Voter Abstention and the Socioeconomic Characteristics of its Electorate

Portuguese Case Study

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Abstract

Voting can be interpreted as the means to express our opinions and beliefs to our government, and an opportunity to be heard and to fight for a change. The continuous increase of the abstention rate can be understood as an increasing lack of interest in the political environment or even a lack of trust or self-identification with the options available. The goal of this study is to understand which socioeconomic variables are contributing to the Portuguese abstention rate, considering different types of elections, and differences at the municipality level. For the empirical analysis, it was used data from PORDATA at the municipal level and for the 8 elections between 2009 and 2019. An OLS regression was performed with year and municipality fixed effects, for different types of elections, namely the parliament, municipal, presidential and the European parliament elections. The results showed that the drivers of the abstention rate are different by type of election. For the parliament elections, an increase in the percentage of votes in non-center political parties and in the number of registered crimes lead to higher abstention rates, while an increase in the average monthly earnings of employees and in the percentage of elderly population lead to lower abstention rates. Interestingly, however, different types of elections provide different results. For the municipal elections, a decrease in the population density leads to higher abstention rates. In the Presidential and European elections, different variables showed significant in the determination of the abstention rate.

Resumo

Votar pode ser interpretado como um meio de expressar as nossas opiniões e crenças ao nosso governo, e uma oportunidade para sermos ouvidos e lutarmos pela mudança. O aumento contínuo da taxa de abstenção pode ser compreendido como uma crescente falta de interesse pelo ambiente político ou mesmo uma falta de confiança ou autoidentificação com as opções disponíveis. O objetivo deste estudo é perceber quais as variáveis socioeconómicas que contribuem para a taxa de abstenção portuguesa, considerando diferentes tipos de eleições, e diferenças a nível municipal. Para a análise empírica, foram utilizados dados do PORDATA a nível municipal e para as 8 eleições entre 2009 e 2019. Foi realizada uma regressão OLS com efeitos fixos no ano e nos municípios portugueses, para diferentes tipos de eleições, nomeadamente as eleições parlamentais, municipais, presidenciais e do parlamento europeu. Os resultados mostraram que os condutores da taxa de abstenção são diferentes por tipo de eleição. Para as eleições parlamentares, o aumento da percentagem de votos nos partidos políticos não centrais e o número de crimes registados conduzem a uma taxa de abstenção mais elevada, enquanto o aumento do rendimento médio mensal dos trabalhadores e da percentagem de idosos levam a uma menor taxa de abstenção. Curiosamente, porém, diferentes tipos de eleições proporcionam resultados diferentes. Para as eleições autárquicas, a diminuição da densidade populacional contribui para uma maior taxa de abstenção. Nas eleições presidenciais e europeias, diferentes variáveis tornaram-se significativas na determinação da taxa de abstenção.

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1. Introduction

"O governo representativo está em crise. Com a erosão da participação eleitoral, os governos continuam a ser governos, mas representam cada vez menos cidadãos." - Abstenção e participação eleitoral em Portugal: Diagnóstico e hipóteses de reforma, João Cancela & Marta Vicente

"The representative government is in crisis. With the erosion of electoral participation, governments remain governments, but they represent fewer and fewer citizens." - Translation

On April 25th, 1975, the first free elections occurred in Portugal, with a voter turnover of 91,53% and since then this percentage has been decreasing as time passes by, particularly after the 1983 elections, where the abstention rate exceeded for the first time 20% and kept an increasing pattern until the present days, where in 2019 the abstention rate exceeded 50%.

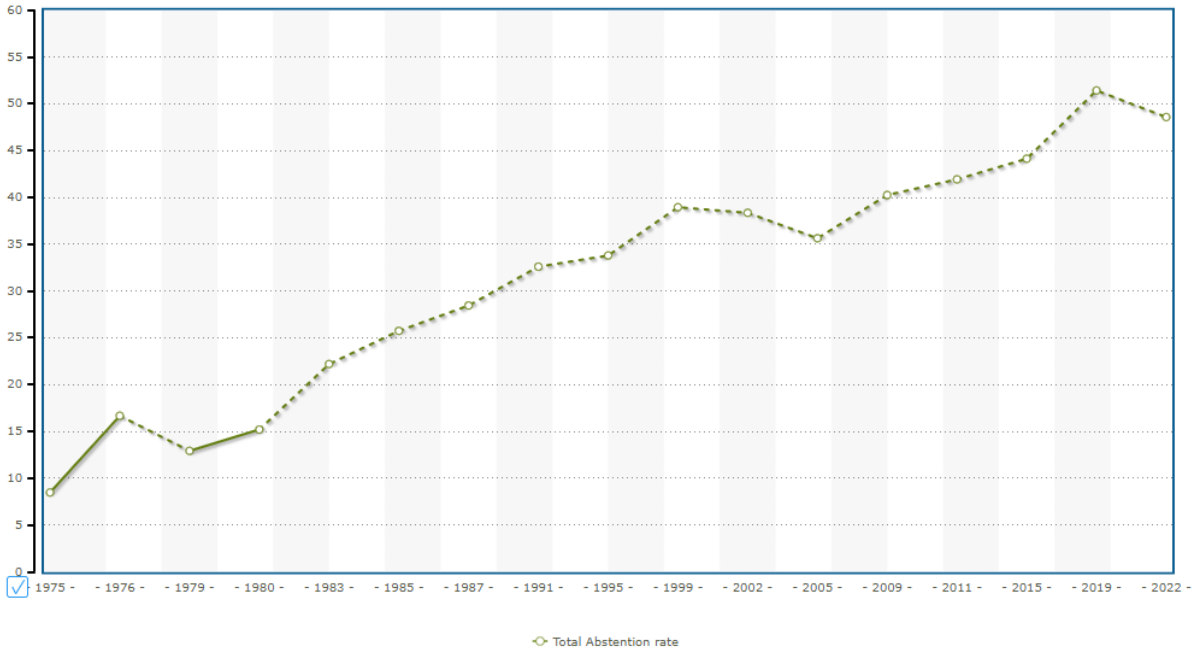
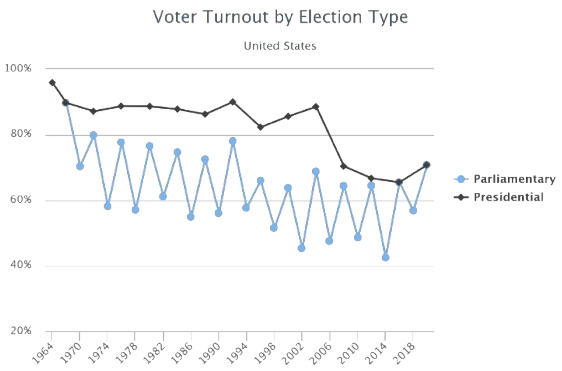


Figure 1 – Abstention rate in the Portuguese Parliament Elections. Source: PORDATA

This rise can be interpreted in different ways. For example, Freire and Magalhães (2002) say that it can be a sign of government stability and trust in the elections applicants, but it can also mean that people are questioning the system itself and do not identify with the political parties, leading to an absence of agreement between voters' preferences and the available options, which culminates in the rise of voter abstention. On the other hand, Canas (2004) states that the reason behind this increasing abstention rate has to do with variables of political engagement, such as the lack of interest in political matters or self-identification with the political parties.

With this we can conclude that further research is needed to understand better what it is actually happening, since high levels of voter abstention are becoming a reality and an actual problem in Portugal. Figures 2 and 3 show that the problem is global, in particular, the voter turnout in the United States of America and in the European Parliament elections are decreasing.



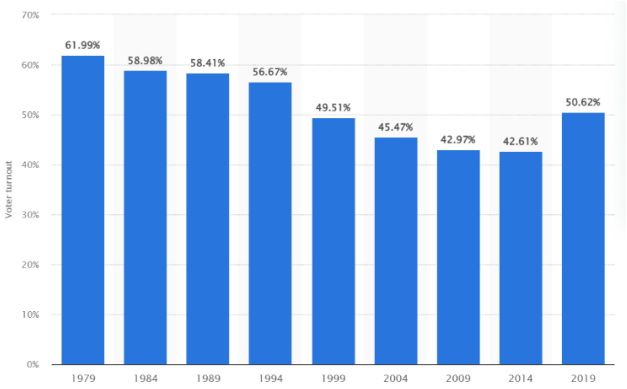


Figure 2 - Voter turnout in the USA elections. Source: IDEA **Figure 3 -** Voter turnout in the European Parliament Elections. Source: election-results.eu

Now focusing more on Portugal, on January 24th, 1821, the Constituent Courts of 1821 took place and for some people the first Portuguese Parliament, in its modern meaning, was created. In this day, male citizens older than 25 years and who exercised an occupation considered useful, made a part on the choice of the members of the Constituent Courts of 1821.

On May 28th, 1911, the first woman voted in the elections for the National Constituent Assembly. Her name was Carolina Beatriz Ângelo and she voted due to the non-specification of the first Electoral Law of the Republican regime that did not spell out, in any article, that women could not exercise the right to vote. As an educated widow and head of her family, she submitted a request for her inclusion on the electoral roll, which made her the first woman to vote, not only in Portugal, but also in all Europe. Unfortunately, the law was rewritten, explicitly giving the right to vote only to Portuguese, educated and male family leaders.

However, after the Revolution of April 25th, 1975, and with the implementation and consolidation of democracy in Portugal, women's social condition changed radically, namely their right to vote.

We can all agree that this achievement was very important, both for men in the 1800s, and for women in the 1900s. Therefore, voting for us, is not only a right but also a duty and an

appreciation towards the Portuguese citizens that fought for all the rights and liberties that we have in nowadays.

Therefore, the main goal of this dissertation is to understand "Why is this happening?", "What type of Portuguese citizens is not voting?", "Does the abstention rate vary with the type of elections?", "Which socioeconomic variables contribute for these levels of abstention rate?".

In other words, with this study we want to understand the determinants of the abstention rate, evaluating the impact of a set of socioeconomic variables in the voter abstention of the Portuguese elections. Furthermore, with this dissertation we intend to understand how the relationship between the voter abstention and the set of socioeconomic variables varies across Portugal, using the differences in the 308 Portuguese Municipalities, to evaluate this relationship in a local level, and how this relationship varies with the type of elections.

In this study, it was possible to verify that, in the parliament elections, an increase in the percentage of votes in non-center political parties and in the number of registered crimes lead to higher rates of abstention (increase of 0,105 p.p and 0,237 p.p on the abstention rate, for right- and left-wing political parties, respectively, and an increase of 1,12 p.p, when the number of registered crimes increases by 1%). In addition, an increase in average monthly earnings of employees and in the percentage of elderly population lead to lower abstention rates (a decrease of 4,15 p.p and 0,327 p.p, respectively).

However, when the municipal elections are considered, different results were obtained, where only the population density turned out to be significant in the abstention rate, contributing for higher levels of abstention. In Portugal, in the last decade, the population density has been decreasing 0,27% *per* year, on average. According to the results, a decrease of 0,27% of the population density leads to an increase of 7,87 p.p of the abstention rate, in the municipal elections.

Moreover, when we combine both elections, different results were obtained. It was possible to observe that some variables stopped being significant and others were still significant but with the opposite impact, and new variables turned out to be significant. Thus, extra cautious must be taken, when analyzing the results with more than one type of elections, since the real impact of elections individually might be hidden.

Finally, to evaluate the results in other types of elections, the presidential and the European parliament elections were considered, where an increase in the percentage of the resident population aged between 18 and 34 led to lower rates of abstention (an increase of 1 p.p leads to a decrease of 1,03 p.p) and a decrease in the population density led to higher abstention rates (a decrease of 0,27% leads to an increase of 18,48 p.p). Furthermore, an increase in the percentage of votes in left-wing and in right-wing political parties, unemployment and in the percentage of males positively impact the abstention rate (an increase of 1 p.p leads to an increase of 0,0828 p.p, 0,081 p.p, 0,948 p.p and 1,709 p.p, respectively) .

The dissertation will be structured in the following way. Section 2 presents the literature review. Section 3 describes the organization of the Portuguese political system. Section 4 discusses the main variables associated with voter turnout and the data used in the analysis. Section 5 provides the empirical model, and Section 6 presents the results and discussion of the main determinants of abstention rate by type of elections. Finally, Section 7 concludes.

2. Literature Review

This work project intends to study the impact of a set of socioeconomic variables on the Portuguese voter abstention. The decline of voter turnout around the world has been object of substantial theoretical and empirical analysis, which will be reviewed in this section. For this review we will focus on the studies made by several authors, namely Blais and Carty (1990), Blais and Dobrzynska (1998), Franklin (1996), Jackman (1987), Powell (1986), among others.

In 1986, Powell in his article *American voter turnout in comparative perspective*, analyzed a list of 20 countries in the 1970s, including western European countries, the United States, Canada, New Zealand, Australia, Israel, and Japan, where the key emphasis was the US voter turnout in a comparative view, in order to justify the low number of cases. Using a combination of aggregate and comparative survey data, Powel's analysis showed that in a comparative view, The voter turnout in the US is positively explained by political attitudes (about 5%) and by the registration laws (up to 14%). On the other hand, variables such the party system and institutional factors are negatively significant, about 13% of disadvantage. Additionally, Powel's study suggested that encouraging voter participation in the other democracies studied would lead to an increase discontent through the electoral process, showing that even with a significant increase on the American electorate, they would still be more concerned and involved in political issues than the current electorates in most other democracies.

Continuing the studies made by Powel (1986), Jackman, in *Political institutions and voter turnout in industrial democracies* (1987), decided to analyze the same democratic countries as Powel, except for Spain that was excluded from the sample, and in his empirical analysis of the average turnout level between the 1960s and the 1970s, the results showed that there is a disincentive to voting when the conversion of votes into legislative seats are not proportional. Also, it exhibited that the political parties and candidates are incentivized to mobilize voters everywhere, when there are nationally competitive electoral districts, increasing voter turnout. On the other hand, multipartyism leads to a less decisive role of voters in the future government, decreasing voter turnout. Finally, jackman's study also concluded that mandatory voting laws produce a disincentive to not vote, increasing voter turnout.

In 1990, Blais and Carty, in the article *Does proportional representation foster turnout?* used Mackie and Rose's *International Almanac of Electoral History* (1982) sample, however of the 24 countries included there, it was excluded Portugal, Spain and Greece due to their interrupted electoral history along with the US, ending up with a sample of 20 countries. With this paper the authors desired to measure the effect of different electoral systems on the voter turnout and in agreement with Jackman's argument that institutions affect voter turnout, however not exactly in the way he thought, they concluded that unicameralism and electoral disproportionality are not significant over the whole range of electoral experience, and variables such as the system size and female suffrage are the ones that actually have made a difference in voter turnout. Regarding the impact of electoral systems, the study showed that when comparing to a PR system, the voter turnout is both lower in a plurality system and in a majority system, 7 p.p. and 5 p.p. lower, respectively, leading to the conclusion that electoral systems affect the voter turnout.

Also, having into consideration Mackie and Rose studies' (*International Almanac of Electoral History*, 1982) and Katz (1996), Franklin's paper *Electoral participation* (1996), has a sample of 29 countries, mostly European countries along with the US, New Zealand, Australia, Japan, India, Brazil, Venezuela, and Costa Rica. In this paper, it was concluded that differences in the institutional context within which elections are conducted impact the voter turnout. Specifically, if a country has low salience elections and a disproportional electoral system, then it can easily demonstrate turnout levels 40% below a country with high salience elections and a proportional electoral system. In other words, if a political system will not be responsive to the electoral choices made by voters, then the motivation to vote will decline.

Regarding the paper of Blais and Dobrzynska, *Turnout in electoral democracies* (1998), they argue in favor of the importance of including all democratic elections, since to understand the causes of cross-national variations in voter turnout, the many cases used the better it is to exploit the richness of data provided by the process of democratization. Thus, they were able to study turnout in 324 democratic elections held in 91 different countries between 1972 and 1995. In this research, the explanatory variables were divided into three categories: socioeconomic environment, institutions, and party systems, and it showed that factors such as degree of illiteracy, the electoral system, population size and density, voting age, compulsory voting, economic development, the number of parties, among others, affect voter turnout. Note that, in an individual level these factors impact the turnout only at the margin, however in a global level, they are statically significant, where '*a small, industrialized, densely populated country, where the national lower house election is decisive, voting is compulsory and the voting age is 21, having a PR system with relatively few parties and a close electoral outcome' (*Blais and Dobrzynska, 1998), voter turnout is higher.

Blais and Dobrzynska findings confirm that institutional factors affected voter turnout. Nevertheless, the socioeconomic environment is also substantially significant, where voter turnout is strongly affected by socioeconomic factors, namely the country's economic development, the degree of illiteracy, and population size. This impact has been softened by previous studies, partly due to the limitation of the analysis to industrialized countries which are not markedly explained by many of these factors. Therefore, the empirical analysis is organized along the lines of Blais and Dobrzynska (1998) and will focus more in evaluating the impact of socioeconomic variables in the voter abstention, in Portugal.

3. Political Framework of the Portuguese Municipalities

With this dissertation, it is intended to analyse not only which socioeconomic variables are significant to the voter abstention but also to understand it in a local scale using all the Portuguese municipalities. Therefore, in order to properly study this matter, firstly it is imperative to comprehend how the Portuguese constitution works and the political framework of Portuguese municipalities.

According to the Portuguese Republic Constitution there are four organs of national sovereignty: Primarily, there is the President of the Republic which is the maximum representative of the Country, and it is elected by universal, direct, and secret suffrage. The President of the republic has the power to dissolve the Assembly of the Republic, to appoint the

Prime Minister, to dismiss the government, among other powers; Additionally, there is the Republic Assembly, which has legislative powers, such as approving amendments to the constitution and creating new laws; The third organ of national sovereignty is the Government, which is the highest body of public administration and has political, legislative and administrative powers, being in charge for articulating legislation that might be or not under the control of the Republic Assembly. The Government also has administrative powers, being accountable for guaranteeing compliance with the State Budget; Finally, there are the Courts, which are organized by category and independent and are responsible for the implementation of justice on behalf of the Portuguese citizens.

Furthermore, in the Portuguese Republic Constitution there are also political bodies that are not of national sovereignty, namely the autonomous regions and local autarchies, that are "*territorial collective persons endowed with representative bodies, which aim to pursue the interests of the respective populations*" (Portuguese Republic Constitution, article 235.º). Local Autarchies are composed of three categories in Portugal Continental: parishes, municipalities, and administrative regions - regarding the autonomous regions, there are only Parishes and municipalities.

Focusing more on the Portuguese municipalities, in 1976, the Portuguese constitution that municipalities are represented by the Municipal Assembly, as the deliberative body, and by the City Hall – *Câmara Municipal*, acting as the executive body, it prepares and executes the general framework of local policies, and it is essentially governed by two diplomas, the legal regime of Local Autarchies and the financial regime of Local Autarchies and Inter-municipal Entities. Despite the various changes that have been occurring in the legislation of local power, municipalities are known to be responsible for endorsing the well-being of their residents, providing public goods, investing in training and education, and promoting development.

Moreover, the representatives of both Municipal Assembly and City Hall are elected by *"universal, direct, secret and periodic suffrage and by plurinominal lists presented in relation to each body, with the voter having a single vote from a list*" (Art. No. 11 of the Electoral Law of local authority bodies: Organic Law No. 1/2001, of August 14th). In other words, citizens registered in each municipality have the right to vote secretly in their municipality, and have the opportunity to elect, from a list of applicants, those they wish to exercise political functions in their municipality. The first municipal elections took place in 1976, with a frequency of 3 years, where after 1985, began to occur every 4 years.

Regarding the financial regime of the municipalities, the fundamental diploma that regulates the financial activity of the municipalities - "*Lei das Finanças Locais*" - was published in 1979. According to the article No. 6 of the Local Finance Law, financial autonomy is one of the vital principles that controls the financial activity of municipalities and, according to this principle, municipalities a limit of revenue allowed by law and channel their assets to encounter the needs of the residents as legally permitted.

4. Main variables associated to the abstention rate

Empirical studies have proven that voter abstention and voter turnout variation occur across countries (Blais, 2006; Gallego, 2010; Jackman & Miller, 1995) and over time (Blais 2006) and that the set of variables that appeared to be significant and explanatory of the voter turnout are not necessarily mutual to every country (Cancela & Geys, 2016; Geys, 2006). However, the main variables that have been being associated to the voter turnout are divided into these three groups of variables:

i. **Socioeconomic variables -** these variables can be described as aspects of social and economic nature which designate an individual's position within a certain society, such as population size, population concentration, population stability, population homogeneity, previous turnout levels, literature, education, age, gender, marital status, home ownership, etc.
ii. **Political variables -** These variables are related to the people's perception of their importance and impact on the public and political life, that is variables that contribute for the population to understand that they also make part of this political journey. For example, electoral competition, multipartyism and campaign expenditures.
iii. **Institutional variables -** One the other hand, institutional variables consist on the electoral procedures that rule the course of the elections in a certain country, namely electoral system, registration requirements, compulsory voting, Unicameralism, and rules intended to ease voting.

Nevertheless, some contradictory opinions and studies have called into question the extent to which institutional variables affect the voter turnout. For example, Blais has concluded that the effect of institutions on the voter turnout is "shaky" and depends on the presence of other variables (Blais 2006), thus the impact of institutional variables may be overstated. Another reason is that in many studies, comparative cross-national research is not robust, and when they are, we do not have a compelling micro foundation account of the relationship.

Furthermore, and in agreement with Blais, it was also concluded that institutional variables are not enough to describe the continuous increase of voter abstention (Hooghe and Kern 2017). And Blais (2006) highlights the need to determine socioeconomic variables, to properly explain the voter turnout.

4.1. Explanatory variables review

As it was mentioned before, there is a great urge and need to understand which socioeconomic variables are significant and accurately explain the voter turnout, since institutional variables have been determined to be insufficient and therefore will not take part of this study. Furthermore, it is important to refer that political variables will also be excluded from this paper, due to the lack of data available in a municipality level.

In this section, we will analyse the outcomes achieved on several empirical studies with as main topic the voter turnout, and that emphasis the relationship between voter turnout and a set of socioeconomic variables. The main goal is to examine with a more detailed overview, what has already been done, what were the outcomes achieved and which variables used were significant when explaining the voter turnout variation, in order to have a clearer and more corroborated decision of which explanatory variables to use in the empirical analysis.

4.1.1. Population size and population concentration

The presence of population size measures is theoretically recommended by the likelihood of casting the decisive vote in the election. According to Downs' (1957), 'calculus-of-voting' model, voters are instrumentally rational. In other words, they vote to influence the result of the election and only incur voting costs if the awaited benefits surpass the costs. These expected benefits grow in proportion to the anticipated difference between the election candidates and the likelihood of influencing the election outcome.

In agreement with Downs, Geys (2006), using meta-analytic research methods, says that including the variable regarding the population size is indeed linked to the likelihood of someone's vote being decisive in changing the final outcome of the election. As a result, it is to expect that the abstention rate will be usually higher in larger populations, and concludes that, as predicted, population size has a negative effect on turnout.

Regarding the population concentration, Geys (2006) examines the findings of 25 studies on this topic. The fundamental hypothesis is that population concentration diminishes turnout

because it fosters more delicate relationships among people from the same area and reduces social responsibility and engagement. Nevertheless, the findings obtained do not sustain the initial hypothesis, implying that the effect of population concentration on turnout is minor.

Cancela and Geys (2016) expand on Geys (2006)'s meta-analysis by including 120 newly published papers to the original sample. Using identical variables, the authors concentrate on the variations detected in Geys' former outcomes. Furthermore, the authors differentiate the factors that impact voter turnout in national elections from factors that impact voter turnout in local elections. The conclusions have come to be consistent with Geys' (2006) former study, where population size has a substantial negative impact on voter turnout, however the relationship between the voter turnout and the population concentration did not show to be significant. On the other hand, Mansley and Demar (2015), concluded that population concentration has a positive effect in voter turnout in a global level and is generally positive in local level.

Another hypothesis is that since population concentration is frequently interpreted as a national indicator of progress, it is to expect a positive relationship between population concentration and voter turnout. Fornos et al. (2004) claims that in urban areas, citizens have certain conditions that are frequently linked to a greater political participation, such as the fact that they have a greater exposure to information and have greater mobility.

4.1.2. Marital status

Other socioeconomic variable that is considered to affect voter turnout is marital status. The reason behind this hypothesis is that marital status can impact the levels of participation, through changes in the conditions in which citizens live or because of changes in their social networks. Mostly because marriage generally brings a set of changes in the day-to-day life, employment, and at home, however it also signifies a chance to learn from and influence each other’s opinions and beliefs (Stoker & Jennings, 1995).

In one hand, studies have been made, concluding that marriage positively influences voter turnout because what was done by two people before, now can be done by just one spouse, such as learning about the registration procedures and getting information about related topics, and both couple members will benefit from it (Squire et al. 1987). In agreement with Squire et al. (1987), Denny and Doyle (2008) are from the same opinion that being married rises the

likelihood of voting, since married people have a richer awareness of how voting impacts the community.

On the other hand, the outcomes of Highton and Wolfinger (2001) propose that voter turnout of married couples varies between one and two percentage points below the voter turnout of single citizens. Furthermore, the outcomes of Stoker and Jennings (1995) display that marriage decreases the person's probability of political participation.

Another theory of Stoker and Jennings (1995) is that it is relevant to consider a life-cycle dynamic, in other words, the effects of marriage are connected to its duration. In their study, Stoker and Jennings (1995) concluded that married couples are more likely to make participation decisions together. This study was also supported by Timpone (1998), which acknowledged that married couples incline to vote or abstain together.

Moreover, Plutzer (2002) confirmed that the impact of marriage and having children are not significant on initial voter turnout and do not predict voter turnout growth. However, marriage has a significant positive effect on voter turnout growth years later, as people get older. Additionally, it was also verified that even those who were married in the first election and divorced later are no exception and have greater growth rates than those who were never married.

4.1.3. Gender

Regarding this variable, many authors did research, and the outcome is not very linear. Some have concluded that the percentage of males living in an electoral division positively impacts turnout, which is the case of Kavanagh et al. (2006), while others find that being female rises the likelihood of voting, conclusions made by Denny & Doyle (2009). Moreover, when it was added lagging turnout to individual features, they also found no gender differences in voter turnout persistence.

Furthermore, Schlozman et al. (1994) used data from a survey in the United States to conclude that, in terms of general political activity, men participate more than women. However, it was not found gender differences in voting or protesting, regarding specific matters, but statistically significant differences were found when examining affiliation or donations to political organizations.

When it comes to voting, Timpone (1998) has observed that men and women have different behaviors, where for a woman the main barrier is the registration process, though, once this is overcome, women have a higher probability of participating in the elections than men.

4.1.4. Age

This factor has also been associated with the decline of voter turnout. One example is the case of Timpone (1998), who investigated the relationship between age and voter turnout in two steps, where the first step consisted in evaluating the registration process, and the second in examining voting among those who are registered.

The author realized that age has a great impact in differentiating registrants from non-registrants, with only education being able to overcome it and when only registered voters are considered, age has an influence on voter turnout. Furthermore, it was also determined that when registered and unregistered voters are included in the same model, the relationship between age and voting is nonlinear. As a result, he concludes that the nonlinear relationship is motivated by registrants' likelihood of going to the pools.

Additionally, studies from Wass (2007) and Lyons and Alexander (2000), confirmed the impact of a generational factor in the voter turnout. The study of Lyons and Alexander (2000) in the American presidential elections between 1952 and 1996, verified that the generation born before 1932 had a higher level of voter turnout that the subsequent generation. In the study of Wass (2007), regarding the Finnish parliamentary elections, the generational effect is consistent with previous research, where voter turnout is linked to age, both for younger and older generations. When it comes to younger generations, there has been verified an increase in voter turnout with age and in older generations, during the middle age it remains steady and then declines. Additionally, studies made by Kavanagh et al. (2006) about Irish elections, and by Ribeiro et al. (2015), about Latin American countries, also corroborates the fact that political participation is higher for elder people.

4.1.5. Population homogeneity

Regarding the significance of population homogeneity on voter turnout, many theories were made, namely Cohen (1982, 259), which states that '*social homogeneity is a prerequisite of community cohesion*.'. This hypothesis consists of the fact that voter turnout should be lower in societies with a lower degree of socioeconomic, racial, and /or ethnic homogeneity than in

areas where this is not the case, since cohesion increases social harmony, solidarity, and pressure.

With an opposing opinion, Zimmer (1976) suggests instead that heterogeneity increases voter turnout, since when the government only makes redistributive actions, such as the classic Meltzere-Richard model, the possible benefits of redistribution are higher for the group with the most political power. Thus, voter turnout will increase, since it is considered to be a method to grow the political power of a certain group. The outcomes made seem to be more in accordance with Zimmer's (1976) arguments, nonetheless the effect of population homogeneity has showed to be rather weak in voter turnout.

Furthermore, other studies were made, including a variable that measures the existence of 'minority groups' or their portion in the total population and as expected, the empirical outcomes incline to support the hypothesis that electoral participation is higher where the proportion of the minority in the population is lower.

4.1.6. Education

When it comes to education, a lot of research have been made, to evaluate the impact of education in the voter turnout. Gallego (2010) has determined education is thoroughly linked to voter turnout, in the sense that more educated people are more knowledgeable and critical, viewing voting as the means to cause changes (Feddersen & Pesendorfer, 1996). For Gallego (2009), citizens with lower educational levels have a greater struggle to understand political matters, leading them to rely more on guides provided by parties and groups. It was also verified in this study by Gallego (2009) that the associated costs of voting are also a plausible explanation for high abstention rates among people with low education levels, a feature shared by the three countries studied by Gallego (2009) – Germany, Norway, and Sweden. Furthermore, this conclusion was also obtained in the studies of Lyons and Alexander (2000) and of Blais et al. (2004) regarding the United States and Canada, where voting rates are low among poorly educated citizens.

Additionally, Highton and Wolfinger's (2001) research highlights how relevant information is in the voter turnout, specially the one provided by in school. It was concluded that leaving school is related with a decline in voter turnout. This implies that people have easier access to political information when they are in school, where the turnout of full-time and part-time college students is more than 17 percentage points higher and 11 percentage points higher,

respectively, than non-students. These conclusions are also supported by Plutzer (2002), who determined that attending college helps to increase initial voter turnout. On the other hand, the impact of education on following elections outweighs the impact of college attendance on the initial voter turnout. Thus, it was concluded that the educational effect accumulates over a lifetime and is unaffected by factors such as holding a professional position or having a high income.

Nevertheless, other authors came across opposite conclusions, which is the case of Kavanagh et al. (2006) about Irish elections. In this study, educational disadvantage increases voter turnout, and it was even determined a relationship between lower turnout levels and third level education, where a multivariate regression is used to confirm this association, implying that third level education negatively affects voter turnout.

4.1.7. Economic variables

Research regarding the impact of economic features on voter turnout, have verified that economic factors, such as inflation, unemployment and economic insights influence the citizens' decision to vote (Sanders, 2000; Freire & Lobo, 2005; Lewis-Beck & Stegmaier, 2000).

A study made by Fornos et al. (2004) determined the impact in voter turnout of socioeconomic variables, such as GDP *per capita*, is very small when comparing to institutional and political variables in Latin American countries. Moreover, in a study for Latin American countries, Kostadinova & Power (2007) verifies the same conclusions as Fornos et al. (2004), however when analyzing the electoral participation in Eastern European countries, the author determined a positive impact of GPD *per capita* on voter turnout. Nevertheless, Ribeiro et al. (2015) when examining the Latin American countries, discovered that voter indifference is positively linked to GDP, proposing that when experiencing more stable and comfortable economic conditions, the significance of voting, as a changing instrument, declines and demonstrates that the effect of the economy varies in terms of space, time, and conditions.

Furthermore, a study made by Taiwo & Ahmed (2015), in Nigeria, also concluded that voter indifference is positively linked to GDP, where applying a GWR analysis, it was confirmed that electoral participation is lower in states with a higher economically power and voter indifference is higher when unemployment rates are lower. These conclusions suggest that economic development might have a negative impact on electoral participation. On the other

hand, a study of Mansley and Demar (2015), verified that higher unemployment is associated to lower voter turnout, when investigating the London mayoral election.

4.2. Data information

The data used in this dissertation was extracted from the certified statistics base PORDATA. The dependent variable is the abstention rate, that is the percentage of registered voters that in the election day decided not to vote, computed as the difference between the number of registered citizens and the ratio between the number of votes and the number of registered citizens.

Regarding the set of explanatory variables for abstention rate, it was chosen after having into consideration the cross between the explanatory variables review and the available data. On one hand, the original goal was to cover as many subjects identified on the explanatory variables review as possible and that are available on PORDATA, namely population size and concentration, marital status, gender, age, population homogeneity, education, and GDP. On the other hand, the intention was also to evaluate the abstention rate on a temporal perspective, using the parliament elections since 1987 until 2019. However, due to the lack of data in PORDATA in a municipal scale, it will only be possible to use the timeline between 2009 and 2019, and the explanatory variables "Education" and "GDP" were not used due to the lack of data in a municipal scale. Furthermore, for the variable regarding purchasing power *per* capita, there is a lack of data for the years 2014 and 2016. Moreover, the decision on analysing only until the year of 2019 was made to avoid the shocks of the COVID 19 pandemic, which started in Portugal at the end of 2019.

Nevertheless, after analysing the abstention rate in the parliament elections for the different Portuguese municipalities, we will proceed with the analysis of the abstention rate for different types of elections, namely the municipal, presidential and the European parliament elections in order to evaluate whether the type of elections as an impact on the results obtained.

Additionally, apart from the variables considered in the explanatory variables review, namely the population density, age, gender, marriages and unemployment, further variables were considered, such as the population purchasing power, the monthly earnings, the most voted political party, crime index and the resident foreigner population. These variables were added in the sense that they can be associated with the population homogeneity.

Moreover, the variables regarding the most voted political parties, crime index and the foreign population with legal resident status were chosen to give us a clearer perspective in a social level, while the monthly earnings and the purchasing power *per* capita are more economically related. Note that, despite the similarity, different conclusions can be extracted from these two last variables, where one gives us how much a certain resident receives *per* month and the other tells us the life quality of a certain resident, respectively. For example, even though we might have a higher salary in Lisbon and Porto than in the interior of Portugal, our quality of life might not be necessarily better due to the cost of living in the big cities comparing to the interior cities. A detailed description of each of the variables is presented on Table 1.

Table 1 –Variables' description

Variable name	Description	Additional information
Abstention Rate	Abstention Rate	-
ForeignPop	Foreign Population with legal resident status	Transformed into the log form
Marriages	Number of marriages	Transformed into the log form
crime1000	Registered crimes *per* 1000 habitants	Transformed into the log form
PopDensity	Population *per* km^2	Transformed into the log form
Earnings	Average monthly earnings of employees	Transformed into the log form
PurchasingPower	Purchasing power *per capita*	Transformed into the log form. Note that, for this variable, the information is not available for the years 2014 and 2016.
Unemployment	Registered unemployed population as a percentage of the resident population aged between 15 to 64	-
Men/pop	Percentage of males	-
YoungPop	Percentage of the resident population aged between 18 and 34	-
MiddlePop	Percentage of the resident population aged between 35 and 69	Not included in the model, for multicollinearity purposes
ElderlyPop	Percentage of the resident population aged between 70 and 85 or more	-
VotesRight	Percentage of votes in right-wing political parties	-
VotesCenter	Percentage of votes in center-wing political parties	Not included in the model, for multicollinearity purposes
VotesLeft	Percentage of votes in left-wing political parties	-

Note that in the analysis of this dissertation, the territorial unit used is municipality, where the 308 Portuguese municipalities will be used for study. For the empirical analysis of the abstention rate, Matsusaka (1995) recommended to use aggregate level data instead of individual data, since individual idiosyncrasies can cancel each other.

Moreover, the description statistics for the parliament, municipal, and presidential and European parliament elections are presented in Section 6, in the tables 2, 4, and 6, respectively.

5. Empirical Model

In this dissertation, the data used is a dataset in which the behaviours of entities are observed across time, where the entities are the Portuguese municipalities. Moreover, this type of data will allow us to control for variables we could not observe nor measure before, across the Portuguese municipalities or over time. This type of data is called panel data, also known as longitudinal data.

Additionally, since the main goal of this study is to analyse the impact of a set of socioeconomic variables in the abstention rate within a Portuguese municipality, it will be used fixed-effects models in order to explore the relationship between the socioeconomic variables and the abstention rate within a Portuguese municipality. Each municipality has its own individual features as explanatory variables, which may or may not impact the abstention rate. Therefore, when we use the fixed-effects model, we are assuming that some characteristic within the municipality may bias or influence the explanatory variables, which must be controlled for. This is the foundation behind the assumption of the correlation between entity's error term and explanatory variables. Thus, the fixed-effects models will remove the impact of those time-invariant features in order to be possible to evaluate the net effect of the explanatory variables on the abstention rate.

Furthermore, there is other assumption in the fixed-effects model that has to do with the fact that those time-invariant features are unique to each municipality and cannot be correlated with other individual features. Each municipality is different thus the municipality's error term and the constant (that captures individual features) cannot be correlated with the others. Consequently, when the error terms are correlated, the fixed-effects model will not be suitable since it is possible that the inferences might not be correct.

Therefore, after the collection and treatment of the data used, the Ordinary Least Squares (OLS) model was applied, using year fixed-effects (λ_t), which controls for aggregate macroeconomic effects, and municipality fixed-effects (α_i), which controls for time invariant features of the municipalities. Moreover, the parameter estimates show the relationship between the abstention rate and the set of the explanatory variables chosen. The equation for the OLS model goes as follow:

$$Y_{it} = X_{it}\beta + \lambda_t + \alpha_i + e_{it} \quad (1)$$

Where:

- Y_{it} (i=1….n) is a vector *n* x 1 vector of observations of the abstention rate;
- X_{it} (i=1….n) is a matrix *n* x *k* where we have observations on *k* explanatory variables for *n* observations;
- λ_t controls for the year fixed effects;
- α_i controls for the municipality fixed effects;
- e_{it} (i=1….n) is a vector *n* x 1 of errors;
- and β_i (i=1….n) is a vector *k* x 1 of unknown parameters of interest.

In this study we will have four different analyses. First, it will be analysed the results considering only the parliament elections. Then, for a second analysis, the municipal elections will be evaluated. As a robustness, in the third analysis, it will be analysed the impact of the parliament and municipal elections combined in the results obtained. Finally, it will be considered the presidential and European parliament elections. In the table below, we can observe the type of election for each year under analysis:

Year	Election
2009	Parliament
2011	Parliament
2013	Municipal
2014	European parliament
2015	Parliament
2016	Presidential
2017	Municipal
2019	Parliament

Note that the independent variables used will be the exact same ones for the three first analyses, where the only difference will be the type of elections. In the last analysis, the purchasing power *per* capita will be excluded due to the lack of data in PORDATA, for the years 2014 and 2016.

6. Empirical Analysis and discussion

In this section, four different analyses will be performed. First, we will start with the results for the parliament elections, for the years 2009, 2011, 2015 and 2019; Then, in the second analysis, only the municipal elections will be considered, for the years 2013 and 2017. Additionally, the parliament and municipal elections will be combined, for the years 2009, 2011, 2013, 2015, 2017 and 2019, in order to evaluate if the outcomes significantly differ when we analyse the two of elections together. Finally, we consider only the presidential and the European parliament elections, for the years 2014 and 2016.[1] Thus, we will not only be able to evaluate the impact of each explanatory variable in the Portuguese abstention rate, but also how does the type of election affect these results.

[1] In the analysis of the presidential and European parliament elections (2014 and 2016) there is no data in PORDATA available regarding the variable purchasing power *per* capita, for these years.

6.1. Parliament elections

For the first analysis, regarding only the parliament elections, the descriptive statistics of the dependent and independent variables are presented in the table below:

Table 2 - Descriptive statistics: Parliament elections

Variable	Observations	Minimum	Mean	Median	Maximum	Standard deviation
Dependent Variable:						
AbsRate	1206	0,27	0,45	0,44	0,70	0,07
Independent Variables:						
lnForeignPop	1206	1,39	5,71	5,49	11,49	1,65
lnMarriages	1206	0,00	3,91	3,85	8,01	1,29
lncrime1000	1206	1,92	3,35	3,35	4,81	0,35
lnPopDensity	1206	1,34	4,37	4,25	8,95	1,47
lnEarnings	1206	6,42	6,79	6,77	7,61	0,17
lnPurchasingPower	1206	3,86	4,34	4,31	5,45	0,23
Unemployment	1206	0,00	6,37	6,30	16,10	2,81
Men/pop	1206	0,42	0,48	0,48	0,57	0,01
YoungPop	1206	0,12	0,23	0,22	0,39	0,04
MiddlePop	1206	0,46	0,57	0,57	0,65	0,03
ElderlyPop	1206	0,09	0,21	0,20	0,40	0,06
VotesRight	1206	0,09	0,45	0,45	0,88	0,15
VotesCenter	1206	0,06	0,37	0,37	0,61	0,08
VotesLeft	1206	0,03	0,19	0,16	0,54	0,11

Table 3 – Parliament elections

VARIABLES	(1) AbsRate	(2) AbsRate	(3) AbsRate
YoungPop	-1.213***	-0.315**	-0.0138
	(0.115)	(0.151)	(0.127)
ElderlyPop	-1.289***	-0.859***	-0.327***
	(0.0835)	(0.0967)	(0.0907)
Unemployment	-0.00423***	-0.00297***	-0.000721
	(0.000736)	(0.000736)	(0.000465)
Men/pop	-0.847***	-0.693***	-0.399
	(0.227)	(0.230)	(0.282)
VotesLeft	-0.201***	-0.140***	0.237***
	(0.0308)	(0.0339)	(0.0384)
VotesRight	-0.0774***	-0.0133	0.105***
	(0.0225)	(0.0277)	(0.0260)
lnEarnings	0.0751***	0.0338**	-0.0415**
	(0.0172)	(0.0170)	(0.0178)
lnPopDensity	-0.0223***	-0.0240***	0.00496
	(0.00216)	(0.00204)	(0.0279)
lncrime1000	0.0457***	0.0524***	0.0112***
	(0.00548)	(0.00508)	(0.00385)
lnMarriages	-0.00365	-0.00333	0.00250
	(0.00303)	(0.00290)	(0.00265)
lnForeignPop	-0.000255	0.000920	-4.73e-05
	(0.00239)	(0.00218)	(0.00379)
lnPurchasingPower	-0.0899***	-0.0725***	0.0206
	(0.0127)	(0.0120)	(0.0176)
Constant	1.330***	1.062***	0.682**
	(0.177)	(0.180)	(0.269)
Year fixed-effects	No	Yes	Yes
Municipality fixed-effects	No	No	Yes
Observations	1,206	1,206	1,206
R-squared	0.397	0.467	0.949

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

In table 3, the regression results are presented. We can observe that in specification 1, where fixed effects are not used, out of the twelve independent variables used, only two came out to not be statistically significant, the variable “lnMarriages” and “lnForeignPop”, meaning that on average and keeping everything else constant, when the number of marriages increase by 1%, it will have no significant impact on the abstention rate and when the foreign population with legal resident status increases by 1%, it will also not impact significantly the abstention rate. Nevertheless, all the other variables showed to be significant with a p-value smaller than 0,01.

However, when applying the year fixed effects, different outcomes were observed. In specification 2, more explanatory variables showed to not be statistically significant, which are the case of the variable "VotesRight", which accounts for the percentage of votes in the right-wing political parties.

Nevertheless, in specification 3, when it is applied the year and municipality fixed effects, we can observe that unlike specifications 1 and 2, most independent variables turnout to not be significant in explaining the variations in the abstention rate. Thus, the significant results survive only for the variables "ElderlyPop", "VotesLeft", "VotesRight", "lnEarnings" and "lnCrime1000".

Regarding the variable "ElderlyPop", we can conclude that on average and keeping everything else constant, when the percentage of the resident population aged between 70 and 85 or more increases by 1 percentage point, the abstention rate will decrease 0,327 percentage points (from now forward "p.p."). In other words, on average and keeping everything else constant, the abstention rate is lower in populations with more residents above the age of 70. Thus, the abstention rate tends to be lower in elder populations. These results might be explained in the point of view that with age comes the sense of responsibility and a greater awareness of how voting impacts our community. Perhaps it might also be related to our wants and needs according to our age, as we get older the need for stability and protection increases, which might lead to a higher voter turnout. Moreover, it is interesting to analyze these results in terms of education. Many studies have been made regarding the impact of education in voter turnout and concluded that the voter turnout increases in more educated populations. Thus, it was expected a higher abstention rate in elder populations, since the most educated population tends to be the younger population. Moreover, these results can also be connected to the fact that this generation lived through revolutionary times, where they had to fight for liberty and for their rights, especially their right to vote. Thus, this generation might be more sensible in this matter, and vote for them might have a more significant meaning and importance. Therefore, the results obtained are, in some way, counter-intuitive and are potentially not in accordance with the literature review. Additionally, in Portugal variables such as indifference towards political issues might be stronger than the level of education of the population.

When it comes to the average monthly earnings of employees, "lnEarnings", we can observe in table 3 that, on average and keeping everything else constant, when the average monthly earnings of employees increase by 1%, the abstention rate will decrease by 4,15 p.p. Therefore,

despite the small impact, we can conclude that in better paid populations, the abstention rate will be lower. One reason that might explain these results is that better paid employees might have access to better and more detailed and reliable information, that can help them understand better which political party they self-identify more, if any; or, in terms of understanding specific terms and theories, for example economic, mathematical, and linguistic terms. Moreover, we can also consider the variable of education to might be behind these results. Contrary to the results obtained for the variables that regard the population age, and in accordance with the previous studies, education impacts negatively the abstention rate, meaning higher levels of education leads to higher levels of political participation, thus lower rates of abstention. And higher levels of education also impact positively the future earnings, thus residents with higher average monthly earnings of employees tend to have a higher level of education, thus it will lead to lower abstention rates. Thus, our results can be connected to higher levels of education.

Furthermore, variables such as the number of registered crimes *per* 1000 habitants, the percentage of votes in right-wing political parties and the percentage of votes in left-wing parties showed a positive impact on the abstention rate. Some of these results are very interesting. For example, some studies evaluated the impact of population homogeneity in the voter turnout, concluding that population with lower degrees of homogeneity tend to have higher levels of abstention, since it implies lower cohesion levels. Moreover, variables such as the percentage of votes in right-wing political parties, the percentage of votes in left-wing parties, and the number of registered crimes can be measures of population homogeneity. However, some of these results are not in accordance with the studies' conclusions and my personal expectations. Since for the variable "VotesRight", on average and keeping everything else constant, when the percentage of votes in right-wing political parties increases by 1 p.p., the abstention rate will increase by 0,105 p.p., and for the "VotesLeft", when the percentage of votes in left-wing political parties increases by 1 p.p., the abstention rate tends to increase by 0,237 p.p., on average and keeping everything else constant. These results are counter-intuitive, because if the percentage of votes in a certain wing political parties is increasing, it means higher degrees of homogeneity, therefore the abstention rate should be lower, which is not verified.

Regarding the number of registered crimes *per* 1000 habitants, we can conclude that on average and keeping everything else constant, when the number of registered crimes increases by 1%, the abstention rate will increase by 1,12 p.p., the reasoning behind this result might also

be related with education, since in populations with higher levels of crime, the education might lower, thus lower levels of education lead to higher levels of abstention.

Therefore, considering only the parliament elections, variables such as the number of registered crimes, the percentage of votes in left- and the percentage of votes in right-wing political parties lead to greater rates of abstention, while on the other hand, the average monthly earnings of employees and the percentage of the resident population aged between 70 and 85 or more negatively impact the abstention rate.

6.2. Municipal elections

In this analysis only the municipal elections will be considered, for the years 2013 and 2017. Thus, we will also be able to evaluate the impact of a different type of elections in the abstention rate. In the table below, it is presented the descriptive statistics for this analysis:

Table 4 - Descriptive statistics: Municipal elections

Variable	Observations	Minimum	Mean	Median	Maximum	Standard deviation
Dependent Variable:						
AbsRate	594	0,18	0,40	0,40	0,62	0,09
Independent Variables:						
lnForeignPop	594	2,30	5,66	5,44	11,04	1,59
lnMarriages	594	0,00	3,81	3,81	7,91	1,32
lncrime1000	594	2,15	3,34	3,35	4,45	0,32
lnPopDensity	594	1,41	4,35	4,23	8,93	1,48
lnEarnings	594	6,53	6,80	6,78	7,75	0,16
lnPurchasingPower	594	4,01	4,37	4,33	5,39	0,20
Unemployment	594	0,00	7,57	7,70	18,20	3,41
Men/pop	594	0,46	0,48	0,48	0,53	0,01
YoungPop	594	0,13	0,21	0,21	0,36	0,03
MiddlePop	594	0,47	0,58	0,58	0,65	0,03
ElderlyPop	594	0,09	0,21	0,21	0,39	0,06
VotesRight	594	0,00	0,39	0,39	0,98	0,21
VotesCenter	594	0,00	0,42	0,42	0,81	0,17
VotesLeft	594	0,00	0,19	0,10	0,85	0,20

Table 5 - Municipal elections

VARIABLES	(1) AbsRate	(2) AbsRate	(3) AbsRate
YoungPop	-0.938***	-1.370***	-0.255
	(0.217)	(0.228)	(0.247)
ElderlyPop	-1.001***	-1.117***	-0.323
	(0.137)	(0.135)	(0.233)
Unemployment	-0.00118	-0.00368***	-0.00184
	(0.000802)	(0.000890)	(0.00117)
Men/pop	-1.334***	-1.220***	0.186
	(0.317)	(0.306)	(0.625)
VotesLeft	0.0214	0.0118	-0.0322*
	(0.0165)	(0.0162)	(0.0166)
VotesRight	0.0222	0.00594	0.0162
	(0.0156)	(0.0153)	(0.0217)
lnEarnings	0.0339	0.0520**	-0.0294
	(0.0224)	(0.0227)	(0.0245)
lnPopDensity	-0.00466	-0.00309	-0.291***
	(0.00331)	(0.00320)	(0.0622)
lncrime1000	0.0524***	0.0471***	-0.00102
	(0.00820)	(0.00804)	(0.00880)
lnMarriages	0.00695	0.0121***	0.00684
	(0.00441)	(0.00425)	(0.00511)
lnForeignPop	0.0269***	0.0240***	-0.00241
	(0.00325)	(0.00319)	(0.00763)
lnPurchasingPower	-0.0734***	-0.0901***	-0.00359
	(0.0226)	(0.0227)	(0.0626)
Constant	1.210***	1.275***	2.137***
	(0.239)	(0.233)	(0.564)
Year fixed-effects	No	Yes	Yes
Municipality fixed-effects	No	No	Yes
Observations	594	594	594
R-squared	0.580	0.605	0.978

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Moreover, in table 5, are presented the regression results. Focusing only on the third specification in column (3), we can observe that the significant results survive only for the variables "VotesLeft" (10% significance level) and "lnPopDensity" (1% significance level), with a negative impact on the abstention rate.

Regarding the variable "VotesLeft", and contrary to what we have seen in the analyses for the parliament elections and for all elections, on average and keeping everything else constant, when the percentage of votes in left-wing political parties increases by 1 p.p., the abstention rate will decrease by 0,0322 p.p., which are reasonable results and are in accordance with the

literature review. As it was said before regarding the studies made in this scope, population with lower degrees of homogeneity tend to have higher levels of abstention, since it implies lower cohesion levels. Thus, if the percentage of votes in left-wing political parties is increasing, then it means higher degrees of homogeneity, therefore the abstention rate will be lower, which is verified.

Additionally, the population density also negatively impacts the abstention rate. In Portugal, the population density has been decreasing 0,27% *per* year, on average, in the last decade. Thus, according to the results obtained, on average and keeping everything else constant, when the number of residents *per* kilometer squared decreases by 0,27%, the abstention rate will increase by 7,87 p.p. In other words, as the population density decreases, the abstention rate tends to increase. Considering the literature review, these results are counter-intuitive, since population with lower degrees of homogeneity tend to have higher levels of abstention, since it implies lower cohesion levels. Therefore, if the population density is decreasing, population homogeneity should be increasing, leading to lower abstention rates. Note that, if it was only considered the time period of this analysis elections, from 2013 to 2017, the population density decrease would be higher (a decrease of 0,4% *per* year, on average), leading to a higher impact on the abstention rate.

Therefore, when we only consider the municipal elections, only the population density and the percentage of votes in left-wing political parties turned out to be significant in the Portuguese abstention rate, contributing for lower levels of abstention.

Thus, we can conclude that the type of election considered has an impact both on whether the independent variable is significant or not, since some variables showed to be significant when only the parliament elections are considered, and on how they impact the abstention rate, for example when we only consider the parliament elections, the percentage of votes in left-wing political parties showed a positive impact on the abstention rate, however, when we only consider the municipal elections, it showed a negative impact on the abstention rate.

6.3. Robustness: Pooled sample using the Parliament and Municipal elections combined

In this section, the parliament and the municipal elections were considered for analysis, in order to evaluate how the explanatory variables significance change when we consider these two types of elections together. That said,

In this analysis, it is possible to observe that completely different results were obtained comparing with previous analyses, where the parliament elections and the municipal elections were separately considered. When the combination of these two types of elections is assumed, other independent variables turned out to have a significant impact on the abstention rate, such as the variables "lnPurchasingPower", "lnMarriages" and "lnForeignPop". Furthermore, the independent variables that showed to be significant in analyses 1 and 2, either turnout to be not significant, which is the case of the variables "ElderlyPop", "VotesRight", "lnEarnings" and "lnDensityPop", or showed to have an opposite impact, where in the analysis where only the parliament elections were considered the variable "lnCrime1000" led to higher levels of abstention, while in this analysis, it leads to a decrease in the abstention rate, and in the analysis where only the municipal elections are considered, the variables "VotesLeft" led to lower abstention rates, while in analysis 3, it leads to greater abstention rates.

Therefore, when we consider the parliament elections together with the municipal elections, variables such as the number of registered crimes, the foreign population with legal resident status and the purchasing power *per* capita lead to lower rates of abstention, while on the other hand, the number of marriages and the percentage of votes in left-wing political parties' impact positively the abstention rate.

With this analysis, we can confirm that extra cautious must be taken when combining different types of elections in this type of regression, since completely different results are obtained, and combing them hides the real impact of elections, individually. Thus, the ideal way to analyze the determinants of abstention rate is by type of election, separately.

6.4. Presidential and European parliament elections

As mentioned before, there is a lack of data in PORDATA, for the variable regarding purchasing power *per* capita for the years 2014 and 2016. Therefore, in order to analyse the impact of the socioeconomic variables chosen in the Portuguese abstention rate in the presidential and in the European parliament elections, for this section analysis, the variable "lnPurchasingPower" was excluded.

In the table below, the descriptive statistics are presented:

Table 6 – Descriptive statistics: Presidential and European parliament elections

Variable	Observations	Minimum	Mean	Median	Maximum	Standard deviation
Dependent Variable:						
AbsRate	611	0,00	0,60	0,61	0,85	0,10
Independent Variables:						
lnForeignPop	611	2,08	5,62	5,37	10,89	1,59
lnMarriages	611	0,00	3,78	3,76	7,89	1,32
lncrime1000	611	2,36	3,28	3,27	4,43	0,32
lnPopDensity	611	1,44	4,35	4,23	8,92	1,48
lnEarnings	611	6,54	6,79	6,76	7,72	0,16
Unemployment	611	0,00	7,48	7,70	18,70	3,43
Men/pop	611	0,46	0,48	0,48	0,53	0,01
YoungPop	611	0,13	0,21	0,21	0,35	0,03
MiddlePop	611	0,47	0,58	0,58	0,65	0,03
ElderlyPop	611	0,09	0,21	0,20	0,39	0,06
VotesRight	611	0,08	0,48	0,49	0,82	0,15
VotesCenter	611	0,05	0,23	0,16	0,70	0,15
VotesLeft	611	0,04	0,29	0,28	0,73	0,14

Table 7 – Presidential and European parliament elections

VARIABLES	(1) AbsRate	(2) AbsRate	(3) AbsRate
YoungPop	0.00352	-0.124	-1.030***
	(0.214)	(0.209)	(0.388)
ElderlyPop	-0.712***	-0.673***	-0.205
	(0.141)	(0.138)	(0.370)
Unemployment	-0.00192**	-0.00233***	0.00948***
	(0.000743)	(0.000711)	(0.00203)
Men/pop	0.166	0.640**	1.709**
	(0.329)	(0.311)	(0.740)
VotesLeft	-0.493***	-0.128***	0.0828**
	(0.0206)	(0.0443)	(0.0339)
VotesRight	-0.341***	-0.0169	0.0810*
	(0.0204)	(0.0393)	(0.0430)
lnEarnings	-0.0228	-0.0300	0.0204
	(0.0202)	(0.0201)	(0.0326)
lnPopDensity	-0.0212***	-0.0176***	-0.683***
	(0.00323)	(0.00295)	(0.161)
lncrime1000	0.0589***	0.0585***	0.0132
	(0.00820)	(0.00736)	(0.0102)
lnMarriages	-0.00247	-0.000542	0.00740
	(0.00460)	(0.00407)	(0.00561)
lnForeignPop	0.00131	-0.00434	-0.00855
	(0.00297)	(0.00266)	(0.00938)
Constant	1.045***	0.692***	3.214***
	(0.228)	(0.221)	(0.851)
Year fixed-effects	No	Yes	Yes
Municipality fixed-effects	No	No	Yes
Observations	611	611	611
R-squared	0.675	0.732	0.982

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Furthermore, in table 7, the estimated results are presented. We can observe that the results have changed and note that variables that in the previous analyses have not showed to be significant, now they are, namely the percentage of the resident population aged between 18 and 34, the registered unemployed population as a percentage of the resident population aged between 15 to 64 and the percentage of males. Additionally, the significant results also survive for the variables regarding the percentage of votes in left-wing and right-wing political parties and the population *per* km^2.

In this analysis, on average and keeping everything else constant, when the percentage of votes in left-wing political parties increases by 1 percentage point, the abstention rate will

increase 0,0828 percentage points, which as it was already explained in the previous interpretation of this variable, and in accordance with the studies made regarding the relationship between the abstention rate and population homogeneity, this result is counter-intuitive since a higher percentage of votes in the same wing of political parties can viewed as a greater population homogeneity, thus it should have a negative impact on the abstention rate and not the opposite impact, which is the case. Furthermore, on average and keeping everything else constant, when the percentage of votes in right-wing political parties increases by 1 percentage point, the abstention rate will increase 0,081 percentage points.

Additionally, in accordance with the analysis where only the municipal elections are considered, the population *per* km^2 has a negative impact on the abstention rate. As mentioned before, in Portugal, the population density has been decreasing 0,27% *per* year, on average, in the last decade. Thus, according to the results obtained, when the number of residents *per* kilometer squared decreases by 0,27%, the abstention rate will increase 18,48 p.p, on average and keeping everything else constant. Considering the literature review, these results are counter-intuitive, since population with lower degrees of homogeneity tend to have higher levels of abstention, since it implies lower cohesion levels. Therefore, if the population density is decreasing, population homogeneity should be increasing, leading to lower abstention rates. Since in more populated municipalities, its residents might have different principles or beliefs, or even the educational and financial background can be very diverse, implying that some residents might be indifferent towards voting, or some residents might not have the information needed to vote, or even in terms of costs. Thus, if the population density decreases, the abstention rate should also decrease, on average and keeping everything else constant, which is not verified. Note that, if it was only considered the time period of this analysis elections, from 2014 to 2016, the population density decrease would be higher (a decrease of 0,4% *per* year, on average), leading to a higher impact on the abstention rate.

Regarding the population age, the results obtained go against the results in the parliament elections, where in elder populations the abstention rate tend to be lower. However, when considering the presidential and the European parliament elections and excluding the purchasing power elections, on average and keeping everything else constant, when the percentage of the resident population aged between 18 and 34 increases by 1 percentage point, the abstention rate will decrease 1,03 percentage points. This result can be linked to education, where many studies concluded that the voter turnout increases in more educated populations.

Thus, it is expected a lower abstention rate in younger populations, since they tend to be the most educated population. Additionally, this result can also be related with the type of elections, perhaps in Portugal, the younger population is more concerned with the presidential and the European parliament elections than with the other. However, further studies have to be made in order to check this hypothesis.

Moreover, despite the small impact, on average and keeping everything else constant, when the registered unemployed population as a percentage of the resident population aged between 15 to 64 increases 1 p.p, the abstention rate will increase 0,948 p.p. The reasoning behind these outcomes can be linked with the increased vulnerability of the population. This result in in accordance with the study of Mansley and Demar (2015), which verified that higher unemployment is associated to lower voter turnout, when investigating the London mayoral election. However, this result is, in some way, counter-intuitive, since higher levels of unemployment can be associated with a higher vulnerability and need for stability and protection from our governments, thus we should have lower abstention rates. Also, some studies, such as "Unemployment and the Democratic Electoral Advantage", found that it is easier for political candidates to convince voters that they are the political party that will solve the voters' problems when unemployment rates are higher, due to the greater need for stability and protection and greater vulnerability.

Finally, in this analysis, the percentage of males turned out a significant variable in the Portuguese abstention rate, where on average and keeping everything else constant, when the percentage of males increases 1 percentage point, the abstention rate will increase 1,709 percentage points. Further studies must be done in order to understand how gender impacts voter turnout, since the existing studies have concluded that this variable is significant, however the reasons behind it need to be more developed.

Therefore, considering the presidential and the European parliament elections, variables such as the percentage of the resident population aged between 18 and 34 and the populations density led to lower rates of abstention, while on the other hand, the percentage of votes in left-wing and in right-wing political parties, unemployment and the percentage of males positively impact the abstention rate. Note that, these different results comparing to the previous analyses, can be associated with the type of elections used, with the sample size, with the elimination of the variable regarding the purchasing power, among others.

7. Conclusion

It is undeniable that high levels of voter abstention are becoming a reality and an actual problem in most democracies, especially in Portugal. Thus, further research must be made to understand what is causing the variations in the abstention rate, and preferably, in an individual level, which was not possible to do in this dissertation due to the lack of data.

In this dissertation, the objective was to understand what the determinants of the Portuguese abstention rate at the municipality level are in different types of elections. In the empirical analyses, it was used data from PORDATA for the 308 Portuguese municipalities and for the 8 elections between 2009 and 2019. Additionally, the ordinary least squares regression was used with year and municipality fixed effects. Finally, in order to evaluate the impact of the type of elections, it was considered the parliament, municipal, the presidential and the European parliament elections.

Regarding the parliament elections, variables such as the percentage of votes in non-center political parties and the number of registered crimes lead to higher rates of abstention, while the average monthly earnings of employees and the elderly population lead to lower abstention rates. However, when the municipal elections are considered, different results were obtained, where only the population density and the percentage of votes in left-wing political parties turned out to be significant in the Portuguese abstention rate, contributing for lower levels of abstention, at a 10% significance level. Moreover, when we combine both elections, different variables turned out significant, meaning that we need to be cautious when analyzing the determinants of abstention rate with different types of elections combined, since the real impact in election, individually, might be hidden. Finally, to evaluate the results in other types of elections, the presidential and the European parliament elections were considered, where variables such as the percentage of the resident population aged between 18 and 34 and the populations density led to lower rates of abstention, while on the other hand, the percentage of votes in non-center political parties, unemployment and the percentage of males positively impact the abstention rate.

During the process of this study, some limitations have been encountered regarding the data available, in terms of quantitive data and qualitative data. When it comes to quantitive data, many other variables were considered to evaluate their impact on the abstention rate, however due to the municipal level specification, some variables had to be excluded, due to the lack of data in PORDATA in a municipal level.

When reviewing the studies made regarding voter turnout and how its changes can be explained, it was observed that the variables that influence the abstention rate are not only quantitative variables, but also qualitative variables. In fact, variables such as lack of interest in the political environment, lack of trust in the governments or the candidates available, or even the lack of self-identification with the values and beliefs of the political parties might have a stronger impact in the abstention rate than quantitive variables, which are very plausible reasons for the increasing abstention rate in Portugal.

8. Appendix

In the table below, it is presented the descriptive statistics for the analysis regarding the parliament and municipal elections combined:

Table A1 – Descriptive statistics: Parliament and Municipal elections

Variable	Observations	Minimum	Mean	Median	Maximum	Standard deviation
Dependent Variable:						
AbsRate	1757	0,18	0,43	0,43	0,70	0,08
Independent Variables:						
lnForeignPop	1757	1,39	5,70	5,47	11,49	1,64
lnMarriages	1757	0,00	3,87	3,83	8,01	1,30
lncrime1000	1757	1,92	3,35	3,35	4,81	0,34
lnPopDensity	1757	1,34	4,35	4,24	8,95	1,48
lnEarnings	1757	6,42	6,80	6,78	7,75	0,17
lnPurchasingPower	1757	3,86	4,35	4,32	5,45	0,22
Unemployment	1757	0,00	6,77	6,70	18,20	3,09
Men/pop	1757	0,45	0,48	0,48	0,53	0,01
YoungPop	1757	0,12	0,22	0,22	0,39	0,04
MiddlePop	1757	0,46	0,57	0,57	0,65	0,03
ElderlyPop	1757	0,09	0,21	0,20	0,40	0,06
VotesRight	1757	0,00	0,42	0,43	0,98	0,17
VotesCenter	1757	0,00	0,38	0,38	0,81	0,12
VotesLeft	1757	0,00	0,19	0,14	0,85	0,15

Moreover, in table A2, it is presented the estimated outcomes:

Table A2 – Parliament and Municipal elections combined

VARIABLES	(1) AbsRate	(2) AbsRate	(3) AbsRate
YoungPop	-0.999***	-0.696***	-0.0929
	(0.112)	(0.152)	(0.260)
ElderlyPop	-0.953***	-0.868***	-0.104
	(0.0912)	(0.102)	(0.167)
Unemployment	-0.00473***	-0.00348***	-0.000975
	(0.000697)	(0.000685)	(0.000847)
Men/pop	-0.199	-0.283	0.655
	(0.259)	(0.223)	(0.576)
VotesLeft	0.0220	0.0291	0.0743***
	(0.0192)	(0.0185)	(0.0230)
VotesRight	0.0335**	0.0415***	0.0189
	(0.0152)	(0.0153)	(0.0190)
lnEarnings	0.0811***	0.0519***	0.0236
	(0.0169)	(0.0167)	(0.0357)
lnPopDensity	-0.0114***	-0.0131***	-0.0716
	(0.00248)	(0.00255)	(0.0581)
lncrime1000	0.0477***	0.0494***	-0.0186***
	(0.00574)	(0.00537)	(0.00700)
lnMarriages	0.0102***	0.00898***	0.00850*
	(0.00328)	(0.00298)	(0.00483)
lnForeignPop	0.00383	0.00433**	-0.0235***
	(0.00237)	(0.00221)	(0.00595)
lnPurchasingPower	-0.133***	-0.116***	-0.247***
	(0.0154)	(0.0150)	(0.0337)
Constant	0.816***	0.870***	1.584***
	(0.190)	(0.175)	(0.536)
Year fixed-effects	No	Yes	Yes
Municipality fixed-effects	No	No	Yes
Observations	1,757	1,757	1,757
R-squared	0.214	0.323	0.698

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

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