ECONOMIC VOTING AND BRAZILIAN SOY: A VALENCE, POSITION AND PATRIMONY APPROACH

O VOTO ECONÔMICO E A SOJA BRASILEIRA: UMA ABORDAGEM SOBRE VALÊNCIA, POSIÇÃO E PATRIMÔNIO

EL VOTO ECONÓMICO Y LA SOJA BRASILEÑA: UN ENFOQUE DE VALENCIA, POSICIÓN Y PATRIMONIO

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ABSTRACT: This article investigates the effects of economic voting in Brazilian soy-producing municipalities since the turn of the 21st century. It does so by adopting an expanded approach toward economic voting, incorporating not only valence economic voting - voters' perception of the economy as either good or bad - but also position and patrimony economic voting, that is, analyzing how public policy preferences and asset ownership affect voters' evaluations of incumbents. In this sense, the article examines how environmental and land policies, two issues that have been especially contentious in Brazilian agribusiness, have impacted behavior at the ballot box. To accomplish its goals, the study relies on a novel dataset that contains information on all 2387 Brazilian soy-producing municipalities, which comprise nearly half of the total of Brazilian cities, and it uses a fixed-effect panel data model. Results confirm the significance of all three kinds of economic voting. Higher soy prices do favor incumbents, while agrarian reform policies harm incumbents' chances of reelection. Interestingly, soy-producing municipalities have rewarded pro-environment policies since the mid-2000s, contrary to the expectations of the traditional narrative regarding agribusiness.

KEYWORDS: Economic voting. Soy. Brazil. Agribusiness.

***RESUMO**: O artigo investiga os efeitos do voto econômico em cidades brasileiras produtoras de soja desde a virada do século. Para isso, adota uma abordagem expandida do voto econômico, incorporando não somente o voto econômico de valência – a percepção dos eleitores de que a economia vai bem ou mal -, mas também o voto econômico de posição e de patrimônio; ou seja, analisando como preferências relativas a políticas públicas e questões patrimoniais afetam a avaliação que é feita dos incumbentes. Nesse sentido, o artigo examina como políticas ambientais e fundiárias, dois temas que são especialmente sensíveis no agronegócio brasileiro, têm impactado comportamento na hora do voto. Para atingir seus objetivos, o estudo faz uso de uma base de dados inédita que contém informação acerca das 2387 cidades brasileiras que produzem soja, as quais compreendem quase metade dos municípios brasileiros, e utiliza um modelo de painel de efeitos fixos. Os resultados confirmam a significância dos tipos de voto econômico. Preços mais altos de soja favorecem o incumbente, enquanto a políticas de reforma agrária prejudicam suas chances de reeleição. Ao mesmo tempo, cidades produtoras de soja recompensaram governos que instituíram políticas ambientais desde a metade dos anos 2000, ao contrário das expectativas da narrativa tradicional acerca do agronegócio.*

***PALAVRAS-CHAVE**: Voto econômico. Soja. Brasil. Agronegócio.*

***RESUMEN**: Este artículo investiga los efectos del voto económico en los municipios brasileños productores de soja desde principios del siglo XXI. Lo hace adoptando un enfoque ampliado hacia el voto económico, incorporando no sólo el voto económico de valencia (la percepción de los votantes de la economía como buena o mala) sino también el voto económico por posición y patrimonio, es decir, analizando cómo las preferencias de políticas públicas y la propiedad de activos afectar las evaluaciones que los votantes hacen de los titulares. En este sentido, el artículo examina cómo las políticas ambientales y agrarias, dos temas que han sido especialmente polémicos en la agroindustria brasileña, han impactado el comportamiento en las urnas. Para lograr sus objetivos, el estudio se basa en un novedoso conjunto de datos que contiene información sobre los 2.387 municipios brasileños productores de soja, que comprenden casi la mitad del total de ciudades brasileñas, y utiliza un modelo de datos de panel de efectos fijos. Los resultados confirman la importancia de los tres tipos de votación económica. Los precios más altos de la soja favorecen a los gobernantes, mientras que las políticas de reforma agraria perjudican sus posibilidades de reelección. Curiosamente, los municipios productores de soja han recompensado las políticas proambientales desde mediados de la década de 2000, contrariamente a las expectativas de la narrativa tradicional sobre la agroindustria.*

***PALABRAS CLAVE**: Voto económico. Soya. Brasil. Agronegocios.*

Introduction

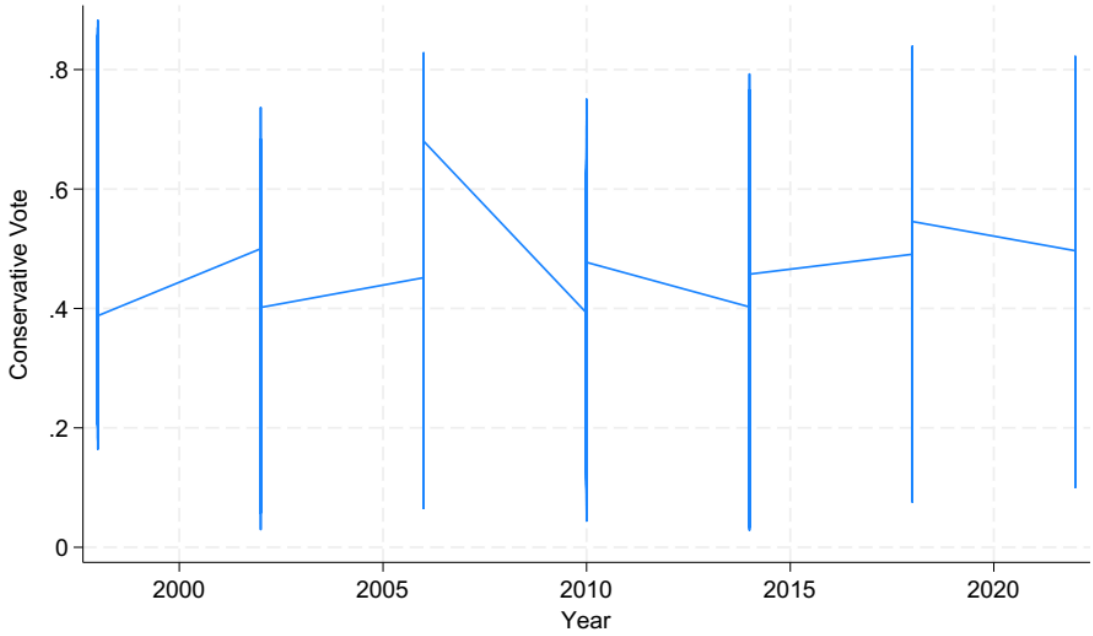
Economic voting has long been accepted in the political economy literature as a key factor in understanding voters' electoral behavior (Butler; Stokes, 1969; Hellwig, 2015; Kramer, 1971; Nadeau, Lewis-Beck; Bélanger, 2013). However, in the context of the progressive administrations that governed Brazil during the peak of the commodity boom of the early 21st century, the intense conservatism of key regions of Brazilian agribusiness led many to question whether or to what extent the sector's growing profits have had an impact on support for incumbents (Passador, 2022; Pompeia, 2021, 2022). Considering how consolidated the literature on economic voting is, this scenario reveals an important puzzle that remains unanswered. That is, if economic voting is unambiguously accepted as a phenomenon in the political science literature, why have Brazil's agribusiness regions apparently become more conservative during the commodity boom, when progressive administrations governed the country? To address this puzzle, this paper will analyze economic voting in soy-producing municipalities in Brazil.

Soy is Brazil's main commodity export, with the country having become the world's top producer in recent years, within the context of China's growing demand (Escher; Wilkinson, 2019; Jank; Guo; Miranda, 2020; Jenkins, 2015; Santoro, 2020). Therefore, understanding how economic forces shape the electoral behavior of soy-producing regions in Brazil is increasingly important, and no research has thus far attempted to fill this gap. To do so, this paper is the first to test economic voting in Brazilian soy-producing municipalities, whose profits stem from the production of low-valued-added commodities in large properties. As this paper's results indicate, international soy prices do have a consistent and significant impact on voters' behavior at the ballot box.

Furthermore, recent research on economic voting has expanded the definition of voters' evaluation of the economy beyond a matter of valence, i.e. how a good or a bad economy (or perceptions thereof) affects political behavior, and it has analyzed how issues concerning policy position and patrimony issues affect behavior at the ballot box (M. S. Lewis-Beck; Nadeau, 2011). In agribusiness-dependent regions of Brazil, issues concerning land conflict have long been highly contentious, given that they directly affect landowners' property rights (Bruno, 2015; Cattelan; Moraes; Rossoni, 2020; Pompeia, 2021; Sevá, 2016). Indeed, resistance against agrarian reform was one of the catalyst issues of the 1964 military coup in the country, and after democratization, it has served to unite many of the conservative forces in the Brazilian Congress (Costa, 2012; Fausto, 2019; Reis, 2014; Vigna, 2001). I In addition, environmental policy has

also become a matter of dispute in Brazilian agribusiness. For instance, the update of the Forest Code, in 2012, which better defined landowners' obligations regarding the legal reserve areas and areas of permanent protection within their properties, faced strong opposition from agribusiness sectors (Pompeia, 2021, 2022). Considering these facts, this paper is the first to incorporate such an expanded notion of economic voting in Brazil by analyzing the impact of land and environmental issues and policies on voter behavior in soy-producing municipalities. As my analysis will indicate, these factors also have a significant impact on voter behavior.

Graph 1 – Evolution of Votes for Conservative Candidates in Soy Producing Cities



Source: prepared by author.

To carry out this research, I have built an original dataset that includes voting results for all of Brazil's 2387 municipalities that produce soy – a considerable share of the total of nearly 5600 cities in the country. My dependent variable is the election results for the first round of all presidential elections from 1998 until 2022, taken from the Superior Electoral Court's (TSE) databases - the 1998 elections were the first to include the possibility of presidential reelection. My explanatory variables are international soy prices, the number of agrarian conflicts per municipality, the number of agrarian reform settlements per municipality, and the number of fines and embargoes imposed by IBAMA - the Brazilian Institute for the Environment and Renewable Natural Resources. Thus, this paper provides valuable empirical and theoretical contributions by examining economic voting in an increasingly important economic region of

a key player in global agriculture and from a perspective that is especially relevant for commodity-producing, developing countries where land is unequally distributed.

Brazil is a significant example of such a country. Over the last three decades, Brazilian agribusiness has enjoyed continuous and significant growth. Since 2009, commodities have once again become the country's main exports, and, according to estimates, agribusiness value chains together now comprise nearly 30% of Brazilian GDP (*Centro de Estudos Avançados em Economia Aplicada, USP*, 2021). Soy is at the epicenter of this process. It has become Brazil's most important crop, with the country being the world's top producer since 2020, overcoming the traditional leadership of the United States. Indeed, soy exports grew from three billion dollars in 2002 to 44 billion in 2022 (*Comex Stat*, 2022). Today, the per capita GDP in the state of Mato Grosso, the main producer, has surpassed São Paulo's per capita GDP, the richest state in the country, whose economy alone would place it in the top five in Latin America in case it were counted as an independent country (Morceiro; Toledo, 2023). Thus, the issue of economic voting in Brazilian agribusiness regions is especially relevant.

The article will proceed as follows. In the next section, I will provide a literature review regarding economic voting, stating the paper's hypotheses and their underpinning. In the third section, I will provide the empirical section and its results. Finally, the paper concludes.

Economic Voting in Commodity-Producing Regions

Many researchers have investigated the conditions that either increase or decrease the correlation between the economy and incumbent support and how voters use the information to hold governments accountable (Ashworth, 2012; Duch; Stevenson, 2008; Healy; Malhotra, 2013; Samuels, 2004). However, compared to Europe and North America, research on economic voting in Latin America has been relatively scant. Lewis-Beck and Stegmaier (2008) analyzed fifteen studies that measured the expected effects; that is, poor economic performance, leading voters to punish incumbents at the ballot box. Such research includes Remmer's (1991) important contribution, which looks at 21 presidential elections in 12 countries and demonstrates that exchange rate fluctuations, inflation, and growth influence voters' choices. In the same vein, Benton (2005) studies 39 presidential elections between 1980 and 2003 in Latin American nations, once again finding that a poor economy hurts governments' electoral prospects.

Building on these findings, other researchers have analyzed the role of institutions in the Latin American context. Gélineau (2007), Ratto (2011), and Valdini and Lewis-Beck (2018), for instance, found significant effects for characteristics such as party system, party identification, possibility of reelection, unified government, two-round balloting, concurrent elections, term limits, and freedom of the press on the responsibility that voters attribute to presidents. In turn, Johnson and Schwindt-Bayer (2009) find that, in Central America, good economic performance increases support for the president under unified government, at the same time, a bad economy hurts electoral prospects more under a divided government. Finally, Campello and Zucco (2016) raise important questions regarding the issue of clarity of responsibility by demonstrating that, in low-savings, commodity-exporting economies such as those of most South American countries, presidential popularity, and reelection prospects largely depend on factors that are exogenous to presidents' policies, namely international interest rates and commodity prices. Campello and Zucco (2018) also find that information reduces misattribution bias in the case of sophisticated voters.

Research by Novaes and Schiumerini, (2022) is especially relevant for the present context. They show that, in Brazil, exogenous effects related to commodity prices have an impact on mayoral elections, especially in cities whose economies are based on agricultural products. In this sense, their work, along with Campello and Urdinez (2021), helps demonstrate that, in Brazil, as in many other nations, voters evaluate leaders sociologically, that is, by making retrospective evaluations of the general state of the economy, instead of placing emphasis on their individually defined self-interest, or pocketbook voting (Kinder; Kiewiet, 1981). These findings are important for the present research, considering that soy prices constitute an exogenous factor whose effects reverberate throughout local economies, regardless of whether voters are directly employed in the business sector or not.

Finally, Lewis-Beck and Nadeau (2011) expand the issue space of economic voting to include evaluations that go beyond voters' valence of the economy as good or bad, incorporating what they define as position and patrimony economic voting. Position economic voting means that voters support the party nearest to their policy position. Papers that include such an approach range from the impact of the US budget deficit on the 1988 US presidential election (Bratton, 1994) to Greek voters rewarding or punishing incumbents regarding the bailout agreement their government had made during the peak of the economic crisis of the early 2010s(Nezi; Katsanidou, 2014). Patrimony economic voting, in turn, entails that voters with greater accumulation of wealth – stocks, houses, or, as in the case of this paper's analysis, land

– advocate different policies and favor different parties, preferring, for instance, free enterprise, or market-oriented parties. As mentioned, I believe that, in Brazilian agribusiness regions, this translates into resistance toward policies that democratize access to land. Over the past decades, there have been studies that looked into asset ownership and economic voting (Hellwig; McAllister, 2019; Quinlan; Okolikj, 2022). However, in Brazil, no such research effort has been carried out yet.

All these works look at economy-wide phenomena, providing important contributions. However, even fewer studies have analyzed the behavior of specific key sectors of Latin American economies, which are especially influential in those countries' politics. Porto and Lodola (2013) compare the effects of export taxes and export quotas on the voting patterns of 134 Argentine municipalities with different productive structures. They find that, prior to the implementation of such policies, greater commodity exports had a positive effect on incumbent voting in commodity-producing cities, in the 2007 legislative elections. However, the policies had a negative effect on government party votes in the 2009 legislative elections, despite the government's attempt to implement transfers that compensated for the losses that resulted from lower exports. Mangonnet Murillo and Rubio (2018) build on Porto and Lodola's research and estimate effects for the 2007, 2009, 2011, and 2013 legislative elections, as well as for the 2011 and 2015 presidential elections in soy-producing municipalities in Argentina. They find consistent significant effects for their hypotheses – greater soybean production at first increases electoral support for the government, but then the export-restriction policies impose a negative effect on such support.

The present work is the first to study economic voting in soy-producing regions of Brazil; more specifically, it is the first to explore how local economic conditions affect electoral behavior in Latin America's biggest agribusiness sector. In addition, it builds on the aforementioned research, incorporating the concepts of valence, position, and patrimony economic voting into the analysis. As far as I know, no other work has studied voting behavior in agribusiness-dependent municipalities in Brazil from this perspective. This is an especially important research effort, given that Brazil is a country that plays a key role in international commodity markets and the global food production economy. Today, Brazilian agriculture is highly mechanized and capital-intensive, and it possesses intense links to international markets. Considering the backing that agribusiness has lent to conservative leaders, as evinced by the important support landowning segments of the economy gave to the Bolsonaro

administration (2019-2022), the question of whether or to which extent the economy significantly influences voter behavior in agribusiness regions arises.

Considering the literature on economic voting and the transformations in Brazilian agribusiness over recent decades, I present the following hypotheses.: *H1 – Higher (lower) soy prices should increase (reduce) votes for the incumbent party in each presidential election.*

This first hypothesis follows traditional valence economic voting theory, based on a sociotropic analysis. However, no academic article has tested this hypothesis in Brazil, specifically considering Brazilian agriculture and soy-producing municipalities. Considering the support agribusiness regions have lent to the growth of conservative movements in the country (Pompeia, 2022), it is important to understand how and the extent to which economic forces influence voter behavior.

The second hypothesis tests the position of economic voting theory. In the context of the transformations in Brazilian agribusiness in recent decades, along with its growing profits, many landowning sectors of the economy have resisted the strengthening and enforcement of environmental law (Pompeia, 2021, 2022). Indeed, greater profits from the exploitation of natural resources, such as shale gas or increased agricultural output, have shaped political behavior in developed countries, creating greater opposition to environmental protection and to measures related to government intervention (Cooper; Kim; Urpelainen, 2018; Dasgupta; Ramirez, 2020; Fedaseyeu; Gilje; Strahan, 2019). This paper is the first to test the position of economic voting as related to agribusiness in a developing country. Thus, the second hypothesis is the following: *H2 – The more fines and embargoes by the Brazilian Institute for the Environment and Renewable Natural Resources (IBAMA), the fewer votes the incumbent party should get in each presidential election.*

Lastly, I test the patrimony economic voting hypothesis in Brazilian soy-producing municipalities. In Brazil, as in much of the developing world, land property concentration has historically led to conflict, on the one hand, and to authoritarian reactions by segments of the elites, on the other. Since the end of the military dictatorship, Brazil's now urbanized society has dealt with these tensions by implementing a slow process of agrarian reform, a process which has generated pushback from landowners (Bruno, 2015; Cattelan; Moraes; Rossoni, 2020). Thus, my third hypothesis is: *H3 – The more agrarian conflicts and agrarian reform settlements in the municipality, the fewer votes the incumbent party should get in each presidential election.*

The causal mechanism behind these hypotheses derives from a sociotropic understanding of the impact of soy revenues and environmental and land policies on voters' evaluation of incumbents. As the previously mentioned research has demonstrated, voters' judgment of incumbent performance is often made based on the broader effects of the economy on local well-being rather than on its individual-level, egotropic impacts (Campello & Urdinez, 2021; Mansfield & Mutz, 2009). Given the intense economic growth that soy revenues have provided to municipalities that produce the crop and how the sector's economic and political priorities shape local opinions (Pompeia, 2021), I expect that soy prices and environmental and labor policies directly impact behavior at the ballot box.

Empirical Strategy and Results

I created a novel dataset, which was structured with data from the 2020 Municipal Agricultural Production database, the most recent one by the Brazilian Institute on Geography and Statistics (IBGE). In total, 2387 cities produced soy in Brazil that year, out of a total of 5568 cities in the country, indicating how widespread soy production has become. For the response variable, I gathered information on how each city voted in the first round of the presidential elections in 1998, 2002, 2006, 2010, 2014, 2018, and 2022 from the databases of the Superior Electoral Court (TSE). The period begins with the first presidential election in which the then incumbent, Fernando Henrique Cardoso, could run for reelection, and it coincides with the start of the commodities boom of the 2000s and the ups and downs of the 2010s. I used data from the first round of the elections and not from the runoffs to focus on the voters who were voting on their preferred candidate, not on a 2nd best option.

For each election, I added the percentage of votes in favor of the PT's candidate – the party has had a candidate in the runoff in every election since the end of the military dictatorship - and the percentage of votes for the "other" candidate, who, until 2014, all belonged to the Brazilian Social Democracy Party (PSDB). In 2018 and 2022, the "other" candidate was Jair Bolsonaro, who ran as a member of the Social Liberal Party (PSL) for the first time and for the Liberal Party (PL) for the second time. Thus, I was able to separate which candidate was the incumbent (or representative of the party in power), and who was the challenger at any given election. Even though Brazil is a multiparty democracy, elections for the Executive branch on the national level were polarized between the PT and the PDSB from the 1990s until 2014. Since then, the PT has remained one of the key parties, while the leadership of the right-wing

has become concentrated in the hands of parties that emerged from the "*centrão*" – the cluster of small, conservative parties that comprise a significant share of the Brazilian Congress. Hence, despite the many candidates in the first round of the elections, I was able to concentrate on the two main candidates in each election.

I proceeded to add my explanatory variables. I took the yearly average price for soybeans from the Fred Economic Data initiative by the Federal Reserve Bank of Saint Louis. I chose to run the econometric tests with both prices in dollars and converted them to *reais*. The yearly nominal exchange rate was retrieved from the Brazilian Institute of Applied Economic Research (IPEA). Considering that soy producers earn in *reais* and that, in moments of crisis such as the early 2010s and the Covid-19 pandemic, exchange rate devaluations tend to offset the potential losses or lower growth for exporters, such comparison is important. I did account for the possibility that, soy being Brazil's main agribusiness export, I could run into issues of endogeneity regarding soy exports influencing the exchange rate. However, the composition of the exchange is complex, comprising differences between international and national interest rates, country risk, foreign direct investments, and other factors that go beyond the current accounts rubric of the balance of payments.

I then proceeded to add the variables related to position and patrimony economic voting, taking into consideration the recent debate and research on the political preferences of Brazil's agribusiness (Pompeia, 2021, 2022). I added the total of agrarian conflicts that happened in each municipality throughout the period of analysis. That information came from a dataset with which the Pastoral Land Commission ("*Comissão Pastoral da Terra*", CPT) provided me. The CPT is an agency of the National Conference of the Bishops of Brazil (CNBB) that has, since 1975, helped rural workers protect their rights and assist in situations of rural conflict. This dataset, however, only contains information from the year 2000; therefore, I was not able to include it when evaluating the Cardoso administration. I also included information on agrarian reform settlements, which I retrieved from the National Institute for Colonization and Agrarian Reform's (INCRA) databases. Land conflicts and policies have been a central issue for Brazilian agribusiness for decades – for example, the PT's historical ties to social movements such as the Landless Workers' Movement (MST) are particularly sensitive issues to agribusiness and landowning elites (Barros, 2022; Fernandes, 2017; Pompeia, 2022). I employed the same procedure regarding fines and embargoes by IBAMA, the Brazilian Institute of Environment and Renewable Natural Resources, which is responsible for enforcing environmental law in the country. For IBAMA fines, measured in *reais*, I also created a logarithmic variable.

Finally, I added control variables related to each city's population size, GPD, the value of total agribusiness production per municipality, the share of the evangelical population in each city, and homicide rates – taken from IBGE's and IPEA's databases. I believe that the value of agricultural yield per municipality offers a more precise control variable than GPD since it allows me to better account for the importance of agriculture in the locality. To take into consideration issues that pertain to voters' personal values, I included the percentage of evangelicals per city. This share of the population is known for its conservatism regarding moral issues, and, as in most other Western democracies, in Brazil, they have supported increasingly conversative governments and acted as critical opposition to progressive parties throughout the last decade. The same is true regarding homicide rates. Urban and rural violence is a major issue for conservative voters, and the issue has been used as a mobilization tool for such voters throughout the past decade (Almeida, 2019; Lacerda, 2018). I must also note I considered including the percentage of the population employed in the primary sector of the economy as a control variable. However, given that Brazilian agribusiness is highly mechanized, that Brazil is over 85% urban today, and that, even in cities that are key soy producers, most of the population works in the service sectors, whether such employment is related to the soy value chain or not, such data does not adequately reflect the impact of soy production on the economic benefits individuals enjoy. Indeed, that is another reason why I chose to analyze the economic voting effects of soy production from a sociotropic perspective. Finally, I must note the models for the Cardoso and Bolsonaro years did not include data on land conflicts and municipal agriculture production, which were not available or were incomplete for the period before 2000 and after 2018.

Therefore, the baseline specification model used is the following, through which I ran fixed-effect panel data analyses.

$$Yit = \beta_1 SoyPrices_1 it + \beta_2 Conflict_2 it + \beta_3 Settlements_3 it + \beta_4 Embargoes_4 it + \beta_5 Fines_5 it + \sum_{j=6}^{10} \beta j Controls jit + \varepsilon it$$

Where Y is the percentage of the valid votes for the incumbent in city i in year t; *SoyPrices* is the logged soy price; *Conflict* is the number of agrarian conflicts per municipality; *Settlements* is the number of agrarian reform settlements per municipality; *Embargoes* is the number of IBAMA embargoes per municipality; *Fines* is the logged monetary amount of IBAMA fines per municipality; finally, I added my control variables, plus ε, the error term.

For the explanatory variables, I averaged values for the election year (year 0) and the year before that (year -1). In other words, I used the average soy price for the year of the election and the year before. I took into consideration the fact that the process of exporting products like soy takes months between signing a contract, delivering the product, and the exporter getting paid, and that previous evidence shows voters mostly take into account recent economic performance when making their choices (Healy; Lenz, 2014). To keep the data uniform, I used the same procedure for the other explanatory variables. I also ran the model specification using only values for the year of each election itself, the year before the election, and the average during the incumbent's entire mandate, that is, the four years of each administration. Results were similar for all models; consequently, I chose to report the one that aligns with previous findings on economic voting the most. Finally, all variables were Winsorized, so as to soften the effect of outliers.

The first model focused on the election years of PT's incumbency, that is, 2006, 2010, and 2014. The model used the price of soy in dollars and converted the price of soy to *reais*, which were run separately to avoid collinearity issues. The results are the following.

Table 1 - Votes for the PT - 2006, 2010 and 2014	
Log Soy in Dollars	0.064 ***
	-0.009
Log Soy in Reais	0.066 ***
	0.009
Land Conflicts	-0.004
	0.005
Ibama Embargoes	0.003 *
	0.001
Land Settlements	0.013
	0.020
Log Ibama Fines	0.000
	0.001
Evangelical Population	-0.583 ***
	0.079
Log Agriculture Value Added	0.017 ***
	0.005
Log Population	-0.032
	0.017
Homicide Rate	0.000 **
	0.000
N = 2464	
R Squared = 0.079	
Standard errors are below the coeficients	
*p < 0.10 **p < 0.05 ***p < 0.01	

Source: prepared by author.

Taking into account the years the PT was the incumbent party – first, Luiz Inácio Lula da Silva's bid for reelection in 2006, then Dilma Rousseff's campaign in 2010 and her reelection campaign in 2014 -, soy prices did have a positive effect on the candidates' electoral success. Given the growth tendency of soy prices throughout the period, peaking in 2012, these results confirm H1. In this test, IBAMA embargoes were also statistically significant, but with a positive coefficient, which was different from expectations. In addition, the control variable log of agriculture value added – i.e., the value of the municipality's agricultural yield - also demonstrates that the greater the agricultural sector of a given municipality, the greater the probability its inhabitants voted for the PT during the period which lends more support to H1.

When analyzing only the elections in which Luiz Inácio Lula da Silva was in government, 2006, his reelection bid, and 2010, when he made Dilma Rousseff his successor- the effects of valence economic voting become even more potent, further confirming H1 as the

coefficients in table 2 highlight. Differently from Rousseff, whose administration faced the effects of the early 2010s economic crisis, with commodity prices beginning to decrease after 2012, Lula presided over Brazil during the 2000s commodity boom. The good economic times his administration encountered helped him preside over a period of economic growth, low inflation, and the reduction of inequality, which favored his popularity (Campello; Zucco, 2016). Nonetheless, it was during this period that leadership in agribusiness began voicing more intense opposition regarding the PT and its policies, especially those related to land, labor, and environmental policies (Pompeia, 2021). Once again, results were statically significant regarding environmental policy, but with a positive coefficient.

Table 2 - Votes for the PT - 2006 and 2010

Log Soy in Dollars	0.165 ***
	0.012
Log Soy in Reais	0.265 ***
	0.019
Land Conflicts	-0.008
	0.006
Ibama Embargoes	0.003
	0.001
Land Settlements	0.039
	0.026
Log Ibama Fines	0.003 **
	0.001
Evangelical Population	-0.562 ***
	0.090
Log Agriculture Value Added	0.019 ***
	0.007
Log Population	-0.034
	0.021
Homicide Rate	-0.001 **
	0.000

N = 1804
R Squared = 0.070
Standard errors are below the coeficients
*p < 0.10 **p < 0.05 ***p < 0.01

Source: prepared by author.

To analyze the impact of the economic crisis of the 2010s and the ensuing reduction of commodity prices on votes in soy-producing cities, I also tested the model, looking at

Rousseff's 2014 reelection bid and the 2018 election. To illustrate the downward trend in commodity prices, between 2012 and 2018, international soy prices fell from nearly US$538 a ton to US$342 a ton. During the same period, the exchange rate went from R$1.95 per dollar to R$3.65. The analysis of the period is complex because, in 2016, Rousseff was impeached from the Brazilian presidency amid a political crisis whose effects were intertwined with the international economic crisis. The impeachment led Rousseff's vice-president, Michel Temer, to the presidency, and Temer worked to reverse many of the policies implemented during the PT administrations. Nonetheless, during the 2018 campaign, the PT's main adversary, Jair Bolsonaro, from the Social Liberal Party, ran as the outsider candidate, in the context of the rise of far-right candidates around the world (Hunter; Power, 2019). Thus, for the sake of the present analysis, I considered the PT the incumbent party in 2018.

Table 3 - Votes for the PT - 2014 and 2018

Log Soy in Dollars	0.403 ***
	0.016
Log Soy in Reais	-1.494 ***
	0.058
Land Conflicts	0.016 **
	0.007
Ibama Embargoes	0.000
	0.001
Land Settlements	-0.012
	0.045
Log Ibama Fines	0.001
	0.002
Evangelical Population	
Log Agriculture Value Added	0.000
	0.013
Log Population	0.037
	0.077
Homicide Rate	0.000 *
	0.000

N = 1320
R Squared = 0.021
Standard errors are below the coeficients
*p < 0.10 **p < 0.05 ***p < 0.01
Obs. % of evangelicals was omitted due to colinearity

Source: prepared by author.

The above results are especially interesting because they show that the devaluation of the exchange rate had profound negative effects on how voters in soy-producing municipalities evaluated the PT's administration. On the one hand, the above-mentioned decline in soy prices in dollars, from the peak of US$537.76 per ton in 2012 to US$342.53 in 2018, was indeed offset by the decline of the nominal exchange rate. In this context, while exporters earned R$1050.78 *reais* per ton in 2012, they earned R$1251.47 in 2018. Nonetheless, as Quinn *et al.* (2023) demonstrate, voters generally punish depreciation of the exchange rate, especially if they judge the currency to be undervalued. Thus, the decline of international soy prices, coupled with such devaluations, may explain the negative coefficient measured in the model using prices in *reais* despite the nominal gains producers made. More importantly, the measured effects continue to be statistically significant, further confirming this research's hypothesis. In addition, for the period, the presence of land conflicts in agribusiness municipalities had a significant statistical impact on votes for the PT, differently from what H3 predicted. Finally, the results for the control variable regarding the percentage of the evangelical population were omitted from the calculations due to collinearity issues in the model.

Going back in time to the Cardoso administration, the effects of economic voting on voters' behavior were also significant, confirming H1 again, and its effects were similar to those faced by Dilma Rousseff. Between 1997 and 2001, international soy prices declined from US$280.60 per ton to US$168.75 per ton; in 2002, they began rising again, reaching US$188.87 that year. At the same time, the nominal exchange rate went from R$1.08 to the dollar in 1997 to R$2.92 to the dollar in 2002, following the end of the policy of parity in 1999, amid a foreign reserves crisis. It is interesting to note, once again, how strong exchange rate devaluations lead voters to negatively evaluate the economy despite the compensation effect that a weaker currency provides exporters when international prices fall.

Table 4 - Votes for the PSDB - 1998 and 2002

Log Soy in Dollars	0.791 ***
	0.020
Log Soy in Reais	-0.518 ***
	0.013
Ibama Embargoes	-0.011 **
	0.006
Land Settlements	0.034
	0.025
Log Ibama Fines	-0.006 ***
	0.002
Evangelical Population	
Log Population	-0.140 ***
	0.028
Homicide Rate	-0.001 *
	0.000

N = 2151
R Squared = 0.3664
Standard errors are below the coeficients
*p < 0.10 **p < 0.05 ***p < 0.01
Obs. % of evangelicals was omitted due to colinearity

Source: prepared by author.

In addition, for the period of the Cardoso administration, H2 is confirmed; that is, more embargoes and fines by IBAMA did lead voters to vote against the incumbent in soy-producing municipalities, highlighting the importance of position economic voting in this case. What is especially interesting is the shift from a negative coefficient in the PSDB years to a positive one in the PT years. The environment has been a topic of public debate in Brazil for decades, considering the country's centrality in this global agenda. Indeed, the Brazilian population has consistently displayed higher-than-average levels of concern for the environment, including those measured in developed countries (Filippe, 2023; Garcia, 2022; Mudanças Climáticas na Percepção dos Brasileiros 2022, 2023). At the same time, recent research has shown that most Brazilian agricultural producers do respect sustainable practices, with deforestation being concentrated in specific regions and a small percentage of large properties (Rajão, Soares-Filho, Nunes, Börner, Machado, Assis, Oliveira, Pinto, Ri, Rausch, Gibbs, & Figueira, 2020). Therefore, although leadership in Brazilian agribusiness, especially the landowning segments, has supported the weakening of environmental policy, results suggest that the population in

agribusiness regions may prefer policies that favor the environment. Once again, results concerning the control variable for the percentage of the evangelical population were omitted due to collinearity issues both in the model for soy prices in dollars and the model for soy prices in *reais*.

I then implemented the model for the 2018 and 2022 elections. As mentioned, the political scenario for the 2018 election was complex, given Rousseff's impeachment in 2016. In addition, the pandemic and the resulting challenges the world economy faced led soy prices to rise from US$358.82 per ton in 2017 to US$569.69 in 2022. Simultaneously, the Brazilian real went from R$3.19 to the dollar to R$5.16, while inflation rose to over 10% in 2021. In this context, placing votes on Jair Bolsonaro as my dependent variable yields the following results.

Table 5 - votes for the PSL and PL - 2018 and 2022

Log Soy in Dollars	-0.045 ***
	0.010
Log Soy in Reais	-0.022 ***
	0.005
Ibama Embargoes	-0.001
	0.001
Land Settlements	-0.010
	0.043
Log Ibama Fines	-0.001
	0.001
Evangelical Population	
Log Population	-0.106 ***
	0.018
Homicide Rate	-0.001 *
	0.000

N = 1239
R Squared = 0.082
Standard errors are below the coeficients
*p < 0.10 **p < 0.05 ***p < 0.01
Obs. % of evangelicals was omitted due to colinearity

Source: prepared by author.

It is interesting to notice that soy prices, both in dollars and in *reais*, had a negative effect on Bolsonaro's candidacy in both elections. These results most likely stem from the combination of the complexity of the Brazilian political scenario before 2018 - the intense rearrangement of

political forces that removed the PSDB from the position of main representative of the conservative sectors of the population – with the instability caused by the Covid-19 pandemic and the Bolsonaro administration's management of the health crisis. In addition, commodity prices were intensely volatile during the period. In this context, his reelection bid was unsuccessful, constituting the first time a presidential incumbent in Brazil was not reelected since reelection was instituted in the 1990s. Nonetheless, for the purposes of the present analysis, the results confirm H1, i.e. that valence economic voting has been a consistent phenomenon in Brazilian soy-producing municipalities. Once again, collinearity issues resulted in the omission of the results for the evangelical population.

Lastly, I implemented the model to analyze valence, position, and patrimony economic voting throughout all elections from 1998 to 2022. Although there have been shifts in power between the PSDB, PT, and PL/PSL administrations, the PT has remained the most influential party in Brazilian politics, with Lula da Silva having been elected for a third term in 2022. Consequently, in this case, I analyzed votes on the PT at my response variable, yielding the following results.

Table 6 - votes for the PT - 1998 and 2022

Log Soy in Dollars	0.247 ***
	0.010
Log Soy in Reais	0.081 ***
	0.003
Ibama Embargoes	0.003 ***
	0.001
Land Settlements	-0.052 ***
	0.017
Log Ibama Fines	0.003 ***
	0.001
Evangelical Population	-0.413 ***
	0.082
Log Population	0.042 ***
	0.011
Homicide Rate	0.000 ***
	0.000

N = 5854
R Squared = 0.188
Standard errors are below the coeficients
*p < 0.10 **p < 0.05 ***p < 0.01

Source: prepared by author.

The analysis of the entire period between 1998 and 2022 provides the most robust results yet. It thoroughly confirms H1, regarding valence economic voting, and the difference in coefficients between the tests in dollars and in *reais* underscores the above-mentioned effect of exchange-rate depreciation on voters' evaluation. In addition, the positive and statistically significant coefficients regarding the impact of environmental policy on voter behavior suggest that the above discussion on Brazilian agribusiness regions and environmental policy needs to be advanced and refined. H2 is not confirmed; nonetheless, the finding that more IBAMA embargoes and fines influenced voters to vote in favor of the incumbent after the turn of the century is significant regarding position economic voting, considering the relevance of Brazil both in world food production and on the environmental agenda.

Finally, table 6 shows that H3 is confirmed when one analyzes the entire period since the creation of the possibility of reelection – the advancement of agrarian reform does lead progressive administrations to lose support in soy-producing municipalities. This is the expected result, given the history of land policy in Brazil and given the assumptions of patrimony economic voting. This is an essential finding for developing countries that are agricultural commodity producers and where land has been historically concentrated, notwithstanding urbanization and agricultural modernization, as is the case of many Latin American countries.

Final considerations

This paper has provided significant contributions to the literature on economic voting. First, it advances the research agenda about the relationship between economic conditions and electoral behavior in commodity-producing regions, something that had not been done in Brazil before. Amid the growing debate about modern agribusiness's conservatism, which has increased in the context of the rise of the far-right (Pompeia, 2022), understanding how economic forces influence behavior at the ballot box in soy-producing municipalities helps fill an important research gap. Furthermore, it adds to the work done by authors who have studied economic voting in Latin America (Campello; Urdinez, 2021; Gélineau, 2007; Lewis-Beck; Ratto, 2013; Lewis-Beck; Stegmaier, 2008; Mangonnet; Murillo; Rubio, 2018; Novaes; Schiumerini, 2022; Porto; Lodola, 2013; Valdini; Lewis-Beck, 2018). As the analysis that has been carried out demonstrates, valence economic voting – voting based on perceptions of the

economy doing well or poorly – has been a consistent phenomenon in soy-producing municipalities in Brazil.

In addition, Brazil is a central player in global food production, and in the soy sector, it is the world's top producer. Like many other developing countries, especially in Latin America, it combines a history of highly unequal land distribution with intense agricultural modernization during the past 50 years, which also creates the need for new approaches to understanding the sector's political behavior. Thus, the expansion of the issue space of economic voting to include position and patrimony economic voting is crucial, considering the intense debate regarding environmental and land policy in recent years (M. S. Lewis-Beck & Nadeau, 2011). Thus, the results of the tests regarding hypotheses two and three are exciting. Concerning H2, although the results I obtained were opposite to the ones I had predicted, the fact that pro-environment policies positively affect incumbent support in Brazilian soy-producing municipalities is a key finding, whose causal mechanism should be the object of important future research. As mentioned, the stance in favor of sustainability and environmental policies that the Brazilian population generally displays (Filippe, 2023; Garcia, 2022; Mudanças Climáticas na Percepção dos Brasileiros 2022, 2023), along with respect for environmental law that most of the Brazilian producers demonstrate (Rajão, Soares- Filho, Nunes, Börner, Machado, Assis, Oliveira, Pinto, Ri, Rausch; Gibbs; Figueira, 2020), may be behind the results. Regarding H3, the significant results found in the analysis concerning the period that ranges from 1998 to the 2022 elections confirm my predictions, and they correspond to the propositions put forth by the patrimony economic voting theory (M. S. Lewis-Beck & Nadeau, 2011). This finding is important for research on economic voting in developing countries, given it helps elucidate political debate.

Finally, it is worth noting that although economic voting has long been a consolidated subject in political science, it remains understudied in much of the developing world, especially when one considers its diversity of economic structures and institutions. As mentioned, despite its relevance, no studies have focused on Brazilian agribusiness so far. I expected this paper to contribute to filling that gap.

REFERENCES

ALMEIDA, R. D. Bolsonaro presidente: conservadorismo, evangelismo e a crise brasileira. **Novos Estudos CEBRAP**, v. 38, p. 185–213, 2019. Available at: https://doi.org/10.25091/S01013300201900010010. Accessed in: 27 Sept. 2024.

ASHWORTH, S. Electoral accountability: recent theoretical and empirical work. **Annual Review of Political Science**, v. 15, n. 1, p. 183–201, 2012. Available at: https://doi.org/10.1146/annurev-polisci-031710-103823. Accessed in: 27 Sept. 2024.

BARROS, C. R. de. **PT, uma história.** 1. ed. São Paulo: Companhia das Letras, 2022.

BENTON, A. L. Dissatisfied democrats or retrospective voters?: economic hardship, political institutions, and voting behavior in Latin America. **Comparative Political Studies**, v. 38, n. 4, p. 417–442, 2005. Available at: https://doi.org/10.1177/0010414004273856. Accessed in: 27 Sept. 2024.

BRATTON, K. A. Retrospective voting and future expectations: the case of the budget deficit in the 1988 election. **American Politics Quarterly**, v. 22, n. 3, p. 277–296, 1994. Available at: https://doi.org/10.1177/1532673X9402200302. Accessed in: 27 Sept. 2024.

BRUNO, R. Elites agrárias, patronato rural e bancada ruralista. **Observatório de Políticas Públicas para a Agricultura**, n. 9, p. 23, 2015.

BUTLER, D.; Stokes, D. E. **Political change in Britain:** forces shaping electoral choice. New York: St. Martin's Press, 1969.

CAMPELLO, D.; Urdinez, F. Voter and legislator responses to localized trade shocks from China in Brazil. **Comparative Political Studies**, v. 54, n. 7, p. 1131–1162, 2021. Available at: https://doi.org/10.1177/0010414020970233. Accessed in: 27 Sept. 2024.

CAMPELLO, D.; Zucco, C. Presidential success and the world economy. **The Journal of Politics**, v. 78, n. 2, p. 589–602, 2016. Available at: https://doi.org/10.1086/684749. Accessed in: 27 Sept. 2024.

CAMPELLO, D.; Zucco, C. **Commodity price shocks and misattribution of responsibility for the economy:** observational and experimental evidence. 2018. Available at: http://bibliotecadigital.fgv.br:80/dspace/handle/10438/27684. Accessed in: 27 Sept. 2024.

CATTELAN, R.; MoraeS, M. L. de; ROSSONI, R. A. A reforma agrária nos ciclos políticos do Brasil (1995–2019). **Revista Nera**, v. 23, n. 55, p. 27, 2020.

DESEMPENHO DAS EXPORTAÇÃO DO AGRONEGÓCIO. **Centro De Estudos Avançados Em Economia Aplicada, USP.** 2021. Available at: https://www.cepea.esalq.usp.br/br/indices-de-exportacao-do-agronegocio.aspx. Accessed in: 27 Sept. 2024.

COMEX STAT. **Ministério da Economia.** 2022. Available at: http://comexstat.mdic.gov.br/pt/geral. Accessed in: 27 Sept. 2024.

COOPER, J.; KIM, S. E.; URPELAINEN, J. The broad impact of a narrow conflict: how natural resource windfalls shape policy and politics. **The Journal of Politics,** v. 80, n. 2, p. 630–646, 2018. Available at: https://doi.org/10.1086/694787. Accessed in: 27 Sept. 2024.

COSTA, S. H. G. **A questão agrária no Brasil e a bancada ruralista no congresso nacional.** 2012. Dissertação (Mestrado em Geografia Humana) – Universidade de São Paulo, São Paulo, 2012. Available at: https://doi.org/10.11606/D.8.2012.tde-08012013-143125. Accessed in: 27 Sept. 2024.

DASGUPTA, A.; RAMIREZ, E. R. **Explaining rural conservatism:** political consequences of technological change in the great plains. 2020. Available at: https://doi.org/10.31235/osf.io/75brz. Accessed in: 27 Sept. 2024.

DUCH, R. M.; STEVENSON, R. T. **The economic vote: how political and economic institutions condition election results.** Cambridge: Cambridge University Press, 2008. Available at: https://doi.org/10.1017/CBO9780511755934. Accessed in: 27 Sept. 2024.

ESCHER, F.; WILKINSON, J. A economia política do complexo soja-carne Brasil-China. **Revista de Economia e Sociologia Rural**, v. 57, p. 656–678, 2019. Available at: https://doi.org/10.1590/1806-9479.2019.191017. Accessed in: 27 Sept. 2024.

FAUSTO, B. **História do Brasil.** 14. ed. São Paulo: Edusp, 2019.

FEDASEYEU, V.; GILJE, E.; STRAHAN, P. E. Technology, economic booms, and politics: evidence from fracking. 2019. **SSRN Scholarly Paper** 2698157. Available at: https://doi.org/10.2139/ssrn.2698157. Accessed in: 27 Sept. 2024.

FERNANDES, M. J. C. Da luta pela terra à luta pela reforma agrária no Brasil. **Revista GeoInterações,** v. 1, n. 1, 2017.

FILIPPE, M. Preocupação dos brasileiros com o planeta afeta consumo e 73% estão mudando para opções sustentáveis. **Exame**, 21 nov. 2023. Available at: https://exame.com/esg/preocupacao-dos-brasileiros-com-o-planeta-afeta-consumo-e-73-estao-mudando-para-opcoes-sustentaveis/. Accessed in: 27 Sept. 2024.

GARCIA, R. Desmatamento é maior preocupação ambiental entre brasileiros, mostra pesquisa GLOBO/Ipec. **O Globo**, 25 Sept. 2022. Available at: https://oglobo.globo.com/brasil/meio-ambiente/noticia/2022/09/desmatamento-e-maior-preocupacao-ambiental-entre-brasileiros-mostra-pesquisa-globoipec.ghtml. Accessed in: 27 Sept. 2024.

GÉLINEAU, F. Presidents, political context, and economic accountability: evidence from Latin America. Political **Research Quarterly**, v. 60, n. 3, p. 415–428, 2007. Available at: https://doi.org/10.1177/1065912907304109. Accessed in: 27 Sept. 2024.

HEALY, A.; LENZ, G. S. Substituting the end for the whole: why voters respond primarily to the election-year economy. **American Journal of Political Science**, v. 58, n. 1, p. 31–47, 2014. Available at: https://doi.org/10.1111/ajps.12053. Accessed in: 27 Sept. 2024.

HEALY, A.; MALHOTRA, N. Retrospective voting reconsidered. **Annual Review of Political Science**, v. 16, n. 1, p. 285–306, 2013. Available at: https://doi.org/10.1146/annurev-polisci-032211-212920. Accessed in: 27 Sept. 2024.

HELLWIG, T. **Globalization and mass politics:** retaining the room to maneuver. Cambridge: Cambridge University Press, 2015.

HELLWIG, T.; MCALLISTER, I. Party positions, asset ownership, and economic voting. **Political Studies**, v. 67, n. 4, p. 912–931, 2019. Available at: https://doi.org/10.1177/0032321718815781. Accessed in: 27 Sept. 2024.

HUNTER, W.; POWER, T. J. Bolsonaro and Brazil's illiberal backlash. **Journal of Democracy**, v. 30, n. 1, p. 68–82, 2019. Available at: https://doi.org/10.1353/jod.2019.0005. Accessed in: 27 Sept. 2024.

JANK, M. S.; GUO, P.; MIRANDA, S. H. G. De. P**artnership on agriculture and food security.** São Paulo: Universidade de São Paulo, 2020.

JENKINS, R. Is Chinese competition causing deindustrialization in Brazil? **Latin American Perspectives,** v. 42, n. 6, p. 42–63, 2015. Available at: https://doi.org/10.1177/0094582X15593553. Accessed in: 27 Sept. 2024.

Johnson, G. B.; SCHWINDT-BAYER, L. A. Economic accountability in Central America. **Journal of Politics in Latin America**, v. 1, n. 3, p. 33–56, 2009. Available at: https://doi.org/10.1177/1866802X0900100302. Accessed in: 27 Sept. 2024.

KINDER, D. R.; KIEWIET, D. R. Sociotropic politics: the American case. **British Journal of Political Science**, v. 11, n. 2, p. 129–161, 1981. Available at: https://doi.org/10.1017/S0007123400002544. Accessed in: 27 Sept. 2024.

KRAMER, G. H. Short-term fluctuations in U.S. voting behavior, 1896–1964. **The American Political Science Review**, v. 65, n. 1, p. 131–143, 1971. Available at: https://doi.org/10.2307/1955049. Accessed in: 27 Sept. 2024.

LACERDA, M. B. **Neoconservadorismo de periferia:** articulação familista, punitivista e neoliberal na Câmara dos Deputados. 2018. Dissertação (Mestrado) – Universidade Estadual do Rio de Janeiro, Rio de Janeiro.

LEWIS-BECK, M.; RATTO, M. C. Economic voting in Latin America: a general model. **Electoral Studies,** v. 32, n. 3, p. 489–493, 2013. Available at: https://doi.org/10.1016/j.electstud.2013.05.023. Accessed in: 27 Sept. 2024.

LEWIS-BECK, M. S.; NADEAU, R. Economic voting theory: testing new dimensions. **Electoral Studies**, v. 30, n. 2, p. 288–294, 2011. Available at: https://doi.org/10.1016/j.electstud.2010.09.001. Accessed in: 27 Sept. 2024.

LEWIS-BECK, M.; STEGMAIER, M. The economic vote in transitional democracies. **Journal of Elections, Public Opinion & Parties**, v. 18, p. 303–323, 2008. Available at: https://doi.org/10.1080/17457280802227710. Accessed in: 27 Sept. 2024.

MANGONNET, J.; MURILLO, M. V.; RUBIO, J. M. Local economic voting and the agricultural boom in Argentina, 2007–2015. **Latin American Politics and Society**, v. 60, n. 3, p. 27–53, 2018. Available at: https://doi.org/10.1017/lap.2018.23. Accessed in: 27 Sept. 2024.

MANSFIELD, E. D.; MUTZ, D. C. Support for free trade: self-interest, sociotropic politics, and out-group anxiety. **International Organization**, v. 63, n. 3, p. 425–457, 2009. Available at: https://doi.org/10.1017/S0020818309090158. Accessed in: 27 Sept. 2024.

MORCEIRO, P.; TOLEDO, V. **Blog Valor Adicionado**. 25 jan. 2023. Available at: https://valoradicionado.wordpress.com/. Accessed in: 27 Sept. 2024.

MUDANÇAS CLIMÁTICAS NA PERCEPÇÃO DOS BRASILEIROS 2022. I**nstituto de Tecnologia e Sociedade do Rio; Yale Program on Climate Change Communication; Instituto de Pesquisa e Consultoria Estratégica.** 2023.

NADEAU, R.; LEWIS-BECK, M. S.; BÉLANGER, É. Economics and elections revisited. **Comparative Political Studies**, v. 46, n. 5, p. 551–573, 2013. Available at: https://doi.org/10.1177/0010414012463877. Accessed in: 27 Sept. 2024.

NEZI, R.; KATSANIDOU, A. From valence to position: Economic voting in extraordinary conditions. **Acta Politica,** v. 49, n. 4, p. 413–430, 2014. Available at: https://doi.org/10.1057/ap.2014.14. Accessed in: 27 Sept. 2024.

NOVAES, L. M.; SCHIUMERINI, L. Commodity shocks and incumbency effects. **British Journal of Political Science**, v. 52, n. 4, p. 1689–1708, 2022. Available at: https://doi.org/10.1017/S0007123421000478. Accessed in: 27 Sept. 2024.

PASSADOR, C. Agronegócio, fascismo e eleição. **Jornal da USP**, 1 Sept. 2022. Available at: https://jornal.usp.br/articulistas/claudia-souza-passador/agronegocio-fascismo-e-eleicao/. Accessed in: 27 Sept. 2024.

POMPEIA, C. **Formação política do agronegócio.** São Paulo: Elefante Editora, 2021.

POMPEIA, C. O agrobolsonarismo. **Revista Piauí**, n. 184, jan. 2022. Available at: https://piaui.folha.uol.com.br/materia/o-agrobolsonarismo/. Accessed in: 27 Sept. 2024.

PORTO, A.; LODOLA, A. Economic policy and electoral outcomes. **Journal of Applied Economics**, v. 16, n. 2, p. 333–356, 2013. Available at: https://doi.org/10.1016/S1514-0326(13)60014-8. Accessed in: 27 Sept. 2024.

QUINLAN, S.; OKOLIKJ, M. Patrimonial economic voting: A cross-national analysis of asset ownership and the vote. **Journal of Elections, Public Opinion and Parties**, v. 32, n. 1, p. 193–213, 2022. Available at: https://doi.org/10.1080/17457289.2019.1655758. Accessed in: 27 Sept. 2024.

QUINN, D. P.; SATTLER, T.; WEYMOUTH, S. Do exchange rates influence voting? Evidence from elections and survey experiments in democracies. **International Organization**, v. 77, n. 4, p. 789–823, 2023. Available at: https://doi.org/10.1017/S002081832300022X. Accessed in: 27 Sept. 2024.

RAJÃO, R.; SOARES- FILHO, B.; NUNES, F.; BÖRNER, J.; MACHADO, L.; ASSIS, D.; OLIVEIRA, A.; PINTO, L.; RIBEIRO, V.; RAUSCH, L.; GIBBS, H.; FIGUEIRA, D. The rotten apples of Brazil's agribusiness. **Science,** v. 369, n. 6501, p. 246–248, 2020. Available at: https://doi.org/10.1126/science.aba6646. Accessed in: 27 Sept. 2024.

RATTO, M. C. El proceso de atribución de responsabilidades en América Latina: Un estudio sobre el voto económico entre 1996 y 2004. **Revista SAAP**, v. 5, n. 1, p. 59–92, 2011.

REIS, D. A. **Modernização, ditadura e democracia:** 1964-2010. 1. ed. Rio de Janeiro: Objetiva, 2014.

REMMER, K. L. The political impact of economic crisis in Latin America in the 1980s. **The American Political Science Review**, v. 85, n. 3, p. 777–800, 1991. Available at: https://doi.org/10.2307/1963850. Accessed in: 27 Sept. 2024.

SAMUELS, D. Presidentialism and accountability for the economy in comparative perspective. **The American Political Science Review**, v. 98, n. 3, p. 425–436, 2004.

SANTORO, M. The Dragon and the Captain: China in the perspective of Brazil's nationalist right. **Geosul**, v. 35, n. 77, p. 258–269, 2020. Available at: https://doi.org/10.5007/2177-5230.2020v35n77p258. Accessed in: 27 Sept. 2024.

SEVÁ, J. T. **A mão que afaga é a mesma que apedreja:** Preservando a natureza que é possível! Propriedade da terra, classes dominantes e representação política no Brasil contemporâneo - a reforma do Código Florestal Brasileiro de 1965. 2016. Dissertação (Mestrado) – Universidade Federal Rural do Rio de Janeiro, Seropédica. Available at: https://tede.ufrrj.br/handle/jspui/1293. Accessed in: 27 Sept. 2024.

VALDINI, M. E.; LEWIS-BECK, M. S. Economic voting in Latin America: Rules and responsibility. **American Journal of Political Science**, v. 62, n. 2, p. 410–423, 2018. Available at: https://doi.org/10.1111/ajps.12339. Accessed in: 27 Sept. 2024.

VIGNA, E. Bancada ruralista: Um grupo de interesse. **Argumento**, n. 8, p. 1–52, 2001.

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