

The Effect of E-Invoicing on Tax Revenue and Compliance in El Salvador

Adam E. Lederman | aelederman@wm.edu

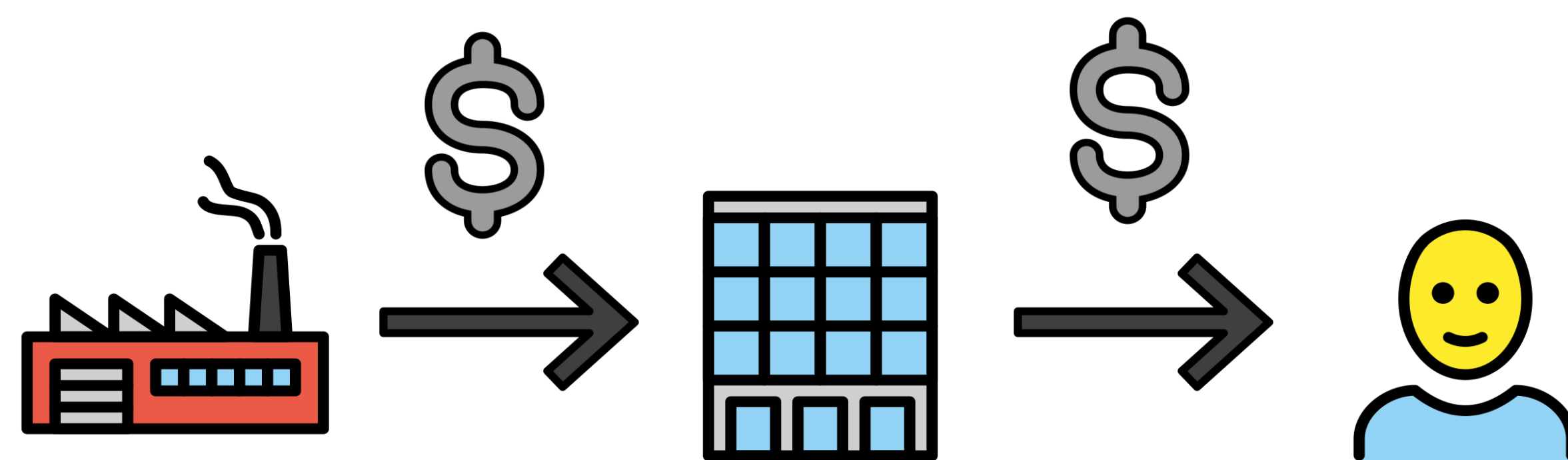
Advisor: Professor Andrew Dustan

Department of Economics, William & Mary

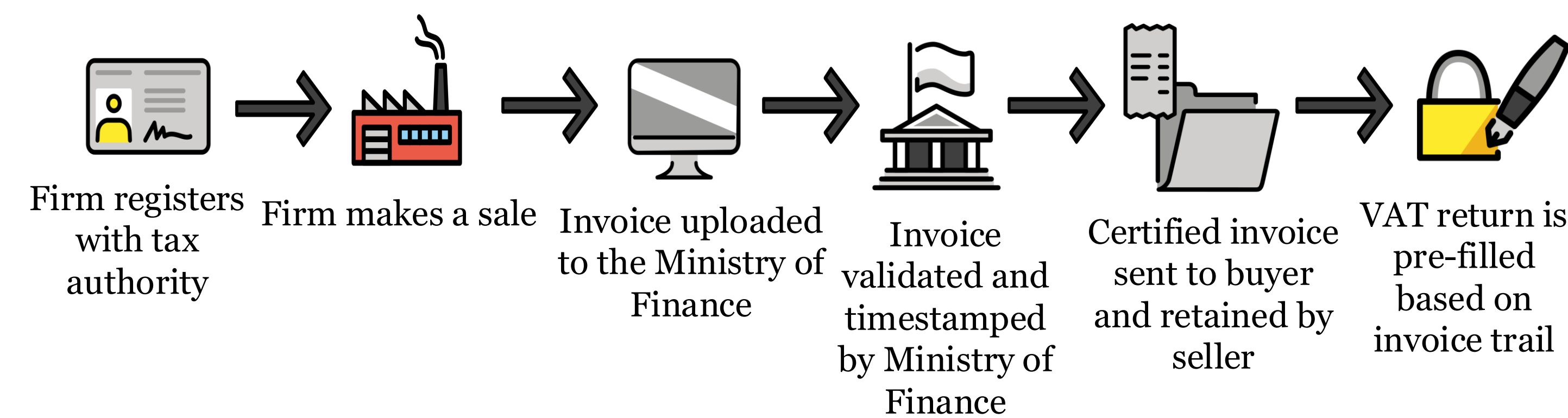
Motivation & Context

- Developing countries like El Salvador must raise more public revenue to address poverty
- Most firms operate informally and do not pay taxes
- Public debt has soared in recent years (from 66.5% of GDP in 2021 to 102.2% in 2023)

How E-Invoicing Works in El Salvador



For each sale in the supply chain...



Main References

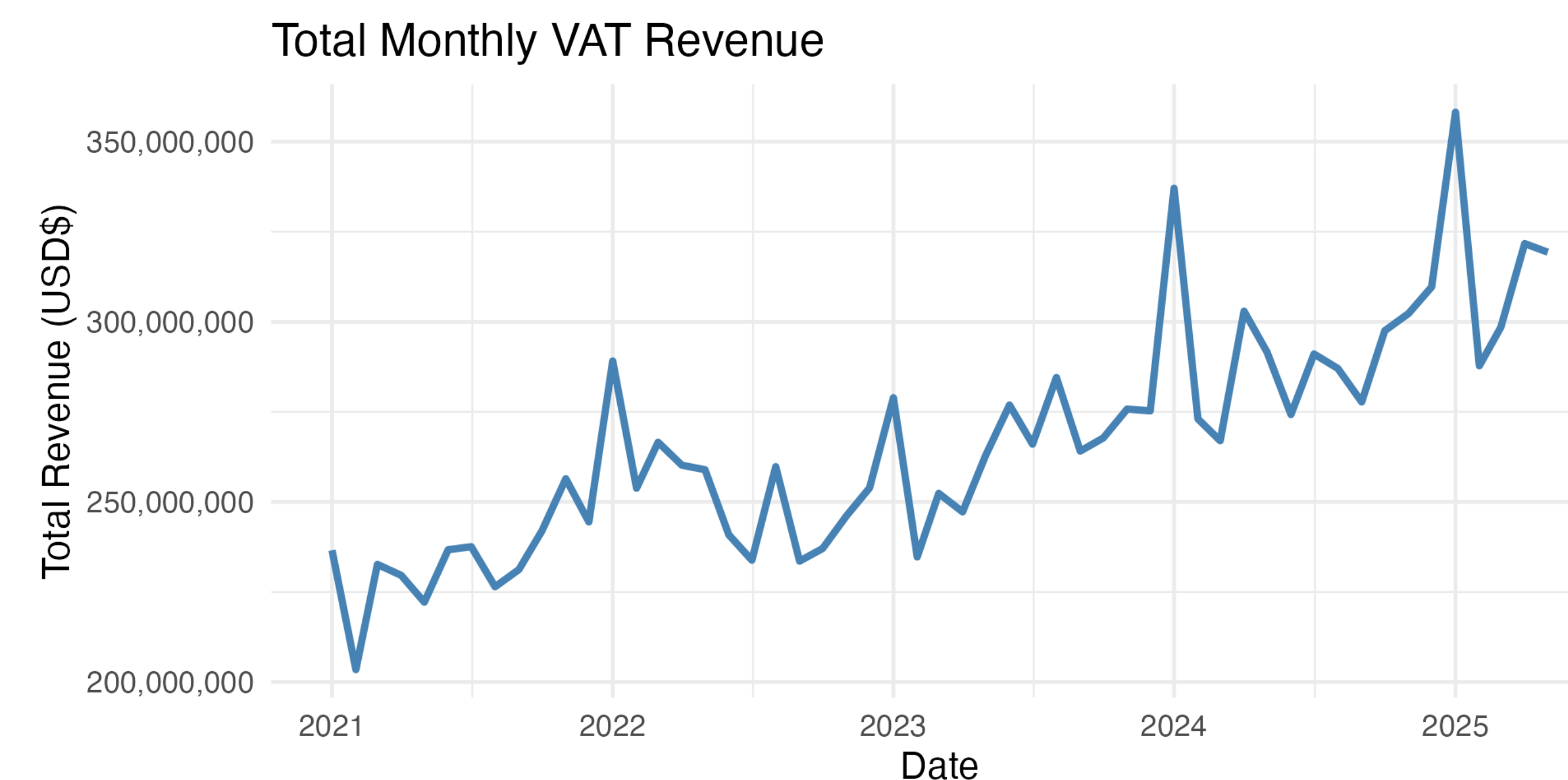
- Callaway, B., & Sant'Anna, P. H. C. (2021). Difference-in-Differences with multiple time periods. *Journal of Econometrics*, 225(2), 200–230. <https://doi.org/10.1016/j.jeconom.2020.12.001>
- Ministerio de Hacienda, El Salvador. (2025, June). *Datos Abiertos*. Portal de Transparencia Fiscal de El Salvador. https://www.transparenciafiscal.gob.sv/ptf/es/PTF2-Datos_Abiertos.html
- Okunogbe, O., & Tourek, G. (2024). How Can Lower-Income Countries Collect More Taxes? The Role of Technology, Tax Agents, and Politics. *The Journal of Economic Perspectives*, 38(1), 81–106. JSTOR.

QR Code: Full Paper



Research supported by the W&M Charles Center Summer Research Grant

Data



Total monthly value-added tax (VAT) payments over time

- VAT data from El Salvador's Fiscal Transparency Portal
- Rollout dates confirmed via Ministry of Finance communication
- Firm classifiers unavailable; firms grouped by VAT paid within municipality-sector cells

Treatment Timeline

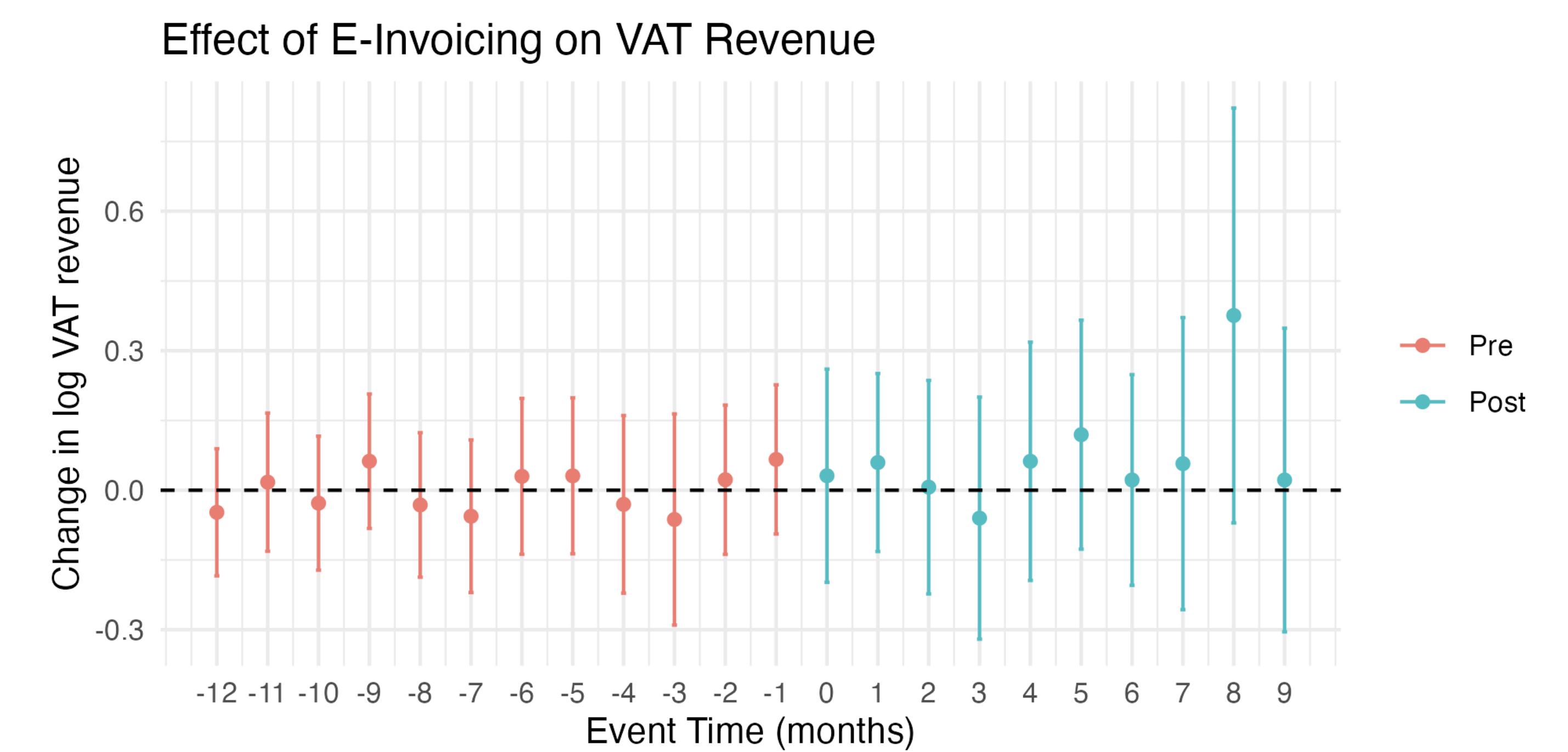


- Firms assigned to treatment cohorts equal in size to official counts, ordered by decreasing average annual pre-treatment VAT revenue
- Smaller firms not yet mandated at the time of writing

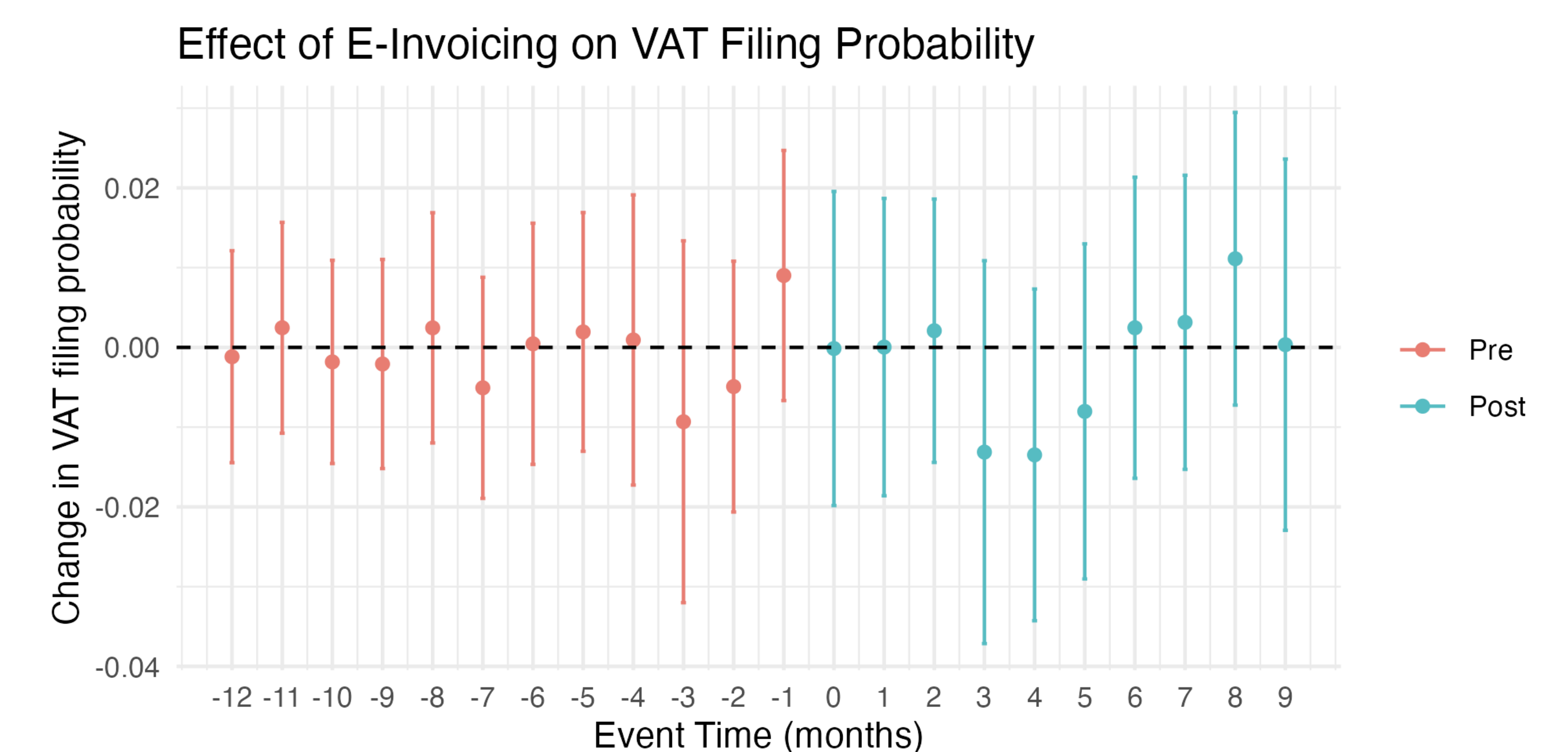
Methods

- Modern statistical method that compares firms treated at different times before and after their mandate to firms not yet mandated, accounting for staggered rollout
- Aggregate-level studies confirm results from firm-level studies

Results



Estimated monthly change in the likelihood a firm files VAT after being mandated to e-invoicing. No significant increase is observed among large or medium firms, who were already digitized.



Estimated monthly change in the likelihood a firm files nonzero VAT after being mandated to e-invoice. No measurable change is seen among large or medium firms.

Conclusion

- Short-run results are **limited**, suggesting the mandate's early impact was **administrative**, not behavioral
- Greater gains may come as smaller firms are mandated or if coverage extends to informal firms
- Technology alone may be **insufficient without human enforcement** or support; El Salvador's help centers likely had limited impact on already-compliant large firms