The Effects of Sub-Municipal Amalgamations on Turnout: Testing the Rational Voter Hypothesis

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Abstract

The 2013 territorial reform of sub-municipal units (SMUs) in Portugal presents an interesting opportunity to understand the effect of amalgamations on democratic outcomes. Following the experience of several Western-European, Japan, and Australian states, the Portuguese amalgamation reform was triggered by economic motivations, aiming to improve local services but seeking mostly to reduce the level of public expenditures. Much less relevance was given to the political impacts of territorial consolidation. The amalgamation process was implemented in a compulsory manner, reducing the number of SMUs and increasing their size in order to boost efficiency, seize economies of scale, and reduce the cost of service delivery. Populations had little influence in deciding which criteria should be used and what jurisdictions should be merged. The aim of this research is to assess the impacts of the territorial reform on political participation measured as voter turnout in mayoral elections. We use data from five election cycles (2001, 2005, 2009, 2013 and 2017) to compare turnout levels in amalgamated jurisdictions vis-à-vis the ones that did not amalgamate as a result of the process of territorial reform. Preliminary results indicate that turnout levels have decreased in the 2013 election and recover in the 2017 election cycle, but this pattern was much more evident in non-amalgamated SMUs than in amalgamated SMUs.

Keywords: Amalgamation, Voter Turnout, Local Government

1 Introduction

The consequences of municipal amalgamations have also been investigated in many European countries, including Denmark (Blom-Hansen, 2010; Blom-Hansen et al. 2014; Blom-Hansen et al, 2016), Finland (Saarimaa and Tukiainen, 2015), Germany (Blesse

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and Baskaran, 2016; Roesel, 2017), Sweden (Hansen, 2014; Hansen et al. 2014), Switzerland (Steiner and Kaiser, 2017), Belgium (De Ceuninck et al., 2010) and The Netherlands (Allers and Geertsema, 2016; Bikker and van der Linde, 2016). This large set of empirical studies focuses primarily on the economic, financial and managerial effects of amalgamations. In contrast, the number of articles focusing on the political consequences of amalgamations is much more limited, particularly in terms of the effects of mergers on voter turnout (for an in-depth review of the effects of amalgamations see Tavares, 2018).

Our manuscript extends prior research in two ways. First, we focus on the political effects of amalgamations rather than the economic, financial or managerial consequences addressed in prior studies. Political effects of amalgamations have received far less attention in the literature, particularly the impacts of amalgamations on voter turnout. To our knowledge there are only a few studies which have investigated this dependent variable in a systematic manner (Hansen, 2015; Roesel, 2017; Zeedan, 2017).

Second, we investigate the effects of amalgamations at the sub-municipal level. Although it has been argued that sub-municipal units (SMUs) of government in Portugal are similar in size to their municipal counterparts in many European countries, the uniqueness of this second tier of local government in Portugal places the amalgamation reform in a completely different context than municipal amalgamation reforms in other European countries. In the Portuguese case, the national government provided the legal framework for the reform, but municipal assemblies could, if they chose to, decide which SMUs to amalgamate as long as this process complied with the criteria defined in the national legal framework (Tavares and Teles, 2018).

This article is structured as follows. The second section explores the theoretical foundations of the relationship between jurisdiction size, amalgamations and voter turnout. Next, we review the empirical literature on the political consequences of amalgamations. The fourth section describes the context of the research focusing on the amalgamation reform of sub-municipal governments in Portugal and introduces the hypotheses to be tested. The fifth section presents the data and methods employed in the empirical analysis conducted in section six. The article finishes with the discussion of the findings and conclusions.

2 Municipal Amalgamations and Voter Turnout: Theoretical Foundations

The theoretical debate concerning the effects of municipal amalgamations on voter turnout is largely grounded on the argument that amalgamations create local government units which are too large to allow their citizens to effectively express their political
preferences through the institutions of representative democracy. This discussion about
the relationship between the size of the polity and democracy dates back to Ancient
Greece. Aristotle argued that a polis should be large enough to be self-sufficient, but
not so large that its citizens are unable to know each other and know what kind of
people they are (Dagger 1981).

In modern times, in the 1967 article ‘The City in the Future of Democracy’, Robert
Dahl advances a solution to the size dilemma based in “smaller units within which
citizens can from time to time formulate and express their desires, consult with officials,
and in some cases participate even more fully in decisions.” Smaller units of local
government can provide unlimited opportunities for participation and are able to foster
a sense of unity, integrity, and belonging.

The 1973 book by Robert Dahl and Edward Tufte, Size and Democracy triggered
a large amount of research to test the arguments linking size to political participation. On
one hand, Dahl and Tufte readily claim that the motivation of citizens to participate
in community affairs is maximized in small communities, since a small polity offers a
sense of solidarity and greater effectiveness in participation. On the other hand, larger
communities are more likely to provide the motivation for citizens to participate in po-
litical life, particularly matching different groups with different political views. Various
empirical works over the past few decades show a negative relationship between the size
of subnational units and electoral participation at the local level, thus confirming Dahl
and Tufte’s initial findings (Verba, Nie, and Kim 1978; Oliver 2001, 2012; Frandsen,
2002; Ladner 2002; Larsen 2002; Tavares and Carr 2013; Trounstine 2013).

In a meta-analysis of 83 empirical studies conducted in 2006, Benny Geys states that
the inclusion of population size measures is suggested by the probability of casting the
decisive vote in the election. Rational voters aim to influence the outcome of the election
by weighting the costs and benefits of voting (Downs 1957). The benefits increase
significantly in small-scale elections and this increases the probability of affecting the
outcome of the election (Riker and Ordeshook 1968). Geys argues that “the greater the
size of the community, the smaller the probability becomes that one single voter will
make a difference. This decreases the expected utility from voting and makes it more
likely that one abstains.” (2006: 642). It is expected that voter turnout is greater where
a few votes can make a difference and voters have more opportunity to influence the
outcome of an election, citizens have more contact with their elected officials, and voters
have more to lose (Hajnal and Lewis, 2003; Wood 2002). Another recent survey of the
ever-growing literature on electoral participation by Cancela and Geys (2016) confirms
the existence of systematic evidence that larger municipalities depress turnout.

By increasing the size of municipalities, amalgamation reforms contribute to lower
turnout in local elections, and possibly generate a biased representation since elected
officials will be serving only a small segment of the residents (Hajnal and Lewis, 2003). Amalgamations may also increase dissatisfaction with government among citizen-voters and lead to decreased participation in local elections (Hansen, 2015). Others have suggested additional negative effects of municipal mergers, including declines in community attachment (Kushner and Siegel, 2003; Swianiewicz, 2002), local identity (Roesel, 2017), social trust and cohesion, (Denters et al. 2014; Oliver, 2001), and political distance between voters and elected officials (Dahl and Tufte, 1973; Denters et al., 2014; Newton, 1982; Roesel, 2017). All these negative political effects are likely associated with lower levels of voter turnout.

The theoretical arguments supporting a positive association between amalgamations and voter turnout are scarce and focus primarily on the idea that, in larger cities, community interests, political parties, and the media tend to be far better organized than in small jurisdictions and this may lead to an increased attention and mobilization of voters (Newton, 1982). The ability of larger local governments to provide more services to their citizens can also increase participation in local politics (Dahl and Tufte, 1973; Swianiewicz, 2010). In turn, this diversity and political competition in larger jurisdictions can potentially improve the responsiveness of elected officials to their constituents and contribute to mobilize voters (Denters et al., 2014).

In contrast with the abundant empirical literature corroborating the negative effect of amalgamations on local democracy (Swianiewicz, 2018; Tavares, 2018), there is significantly less evidence that amalgamations have positive political effects, particularly when it comes to the levels of voter turnout. The following section reviews the literature on the effects of amalgamation reforms on democratic outcomes with a special emphasis on voter turnout.

3 Empirical Evidence of the Political Effects of Amalgamations

Most amalgamation reforms have been motivated by arguments related to economies of scale and cost savings and far less attention has been paid to the long-term consequences of the reforms to the quality of local democracies. The analysis of the empirical literature suggests that the political effects of amalgamations are generally negative, regardless of the specific type of consequences the authors have investigated (Tavares, 2018). Moreover, amalgamation reforms are politically controversial endeavors and have been described by local actors as “an attack on our self-respect” (Zeidan, 2017: 716), generating “a much larger bureaucracy” (Fathimath, 2017: 228) or increasing the distance between citizens and their representatives (Denters et al., 2014).

Very few studies have explored the effect of municipal amalgamations on voter
turnout. Early work by Mabuchi (2001) using descriptive election data of postwar amalgamations in Japan finds that voter turnout is not significantly affected by amalgamations. However, the author does not employ multivariate analysis, so these results are doubtful at best.

Recent empirical studies are more sophisticated in their treatment of the causal link between municipal amalgamations and voter turnout. Roesel (2017) employs the synthetic control method to investigate the political effects of district amalgamations in the Germany state of Saxony. The amalgamation reduced the number of districts from 22 to 10 and resulted in the increase of average district population from 113,000 to 290,000 residents. The author finds that the reform resulted in a decrease in the number of candidates and voter turnout in district elections. A study by Zeedan (2017) explores the consequences of a 2003 amalgamation reform of 24 municipalities in Israel. The 11 amalgamated municipalities resulting from the reform display voter turnout levels between 75% and 90% lower than before the amalgamation.

Besides these studies addressing the effect of municipal mergers on voter turnout, there is a larger set of studies which concentrates in other political consequences, including political efficacy, political representation, support for incumbents after the merger, split-ticket voting, and vote shares for populist parties. Early research by Vojnovic (2000) investigated five consolidation processes in five different provinces in Canada. In the particular case of Halifax, Nova Scotia, the author found that the consolidation of four municipalities into the Halifax Regional Municipality resulted in combined savings for the annual operating budget of 0.07% due to a reduction in the number of councilors and increases in their honoraria. However, the increase in constituents per elected representative associated with the reform impacted political accountability in a negative way, decreasing the voting power of constituents by more than half.

Several empirical studies investigate the consequences of the 2007 amalgamation reform in Denmark. Kjaer et al. (2010) employ data from two large surveys: one pre-reform survey (2003, 844 respondents, 61% of all councilors in 80 municipalities) and one post-reform survey (2009, 1,337 respondents, 53% of all councilors). The study uses as dependent variables the councilors’ perception of their influence vis-à-vis other councilors, top-level administrators, and the central government. The research finds that the amalgamation reform created fewer, larger, and more professionalized municipalities, resulting in an increase in perceived influence of leading councilors vis-à-vis other councilors and a decrease in the perceived influence vis-à-vis top-level administrators.

Lassen and Serritzlew (2011) employ survey data collected before (963 respondents) and after the amalgamation reform (1,065 respondents) to analyze the impact of this reform on citizen’s internal political efficacy. The authors find that “jurisdiction size has a causal and sizeable detrimental effect on citizens’ sense of internal political efficacy.”
This effect is particularly visible regarding the respondents’ assessment of their understanding of local politics.

Kjaer and Klemmensen (2015) assess the change in incumbent mayoral parties’ vote share and the change in incumbent mayor’s preferential vote share from the 2005 local election to the 2009 local elections in Denmark explained by whether the municipality has amalgamated or not. The authors find that incumbent mayoral parties suffered significant losses, which can be attributed to the choice of very tenured candidates to head the newly amalgamated municipalities. Furthermore, the authors extend their analysis to determine the probability of voting for the incumbent mayoral party in the 2009 local elections in Denmark and find that voters tend to reward primarily the success in providing high quality local services, not punish the costs of amalgamation reforms.

Finally, Jakobsen and Kjaer (2016) assess center-periphery representation in 66 newly amalgamated municipalities in Denmark. The authors find an over-representation of periphery in the legislature as a result of amalgamations, both in terms of representation by seats (descriptive representation) and representation of geographical interests (substantive representation).

The Appendix displays a summary of the empirical studies addressing the political consequences of municipal amalgamations. For the most part, these studies demonstrate negative impacts in most political dimensions, including but not limited to voter turnout, internal political efficacy, and local representative democracy. The next section presents the setting of this research and the hypotheses to be tested in the empirical analysis. These hypotheses are derived from the extant literature and adapted to the specific context of the territorial reform of SMUs of government in Portugal.

4 Context

The Portuguese Constitution recognizes civil parishes (freguesias) as the smallest unit of local government (article 238). Parishes are sub-municipal units of self-government composed by an elected assembly (deliberative body) and an executive council (junta de freguesia) and each parish is an integral part of the municipality which contains it (see Tavares and Teles, 2018 for an in-depth description). Each municipality can be divided into several parishes, each resembling a form of neighborhood government similar to what can be witnessed in Germany (Kersting and Kuhlmann, 2018), Greece (Hlepas, 2018), Norway (Klausen, 2018), Poland (Swianiewicz, 2018), and Spain (Navarro and Pano, 2018).

The Memorandum of Understanding (MoU) signed in 2011 by the Portuguese Government placed the country under financial assistance of the International Monetary
Fund, the European Union and the European Central Bank. The MoU required a territorial reform of Portugal’s local government system, which at the time was structured in two tiers: 308 municipalities and 4259 civil parishes (SMUs). The main argument present in the MoU was that excessive territorial fragmentation caused economic inefficiencies, excessive administrative costs and deficient service delivery (Tavares and Rodrigues, 2015). In 2013, the Portuguese national government enacted a territorial reform to merge SMUs and decided to leave untouched the territories of the municipalities.

Sixty-one municipalities adopted voluntary mergers of their SMUs in compliance with the framework, whereas 168 municipalities were forced to accept top-down amalgamations of SMUs imposed by the Technical Unit of Territorial Administrative Reform (UTRAT) established by the national government to manage the reform (Tavares e Teles, 2018). The remaining 49 municipalities in Continental Portugal were not affected by the reform.

This article explores the political effects of the amalgamation reform affecting SMUs and tests the following hypotheses derived from the literature reviewed above:

**H1:** The territorial reform of SMUs in Portugal reduced turnout across all SMUs in the 2013.

Building on the Downs’ (1957) original argument of the rational voter theory, we added a second hypothesis. Downs’ argument stated that people are very rational when they need to evaluate cost and profits of electoral participation. The only profit that can overcome all the costs is the perception that the vote casted will make the difference in the outcome. This probability is low in larger jurisdictions and bigger in smaller, leading to more electoral participation in the last case. Hence, since the amalgamation process increased the population of the SMU:

**H2:** The reduction in turnout in the 2013 election was more significant in amalgamated SMUs than in non-amalgamated ones.

We also argue that the effect in turnout is different if the merger is made between SMUs of the same size compared to what happen when smaller SMUs are amalgamated by larger ones. In this case, we expect to see a larger negative impact on turnout size the drop in the profits of electoral participation is more evident:

**H3:** The reduction in turnout was more significant in amalgamated SMUs when smaller SMUs are merged with bigger ones.
After the initial negative impact of the reform in the 2013 election cycle, we expect some recovery to have occurred in the 2017 elections:

\[ \text{H4: In the 2017 election cycle, turnout recovered more significantly in non-amalgamated SMUs than in amalgamated ones.} \]

The next section describes the data and methods employed in our empirical analysis.

5  Data and Methods

Much of the empirical work done so far relates the changes in electoral turnout based on the differences in size across jurisdiction, in a given period in times. In this paper, we seek to do a more dynamic approach analysing three different periods composed by five elections. As we stated in our working hypotheses, we expect to see a larger drop in the turnout of the amalgamated SMUs compared with the non-amalgamated, in the electoral period that follows the amalgamation reform.

In the first period, we gathered information from the electoral years of 2001, 2005 and 2009. This is the period before the territorial reform and we do not expect to witness major differences between the levels of turnout across amalgamated and non-amalgamated SMUs.

The second period focus on the amalgamation process, i.e., the dynamics of turnout from the 2009 to the 2013 election. This was the moment that citizens were called to vote within the discussion of the territorial reform. The electoral act, actually, overlapped with the effective implementation of the merge of SMUs. Hence, we expect to see a drop in turnout mostly in amalgamated SMUs.

The last period goes from the 2013 to the 2017 election. This was the first electoral moment after the reform. In 2013, adding to the rationale that citizens will drop the effort of going to vote to do to the reduction of the utility function of the vote, we could also witness a vote of protest. We may be experiencing the opposite effect of the “founding elections” found by Kostadinova and Power (2007) which argue that new democracies experience high levels of turnout because citizens can finally express, for the first time in many years, their voice. Only, in this case, voice is similar to a political exit of the voting pools that can fade away with time.

To address the main objective of the paper, we needed to follow a methodology that provides the ability to assess the specific effect of a policy on the outcome of a group. In other words, we need to adopt a strategy that allows us to measure the effect of the territorial reform on the SMUs’ levels of turnout. Furthermore, we need to establish that the trend in the level of turnout in SMUs affected by the territorial reform is unequal to
the level recorded in the parishes that were not enrolled in the amalgamation process. To this end, we chose to use Differences-in-Differences (DiD). To compute DiD method we used the total number of parishes after the reform (3092) minus the parishes from the islands of Madeira and Acores (78) which were not submitted to the territorial reform. That leaves us with 3014 parishes over a period of 17 years and 5 elections. We divided the population into two groups: merged SMUs with 1045 observations (the treated group); and the control group with 1969 observations (the untreated group).

The DiD method allows us to assess changes in outcomes over time between a population enrolled in a program and one that is not. It combines and compares the before-and-after changes recorded by a group enrolled (treated) in a program with the before-and-after changes of a non-treated group. The DiD method defines a first difference by identifying the difference in two moments in the treated group. Then, it establishes a second difference using the recorded changes of the untreated group that was exposed to the same environmental factors. Subtracting the first by the second difference, the DiD method allows us to weigh the effect of the treatment in the treated group by comparing it with the changes in the control group (Gertler et. al. 2011). By establishing the differences between the treated and untreated groups, before-and-after the territorial reform, it is possible to assess the outcome of the level of turnout by using the following expression:

\[
\text{Turnout}_{i,t} = \beta_1 + \beta_2 \text{Treated}_{i,t-1} + \beta_3 \text{Time}_{i,t} + \beta_4 \text{Treated}_{i,t} \times \text{Time}_{t} + \epsilon_{i,t},
\]

(1)

The \( \beta_2 \) coefficient estimates the differences in turnout between enrolled and unenrolled groups in a previous moment. The \( \beta_3 \) coefficient provides information on the changes in the level of turnout that cannot be accounted to the treatment – territorial reform. The \( \beta_4 \) coefficient provides the estimation of the main variable of interest, that is, the average effect of the treatment on the enrolled group. Thus, it will provide the estimation of the effect on turnout induced by the territorial reform, taking as counterfactual the levels of turnout recorded by parishes unaffected by the territorial reform. We build three estimations corresponding to the three periods of interest: (1)2001-2009; (2)2009-2013; (3) 2013-2017.

In Equation 1 the variable \( \text{Treated}_{i,t-1} \) is computed as a dummy variables that takes value 1 to identify treated SMUs and 0 otherwise. The variable \( \text{Time}_{i,t} \) is also a dummy variable used to distinguish moments in time in function of the three periods of interest used.

Additionally, we estimated a second model using OLS to test the interaction of the variation in the population and size of the jurisdiction (\( \text{Size} \times \text{PopVariation} \)) on turnout. The \( \beta_4 \) coefficient provides the magnitude of the incrementation of size in the
turnout of amalgamated SMUs:

\[ Turnout_{i,t} = \beta_1 + \beta_2 Size_{i,t} + \beta_3 PopVariation_{i,t} + \beta_4 Size_{i,t} \times PopVariation_{i,t} + \epsilon_{i,t}, \]  

(2)

In Equation 2 the variable \( Size_{i,t} \) stands for the number of electors in the SMU while \( PopVariation_{i,t} \) represented the proportional increment of the electors motivated by the territorial reform. This variable is computed by the ratio between the new number of electors and the former.

6 Results

We can state that, overall, there is a tendency for a decrease in electoral turnout in the sub-municipal elections of 2013, whether we are considering amalgamated or non-amalgamated parishes, which was followed by a recovery in the electoral participation of 2017 (Figure 1).

![Figure 1: Turnout in SMUs](image)

However, as the figure shows, we can state that the trend before the territorial reform is not the same as the one recorded after it. We wish to stress that our focus is to identify the effects of the territorial reform in the electoral turnout of 2013 and 2017. As one of the main concerns to validate the results from the DiD method is to ensure
that the differences encountered are the result of the treatment and not a consequence of a previous trend. As we can see, in the period before the reform we can witness the absence of inequalities in the patterns of turnout. The disturbance happens with the 2013 elections. The trends identified in the figure 1 supports that the differences identified in the DiD method are not a resulting from previous conditions or context but rather by the treatment.

Table 1: Estimation Results of DiD

<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>$Treated_{i,t-1}$</td>
<td>-0.067</td>
<td>-0.376</td>
<td>-2.063***</td>
</tr>
<tr>
<td></td>
<td>(0.363)</td>
<td>(0.361)</td>
<td>(0.366)</td>
</tr>
<tr>
<td>$Time_{i,t}$</td>
<td>-2.666***</td>
<td>-3.445***</td>
<td>1.644***</td>
</tr>
<tr>
<td></td>
<td>(0.288)</td>
<td>(0.300)</td>
<td>(0.306)</td>
</tr>
<tr>
<td>$Treated_{i,t} \times Time_{t}$</td>
<td>-0.308</td>
<td>-1.687***</td>
<td>-0.897*</td>
</tr>
<tr>
<td></td>
<td>(0.501)</td>
<td>(0.510)</td>
<td>(0.518)</td>
</tr>
<tr>
<td>$R^2$</td>
<td>0.02</td>
<td>0.05</td>
<td>0.02</td>
</tr>
<tr>
<td>RMSE</td>
<td>9.03</td>
<td>9.43</td>
<td>9.59</td>
</tr>
<tr>
<td>N</td>
<td>5,878</td>
<td>6,036</td>
<td>6,040</td>
</tr>
</tbody>
</table>

* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

Table 1 presents the outcomes of the amalgamation process in the Portuguese context. As we can see, the amalgamation process had a negative effect on the level of the electoral participation in amalgamated SMUs.

Before the reform differences in turnout between the treated and untreated groups are not statistically significant. With the treatment – territorial reform and the electoral act of 2013 – the treated group recorded a higher drop in turnout than they would have had if they had not been subjected to the treatment. The estimation of $Treated_{i,t} \times Time_{t}$ displays a value of -1.687 which represents the average reduction in turnout that can be accounted to the effect of the territorial reform. Before territorial integration, the treated group recorded a level of electoral turnout of 65.397%. Following the DiD method rationale, it would be expected to drop 3.445 percentage points. Instead, it recorded a drop of 5.132 percentage points, precisely 1.687 more than the control group. Therefore, the territorial reform promoted a lower turnout in treated parishes. This result confirms our second hypothesis.

With the electoral act of 2017, we register growth in participation either in amalgamated and non-amalgamated SMUs. This result is in line with our H4 since it was expected that the effect of the protest vote would fade away with time. Still, we can notice a different behaviour in turnout between the treated and untreated groups. Again,
due to the territorial reform, the treated group recorded a lower increment in turnout than they would have had if they had not been subjected to the treatment. The estimation of \( Treated_{i,t} \times Time_t \) displays a value of -0.897 which represents the average reduction in turnout that can be accounted to the effect of the territorial reform. In 2013, the treated group recorded a level of electoral turnout of 60.264%. It would be expected, for the 2017 election, an increment of 1.644 percentage points. Instead, it recorded an increment of 0.747 percentage points, up to 61.011%, exactly 0.897 percentage points less than the control group. In line with the previous electoral moment, the territorial reform promoted a lower turnout in treated parishes.

The results from the DiD method confirmed our hypotheses H1, H2 and H4. The territorial reform reduced the level of turnout in SMUs in the 2013 elections. This reduction was more evident and significant in amalgamated SMUs that in non-amalgamated SMUs. After the first moment where we felt and effect of the protest vote, turnout increased in the 2017 election. Again, this effect was lower in amalgamated SMUs if compared to non-amalgamated SMUs.

To test H3, we needed to estimate a need model as presented in Equation 2. In this case, we built a database only with the amalgamated SMUs and the level of turnout in the 2013 and 2017 elections. We are looking to find evidence that the effect of amalgamation in turnout varies if we merger SMUs of the same or different sizes.

### Table 2: Estimation Results of OLS

<table>
<thead>
<tr>
<th>Dependent Variable: Turnout in amalgamated SMUs</th>
<th>2013</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>( \ln(Size_{i,t}) )</td>
<td>-4.312***</td>
<td>-3.487***</td>
</tr>
<tr>
<td></td>
<td>(0.272)</td>
<td>(0.278)</td>
</tr>
<tr>
<td>( PopVariation_{i,t} )</td>
<td>1.485***</td>
<td>1.158***</td>
</tr>
<tr>
<td></td>
<td>(0.356)</td>
<td>(0.355)</td>
</tr>
<tr>
<td>( \ln(Size_{i,t}) \times PopVariation_{i,t} )</td>
<td>-0.153***</td>
<td>-0.122***</td>
</tr>
<tr>
<td></td>
<td>(0.037)</td>
<td>(0.037)</td>
</tr>
<tr>
<td>( R^2 )</td>
<td>0.36</td>
<td>0.27</td>
</tr>
<tr>
<td>( RMSE )</td>
<td>7.82</td>
<td>8.04</td>
</tr>
<tr>
<td>( N )</td>
<td>797</td>
<td>796</td>
</tr>
</tbody>
</table>

* \( p < 0.1; ** p < 0.05; *** p < 0.01 \)

Table 2 contain the results from OLS estimation. The estimation of \( \ln(Size_{i,t}) \) displays, as expected, a negative value. According to the Downsian model, turnout tends to decrease with the increment of registered voters since the act of voting becomes meaningless. Our variables of interest is the interaction between Size and the Variation of Population with the territorial reform (\( \ln(Size_{i,t}) \times PopVariation_{i,t} \)). In both cases,
the estimation as a negative sign. Hence, merger a smaller SMU with bigger ones has a more negative outcome in turnout than merger SMUs of the same size. This result is in line with our H4.

7 Conclusion

The objective of this study is to cast some light on the political costs of the territorial reform of SMUs in Portugal. Our results indicate that the amalgamation process in Portugal had a negative effect on electoral turnout. Hence, a territorial reform motivated by economic factors and triggered by a situation of financial distress, resulted in negative democratic outcomes translated into lower electoral participation levels.

Under the lenses of the Downsian model citizens vote when they expect the benefits to outweigh the costs. A larger jurisdiction size associated with mergers would negatively affect electoral turnout. Hence, the amalgamation process is likely to increase the probability of the act of voting becoming meaningless, therefore reducing electoral participation. In a similar vein, the political embeddedness model argues that the socioeconomic status, particularly social cohesion, is altered after the process of amalgamation, thus hindering electoral turnout. As we can see from our results, the turnout in the electoral cycle of 2013 is consistent with both the argument of the rational voter theory and the idea of the political embeddedness model. Amalgamated SMUs increased in size, thus reducing the incentives of their residents to vote and likely altering the inner social cohesion of each jurisdiction.

Furthermore, we argue that the effect on turnout is more complex. The 2017 turnout levels in amalgamated parishes is higher compared to 2013 and the difference between amalgamated and non-amalgamated SMUs is still increasing. This suggests that amalgamation reforms are a gift that keeps on giving long after they have been institutionalized. This is also consistent with the idea that the incentives to vote may be permanently reduced for residents in amalgamated SMUs.
References


## Appendix

<table>
<thead>
<tr>
<th>Author(s)</th>
<th>Date</th>
<th>Journal</th>
<th>Country</th>
<th>Data</th>
<th>Methods</th>
<th>Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jakobsen and Kjær</td>
<td>2016</td>
<td>LGS</td>
<td>Denmark</td>
<td>68 amalgamated municipalities with different center-periphery dimensions; 223 former non-amalgamated municipalities.</td>
<td>Fixed effects models; periphery representation index</td>
<td>Over-representation of the periphery in the legislature of amalgamated municipalities, both in terms of representation by seats (descriptive representation) and representation of geographical interests (substantive representation).</td>
</tr>
<tr>
<td>Kjær and Klemencic</td>
<td>2015</td>
<td>LGS</td>
<td>Denmark</td>
<td>98 amalgamated municipalities, 3,336 survey respondents</td>
<td>Ordinary least squares and multilevel logit regressions</td>
<td>Local parties of mayors were punished at the polls for implementing municipal amalgamations decided by the central government. Political parties holding the majority in times of amalgamations tend to nominate very tenured mayors as candidates, thereby missing the positive first-term incumbency effect, which a new mayor could have acquired. Voters tend to reward primarily the success in providing high quality local services, not punish the costs of centrally mandated amalgamation reforms.</td>
</tr>
<tr>
<td>Kjær et al.</td>
<td>2020</td>
<td>LGS</td>
<td>Denmark</td>
<td>Two large surveys: pre-reform survey (2003, 844 respondents, 69% of all councilors in 86 municipalities) and post-reform survey (2009, 1,337 respondents, 55% of total councilors)</td>
<td>OLS Difference-in-indifference regression analysis</td>
<td>Amalgamations have led to an increase in the perceived influence of leading councillors vis-a-vis other councillors and a decrease in the perceived influence of the council vis-a-vis its top administrative officers. There is an increase in the number of councillors who find that local political decisions are determined by laws and rules from central government, but this increase cannot be ascribed to the amalgamations.</td>
</tr>
<tr>
<td>Lassen and Nørstebø</td>
<td>2011</td>
<td>APSR</td>
<td>Denmark</td>
<td>Survey data collected before and after the reform (4,625 respondents)</td>
<td>Difference-in-indifference and matching estimators</td>
<td>Jurisdiction size has a causal and sizeable detrimental effect on citizens’ internal political efficacy</td>
</tr>
<tr>
<td>Mabuchi</td>
<td>2001</td>
<td>World Bank</td>
<td>Japan</td>
<td>4 Prefectures</td>
<td>Comparative analysis of descriptive election data</td>
<td>Voter turnout is not significantly affected by amalgamations.</td>
</tr>
<tr>
<td>Boccari</td>
<td>2017</td>
<td>EJPE</td>
<td>Germany (Saxony)</td>
<td>25 county-sized local governments merged into 10, panel data (1998-2013), district expenditures</td>
<td>Synthetic control method</td>
<td>Evidence that mergers decreased the number of candidates and voter turnout in district elections while vote shares for populist right-wing parties increased.</td>
</tr>
<tr>
<td>Vojnović</td>
<td>2000</td>
<td>JUA</td>
<td>Canada (Ontario)</td>
<td>5 municipalities</td>
<td>Secondary data, surveys and interviews</td>
<td>Citizen access to political representatives was reduced after the amalgamation. Halifax Regional Municipality resulting from the amalgamation of 4 municipalities saved 6.07% in its annual budget, but constituents lost more than half of their voting power.</td>
</tr>
<tr>
<td>Zeidan</td>
<td>2017</td>
<td>JUA</td>
<td>Israel</td>
<td>25 amalgamated governments, panel data for voter turnout (1998-2013)</td>
<td>OLS. Between effects regression analysis</td>
<td>Amalgamation reduces local democracy in terms of voter turnout and representation. A new amalgamated government must be sufficiently small to maximize local democracy and sufficiently large to maximize economies of scale.</td>
</tr>
</tbody>
</table>

Notes: LGS = Local Government Studies; APSR = American Political Science Review; EJPE = European Journal of Political Economy; JUA = Journal of Urban Affairs