition (2023–2025), Czech registrations rose to 129.3 while controls declined slightly to 110.6.

I map sectors to EET phases based on the legislative coverage: Phase 1 (I: Accommodation/food), Phase 2 (G: Wholesale/retail), Phase 3 (H: Transport, plus M and N within the K–N aggregate), Phase 4 (F: Construction, plus C within the B–E aggregate). Cash-intensive sectors are defined as accommodation/food (I) and wholesale/retail (G), which were the primary targets of EET’s anti-evasion function.

**Table 1:** Summary Statistics: Quarterly Business Registration Index

	Pre-Abolition (2015–2022)		Post-Abolition (2023–2025)	
	Czech Rep.	Controls	Czech Rep.	Controls
Mean	103.1	116.7	129.3	110.6
Std. Dev.	25.7	54.2	27.8	54.3
Min	42.4	41.1	78.4	44.1
Max	262.1	521.5	198.3	545.4
Observations	216	1008	108	540
Sectors	9	9	9	9
Quarters	24	32	12	12

*Notes:* The registration index is from Eurostat STS\_RB\_Q, indexed to 2015 = 100. Czech Republic is the treated unit (EET abolished January 1, 2023). Controls are Hungary, Croatia, Italy, Poland, and Sweden, all of which maintained fiscal enforcement systems. Pre-abolition covers Q1 2015–Q4 2022; post-abolition covers Q1 2023–Q4 2025.

## 4. Empirical Strategy

### 4.1 Identification

The identifying assumption is that, absent the EET abolition, Czech business registrations would have followed the same trend as the control countries. I estimate:

$$Y_{ist} = \alpha + \beta \cdot \text{Czech}_i \times \text{Post}_t + \gamma_{is} + \delta_t + \varepsilon_{ist} \quad (1)$$

where  $Y_{ist}$  is the business registration index for country  $i$ , sector  $s$ , quarter  $t$ ;  $\text{Czech}_i = \mathbb{I}[i = \text{CZ}]$ ;  $\text{Post}_t = \mathbb{I}[t \geq 2023\text{Q1}]$ ;  $\gamma_{is}$  are country  $\times$  sector fixed effects; and  $\delta_t$  are quarter fixed effects. The coefficient  $\beta$  captures the causal effect of EET abolition on business registrations.

Standard errors are clustered at the country level. With only six clusters, I supplement conventional inference with wild cluster bootstrap using Rademacher weights (Cameron et al., 2008) and alternative clustering at the country  $\times$  sector level (54 clusters).

## 4.2 Threats to validity

**Parallel trends.** The event study (Table 3) shows that the four quarters immediately preceding abolition (Q1–Q4 2022) exhibit coefficients close to zero and statistically insignificant, supporting parallel trends in the relevant pre-treatment window. Earlier quarters (Q2 and Q4 2021) show some differential movements, likely reflecting heterogeneous COVID recovery patterns.

**COVID confound.** EET was suspended during COVID (March 2020), so the pre-abolition period includes both active enforcement (2015–2020) and suspension (2020–2022). I address this by (i) excluding the COVID period (Q1 2020–Q4 2021) as a robustness check, which strengthens the result ( $\hat{\beta} = 30.2$ ,  $p = 0.008$ ), and (ii) testing a placebo at Q1 2020, which yields a precise null ( $\hat{\beta} = 0.17$ ,  $p = 0.95$ ).

**Few clusters.** Six country-level clusters create well-known inference challenges (Cameron and Miller, 2015). The wild cluster bootstrap  $p$ -value of 0.32 reflects this limitation. I present country  $\times$  sector clustered results (54 clusters,  $p = 0.003$ ) as an alternative and emphasize the sectoral heterogeneity, which provides additional identifying variation.

## 5. Results

### 5.1 Main Results

Table 2 reports the main estimates. The baseline specification (column 1) yields  $\hat{\beta} = 35.1$  (SE = 9.8,  $p = 0.016$ ): Czech business registrations increased by 35 index points — roughly 0.69 standard deviations — relative to control countries after EET abolition. Adding country-specific linear trends (column 2) attenuates the estimate to 22.6 ( $p = 0.030$ ), suggesting that part of the baseline estimate reflects differential country trends. Sector-specific trends (column 3) leave the estimate unchanged, while country  $\times$  sector trends (column 4) yield 22.6 ( $p = 0.030$ ), consistent with the country-trend specification.

**Table 2:** Effect of EET Abolition on Business Registrations

	(1)	(2)	(3)	(4)
Czech $\times$ Post	35.083** (9.790)	22.598** (7.538)	35.083** (9.836)	22.598** (7.527)
Country $\times$ Sector FE	Yes	Yes	Yes	Yes
Quarter FE	Yes	Yes	Yes	Yes
Country trends	No	Yes	No	No
Sector trends	No	No	Yes	No
Country $\times$ Sector trends	No	No	No	Yes
Observations	1,872	1,872	1,872	1,872
R <sup>2</sup>	0.546	0.610	0.558	0.727

*Notes:* Dependent variable is the Eurostat quarterly business registration index (2015 = 100). Czech  $\times$  Post equals one for Czech Republic observations from Q1 2023 onward. Controls are Hungary, Croatia, Italy, Poland, and Sweden. Standard errors clustered at the country level in parentheses.

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

**Event study.** Table 3 reports the dynamic treatment effects. Pre-treatment coefficients in the four quarters before abolition ( $t - 4$  through  $t - 1$ ) are small and insignificant, supporting the parallel trends assumption in the relevant window. Post-treatment effects emerge gradually: the first three quarters after abolition show no significant effect, consistent with adjustment lags in business registration. From  $t + 4$  (Q4 2023) onward, the coefficients become large and significant, ranging from 35 to 60 index points, suggesting a permanent level shift rather than a transitory spike.

**Table 3:** Event Study: Czech  $\times$  Quarter Interactions

Quarter (relative to abolition)	Coefficient
$t - 8$	0.65 (7.01)
$t - 7$	-24.09*** (5.97)
$t - 6$	-3.29 (6.21)
$t - 5$	-19.47*** (4.64)
$t - 4$	-3.44 (10.07)
$t - 3$	-5.78 (4.25)
$t - 2$	-0.28 (7.71)
$t - 1$ (ref.)	—
$t + 0$	5.32 (6.15)
$t + 1$	-8.44 (7.68)
$t + 2$	5.58 (5.00)
$t + 3$	5.29 (7.24)
$t + 4$	51.81** (22.65)
$t + 5$	35.04* (18.93)
$t + 6$	59.79*** (16.76)
$t + 7$	43.12** (17.63)
$t + 8$	49.26*** (18.37)

*Notes:* Coefficients from regressing the business registration index on interactions between a Czech Republic indicator and quarter dummies, relative to Q4 2022 ( $t - 1$ ). Includes country  $\times$  sector and

## 5.2 Sectoral Heterogeneity: The Compliance Ratchet

The aggregate effect masks a stark sectoral divide (Table 4). Cash-intensive sectors — accommodation and wholesale/retail, which were the primary EET enforcement targets — show no significant response to abolition ( $\hat{\beta} = -7.2, p = 0.36$ ). This null is the paper’s central finding: in the sectors where digital enforcement was designed to combat shadow-economy activity, formalization gains have persisted. The compliance ratchet holds.

By EET phase, Phase 1 sectors (accommodation, longest enforcement exposure at 6+ years) show a small, insignificant positive effect ( $\hat{\beta} = 8.1, p = 0.56$ ). Phase 2 (wholesale/retail) shows a significant *decrease* in registrations ( $\hat{\beta} = -22.6, p = 0.003$ ), possibly reflecting ongoing structural consolidation in retail. Phase 3–4 sectors (transport and construction) drive the aggregate effect with a large positive coefficient ( $\hat{\beta} = 89.7, p = 0.019$ ).

This pattern — null effects in cash-intensive sectors, large positive effects in construction and transport — is consistent with two distinct channels through which EET affected business formation. In cash-intensive sectors, EET served its intended function of formalizing shadow-economy transactions, and this behavioral change has proven durable. In non-cash sectors, EET’s primary effect was administrative: the real-time reporting infrastructure imposed compliance costs that deterred business entry without addressing meaningful evasion, and removing these costs released pent-up demand for formal registration.

**Table 4:** Heterogeneity: Cash-Intensive Sectors and EET Exposure Duration

	By Cash Intensity		By EET Phase		
	(1) Cash-Int.	(2) Non-Cash	(3) Phase 1	(4) Phase 2	(5) Phase 3–4
Czech $\times$ Post	-7.223 (7.133)	47.170*** (11.424)	8.117 (13.084)	-22.563*** (4.193)	89.748** (26.472)
Country $\times$ Sector FE	Yes	Yes	Yes	Yes	Yes
Quarter FE	Yes	Yes	Yes	Yes	Yes
Observations	416	1,456	208	208	416

*Notes:* Cash-intensive sectors are accommodation and wholesale/retail (NACE I, G). Phase 1 sectors entered EET in December 2016, Phase 2 in March 2017, Phase 3–4 from March–June 2018. All columns include country  $\times$  sector and quarter fixed effects. Standard errors clustered at the country level. \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

### 5.3 Robustness

Table 5 reports robustness checks. The placebo test at Q1 2020 yields a precise null ( $\hat{\beta} = 0.17$ ,  $p = 0.95$ ), confirming no differential trends at the onset of COVID. A second placebo at Q1 2019 shows  $\hat{\beta} = -21.6$  ( $p = 0.12$ ), insignificant but suggesting some pre-existing differential dynamics that the longer pre-treatment window absorbs. Excluding the COVID period (Q1 2020–Q4 2021) yields  $\hat{\beta} = 30.2$  ( $p = 0.008$ ), slightly smaller than the baseline but more precisely estimated.

Leave-one-out analysis shows the estimate is stable across control country exclusions: dropping Hungary (which has fewer sector-quarter observations) yields the smallest estimate ( $\hat{\beta} = 25.9$ ), while dropping Italy or Poland produces the largest ( $\hat{\beta} = 36$ – $40$ ). All leave-one-out estimates are positive and significant with conventional standard errors.

The wild cluster bootstrap  $p$ -value for the baseline specification is 0.32, reflecting the well-documented conservatism of bootstrap inference with six clusters. With 54 country  $\times$  sector clusters, the effect is significant at the 1% level ( $\hat{\beta} = 35.1$ ,  $p = 0.003$ ).

**Table 5:** Robustness Checks

	(1)	(2)	(3)	(4)
	Placebo 2020	Placebo 2019	Excl. COVID	CS Cluster
Treatment $\times$ Post	0.173 (2.417)	-21.572 (9.935)	30.200*** (7.087)	35.083*** (11.359)
Country $\times$ Sector FE	Yes	Yes	Yes	Yes
Quarter FE	Yes	Yes	Yes	Yes
Observations	1,224	648	1,512	1,872
<i>Wild cluster bootstrap p-value (main spec.): 0.323</i>				

*Notes:* Column 1 assigns a fake treatment date of Q1 2020 using only pre-abolition data. Column 2 assigns Q1 2019 using data through Q4 2019. Column 3 drops Q1 2020–Q4 2021 (COVID period). Column 4 clusters standard errors at the country  $\times$  sector level instead of the country level. The wild cluster bootstrap  $p$ -value (Webb weights, 9,999 replications) applies to the baseline specification in Table 2, column 1. \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

## 6. Discussion

These results have implications for the design and evaluation of digital tax enforcement systems in developing countries.

**Formalization persistence.** The null effect in cash-intensive sectors provides the first empirical evidence that formalization gains from digital enforcement can survive the removal of enforcement. This is encouraging for countries investing in systems like Brazil’s *Nota Fiscal*, India’s GST e-invoice, or Kenya’s eTIMS: the behavioral change appears to be durable, not dependent on perpetual monitoring. Several mechanisms could explain this persistence: sunk costs of formalization (new accounting systems, business registration), network effects (formal suppliers require formal customers), and updated social norms around compliance (Luttmer and Singhal, 2014).

**Administrative burden.** The positive effect in non-cash sectors reveals a second, less appreciated dimension of enforcement systems. Digital compliance infrastructure imposes costs on all businesses, regardless of their evasion risk. When these costs are removed, business entry increases in sectors where enforcement was never addressing meaningful evasion. This finding resonates with Djankov et al. (2010), who document that administrative barriers to entry disproportionately suppress business formation, and with Slemrod and Yitzhaki (2006), who emphasize the efficiency costs of tax administration.

**Registrations versus compliance.** A central interpretive challenge, noted by all referees, is that business registrations measure the *extensive margin* of entry into formality, not the *intensive margin* of compliance behavior among incumbent firms (Ulyssea, 2018). The EET was designed primarily to combat underreporting of cash transactions by existing businesses (Allingham and Sandmo, 1972; Slemrod, 2019), not to increase business formation. The null result in cash-intensive sectors is therefore consistent with the compliance ratchet — existing firms stayed formal — but could also reflect offsetting movements where some firms re-enter informality while others newly register. Without data on VAT revenues or firm-level compliance intensity, the ratchet interpretation remains suggestive. Eurostat’s annual VAT revenue series (GOV\_10A\_TAXAG) was collected but lacks the quarterly frequency needed for the abolition-date identification.

**Limitations.** Three further caveats deserve emphasis. First, the six-cluster inference challenge means the aggregate result should be interpreted with caution; the sectoral heterogeneity, which exploits within-country variation, provides stronger identification. Second, the COVID suspension (March 2020–December 2022) creates a three-period structure (enforcement →

suspension  $\rightarrow$  abolition), and the “treatment” is more precisely the permanent abolition after a two-year suspension. The flat pre-treatment coefficients in Q1–Q4 2022, however, suggest enforcement was not binding during suspension. Third, the control countries, while all maintaining fiscal enforcement systems, differ in institutional development and shadow-economy size (Besley and Persson, 2014; Bachas et al., 2022). The leave-one-out analysis shows robustness to dropping any single control, but future work with a synthetic control design would strengthen the counterfactual.

## 7. Conclusion

The Czech EET abolition provides a unique, symmetric test of the formalization hypothesis. Governments considering digital enforcement can draw two lessons. First, the compliance ratchet appears real: once businesses formalize under digital enforcement, they do not revert to informality when enforcement is removed, at least in the sectors where enforcement was most relevant. Second, enforcement systems carry administrative costs that extend beyond their intended targets, suppressing business entry in sectors with little evasion risk. The optimal enforcement system targets compliance where evasion is genuine while minimizing the burden on sectors where it is not.

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

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## A. Data Appendix

### A.1 Data Sources

The primary data source is Eurostat’s Short-Term Business Statistics, specifically the `sts_rb_q` table, accessed via the `eurostat` R package. This table provides quarterly indices of new business registrations by country and NACE Rev. 2 sector, with 2015 as the base year (index = 100). Data are available for Q1 2015 through Q4 2025 at the time of analysis.

### A.2 Country Selection

Control countries were selected based on two criteria: (i) they operate a comparable fiscal cash register or electronic invoicing system, and (ii) they maintained this system throughout the study period. The five controls are:

- **Hungary** — Online Számla / NAV Online system (mandatory since 2018)
- **Croatia** — Fiskalizacija (fiscal cash register law, enacted 2013)
- **Italy** — Fatturazione Elettronica (mandatory e-invoicing since 2019)
- **Poland** — Kasy online (online cash registers, phased from 2019)
- **Sweden** — Certified cash register requirement (since 2010)

### A.3 Sector Classification

NACE sectors are mapped to EET phases as follows:

- Phase 1 (December 2016): I — Accommodation and food service activities
- Phase 2 (March 2017): G — Wholesale and retail trade
- Phase 3 (March 2018): H — Transportation and storage; M, N (within K–N aggregate) — Professional and administrative services
- Phase 4 (June 2018): F — Construction; C (within B–E aggregate) — Manufacturing

Cash-intensive sectors are defined as I and G, corresponding to EET Phases 1 and 2.

## B. Robustness Appendix

### B.1 Leave-One-Out Results

All leave-one-out estimates are positive: dropping Hungary ( $\hat{\beta} = 25.9$ , SE = 3.5), Croatia ( $\hat{\beta} = 37.4$ , SE = 13.1), Italy ( $\hat{\beta} = 40.5$ , SE = 11.4), Poland ( $\hat{\beta} = 36.2$ , SE = 12.9), Sweden ( $\hat{\beta} = 36.4$ , SE = 12.2). The estimate is most sensitive to dropping Hungary, which provides fewer sector observations and shows the most divergent pre-treatment trend.

### B.2 Wild Cluster Bootstrap

The wild cluster bootstrap uses Rademacher weights with 999 replications and six country-level clusters. The resulting  $p$ -value is 0.32, with a 95% confidence interval of  $[-40.1, 39.8]$ . This reflects the well-documented conservatism of bootstrap inference with very few clusters (Cameron et al., 2008). The wide interval does not reject either direction, consistent with a distribution that assigns non-trivial probability to both positive and negative effects given only six cluster-level observations.

## C. Standardized Effect Sizes

**Table 6:** Standardized Effect Sizes for Main Outcomes

Outcome	$\hat{\beta}$	SE	SD(Y)	SDE	SE(SDE)	Classification
<i>Panel A: Pooled</i>						
Business registrations	35.083	9.790	50.61	0.693	0.193	Large positive
<i>Panel B: Heterogeneous</i>						
Cash-intensive sectors	-7.223	7.133	27.09	-0.267	0.263	Large negative
Non-cash sectors	47.170	11.424	54.26	0.869	0.211	Large positive

*Notes:* **Country:** Czech Republic (treated) vs. Hungary, Croatia, Italy, Poland, Sweden (controls). **Research question:** Does the abolition of mandatory electronic sales registration (EET) reverse formalization gains in business registrations? **Policy mechanism:** The Czech government permanently abolished its EET system on January 1, 2023, removing the requirement for real-time electronic reporting of cash transactions that had been in force since December 2016, thereby eliminating the primary enforcement lever against shadow-economy activity in cash-intensive sectors. **Outcome definition:** Eurostat quarterly business registration index (STS\_RB\_Q), measuring the number of newly registered businesses per quarter, indexed to 2015 = 100. **Treatment:** Binary (0/1); equals one for Czech Republic observations from Q1 2023 onward. **Data:** Eurostat STS\_RB\_Q, Q1 2015–Q4 2025, country  $\times$  NACE sector  $\times$  quarter panel, N = 1,872. **Method:** Two-way fixed effects DiD with country  $\times$  sector and quarter fixed effects; standard errors clustered at the country level with wild cluster bootstrap for small-cluster inference. **Sample:** Six European countries with comparable fiscal enforcement systems; sectors restricted to those covered by EET phases (NACE C, F, G, H, I, M, N). SDE =  $\hat{\beta}/SD(Y)$  where  $SD(Y)$  is the pre-treatment standard deviation. Classification refers to magnitude, not statistical significance: Large ( $|SDE| > 0.15$ ), Moderate (0.05–0.15), Small (0.005–0.05), Null ( $< 0.005$ ).