

More public goods, more political reciprocity? Evidence from a post-conflict economy

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More public goods, more political reciprocity? Evidence from a post-conflict economy.*

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Abstract

While a large literature defines and diagnoses the effects of weak institutions, much less is known about how to improve them. In developing countries, there are often many signs of weak institutions that undermine reciprocal behavior between the population and the state. This paper studies the effect of community-driven post-conflict development programs in Colombia (called PDET) on citizen's reciprocal behavior, especially tax compliance and participation in social mobilization. To the extent that PDET affects these outcomes, I document the extent to which these type of programs improve state capacity. Using a *difference-in-differences* strategy, I compare municipalities with a close probability of being treated with treated ones to estimate causal effects. The results (due to data restrictions) show a short-term increase on protests fostered by weak institutions characteristics of the treated municipalities. On the other hand, tax revenue is influenced by an upsurge in property and sales taxes. This effect may be attributed to factors related to tax compliance, but it is not the sole plausible explanation. This provides evidence on how governments can generate new relationships on state capacity and tax compliance with historically harmful past societies.

Keywords: State capacity, intrinsic reciprocity, peace agreement, Colombia.

JEL Codes: D02, D04, D74, H41, H71, P16.

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1 Introduction

Weak institutions have a significant impact on development, political stability, and the provision of public goods (Besley & Persson, 2014). In a weak state equilibrium, there is a deficiency in the supply of public goods due to low tax revenues. This leads to state under-investing in public goods, which in turn affects society's willingness to pay taxes and discourages the demand for public goods. This cycle is what Fergusson (2019) refers to as the "public goods trap", a vicious cycle that perpetuates the weakening of the state, leading to various externalities and perverse incentives¹. A virtuous cycle² also exists to reverse these adverse effects. This can be initiated by an exogenous increase in public goods. An increase enhances the willingness of the population to pay taxes, subsequently leading to an improvement in state capacity. Furthermore, political control also increases because taxes become costly for society. Regardless of the cycle, these dynamics rely on what Sobel (2005) defines as **intrinsic reciprocity**³, referring to a tendency to respond to perceived kindness with kindness and to meanness with meanness. The type of reciprocity that a territory possesses can indeed influence the development of the social contract and affect the cycle (Tabellini, 2008).

This paper studies the effect of community-driven post-conflict development programs in Colombia on social contract behavior measurements, such as tax revenue and protests. Colombia signed a Peace Agreement with the armed group FARC in 2016, which can be considered one of the most important efforts in recent history to enhance state presence, reconstruction, and reconciliation. One of the main subjects of the agreement was the construction of the 'Planes de Desarrollo con Enfoque Territorial' (PDET by its acronym in Spanish) as an instrument to promote progress, economic opportunities, and development in the most conflict-affected municipalities. The programs consist on the construction of different public goods agreed between the national government and the municipalities to generate productivity, inclusive development and reparation⁴. This intervention serves as an exogenous source of variation in public goods, owing to the uncertainty of the treatment assignment to municipalities until the enactment of the law. This uncertainty enables us to investigate its causal effects on state capacity and reciprocal behavior.

¹Undesirable effects include clientelism (Fergusson, Molina, & Robinson, 2022), under-representative political institutions (Fergusson, Querubin, Ruiz, & Vargas, 2021), civil wars, protests, and violence (Acemoglu, Robinson, & Santos, 2013; Fergusson, Robinson, Torvik, & Vargas, 2016; Machado, Scartascini, & Tommasi, 2011)

²This is defined by Fergusson (2019) as the opposite version of the vicious cycle, which can be induced by an exogenous variation of public goods, an improvement in political disparities or a tax reform.

³Sobel (2005) develop two concepts which refer to kindness with kindness (constructive reciprocity) and meanness with meanness (destructive reciprocity).

⁴Examples of projects could be: schools constructions, roads constructions, agricultural improvement programs and others.

Utilizing a *difference-in-differences* strategy alongside administrative data and data from non-profit organizations, I conduct a comparative analysis between PDET municipalities and non-beneficiary regions to assess causal effects on tax revenue and protests outcomes. I implement various robustness tests to enable the examination of causal effects on these outcomes. My study concludes that the implementation of PDET leads to positive effects on municipal tax revenue, while showing contrasting effects on protest behavior. Specifically, I find that PDET has a significant impact on increasing municipal tax revenue, driven by increases in property and sales taxes. However, the increasing effect on protests cannot be attributed to any specific type or mode protest.

PDET projects are aimed at promoting development and increasing productivity in economic activities, which, in turn, leads to a rise in municipal income. Consequently, tax revenues in treated municipalities increased by 10%. When examining the individual components, I find that the two main drivers of this increase were the property and sales taxes. The property tax increased by 36-41%, while the sales tax increased by 24-25%. As for protests, effect estimates remain robust across different specifications, showing an overall increase of 12-14% in treated municipalities. Further analysis reveals that the drivers of this increase seem to be rising effects on mobilizations and protests directed against the government. The use of alternative channels⁵ is common on weak institutions settings to execute political control (Dalton, 2013; Persson & Tabellini, 2002; Scartascini & Tommasi, 2012) .

I find that the previous results remain valid for total tax revenue, property tax, sales tax, and protests when restricting the sample using a propensity score, which includes municipalities with a treated probability between 2.5% and 95%. Additionally, the main variables (tax revenue and protests) demonstrate robustness in randomization inference tests, providing evidence against the presence of random effects due to specific treated sample selection. However, the effects on mobilizations, other modes protests, and protests against the government are not robust to the propensity sample. I attribute this to the sample restriction, as I only deal with two years of post-treatment periods, which limits my analysis to short-term effects.

To address potential mechanisms explaining impacts on tax revenue and protests, I utilized the transparency index and number of sanctions imposed on public servants. The results concerning tax revenue reveal that municipalities with lower levels of transparency prior to treatment demonstrate more significant effects on tax revenue, including both property and sales tax, compared to

⁵Institutional channels can be defined as voting, forming political parties, writing to representatives, and bargaining in Congress and alternative channels as blocking roads, burning tires, and engaging in violent actions instead of institutional channels

municipalities with higher levels of transparency. These outcomes can be partially explained by an enhancement of the intrinsic reciprocity effect resulting from a variation of public goods. Municipalities with lower transparency measures exhibit reduced tendencies to pay taxes and trust the government. However, the implementation of PDET alters societal reciprocity, prompting greater adherence to civic duties. It is important to note that previous mechanisms could serve as a possible explanation. However, given the variety of public goods and the interplay between national and local governments, it is possible that the effects could be driven by a mechanical increase in economic activity or other explanations. Conversely, the sanctions measure enables the categorization of municipalities into high and low levels of corruption, indicative of weak institutional structures. My findings suggest that municipalities facing more substantial sanctions prior to treatment exhibit a more pronounced effect on protests. I contend that areas displaying heightened signs of weak institutions are more inclined to employ alternative political methods to assert their interests, even when policies aim to enhance their well-being.

In a theoretical sense, the relationship between the state and society has been extensively studied, demonstrating that the equilibrium between the state and society is a key driver of a country's development (Acemoglu, 2005; Aghion, Alesina, & Trebbi, 2004; Besley, 2020; Besley & Persson, 2009). However, there has been relatively little research on how to improve the state-society social contract to achieve higher levels of development (Besley & Persson, 2014). My results contribute to this strand of literature by providing empirical evidence on how community-driven post-conflict programs, or any interventions related to public goods improvements, can enhance the state-society social contract. Specifically, these new reciprocal behaviors will help break the cycle of weak states' equilibrium⁶ by enhancing the tax payment and the political control over government.

The second strand focuses on emphasizing the unintended effects of reconstruction policies on tax revenues. While PDET programs were designed to increase state capacity⁷, their goal was not specifically to boost municipal tax revenue. Nevertheless, the improvement in public goods is closely related to tax revenue (Besley, 2020). Currently, there exists a substantial body of literature that researches the effects of peace agreements in Colombia, but no one has directly addressed state capacity improvement. Studies such as Namen, Prem, Vargas, et al. (2020) analyze the effects of a permanent ceasefire on human capital accumulation, while Bernal, Prem, Vargas, and Ortiz (2023) analyze firm creation in conflict-affected municipalities. Both studies demonstrate that educational

⁶Following Acemoglu and Robinson (2017) exist *despotic states* where the state is the strong actor, *inclusive states* where there exists a balance between the two agents and *weak states* where society is strong enough to impose their will.

⁷Besley and Persson (2010) defined state capacity as "improving the state's ability to implement a range of policies".

and firm outcomes improve with the end of the conflict in Colombia, but they are sensitive to the belief in the peace announcement, reflecting the importance of trust in the government as a key policy feature. [Perilla, Prem, Purroy, and Vargas \(2022\)](#) quantifies the lives saved by the peace agreement and researches the institutional factors to improve landmine victimization, showing that NGO demining was more effective than military demining. These previous papers present positive effects of peace agreements on development outcomes, but the results indicate that trust and confidence in the actors are key to successful policies. [Gelvez-Ferreira and Johnson \(2023\)](#) find positive effects on vote share in PDET zones, leading to an increase in voter turnout, demonstrating an improvement in civil duties and the shaping of political behavior.

The remainder of the paper is organized as follows: Section 2 provides details about the internal conflict of Colombian and the peace process which led to the creation of the PDET; Section 3 describes the data sources, measurement and samples; Section 4 discusses my empirical strategy to estimate the causal effect of PDET on tax revenue and protests; Section 5 reports and discusses the main results, robustness tests, and heterogeneous effects and finally Section 6 concludes.

2 Context

The Colombian civil conflict started with the founding of the guerrilla groups *FARC* and *ELN* in the mid-1960s. However, conflict has been a part of Colombian history since independence. Following various events, such as the Rionegro Liberal constitution (1863), the Constitution of 1886, and the beginning of the 20th century, Colombia has experienced ongoing conflict for territorial control. The state ability to enforce and retain the violence monopoly, which Colombia has lacked, plays a crucial role in controlling the territory. This situation, coupled with a centralist constitution that persisted for over 100 years, has significantly impacted the country's development in an unequal manner. During the period known as the 'Violence,' the country experienced a high level of conflict. The latter led to at least 190,000 victims and close to 2 million of forcibly displaced people ([Oquist, 1980](#)). The combination of unequal development, a lack of state capacity, and low political representation created a fertile ground for the emergence of insurgent armies like FARC and ELN. These insurgencies aimed to achieve sub-national territorial dominance through violence against both military and civilian targets ([Kalyvas, 2006](#)).

In 2012, the Colombian government initiated peace negotiations with FARC. After four years, in November 2016, the final agreement was signed, establishing different areas where the government

and FARC would work together for the country's reconstruction. These areas included rural reforms, political participation, ending the conflict, addressing drug-related issues, and reparations for victims. In order to address the extent of internal conflict and shed light on the events, the Colombian government established the *Comision de la verdad*⁸. The commission's objective is to clarify patterns and causes of the armed conflict, seeking truth and justice for the victims and Colombian society *Registro Único de Víctimas* (2023).

The *Development Plans with a Territorial Approach* (PDET by its Spanish acronym) are mechanisms for rural reform that aim to bring profound changes in the social, economic, political, and cultural conditions of these territories. They lay the foundations for stable and lasting peace by addressing the underlying conditions that prolonged the armed conflict and ensuring its non-repetition. The planning of these projects is not solely determined by the central government; instead, local authorities and communities play a crucial role in selecting the most important needs to be addressed, also, the local authorities are encourage to plan, execute, actualization, tracking and evaluation of the PDET. As of July 31, 2023, there have been 2,764 completed projects in all PDET regions, with a total investment of 2,580,400.15 million pesos.

PDET is a powerful mechanism for societal participation, thanks to its disaggregation into *veredal*, *municipal*, and *regional* levels. The veredal stage gathers information at the town level, which is aggregated to define the needs of the municipal society. The municipal stage is where the private sector, local authorities, and social actors construct the municipal pact. Finally, each municipal pact is consolidated into predefined regions to address the totality of demands. This demonstrates a significant effort to collect all demands and incorporate them into the intervention.

3 Data

For this study, I construct a municipality-year panel to examine the effects of the PDET on reciprocal behaviour. In general, the analysis focuses on the period from 2012 to 2021 for each outcome to ensure a sufficient number of years for the parallel trends assumption. However, due to data restrictions, the periods for specific variables differ: the protests outcome period covers 2012 to 2019, while the tax revenue period is from 2012 to 2021. As a result, I am limited to analyzing short-term

⁸This organization reveals that, from 1985 to 2018, the armed conflict resulted in the deaths of 450,644 individuals. The report also includes statistics of 121,768 cases of forced disappearances from 1985 to 2016, 50,770 kidnappings from 1990 to 2018, 16,238 cases of child recruitment from 1990 to 2017, and 752,964 victims of forced displacement from 1985 to 2019.

effects of protests. Nevertheless, the analysis of tax revenue may reveal interesting mechanisms for mid-term effects.

3.1 Protests

The data was obtained from the *Centro de Investigación y Educación Popular* (CINEP by its Spanish acronym) which has been actively engaged in collecting data on social and political conflicts, peace, social movements, human rights, and political violence in Colombia for over 50 years. For this analysis, I selected the Social Struggles Database⁹ due to its high level of event dis-aggregation. CINEP has collected comprehensive information, encompassing the main actors, geographical locations of actions, types of conflicts, reasons behind the protests, conveners, and adversaries. It is crucial to highlight that CINEP operates based on the principle of visibility, meaning that they gather data from various sources such as press, radio, TV, internet, social media, and official statements provided by social actors. With this approach, they aim to ensure a comprehensive and accurate representation of events. Considering this, the data was aggregated at the municipality level to determine the total number of protests per year. Additionally, the database contains information based on different classifications of protests, including motives (such as government breaches, labor, land, rights, policies, and others), adversaries (ranging from private entities to municipal, departmental, and national governments, as well as other adversaries), and modalities (such as strikes, mobilizations, and other modes). It is important to note that protests could have multiple motives, adversaries, and modalities, which may lead to potential double-counting in different classifications.

3.2 Tax Revenue

Following, Besley (2020) tax compliance is affected by the civic-mindedness of citizens, government transfers and public goods provision. This allows me to use tax revenue as a reciprocal behaviour measure. The data for this variable was obtained from the *Departamento Nacional de Planeación* (DNP from its Spanish acronym), which provides municipal fiscal information on public finances. This database¹⁰ contains comprehensive data on municipal incomes and expenditures. The selected variable for analysis is the municipal tax revenue per capita, which I transformed into a logarithmic variable to address scaling issues. The taxes considered for the analysis are: Industry and Commerce

⁹See: <https://www.cinep.org.co/base-de-datos-luchas-sociales/>

¹⁰See: <https://sisfut.dnp.gov.co/app/descargas/visor-excel>

tax¹¹ (ICA from its Spanish acronym), Property tax¹² (Impuesto Predial), Gasoline tax¹³ (Sobretasa a la gasolina), and Other taxes¹⁴.

3.3 PDET data

To explore the impact of the PDET, it is essential to access accurate information about the resources and projects developed in municipalities. For this purpose, the *Agencia de renovación del territorio*¹⁵ (ART, from its Spanish acronym) was established in 2015. Its role is to coordinate national and territorial interventions in conflict-prioritized zones and oversee the execution of plans and projects aimed at promoting economic growth, social reactivation, and institutional strengthening. The ART maintains comprehensive records of PDET-related information, including the total amount invested, the number of projects, the sector, and the project pillar, categorized by year and municipality. From this information, I derived two main PDET variables. Firstly, I created a dummy variable to identify the PDET municipalities. Secondly, I obtained the total amount invested per year, which allowed me to analyze the cost-benefit of the projects and how the government is potentially incentivized by the increase in tax payers.

3.4 Other data sources

I include a set of municipality-level characteristics from the annual panel of Colombian municipalities, maintained and hosted by CEDE at the Universidad de Los Andes. In this dataset¹⁶, I have variables for subgroups, such as conflict, public finances, education, and basic characteristics of the municipalities. All the selected variables are specified in Table 3.

3.5 Municipalities selection

The main sample is composed of 987 municipalities out of the 1,122 in Colombia. This initial selection involved excluding the department capitals due to their high heterogeneity compared to the periphery of the country. Additionally, I removed municipalities with missing values for Protests

¹¹All the industrial, commerce and services activities are taxed

¹²This tax is levied on real property and is generated by the existence of the property. Its taxable base depends on the cadastral appraisal.

¹³Municipal and departmental tax, which is generated by the consumption of extra and regular, domestic or imported motor gasoline.

¹⁴This variable is composed of taxes on stamps, public lighting, urban planning and development, notices and boards, telephones and public transportation transit.

¹⁵See: <https://centralpdet.renovacionterritorio.gov.co/obras-terminadas/>

¹⁶See: <https://datoscede.uniandes.edu.co/es/catalogo-de-microdata>

and Tax revenue outcomes. Up to this point, this constitutes the primary database for the research, referred to as the *Full sample*. Since the PDET selection was not random perform, I find significant differences between a large set of characteristics. Table 2 presents the mean and the difference between the characteristics from control and treated group. Treated municipalities are significantly worse in terms of conflict, illicit crops and development. Considering that, I will proceed to describe the other sample used in this research.

Propensity Sample: After the previous step, I still have a significantly unbalanced sample (Control: 847, Treated: 140). To address this issue, I performed propensity score matching to retain only the observations that fall within the common support group. For this purpose, I selected variables that were used by the Colombian government for the selection of the PDET zones. The (Decreto 893 de 2017) specifies the following characteristics for classifying the municipalities:

- **Conflict degree:** armed actions by the government and subversives actors, homicides, kidnappings, massacres, forced displacement, mine victims and specific murders.
- **Illicit crops and illegal economies:** Coca crops hectares, vulnerability index, illicit mines and contraband activities.
- **Poverty:** Multidimensional poverty index.
- **Administrative weakness:** (Cierre integral del brechas) by it's acronym in spanish, developed by the DNP.

First, I employed a LASSO model following (Abadie & Imbens, 2016; Tibshirani, 1996) to select the covariates most related to the treatment. Subsequently, I performed the propensity score estimation. The selected covariates include *displacement events, harassment actions, mines victims, kidnapping events, Coca crops, Conflicted armed index, and others*¹⁷. Following the propensity score estimation, I excluded 36 municipalities that were outside the common support group. Interestingly, all 36 municipalities belonged to the treatment group, and their probability of being treated was higher than 95%.

Examining Figure 3, I observed a significant difference in the density between the treated and control groups, which remains evident. Consequently, I carefully analyze the propensity score distribution of both groups and identify a substantial number of observations (637) with a probability of being treated lower than 2.5%. To address this, we removed these observations from the initial

¹⁷This list is completed by fiscal performance index, educational institutions, official sector alumni, GDP per capita, rural index, capital distance, Gini, poverty index, and NBI index

sample, resulting in a total of 314 municipalities. This step allowed me to achieve a more balanced sample in terms of the propensity score distribution.

4 Methodology

To estimate the effect of the PDET projects, I performed a Difference in Differences analysis by comparing the treated units against municipalities which were not beneficiaries after the implementation. The model is the following:

$$Y_{mt} = \alpha_m + \sigma_{dt} + \beta(PDET_m * POST_t) + \sum_{c \in C_m} \gamma'(cx\sigma_t) + v_{mdt} \quad (1)$$

Subscripts m, d and t denote the municipality, department and time, respectively. The set of fixed effects are represented by α_i (municipality), σ_t (time) and σ_{dt} (Department-time). The variable PDET is a dummy variable which represent the treated municipalities and the variable POST is equal to one from 2018 onwards as the PDET was established by May 29 of 2017. The set X_m is a vector of pre-treatment variables interacting with the time fixed effects to account for differential trends in municipal characteristics. The set of controls can be summed up in Table 2, which underlines the set of controls by each outcome. These were selected following [Belloni, Chernozhukov, and Hansen \(2014\)](#) a machine learning technique to maximize the capacity to estimate the tax revenue and the protest behavior. The v_{mt} is the error term clustered at the municipality level to account for municipal auto-correlation.

Difference in differences is a quasi-experimental technique. It's capacity of find causal effects relies on the parallel trend assumption. This established that in the absence of treatment, the average difference between the treatment and control groups would have remained constant over time. To test this assumption, I have provided the next dynamic model:

$$Y_{mt} = \alpha_m + \sigma_{dt} + \beta_t \sum_{k=0}^K D_{mt} * [k = t] + \sum_{c \in C_m} \gamma'(cx\sigma_t) + v_{mdt} \quad (2)$$

All the β_t parameters will capture the difference between PDET and control municipalities in the year t related with 2017. If the coefficients are not statistically different from 0 in the pre-treatment period, we can say that the parallel trend assumption holds.

Furthermore, it is important to leverage variations across municipal-level characteristics to estimate heterogeneous effects that could shed light on the underlying mechanisms of the PDET. With this objective, I extend the primary specification (equation 1) by introducing an additional interaction term. I incorporate municipal characteristics Z_m , measured during the pre-treatment period, to explore potential mechanisms of interest. Accordingly, I proceed to estimate the following:

$$Y_{mt} = \alpha_m + \sigma_{dt} + \tau_1(PDET_m * POST_t * Z_i) + \tau_2(PDET_m * Z_m) + \tau_3(POST_t * Z_m) + \tau_4(PDET_m * POST_t) + \sum_{ccC_m} \gamma'(Cx\sigma_t) + v_{mdt} \quad (3)$$

The coefficient of primary interest, denoted as τ_1 , captures the distinct changes in tax revenues and protests within PDET municipalities based on the characteristics present in Z_m . This set encompasses indicators such as a transparency index, and the count of public servants sanctioned at the municipal level during the pre-treatment period. It is important to note that while the forthcoming results from these tests offer suggestive insights into potential mechanisms, they do not inherently establish causal relationships.

5 Results

5.1 Main results

Table 1 summarize the results from the equation 1 with the full sample. Columns 1-2 shows results from the total amount of protests by municipality and columns 3-4 shows the Per capita Tax revenue by municipality. Columns 1 and 3 present the model without controls and columns 2 and 4 include pre-treatment municipality characteristics to control for differential trends. Columns 1 present a coefficient of 0.065 with no significance level and column 2 shows a significant coefficient of 0.137. This represent an increase in 14.7% of protests in PDET zones relative to the control group. This result could be analyzed through the lens of mistrust in the government, stemming from the historical absence of state capacity in treated municipalities. Over the years without effective governance, these treated municipalities continued to harbor mistrust towards government compliance. Moreover, rather than utilizing formal channels to express their preferences, they preferred to resort to protests. This inclination is attributed to the treated municipalities exhibiting characteristics of weak institutions, and according to [Machado et al. \(2011\)](#), protests are a predominant means of expressing the will of citizens.. Column 3 shows a significant coefficient of 0.174 and column 4 a significant coefficient of 0.099. This follows the idea of gift exchange were the provision of public goods affects

the willingness to pay taxes, being precisely the PDET increases the municipal tax revenue by 10% relative to non-treated municipalities.

Table 1: Outcomes Full sample

	(1)	(2)	(3)	(4)
	Total Protest	Total Protests	Tax Revenue	Tax Revenue
Treatment(PDET*POST)	0.065 (0.046)	0.137** (0.055)	0.174*** (0.044)	0.099** (0.044)
Observations	7,896	7,896	9,870	9,870
Municipalities	987	987	987	987
R-squared	0.548	0.562	0.889	0.902
Mean Dep. Var.	0.495	0.495	225,166	225,166
Sd Dep. Var.	1.190	1.190	287,097	287,097
Municipality FE	✓	✓	✓	✓
Time - Dpto FE	✓	✓	✓	✓
Controls	X	✓	X	✓

Notes: This table present the model 1 with the main two outcomes (Protests and Tax Revenue). The dependent variables are the IHS transformation of all kind of protests (columns 1 and 2) and the log of Per Capita Tax Revenue (columns 3 and 4). * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

In order to check the parallel trends assumption and achieve a causal inference to my results, I performed the dynamic equation 2. The figure 1 shows the coefficients (β_j) for the pre-treatment and post-treatment period. In each event study the pre-treatment coefficients are not statistically significant, as β_j can be interpreted as the difference between PDET and control municipalities I can assume parallel trends assumption holds.

Table 4 presents the different classes of taxes that compose the municipal tax revenue, to address possible explanations for the increase. Column 1 presents a significant treatment effect on property tax with 0.363 which represent an increase of 36% and Column 2 shows a significant coefficient of sales tax by 0.249 which represent an increase of 25%. In Colombia the property tax responds to three main channels, the first one is a change in the POT (Plan de Ordenamiento Territorial) which established the real value of buildings for paying taxes, second a buildings increase or a change in the willingness to pay taxes. As the POT is a municipal duty and is not mandatory, many municipalities have not updated their POT, therefore this is not a strong confound effect¹⁸. Also due to the characteristics of PDET, the urban projects are not abundant in municipalities of the sample, due to the low levels of development and urbanization.¹⁹ The previous analysis restrict the possible

¹⁸According to the IGAC (*Instituto Geográfico Agustín Codazzi*), as of 2020, 80% of municipalities in Colombia have outdated POTs (Plan de Ordenamiento Territorial)

¹⁹I restrict the sample and I exclude the capital departments which are the most urbanized.

explanations to mechanical increase in economic activity, increased bureaucratic oversight or a reciprocal effects on population.

The sales tax affects any direct or indirect industrial, commercial, or service activity and can be influenced by the three previous channels as well. The first channel is related to a mechanical increase in economic activity, influenced by the development of roads, productive activities, or new opportunities enhanced by PDET. The second channel involves intrinsic reciprocity, where a variation in public goods can be classified as a constructive reciprocity effect. The third one could be that an increase in public goods leads to an enhancement of bureaucratic oversight, encouraging individuals to pay more taxes due to the fear of being punished for evading taxes. Disentangling these effects will be developed in the mechanisms section (at least the intrinsic reciprocity channel), but I believe that the increase is likely due to a combination of some effects. In order to check parallel trends, the figure 4 presents the dynamic specification for the property, industry and others taxes.

Tables 5 and 6 present all the modes and adversaries classification for protests. Table 5 presents in column 1 the full specification with all classes of protests, column 2 presents strikes or work stoppages, column 3 all the mobilizations²⁰ and 4 other classes of modes²¹. The coefficient of strikes presents a non-statistically significant coefficient so I can't distinguish it from zero, but mobilizations represent a 8.3% increasing with respect to the control group, also other modes present an increase of 7.6%. Following my previous hypothesis, I believe that the increases of mobilizations are driven by the public goods variation, which enhance the demand of population rights. Following that the treated municipalities are less developed and have a major level of conflict, those can be characterized as a weak institutions municipality, this entails that the way to claim for their rights are mainly driven by informal ways of protests. This informal way can be summed up as mobilizations, blocks, riots and invasions. These informal ways go according to significant effects on mobilizations and other modes.

Table 6 presents 6 models with different class of adversary²². Column 1 represent the protests against all class of government (Municipal, Department and National), Columns 2,3 and 4 are the protests by each class of previous mention government, Column 5 represent the private adversary and column 6 other classes of adversaries²³. The coefficient against all government is statistically

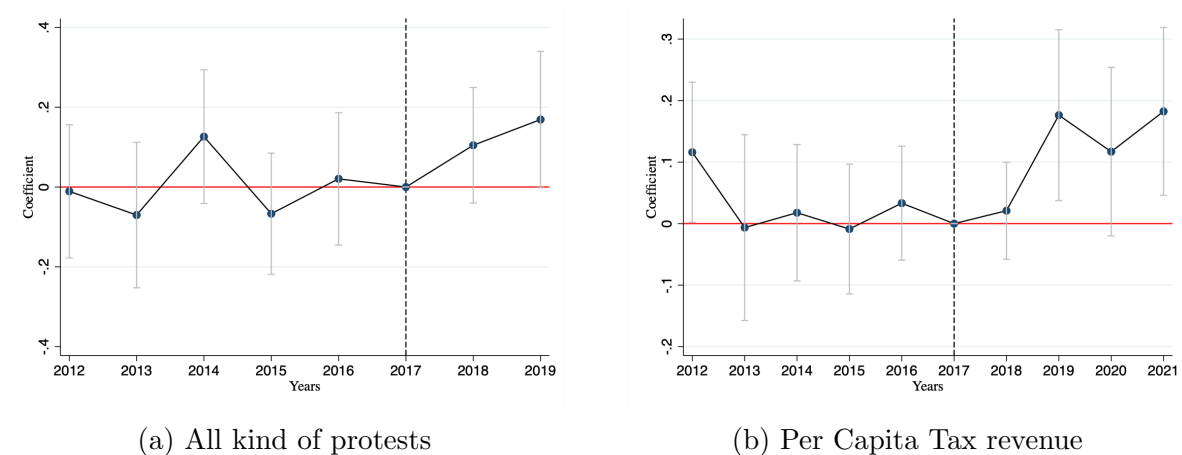
²⁰including marches, rallies, sit-ins.

²¹This variable contains invasions of rural lands, ethnic territories or urban soils, takeovers of entities, road blockades, disturbances -understood as confrontations involving clashes with public forces-, hunger strikes and actions of resistance or civil disobedience.

²²This defines the entity to which the protest is directed.

²³This classification contains protests against the army and the illegal criminal groups

Figure 1: Dynamic difference in differences in full sample



Notes: This figure represents the coefficients from the 2 specification on the first sample. We present the point estimates of the regression and the confidence interval at 95%.

significant an represent an increase of 10% of protests, also the coefficient against the department authorities is statistically significant and holds an 4.7% increasing. Coefficients of municipal, national government, private actors and others are not statistically significant. The first column could sum up all the effect against the public authorities, which entails that the claims of the treated municipalities increased in all levels of administrative authorities but in a major level of department ones. Private and other are not significant but this enforce the hypothesis about only the claims are focus in the government and no other forces. Figures 5 and 6 presents the dynamic specification to address parallel trend assumption.

5.2 Robustness Checks

I now assess the robustness of my main findings with several empirical exercises.

Comparison municipalities: One threat to my empirical strategy is that PDET municipalities are different to control municipalities in non-observable characteristics and could lead to other shocks (different that PDET) which can explain our findings rather than the treatment. To try to overcome this issue, I performed the model 1 with a different sample explained in section 3.5. The sample was restricted to municipalities with a propensity score greater than 2.5% and lower than 95%, which allows us to have more equally distributed municipalities in terms of propensity score.

The table 7 shows the main specification with this previous sample. The results in columns 2 and 4 are robust in each model and achieve similar coefficients than the main results, showing increasing effects of 12% of protests and 14.3% on tax revenue. The results in table 8 also show

robust coefficients in columns 1 and 2, demonstrating that property and industry tax rise and are the drivers of the effects. Tables 9 and 10 show the outcomes of protests by modes and adversaries by propensity sample; in general terms the results are in line with the previous findings in the full sample, however the results lack of statistical significance, possibly due to the reduction of units in the analysis. Knowing that it is important to achieve the parallel trends assumption, figure 7 shows that the assumption holds in the propensity sample on main coefficients. On the other hand, figures 8, 9 and 10 show the dynamic model to achieve estimates for the parallel trends assumption on classes of taxes, protests modes and protests adversaries. The previous results show that the parallel trends assumption holds on the property and sales tax, which allow me to argue causal effects on the outcomes, meanwhile, the results in protests are varied, showing that there is a high heterogeneity in the results by type of protest.

Placebo Simulation: I performed a permutation test by randomly assigning an indicator of PDET projects to all municipalities over many iterations. This test provides me a distribution-free estimate of the probability that my coefficient is estimated by chance. The results are in the Appendix part in figures 11 and 12, my estimated coefficients (red vertical line) are above the 95th percentile of the resulting distributions, demonstrating a non-random coefficient for tax revenue on the two samples. Instead of, the protests coefficient might be random, on the propensity sample.

5.3 Heterogeneous effects

In this section, I explore the empirical relevance on reciprocal behaviour mechanism that I mention before, through the development projects enhances the increases on municipal tax revenue and protest behaviour. In particular, I explore the heterogeneity on municipal characteristics which can shed light on mechanisms.

Transparency indicator: As one of my main hypotheses relies on enhancing the social contract between the state and society, I employ a transparency index²⁴ to categorize the transparency levels of local governments, thereby revealing heterogeneous effects within the treated municipalities. I utilize the median of the sample to classify municipalities into those with higher and lower transparency. Table 11 presents the outcomes of the triple interaction on property and sales taxes

²⁴This indicator was developed by the *Departamento Nacional de Planeación* (DNP) and gauges the level of transparency and openness of municipal governments. The index is calculated as the average of dummy variables that indicate whether the municipal government shares the outcomes of their management of public resources with the community and the DNP.

for each segment of the sample. The findings demonstrate that municipalities with greater pre-treatment transparency measures exhibit lower levels of tax revenue compared to regions with lower transparency levels. Transparency serves as an indicator of the strength of the social contract maintained within municipalities, greater transparency by the government should lead to an enhancement in tax payments. Given that this effect is more pronounced in municipalities with lower transparency levels, I posit that PDET amplifies a more sizable effect in areas with pre-treatment weaker social contracts. This evidence highlights how PDET contributes to bolstering state capacity and pro-social behaviour. These findings are reinforced by Table 12, which illustrates that while all municipalities witnessed an enhancement in transparency, the treated municipalities experienced a more substantial increase. This additional evidence corroborates my hypothesis regarding one possible pathway driving the upsurge in property tax, namely intrinsic reciprocity, while also acknowledging an impact on sales tax. Figure 13 provides an event study depicting the trends in property and sales taxes for each segment of the sample.

Sanctions: To examine my hypothesis regarding weak institutions, I incorporated a variable representing the number of public employees who faced penalties due to various forms of corruption. Drawing from (Acemoglu & Robinson, 2017), if the competitive relationship between society and the state is imbalanced, it can set in motion a detrimental cycle wherein both parties gradually weaken, leading to diminished state capacity and a decrease in the provision of public goods. This dynamic is observed in PDET municipalities, where low levels of state capacity and limited political control create fertile ground for corruption. This rationale underpins our use of sanctions as a proxy for weak institutions. Table 13 presents the outcomes of the triple interaction regarding protest outcomes across each sample segment. I observe a positive effect of 8.3% in municipalities with a higher level of sanctions compared to the lower municipalities. This finding highlights that the primary impact of protests is predominantly pronounced in municipalities characterized by weaker institutions, aligning with the hypothesis that areas with weak institutions are more inclined to resort to informal channels. It is important to emphasize that due to the limited number of post-treatment periods and treated municipalities, significant effects in this realm are challenging to ascertain. Figure 14 provides the event study graphs for each of the sample segments.

5.4 *Policy implications*

In this section, I address a critical aspect of any investment: its returns. It is evident that attaining a positive return in the initial years of an investment is unlikely. However, as I previously indicated,

I have identified positive effects on per capita tax revenue. With this in mind, Figure 15 in panel (a) illustrates the time series of the effect on per capita tax revenue alongside per capita investment. Notably, in 2018, the investment amounted to approximately 33 million pesos per person, yielding a revenue of around 2 million pesos. By 2021, the investment had increased to 176 million pesos, resulting in a revenue of 2.8 million pesos. Panel (b) of the same figure presents the ratio between these two time series. In 2018, the revenue accounted for 6% of the investment, a proportion that diminished to approximately 1.6% by 2021. This figure underscores the importance of recognizing that development policies implemented in conflict-ridden and underdeveloped contexts should be conceived within a long-term framework. One should not anticipate substantial positive returns in the short term. In the short term, what can be expected is a modest level of tax revenue.

6 Conclusions

In this paper, I examine the short- and medium-term effects of Colombia's recent efforts to address disparities and heal the scars left by the armed conflict in the country's periphery, focusing on indicators of political reciprocity. My findings reveal that the implementation of PDET projects led to significant increases in per capita tax revenue and the occurrence of protest events in treated municipalities. Specifically, I find that PDET municipalities experienced a noteworthy increase in per capita tax revenues, ranging from 10-14%. This increase was primarily driven by a 36-41% rise in property tax revenues (Impuesto Predial) and a 24-25% increase in sales tax revenues (Impuesto ICA). Additionally, I observed a 12-15% increase in protests within the treated municipalities. However, I did not identify a specific type of protest that predominantly contributed to this overall effect.

I argue that the observed increase in effects could partly be attributed to shifts in the population's incentives resulting from variations in public goods interventions. The positive effect on tax revenue can be attributed to one possible channel: a transformation in citizens' perception of the social contract. There is evidence that these projects genuinely impact the municipalities that are most disadvantaged, possessing lower levels of tax revenue and higher levels of protests, fostering behaviors that align with the social contract through formal rules. Nevertheless, it would be naive to not consider other possible explanations, as I mentioned before, such as the possibility of a mechanical increase in economic activity or the increase of bureaucratic oversight. These possible explanations can also be attributed to the tax revenue effects. Conversely, the surge in protests is propelled by a motivation to establish greater political control over government authorities, specifically in the short term, due to the possibility of government non-compliance. This effect finds support from the pres-

ence of weak institutions within the treated municipalities, a factor consistent with existing literature that suggests such communities often resort to this approach to voice their concerns and are more likely to adopt it. For Colombia, my findings hold significant implications, providing evidence of the potential to catalyze changes in the society-state relationship, particularly in the peripheral regions of the country.

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Tables

Table 2: Summary Statistics

Variables	Control	Treated	Diff
Capital distance	75.67	113.72	-38.05***
Coca Crops	4.8	375	-370***
Conflict Index	.013	.05	-.037***
Displacement events	80.11	745.41	-665.30***
Education institutions	32	66	-34***
Fiscal Performance Index	68	66	2.3***
Gaps Index	.53	.68	-.15***
GDP Pc	8,439,255	4,823,889	3,615,366***
Homicides	5.27	13.81	-8.54***
Kidnappings	.13	1.27	-1.14***
Mines Victims	.005	.082	-.077***
NBI	41.79	62.99	-21.20***
Official sector alumni	3,452	5,795	-2,343***
Operational Expenditures	2,708	2,567	141
Rural Population	8,733	15,322	-6,589***
Urban Population	11,484	14,847	-3,363*

Notes: This table presents the control variables means and the difference t-test between control and treated group. The table variables were chosen by the methodology of [Belloni et al. \(2014\)](#). This table express the variables in levels for a more convenient analysis.

Table 3: Description of variables

Propensity variables	Description	Source
Capital Distance	The log of the distance to the department capital	CEDE
Coca Crops	The total amount of coca crops by municipality	CEDE
Conflict armed index	This is a index constructed by different variables of conflict. (Armed actions, homicides, kidnappings, mines, forced displacement and coca crops)	DNP
Displacement events	The log value of the total amount of displacement events	CEDE
Education Institutions	The log of the number of educational institutions by municipality	CEDE
Fiscal Performance Index	A measurement of the correct administration of public resources	CEDE
GDP Per capita	GDP per capita by municipality in 2009.	CEDE
Gini	Gini coefficient which measures the inequality of income. (2005)	CEDE
Harassment Actions	The log value of the total harassment actions	CEDE
Kidnapping Events	The log value of the total amount of kidnapping events	CEDE
Mines Victims	The log value of the total amount of mines victims. (Both injured and death.)	CEDE
NBI index	The log of the NBI index, which measures the incidence of people which lives with unsatisfied basic needs. (2005)	CEDE
Official sector alumni	The log of total amount of alumni in the official educational sector	CEDE
Poverty Index	Measures the incidence of municipal poverty. (2005)	CEDE
Rural Index	This index is the result of rural people/ all municipal population	CEDE

Notes: The variables which not present a specific year of measurement, were obtained by calculating the average of the pre-treatment period (2012-2016). This set of variables were chosen by a lasso-probit model which selects the more important variables of treatment assignment for the construction of the propensity score.

Table 4: Classes of Taxes (Full sample)

	(1)	(2)	(3)
	Property Tax	Sales Tax	Other Taxes
Treatment(PDET*POST)	0.363*** (0.138)	0.249** (0.104)	0.061 (0.059)
Observations	9,870	9,870	9,870
Municipalities	987	987	987
R-squared	0.771	0.822	0.807
Mean Dep. Var.	60,340	57,434	106,518
Sd Dep. Var.	86,421	153,963	119,759
Municipality FE	✓	✓	✓
Time - Dpto FE	✓	✓	✓
Controls	✓	✓	✓

Notes: This table present the specification 1 with different types of tax revenue as dependent variables. The dependent variables are the log of Property Tax (column 1), Sales Tax (column 2) and Other taxes (column 3). * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 5: Protests Modes (Full Sample)

	(1)	(2)	(3)
	Strikes	Mobilizations	Other mode
Treatment	0.009 (0.037)	0.080* (0.043)	0.074** (0.034)
Observations	7,896	7,896	7,896
Municipalities	987	987	987
R-squared	0.448	0.469	0.450
Mean Dep. Var	0.132	0.254	0.109
Sd Dep. Var	0.438	0.699	0.464
Municipality FE	✓	✓	✓
Time - Dpto FE	✓	✓	✓
Controls	✓	✓	✓

Notes: This table present the specification 1 with different types of protests modes as dependent variable. The dependent variables are the IHS transformation of Strikes (column 1), Mobilizations (column 2) and Other modes (column 3). * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 6: Protests Adversaries (Full Sample)

	(1)	(2)	(3)	(4)	(5)	(6)
	All government	Municipal	Department	National Gov.	Private	Other Adv.
Treatment	0.099** (0.048)	0.004 (0.030)	0.046* (0.027)	0.050 (0.039)	0.019 (0.002)	0.045 (0.039)
Observations	7,104	7,104	7,104	7,104	7,104	7,104
Municipalities	888	888	888	888	888	888
R-squared	0.505	0.394	0.317	0.472	0.356	0.410
Mean Dep. Var	0.293	0.064	0.038	0.171	0.072	0.083
Sd Dep. Var	0.773	0.358	0.189	0.416	0.283	0.297
Municipality FE	✓	✓	✓	✓	✓	✓
Time - Dpto FE	✓	✓	✓	✓	✓	✓
Controls	✓	✓	✓	✓	✓	✓

Notes: This table present the specification 1 with different types of protests adversaries as dependent variable. The dependent variables are the IHS transformation of protests against all levels of government (column 1), Municipal authorities (column 2), Department authorities (column 3) National government (column 4), Private actors (column 5) and Other adversaries (column 6). * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 7: Outcomes Propensity Score

	(1)	(2)	(3)	(4)
	Total Protest	Total Protests	Tax Revenue	Tax Revenue
Treatment(PDET*POST)	0.086 (0.056)	0.113* (0.068)	0.160*** (0.052)	0.143*** (0.051)
Observations	2,512	2,512	3,140	3,140
Municipalities	314	314	314	314
R-squared	0.588	0.607	0.846	0.873
Mean Dep. Var.	0.854	0.854	164,871	164,871
Sd Dep. Var.	1.753	1.753	238,939	238,939
Municipality FE	✓	✓	✓	✓
Time - Dpto FE	✓	✓	✓	✓
Controls	X	✓	X	✓

Notes: This table present the specification 1 with the main two outcomes (Protests and Tax Revenue). The dependent variables are the IHS transformation of all kind of protests (columns 1 and 2) and the log of Per Capita Tax Revenue (columns 3 and 4). * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 8: Classes of Taxes (Propensity Score)

	(1)	(2)	(3)
	Property Tax	Sales Tax	Other Taxes
Treatment(PDET*POST)	0.411** (0.174)	0.255** (0.123)	0.104 (0.068)
Observations	3,140	3,140	3,140
Municipalities	314	314	314
R-squared	0.715	0.815	0.788
Mean Dep. Var.	36,150	46,711	81,264
Sd Dep. Var.	50,394	153,639	82,398
Municipality FE	✓	✓	✓
Time - Dpto FE	✓	✓	✓
Controls	✓	✓	✓

Notes: This table present the specification 1 with different types of tax revenue as dependent variables. The dependent variables are the log of Property tax (column 1), Sales Tax (column 2) and other taxes (column 3). * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 9: Protests Modes (Propensity Score)

	(1)	(2)	(3)
	Strikes	Mobilizations	Other mode
Treatment	0.000 (0.044)	0.077 (0.049)	0.046 (0.044)
Observations	2,512	2,512	2,512
Municipalities	314	314	314
R-squared	0.486	0.548	0.486
Mean Dep. Var	0.208	0.419	0.226
Sd Dep. Var	0.554	0.974	0.733
Municipality FE	✓	✓	✓
Time - Dpto FE	✓	✓	✓
Controls	✓	✓	✓

Notes: This table present the specification 1 with different types of protests modes as dependent variable. The dependent variables are the IHS transformation of all protests (column 1), Strikes (column 2), Mobilizations (column 3) and Other modes (column 4). * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 10: Protests Adversaries (Propensity Score)

	(1)	(2)	(3)	(4)	(5)	(6)
	All government	Municipal	Department	National Gov.	Private	Other Adv.
Treatment	0.067 (0.061)	-0.008 (0.034)	0.054 (0.033)	0.016 (0.046)	0.006 (0.032)	0.048 (0.039)
Observations	2,424	2,424	2,424	2,424	2,424	2,424
Municipalities	303	303	303	303	303	303
R-squared	0.544	0.454	0.326	0.534	0.454	0.464
Mean Dep. Var	0.472	0.124	0.066	0.306	0.170	0.210
SD Dep. Var	1.061	0.525	0.300	0.731	0.601	0.653
Municipality FE	✓	✓	✓	✓	✓	✓
Time - Dpto FE	✓	✓	✓	✓	✓	✓
Controls	✓	✓	✓	✓	✓	✓

Notes: This table present the specification 1 with different types of protests adversaries as dependent variable. The dependent variables are the IHS transformation of protests against all levels of government (column 1), Municipal authorities (column 2), Department authorities (column 3) National government (column 4), Private actors (column 5) and Other adversaries (column 6). * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 11: Potential Mechanisms (Transparency Index)

	(1)	(2)
	Property Tax	Sales Tax
Panel: Full sample		
(Post*Pdet*Transp)	-0.389* (0.199)	-0.003 (0.143)
(Post*Pdet)	0.517*** (0.198)	0.250* (0.139)
Observations	9,870	9,870
Municipalities	987	987
R-squared	0.771	0.822
Mean Dep. Var.	60,340	57,434
Sd Dep. Var.	86,421	153,963
Panel: Propensity sample		
(Post*Pdet*Transp)	-0.377 (0.234)	-0.136 (0.191)
(Post*Pdet)	0.556** (0.239)	0.306* (0.167)
Observations	3,140	3,140
Municipalities	314	314
R-squared	0.716	0.816
Mean Dep. Var.	36,150	46,711
Sd Dep. Var.	50,394	153,639

Notes: This table present the specification 3 with the interaction of Transparency Index dummy. The dependent variables are the log of Per capita Property tax revenue (column 1) and the Per capita Sales Tax (column 2). * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 12: Mean of Transparency Index

Full sample	Pdet = 0	Pdet = 1	Total
Post = 0 (2016)	72.00	68.04	-3.96
Post = 1 (2021)	80.07	76.55	-3.52
Total	8.07	8.51	0.44
Propensity sample	Pdet = 0	Pdet = 1	Total
Post = 0 (2016)	69.02	67.81	-1.21
Post = 1 (2021)	72.77	75.98	3.21
Total	3.75	8.17	4.42

Notes: This table present the mean of the transparency index by interaction between treatment assignment and time stage.

Table 13: Potential Mechanisms (Sanctions)

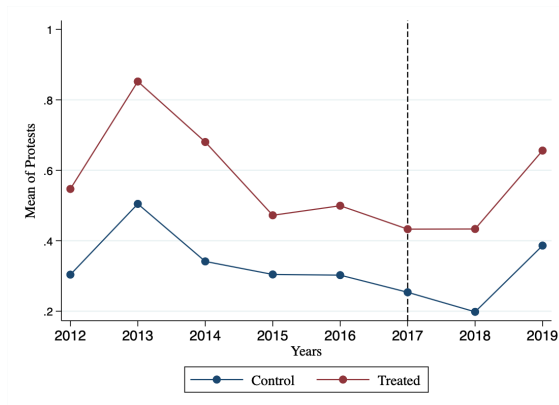
	(1)
Panel: Full sample	
(Post*Pdet*Sanct)	0.080 (0.077)
(Post*Pdet)	0.089 (0.069)
Observations	7,896
Municipalities	987
R-squared	0.562
Mean Dep. Var.	0.854
Sd Dep. Var.	1.753
Panel: Propensity sample	
(Post*Pdet*Sanct)	0.085 (0.110)
(Post*Pdet)	0.061 (0.092)
Observations	2,512
Municipalities	314
R-squared	0.607
Mean Dep. Var.	0.495
Sd Dep. Var.	1.190

Notes: This table present the possible mechanisms on Protests by the 3 model on the full and propensity. The dependent variable is the IHS transformation of total protests, where present the triple interaction with a Sanctions indicator.

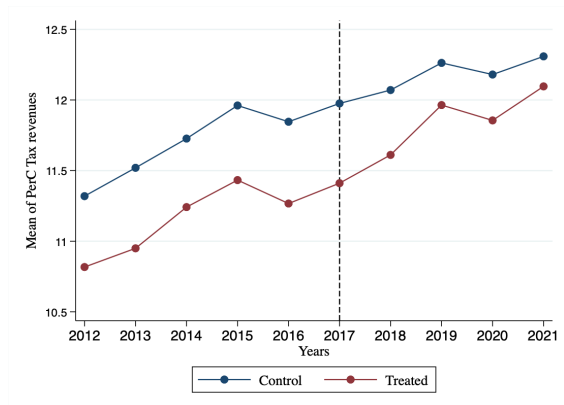
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Figures

Figure 2: Raw Data for the Full sample.



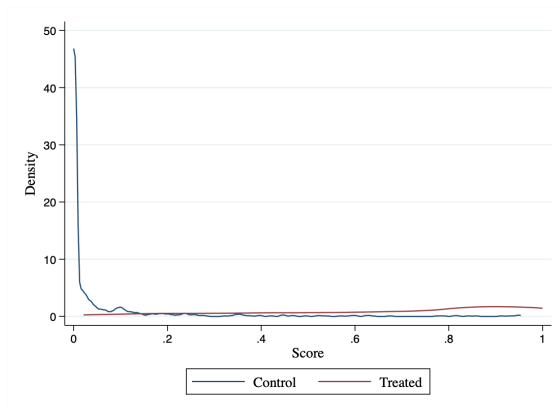
(a) All kind of protests



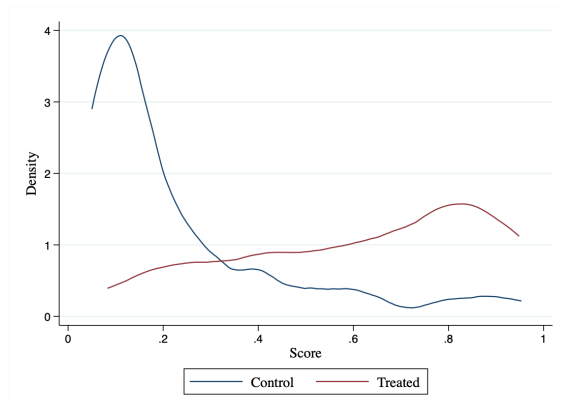
(b) Per Capita Tax revenue

Notes: This figure shows the time series mean of Protests and log of Per capita Tax revenue data by treatment assignment.

Figure 3: Densities of Full and Propensity sample.



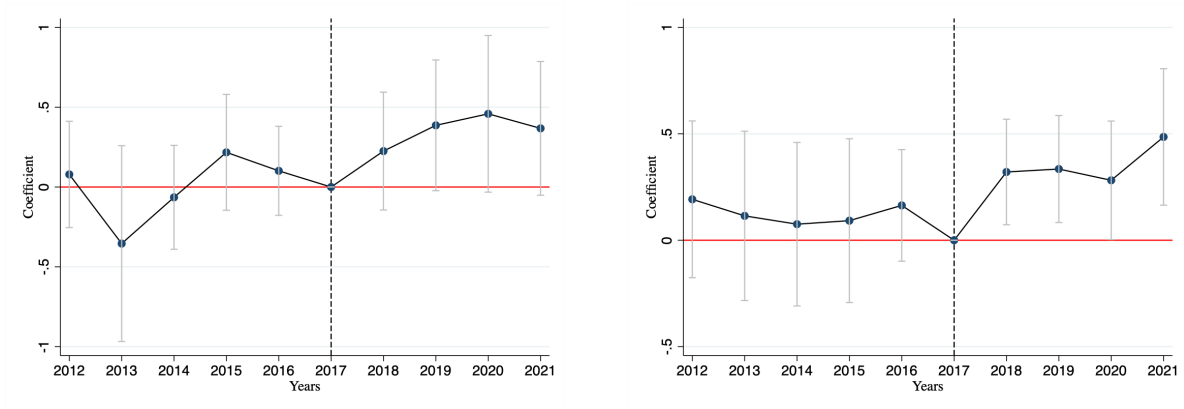
(a) Full sample



(b) Propensity sample

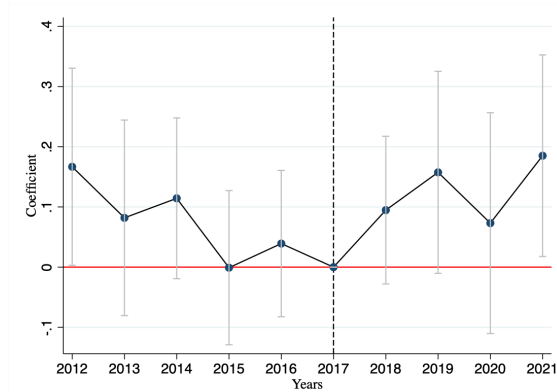
Notes: This figures shows the densities distributions of the estimated propensity score by the Full sample and the Propensity sample. On propensity sample we restrict the data to score between 0.05 and 0.8.

Figure 4: Dynamic difference in differences by Taxes type. (Full Sample)



(a) Property tax

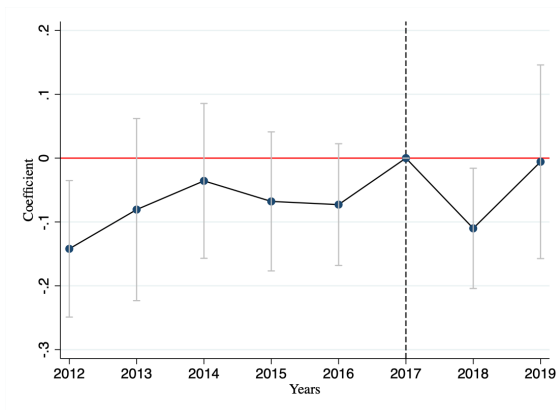
(b) Sales tax



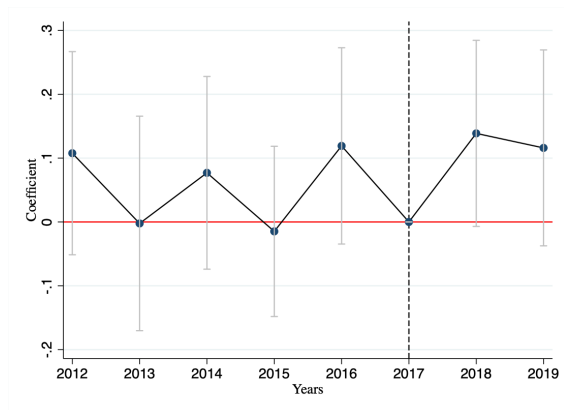
(c) Other taxes

Notes: This figure presents the coefficients and the confidence intervals at 95% from the dynamic specification (2) on the Full sample. Figure (a) present the coefficients for Property tax outcome, figure (b) presents for Industry tax outcome and figure (c) for Other taxes outcome.

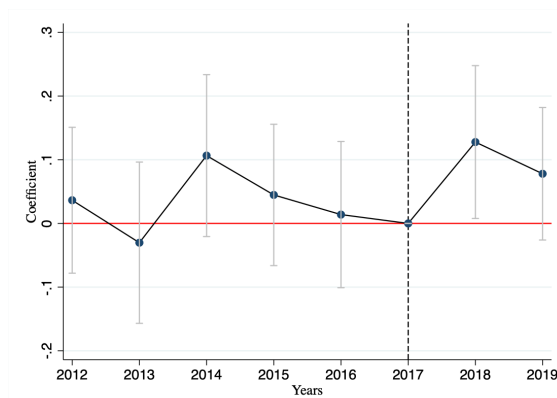
Figure 5: Dynamic difference in differences by Protests mode. (Full Sample)



(a) Strikes



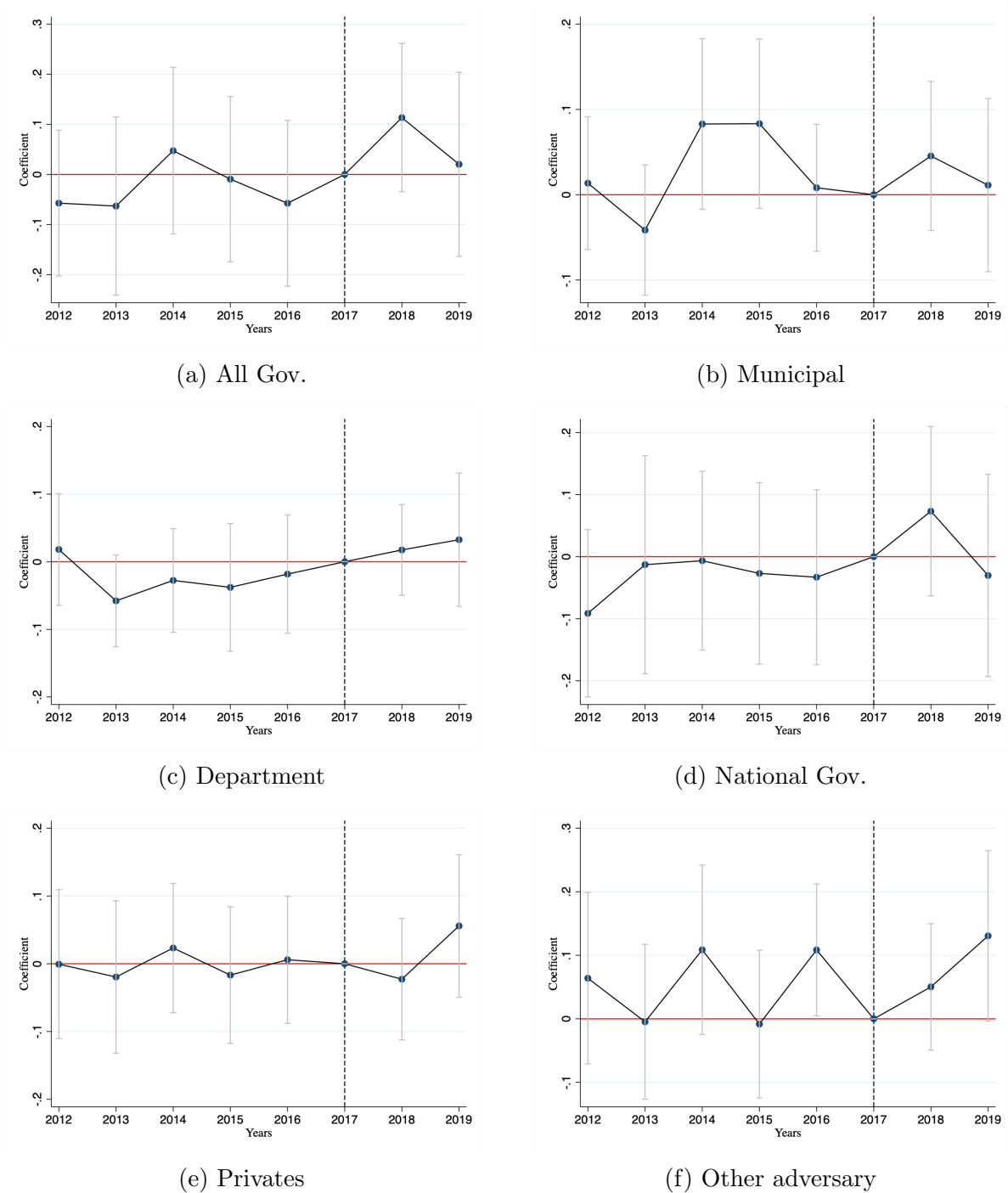
(b) Mobilizations



(c) Other modes

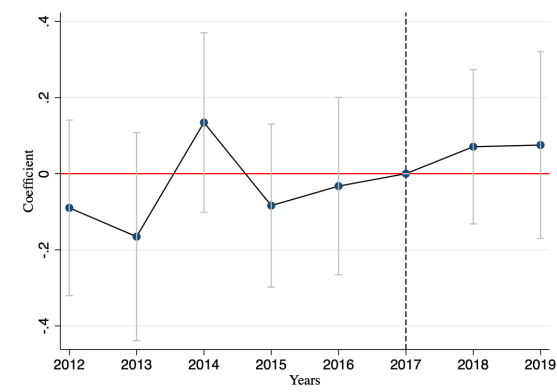
Notes: This figure presents the coefficients and the confidence intervals at 95% from the dynamic specification (2) on the Full sample. Figure (a) present the coefficients for Strikes protests, figure (b) presents for Mobilizations and figure (c) for Other modes.

Figure 6: Dynamic difference in differences by Protests adversary. (Full Sample)

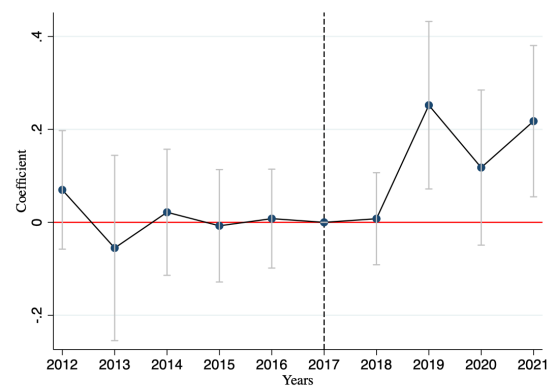


Notes: This figure presents the coefficients and the confidence intervals at 95% from the dynamic specification (2) on the Full sample. Figure (a) present the coefficients for All government, figure (b) presents for Municipal government, figure (c) for Department government, figure (d) for National government, figure (e) Privates adversaries and figure (f) others adversaries.

Figure 7: Dynamic difference in differences on the Propensity sample



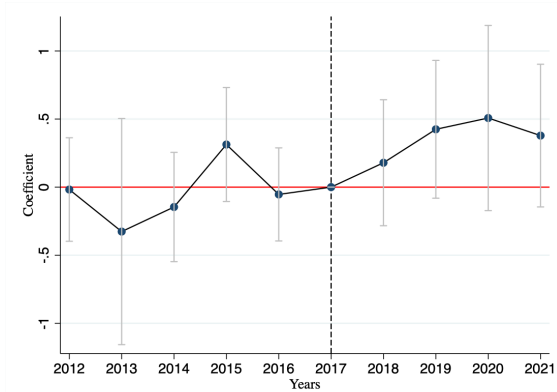
(a) All kind of protests



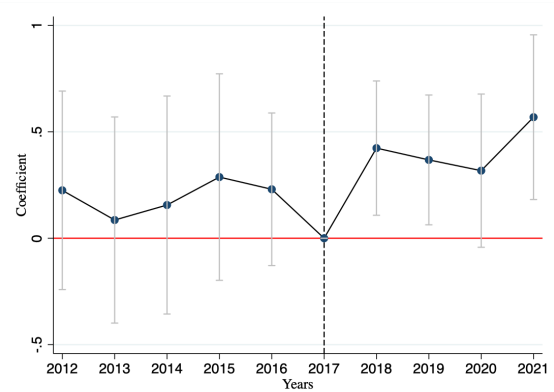
(b) Per Capita Tax revenue

Notes: This figure presents the coefficients and the confidence interval at 95% from the dynamic specification (2) on the propensity score sample. Figure (a) present the coefficients for protests outcome and figure (b) for the Per capita tax revenue outcome.

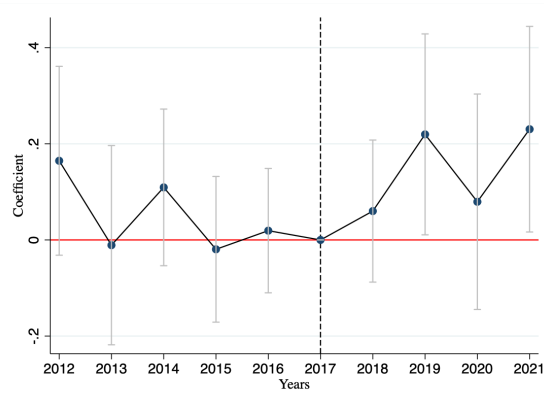
Figure 8: Dynamic difference in differences by Taxes type. (Propensity Sample)



(a) Property Tax



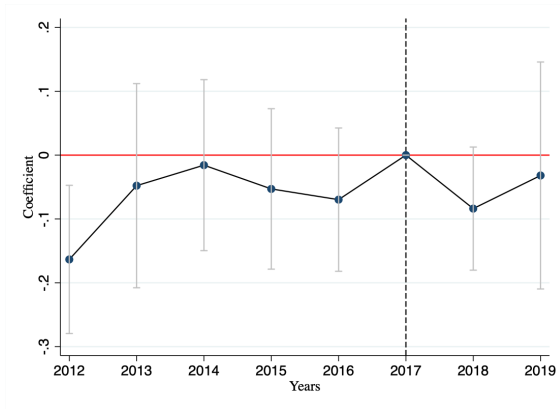
(b) Sales Tax



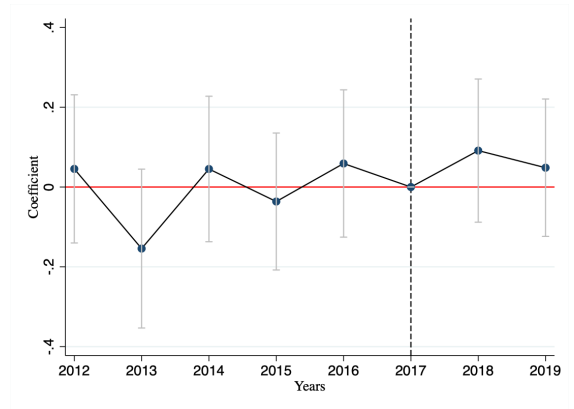
(c) Others Taxes

Notes: This figure presents the coefficients and the confidence intervals at 95% from the dynamic specification (2) on the propensity score sample. Figure (a) present the coefficients for Property tax outcome, figure (b) presents for Industry tax outcome and figure (c) for Other taxes outcome.

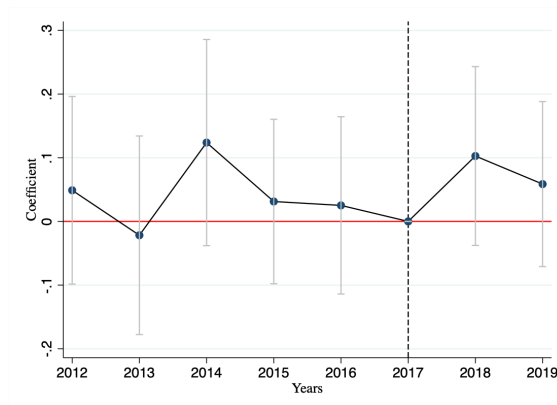
Figure 9: Dynamic difference in differences by Protests mode. (Propensity Score)



(a) Strikes



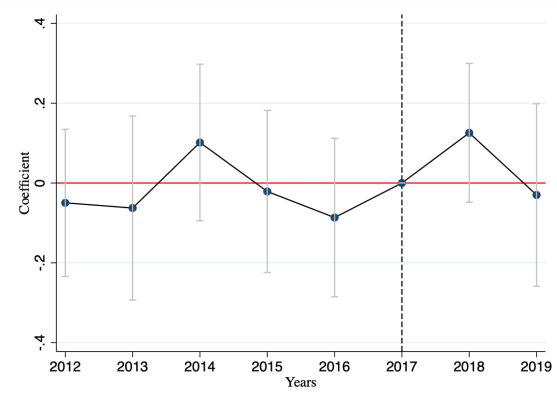
(b) Mobilizations



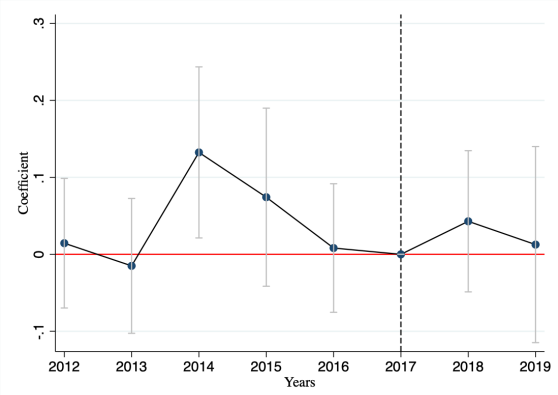
(c) Other modes

Notes: This figure presents the coefficients and the confidence intervals at 95% from the dynamic specification (2) on the propensity score sample. Figure (a) present the coefficients for Strikes protests, figure (b) presents for Mobilizations and figure (c) for Other modes.

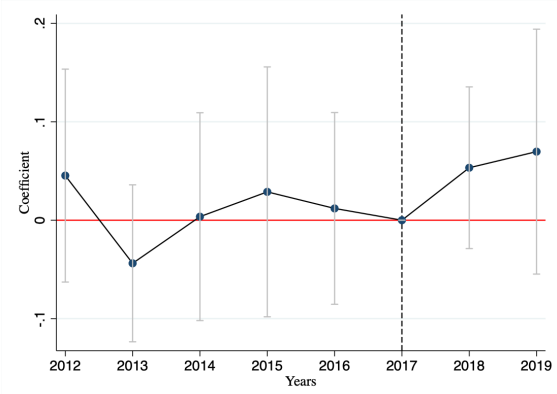
Figure 10: Dynamic difference in differences by Protests adversary. (Propensity Sample)



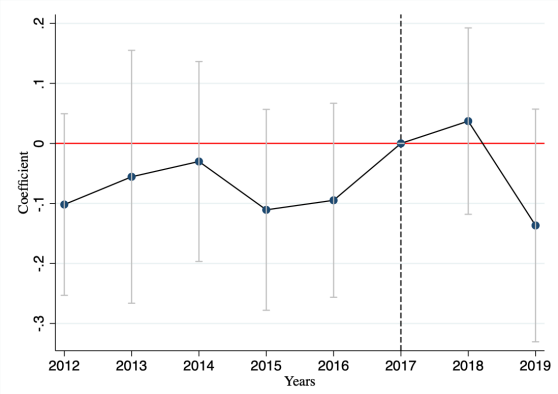
(a) All Gov.



(b) Municipal



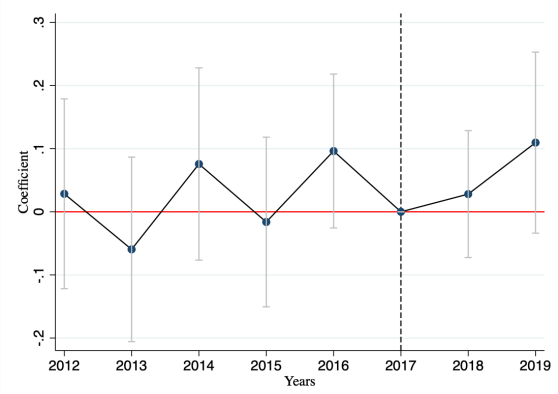
(c) Department



(d) National Gov.



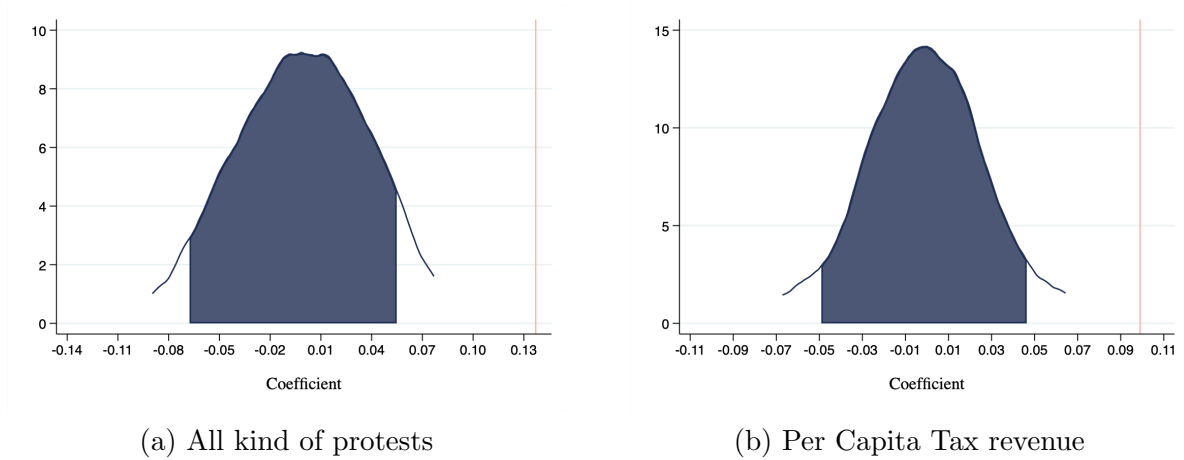
(e) Privates



(f) Other adversary

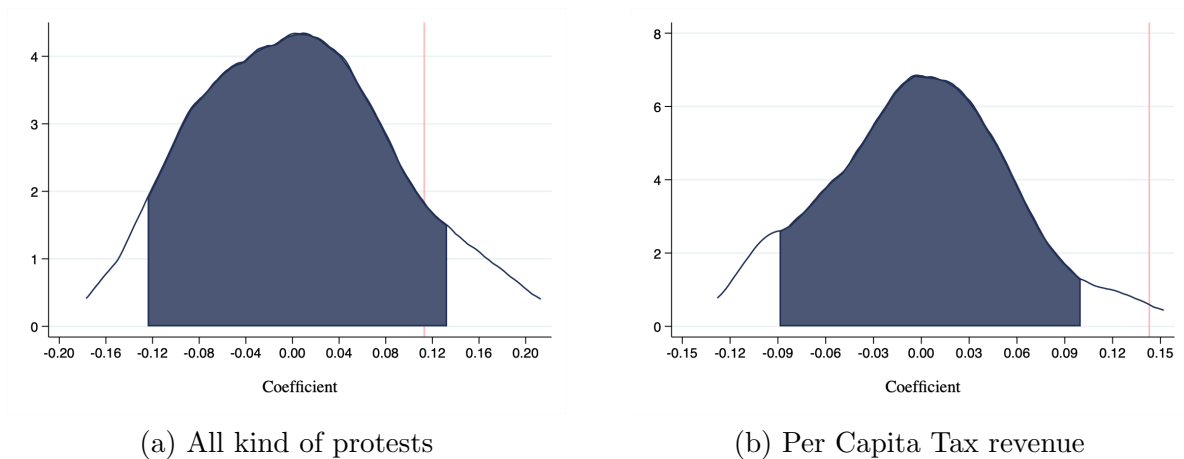
Notes: This figure presents the coefficients and the confidence intervals at 95% from the dynamic specification (2) on the Full sample. Figure (a) present the coefficients for All government, figure (b) presents for Municipal government, figure (c) for Department government, figure (d) for National government, figure (e) Privates adversaries and figure (f) others adversaries.

Figure 11: Randomization inference test (Full sample)



Notes: This figure presents the distribution of placebo treatments. We randomized the assignments of the PDET based on the number of treated municipalities (140). We run 100 times the specification 1. The figure (a) presents the distribution on protests outcome and figure (b) presents the distribution on Per capita Tax revenue. The red line present the estimated coefficients and the dark zone the 95% of the distribution.

Figure 12: Randomization inference test (Propensity Score)

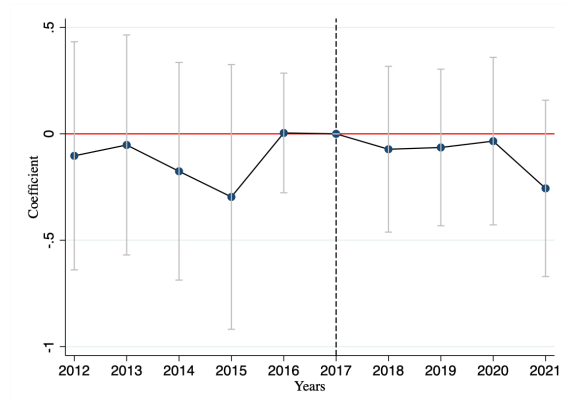


Notes: This figure presents the distribution of placebo treatments. We randomized the assignments of the PDET based on the number of treated municipalities (103). We run 100 times the specification 1. The figure (a) presents the distribution on protests outcome and figure (b) presents the distribution on Per capita Tax revenue. The red line present the estimated coefficients and the dark zone the 95% of the distribution.

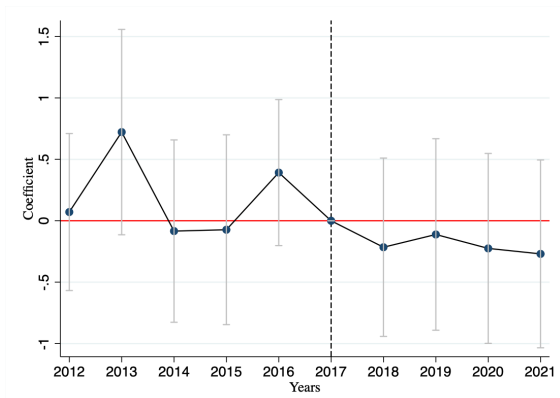
Figure 13: Dynamic difference in differences heterogeneous effects (Transparency).



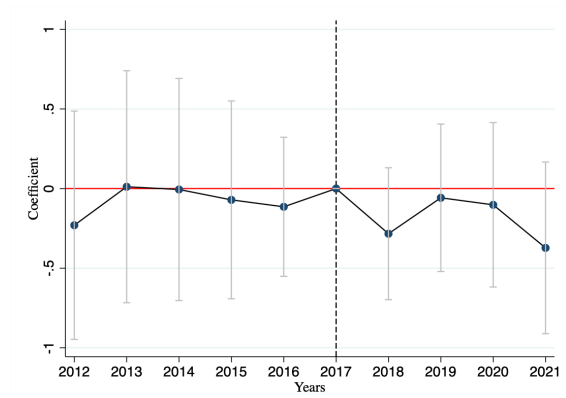
(a) Property Tax



(b) Sales Tax



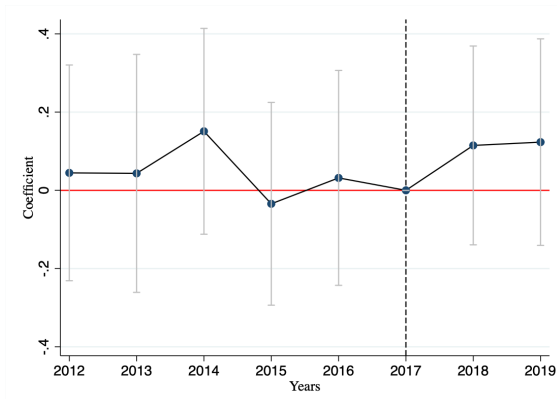
(c) Property Tax



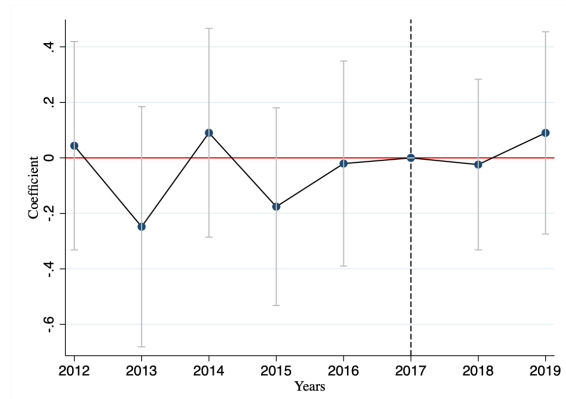
(d) Sales Tax

Notes: This figure presents the coefficients and the confidence intervals at 95% from the dynamic specification (2). The figures (a) and (b) represents the coefficients from the heterogeneous effects of Transparency indicator on the full sample and the figures (c) and (d) on the propensity score sample.

Figure 14: Dynamic difference in differences heterogeneous effects (Sanctions).



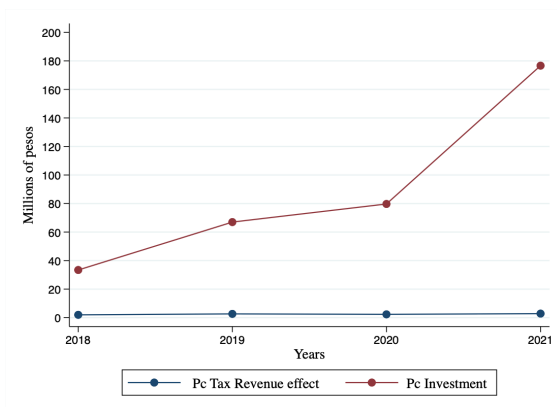
(a) Full Sample



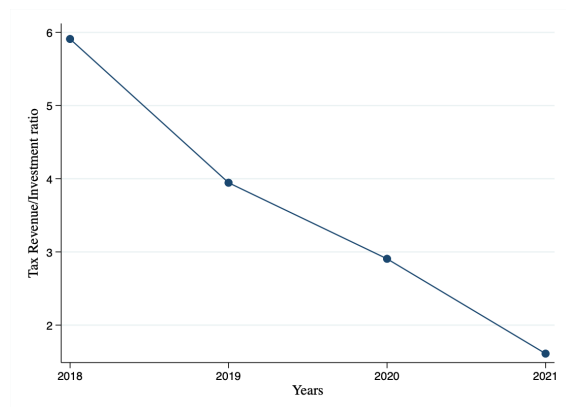
(b) Propensity Score

Notes: This figure presents the coefficients and the confidence intervals at 95% from the dynamic specification (2). The figures (a) and (b) represents the coefficients from the heterogeneous effects of Sanctions indicator by sample.

Figure 15: Investment effect analysis.



(a) Per capita



(b) Ratio

Notes: This figure presents the estimated increase on Per capita tax revenue and the amount of Per capita investment. The figure (a) present the two series time on the post-treatment period and figure (b) presents the ratio between them.