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Lucas Afflalo Brandão da Cunha e Menezes

CAN POLITICIANS MAKE CHANGES OF CASH TRANSFER POLICIES AND LOSE
VOTES BECAUSE OF IT? EVIDENCE FROM BRAZIL'S 2022 PRESIDENTIAL
ELECTIONS

Rio de Janeiro, RJ

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Dissertação apresentada ao Programa de Pós-Graduação em Economia da Universidade Federal do Rio de Janeiro, como requisito para a obtenção do título de Mestre em Economia.

Orientador: Prof. Dr. Romero Cavalcanti Barreto da Rocha

Coorientador: Prof. Dr. Vitor Azevedo Pereira Pontual

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Rio de Janeiro, 26 de Fevereiro de 2025.

Dr. Prof. Romero Cavalcanti Barreto da Rocha – Membro Interno Universidade Federal do
Rio de Janeiro (UFRJ)

Dr. Prof. Vitor Azevedo Pereira Pontual - Membro Externo Escola Nacional de Administração
Pública (ENAP)

Dr. Prof. Pedro James Frias Hemsley - Membro Interno Universidade Federal do Rio de
Janeiro (UFRJ)

Dr. Prof. Valdemar Rodrigues de Pinho Neto - Membro Externo Fundação Getúlio Vargas
(FGV)

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RESUMO

Este trabalho tem como objetivo avaliar as tendências de como as implementações e alterações no programa de transferência de renda do Bolsa Família, que também é conhecido como Auxílio Brasil, se relacionaram com resultados eleitorais. Utilizando uma combinação das bases de dados dos órgãos do governo brasileiro do Cadastro Único, Portal da Transparência e Tribunal Superior Eleitoral (TSE) e modelos de diferenças em diferenças eu encontro resultados que indicam que tais implementações se relacionam negativamente com o desempenho eleitoral de Jair Bolsonaro nas eleições presidenciais de 2022 se comparadas com 2018. Em busca de validar esses resultados, alguns modelos incluíram dados de outros fatores que podem ter influenciado na decisão eleitoral, como crédito e intervenção da polícia rodoviária federal (prf). Mesmo os incluído, os resultados se mantiveram negativos e com dimensões semelhantes aos modelos que não os incluíram. Esses resultados são inéditos em um contexto de análise de programas de transferência de renda e voto no Brasil, podendo gerar discussões teóricas de como tais programas podem afetar o voto.

Palavras-chave: Bolsa Família, Auxílio Brasil, Comportamento de Voto, Programa de Transferência de Renda, Consignado, Polícia Rodoviária Federal, PRF.

ABSTRACT

This work has the objective to evaluate how the implementations and changes in the Conditioned Cash Transfer programs of *Bolsa Família*, that is also known as *Auxílio Brasil*, had a trend on electoral outcomes. Using a combination of databases from the Brazilian government agencies of *Cadastro Único*, *Portal da Transparência* and *Tribunal Superior Eleitoral* (TSE), and dif-in-dif models, I find results that show that these implementations had a negative trend on Jair Bolsonaro's electoral outcomes in the 2022 presidential elections compared to 2018. In order to better validate these results, some models included data on other factors that may have influenced decision on voting, such as credit and intervention from the federal highway police (prf). Even with such, the results stayed negative and with similar dimensions as the ones without them. These results are unprecedented in the context of Brazilian cash transfer programs and voting, which could generate new discussions regarding on how such programs could affect voting.

Keywords: *Bolsa Família*, *Auxílio Brasil*, Voting Behaviour, Conditioned Cash Transfer, Payroll linked loan, Highway Federal Police, prf.

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ABBREVIATIONS LIST

BC - *Benefício Complementar* - A complementary benefit offering R\$200.00 to every beneficiary from the *Auxílio Brasil* program

BEXT - *Benefício Extraordinário* - Extraordinary Benefit. An extra payment of the *Auxílio Brasil* program that completes the payment of the program to guarantee that every family receives at least R\$400.00

CadÚnico - *Cadastro Único* - Unique Register. A platform with information regarding CCTs beneficiaries in Brazil

CCT - Conditioned Cash Transfer

IGM-M - *Índice Geral de Preços - Mercado* - General Price Index - Market

NIS - *Número de Identificação Social* - Social Identification Number

PBF - *Programa Bolsa Família* - *Bolsa Família* Program

PF - *Polícia Federal* - Federal Police

PMDB - *Partido do Movimento Democrático Brasileiro* - Party of the Brazilian Democratic Movement

PRF - *Polícia Rodoviária Federal* - Highway Federal Police

PSL - *Partido Social Liberal* - Social Liberal Party

PT - *Partido dos Trabalhadores* - Workers Party

TSE - *Tribunal Superior Eleitoral* - Superior Electoral Court

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1 INTRODUCTION

Conditional Cash Transfers (CCTs) have become one of the main public policies promoted by federal governments to eradicate poverty. The design of CCT programs vary across countries. Usually, they have a dual objective: to reduce instant poverty by providing immediate cash transfers to families in need, and to promote long-term development by establishing conditions for those families to remain in the program. Although some programs have conditions such as frequent vaccinations and proof of school attendance, CCT programs are not conditioned on political support, allowing cash recipients to maintain their regular voting rights. On the other hand, because these policies help a considerable number of families, they might change beneficiaries' perception of the president's administration that implemented them. This seems to be true, as several papers, such as PINHO NETO (2018), show that the implementation and improvement of such public policies result in more votes for the incumbent party and president.

While most research shows positive results, this is not always the case. Some papers have estimated either slightly negative or no effect of implementing CCTs on votes (see BLATTMAN u. a. (2018)). If programs are well-targeted, they provide extra cash for families, which should improve their well-being. Consequently, beneficiaries would reward the politician by voting for him. However, this decision might not be so simple and could depend on the program's design and specific political context. The literature has not focused on understanding why incumbent politicians do not always benefit from implementing CCT programs.

This paper estimates trends of a sequence of implementations, expansions, and benefit value increases from the *Bolsa Família* program in Brazil from 2019-2022 on the vote share of the 2022 presidential elections for the re-election of former president Jair Bolsonaro. Baseline results show negative coefficients. I discuss possible mechanisms and whether they were due to policy implementations or other phenomena. The study analyzes CCT changes from right before the 2018 presidential elections, in which Brazilians could receive the base value of R\$89.00, to the presidential elections of 2022, in which they received the base value of R\$600.00.

To estimate this, I use municipal-level data from the Brazilian electoral court (*Tribunal Superior Eleitoral* - TSE), which oversees the Brazilian elections. I also use data with information from *Cadastro Único* to calculate the number of beneficiaries per municipality and *Portal da Transparência* data to calculate the average amount received by each household. Adopting a two-way fixed-effect difference-in-differences, I estimate trends of both the proportion of beneficiaries and the total amount received per capita on vote share for the incumbent president, Jair Bolsonaro.

To ensure the results are consistent, I estimate multiple econometric models. I find that most results show negative coefficients for a 5% p-value or even for a 1% p-value in some cases. These corroborate the idea that some modifications in CCT programs might not produce positive coefficients on votes. Later on, I explore different events that may have interfered with the results using another set of econometric models. Due to endogeneity issues, the effect of

the program cannot be estimated, therefore the coefficients of the models reflect the trend of the expansion of the program to electoral outcomes.

The results indicate that the incumbent Bolsonaro might have directed the program's expansion to municipalities where he had a high proportion of votes in 2018, but still got fewer votes in 2022. I also discuss a few possibilities for these negative results based on the political context of the period, with the possibility that moral, sanitary, and economic conditions might have been important factors. I also hypothesize that part of the negative trend could be that, even though the modifications in the CCT were done by Bolsonaro's administration, part of the credit could be associated with the opposition party that created the program.

The empirical literature from political economy analyzing CCT programs has found mixed effects for the incumbent party. Studies in Colombia, Honduras, Mexico, Romania, and Uruguay (CONOVER u. a., 2020; GALIANI u. a., 2019; DE LA O, 2013; POP-ELECHES u. a., 2012; MANACORDA u. a., 2011) measured the effects of their programs in the respective presidential elections. They all conclude that the program positively affected the incumbent and his party candidates. On the other hand, a Ugandan experiment found negative effects. It means that there was a slightly higher chance program beneficiaries would vote for the opposition (BLATTMAN u. a., 2018). Another study to note is in Mexico, where even though DE LA O (2013) finds a positive coefficient estimate on voting for the incumbent party's presidential candidate, after correcting mismatches, IMAI u. a. (2020) finds no effects for the program.

For the Brazilian case, two papers are worth mentioning. ZUCCO JR (2013) uses municipality data and concludes that the implementation of the *Bolsa Família* program generated positive electoral outcomes. PINHO NETO (2018) matches polling level data with *Cadastro Único* (Containing the characteristics of PBF applicants)¹. The paper found that *Bolsa Família* increased voter turnout and vote share for the incumbent party in both rounds of Brazilian presidential elections in 2014 relative to 2010. It also concluded that late entrants to *Bolsa Família* contributed most to the effect.

This paper makes two main contributions. First, out of the literature on CCTs and voting outcomes, most studies were related to either the implementation of a new program or the expansion of an old one by the same party of the incumbent that implemented the CCT. Even in cases where a new program was implemented by a new party when there was already an old one, the program had multiple changes that greatly increased the program's overall efficiency.² The only exception is *Familias en Accion* in Colombia (CONOVER u. a. (2020)), where the incumbent's party that the effect was estimated was not the party that implemented the program. In the case of *Auxílio Brasil*, the program did not change much of the criteria of *Bolsa Família* for receiving the program, including inheriting the same registry of the program. This lack of significant changes in the program makes evaluating the voting outcomes associated with it a

¹ Such as name, date of birth, and name of the mother of the beneficiaries of the program

² The CCTs in Honduras, Mexico Romania, Uganda and Uruguay were new and implemented by the incumbent party. For the Brazilian case, *Bolsa Família* combined a set of other programs but the design increased considerably the efficiency in alleviating poverty.

contribution to the literature, since only one other paper found evaluated these outcomes on a party that was opposition to the one that implemented the program.

Secondly, this paper contributes to the rising literature on political polarization. As more evidence and theoretical frameworks suggest a rise in political polarization making voters' opinions more based on moral values ((ENKE, 2020);(BONOMI u. a., 2021)), the voting share on CCTs could also be becoming less relevant, meaning that the implementation, raise, and extension of beneficiaries of CCT programs could have different results. The coefficients estimated on this paper corroborate this hypothesis and could contribute to understanding how voters' opinions differ regarding economic policies already implemented by the opposition party. Since most other studies have results regarding programs that were implemented before this rise, this paper contributes to the literature by being the only that we could find examining a CCT implementation and expansion in a context where opinions based on moral values are more polarized.

The rest of this paper proceeds as follows. In Section 2, I discuss the institutional background of CCT transfers in Brazil. Section 3 presents the data and the descriptive statistics. In Section 4, I detail the empirical strategy. Section 5 presents the results. Section 6 provides the results for alternative strategies. Section 7 discusses the results. Section 8 concludes and proposes future research.

2 INSTITUTIONAL BACKGROUND

On January 9th, 2004, *Bolsa Família* (PBF) was consolidated by law 10,836 and progressively unified all existing CCTs in Brazil to improve the efficiency of eradicating poverty by concentrating all cash transfers and conditions of other programs into one. As the program was implemented and improved, other CCTs were slowly phased out. PBF aims to eradicate poverty while stimulating development in education and healthcare for poor families. To receive the program, families must be vaccinated according to the national vaccination calendar, children and teenagers must attend school with minimum attendance, children up to 7 years old must regularly attend nutritional follow-ups, and lactating women must regularly attend prenatal care.

PBF started with cash transfers for two classifications of families: poor and extremely poor. Poor families were eligible to receive the program if they had a monthly income per capita of R\$100.00 or less, while extremely poor families were eligible if they received less than R\$50.00. The program consisted of two types of payments: the basic payment and the variable payment. The first one was a fixed cash transfer eligible only for families in extreme poverty, while the second was an extra cash transfer, eligible for both categories, for each additional child of the family. The program initially provided a monthly basic payment of R\$50.00 and a variable payment of R\$15.00.

By the end of Lula's second administration in 2010, *Bolsa Família* was already widely accepted by the population and media as the main successful public policy helping to eradicate

poverty in Brazil. A poll conducted showed that 86% of respondents approved of the program (AMES u. a., 2013). As the years went by, since the program was so successful and widely accepted, *Bolsa Família* continued to be implemented during Dilma Rousseff's administration (2011-2016) and Michel Temer's administration (2016-2018). In the 2018 presidential elections, Jair Bolsonaro, a candidate from the former *Partido Social Liberal* (PSL), won. This was the first time since Lula's first electoral victory in 2002 that a member from an opposition party won the elections.³

During Jair Bolsonaro's administration from 2019-2022, changes were promoted on CCTs in Brazil. As the COVID-19 pandemic started, Bolsonaro's administration implemented several measures⁴ to mitigate the externalities generated by the health recommendations to stay home.⁵ One such implementation was the *Auxílio Emergencial*, a program conditioned on income and employment status that provided cash to help beneficiaries survive during the pandemic.

The *Auxílio Emergencial* started being distributed in April 2020 and gave a R\$600.00 benefit. The program was distributed among *Bolsa Família* beneficiaries⁶ and all adult citizens without a formal job either with an individual income of less than R\$1050.00⁷ or a family income of R\$3,150.00.⁸ This expanded the number of people receiving CCTs in Brazil, since not only the individuals eligible for *Bolsa Família*, but also many informal workers became eligible. The program also expanded the possibility of two household members receiving the benefit, as well as single mothers, which allowed a household to receive a base payment of around R\$1200.00.

The *Auxílio Emergencial* program, which started as a 3-month period program in April, was extended until the end of 2020 due to COVID-19, and later on, in 2021, the program's duration was extended again. Every extension came with a reduction of the benefit. By the last extension, the transfer that started of R\$600.00 was reduced to R\$250.00 for households with two or more adult members, to R\$375.00 for households with a single mother, and to R\$150.00 for households with one individual. The program also limited the benefit to 1 member of the family. By October 2021, the program received its last installment, when beneficiaries that were receiving the program transitioned back to receiving *Bolsa Família*.

While the pandemic generated an increase in government expenditure on other CCT programs, *Bolsa Família* remained a public policy aimed at eradicating poverty in the long run. The program only changed its status by the end of 2021. With only minor changes, such as including

³Michel Temer was elected vice president of Dilma Rousseff. He was affiliated with *Partido do Movimento Democrático Brasileiro* (PMDB), not with PT, Lula and Dilma's party. Temer became president after Dilma's impeachment. During his government, PT went to the opposition.

⁴Some measures were implemented due to parliament while others were implemented by the administration itself.

⁵Although the government itself did not promote many recommendations to stay home, a significant part of demand was affected due to the Brazilian population staying home as other institutions such as health organizations, some federations and municipal governments, as well as independent doctors and health experts, advised the population in doing so.

⁶Beneficiaries of the program received either *Bolsa Família* or *Auxílio Emergencial*, whichever program provided more cash.

⁷The value of a minimum wage at the time.

⁸The value of 3 minimum wages at the time.

pregnant women and nursing mothers in the variable payment, separating 16 and 17-year-olds⁹ from children with a different cash transfer value, and limiting the variable payment to 5 individuals, the program remained mostly the same.¹⁰

Main changes in *Bolsa Família* occurred from November 2021 onward, when the Brazilian congress approved the program's name change to *Auxílio Brasil*. The program did not change much of the criteria for receiving *Bolsa Família*, but it had major changes to expand the number of beneficiaries and the value of the benefit received per family. It was raised the criteria for extreme poverty to R\$105.00, the criteria for poverty to R\$210.00, and included family members from 18 to 21 years old as eligible for receiving the variable payment. The value of the variable payment was raised to R\$65.00 for all family members previously eligible for this transfer, except children up to 36 months old, for whom the value was raised to R\$130.00. In December 2021, the program created the extraordinary benefit (BEXT), where all payments were complemented to ensure all families received a minimum benefit of R\$400.00.

On July 13th, 2022, the Brazilian congress approved a constitutional amendment that created a new benefit for the *Auxílio Brasil* program called the Complementary Benefit (BC), which offered a fixed value of R\$200.00 to every beneficiary of the program. This raised the baseline value of the cash transfer from R\$400.00 to R\$600.00. With this last raise, a family without children or pregnant women in extreme poverty had their benefit raised from R\$138.33 before *Auxílio Emergencial*, with inflation adjustments¹¹ to R\$600.00 in 2 years and 3 months, representing a real raise of about 433%. Aside from these changes, *Auxílio Brasil* remained mostly the same program as *Bolsa Família*: a conditional cash transfer (CCT) that covered low-income citizens across the entire territory and aimed to eradicate poverty.

With the fact that these changes happened less than 4 months before the 2022 presidential elections, and as some interpreted them as a violation of electoral legislation, there were raising concerns from the media and a considerable part of society on whether this raise could affect the election results (BBC NEWS BRASIL, 2022). This was either because the new name could be associated with the incumbent president, because of a significant raise in the value of the benefit, a raise right before the elections, or a combination of these factors.

3 DATA

3.1 DATA

In this paper, I built a data panel using sources from three different datasets. I use *Portal da Transparência* for each monthly payroll report of both *Bolsa Família* and *Auxílio Brasil*.

⁹Classified as youth.

¹⁰By that period, the criteria for extreme poverty was having a monthly family income lower than R\$100.00, while for poverty the value was R\$200.00. The basic payment was R\$100.00, while the variable payment was R\$49.00 for children, pregnant women, and nursing mothers, and R\$57.00 for youth.

¹¹Price adjusted to August 2022 using the *Índice Geral de Preços (IGP-M)*, an index, using the calculator from BRAZIL CENTRAL BANK (2025)

Electoral outcomes and voter characteristics are obtained from the Brazilian Superior Electoral Court (*Tribunal Superior Eleitoral*) (TSE). On information from the *Cadastro Único* (CadÚnico) I determine how many voters received the program in each municipality.

Data from *Portal da Transparência* consists of monthly panel information on families that received the program payments. Each family has one member, who is usually, with very few exceptions, a woman over 16 years old designated to receive the payment. The dataset contains all the benefits paid to the program for each family, the Social Identification Number (*Número de Identificação Social*) of the receiver, and the municipality where this member receives the payment of the program.¹² The data consists of this information from all months ranging from 2015 to 2021 beneficiaries of *Bolsa Família* and 2021 to 2022 beneficiaries of *Auxílio Brasil*. If an individual received a transfer from the program at least once during that period, this individual is included in the final database. To conduct an event study and a pre-trend regression analysis, I also obtained data from all months in 2014. All this data was then aggregated by periods with the information on total benefit and benefit per capita in each municipality during that period.

Data from TSE consists of information on electoral results per candidate, the number of registered voters, attendance on election day, and voter characteristics in each municipality. Voter characteristics include gender, education, marital status, number of disabled voters, and age groups. The data used for this paper consists of data from the 2018 and 2022 presidential elections for the main model, and 2014 for some of the other models.

Since the population impacted by the *Bolsa Família* program includes all family members and not only those who receive the transfer, I also obtained data from the *Cadastro Único* database. This database consists of yearly data with multiple information on all beneficiaries from various cash transfer programs. Regarding the *Bolsa Família* program, it contains information on both the beneficiaries who directly receive the payment and all their family members living in the same household. I requested data from 2014 to 2022 of all beneficiaries' social identification, birth date, and municipality. The data was then filtered to include only beneficiaries who were or would become above the age of 16¹³ on each election date and aggregated on a municipality level with the information on how many beneficiaries there were during each period.

For this work, I considered two different periods in which a voter would be considered a beneficiary. Since there was no data regarding 2011 beneficiaries in *Cadastro Único*, to make a consistent event study, the main approach was to consider a voter a beneficiary if they received the program in at least one month during the election year.¹⁴ To ensure that the results obtained in the main approach are consistent, the second approach considered a voter a beneficiary if they received the program during the entire administration period.¹⁵ All three datasets were

¹²Although it is not possible to affirm with certainty that the municipality in which a certain citizen receives a payment is the same where this person votes, I consider this a good *proxy*.

¹³The youngest age at which it is legal to vote in Brazil.

¹⁴Only beneficiaries who received the program in 2014, 2018, and 2022 were considered.

¹⁵Beneficiaries who received the program at least once during 2015-2018 or 2019-2022.

combined into one panel data, where one line represents one municipality during a period, and includes voting outcomes, characteristics, as well as beneficiary proportion and benefit per capita.

3.2 DESCRIPTIVE STATISTICS

Descriptive statistics of all outcomes, including voting, beneficiaries and characteristics, are shown on table 1.

Table 1: Descriptive Statistics

	2018 mean	2022 mean
Voting outcomes		
First Round		
Bolsonaro	0.46	0.43
Workers Party	0.29	0.48
Turnout	0.80	0.79
Second Round		
Bolsonaro	0.55	0.49
Workers Party	0.45	0.51
Turnout	0.79	0.80
Beneficiaries		
Fraction of Beneficiaries	0.165	0.187
Monthly Expenditure (R\$ Billion)	2.30	5.56
Characteristics (Control Variables)		
Female	0.52	0.53
Male	0.47	0.47
Illiterate	0.04	0.04
Read and write, but without formal education	0.09	0.07
Primary Incomplete	0.26	0.23
Primary Complete	0.07	0.07
High School Incomplete	0.17	0.17
High School Complete	0.23	0.26
College Incomplete	0.05	0.05
College Complete	0.09	0.11
age 16 and 17	0.01	0.01
age 18-20	0.06	0.05
age 21-24	0.09	0.08
age 25-34	0.21	0.20
age 35-44	0.21	0.21
age 45-59	0.24	0.25
age 60-69	0.11	0.12
age 70-79	0.05	0.06
age over 79	0.03	0.03
Single	0.60	0.60
Married	0.33	0.33
Divorced	0.04	0.05

Widower	0.03	0.03
disabled	0.01	0.01
N (Municipalities)		5570

As it can be observed, among the sample, there were some minor changes from 2018 to 2022. Firstly, the proportion of votes for the incumbent Jair Bolsonaro lowered from 46% to 43% in the first round, and from 55% to 49% in the second round, which was expected since he lost the election. One major change in the votes is the Workers Party support increase in the first round, going from 29% to 48%. Since Bolsonaro's electoral outcomes did not change much from the first to the second round, it seems that most of this share was captured by other parties from 2018.

Secondly, the fraction of beneficiaries increased from 16.5% to 18.7%. Another important fact to notice is the increase in monthly expenditure on the program. Expenditure went from an average of R\$2.3 billion per month in 2018 to R\$5.56 billion in 2022, representing an approximately 141% increase in the monthly budget. Even adjusting for inflation using the Brazilian central bank inflation calculator by the IGP-M index, the value equivalent to R\$2.3 billion in December 2018 to December 2022 is R\$3.73 billion, with real expenditure still increasing by about 49.06% (BRAZIL CENTRAL BANK, 2025).

The rest of the characteristics comprise some minor changes, such as a slightly higher proportion of more educated workers¹⁶, which seems a natural progression. There was also slightly higher vote participation of younger and older voters, which could be explained by high polarization and an election won by a small margin that motivated citizens who are not required to vote to do so. Most of the changes in the proportion of age-related population can be explained as a natural progression of the age pyramid.

Despite these normal changes, as expected, the average profile of the Brazilian voter did not change much from 2018 to 2022. This corroborates the idea that Bolsonaro's loss in vote share cannot be explained exclusively by the change in the voter composition. Also, assuming that the results would be similar to most of the works relating CCTs and voting, especially in Brazil (PINHO NETO, 2018)(ZUCCO JR, 2013), if the implementations of *Auxílio Brasil* increased Bolsonaro's vote share among the receivers, there must have been other factors that together decreased the former incumbent vote share even more. Unlike most works, this study is a particular case where the incumbent implemented CCT programs and lost the election, making it worth investigating the program's trend on voting outcomes.

¹⁶High School completion or higher

4 EMPIRICAL FRAMEWORK

4.1 MAIN STRATEGY

To estimate the trend of the increase in *Auxílio Brasil* on the 2022 presidential elections, I conducted a two-way fixed effect difference-in-differences analysis, using the following econometric model:

$$y_{mt} = \alpha_m + \lambda_t + \gamma_{st} + \beta CCT_{mt} + Z'_{mt}\Theta + \epsilon_{mt} \quad (1)$$

Where y_{mt} is the voting percentage for Jair Bolsonaro at time t ¹⁷ in municipality m . α represents the municipality fixed effect, γ is a state effect for state s at time t , λ is the time fixed effect, Z' is a vector of voter characteristics in m such as age, gender, marital status, educational level, and whether the voter has a disability. Finally, ϵ is the error term. For the main model, I will run two regressions: in one, CCT_{mt} consists of the proportion of voters in m who received either *Bolsa Família* in 2018 or *Auxílio Brasil* in 2022. In the other regression, CCT_{mt} consists of the logarithm of the value per month received per beneficiary.

The main variable of study in the regression is CCT , where the coefficient β captures how much a higher proportion of beneficiaries among the total population of the municipality increased vote share for Bolsonaro. Since in the 2018 elections, the *Bolsa Família* program was associated with candidates from the opposition party, the *Partido dos Trabalhadores* (PT), most individuals who received the program were expected to have a positive correlated vote share towards the party. This relationship is not carried over to the main variable coefficient, as the two-way fixed effect strategy coefficient measures how much the changes and implementations by Bolsonaro increased his vote share. This means that even if former CCT recipients from *Bolsa Família* tended to vote more for the opposition, β would only be negative if these changes caused even fewer beneficiaries to vote for Bolsonaro. This can be interpreted as how an increase of 1% in the number of beneficiaries or benefits per capita from 2018 to 2022 in a given municipality increases the vote share for Bolsonaro from 2018 to 2022 in the same municipality.

There could also be a concern that different municipalities have different population characteristics. Since there is a significant difference in the voter profile of old and young, men and women, married and single, different municipalities could have different vote shares due to having one or more of these characteristics than others. For this case, Θ represents all these variables that are being controlled to avoid this endogeneity issue.

4.2 OTHER STRATEGIES

To ensure that the main results are not due to a missing specification of the model or some external event that may have changed the voting behavior of the beneficiaries, series of different models are explored in this section.

¹⁷There are only two periods: 2018 and 2022

One may argue that municipalities with low participation in the CCT programs could bias the results. Low percentile municipalities could have many citizens who don't receive the program, and their voting is not affected much by changes in the program, which could drag the coefficient results close to zero. For this purpose, I ran the following framework:

$$y_{mt} = \alpha_m + \lambda_t + \gamma_{st} + \beta_2 2022_t * median_m + Z'_{mt} \Theta + \epsilon_{mt} \quad (2)$$

Where all controls and fixed effects are the same as in the main framework. The CCT variable is changed to an interaction of the 2022 year fixed effect and a specific median variable. The median variable is a dummy that equals 1 if the increase in beneficiary proportion or benefit per capita from 2018 to 2022 is above the median, and 0 otherwise.

Another strategy is the pre-trend analysis. The main results found could be due to a process that started before the period analyzed. For instance, voters could have become less likely to switch votes to the incumbent as time passed and CCTs started being perceived as a permanent public policy that was taken for granted. Additionally, some beneficiaries who stopped receiving the program because they no longer qualified as they became wealthier might perceive having to return to the program due to an economic crisis as negative and therefore vote against the incumbent.

To understand whether the results found were associated to factors related to a period before 2018-2022, I will run the same regressions of the main model with a new time period. The regression changes the control variables from 2022 and 2018 to 2018 and 2014 respectively while maintaining the values of the proportion of beneficiaries from 2018 and 2022. Since in 2014 neither Jair Bolsonaro nor his party ran for the presidency, I used the vote share of the Workers Party's main opposition in that year, Aécio Neves from the *Partido da Social Democracia Brasileira* (PSDB). This way, the pre-trend model is:

$$y_{mt} = \alpha_m + \lambda_t + \gamma_{st} + \beta CCT_{mt+1} + Z'_{mt} \Theta + \epsilon_{mt} \quad (3)$$

Where the variables are the same as in the main model, but $t = 1$ represents 2014, $t = 2$ represents 2018, and $t = 3$ represents 2022.

Another strategy is an Event Study. The event study regression model is:

$$y_{mt} = \alpha_m + \lambda_t + \gamma_{st} + \beta_1 2014_t median_m + \beta_2 2022_t median_m + Z'_{mt} \Theta + \epsilon_{mt} \quad (4)$$

Where the fixed effects are the same as in the main regressions. The median variable is a dummy that represents 1 if a given municipality's delta beneficiary proportion or benefit per capita between 2022 and 2018 is above the median, and 0 otherwise. Also, 2014 and 2022 are dummy variables that equal one if the year is 2014 and 2022 respectively.

Another two strategies consider two external events that might have interfered with the main

results. These events were the creation of a line of credit for PBF receivers and the alleged use of the Federal Highway Police (PRF) to interfere with the election. I will explore these strategies in more detail on the results section.

Lastly, as mentioned before, there will be a section that explores using beneficiaries from the full administration period and comparing them to using the last year of the administration for the results.

5 MAIN RESULTS

5.1 TURNOUT

Before analyzing the results on vote share, I first observe in Tables 2 and 3 the trend of the changes in the CCT programs promoted by Bolsonaro's administration on the turnout of the 2022 elections compared to 2018:

Table 2: Trend of Beneficiaries Proportion on Turnout

Dependent Variable:	Turnout Proportion		
	Turnout		
Model:	(1)	(2)	(3)
First Round			
<i>Variables</i>			
Beneficiary Proportion	0.0817*** (0.0089)	0.0705*** (0.0084)	0.0465*** (0.0084)
<i>Fit statistics</i>			
Observations	11,140	11,140	11,140
R ²	0.93855	0.96668	0.97214
Within R ²	0.01736	0.46712	0.36848
Second Round			
<i>Variables</i>			
Beneficiary Proportion	0.1031*** (0.0101)	0.1002*** (0.0099)	0.0629*** (0.0093)
<i>Fit statistics</i>			
Observations	11,140	11,140	11,140
R ²	0.93201	0.96172	0.97214
Within R ²	0.02103	0.44879	0.36848
<i>Fixed-effects and Controls</i>			
Municipality	Yes	Yes	Yes
Year	Yes	Yes	Yes
Controls	No	Yes	Yes
State*Year	No	No	Yes

Clustered (Municipality) standard-errors in parentheses

*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

For the results presented in Table 2, it is observed that, with the inclusion of all fixed effects and controls in the equation, the increase in the proportion of beneficiaries from 2018 to 2022 raised the turnout in the elections. The results show that a 1% increase in the proportion of beneficiaries is associated with an increase in the turnout by approximately 0.05% in the first round and by 0.06% in the second round. With a 2.2% increase in beneficiaries per voters, the estimated trend of the program expansion was 0.11% in the first round and 0.13% in the second round.

Table 3: Trend of Benefit per capita on Turnout

Dependent Variable:	Turnout Proportion		
	Turnout		
Model:	(1)	(2)	(3)
First Round			
<i>Variables</i>			
Log Benefit per capita	5.79×10^{-5} (0.0024)	0.0040** (0.0020)	0.0029 (0.0019)
<i>Fit statistics</i>			
Observations	11,140	11,140	11,140
R ²	0.93746	0.96619	0.97196
Within R ²	1.02×10^{-7}	0.45927	0.36443
Second Round			
<i>Variables</i>			
Log Benefit per capita	0.0058** (0.0028)	0.0103*** (0.0024)	0.0046** (0.0021)
<i>Fit statistics</i>			
Observations	11,140	11,140	11,140
R ²	0.93061	0.96098	0.97002
Within R ²	0.00078	0.43818	0.36959
<i>Fixed-effects and Controls</i>			
Municipality	Yes	Yes	Yes
Year	Yes	Yes	Yes
Controls	No	Yes	Yes
State*Year	No	No	Yes

Clustered (Municipality) standard-errors in parentheses

*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

As observed in Table 3, the monetary increase with controls and fixed effects had mostly positive coefficients on turnout. However, for the results with controls and all fixed effects, the first round coefficient on the monetary increase was insignificant for a p-value lower than 0.1. On the other hand, a 1% increase in monetary benefits in *Auxílio Brasil* significantly increased turnout by around 0.005% for a p-value of 0.05 in the second round. Conclusively, although positive, the trend of the policies on turnout was low. Considering that the baseline value of *Bolsa Família* went from R\$189.00 on average in 2018 to R\$600.00 in 2022, representing a 317.46% increase the estimate associated with the program expansion is a 1.46% raise in turnout in the second round.

5.2 PROPORTION OF BENEFICIARIES

For the main empirical strategy, results found for proportion of beneficiaries are the ones shown in table 4.

Table 4: Trend of Beneficiary proportion on incumbent's vote share

Dependent Variable:	Vote Share Bolsonaro		
	Incumbent		
Model:	(1)	(2)	(3)
First Round			
<i>Variables</i>			
Beneficiary Proportion	-0.4248*** (0.0129)	-0.2042*** (0.0154)	-0.1318*** (0.0136)
<i>Fit statistics</i>			
Observations	11,140	11,140	11,140
R ²	0.98772	0.99003	0.99218
Within R ²	0.17778	0.33268	0.17455
Second Round			
<i>Variables</i>			
Beneficiary Proportion	-0.6551*** (0.0153)	-0.2521*** (0.0167)	-0.1297*** (0.0138)
<i>Fit statistics</i>			
Observations	11,140	11,140	11,140
R ²	0.98574	0.99073	0.99404
Within R ²	0.25596	0.51666	0.15244
<i>Fixed-effects and Controls</i>			
Municipality	Yes	Yes	Yes
Year	Yes	Yes	Yes
Controls	No	Yes	Yes
State*Year	No	No	Yes

Clustered (Municipality) standard-errors in parentheses

*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

As observed, none of the results align with most of the literature findings. While most of the literature indicates a significant positive effect, all results from both rounds have negative, and significant trend for a p-value hypothesis test of 0.01.

For results shown on Incumbent (3), which is the exact equation from the empirical specification, the first round showed significance for a p-value below 0.01. The estimation suggests that a 1%

increase in the proportion of beneficiaries in 2022 relative to 2018 is associated with a decrease of about 0.13% in vote share for Jair Bolsonaro. This is a very different estimate compared to the results found in PINHO NETO (2018) and many others. Considering that the proportion of beneficiaries rose by about 2.2% during the period, the trend of the total increase in beneficiaries is about a 0.26% decrease in vote share.

Regarding the second round, the results show few differences compared to the first round. The coefficient value decreases as more fixed effects are added to the equation, and the value of the Incumbent (3) equation also has a negative value and is significant for a p-value of 0.01. Additionally, a 1% increase shows a 0.13% decrease in voting for Bolsonaro, and the 2.2% increase in beneficiaries is associated with a 0.26% decrease in vote share.

5.3 BENEFIT PER CAPITA

Results found for benefit per capita are the ones shown in table 5:

Table 5: Trend of Benefit per capita on incumbent's vote share

Dependent Variable:	Vote Share Bolsonaro		
	Incumbent		
Model:	(1)	(2)	(3)
First Round			
<i>Variables</i>			
Log Benefit per capita	-0.0611*** (0.0040)	-0.0074* (0.0038)	-0.0020 (0.0034)
<i>Fit statistics</i>			
Observations	11,140	11,140	11,140
R ²	0.98570	0.98965	0.99204
Within R ²	0.04283	0.30701	0.15997
Second Round			
<i>Variables</i>			
Log Benefit per capita	-0.1056*** (0.0049)	-0.0154*** (0.0041)	-0.0103*** (0.0033)
<i>Fit statistics</i>			
Observations	11,140	11,140	11,140
R ²	0.98232	0.99030	0.99395
Within R ²	0.07762	0.49384	0.13909
<i>Fixed-effects</i>			
Municipality	Yes	Yes	Yes
Year	Yes	Yes	Yes
Controls	No	Yes	Yes
State*Year	No	No	Yes

Clustered (Municipality) standard-errors in parentheses

*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

As observed in Table 5, when evaluating the benefit per capita on voting share, we obtain significant results from most equations. Although the coefficient does not change much from equation 1 to equation 2, adding the control variables to the equation demonstrates its importance, as the coefficient of equation 3 has a lower magnitude. For the second round, the results are mostly similar to the first round but with significance on equation 3.

For the second round, Incumbent (3) has a coefficient for log benefit per capita of -0.010, meaning that a 1% increase in benefit per capita is associated with a 0.01% decrease in vote share. Considering the 317.46% average increase in benefits for the Brazilian CCT program, the total estimation of the trend in the increase was around -3.27%. This magnitude is relevant

for the electoral outcome, as the election was won by a tight margin. Considering only valid votes, the results of the 2022 election had Lula as the winner with 50.90% and Bolsonaro as the loser with 49.10%. Considering the estimation if Bolsonaro reverted 3.27% of votes, he would win the election.

The fact that the results returned were significant and negative produces a result that is not usually obtained in the literature. A negative trend means that the higher the CCT benefits were raised, the fewer votes Bolsonaro would receive. To try to explain why the results turned out mostly different from the usual literature, the discussion section will explore some hypotheses on endogeneity factors that could explain this result and be developed in future research.

5.4 OPPOSITION RESULTS

As it can be observed in tables 17 and 18 in the appendix section, the results for the main strategy, but with the opposition are consistent with the main results, where the results have a positive trend, indicating that the programs beneficiaries tended to vote more for the workers party candidate on municipalities that raised both number of beneficiaries and benefit per capita.

6 OTHER STRATEGY RESULTS

6.1 PERCENTILE RESULTS

Tables 6 and 7 display the results of beneficiary proportion and benefit per capita above median on vote share:

Table 6: Trend of Beneficiary proportion above median on incumbent's vote share

Dependent Variable:	Vote Share Bolsonaro		
Model:	(1)	(2)	(3)
First Round			
<i>Variables</i>			
2022×beneficiary proportion above median	-0.0353*** (0.0011)	-0.0151*** (0.0013)	-0.0110*** (0.0011)
<i>Fit statistics</i>			
Observations	11,140	11,140	11,140
R ²	0.98743	0.98995	0.99219
Within R ²	0.15869	0.32681	0.17578
Second Round			
<i>Variables</i>			
2022×beneficiary proportion above median	-0.0558*** (0.0013)	-0.0206*** (0.0014)	-0.0121*** (0.0011)
<i>Fit statistics</i>			
Observations	11,140	11,140	11,140
R ²	0.98543	0.99071	0.99408
Within R ²	0.24005	0.51537	0.15784
<i>Fixed-effects</i>			
Municipality	Yes	Yes	Yes
Year	Yes	Yes	Yes
Controls	No	Yes	Yes
State×Year	No	No	Yes

Clustered (Municipality) standard-errors in parentheses

*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

Table 7: Trend of Benefit per capita above median on incumbent's vote share

Dependent Variable:	Vote Share Bolsonaro		
Model:	(1)	(2)	(3)
First Round			
<i>Variables</i>			
2022×above median benefit per capita	-0.0134*** (0.0012)	-0.0061*** (0.0010)	-0.0044*** (0.0009)
<i>Fit statistics</i>			
Observations	11,140	11,140	11,140
R ²	0.98541	0.98971	0.99208
Within R ²	0.02286	0.31110	0.16348
Second Round			
<i>Variables</i>			
2022×above median benefit per capita	-0.0139*** (0.0015)	-0.0029** (0.0011)	-0.0030*** (0.0009)
<i>Fit statistics</i>			
Observations	11,140	11,140	11,140
R ²	0.98112	0.99028	0.99395
Within R ²	0.01490	0.49310	0.13933
<i>Fixed-effects</i>			
Municipality	Yes	Yes	Yes
Year	Yes	Yes	Yes
Controls	No	Yes	Yes
State×Year	No	No	Yes

Clustered (Municipality) standard-errors in parentheses

*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

Both tables demonstrate coefficients consistent with the main results. Municipalities that experienced an increase in their number of beneficiaries and benefit per capita above the median tended to vote less for Bolsonaro in 2022 compared to 2018.

Utilizing the percentile results with the beneficiary proportion variable ensures that municipalities with higher proportions are indeed voting more for candidates from the *Partido dos Trabalhadores*. Since the benefits are recorded per capita and the same eligibility rules for the *Bolsa Família* and *Auxílio Brasil* programs apply across all municipalities, the benefit per capita percentile results primarily capture municipalities with a higher concentration of beneficiaries in the months closer to the elections. This is because the benefit was higher during that period, meaning that municipalities with more beneficiaries in these months, as opposed to other months, tend

to have a higher benefit per capita.

6.2 PAYROLL LINKED LOAN

On September 27th, 2022, the Brazilian Federal Register published Ordinance 816 (BRASIL, 2022b), which allowed Auxílio Brasil beneficiaries to receive payroll-linked loans from certain institutions. The decree established a maximum interest rate of 3.5% per month. Since this type of credit restricted future cash transfers that beneficiaries received¹⁸, complementary legislation, Law 14.431 (BRASIL, 2022a), published on August 3rd, 2022, limited the amount of the payroll-linked loan to a maximum of 40% of the benefit and a repayment period of up to 24 months to prevent excessive debt. Additionally, to receive the credit, beneficiaries had to complete a survey to demonstrate their understanding of the loan terms.

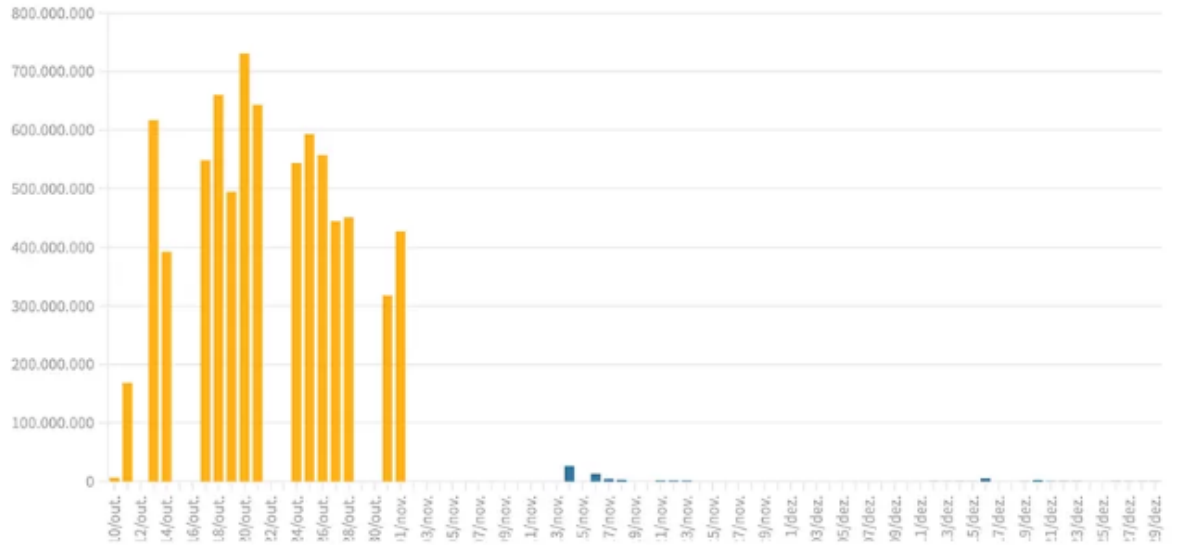
While one may argue that this ordinance could be good for beneficiaries, its implementation just nine days before the first round and thirty days before the second round of the presidential elections raised concerns about potential electoral impact. Since the ordinance was released so close to the elections, beneficiaries could view it positively, as there was sufficient time to obtain and spend the loan, but not enough time for the deductions to affect them in the following month. This trend may be further supported by the study by Kahneman et al. (KAHNEMAN u. a. (1997)), which suggests that individuals tend to overvalue recent events.

Moreover, some descriptive data regarding the loan indicate heightened activity during the electoral period¹⁹. According to a report by the news website UOL (UOL, 2024), 99% of the credit provided during Bolsonaro's administration was issued during the electoral period. This is illustrated in the graph extracted from the website below:

¹⁸For example, if a beneficiary received R\$600.00 per month from the Auxílio Brasil program and took a R\$100.00 loan at a 3.5% interest rate, R\$103.50 would be automatically deducted from the next benefit payment.

¹⁹Specifically between the first and second rounds.

Figure 1: Payroll linked loan of *Auxílio Brasil* authorized by day in Caixa Econômica Federal



Source: Uol, 2024

In the figure, the yellow bars represent the amount of credit given by *Caixa Econômica Federal*, the main banking institution authorized to provide these loans, during the election period. The blue bar represents the amount disbursed after the elections. Additionally, "out" represents October, while "dez" represents December in the graph.

To understand how the payroll-linked loan may have influenced our previous results, I gathered monthly statistical banking data by municipality from Brazil's central bank (ESTBAN). This data comprises financial information by type and by banking institution. Since the payroll-linked loan started being distributed only on October 10th, 2022, I downloaded data from the month of the second round of the presidential elections in 2018 and 2022²⁰. After filtering the data by the banking institutions authorized to provide this credit²¹, all credit data types, except real estate, were summed. Then, the data from 2018 and 2022 were merged and added to the main data panel. Since specific data on payroll-linked credit was only available aggregated by state, I consider ESTBAN data to be the best *proxy* for evaluating how this policy may have influenced voting.

To evaluate how this policy may have affected the main results, I ran regressions based on the following model:

$$y_{it} = \alpha_i + \lambda_t + \gamma_{st} + \beta_1 CCT_{mt} + \beta_2 \ln credit_{mt} + Z'_{mt} \Theta + \epsilon_{mt} \quad (5)$$

Where the credit variable consists of the natural logarithm of the amount of credit given in municipality m during time t , while all other variables remain the same as the main model. If a

²⁰Banking data from October 2018 and 2022.

²¹The institutions were: Banco Agibank S.A., Banco Crefisa S.A., Banco Daycoval S.A., Banco Pan, Banco Safra, and Caixa Econômica Federal

municipality received a substantial amount of credit, causing beneficiaries to start voting more for Bolsonaro due to the credit rather than the main program implementations, this trend would be captured by the credit variable. Consequently, the beneficiary proportion and benefit per capita coefficients would reflect changes in electoral results despite the credit policy.

Tables 8 and 9 below present the results for the model on beneficiary proportions and log benefit per capita, respectively:

Table 8: Trend of Beneficiary proportion on incumbent's vote share with credit as control

Dependent Variable:	Vote Share Bolsonaro		
Model:	(1)	(2)	(3)
Second Round			
<i>Variables</i>			
Beneficiary Proportion	-0.6529*** (0.0155)	-0.2526*** (0.0167)	-0.1266*** (0.0138)
Log Municipality Credit	-0.0019 (0.0018)	0.0002 (0.0014)	-0.0039*** (0.0011)
<i>Fit statistics</i>			
Observations	11,133	11,133	11,133
R ²	0.98576	0.99074	0.99405
Within R ²	0.25616	0.51636	0.15394
<i>Fixed-effects</i>			
Municipality	Yes	Yes	Yes
Year	Yes	Yes	Yes
Controls	No	Yes	Yes
State*Year	No	No	Yes

Clustered (Municipality) standard-errors in parentheses

*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

Table 9: Trend of Benefit per capita on incumbent's vote share with credit as control

Dependent Variable:	Vote Share Bolsonaro		
Model:	(1)	(2)	(3)
Second Round			
<i>Variables</i>			
Log Benefit per capita	-0.1043*** (0.0049)	-0.0152*** (0.0042)	-0.0094*** (0.0033)
Log Municipality Credit	-0.0066*** (0.0020)	-0.0010 (0.0014)	-0.0046*** (0.0011)
<i>Fit statistics</i>			
Observations	11,133	11,133	11,133
R ²	0.98238	0.99030	0.99396
Within R ²	0.07958	0.49352	0.14114
<i>Fixed-effects</i>			
Municipality	Yes	Yes	Yes
Year	Yes	Yes	Yes
Controls	No	Yes	Yes
State*Year	No	No	Yes
<i>Clustered (Municipality) standard-errors in parentheses</i>			
<i>Signif. Codes: ***: 0.01, **: 0.05, *: 0.1</i>			

As observed in both tables, the credit variable tended to have either insignificant or negative coefficient estimates for voting. Generally, with all controls and fixed effects, the credit municipality variable did not seem to alter the trend of the Conditional Cash Transfer (CCT) changes significantly. The results for the main variables remained negative and with similar dimensions, from the findings of the other models. One possible explanation for these results is that they could have endogenous problems; that is, Bolsonaro's administration may have offered more credit in municipalities where his performance was poor in the first round. Thus, even though beneficiaries in those municipalities received an incentive that could have potentially improved their perception of the president, his performance was so unfavorable that this policy was insufficient to yield positive results.

6.3 FEDERAL HIGHWAY POLICE (PRF)

Between the first and second rounds of the 2022 elections, Congressman Luiz Paulo Teixeira Ferreira, affiliated with the same party as presidential candidate Lula (Partido dos Trabalhadores), filed a petition with the Superior Electoral Court. He raised concerns about irregular actions by the Federal Highway Police (PRF) and the Federal Police (PF) during the first round of

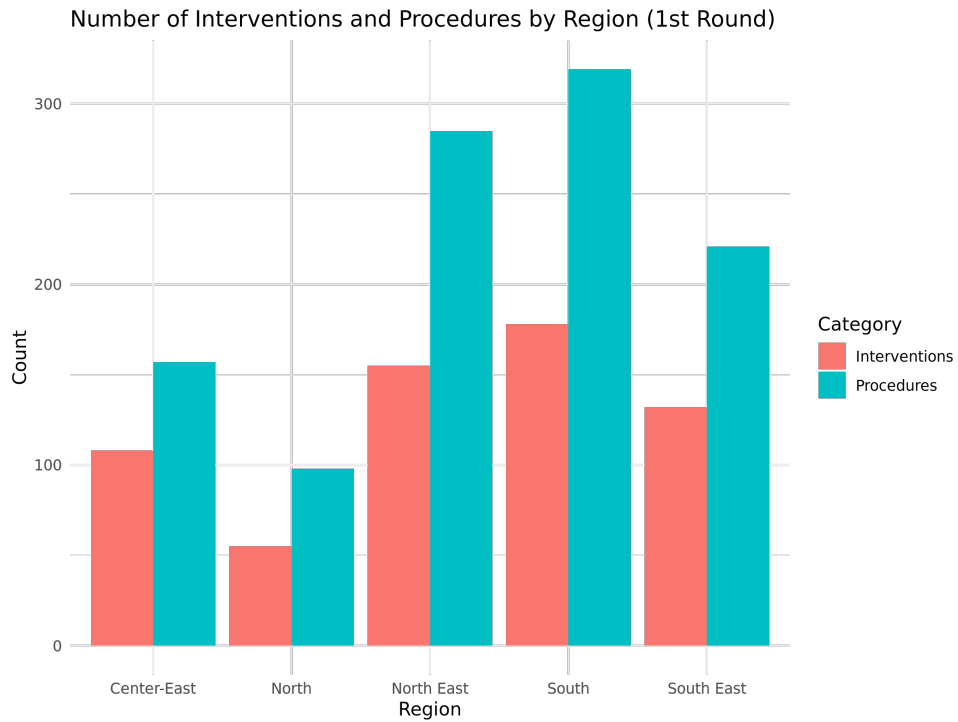
the elections. Teixeira Ferreira's petition, based on complaints seen on social media, alleged that members of these agencies were interfering in the electoral process in favor of candidate Jair Bolsonaro. On October 29, 2022, just one day before the elections, the President of the Superior Electoral Court, Alexandre de Moraes, issued an order demanding explanations from the agencies regarding the actions claimed to be irregular by PT's congressman.

On the day of the second round of the elections, numerous reports emerged on social media, claiming that the PRF hindered people's paths to the polling stations. According to news coverage, the agency stopped at least 610 buses, nearly 50% of which were located in the northeast, a region known for its high voting percentage for the Partido dos Trabalhadores (PT).

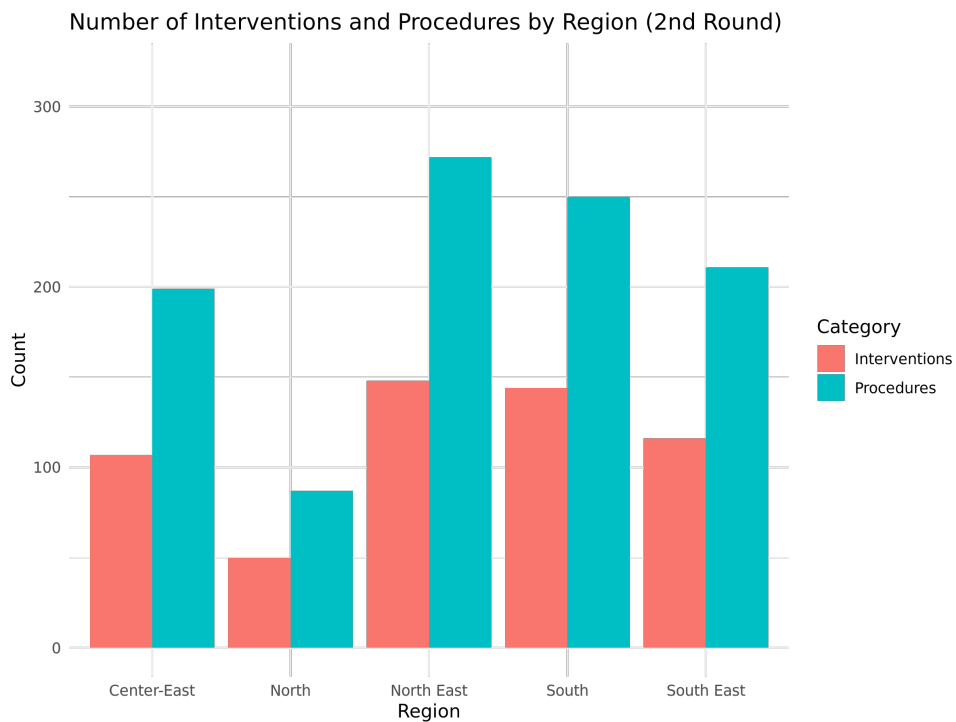
The PRF, according to some new reports such as the one published by [Revista Piauí \(2025\)](#), during Bolsonaro's administration had become increasingly more linked with the president's agenda. According to the report, the agency received 54% more investments during the years of 2019 to 2021 in comparison to the 3 years before. Additionally, reports claimed that on October 29th, one day before the runoff election day, the general director of the police posted on Instagram a video asking votes for Bolsonaro. Given this relation pointed by the media and that most of these interventions occurred in regions where the party typically has a higher vote share according to [G1 \(2022\)](#), it could be argued that the actions of the highway police potentially interfered with the election results. It is plausible that the PRF targeted municipalities and areas with a higher concentration of Auxílio Brasil beneficiaries, potentially leading to fewer votes for Lula and altering the estimated results.

To evaluate this assumption, I collected data from the PRF for both the first and second rounds of the 2022 elections. After processing the data, the final dataset includes information on the number of interventions and procedures conducted in each municipality. To provide a clearer understanding of the issue, Figure 2 illustrates the total number of interventions and procedures by region for each round.

Figure 2: Comparison of Interventions and Procedures in 1st and 2nd Rounds



(a) Number of Interventions and Procedures by Region (1st Round)



(b) Number of Interventions and Procedures by Region (2nd Round)

As observed in both Figures 2a and 2b, the data provided by the PRF, although differing from what was published by [G1 \(2022\)](#), indicates that the northeast region still had the highest number of interventions and procedures in the second round. Additionally, even in regions where Bolsonaro's votes were more concentrated, such as the south and the center-east, the PRF

may have targeted municipalities and areas with a higher number of Auxílio Brasil beneficiaries.

To fully understand whether these interventions and procedures could have affected the results of our main models, I employed the following framework:

$$y_{it} = \alpha_m + \lambda_t + \gamma_{st}\beta_1 CCT_{mt} + \beta_2 PRF_{mt} + Z'_{mt}\Theta + \epsilon_{it} \quad (6)$$

In this framework, PRF represents the number of interventions in municipality m at time t . Due to the lack of data on the Highway police's actions on election days in 2018, the regression analysis was run under using interventions set to 0 for all municipalities and rounds in 2018.

Results from the PRF framework, are presented in Tables 10 and 11:

Table 10: Beneficiary Proportion x vote Share with Interventions as control

Dependent Variable:	Vote Share Bolsonaro		
Model:	(1)	(2)	(3)
First Round			
<i>Variables</i>			
Beneficiary Proportion	-0.4171*** (0.0130)	-0.2001*** (0.0155)	-0.1247*** (0.0136)
Interventions	-0.0046*** (0.0008)	-0.0028*** (0.0007)	-0.0045*** (0.0006)
<i>Fit statistics</i>			
Observations	11,140	11,140	11,140
R ²	0.98778	0.99005	0.99223
Within R ²	0.18156	0.33408	0.17992
Second Round			
<i>Variables</i>			
Beneficiary Proportion	-0.6533*** (0.0155)	-0.2513*** (0.0167)	-0.1238*** (0.0138)
Interventions	-0.0013 (0.0010)	-0.0007 (0.0007)	-0.0042*** (0.0006)
<i>Fit statistics</i>			
Observations	11,140	11,140	11,140
R ²	0.98574	0.99074	0.99407
Within R ²	0.25612	0.51670	0.15675
<i>Fixed-effects</i>			
Municipality	Yes	Yes	Yes
Year	Yes	Yes	Yes
Controls	No	Yes	Yes
State*Year	No	No	Yes

Clustered (Municipality) standard-errors in parentheses

*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

Table 11: Benefit per capita x Vote Share with Interventions as control

Dependent Variable:	Vote Share Bolsonaro		
Model:	(1)	(2)	(3)
First Round			
<i>Variables</i>			
Log Benefit per capita	-0.0588*** (0.0040)	-0.0064* (0.0038)	-0.0009 (0.0034)
Interventions	-0.0072*** (0.0009)	-0.0038*** (0.0007)	-0.0052*** (0.0006)
<i>Fit statistics</i>			
Observations	11,140	11,140	11,140
R ²	0.98584	0.98969	0.99211
Within R ²	0.05212	0.30953	0.16693
Second Round			
<i>Variables</i>			
Log Benefit per capita	-0.1044*** (0.0049)	-0.0150*** (0.0042)	-0.0093*** (0.0033)
Interventions	-0.0048*** (0.0010)	-0.0017** (0.0007)	-0.0047*** (0.0007)
<i>Fit statistics</i>			
Observations	11,140	11,140	11,140
R ²	0.98236	0.99030	0.99399
Within R ²	0.07996	0.49414	0.14454
<i>Fixed-effects</i>			
Municipality	Yes	Yes	Yes
Year	Yes	Yes	Yes
Controls	No	Yes	Yes
State*Year	No	No	Yes

Clustered (Municipality) standard-errors in parentheses

*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

The tables demonstrate that the results of the interventions showed minor changes compared to the estimations of the main model. The results indicate that one intervention in a municipality is associated with approximately 0.005% fewer votes for Bolsonaro compared to 2018, across both regressions that include all fixed effects and controls.

This suggests that, even though there is an investigation on whether the PRF took actions to interfere with the election results, these alleged actions did not appear to be effective and are

associated with fewer votes for Bolsonaro. While the use of the PRF to influence the election results could have occurred in both rounds, as alleged by Deputy Luiz Paulo Teixeira Ferreira, it remains a hypothesis that these interferences targeted municipalities where Bolsonaro was already losing. His presidential campaign might have used polls to identify such areas. In these municipalities, even though beneficiaries received incentives that could have improved their view of the president, his poor performance in these areas may have rendered the policy ineffective in yielding positive results.

6.4 PRE-TREND

6.4.1 Proportion of Beneficiaries

The pre-trend regression results for the proportion of beneficiaries are shown in table 12:

Table 12: Beneficiary Proportion (2018-2022) x Vote Share (2014-2018)

Dependent Variable:	Vote Share Bolsonaro		
Model:	(1)	(2)	(3)
First Round			
<i>Variables</i>			
Beneficiary Proportion	0.4923*** (0.0303)	0.3592*** (0.0341)	0.3686*** (0.0297)
<i>Fit statistics</i>			
Observations	11,140	11,140	11,140
R ²	0.94031	0.94665	0.95977
Within R ²	0.05480	0.15521	0.12363
Second Round			
<i>Variables</i>			
Beneficiary Proportion	0.7436*** (0.0250)	0.3443*** (0.0283)	0.2293*** (0.0250)
<i>Fit statistics</i>			
Observations	11,140	11,140	11,140
R ²	0.96404	0.97014	0.97737
Within R ²	0.15254	0.29631	0.08769
<i>Fixed-effects</i>			
Municipality	Yes	Yes	Yes
Year	Yes	Yes	Yes
Controls	No	Yes	Yes
State*Year	No	No	Yes
<i>Clustered (Municipality) standard-errors in parentheses</i>			
<i>Signif. Codes: ***: 0.01, **: 0.05, *: 0.1</i>			

All coefficients returned positive values. This suggests that municipalities which had an increase in their beneficiary proportion from 2018 to 2022 tended to vote more for Bolsonaro in 2018 compared to Aécio Neves, the former opposition candidate from the Workers' Party, in 2014. With all controls and fixed effects in place, a 1% increase in beneficiary proportion from 2018 to 2022 is associated with that municipality voting approximately 0.37% more for Bolsonaro in 2018 relative to Aécio in 2014 during the first round, and 0.23% more during the second round.

6.4.2 Benefit Per Capita

The pre-trend regression results for the log benefit per capita are shown in table 13:

Table 13: Benefit per capita (2018-2022) x Vote Share (2014-2018)

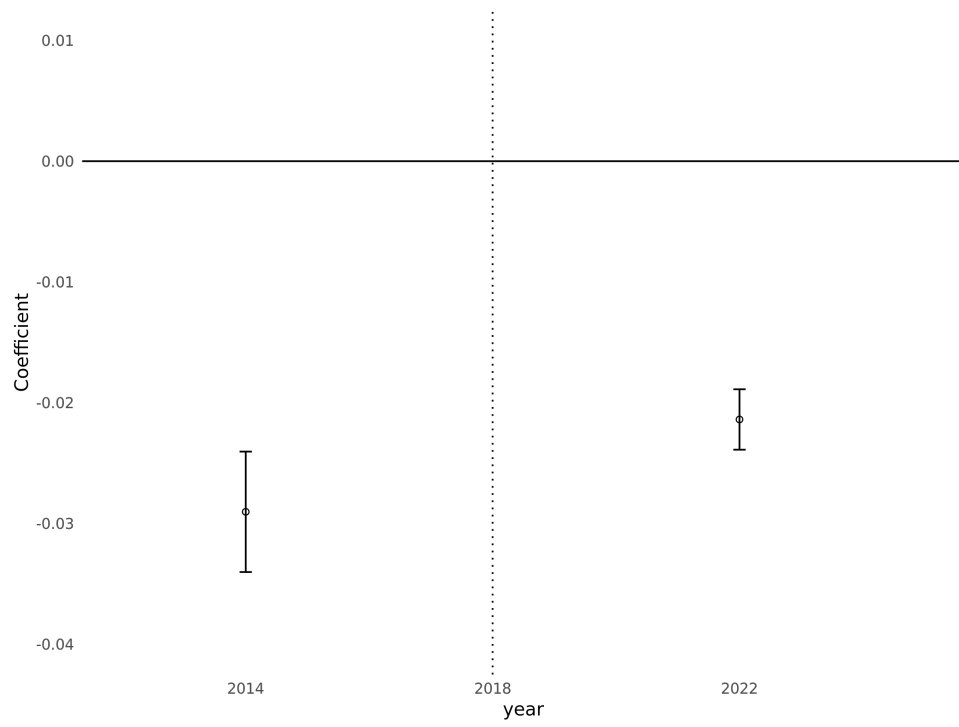
Dependent Variable:	Vote Share Bolsonaro		
Model:	(1)	(2)	(3)
First Round			
<i>Variables</i>			
Log Benefit per capita	0.0257*** (0.0078)	-0.0127 (0.0084)	0.0077 (0.0079)
<i>Fit statistics</i>			
Observations	11,140	11,140	11,140
R ²	0.93696	0.94540	0.95869
Within R ²	0.00174	0.13531	0.10007
Second Round			
<i>Variables</i>			
Log Benefit per capita	0.1219*** (0.0070)	0.0228*** (0.0071)	0.0119* (0.0066)
<i>Fit statistics</i>			
Observations	11,140	11,140	11,140
R ²	0.95960	0.96924	0.97704
Within R ²	0.04784	0.27500	0.07436
<i>Fixed-effects</i>			
Municipality	Yes	Yes	Yes
Year	Yes	Yes	Yes
Controls	No	Yes	Yes
State*Year	No	No	Yes
<i>Clustered (Municipality) standard-errors in parentheses</i>			
<i>Signif. Codes: ***: 0.01, **: 0.05, *: 0.1</i>			

The results concerning benefit per capita differ slightly from those obtained in the beneficiary proportion table. With all controls and fixed effects considered, municipalities that increased the average benefit during 2018-2022 did not show significant changes in their voting patterns in 2018 relative to 2014 in the first round. However, these municipalities tended to vote more for Bolsonaro in the second round, albeit with less statistical significance.

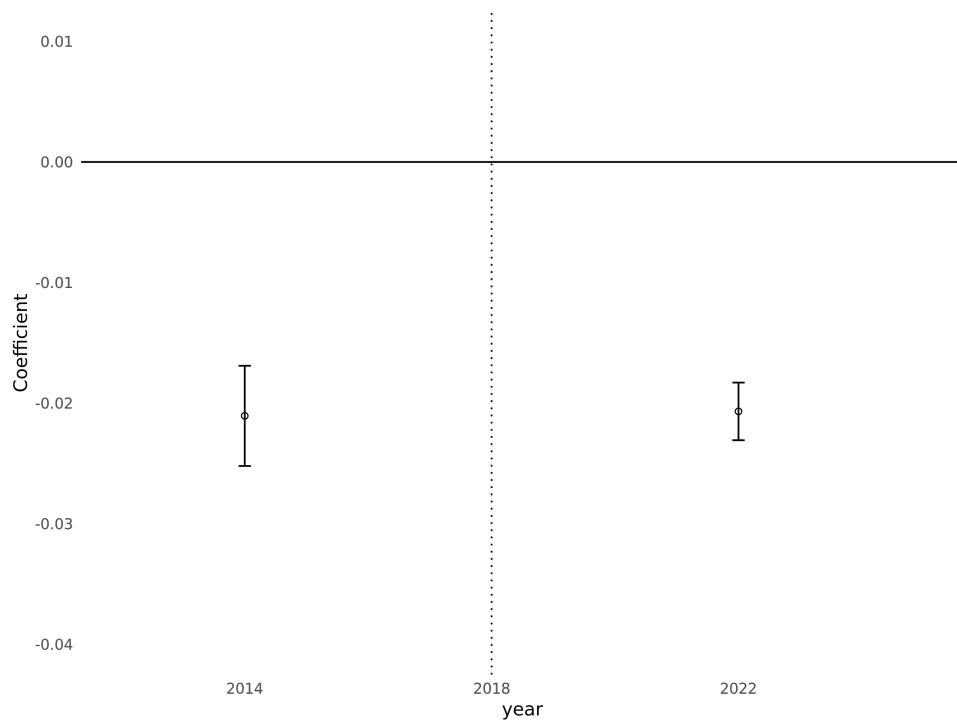
6.5 EVENT STUDY

Tables 19 and 20 in the appendix section present the results for municipalities above the median beneficiary proportion and benefit per capita. To better visualize the outcomes, I have plotted the results with all control variables and fixed effects in Figures 3 and 4 below:

Figure 3: Event Study Median beneficiary proportion in 1st and 2nd Rounds

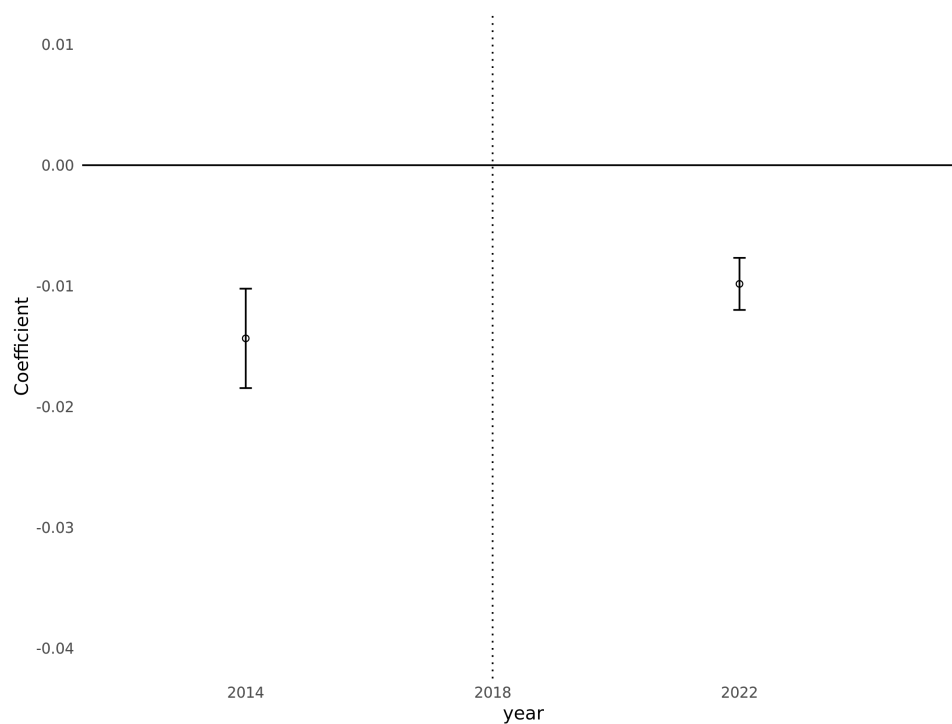


(a) 1st Round

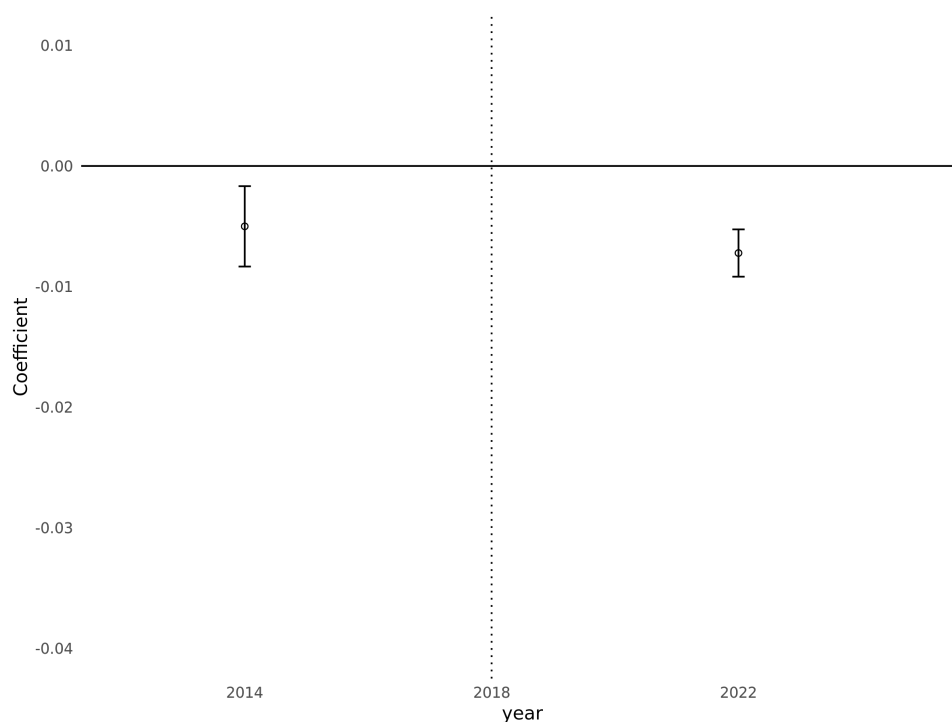


(b) 2nd Round

Figure 4: Event Study Median benefit per capita in 1st and 2nd Rounds



(a) 1st Round



(b) 2nd Round

From the figures, it is evident that municipalities which increased their beneficiary proportion and benefit per capita above the median tended to vote more for the Workers' Party opposition in 2014 and 2022 than in 2018.

6.6 FULL ADMINISTRATION PERIOD X LAST YEAR BEFORE ELECTIONS

This section compares the results using a sample of beneficiaries receiving the program in the last year before the elections to the entire administration period.

Table 14 below provides the descriptive statistics for the full periods of 2015-2018 and 2019-2022:

Table 14: Descriptive Statistics - Full Period

	2018 mean	2022 mean
Voting outcomes		
First Round		
Incumbent	0.46	0.43
Opposition	0.54	0.57
Turnout	0.80	0.79
Second Round		
Incumbent	0.55	0.49
Opposition	0.45	0.51
Turnout	0.79	0.80
Beneficiaries		
Fraction of Beneficiaries	0.27	0.23
Monthly Expenditure (R\$ Billion)	2.36	3.49
Characteristics (Control Variables)		
Female	0.52	0.53
Male	0.47	0.47
Illiterate	0.04	0.04
Read and write, but without formal education	0.09	0.07
Primary Incomplete	0.26	0.23
Primary Complete	0.07	0.07
High School Incomplete	0.17	0.17
High School Complete	0.23	0.26
College Incomplete	0.05	0.05
College Complete	0.09	0.11
age 16 and 17	0.01	0.01
age 18-20	0.06	0.05
age 21-24	0.09	0.08
age 25-34	0.21	0.20
age 35-44	0.21	0.21
age 45-59	0.24	0.25

age 60-69	0.11	0.12
age 70-79	0.05	0.06
age over 79	0.03	0.03
Single	0.60	0.60
Married	0.33	0.33
Divorced	0.04	0.05
Widower	0.03	0.03
disabled	0.01	0.01
N (Municipalities)		5570

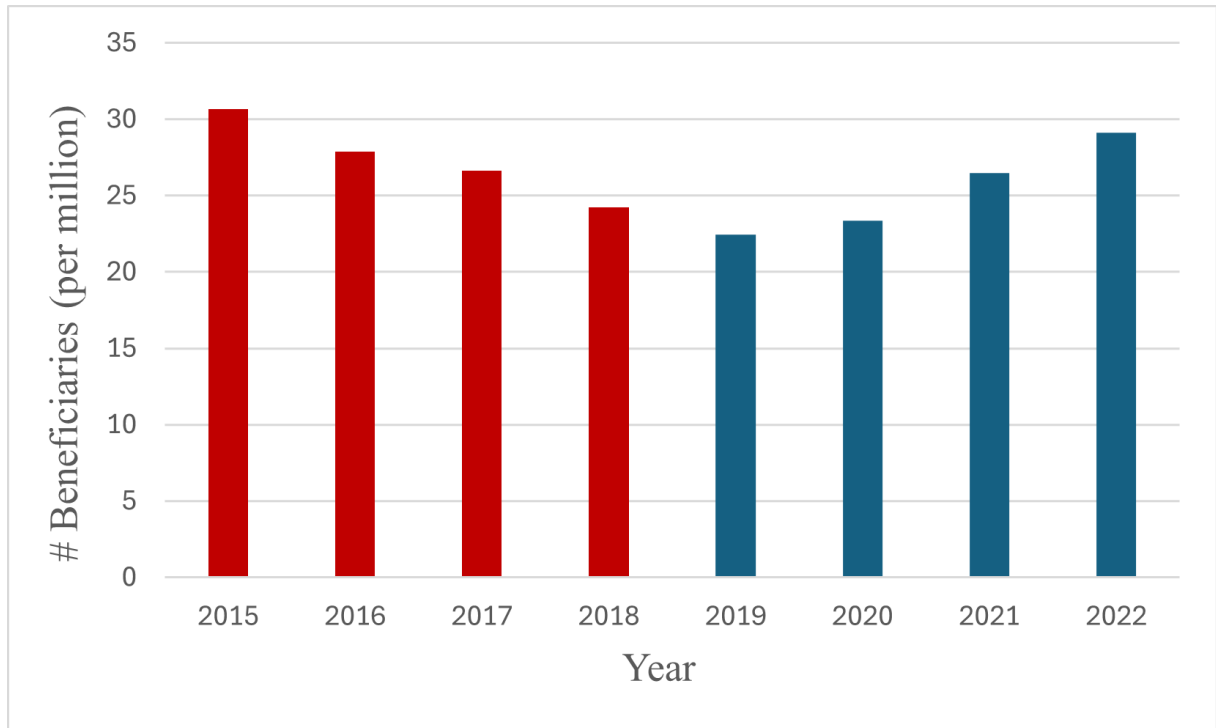
One major difference observed compared to Table 1 is the beneficiary proportion. On one hand, the higher percentage of beneficiaries receiving the program²² can be explained by one table covering 4 years and the other covering only 1 year. On the other hand, there was a decrease in the number of beneficiaries receiving the program from 2015-2018 to 2019-2022 in Table 20, whereas Table 1 shows an increase. Although this fact shows that the beneficiary proportion was indeed higher during the opposition's government, it would be a false narrative to suggest that beneficiaries would vote less for Bolsonaro because of this fact.

Firstly, the econometric model captures how the difference in the proportion of beneficiaries within the municipality over the two periods is associated with Bolsonaro's voting. Therefore, if the beneficiary proportion variable estimate is positive, it would mean that, on average, municipalities that increased the number of beneficiaries from the 2015-2018 to the 2019-2022 periods tended to vote more for Bolsonaro in 2022 compared to 2018. This relationship is not affected by the fraction of beneficiaries out of the total number of electors.

Another factor that helps explain why a smaller fraction of beneficiaries leading to Bolsonaro receiving fewer votes is a false narrative is how the total number of beneficiaries behaved under both administrations. Figure 5 helps to illustrate this:

²²27.5% in 2015-2018 and 22.5% in 2019-2022.

Figure 5: Below Caption: Event Study Median benefit per capita in 1st and 2nd Rounds



Source: Own elaboration using data from *Cadastro Único*.

As observed, the number of beneficiaries during the administrations of Dilma and Temer fell, while they grew during Bolsonaro's administration. This could lead to the conclusion that, even though the percentage of beneficiaries in the voting population fell, they might tend to vote less for Lula in 2022 because they stopped receiving the program during his party's administration and started receiving it again under Bolsonaro's administration.

Additionally, another notable difference between the two sets of descriptive statistics is the average expenditure. The average expenditure is significantly smaller when considering the full period compared to the last year. This is expected, as the increases in the benefit value for the program were close to the election date and notably higher compared to other years of Bolsonaro's administration.

Some tables regarding the impact for the full period of beneficiary proportion and benefit per capita changes on electoral outcomes from 2018 to 2022 can be found in the appendix section on tables 21 to 24. Results from the main empirical framework were estimated. As observed, most results are similar to the coefficients estimated using only beneficiaries from the last year before the election: negative and generally significant.

7 DISCUSSION

Throughout this dissertation, series of regressions were conducted to evaluate how changes in beneficiary proportion and benefit per capita are associated with former Brazilian president

Jair Bolsonaro's electoral results from 2018 to 2022. The findings differ from most of the existing literature. Although numerous regressions were performed, the results were largely consistent: a significant negative trend. While the majority of models yielded consistent results, the pre-trend and event study models had significant coefficient estimates, suggesting that Bolsonaro's administration may have targeted an expansion of the *Bolsa Família* program more heavily in areas where the right wing experienced greater electoral growth from 2014 to 2018.

The results from the pre-trend and event study strategies indicate the presence of endogenous factors that prevent the models from determining causality and estimating the effect of the *Bolsa Família* program's expansion. Since the increase in the number of beneficiaries from 2018 to 2022 appears to be related to the change in votes from 2014 to 2018, I conclude that unobserved factors not captured by the models may be influencing the results. In this section, I elaborate some hypothesis regarding these possible unobserved factors that could lead to future research.

ENKE (2020) presents evidence that American voters have experienced increased moral polarization in recent years. It is plausible that a similar trend is occurring among Brazilian voters. If this is the case, beneficiaries may have started to consider morality factors more important when they choose who to vote instead of economical factors such as the benefit received from the CCT program. While insignificant results would make this more transparent, the observed result shift could still be due to unobserved time and municipality-varying factors associated with morality.

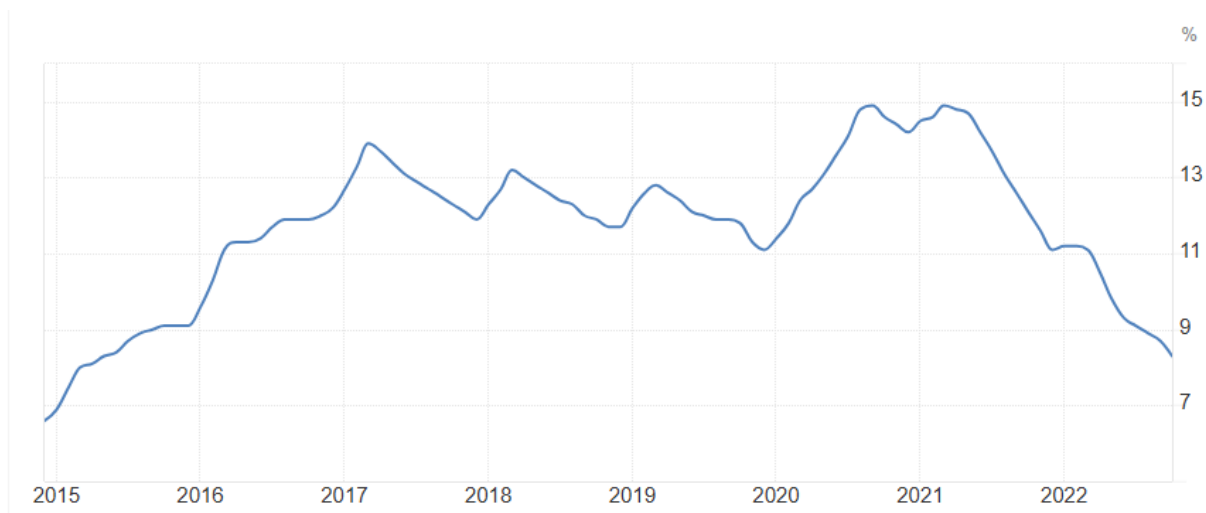
One concern related to morality, for example, could be voting shifts due to the rise of social media strategies that spread misinformation, fake news, and diminish the credibility of Brazilian institutions. LEVY (2021) collects results using data from Facebook, suggesting that social media algorithms could be limiting exposure to opposing views and thus increasing polarization. In this context, aggressive social media persuasion towards voting could heavily target individuals in fragile economic situations, affecting their voting behavior. One possible explanation for the event study results is that individuals who received *Bolsa Família* in 2018 shifted their votes towards right-wing parties relative to 2014 due to misinformation and moral panic. This would explain why municipalities above the median voted less for the Workers' Party opposition in 2014 relative to 2018. As the spread of fake news became more common, left-wing parties began developing strategies to counteract it, which may have made those in fragile economic situations less susceptible to moral panic and less likely to vote for right-wing parties. This would explain the negative 2022*above median coefficients in the event study.

Another hypothesis is that in the context of policies affecting CCTs in a country where previous administrations also implemented them, the voting trend could be dispersed between the incumbent party and the former president's party that implemented the program. Before Bolsonaro's administration, Lula's Workers' Party implemented *Bolsa Família* and was highly credited and rewarded with higher vote shares for alleviating poverty among poor households, as suggested by PINHO NETO (2018) and ZUCCO JR (2013). If program beneficiaries credit the Workers' Party for their payments, policies that improve the benefit or expand the number of

beneficiaries could generate a positive trend for the Workers' Party's vote share and, consequently, a negative result for Bolsonaro's vote share. On the other hand, PINHO NETO (2018) found that the vote share increase from *Bolsa Família* from 2010 to 2014 came mostly from newcomers, suggesting that households receiving CCT since 2006 would not increase their voting for the Workers' Party between those two elections. If this was also the case for policies from 2018 to 2022, the loss in Bolsonaro's vote share would be attributed to newcomers, who potentially have a smaller association with the program and Lula.

Another factor that could explain the results obtained is that the economic outcomes and COVID-19 pandemic during the administration particularly affected the poor, which could have balanced the trend of the program on voting share. Additionally, families that managed to leave the program because their income increased to the point of ineligibility could switch their votes from the incumbent to the opposition, attributing their need to return to the program due to the economic crisis to Bolsonaro. Data on unemployment in Brazil, which could relate to this hypothesis, is shown in Figure 6:

Figure 6: Unemployment rate x Years in Brazil



Source: TRADING ECONOMICS (2025) using data from Instituto Brasileiro de Geografia e Estatística (IBGE).

Given the worldwide economic crisis due to the pandemic, Brazil was particularly affected by high inflation and unemployment during this period, with unemployment reaching up to 15%. This could have led some households to shift their votes. In this hypothesis, the rewards from the CCTs implemented by the incumbent administration may have been counterbalanced by households transferring their votes to the opposition due to poor economic and sanitary conditions. Additionally, since there was an economic crisis between 2014 and 2018 with a high unemployment rate, this could also explain the negative coefficient of 2014*above median in the event study regressions.

Some of these hypotheses can be explored by running the main regressions while evaluating the period from 2014 to 2018. If the economic hypothesis and political polarization hypothesis

are correct, we should observe results different from the existing literature. The estimations for these regressions are shown in Tables 15 and 16 below:

Table 15: Trend of Beneficiary proportion on incumbent's vote share: 2014-2018

Dependent Variable: Model:	Vote Share Workers Party		
	(1)	(2)	(3)
First Round			
<i>Variables</i>			
Beneficiary Proportion	-0.0863*** (0.0260)	-0.0257 (0.0254)	-0.0339* (0.0190)
<i>Fit statistics</i>			
Observations	11,140	11,140	11,140
R ²	0.94443	0.95522	0.97838
Within R ²	0.00219	0.19600	0.06260
Second Round			
<i>Variables</i>			
Beneficiary Proportion	-0.1830*** (0.0213)	-0.1102*** (0.0202)	-0.0809*** (0.0188)
<i>Fit statistics</i>			
Observations	11,140	11,140	11,140
R ²	0.95814	0.96936	0.97711
Within R ²	0.01344	0.27789	0.07709
<i>Fixed-effects and Controls</i>			
Municipality	Yes	Yes	Yes
Year	Yes	Yes	Yes
Controls	No	Yes	Yes
State*Year	No	No	Yes

Clustered (Municipality) standard-errors in parentheses

*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

Table 16: Trend of Benefit per capita on incumbent's vote share: 2014-2018

Dependent Variable:	Vote Share Workers Party		
Model:	(1)	(2)	(3)
First Round			
<i>Variables</i>			
Log Benefit per capita	0.0760*** (0.0093)	0.0505*** (0.0085)	0.0274*** (0.0067)
<i>Fit statistics</i>			
Observations	11,140	11,140	11,140
R ²	0.94492	0.95548	0.97844
Within R ²	0.01101	0.20054	0.06518
Second Round			
<i>Variables</i>			
Log Benefit per capita	0.0879*** (0.0085)	0.0437*** (0.0076)	0.0211*** (0.0069)
<i>Fit statistics</i>			
Observations	11,140	11,140	11,140
R ²	0.95842	0.96939	0.97707
Within R ²	0.02005	0.27842	0.07558
<i>Fixed-effects and Controls</i>			
Municipality	Yes	Yes	Yes
Year	Yes	Yes	Yes
Controls	No	Yes	Yes
State*Year	No	No	Yes
<i>Clustered (id_municipio) standard-errors in parentheses</i>			
<i>Signif. Codes: ***: 0.01, **: 0.05, *: 0.1</i>			

Although ambiguous with a positive trend on the intensive margin, the negative and insignificant estimates on the extensive margin show some differences compared to the main literature. This could indicate that economic changes or moral panic may have led beneficiaries to vote more for Bolsonaro in 2018 than for the right-wing candidate in 2014. Beneficiaries might have been influenced by targeted fake news or changed their voting because they attributed the economic crisis to the former administration of President Dilma Rousseff from the Workers' Party.

Lastly, another hypothesis for the negative results from the model could be due to the fluctuation in the value of the benefit from *Auxílio Emergencial*. Since *Bolsa Família* recipients were incorporated into the program, a household that initially received a total of R\$1200.00 could have ended up receiving only R\$600.00. This could have caused dissatisfaction among

the beneficiaries, leading them to switch their votes from Bolsonaro in 2018 to Lula in 2022.

8 CONCLUSION

As demonstrated in this paper, most of the literature presents a positive effect between receiving a Conditional Cash Transfer (CCT) and voting for the incumbent party. Counterintuitively, the results found in this study were negative.

Despite multiple regressions reaffirming these results, some estimates indicate possible factors such as economic crises and increased moral considerations in voting that might be influencing the outcomes of policy changes regarding the program. Future research could further explore these factors, potentially developing better models that associate CCT programs with voting behaviors.

In conclusion, although still not fully explored, the results of this study appear counterintuitive compared to most of the literature and could lead to future research. This makes for promising work that could redefine our understanding of how CCTs can influence voting outcomes.

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A TABLES

Table 17: Trend of Beneficiary proportion on opposition's vote share

Dependent Variable:	Vote Share PT Opposition		
Model:	(1)	(2)	(3)
First Round			
<i>Variables</i>			
Beneficiary Proportion	0.7120*** (0.0229)	0.4119*** (0.0272)	0.2879*** (0.0206)
<i>Fit statistics</i>			
Observations	11,140	11,140	11,140
R ²	0.96444	0.96883	0.98640
Within R ²	0.13625	0.24270	0.19035
Second Round			
<i>Variables</i>			
Beneficiary Proportion	0.6551*** (0.0153)	0.2521*** (0.0167)	0.1297*** (0.0138)
<i>Fit statistics</i>			
Observations	11,140	11,140	11,140
R ²	0.98574	0.99073	0.99404
Within R ²	0.25596	0.51666	0.15244
<i>Fixed-effects</i>			
Municipality	Yes	Yes	Yes
Year	Yes	Yes	Yes
Controls	No	Yes	Yes
State*Year	No	No	Yes

Clustered (Municipality) standard-errors in parentheses

*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

Table 18: Trend of Benefit per capita on opposition's vote share

Dependent Variable:	Vote Share PT Opposition		
Model:	(1)	(2)	(3)
First Round			
<i>Variables</i>			
Log Benefic per capita	0.1140*** (0.0073)	0.0316*** (0.0072)	0.0307*** (0.0050)
<i>Fit statistics</i>			
Observations	11,140	11,140	11,140
R ²	0.96051	0.96774	0.98600
Within R ²	0.04074	0.21621	0.16610
Second Round			
<i>Variables</i>			
Log Benefit per capita	0.1056*** (0.0049)	0.0154*** (0.0041)	0.0103*** (0.0033)
<i>Fit statistics</i>			
Observations	11,140	11,140	11,140
R ²	0.98232	0.99030	0.99395
Within R ²	0.07762	0.49384	0.13909
<i>Fixed-effects</i>			
Municipality	Yes	Yes	Yes
Year	Yes	Yes	Yes
Controls	No	Yes	Yes
State*Year	No	No	Yes

Clustered (Municipality) standard-errors in parentheses

*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

Table 19: Event Study: Trend of Beneficiary proportion median on incumbent's vote share

Dependent Variable:	Vote Share Bolsonaro		
Model:	(1)	(2)	(3)
First Round			
<i>Variables</i>			
Above Median×2014	-0.0393*** (0.0024)	-0.0385*** (0.0025)	-0.0290*** (0.0025)
Above Median×2022	-0.0353*** (0.0011)	-0.0352*** (0.0013)	-0.0214*** (0.0013)
<i>Fit statistics</i>			
Observations	16,710	16,710	16,710
R ²	0.94024	0.94367	0.95901
Within R ²	0.03828	0.09350	0.05898
Second Round			
<i>Variables</i>			
Above Median×2014	-0.0613*** (0.0021)	-0.0538*** (0.0022)	-0.0210*** (0.0021)
Above Median×2022	-0.0558*** (0.0013)	-0.0585*** (0.0015)	-0.0207*** (0.0012)
<i>Fit statistics</i>			
Observations	16,710	16,710	16,710
R ²	0.95703	0.95939	0.97306
Within R ²	0.10191	0.15117	0.03510
<i>Fixed-effects</i>			
Municipality	Yes	Yes	Yes
Year	Yes	Yes	Yes
Controls	No	Yes	Yes
State×Year	No	No	Yes

Clustered (Municipality) standard-errors in parentheses

*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

Table 20: Event Study: Trend of Benefit per capita median on incumbent's vote share

Dependent Variable:	Vote Share Bolsonaro		
Model:	(1)	(2)	(3)
First Round			
<i>Variables</i>			
Above Median \times 2014	-0.0171*** (0.0025)	-0.0150*** (0.0024)	-0.0143*** (0.0021)
Above Median \times 2022	-0.0134*** (0.0012)	-0.0142*** (0.0012)	-0.0098*** (0.0011)
<i>Fit statistics</i>			
Observations	16,710	16,710	16,710
R ²	0.93827	0.94180	0.95845
Within R ²	0.00661	0.06338	0.04628
Second Round			
<i>Variables</i>			
Above Median \times 2014	-0.0081*** (0.0022)	-0.0051** (0.0022)	-0.0050*** (0.0017)
Above Median \times 2022	-0.0139*** (0.0015)	-0.0155*** (0.0015)	-0.0072*** (0.0010)
<i>Fit statistics</i>			
Observations	16,710	16,710	16,710
R ²	0.95236	0.95531	0.97268
Within R ²	0.00432	0.06599	0.02149
<i>Fixed-effects</i>			
Municipality	Yes	Yes	Yes
Year	Yes	Yes	Yes
Controls	No	Yes	Yes
State \times Year	No	No	Yes

Clustered (Municipality) standard-errors in parentheses

*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

Table 21: Trend of Beneficiary proportion on turnout: Full administration period

Dependent Variable:	Turnout		
Model:	(1)	(2)	(3)
First Round			
<i>Variables</i>			
Beneficiary Proportion	0.0389*** (0.0058)	0.0185*** (0.0064)	0.0147** (0.0063)
<i>Fit statistics</i>			
Observations	11,140	11,140	11,140
R ²	0.93803	0.96623	0.97198
Within R ²	0.00909	0.45991	0.36494
Second Round			
<i>Variables</i>			
Beneficiary Proportion	0.0425*** (0.0066)	0.0270*** (0.0074)	0.0336*** (0.0068)
<i>Fit statistics</i>			
Observations	11,140	11,140	11,140
R ²	0.93113	0.96096	0.97014
Within R ²	0.00825	0.43782	0.37220
<i>Fixed-effects</i>			
Municipality	Yes	Yes	Yes
Year	Yes	Yes	Yes
Controls	No	Yes	Yes
State×Year	No	No	Yes

Clustered (Municipality) standard-errors in parentheses

*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

Table 22: Trend of Benefit per capita on turnout: Full administration period

Dependent Variable:	Turnout		
Model:	(1)	(2)	(3)
First Round			
<i>Variables</i>			
Log Benefit per capita	0.0049 (0.0030)	-0.0016 (0.0025)	-0.0055** (0.0025)
<i>Fit statistics</i>			
Observations	11,140	11,140	11,140
R ²	0.93749	0.96616	0.97198
Within R ²	0.00045	0.45892	0.36476
Second Round			
<i>Variables</i>			
Log Benefit per capita	0.0114*** (0.0035)	0.0075** (0.0030)	-0.0010 (0.0027)
<i>Fit statistics</i>			
Observations	11,140	11,140	11,140
R ²	0.93069	0.96089	0.96999
Within R ²	0.00190	0.43681	0.36908
<i>Fixed-effects</i>			
Municipality	Yes	Yes	Yes
Year	Yes	Yes	Yes
Controls	No	Yes	Yes
State × Year	No	No	Yes

Clustered (Municipality) standard-errors in parentheses

*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

Table 23: Trend of Beneficiary proportion on incumbent's vote share: Full administration period

Dependent Variable:	Vote Share Bolsonaro Incumbent		
Model:	(1)	(2)	(3)
First Round			
<i>Variables</i>			
Beneficiary Proportion	-0.3253*** (0.0078)	-0.1804*** (0.0110)	-0.1482*** (0.0104)
<i>Fit statistics</i>			
Observations	11,140	11,140	11,140
R ²	0.98866	0.99019	0.99236
Within R ²	0.24066	0.34345	0.19285
Second Round			
<i>Variables</i>			
Beneficiary Proportion	-0.5258*** (0.0091)	-0.2611*** (0.0120)	-0.1620*** (0.0106)
<i>Fit statistics</i>			
Observations	11,140	11,140	11,140
R ²	0.98813	0.99117	0.99423
Within R ²	0.38055	0.53939	0.17877
<i>Fixed-effects</i>			
Municipality	Yes	Yes	Yes
Year	Yes	Yes	Yes
Controls	No	Yes	Yes
State × Year	No	No	Yes

Clustered (Municipality) standard-errors in parentheses

*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

Table 24: Trend of Benefit per capita on incumbent's vote share: Full administration period

Dependent Variable:	Vote Share Bolsonaro		
	Incumbent		
Model:	(1)	(2)	(3)
First Round			
<i>Variables</i>			
Log Benefit per capita	-0.0998*** (0.0048)	-0.0259*** (0.0048)	-0.0154*** (0.0045)
<i>Fit statistics</i>			
Observations	11,140	11,140	11,140
R ²	0.98614	0.98970	0.99206
Within R ²	0.07227	0.31034	0.16187
Second Round			
<i>Variables</i>			
Log Benefit per capita	-0.1742*** (0.0059)	-0.0468*** (0.0053)	-0.0248*** (0.0043)
<i>Fit statistics</i>			
Observations	11,140	11,140	11,140
R ²	0.98338	0.99042	0.99398
Within R ²	0.13326	0.50008	0.14294
<i>Fixed-effects</i>			
Municipality	Yes	Yes	Yes
Year	Yes	Yes	Yes
Controls	No	Yes	Yes
State×Year	No	No	Yes

Clustered (Municipality) standard-errors in parentheses

*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*