

Effects of a tax amnesty program on tax revenue and economic activity: Evidence from São Paulo Special Installment Payment

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Summary

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- Tax amnesties are limited-time offers to certain groups of taxpayers by fiscal authorities.
- They consist of payments of past due tax obligations in exchange for remission of interests, and penalties and immunity from legal action.
- Tax amnesty has been granted by governments in various countries not only to increase revenues, but also to combat tax evasion.

What did we do?

- Estimated the effects of a special installment program (PEP) granted by the State of São Paulo in 2013 on firms located in the state.
- Used the difference-in-differences model with multiple treatment periods proposed by Callaway and Sant'Anna (2021).
- Analyzed the impact of the PEP on tax revenue and on the compliance level of participating firms. Additionally, we examined the effect on purchase and sales-related variables to assess the level of business activity during the firm's participation in the program.
- This analysis is based on microdata collected from the São Paulo State Department of Finance between 2012 and 2019.

- Effects of tax amnesty on revenue: Celikay and Doğankollu (2023), Luitel (2007), Sanchez Villalba (2017), Alm et al. (2000), Alm and Beck (1993), Canavire-Bacarreza et al. (2023), López-Laborda and Sauco (2003) and Andreoni (1991).
- Impacts of amnesty programs on tax compliance: Torgler and Schaltegger (2005), Baer and Le Borgne (2008), Alm et al. (1990), Koch and Müller (2024), Alm and Malézieux (2021), Angeli et al. (2023) and Alm and Beck (1990).
- Effects of tax amnesty programs in Brazil: Paes (2012), Paes (2014) and Cavalcante (2010).

Relevance of the paper

- Valuable insights for policymakers in Brazil and other countries seeking to understand the impact of tax amnesty programs.
- The analysis of firms' operational data enables a deeper understanding of their behavior during an amnesty, which can help guide the design of strategies aimed at improving tax compliance and, consequently, increasing tax revenue.
- This contribution is particularly relevant in the context of developing countries, where tax evasion tends to be more prevalent and empirical evidence on the effectiveness of such programs remains scarce.

Institutional context

ICMS- Tax on the Circulation of Goods and Services

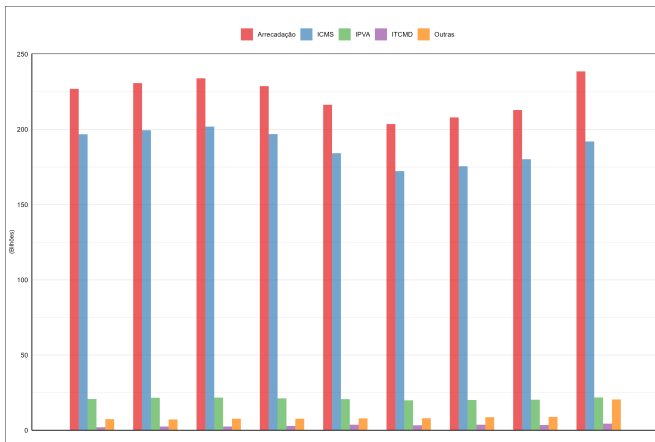
Table: Revenue Variables Evolution in the State of São Paulo

	2011	2012	2013	2014	2015	2016	2017	2018	2019
Total Revenue	286.8	291.5	315.0	311.6	293.4	272.6	283.4	283.4	290.9
Tax Revenue	227.0	230.6	233.8	228.7	216.3	203.4	208.0	212.9	238.5
ICMS Revenue	196.6	199.4	201.9	196.9	184.2	172.3	175.3	180.1	191.9
Debt Stock	396.8	366.5	405.4	414.5	426.0	429.6	463.7	491.8	510.3

Source: TCE (2024). Note: The values have been adjusted by the IPCA to March 2024 prices and amounts are expressed in billions of R\$.

State of São Paulo Taxes

Figure: State Taxes



Source: TCE (2024). Note: The values have been adjusted by the IPCA to March 2024 prices and amounts are expressed in billions of R\$.

Tax Installment Plans

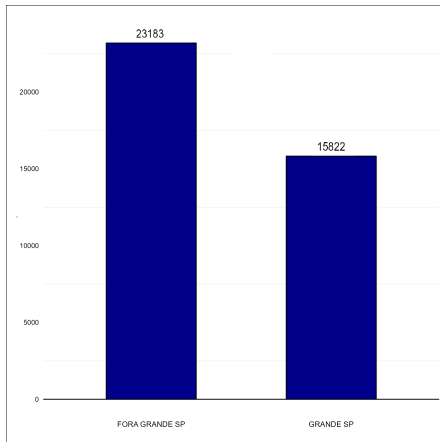
- Special tax installment plans are tools used by governments to allow delinquent taxpayers to settle their tax liabilities.
- The main objectives are to regularize tax debts, to collect a large volume of revenue in the short term. And to reduce tax litigation thereby saving human and financial resources that would otherwise be spent on debt recovery efforts.
- A notable example is the Special Installment Program (PEP) of the State of São Paulo, established to allow taxpayers in São Paulo to settle their ICMS debts.

Special Installment Program (PEP)

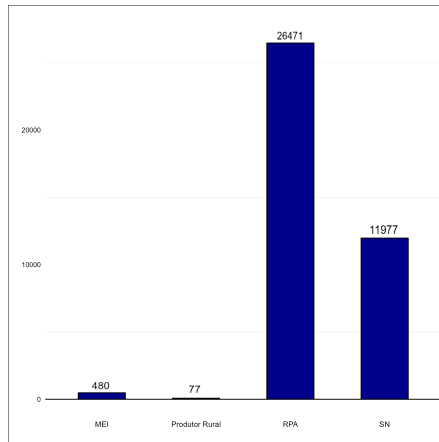
- Characterized by offering significant reductions in interest and fines, making it an attractive alternative for taxpayers with outstanding debts to the state.
- The program also offered flexibility in payment terms, allowing taxpayers to choose between paying the debt in full — with the highest discounts — or in installments according to the desired term.
- PEP included both debts registered as active debt and those still under administrative collection.
- Editions: 2012, 2013-2014, 2015, 2017 e 2019.
- Important: although these programs have generated a significant increase in revenue, assessing their true effectiveness is not straightforward.

Data

Sample: Distribution of Firms Participating in the 2013 PEP



(a) Distribution by Region

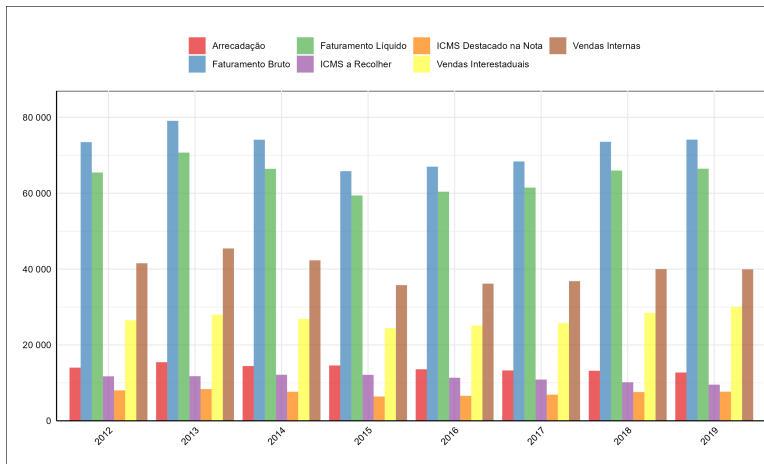


(b) Distribution by Tax Regime

Data description

- Monthly administrative data on establishment level provided by the São Paulo State Department of Finance (SEFAZ-SP).
- Period from January 2012 (when the use of the Electronic Invoice became mandatory for all firms) to December 2019 (before the Covid-19 pandemic).
- To construct the treatment group, we removed from the firms that joined the 2013 PEP, firms under the Simples Nacional regime, MEI, and rural producers, due to substantial differences between these categories and firms under the Periodic Taxation Regime (RPA).

Outcome Variables



Source: Prepared by Raposo based on administrative data from SEFAZ-SP.

Note: This figure presents the dynamics of the outcome variables for the firms in the treatment sample.

It represents the annual sum in thousands of Brazilian reais.

Descriptive statistics

Table: Sales - Descriptive statistics

	Mean	Standard Deviation	Median	Minimum	Maximum
Gross Revenue	972	6,236	94	0	407,017
Net Revenue	873	5,644	86	0	373,439
Internal Sales	538	3,569	53	0	259,760
Interstate Sales	363	3,040	8	0	281,397
ICMS Payable	90	2,191	0	0	724,376
Tax Collection	126	2,492	1	0	910,491
Units	10,889				

Source: Prepared by Raposo based on administrative data from SEFAZ-SP.

Note: In thousands of Brazilian Reais

Descriptive statistics (ii)

Table: Purchases: Descriptive statistics

	Mean	Standard Deviation	Median	Minimum	Maximum
Internal Purchases	1,299	13,074	72	0	807,910
Interstate Purchases	594	8,036	3	0	868,535
Purchases Imports	577	23,762	0	0	3,822,259
Asset Purchases	97	1,882	0	0	236,349
Total Purchases	2,568	35,501	127	0	4,041,328
Units	10,889				

Source: Prepared by Raposo based on administrative data from SEFAZ-SP.

Note: In thousands of Brazilian Reais

The Control Groups

- **General control group:** firms that remained in operation from January 2012 to December 2019 and belong to RPA (841,563).
- **Main control group:** General control group without the PEP participating firms from 2013, 2015 and 2017 editions. The use of Propensity Score Matching resulted in 10,887 firms in the treatment group and 10,143 firms in the control group.
- **Alternative control group:** composed of firms that participated in the 2015 and 2017 PEPs but had not joined the 2013 PEP. With PSM, the treated group ended with 10,885 units and the control group ended with 3,528 units.

Empirical Strategy

Covariates balancing

Table: Sales: Treatment and Main Control Groups - Descriptive statistics

	Control Mean	Treated Mean	Difference ($\alpha = 5\%$)
Gross Revenue	1,279,299	972,966	306,333*
Net Revenue	1,166,734	872,916	293,818*
Internal Sales	699,666	537,985	161,681*
Interstate Sales	421,693	363,201	58,492*
ICMS Payable	47,674	90,302	42,628*
Tax Collection	88,811	125,867	37,055*
Units	10,143	10,887	744

Source: Prepared by Raposo based on administrative data from SEFAZ-SP.

Note: We indicate statistically significant differences at the $\alpha = 5\%$ level using an asterisk.

Covariates balancing

Table: Purchases: Treatment and Main Control Groups - Descriptive statistics

	Control Mean	Treated Mean	Difference ($\alpha = 5\%$)
Internal Purchases	2,792,512	1,299,834	1,492,678*
Interstate Purchases	1,200,745	594,777	605,968*
Imports Purchases	896,305	577,019	319,285*
Asset Purchases	163,417	97,351	66,065*
Total Purchases	5,052,980	2,568,983	2,483,997*
Units	10,143	10,887	744

Source: Prepared by Raposo based on administrative data from SEFAZ-SP.

Note: We indicate statistically significant differences at the $\alpha = 5\%$ level using an asterisk.

Program Cost: Amounts Collected

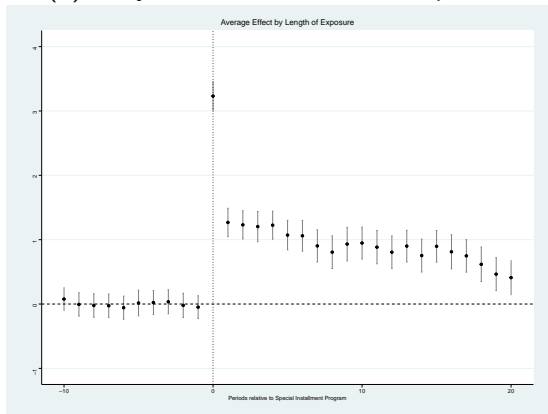
	Without Discount	With Discount	Nominal Tax Collection
Total Value	28,180	17,179	10,528
Paid	19,050	8,953	8,953
Paid in full	15,146	5,815	5,815
Paid in installments	3,904	3,137	3,137
Defaulted	9,063	8,168	1,575
Defaulted in one installment	1,076	898	8
Defaulted in up to three installments	1,840	1,594	24
Not formalized	42	31	0
Cost with discounts:	R\$ 10,100		
Real amount collected:	R\$ 9,713		
Difference:	R\$ 387		

Source: Prepared by Raposo based on administrative data from SEFAZ-SP. Note: Values in millions of R\$

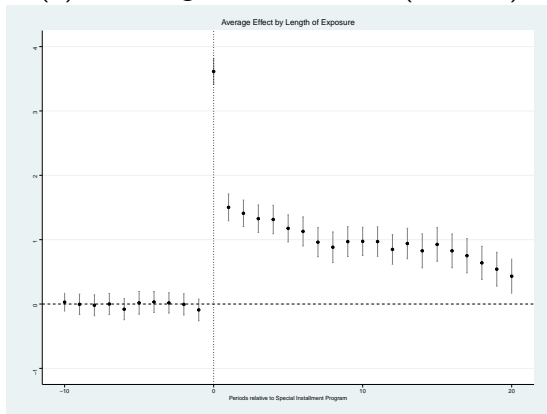
Results

Effect of the Special Installment Program on Tax Collection

(a) Only firms active the entire period

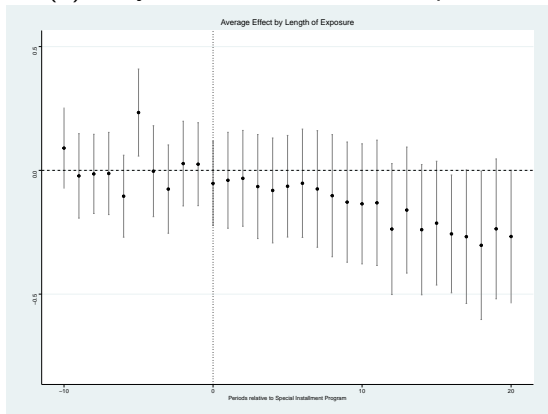


(b) Including firms that close (as zeros)

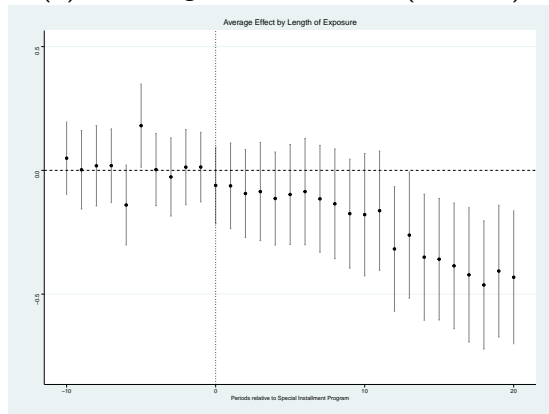


Effect of the Special Installment Program on ICMS Payable

(a) Only firms active the entire period

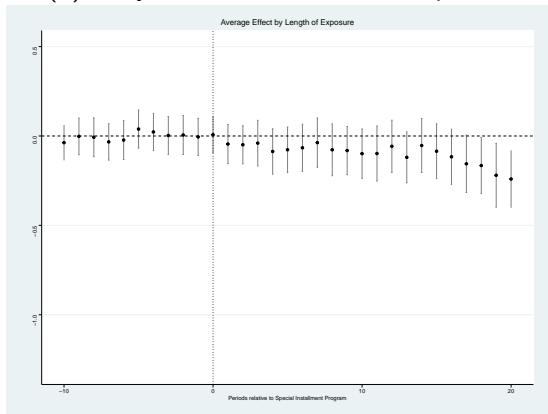


(b) Including firms that close (as zeros)

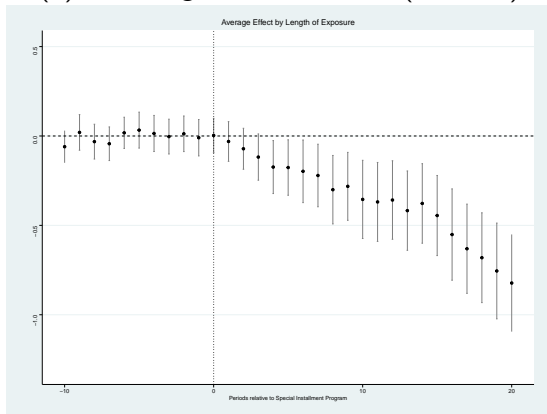


Effect of the Special Installment Program on Purchases

(a) Only firms active the entire period

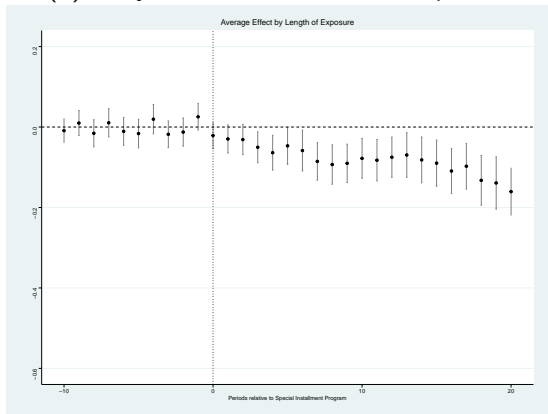


(b) Including firms that close (as zeros)

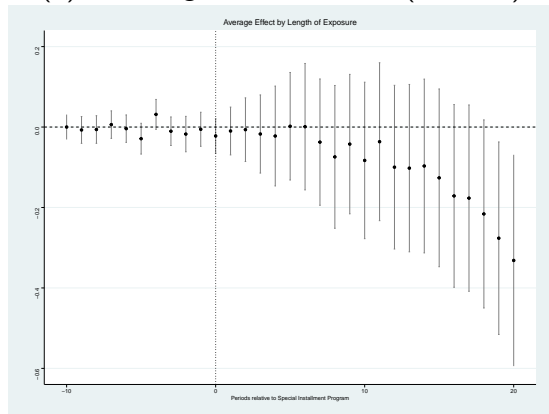


Effect of the Special Installment Program on Sales

(a) Only firms active the entire period

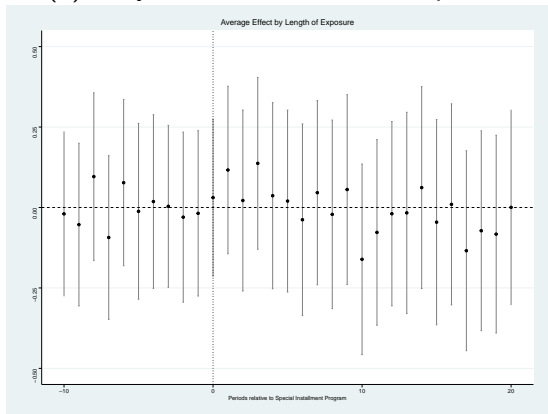


(b) Including firms that close (as zeros)

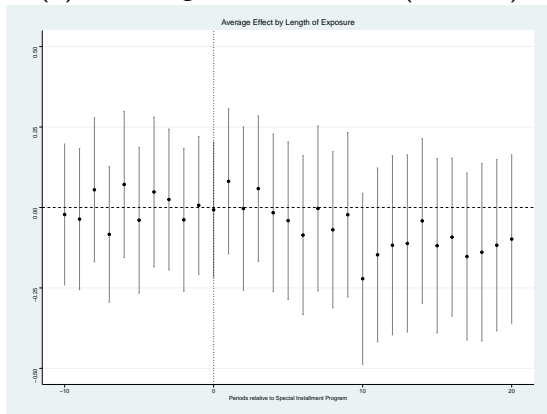


Effect of the Special Installment Program on Investment

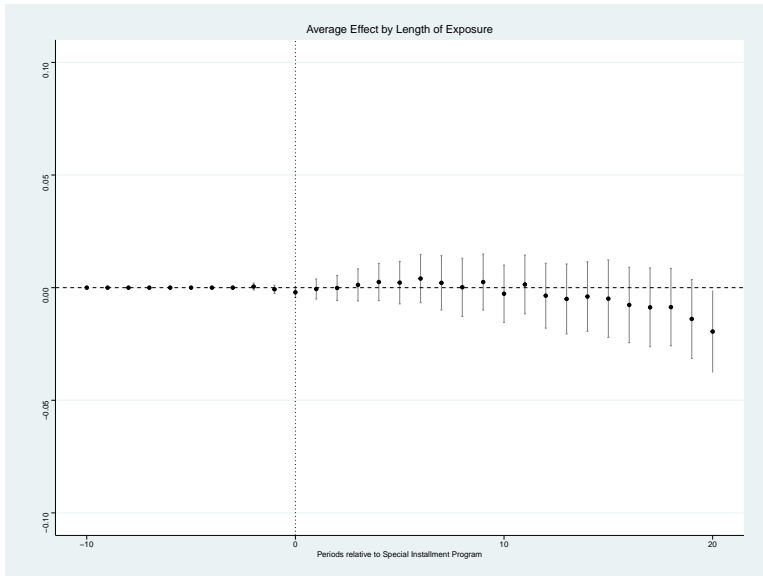
(a) Only firms active the entire period



(b) Including firms that close (as zeros)



Effect of Special Installment Program on Existing firms



Conclusion

Conclusion

- Significant increase in revenue in the short term, mainly due to payments made in a single installment.
- Effect on revenue does not persist in the medium and long term.
- Firms, after a period of regularizing their tax debts, return to similar levels of delinquency.
- Reduction in firms' operational activities, reflected by a decline in input and output variables.
- No significant impacts were found on firms' investments, particularly regarding the acquisition of fixed assets such as machinery and equipment.

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