

Economic Vote: Portugal in the first two decades  
of the 21st century

Voto Económico: Portugal nas duas primeiras décadas  
do século XXI

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**ABSTRACT**

This paper examines how local economic conditions influenced government voting shares in the first two decades of the 21st century, using a panel consisting of 278 municipalities across six elections. Firstly, the statistical irrelevance of the socio-demographic variables on the incumbent electoral fortune can be highlighted. The results show that higher local unemployment reduces government vote shares, consistent with the responsibility hypothesis. Surprisingly, however, income growth appears to hurt incumbents, a result found to be exclusive to municipalities where national and local governments are politically aligned. Evidence suggest that this unexpected outcome may stem from the lingering effects of Portugal's financial crisis and austerity measures, in which drastic cuts were initially made to incomes, leaving voters feeling dissatisfied and viewing later increases in income too small to reestablish the lost purchasing power.

Keywords: Local economy, Elections, Portugal, Economic Vote.

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## 1. INTRODUCTION

Understanding the reasoning behind voting behavior is important for a better knowledge of how well democracy operates and the links that are established between the political and socio-economic spheres. In an economic perspective, this paper analyzes voting decisions in Portuguese legislative elections during the first part of the XXI century.

Historically, voting theories are linked to each other, as they have developed from each other, either as a complement or as a critique. The pioneering works of Downs (1957) and Campbell et.al. (1960) presented two distinct views on the subject, multiplying the debate around the motivations and consequences of voting and constituting the foundations on which most of the literature was developed. Campbell et.al. (1960) viewed voting behavior in the individual's living spaces and groups, giving rise to the posterior sociological literature on the subject. Downs (1957) introduces a utilitarian reflection on the process of electoral choices, assuming that voters are relatively immune to the social context and able to establish their preferences through a cost-benefit analysis (well-being maximization), in practical terms very similar to that of economic choices (see also Riker and Ordeshook, 1968). This is commonly called the instrumental model, and over the years evolved into a prolific branch of literature, from where economic vote emerged<sup>1</sup>.

The economic view of electoral behavior is essentially supported by the close connection between economic conditions and the well-being of the populations. The main assumption, called the responsibility hypothesis, states that governments delivering good economic conditions are rewarded in the ballots, while those that do not are electorally penalized. As we can witness, the economy is perhaps the most highlighted topic during electoral campaigns. Growth, wages, deficits, unemployment and inflation are among the issues most referred to by the media, politicians and by overall commentators. These variables are also the most used by researchers when specifying government voting through an empirical test function. Since the early works of Mueller (1970), Goodhart and Bhansali (1970) and Kramer (1971) two explanatory dimensions are defined in this function, one economic and another political. The voting function has been tested over time, and for many countries with great success, but instability in these two dimensions has been the most prevalent feature of the results found (for surveys see Paldam, 1991; Nannestad and Paldam, 1994; Paldam, 2003). The importance of economic variables in studies with aggregate data has generally been confirmed<sup>2</sup>, in particular the negative reaction of voters to increases in unemployment and inflation.<sup>3</sup> Voting functions are the extrapolation of the idea that the decision to vote should not be based purely on personalities, party affiliation or chance, seeking to find economic reasons for changes voting patterns, particularly tied to swing voters.

In Portugal, the economic perspective of politics has been studied in various angles, being the government vote function one of those (see Veiga et. al. 2024, for a recent survey

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<sup>1</sup> For more details on the evolution of the various strands of the voting literature see Evans (2003) chapters 3, 4 and 5. For the evolution of economic voting see also, from the same book, chapter 6.

<sup>2</sup> Paldam (2003).

<sup>3</sup> In certain cases, multicollinearity concerns may be raised, but normally the Phillips curve is weak enough to allow the simultaneous inclusion of unemployment and inflation, or instead of unemployment income is used confirming Okun's law.

on the broader subject). As to economic voting, Veiga and Veiga (2010) and also Martins and Veiga (2014) analyze legislative elections and the government's results with municipal data. Both studies found that local and national economic conditions are important, and both confirm the responsibility hypothesis.<sup>4</sup> Also, when dealing with Portuguese municipal elections, Martins, and Veiga (2013) found that the performance of the national and local economy are important for mayors voting results, especially if local governments are of the same party as the central government. The municipal economic conditions are also relevant, particularly in scenarios where voters perceive more clearly the responsibility of the local government. To sum up, the responsibility hypothesis is well established in the literature that examines voting behavior in Portugal. Nevertheless, changes in the first two decades of the XXI century, like the massification of the internet, the appearance of social media platforms, and technological advances like, for instance the smartphone, renew the interest on the accountability mechanism and on economic voting in general. Furthermore, Portugal faced a significant and persistent economic crisis in the second decade of this century.

All these new and important events beg the question as to what may have changed (if anything) in the way the economy affects government vote shares. This is the basic motive for restricting our sample only to the XXI century. As such, the objective of this paper is twofold. First, investigate the national government voting function and its determinants in more recent years, thus complementing and updating the existing studies for Portugal. Second, test the socio-demographic dimension, usually not included in economic vote functions for Portugal, and contrast our results with those found previously, knowing that our timespan encompasses a highly specific and important context (major technological innovations and a deep lingering crisis). And indeed, our results show that some things stayed the same, but others changed. To execute the intended analysis, an extensive database of economic, socio-demographic and political data from the 278 mainland municipalities of Portugal were collected, for the six legislative elections that took place over the first 20 years of the XXI century.

The rest of the article is organized as follows. Section 2 presents the data and model and gives a brief description of the Portuguese electoral system. The empirical results are presented and discussed in Section 3. Finally, Section 4 concludes.

## 2. DATA AND MODEL

Portugal has a multiparty system, with the Assembly of the Republic serving as its unicameral parliament. It consists of 230 deputies elected every four years through direct suffrage. Political parties submit closed and blocked candidate lists in each district, and seats are allocated proportionally by district using the Hondt method. The legislative elections determine the formation of the national government. Despite the multiparty nature of the system, all Portuguese governments have been led (in majority or in coalition) by two main parties: the center-left Socialist Party (PS) and the center-right Social Democratic Party

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<sup>4</sup> Other studies, using popularity functions for Portugal, validate the accountability hypothesis (Veiga and Veiga, 2004a, 2004b).

(PSD). Table A.1 of the Appendix provides some summary information about the elections that took place in Portugal during the covered timespan, namely the ruling government, national percentages, PM and type of government.

The basic empirical model is characterized by equation (1), where the dependent variable is defined as the ratio of votes obtained by the governing party divided by the total valid votes (in percentage) per mainland municipality<sup>5</sup>  $VGOV_{it}$ , in the legislative elections that took place in year  $t$ .

$$VGOV_{it} = \beta_0 + \beta_1 ECO_{it-1} + \beta_2 SOCIAL_{it} + \beta_3 POL_{it} + \delta_t + \gamma_j + u_{it} \quad (1)$$

$$i = 1, \dots, 278; t = 2002, 2005, 2009, 2011, 2015, 2019; j = 1, \dots, 18$$

where  $ECO_{it-1}$  is a vector of economic variables, lagged one period. Nobody knows the value of current economic variables at the time of the election.  $SOCIAL_{it}$  represents the set of sociodemographic variables in line with those generically used in the literature. We also include a set of political variables,  $POL_{it}$ . The model includes controls for temporal and territorial idiosyncrasies by adding  $\delta_t$  that represents a *dummy* variable for each election year  $t$ , and, since votes are converted into seats at the district level, we also include  $\gamma_j$  a *dummy* for each of the 18 mainland districts,  $j$ . The  $u_{it}$  is the error term with the usual proprieties.<sup>6</sup>

The electoral data were obtained from the General Secretariat of the Ministry of Internal Affairs (*Secretaria Geral do Ministério da Administração Interna*). Economic variables are difficult to find at the municipal level and simultaneously exhibiting time consistency. The variables used to measure unemployment consist of the monthly average number of registered unemployed (*Unemployment*), from the Institute of Employment and Vocational Training (IEFP) and the unemployment rate that is provided by INE. The INE unemployment rate is available at the municipal level only in census years. Thus, it was decided to construct a proxy using the methodology adopted by the same institute for a variable available in its database, called Registered unemployment per 100 *inhabitants aged 15 or over*<sup>7</sup> (by NUTS III – *Unemployment rate*). Income, in turn, is measured through two different indicators from INE. The first variable is the per *capita* Purchasing Power Index by municipality (*Purchasing Power*)<sup>8</sup>. The second, corresponds to the real Average Monthly Earnings of employees per municipality, in euros (*Average monthly earnings*) used in log form.

<sup>5</sup> The exclusion of municipalities from the Autonomous Regions of the Azores and Madeira, is because they have specific elections that elects an autonomous government structure. Also, they are less dependent in policy decision making from the central government. Legislative elections under analysis took place in 2002, 2005, 2009, 2011, 2015 and 2019.

<sup>6</sup> Descriptive statistics for the full set of variables used can be found in table A.2 of the Appendix.

<sup>7</sup> The formula is the quotient between the monthly average of the number of unemployed registered by municipality (the first unemployment variable presented) and the resident population aged 15 or over. INE (2021) Registered unemployment per 100 inhabitants aged 15 and over (%).

<sup>8</sup> Consists of an index that measures the relative purchasing power of the municipality. The base corresponds to Portugal (NUTS I). Its periodicity is biennial available for the years 2000, 2002, 2004, 2005, 2007, 2009, 2011, 2013, 2015, 2017 and 2019. The data for the missing years were calculated using a simple arithmetic average between the immediately preceding year and the one immediately following the respective missing year.

The sociodemographic control variables were collected from the National Institute for Statistics (INE, Instituto Nacional de Estatística). These allow the capturing of effects associated with the social and demographic features of the population residing in the municipalities. To avoid endogeneity issues, the size of the municipality is captured by a variable constructed assuming integer values between 1 and 4 according to its size (from bigger to smaller municipalities – *population*)<sup>9</sup>. Age is controlled by including the percentage of the resident population aged 65 years or older (*Pop. over 65*). Regarding education, there is no annual data per municipality for indicators of this dimension, so it was decided to use a *proxy variable* to control the population with secondary or higher education. The services sector (tertiary) is essentially composed of a population with higher levels of education, and the use of employment in the services sector is a good approximation to the population with secondary or higher education by municipality. Nevertheless, it also can be viewed as a proxy for the degree of development of the municipality. In view of the absence of this data at the municipal level, NUTS III aggregation was used (*Employment tertiary sector*).

As for the political dimension, a *dummy* was constructed to identify the municipalities whose mayors belong to the main party in government (*Simultaneous ruling*). Simultaneous governance acquires particular importance in explaining the vote for two reasons. On the one hand, it can capture the party reservation effect, identifying the municipalities in which the party in government traditionally has more support. On the other hand, as Veiga and Veiga (2010: 1729) point out, the simultaneous holding of executive power by a party, either in government or in local authorities, materializes in a greater capacity to manipulate local economic conditions to increase electoral support. In this way, it is expected that the coefficient will be positive and that it will largely affect the votes in government. Veiga and Veiga (2010) point out, however, that voters may have a preference not to concentrate on the national executive power in the same party that controls the respective municipalities, so a negative coefficient of this variable is also possible. In addition, the measure for the effective number of parties (ENP), proposed by Laakso and Taagepera (1979), was constructed, capturing the effects of party fragmentation and competitiveness by district (electoral circle).

Finally, we want to clarify the absence of the lagged dependent variable from the function. Given the democratic alteration the autoregressive component often does not correspond to the votes for the party in power, so we are not in the presence of the traditional lagged dependent variable; as such it has a highly problematic interpretation, and most likely, does not create an omission variable bias problem.

### 3. EMPIRICAL RESULTS

Considering the specificities of using panel data, we did standard testing to our model to obtain the appropriate estimator. The *Hausman test* and *F-test* were conducted and pointed to *pooled OLS* being the most appropriate estimator (probably because the district dummies already capture the relevant fixed effects). The results of the tests are presented in table A.3

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<sup>9</sup> Population categories: 1 – Lisbon and Porto; 2 – Other municipalities with a population above 40000 inhabitants; 3 – Municipalities with a population between 10000 and 40000; 4 – Other municipalities.

of the appendix. Regarding heteroscedasticity, *Breusch-Pagan/Cook-Weisberg* tests were performed for the different regressions, and confirmed the homoscedasticity hypothesis, thus OLS standard errors are used since they are the most efficient.

Table 1 presents the estimations of the base model with the above-mentioned alternative economic variables. The first two columns include the economic variables lagged one year, while, in columns (3) and (4), those variables are replaced by their average value in the two years prior to the election. This averaging is intended to evaluate the relevant time horizon in the gathering of economic information by the voter<sup>10</sup>.

Table 1. Effect of the local economy on government votes – Pooled OLS

| Variables                                  | Previous year |           | Two years prior |           | no ENP    |
|--------------------------------------------|---------------|-----------|-----------------|-----------|-----------|
|                                            | (1)           | (2)       | (3)             | (4)       | (5)       |
| Unemployment rate (-1)                     | -0.424***     |           | -0.460***       |           | -0.419*** |
|                                            | (-2.613)      |           | (-2.810)        |           | (-2.581)  |
| Purchasing Power (-1) <sup>a</sup>         | -0.031**      |           | -0.029*         |           | -0.036**  |
|                                            | (-2.061)      |           | (-1.923)        |           | (-2.415)  |
| Unemployment (-1)                          |               | -0.546*** |                 | -0.588*** |           |
|                                            |               | (-2.912)  |                 | (-3.110)  |           |
| Average monthly earnings (-1) <sup>b</sup> |               | -5.628*** |                 | -5.795*** |           |
|                                            |               | (-2.912)  |                 | (-2.981)  |           |
| Population                                 | -0.199        | -0.034    | -0.175          | -0.044    | -0.182    |
|                                            | (-0.424)      | (-0.079)  | (-0.374)        | (-0.102)  | (-0.388)  |
| Pop. over 65                               | 0.013         | 0.008     | 0.007           | 0.003     | 0.036     |
|                                            | (0.208)       | (0.131)   | (0.116)         | (0.045)   | (0.614)   |
| Employment tertiary sector                 | -0.023        | -0.014    | -0.025          | -0.013    | -0.027    |
|                                            | (-0.644)      | (-0.385)  | (-0.689)        | (-0.370)  | (-0.764)  |
| Simultaneous ruling                        | 7.891***      | 7.861***  | 7.895***        | 7.872***  | 7.890***  |
|                                            | (17.465)      | (17.434)  | (17.478)        | (17.468)  | (17.456)  |
| Effective Number of Parties                | -0.871        | -0.778    | -0.873          | -0.749    |           |

<sup>10</sup> The relevance of the temporal controls and the district *dummies* were tested using a Wald test that confirmed the joint significance of these variables (omitted from table 1 for reasons of space)

| Variables          | Previous year |           | Two years prior |           | no ENP    |
|--------------------|---------------|-----------|-----------------|-----------|-----------|
|                    | (1)           | (2)       | (3)             | (4)       | (5)       |
|                    | (-1.542)      | (-1.380)  | (-1.544)        | (-1.328)  |           |
| Constant           | 43.361***     | 77.762*** | 43.399***       | 78.962*** | 40.996*** |
|                    | (13.240)      | (6.035)   | (13.284)        | (6.105)   | (14.160)  |
| Obs.               | 1,390         | 1,390     | 1,390           | 1,390     | 1,390     |
| Elections          | 5             | 5         | 5               | 5         | 5         |
| Adjusted R-squared | 0.412         | 0.414     | 0.412           | 0.415     | 0.411     |
| Election dummies   | YES           | YES       | YES             | YES       | YES       |
| District dummies   | YES           | YES       | YES             | YES       | YES       |

Notes: t statistics in parentheses; \*\*\* p<0.01, \*\* p<0.05, \* p<0.1;

<sup>a</sup> Variable measured *per capita*.

<sup>b</sup> Variable in logarithm.

The first note goes to the fact that none of the socio-demographic variables used here are statistically significant. We did experiments replacing these variables by others, but the sociodemographic dimension remained statistically irrelevant<sup>11</sup>. As for the political variables, the ENP is not statistically important, but simultaneous governance has a very significant impact on government votes. In municipalities where the mayor is of the same party as the national incumbent, the national government obtains 7.89 p.p. more, *ceteris paribus* (*c.p.*). As discussed earlier this is not unexpected, probably capturing much of the effect of the captive votes (non-swing voters) of the party in office.

As to the economy, in general, the results suggest that voters, when collecting economic information, go back a little further in the past than is traditionally found, as the two years of economic performance are relevant for defining the vote percentage of the incumbent. This indicates that the Portuguese voter of the XXI century seems to be less myopic than the one reported in the past literature (see Paldam 2003). For Portugal, Martins and Veiga (2013) report this phenomenon, while most studies don't carefully address the issue. However, Veiga and Veiga (2004a) clearly show that the Portuguese voter looks much more to the present and recent past (retrospective) than to the future (prospective) when incorporating economic information in the voting function. The responsibility hypothesis states that voters tend to reward governments that improve economic conditions, particularly when unemployment is reduced, and income rises. The results presented confirm this assumption for unemployment, as in column 1, an increase of 1 p.p. (percentage point) in the unemployment rate causes a

<sup>11</sup> The population size was swapped by the population density. As for the pop. over 65 we, alternatively, used the percentage of residents between 20 and 34 years, and finally the percentage of people working on the tertiary sector were replaced by the percentage in the primary sector. Results are available upon request.

reduction of 0.42 p.p. in votes for the incumbent. The negative effect is corroborated in column (2), where an alternative measure of unemployment is used (Unemployment). However, the responsibility hypothesis is rejected when we look at the effect of income. Increases in both the Purchasing Power and the Average monthly earnings reduce government vote. At first, we suspected that probably the effective number of parties, could be endogenous, since it was constructed including the values of the dependent variable. An instrumental variables model was used to assess the existence of endogeneity, using the lags of the variable itself and measures of lagged population size<sup>12</sup>. Results were inconclusive, presenting different coefficients in sign and amplitude from those in the base estimate, column (1). Considering that this variable does not have statistical significance in most regressions, its extraction from the model does not considerably alter the results of the estimates, as can be seen by comparing the models of columns (1) and (5).

In the literature examining government voting for Portugal (cited previously) the negative effect of income and also of inflation is clearly dominant, with some cases of statistical insignificance, but, as far as we know, such a robust positive effect has never been found. So, the big mystery here is the origin of our results for the income variables. To investigate this, on the one hand, we evaluated the influence of simultaneous governance, and on the other hand, we observed the specific effect of each election. The process was one of interacting both types of dummies with the income variables. The results are presented in table 2, where *SR* is the abbreviation for Simultaneous ruling. From the several estimations with the full set of temporal dummies the one that stood out was the 2015 election. As such that is the only case presented on the table<sup>13</sup>.

Table 2. Effect of the local economy on government votes – Pooled OLS

| Variables                          | <i>per capita</i> Purchasing power |           |           | Average monthly earnings |           |           |
|------------------------------------|------------------------------------|-----------|-----------|--------------------------|-----------|-----------|
|                                    | (1)                                | (2)       | (3)       | (4)                      | (5)       | (6)       |
| Unemployment rate (-1)             | -0.415**                           | -0.401**  | -0.384**  | -0.449***                | -0.437*** | -0.428*** |
|                                    | (-2.567)                           | (-2.483)  | (-2.396)  | (-2.767)                 | (-2.715)  | (-2.660)  |
| Purchasing Power (-1) <sup>a</sup> | 0.006                              | -0.019    | 0.031     |                          |           |           |
|                                    | (0.299)                            | (-1.239)  | (1.605)   |                          |           |           |
| Purchasing Power * <i>SR</i>       | -0.068***                          |           | -0.087*** |                          |           |           |
|                                    | (-3.427)                           |           | (-4.347)  |                          |           |           |
| Purchasing Power * $\delta_{2015}$ |                                    | -0.119*** | -0.143*** |                          |           |           |

<sup>12</sup> All the instruments used are correlated with the instrumentalized variable, considered not weak by the weak instrument test and valid by the Sargan test.

<sup>13</sup> Interactions can potentially generate multicollinearity problems. A comparison was made between the coefficients presented in Table 2 and estimates with the economic variables centered, concluding that the coefficients and respective standard errors do not change, allowing a reliable analysis. Results are available upon request.

| Variables                          | <i>per capita</i> Purchasing power |           |           | Average monthly earnings |            |            |
|------------------------------------|------------------------------------|-----------|-----------|--------------------------|------------|------------|
|                                    | (1)                                | (2)       | (3)       | (4)                      | (5)        | (6)        |
|                                    |                                    | (-4.169)  | (-4.955)  |                          |            |            |
| Average earnings (-1) <sup>b</sup> |                                    |           |           | -3.680                   | -2.755     | 0.743      |
|                                    |                                    |           |           | (-1.629)                 | (-1.360)   | (0.308)    |
| Average earnings * <i>SR</i>       |                                    |           |           | -4.698*                  |            | -7.502***  |
|                                    |                                    |           |           | (-1.683)                 |            | (-2.655)   |
| Average earnings * $\delta_{2015}$ |                                    |           |           |                          | -15.978*** | -17.929*** |
|                                    |                                    |           |           |                          | (-4.466)   | (-4.919)   |
| Population                         | -0.198                             | -0.349    | -0.379    | -0.071                   | -0.077     | -0.136     |
|                                    | (-0.424)                           | (-0.747)  | (-0.816)  | (-0.164)                 | (-0.178)   | (-0.315)   |
| Pop. Over 65                       | 0.019                              | 0.026     | 0.037     | 0.004                    | 0.018      | 0.023      |
|                                    | (0.310)                            | (0.437)   | (0.617)   | (0.072)                  | (0.296)    | (0.375)    |
| Employment tertiary sector         | -0.024                             | -0.019    | -0.019    | -0.014                   | -0.014     | -0.014     |
|                                    | (-0.681)                           | (-0.530)  | (-0.553)  | (-0.388)                 | (-0.387)   | (-0.393)   |
| Simultaneous Ruling (SR)           | 13.114***                          | 7.826***  | 14.507*** | 39.366**                 | 7.752***   | 58.044***  |
|                                    | (8.251)                            | (17.416)  | (9.063)   | (2.103)                  | (17.282)   | (3.063)    |
| Effective Number of Parties        | -1.030*                            | -0.744    | -0.921    | -0.825                   | -0.675     | -0.740     |
|                                    | (-1.823)                           | (-1.322)  | (-1.643)  | (-1.462)                 | (-1.203)   | (-1.321)   |
| Constant                           | 40.825***                          | 42.074*** | 38.562*** | 64.867***                | 58.284***  | 34.945**   |
|                                    | (12.205)                           | (12.866)  | (11.519)  | (4.305)                  | (4.300)    | (2.166)    |
| Obs.                               | 1,390                              | 1,390     | 1,390     | 1,390                    | 1,390      | 1,390      |
| Elections                          | 5                                  | 5         | 5         | 5                        | 5          | 5          |
| Adjusted-R <sup>2</sup>            | 0.417                              | 0.419     | 0.427     | 0.415                    | 0.422      | 0.425      |
| Electoral dummies                  | YES                                | YES       | YES       | YES                      | YES        | YES        |
| District dummies                   | YES                                | YES       | YES       | YES                      | YES        | YES        |

Notes: t statistics in parentheses; \*\*\* p<0.01, \*\* p<0.05, \* p<0.1;

<sup>a</sup> Variable measured *per capita*

<sup>b</sup> Variable in logarithm.

As to the interactions of the income variables with the dummy capturing simultaneous ruling (columns 1 and 3), results are clear and even more at odds with conventional expecta-

tions; the negative effect on government voting is exclusive of those municipalities with this feature, where the clarity of responsibility is higher. This could be capturing a wide range of government policies that affect income positively but with a distribution of income among the population that voters do not appreciate. Also, there were very turbulent economic times in Portugal during the second decade of the timespan in analysis, and when we did the interactions with the electoral dummies, what clearly stood out was the 2015 election (the only presented here, in columns 2 and 4). The year of 2015 marks the end of a legislature dominated by the austerity policies, applied as part of the third financial bailout of Portugal by the so-called Troika (European Central Bank, European Commission and International Monetary Fund), and the consequent reduction in real household income. For the 2015 executive in office (coalition PáF), all things constant, a one-point increase in the purchasing power index reduced, on average, the percentage of votes obtained between 0.119 *p.p.* and 0.143 *p.p.* (columns 2 and 3) when compared to all other elections. Having been a mandate deeply marked by austerity policies, and weak economic growth, it is reasonable to assume that, as for the simultaneous government, voters in municipalities with a higher level of income, and higher levels of education, sought to punish the PSD/CDS-PP coalition for the policies adopted. The bailout period was long, and in the beginning, the Portuguese government reduced significantly people's income. So even with posterior increases in income the prior purchasing power of the population was not achieved for many years. As such, the overall conclusion we can derive from Table 2 is that, probably, the negative income result relates fundamentally with the effects of the crises that hit Portugal in 2009/10 with devastating economic and social effects that prolong themselves many years<sup>14</sup>. The initial loss of purchasing power was so severe that increases in income were probably viewed by voters as too small and actually penalized the government.

#### 4. CONCLUSION

The purpose of this work was the empirical analysis of the government voting function for Portugal in the first two decades of the twenty-first century, with an emphasis on the influence of the economic dimension. An extensive panel data was constructed for the 278 mainland municipalities, spanning between 2000 and 2019, that included six elections.

The results obtained revealed some interesting particularities. The first note goes to the statistical irrelevance of the extended socio-demographic variables used. Typically, they are absent from government voting functions for Portugal, and also in general. This finding deserves further study since, traditionally, it is an important dimension in the literature that examines party voting and turnout. In Municipalities where the local incumbent is of the same party as the national government, vote shares for the latter are significantly improved. This is probably related to two potential simultaneous effects. The first, capturing much of the effect of the captive votes (non-swing voters) of the party in office at the municipality;

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<sup>14</sup> Some extraordinary measures taken at the time remained in place, some at least until 2020, such as the increase in VAT on energy for instance.

and the second, it is easier for national governments to improve economic conditions locally when the municipal and the national incumbency are politically aligned.

The core purpose of the paper was to analyze the effect of the local economic conditions on the government's electoral fortune during the first two decades of this century. We found some surprising results, along with others in line with the literature on the subject and with the responsibility hypothesis. First, the local economy, as a whole, shown to be an important explanatory dimension of government results. Also corroborating the main findings of the literature, the variables that were used to measure unemployment proved to behave as predicted by the responsibility hypothesis; Increases in local unemployment have a negative impact on the vote shares of Portuguese governments. These results align themselves with the previous literature that studied the XX century in Portugal. However, in the analysis carried out here, the coefficients on the variables measuring income assumed negative values, a result at odds with what was expected and what is typically found for Portugal. We dig deeper in trying to understand why the responsibility hypothesis here was reversed, i.e. increases in income reducing government vote shares. We evaluated the influence of simultaneous governance and observed the specific effect of each election. The process was one of interacting both types of dummies with the income variables. As to simultaneous ruling, results were clear and even more at odds with conventional expectations; the negative effect on government voting is exclusive of those municipalities where municipal and national governments are politically aligned (where the clarity of responsibility is higher). Furthermore, when we did the interactions with the electoral dummies, what stood out was the 2015 electoral dummy. That year marks the end of a legislature dominated by the austerity policies, applied as part of the third financial bailout of Portugal. When these two findings are put together, they reveal a possible explanation for the income result found. The legislature that ended in 2015 started with a new Portuguese government forced to heavily reduce people's income and was marked by weak economic growth that persisted for a very long time. So, even with posterior increases in income the prior purchasing power of the population was not achieved for many years. The initial loss of purchasing power was so severe that increases in income were probably viewed by voters as too small and too late and actually penalized the government. As such, the overall possible conclusion we can derive is that the negative effect of income on governments electoral results is a consequence, fundamentally, of the crises that hit Portugal in 2009/10 with devastating economic and social effects that prolong themselves for many years, even after 2015. These findings challenge conventional voting models and highlight the complex interplay between economic conditions, political alignment, and electoral accountability.

Finally, the results suggest that XXI century Portuguese voters go a bit further back in time when evaluating the government's economic performance, than most of the literature advocates. Nevertheless, this inference is only slightly explored here, but deserves a more detailed analysis and further research.

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## APPENDIX

Table A.1. Legislative elections in Portugal: 1999-2019

| Elections  | Winning Party    | % Members elected | Premier          | Type of Government              |
|------------|------------------|-------------------|------------------|---------------------------------|
| 10/10/1999 | PS               | 50.0              | António Guterres | Minority                        |
| 17/03/2002 | PSD              | 45.7              | Durão Barroso    | Coalition (CDS-PP)              |
| 20/02/2005 | PS               | 52.6              | José Sócrates    | Majority                        |
| 27/09/2009 | PS               | 42.2              | José Sócrates    | Minority                        |
| 05/06/2011 | PSD              | 47.0              | Passos Coelho    | Coalition (CDS-PP)              |
| 04/10/2015 | PàF <sup>1</sup> | 46.5              | Passos Coelho    | Coalition (CDS-PP) <sup>2</sup> |
| 06/10/2019 | PS               | 47.0              | António Costa    | Minority                        |

Notes: <sup>1</sup> PàF (Portugal à frente – “Portugal Ahead”) was composed of PSD and CDS-PP (pre-electoral coalition).

<sup>2</sup> Rejection of the Government's program in Parliament. PS takes over the government with the parliamentary support of the BE and the CDU.

Source: National Elections Commission (CNE)

Table A.2. – Descriptive statistics

| Variable                         | Aggregation  | Obs. | Average | Std. Deviation | Min.    | Max.     |
|----------------------------------|--------------|------|---------|----------------|---------|----------|
| Gov. Vote shares                 | Municipality | 1668 | 36.113  | 10.302         | 8.242   | 77.454   |
| Unemployment (% pop.)            | Municipality | 1390 | 4.211   | 1.611          | .922    | 10.990   |
| Unemployment rate                | Municipality | 1390 | 4.874   | 1.898          | 1.041   | 12.758   |
| Purchasing Power                 | Municipality | 1665 | 75.775  | 23.534         | 34.950  | 277.930  |
| Average monthly earnings         | Municipality | 1390 | 833.272 | 152.043        | 581.687 | 1953.080 |
| Population                       | Municipality | 1668 | 3.098   | .779           | 1.000   | 4.000    |
| Population density               | Municipality | 1668 | 309.102 | 859.179        | 3.800   | 7740.500 |
| Pop. 65 plus years               | Municipality | 1668 | 23.454  | 6.526          | 8.717   | 46.271   |
| Pop. between 20 and 34 years old | Municipality | 1668 | 17.987  | 2.850          | 9.190   | 26.780   |
| Employment Services Sector       | NUTS III     | 1668 | 55.473  | 11.622         | 32.065  | 86.255   |
| Employment, Primary Sector       | NUTS III     | 1668 | 18.500  | 11.740         | 1.094   | 47.148   |

|                             |              |      |       |      |       |       |
|-----------------------------|--------------|------|-------|------|-------|-------|
| Simultaneous Government     | Municipality | 1668 | .423  | .494 | 0.000 | 1.000 |
| Effective Number of Parties | District     | 1390 | 3.504 | .686 | 1.921 | 5.621 |

Tabela A.3. Model Selection Tests

|                    | Stat.  | P-Value |
|--------------------|--------|---------|
| Hausman (RE vs FE) | 114.39 | 0.0000  |
| F (Pooled vs FE)   | 0.80   | 0.9878  |