BDPEMS
Berlin Doctoral Program in Economics and Management Science

Working Paper Series
2015-09

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Finding your right (or left) partner to merge*

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April 10, 2015

Abstract: We study political determinants of municipality amalgamations during a boundary reform in the German state of Brandenburg, which reduced the number of municipalities from 1,489 to 421. The analysis is conducted using data on the political decision makers as well as fiscal and socio-economic variables for the municipalities. We ask whether party representation in the town council influences the merger decision. To identify the effect, we follow a dual approach and make use of different stages in the reform process. First, municipalities were initially free to choose partners. In a later phase of the reform the state legislature forced municipalities to amalgamate. We can, thus, compare voluntary to forced units. Second, we simulate potential mergers from the map of municipalities and compare voluntary mergers to those simulated units. Both approaches show that political representation matters significantly during the voluntary stage of the merger reform.

Keywords: municipality mergers, political decision makers
probit analysis, geospatial analysis
JEL classification: H10, H11, H77

*We would like to thank Florian Ade, Thushyanthan Baskaran, Sebastian Blesse, Benedikt Fritz, Magnus Johannesson, Henrik Jordahl, Torsten Persson, Tuukka Saarimaa, David Strömberg, Janne Tukiainen, colleagues at DIW Berlin, Stockholm School of Economics, VATT Finland and Princeton University as well as participants at the ZEW Public Performance Workshop for helpful suggestions and comments. Furthermore, we would like to thank Jenny Freier, Helke Seitz and Chrysanthi Tsiasioti who provided excellent research assistance to help us organize the data. Ronny Freier gratefully acknowledges financial support from the Fritz Thyssen foundation (Project: 10.12.2.092). The usual disclaimer applies. The authors declare that they have no relevant or material financial interests that relate to the research described in this paper.

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1 Introduction

Provision of public goods by the government has long been one of the major concerns of the economics profession (Samuelson (1954)). Recently, economic researchers have renewed interest in a particular dimension of that problem: At which level of the state should public goods be provided? Behind that question is the issue of how a state should be organized, how responsibilities should be allocated between central and local entities of the state. The fundamental economic tradeoff is between local preferences and cost efficiency (Oates (1968)). Local representation is likely to understand the preferences and needs of the constituency better than a central government will. On the other end, an entity of a crucial size can capitalize on economies of scale and provide public goods in the most cost efficient way. The properties of this tradeoff and its relevance for merger decisions have been studied in detail in theoretical work (see Alesina and Spolaore (1997), and Ellingsen (1998)).

The organization of the state is in constant reform. In almost all countries, there are ongoing debates how to allocate the responsibilities between governmental tiers. Overall, researchers have identified a trend toward decentralization, where local authorities get more authority over spending and taxes. However, at the same time, we have seen reforms of local units in many countries. During the 20th century, the number of American municipalities decreased by more than 90 percent (Alesina, Baqir, and Hoxby (2004)). Similar processes have occurred throughout the developed world. Sweden reduced the number of municipalities by more than 2,500 municipalities and West Germany reformed the municipality boundaries to reduce the number by about 33,000 (Sancton (2000)).

This paper studies a reform of municipal boundaries in the German state of Brandenburg. Between 1999 and 2003 the number of municipalities in the state decreased by approximately two thirds from 1,489 down to 421. In particular, we focus on the role of the political decision makers during this merger reform. The literature on merger decisions has implicitly ignored the role of politicians by assuming that elected officials

either naively act in the best interest of the municipality or simply represent the median voter's position. We analyze whether politicians pursue strategies that would benefit their private interest by making it more likely for them to gain office in the newly established municipality or at least ensuring that the political leadership in the new structure is of their liking. Specifically, we ask whether voluntary mergers are more likely when the party structure in the town councils is comparable.

The reform was implemented in two stages. In the first stage, the state legislator gave out a set of targets that the municipalities were supposed to meet. The municipalities were then given about two years time to meet the targets through voluntary amalgamation, which we denote the voluntary stage of the reform. Importantly, at that stage, the decision whom to merge with can be influenced by political considerations. In the second stage, the municipality structure was reviewed by the state government and a law was passed which amalgamated municipalities at the discretion of the state authorities. Here, local politicians had no say in the amalgamation process.

The literature on municipal mergers has been interested in analyzing certain aspects of similar reforms. For Sweden, studies by (Tyrefors Hinnerich (2009) as well as Jordahl and Liang (2010)), for example, focus on the incentives for free riding behavior preceding an amalgamation.[1] A study on a municipality reform in Japan by Weese (2009) estimates a structural model of optimal municipality size taking the desired population number and local government efficiency into account. A recent study for Israel (Reingewertz (2012)) studies the efficiency aspects of boundary reforms and finds significant economies of scale. Similarly two studies for Germany investigate the potential for such scale effects. Fritz (2011) reports the surprising result that mergers in fact increased overall expenditures (for a major merger reform in Baden-Wuerttemberg during the 1960s-70s). Baskaran and Blesse (2013) find positive economies of scale for the reform in

[1]These common pool results have also been confirmed in a recent study for Finland, which documents significant increases in debt (and decreases in assets) before voluntary mergers. See Tukiainen and Saarimaa (2013).

Brandenburg, which also we use here. They compare the fiscal outcomes of voluntary, forced and non-merged municipalities and report significant reductions in expenditures for the forcingly merged municipalities and less stable effects for voluntary mergers. Their result, thus, highlights important differences in the type of merger. Our research provides a potential explanation for their results. If political considerations (rather than efficiency arguments) drive the decision to merge voluntarily, this can explain why the potential for scale economies is smaller in voluntary mergers than in forced mergers.[2]

Closest to our paper is a set of work by Saarimaa and Tukiainen (2013) and Tukiainen, Saarimaa, and Hyytinen (2013). The authors study amalgamations of Finnish municipalities that were induced by a newly created subsidy scheme. Similar to our paper, their objective is to analyse strategic behaviour of politicians in merger decisions. They find that political congruence is an important merger determinant (Saarimaa and Tukiainen (2013)) and that politicians seem to take individual concerns into account when deciding on the mergers (Tukiainen, Saarimaa, and Hyytinen (2013)). These papers are interesting as data availability in Finland allows to study the individual voting behavior of the politicians. At the same time, the analysis in those papers is limited to few actual mergers and needs to focus entirely on voluntary mergers.

To conduct our analysis, we built an extensive data set on all mergers as well as the participating municipalities. For all municipalities, we collected pre-reform data on election results, budgetary information as well as important socio-economic variables.

We propose to estimate a reduced form model of factors driving the merger decisions of municipalities. The decision about a voluntary amalgamation is treated as a binary outcome. If a given municipality agrees on a given merger the outcome equals 1. We are interested in what determines the municipality's choice to form a voluntary merger in relation to the characteristics of the merger partners. In particular, we focus on the

[2]The research by Fritz (2011) and Baskaran and Blesse (2013) was developed independently from our research during the same time. Both of these studies have been published as working papers after we had a first draft at the EPCS 2011, but before our research was first published as a discussion paper.

question whether politically aligned municipalities are more often observed to form a voluntary merger.

Given that one observes a number of voluntary mergers, it is not obvious what the feasible and realistic counterfactual observations can be. Here, we pursue a dual approach. First, we compare the voluntary mergers to the set of forced mergers. These observations are for obvious reasons realistic amalgamations that potentially could also have happened in the first stage of the reform. However, since the state forced those mergers, they are unlikely to be motivated by political considerations (at least not by motivations of the local politicians). Second, we follow a new trend in the literature on coalition formation and simulate counterfactual alternative coalitions (mergers) that could have occurred. Here, we draw potential mergers from the map of municipalities and then study the specific characteristics of the actual to the simulated mergers (see Saarimaa and Tukiainen (2013)).

The approaches have their strengths and weaknesses. The comparison of voluntary to forced coalitions is interesting because all of those mergers are actual events. However, the forced mergers were all enacted in the second phase of the reform which takes the first phase as given. For the analysis of voluntary mergers compared to simulated ones it is quite the opposite. Here, the timing is such that we can simulate the potential mergers from the map of municipalities at the time were no mergers have yet been undertaken. We, thus, can ask what other merger options did the individual municipalities have. The assumption that we have to make here, however, is that we as researchers can actually simulate relevant merger options.

Both approaches allow us to analyse the determinants of the voluntary merger decision. Importantly, both designs can abstract from pure spatial correlation in the political variables.[3] However, we must note that both designs are not in itself suitable to deal

[3]This spatial correlation, which we can show exists in the data, would be the same for municipalities in voluntary and forced mergers as well as for simulated mergers.

with potential omitted variable bias. For the estimation of a causal effect of political representation, we need to be concerned that our political variables simply proxy for other potential determinants of the merger decision. To evaluate the magnitude of this problem, we study the behaviour of our estimates when we include numerous variables which directly controls for direct determinants. We argue that it is enough to control for those measures, as also the individual municipality will have no more information about the budgetary as well as the socio-economic characteristics of the other potential merger partner.

Our estimation results from both designs show that there is a clear effect between the dominant party in the council of a municipality and the share of that party in the councils of partners that this municipality chooses to form a coalition with. These results are robust when we deviate from the simple model and include additional sets of control variables. We conclude that political considerations play a sizable and significant role in the formation of mergers during the voluntary phase of the reform.

The study proceeds as follows. Section 2 will illustrate the institutional background. The data set is presented in Section 3 and the empirical methodology is introduced in Section 4. The results of the estimation will be presented in Section 5, before Section 6 concludes the analysis.

2 Institutional setting and the timing of the boundary reform

2.1 Local government in the state of Brandenburg

Government in Germany is organized in three tiers. They consist of the federal government, 16 states, the the local level with is again organized in about 450 counties and about 12500 municipalities. Apart from a strong federal involvement in all branches

of state activity, there are specific responsibilities for each of the three tiers. Education, for example, is largely in the responsibility of each individual state, while counties are mostly concerned with issues of public order (police, fire rescue) and health (hospitals, ambulances). The municipal level has some direct responsibilities like child care, cultural expenditures, sport and recreational facilities, local infrastructure investments and often oversees public firms to deliver services (e.g., energy and water supply). At the same time, the municipality is often the institution that administrates mandated spending allocated by higher tiers (like social services, investment in schools, and certain infrastructural investments).

In the former GDR, municipalities had very limited political power and only few administrative tasks to fulfill. As a consequence the municipality structure in former East Germany had never seen any reform under the Communist system while western communities went through a number of reforms (including large scale amalgamations) during the 1960s/70s. After the reunification in 1990 the West German constitution ('Grundgesetz' [GG]) was introduced in East Germany. It suddenly granted municipalities extensive rights and duties (see above) along the principle of local self-governance. Taking over those responsibilities created extensive challenges for all east German communities, yet especially for very small municipalities. They lacked the administrative resources to fulfill tasks they were required to do. A necessary reform of the municipality structure, however, was considered politically infeasible immediately after reunification.

To improve the efficiency of the local level, the state of Brandenburg first reformed the county level in 1992/1993. This reform had two central aspects. First, the number of counties was reduced to concentrate the higher local level administration. Secondly, an additional administrative local level was introduced (denoted the *'Amt'*), which would act in between small municipalities and the county. The administrations of several small municipalities were merged into an *Amt*. The purpose of an Amt was to provide the necessary resources that are required to perform all necessary administrative duties and

to deliver economies of scale.[4]

Even after this initial reform in 1993, the local level the was still facing major difficulties. The *Amt* which was introduced to capitalize on economies of scale often failed to be able to coordinate the local activities. As municipalities were still formally independent many administrative acts had to be performed individually for each municipality (see Grünewald (2002)). Secondly, the authorities within the *Amt* structure were often ill-defined and conflicts arose both among municipalities about issues such as the financing of the *Amt*. The leadership of the *Amt* often saw the need for specific policy interventions, yet they lacked the authority and the constitutional legitimacy.[5] Thirdly, many of the small municipalities suffered from the lack of sufficient political competition. In 1998, a total of 152 communities did not hold the scheduled mayor election as no candidate put up for election.

2.2 The reform process 1999 - 2003

The debate about a second major reform of the local administrative structures, this time the municipal level, began in 1998. In 2000, the state government of Brandenburg issued a decree of guidelines[6], which laid out basic criteria for the administrative structure that had to be satisfied in the future (see details below).

Municipalities were informed that they had the chance to merge voluntarily until the end of March 2002 to meet the targets of the guidelines. All municipalities that did not satisfy the guidelines in March 2002 would be merged by law at the discretion of the state government.[7] While satisfying the criteria from the detailed guidelines was

[4]It is important to note that an *Amt* has no function or legislative power (other than coordination) in its own right. The municipalities remained the unit of political decision making. The *Amt* as the administrative unit only implemented and administrated the decisions.

[5]The faulty design of these local structures became apparent when the state constitutional court ruled that some *Amt*-structures were unconstitutional because the board of the Amt lacked democratic legitimacy (VfG Bbg 5/1995).

[6]The formal name is the 'Guidelines for the Development of Community Structures the State of Brandenburg' (*Leitlinien der Landesregierung für die Entwicklung der Gemeindestruktur im Land Brandenburg*) [LT-Drs. 21732-B.]

[7]Shortly after publication of the guidelines, the state legislature passed the 'Municipality Reform

desired, the interior ministry also made it clear that exceptions were admissible under certain conditions.

The formal mergers took place between 2001 and 2003. The first wave of voluntary mergers happened already in February 2001, less than a year after the reform was announced. In March 2002, the interior ministry began drafting a law to implement mergers of those municipalities that had not agreed on a voluntary amalgamation. The law was enacted in March 2003 and the remaining mergers occurred in October 2003, the day of the local elections.[8]

Table 1: Descriptives - Number of mergers per phase in the reform

	Total	Voluntary Mergers			Forced Mergers
Year	'99-'04	before Feb '01	Mar '01 - Sep '03 (by contract)	Oct '03 (by law)	Oct '03
Mergers	349	8	193	48	100
Municipalities lost	1067	15	592	161	299
Merger size					
2	143	5	74	17	47
3	74	2	42	13	17
4	34	0	21	3	10
5	23	0	19	2	2
6	23	0	14	3	6
7-10	31	1	10	7	13
$\geq$11	21	0	13	3	5

Notes: The table highlights the scope of the merger reform. We present the descriptive statistics on the number of mergers in different phases of the reform and the distribution of merger sizes in each of those phases. Source: Own research.

Table 1 gives an overview of the timing of mergers and the number of municipalities involved in each merger. We denote mergers to have happened voluntarily when the

Act' ('Gemeindereformgesetz' [GemRefG]). Purpose of the new law was to simplify voluntary mergers of municipalities by reducing legal requirements. According to the new law, there were three legal requirements for a merger to take place. Firstly, all municipalities involved in an amalgamation had to agree to a merger contract, which had to be enacted by the community council with an absolute majority of its members. Secondly, municipalities with less than 5,000 inhabitants had to hold public referendum on the proposed amalgamation. A positive referendum could prevent voluntary amalgamations by overruling the approval of the municipal council. Municipalities with more than 5,000 inhabitants were free to choose whether or not to hold a referendum. Finally, an amalgamation had to be approved by the interior ministry. A positive referendum could not overrule a negative decision by the ministry.

[8]Throughout the drafting process, municipalities could agree on voluntary mergers. If the mergers were admissible under the guidelines, they were approved and the draft of the law was changed accordingly.

participating municipalities signed a contract. In contrast, forced amalgamations took place because of laws passed by the state legislature. The important difference between a voluntary and a forced amalgamation was that in a voluntary amalgamation, municipalities were free (within limits) to decide with whom to merge and to agree on the terms and conditions of the merger.

2.3 Guidelines

As mentioned above, even voluntary mergers had to be approved by the interior ministry and to satisfy the main criteria. The guidelines for the mergers formulated quantitative and qualitative goals. As a general rule, the guidelines stated that no additional administrative units were to be created and county district borders had not to be affected unless suburban municipalities were incorporated into cities with county district status. That meant that most mergers could take place only among municipalities within one county. Furthermore, mergers should take place within the borders of an existing *Amt*.

Municipalities that are independent of an *Amt* should be created if there was a sufficiently high population density and if a town existed that was sufficiently large to serve as social and economic center of the new municipality. The newly created municipality should have at least 5,000 inhabitants. If it was not possible to create independent municipalities, communities should merge within an Amt. No single municipality should have less than 500 inhabitants. An *Amt* should have at least 5,000 inhabitants and should consist of not less than 3 but not more than 6 municipalities. Furthermore, the travel distance from any municipality within an *Amt* to the seat of the administration should not exceed 20 kilometers.

3 Data and descriptive statistics

We use data about all municipalities from the state of Brandenburg between 1999 and 2004. Brandenburg, one of the new states in the former east of Germany, is among the

most rural and ethnically homogeneous states in Germany. Figure 1 in the appendix gives an overview of the number of inhabitants per municipality and their geographical distribution. The figure illustrates that larger municipalities cluster around Berlin, however, there is also quite a dispersion in municipality size throughout the state.

At the end of 1998, there were 1,489 municipalities in Brandenburg. Out of those, 874 had less than 500 inhabitants. About one quarter of all German municipalities with less than 500 inhabitants were located in Brandenburg, even though the state is home to only 3 percent of the German population. Out of the 1,489 municipalities, 1,485 belonged to 14 different counties.[9] Whereas 62 municipalities were independent of an *Amt*, a total of 1423 municipalities belonged to an *Amt* structure.

For the analysis, we have compiled information for all 349 amalgamations which took place between 1999 and 2003 involving a total of 1276 municipalities (85.5 percent of all municipalities). For each merger, we know the municipalities concerned and we have information on the timing and the terms of the merger decision. A total of 249 amalgamations occurred voluntarily (by contract) whereas 100 were forced by law (see table 1).[10]

For all municipalities we have geo-spatial data from the state's land survey office indicating the location of the municipality as well as county, Amt and municipality borders. Given those information, it is easy to extract characteristics such as the geographical size of a municipality and its neighbors. Information on elections is available from the state's election office. For 1,474 municipalities we know the composition of the city council at the time of a merger. We also have data on the party affiliation of the mayor for 1,228 municipalities.[11]

[9]The major cities of Potsdam, Frankfurt/Oder, Cottbus and Brandenburg city have the county status. Those four cities are highlighted in dark green in figure 1 in the appendix.

[10]It should be stressed that individual municipalities might have been affected more than once in the process of forming new mergers. In total there are 55 cases in which a community was involved in more than one amalgamation.

[11]The discrepancy to the total number of municipalities is due to several reasons. In 152 cases, municipalities did not have elections for the post of mayor due to a lack of candidates. In those cases,

We have access to data about important financial (revenues as well as expenditures) as well as socio-economic characteristics for each municipality. The socio-economic variables include the population, the share of young, middle-aged and old citizen as well as the gender ratio (female/male) in the young cohorts. The data on revenues include tax rates and tax revenues of those taxes that municipalities can levy themselves as well as the municipalities' share in federal taxes. The municipalities share in the federal income taxes is directly computed from the total income tax raised within each municipality and can therefore serve as a proxy of wages earned within the municipality. Similarly, revenues from the real estate tax serve as a proxy for real estate prices within the municipality.[12] In addition to the revenue side, we have also obtained data on the expenditures of municipalities. This allows us to get a detailed overview of local preferences in terms of public spending. We can differentiate spending in the following categories: Total expenditures as well as expenditures on schooling, culture, infrastructure, and public utilities.

In order to obtain representative figures for expenditures, we take the average of 1999 and 2000 for revenues and expenditures. Thereby, we only use data from years before plans for the reform became public and avoid that our estimates are influenced by spending that was done in anticipation of the reform.[13] Also, using the 1999 and 2000 data allows us to control for spending preferences of the current local governments which were elected as of 1998.

the community council elected a mayor but he or she does not necessarily belong to a political group and his or her party affiliation is not recorded. 28 municipalities had less than 100 inhabitants and elected a mayor in a public village meeting. Again there is no party affiliation recorded in those cases. In 35 cases the election was invalid because no candidate received an absolute majority in the run-off elections or the number of votes for the leading candidate was less than 15% of eligible voters. A mayor was then elected by the municipality council and no party affiliation recorded. In 4 cases no party affiliation of the mayor was recorded and we were unable to obtain it otherwise. Finally, there were no elections held in 42 municipalities or the election results were not recorded for reasons unknown to us.

[12]It should be noted, however, that in the case of real estate, book values and actual values of property might differ significantly and therefore real estate tax revenue is only an imperfect proxy for actual house prices.

[13]As shown by Tyrefors Hinnerich (2009) this is a concern because municipalities tend to free-ride on each other in anticipation of mergers by increasing their spending in the years just before the merger takes place.

As the main analysis uses a comparison of voluntary to forced mergers as well as voluntary to simulated mergers, we provide descriptive statistics on all variables used in the estimation separately for those groups in table 2. What stands out from this table is that the groups are quite different. Forced mergers are large on average, involve fewer municipalities and show lower average seat shares of the dominant party than voluntary mergers (see table 2, coalition-level variables).[14] For the simulated mergers, we see that the average number of inhabitants is in fact smaller.[15] A nice feature of the data is that voluntary and simulated observations have comparable distributions in the political variable of interest.

As mentioned above, one obvious concern when analyzing merger decisions is a potential bias due to spatial correlation. Such a bias could occur if characteristics of municipalities were correlated across space. In the appendix, we plot maps of the political variable (figures 2), as well as the municipal share in the income tax which proxies for local income (figure 3). As the maps show clear clustering in those variables, there appears to be a significant amount of spatial correlation in political as well as financial characteristics. Municipalities that are located around Berlin in the center of the state have higher expenditures and revenues and tend to be dominated by SPD run governments. We like to again stress that this spatial correlation is not of concern to the results in this paper, as we argue that it will be present both in the voluntary and the counterfactual (forced or simulated) observations.

[14]Overall, those differences are expected. The forced mergers in the second stage are conditional on the mergers in the first stage of the reform. As a result, the municipalities are large on average. Also, the political landscape in large towns is often more heterogeneous and knows a larger number of parties.

[15]There are two main arguments for this observation. First, municipalities that considered merging voluntarily might have had a preference for larger partners. Second, the set of simulated mergers that we constructed includes mergers with small merger partners that the state agency would not have authorized. In a robustness test, we exclude those particular mergers.

Table 2: Summary statistics for voluntary, forced, and simulated mergers

	Voluntary		Forced		Simulated	
Variable	Mean	SD	Mean	SD	Mean	SD
Number of observations	957		363		8906	
Number of mergers	237		94		2352	
Municipality-level variables						
Demographics						
Population	1319	3853	1894	3626	1225	2747
Share of Population Aged 20-29	.08	.02	.08	.02	.08	.02
Share of Population Aged 30-45	.22	.03	.22	.03	.22	.03
Share of Population Aged 65+	.23	.05	.22	.04	.23	.05
Gender ratio (female/male) 20-29	.91	.53	.89	.42	.89	.45
Expenditures p.c.						
Total	1361.12	910.89	1429	634.21	1363.27	620.77
Schooling	43.08	65.53	59.91	91.83	48.06	71.84
Culture	28.93	96.49	20.05	43.68	24.23	77.71
Infrastructure	213.04	248.09	211.73	227.6	217.3	248.1
Public Utilities	94.91	185.21	80.51	120.54	93.04	171.39
HHI of all expenditure categ.	.32	.14	.3	.12	.32	.13
Revenues p.c.						
Property Tax B (Devel. Land)	53.9	27.15	65.27	46.24	55.55	30.95
Property Tax A (Agric. Land)	17.1	14.58	11.86	11	15.83	13.99
Trade Tax	58.25	288.29	75.36	191.82	53.46	161.37
Interest Payments	29.07	47.78	24.58	45.3	28.54	46.34
Mun. Share of Income Tax	67.8	20.23	75.89	21.22	69.63	20.76
Mun. Share of VAT	12.62	60.56	18.44	36.27	12.46	27.38
Coalition-level variables						
Demographics						
Total Population	7786	15187	9548	6871	5704	8689
(Max-Min) Population spread	5456	14174	6143	5427	2524	3303
Population diff. from coalition mean	4622	13301	4860	4925	1778	2709
Diff. Share of 20-29 from coalition mean	.02	.01	.01	.01	.02	.01
Diff. Share of 30-45 from coalition mean	.02	.02	.03	.03	.03	.02
Diff. Share of 65+ from coalition mean	.04	.03	.04	.03	.04	.03
Diff. female share among 20-29	.35	.46	.29	.35	.33	.41
Mergersize (no. of municipalities)	6.31	4.33	5.86	3.59	5.52	3.36
Share of dominant party	.33	.28	.27	.24	.34	.28
Expenditures						
Total	607.17	995.79	521.7	506.18	550.92	530.42
Schooling	54.72	67.76	76.81	88.92	55.24	74.22
Culture	47.44	105.35	25.66	37.91	34.93	86.65
Infrastructure	193.99	231.51	155.21	197.26	186.71	222.73
(Max-Min) Total	1322.78	1259.07	1167.81	908.26	1139.32	821.08
(Max-Min) HHI	.28	.17	.23	.16	.25	.17
Revenues						
Property Tax B (Devel. Land)	43.5	46.79	63.93	74.56	41.89	46.82
Property Tax A (Agric. Land)	21.23	15.85	17.8	12.07	20.03	16.98
Trade Tax	153.49	412.62	186.49	336.1	142.64	288.19
Interest Payments	79.95	76.45	61.12	66.69	67.47	67.01

4 Empirical strategy

The main statistical model that we use in this application is a standard probit model. We describe the exact implementation for design 1 (voluntary versus forced mergers) and design 2 (voluntary versus simulated mergers) in the following two subsections.

4.1 Voluntary vs forced

Our central analysis is based on a standard probit model in which we code the decision to join a voluntary merger by one and we observe counterfactual observations from municipalities that were forced to merge. The model takes the following form:

$$Pr(Y_i = 1|X) = \Phi(\beta_0 + \beta_1 * Pol + X_i\gamma) \tag{1}$$

where Pr denotes a probability and Φ is the CDF of the standard normal distribution. The variable Y_i is an indicator variable that takes the value one if the observation belongs to a voluntary merger and zero if it is a forced merger. The unit of observation is the individual municipality within a merger with its characteristics before the merger. That implies that there are as many observations for one merger as there are merger partners. Note, that one municipality can only be part in one merger at a time.[16]

Our focus in the analysis is to evaluate the importance of political determinants for the likelihood of a voluntary merger. As the municipality council is the decision body, we will focus on political circumstances within this legislative institution. More specifically, we will concentrate on the dominant party within the council, assuming that this party has the most voting power in the merging decision. Our central variable in the analysis, *Pol* is defined as follows. In the first step, we identify the dominant party in each town council.[17] In the second step, we calculate the population weighted share of that

[16]It is possible however, that a municipality is first part of one merger in an early phase of the reform and the new (bigger) municipality is again participating in yet another merger at a later point in time. In this case, we treat the merged municipality in the second merger as an individual municipality.

[17]As the mayor of the town also holds one seat in the council, we added the information of the local mayor's party affiliation to the data on the party's council seats.

party within the town councils of the partners in the merger. We denote this measure political congruence. We conjecture that a higher share should increase the likelihood of a voluntary merger if local politicians prefer to merge with other municipalities that are also dominated by their party.

As mentioned above, we are concerned about omitted variable bias. If the interest is to pick up the causal effect of political determinants net of any other driving factor influencing the merger decision we fear that the political variable proxies for important unobserved determinants. The observation that two municipalities under conservative rule decide to voluntarily merge might be due to political congruence, however, it might, for example, also proxy for the preferences of high earning voters that prefer both conservative rule and a merger with another equally rich municipality. In order to deal with this potential problem, we have collected an extensive set of control variables that we believe include most factors that are correlated to political preferences on the local level. In X in eq. 1, we include up to 40 control variables which can be grouped into five categories. We include regional dummies, results from elections other than for the community council, demographic characteristics of inhabitants, as well as expenditures and revenues of municipalities by category. The information on the fiscal status of each municipality comprises the entire local budgetary information. To that extent, we are no less well informed about the financial situation than potential merging partner were at the time. Especially the tax revenue data can be thought to be a perfect proxy for income or wealth in the town. This is because those taxes are based on personal income or property prices. A full list of all control variables can be found in Table 5 in the Appendix.

4.2 Voluntary vs simulated mergers

In our second design, we take a comparable statistical approach using the following probit specification:

$$Pr(Z_i = 1|X) = \Phi(\beta_0 + \beta_1 * Pol + X_i\gamma) \quad (2)$$

The main difference to eq. 1 above is the new outcome variable, Z_i. The variable Z_i is again an indicator variable that takes the value one for observations in voluntary mergers. However, the new comparison group are simulated mergers. Observations from those simulated observations get the value zero for the outcome variable.

The remainder of the model is identical to the model above. In fact, we particularly aim to keep the model specifications in the two designs as similar as possible. We, thus, calculated the same political congruence variable for the simulated mergers and also define all control variables accordingly.

To better understand the value of this second design it is important to know how we simulate our counterfactual observations. We start the simulation using all municipalities as of 1999 (two years before the first actual mergers).[18] The simulation proceeds in three steps. First, we randomly pick one municipality, identify all direct neighbors (in the same county) of this municipality and randomly assign the first merger partner. With probability λ_1, we stop at this stage in which case we have a simulated merger size of two. With probability $(1 - \lambda_1)$ we proceed to step two. Here, we first flip a coin between the two municipalities and then again identify the set of direct neighbors (in the same county) for chosen municipality and we pick a third merger partner. At this stage, we test this new merger for plausibility. We do not allow units that belong to a specific *Amt* administration to be united with partners from outside this *Amt* structure. With probability λ_2 we stop at this stage (we then have a merger of size three). Thirdly, we iterate on the procedure in step two and use the algorithm to choose more merger partners as we proceed. Importantly, the distribution of λs is set such as to match the actual distribution of merger size for the observations of voluntary mergers.[19] With this

[18] In an additional robustness check, we also ran the simulation such that only municipalities that actually merged (voluntary or forced) were used as a starting point of the simulation procedure.

[19] Note that the chances of of picking a particular simulated merger that represents an actual voluntary

algorithm, we can then simulated an arbitrary number of counterfactual observations. We use 10 times the number of actual voluntary mergers, hence about 2500 simulated mergers.

4.3 Issues in estimating merger determinants

Estimating the determinants of mergers is statistically challenging. The specific problems for the estimation have been characterized by Gordon and Knight (2009) for the case of school district consolidations and for municipal mergers for Tukiainen, Saarimaa, and Hyytinen (2013). Our description of the econometric issues largely follows theirs.

First, in voluntary mergers, the joint decision to form a new unit depends on a positive decision of each of the members. The problem is therefore multi-sided. A merger that actually occurred, only happened because all members in the merger agreed to join this union. In comparison, it is enough that one member refuses to join a potential merger for this alternative merger to not realize, even if all other member were favorable towards this union.

This implies that the best data to study the determinants of merger decisions would consist of information on individual decisions to join or not join certain merger alternatives. We, however, only observe mergers that actually realized and those that did not. In particular, we do not know whether a certain municipality favored a particular merger alternative, but it was blocked by other members.[20]

Second, a further and related issue is that municipal mergers, like in many coalition

merger is small. Nevertheless we test whether the set of simulated (counterfactual) observations includes mergers which actually happened. In this case, we exclude those cases from the analysis.

[20]To remedy this problem, we experimented with a bivariate probit Poirier model as suggested by Brasington (2003). The idea would be to independently model the decision of the individual member to join a certain club and the decision of the group to take in that member in a bivariate probit model. This type of statistical modeling requires strong arguments to exclude variables in one of the equations. In essence, such a model only improves our understanding of the merger decision if we can assume that certain factors serve as strong predictors only on the side of the individual member or the receiving group. While the model can still be applied even without such strong exclusions, we experience issues of convergence of the estimator, a problem also reported by Saarimaa and Tukiainen (2013).

formation games, are one-to-many matches. In our example, we observe a whole distribution of merger sizes ranging from 2 members all the way up to 19 members. When constructing simulated mergers this means that the dimensionality of the potential mergers is largely increased. This raises the question how relevant potential mergers can be picked from the set of potential mergers.

Finally, the analysis suffers from the fact that a merger decision of one group has a direct impact on the decisions of neighboring municipalities. Once a group of municipalities decides to merge, these towns are eliminated from the choice set of the adjacent municipalities (a violation of the stable unit treatment value assumption (SUTVA)). Unfortunately, we do not have a way to avoid this problem for our estimation.[21]

5 Results

In this section, we present our results. We proceed in three steps. First, we show our main results for a.) the comparison of voluntary to forced mergers, and b.) the analysis building on voluntary and simulated mergers. Finally, we add a third section in which we discuss robustness.

5.1 Voluntary vs forced mergers

Table 3 highlights the results from the probit model in eq. 1. The dependent variable is an indicator variable that takes the value 1 if the municipality took part in a voluntary merger and 0 if it was placed in a forced amalgamation. The variable of interest is the seat share of the municipality's dominant party in the town councils of the merging partners (weighted by population) which is a scale variable between 0 and 1. A positive

[21] Saarimaa and Tukiainen (2013) run a robustness test in which they use as counterfactual simulated control group only potential mergers that did not involve any municipality that was actually merged. While this is a nice idea, it is also easily done in the Finnish case, which only involved relatively few merged municipalities to start with. In our example, however, the merger reform affected more than 90% of all municipalities, which leaves the sample of never treated municipalities to be very small. Importantly for us, Saarimaa and Tukiainen (2013) report that the results from this robustness test left their results relatively unchanged.

coefficient indicates that a higher share of the dominant party in the potential coalition increases the probabitity to observe an individual municipality in a voluntary merger. We report coefficients and their standard errors (in brackets) from the probit estimation as well as the marginal effects (in square brackets).

Table 3: Probit Regression Results: Voluntary vs. Forced

	Dependent Variable: Voluntary Merger					
Specification	I	II	III	IV	V	VI
Dominant Party Share	0.5743**	0.6640**	0.5978**	0.5624**	0.5084**	0.3943
(within coalition partners)	(0.2288)	(0.2451)	(0.2491)	(0.2473)	(0.2463)	(0.2428)
	[0.1908**]	[0.2118**]	[0.1888**]	[0.1748**]	[0.1564**]	[0.1169]
Community size				-0.0000**	-0.0000**	-0.0000
				(0.0000)	(0.0000)	(0.0000)
Δ Community size				0.0002***	0.0002**	0.0002**
				(0.0000)	(0.0001)	(0.0001)
Total Pop. Involved				-0.0002***	-0.0001**	-0.0001**
				(0.0000)	(0.0000)	(0.0000)
Merger Size				0.0839**	0.0820*	0.0885**
				(0.0376)	(0.0436)	(0.0432)
Total Expenditures					-0.0001*	-0.0002**
					(0.0001)	(0.0001)
Rev. Property Tax A					0.0077	0.0056
					(0.0053)	(0.0051)
Rev. Property Tax B					-0.0009	-0.0006
					(0.0013)	(0.0013)
Rev. Trade Tax					0.0002	0.0006
					(0.0002)	(0.0004)
Rev. Interest payments					0.0003	0.0009
					(0.0009)	(0.0010)
(Max-Min) Total Expend.					-0.0000	-0.0001
					(0.0002)	(0.0002)
(Max-Min) Rev. Prop. Tax A					0.0002	-0.0007
					(0.0077)	(0.0074)
(Max-Min) Rev. Prop. Tax B					-0.0038*	-0.0034*
					(0.0020)	(0.0020)
(Max-Min) Trade Tax					0.0004	0.0007**
					(0.0003)	(0.0003)
(Max-Min) Rev. Int. payments					0.0023	0.0025
					(0.0017)	(0.0018)
Regional Dummies	NO	YES	YES	YES	YES	YES
Political Controls	NO	NO	YES	YES	YES	YES
Demographics	NO	NO	NO	YES	YES	YES
Budget Composition	NO	NO	NO	NO	NO	YES
N	1320	1320	1317	1314	1314	1314
Pseudo R2	0.0104	0.0994	0.1170	0.1792	0.2015	0.2289

Notes: A leading Δ indicates variables measured as difference to coalition mean. The regression constant is not reported. Max-Min spreads are computed at coalition level. Fiscal and financial variables are measured in per capita values. Standard errors in round parenthesis and marginal effects at mean in squared brackets. All standard errors are clustered on the level of the individual merger. *, **, and *** indicate statistical significance at levels 10, 5, and 1 percent, respectively.

Column 1 presents the results of the most simplistic model which only takes the political variable as an explanatory factor. Our variable that measures the importance

of political congruence is positive and statistically significant. The marginal effect of 0.191 (evaluated at means) can be interpreted as follows. Say the town council of municipality A is led by the conservative party (CDU). Let the hypothetical situation be that municipality A can choose to join either a coalition of potential partners in which the conservative party holds no seats at all versus a coalition in which the conservative party holds the entire council with 100% representation.[22] The marginal effect indicates that municipality A is 19,1 % percentage point more likely to join the second coalition voluntarily, which is a sizable effect. The explanatory power of this simplistic model, however, is very limited (as indicated by pseudo R2).

In Column 2-6 we gradually test different sets of further control variables all of which introduce meaningful further variables that should have an impact on the decision to amalgamate. In column 2 of table 3 we include a complete set of regional dummies to control for different effects on the county level (there are 14 counties in the state of Brandenburg). This could be of importance as many municipalities and parties coordinate activity on the county level. Including those regional dummies ensures that our results are not driven by differences between those regional groups. Column 3 presents the results when we include further political variables. We control for both the party identity of the mayor and for heterogeneous effects for which specific party dominates the town council. Furthermore, we test whether the party identity of the mayors in the merging partners of the coalition is relevant.[23]

Column 4 includes variables on the demographic structure in the municipalities into the model. We add municipality size, total number of inhabitants in the new merger, the difference between the own population and the mean population in the new merger.

[22]Note that this is not all that unlikely in small communities. However, for the most part the variable of interest does not vary sharply from 0 to 1.

[23]In an alternative model, one could argue, that the mayor who administrates the municipality might herself have stakes in the merger decision and has incentives to push amalgamations with other municipalities that have mayors of the same party. We do in fact, find only weak evidence of this hypothesis. Here, however, we focus on the effect of congruence within the town councils, because they formally are the legislative body deciding on the actual mergers.

Also, we include measures on the age structure (share young, share old) as well as a gender ratio variable (not shown in the table). In the next columns, we then also start controlling for important budgetary information. It is important to know that we have full information on all budgetary items that the state requires the municipalities to report. We are therefore in the position to understand the financial situation as well as any potential merger partner at the time of the merger decision. In column 5, we first add the measures for the aggregate budget (total expenditures, total revenues and revenues from the major taxes). Finally, column 6 specifies the model to also include detailed subcategories of the expenditures (for the full list of variables consult table 5 in the appendix) which proxies for local preferences in tastes for spending. Each expenditure variable is included in levels and in terms of the Max-Min deviation within the coalition.[24]

Overall, our results for the variable of interest remain rather stable through specifications 1-4 at around 17-21 percentage points in the marginal effect. However, the point estimates and significant levels drop substantially in columns 5 and 6 down to insignificant 11.7 percentage points in the marginal effect when the detailed financial information are controlled for. Still, even if the estimates are marginally not significant in column 6, the magnitude of the point estimate remains sizable. In terms of standard deviation changes, a marginal effect of 11.7 corresponds to about 1/4 of a standard deviation on the outcome variable. The results show that political congruence has a sizable and important influence on the merger decision. The results further highlight the importance of controlling for the financial background information of the participating municipalities.

[24]The Max-Min deviation measures the deviation in a fiscal measure from the minimum value (one merger partner) to the maximum value (another coalition partner) (following the approach of Saarimaa and Tukiainen (2013)). The focus, here, is on the largest distance of the most extreme values (minimum and maximum) within the merger partners. This measure takes into account that a coalition can only form if all partners agree to the merger. To that extent, it is important that each municipality in the merger can agree to be partner with the most extreme partners. We use this measure instead of the absolute deviation of a municipality's value to the population weighted mean. However, we use the alternative specification in a robustness test.

Table 4: Probit Regression Results: Voluntary vs. Simulated

	Dependent Variable: Voluntary Merger					
Specification	I	II	III	IV	V	VI
Dominant Party Share	-0.0204	-0.0206	-0.0485	0.2674**	0.2508**	0.2407**
(within coalition partners)	(0.1078)	(0.1062)	(0.1164)	(0.1227)	(0.1240)	(0.1227)
	[-0.0035]	[-0.0035]	[-0.0082]	[0.0392**]	[0.0361**]	[0.0345*]
Community size				-0.0000**	-0.0000	-0.0000
				(0.0000)	(0.0000)	(0.0000)
Δ Community size				0.0002***	0.0002***	0.0002***
				(0.0000)	(0.0000)	(0.0000)
Total Pop. Involved				-0.0001***	-0.0001***	-0.0001***
				(0.0000)	(0.0000)	(0.0000)
Merger Size				0.0694**	0.0789**	0.0779**
				(0.0214)	(0.0263)	(0.0266)
Total Expenditures					-0.0001**	-0.0001*
					(0.0000)	(0.0001)
Rev. Property Tax A					0.0059**	0.0052**
					(0.0021)	(0.0024)
Rev. Property Tax B					-0.0009	-0.0007
					(0.0007)	(0.0007)
Rev. Trade Tax					0.0002	0.0003**
					(0.0001)	(0.0001)
Rev. Interest payments					0.0003	0.0004
					(0.0005)	(0.0005)
(Max-Min) Total Expend.					0.0000	0.0000
					(0.0001)	(0.0001)
(Max-Min) Rev. Prop. Tax A					-0.0084**	-0.0081**
					(0.0040)	(0.0041)
(Max-Min) Rev. Prop. Tax B					0.0002	0.0002
					(0.0012)	(0.0012)
(Max-Min) Trade Tax					-0.0000	-0.0000
					(0.0002)	(0.0002)
(Max-Min) Rev. Int. payments					0.0010	0.0010
					(0.0008)	(0.0008)
Regional Dummies	NO	YES	YES	YES	YES	YES
Political Controls	NO	NO	YES	YES	YES	YES
Demographics	NO	NO	NO	YES	YES	YES
Budget Composition	NO	NO	NO	NO	NO	YES
N	9863	9863	9861	9825	9825	9825
Pseudo R2	0.0000	0.0052	0.0076	0.0669	0.0744	0.0770

Notes: A leading Δ indicates variables measured as difference to coalition mean. The regression constant is not reported. Max-Min spreads are computed at coalition level. Fiscal and financial variables are measured in per capita values. Standard errors in round parenthesis and marginal effects at mean in squared brackets. All standard errors are clustered on the level of the individual merger. *, **, and *** indicate statistical significance at levels 10, 5, and 1 percent, respectively.

5.2 Voluntary vs simulated mergers

In table 4 we turn to our second design and study the comparison of voluntary versus simulated mergers. The dependent variable in this model is 1 for observations of municipalities in voluntary mergers and 0 observations that belong to our set of simulated mergers. The table is constructed similarly as table 3.

In columns 1-3, the estimates of the reduced specifications are small and insignificant. However, when also controlling for the detailed demographic variables (column 4) the estimates turn significantly and sizable positive. The results, then, remain stable when also the detailed financial information are included in the model (see columns 5 and 6).

In the full model (column 6), the coefficient estimates are around 24.1 (12.3). This equates to about 3.45 percentage points in probability in the marginal effects (evaluated at means) which again constitutes a sizable and significant effect. Notably, this effect is qualitatively consistent with our results from design 1. Note that the size of the two effects should not directly be compared. In the comparison of voluntary to simulated mergers, we observe 10 times as many simulated as voluntary mergers. In terms of standard deviation changes the above effect constitutes a change by about 1/9 of one standard deviation difference in the outcome variable (still smaller as in the forced vs. voluntary specification). The fact that the estimates of the two designs both signal a sizable and significant effect increases our confidence that political congruence is indeed an important determinant in the merger process.[25]

5.3 Robustness

In this subsection, we present the results of our robustness tests. First, we experiment with alternative ways to proxy for financial heterogeneity between merger partners and test a specification in which we drop the detailed subcategories of expenditures from the model and instead use a summary statistic. For this measure, we calculated the Hirschman-Herfindahl Index (HHI) for the subcategories of spending as shares of the total budget. The idea of this measure is that highly concentrated towns (high HHI) show particular preferences for spending. We, then, also calculate that difference between the individual HHI and the group mean (within the merger partner) which we assume proxies for similarities in spending preferences. We present the results of those

[25]It is also reasonable that the level of significance is higher in the comparison of voluntary versus simulated. There are almost 30 times more simulated observations as we have actual forced merger observations.

new specifications in columns 1 and 2 in the two tables 6 and 7 (see appendix) for the comparison of voluntary to forced and voluntary to simulated mergers respectively. For all models, we highlight significant and positive estimates which are similar to our baseline results.

In our main specifications, we decided to proxy for heterogeneity in core budgetary items by including the Min-Max measure within the merger (see above). This presents only one potential way of controlling for such heterogeneity. In the following, we alternatively test specifications in which we use the difference between the individual municipality and the group mean (within the merger partners). We show the results of those models in columns 3 and 4 of tables 6 and 7 in the appendix. The results for our variable of interest are of similar size and remain significant for the specification with simulated and voluntary mergers (see table 7).

Additionally, we also run a placebo test in which we compare forced to simulated mergers (results not reported). As expected, we find no effects of political congruence.

Finally, we tested our results against alternative specifications related to the choice of model, the sensitivity to excluding large sized mergers, and changes in the set of simulated mergers. Table 8 displays the results for these further robustness tests. The first two columns of table 8 present the results using logit instead of probit models for the contrasts between voluntary vs. forced and voluntary vs. simulated, respectively. The estimated effects are very close to our preferred probit specifications. Columns 3 and 4 show the results when excluding large size mergers (11 or more merging partners). These mergers are relatively rare events, however, they make for a substantial amount of data in our analysis because each municipality is included individually. The results are indeed interesting, while the size of the effects remain stable, we lose significance for the comparison of voluntary versus simulated, but gain significance in the specification using forced versus voluntary merger. The model in column 5 uses a smaller set of simulated mergers. Here, the simulation starts from a subset of communities that were

actually involved in at least a single merger between 1999 and 2004. Here, the point estimates drop slightly and are no longer significant. Finally, the model in column 6 also restricts the set of simulated mergers to those that involve a total population of at least 1.000 and no more than 50.000 inhabitants. We do this because in the simulation procedure, we are likely to identify small mergers that would not have been granted permission by the state authorities. In this specification, the estimated effects increase slightly and retain a similar significance level as in the main specification.

6 Conclusions

This paper studies the political determinants of municipality amalgamations. We estimate the effects of political congruence between potential partners on the probability of forming a voluntary merger during a boundary reform in the German state of Brandenburg. To conduct the analysis we have constructed a data set which includes the information on all municipalities in the state of Brandenburg through the period of the reform from 1999-2004. During this reform the number of municipalities was reduced from 1489 to 421 communities.

To identify the effect, we follow a dual approach. First, we compare voluntary merger to forced mergers. The forced mergers happened in the second phase of the reform and merger partners were assigned by the state authorities. Thus, we can assume that local political considerations did not matter in this stage of the boundary reform. Second, we analyse voluntary mergers relative to a set of simulated mergers. Here, we programmed a simulation algorithm that randomly assigns merger partners conditional on a set of parameters (following the guidelines of the actual reform). Also, in those simulated mergers, political congruence is not a decisive parameter, hence, we can use these observations as counterfactuals.

We find that political variables had a sizable and significant effect on the decision to form a merger during the voluntary stage of the reform. Importantly, our two different designs

yield largely similar results. This is particularly reassuring for the main argument of the paper, as the two designs have quite opposite strength and weaknesses when it comes to identifying our main effect.

Our results indicate that the role of political decision makers in such reforms needs to be carefully attended to. As of yet, the relevant literature often assumed that politicians act in the best interest of the municipality or simply represent the median voter's position. Understanding the incentive structure of the political actors is even more important as the goal function of those decision makers might stand in complete opposite to the intentions of the reform.

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Appendix - intended for online publication

Figure 1: Map of the state of Brandenburg - Number of inhabitants

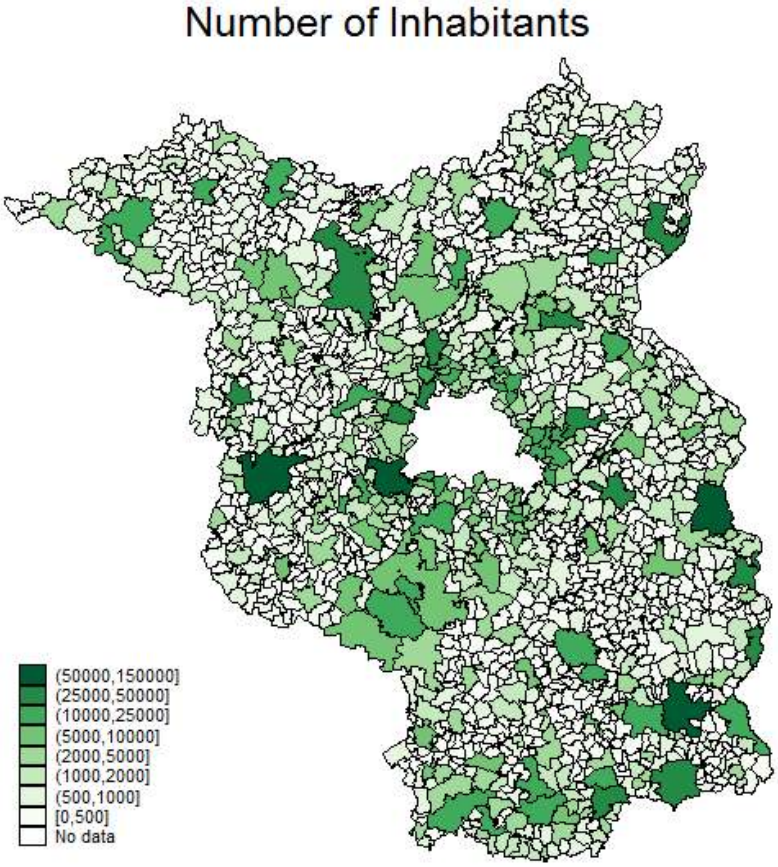

Figure 2: Map of the state of Brandenburg - Dominant party by municipality

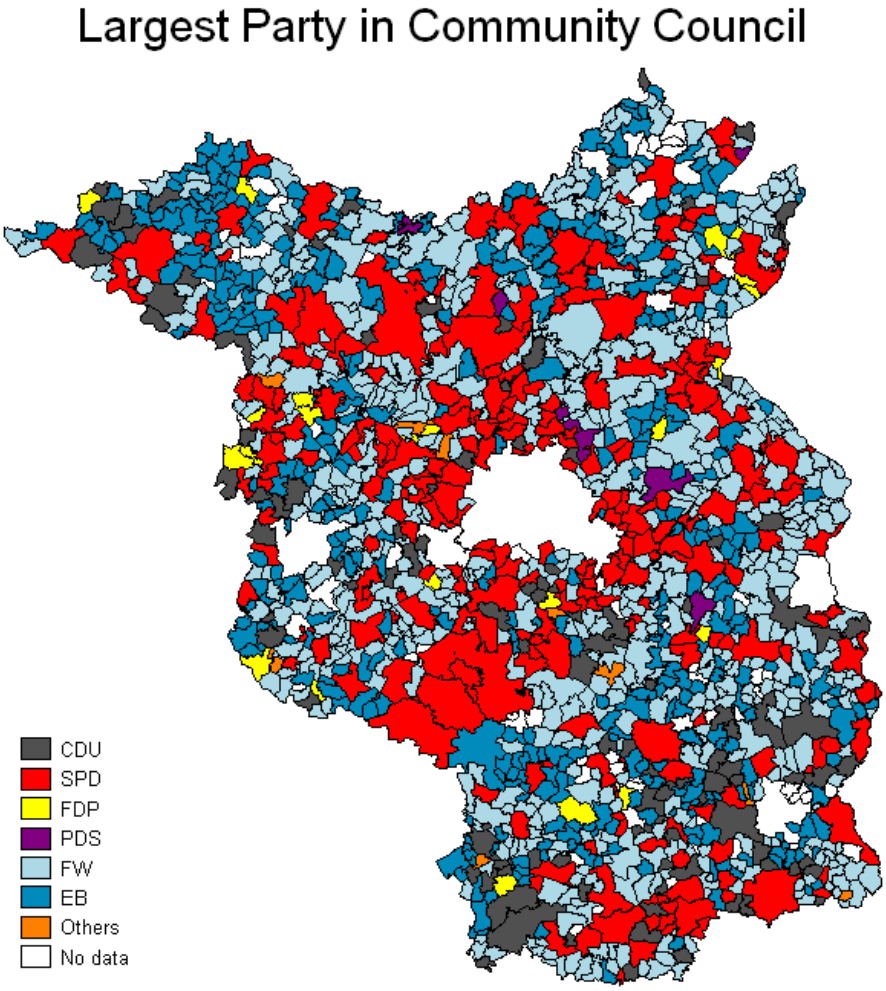

Figure 3: Map of the state of Brandenburg - Municipal share of the income tax

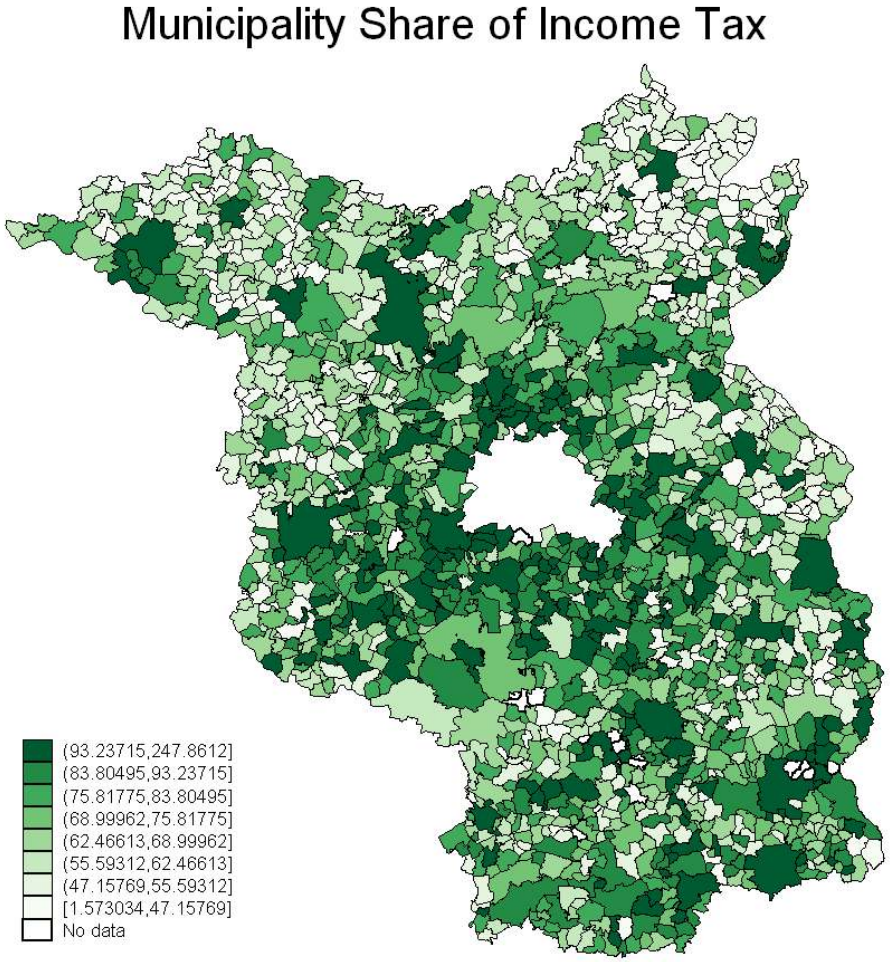

Figure 4: Map of the municipalities in Brandenburg - Pre- and post merger reform

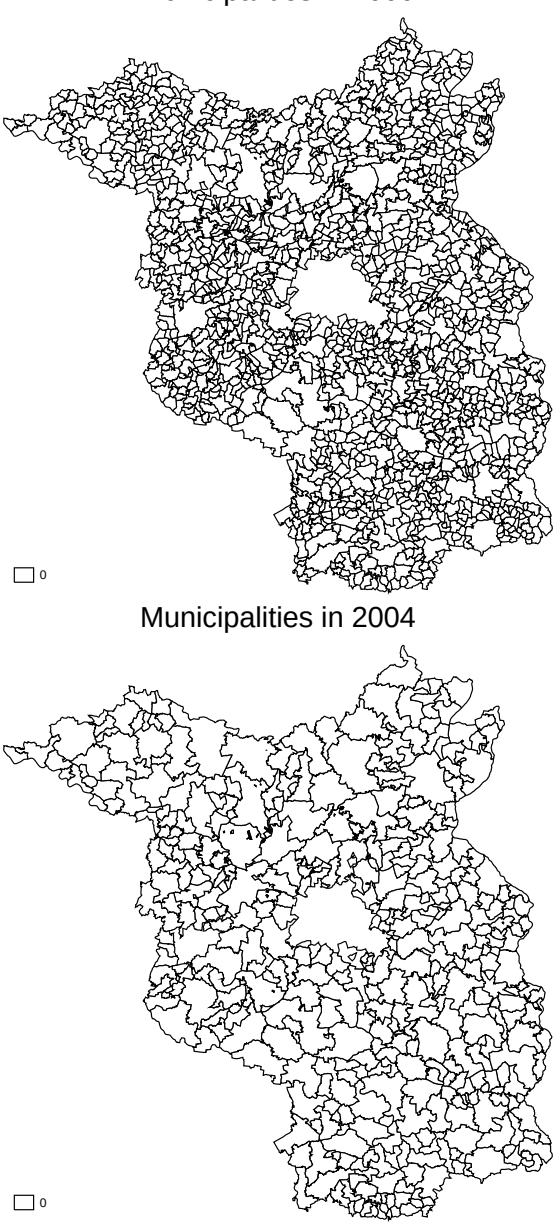

Table 5: Control Variables

Group		
Regional Control	Political Controls	Demographics
County Dummies	Dummies for Party of Mayor	Total Population
	Dummies for Dominant Party in CC[a]	Share of Population Aged 18 - 29
	Within Coa. Share of Same Party Mayors	Share of Population Aged 29 - 64
		Share of Population Aged 65+
		Gender Ratio
Expenditure	Revenues	
Total Expenditure[b]	Municipal Share of Income Tax	
Administration	Trade Tax	
Schooling	Property Tax on Agricultural Land	
Public Order & Emergency Services	Property Tax on Developed Land	
Culture	Municipal Share of VAT	
Social Security	Interest on Investment	
Sport		
Infrastructure		
Business Development Subsidies		
Public Utilities		

[a]Community Council

[b]All expenditure and revenue data is included in the analyis on a per person basis. Each expenditure, budget and population variable is included in levels and in terms of absolute deviation from the population weighted mean within the coalition.

Table 6: Probit Regression Results using Different Measures of Budget Heterogeneity and Budget Composition: Voluntary vs. Forced

	Dependent Variable: Voluntary Merger			
Specification	I	II	III	IV
Dominant Party Share	0.4396*	0.4409*	0.4094	0.3426
(within coalition partners)	(0.2408)	(0.2474)	(0.2492)	(0.2429)
	[0.1318*]	[0.1310*]	[0.1211]	[0.1016]
Community size	-0.0000	-0.0000	-0.0000	-0.0000
	(0.0000)	(0.0000)	(0.0000)	(0.0000)
Δ Community size	0.0002**	0.0002**	0.0001**	0.0002**
	(0.0001)	(0.0001)	(0.0001)	(0.0001)
Total Pop. Involved	-0.0001**	-0.0001**	-0.0001**	-0.0002***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)
Merger Size	0.0746**	0.0360	0.0416	0.0864**
	(0.0374)	(0.0440)	(0.0440)	(0.0376)
HHI of Expenditures	1.1217**	0.5739	0.6896	
(municipal level)	(0.5406)	(0.4972)	(0.5115)	
HHI-spread of Expenditures		1.5337*	1.4526*	
(coalition level)		(0.8305)	(0.8261)	
Total Expenditures			-0.0003**	-0.0004**
			(0.0001)	(0.0001)
Rev. Property Tax A			0.0034	0.0111*
			(0.0053)	(0.0065)
Rev. Property Tax B			-0.0022	0.0016
			(0.0014)	(0.0020)
Rev. Trade Tax			0.0012**	0.0006
			(0.0005)	(0.0004)
Rev. Interest payments			0.0025*	0.0034**
			(0.0013)	(0.0015)
Δ Total Expenditures				0.0001
				(0.0001)
Δ Rev. Property Tax A				-0.0119
				(0.0078)
Δ Rev. Property Tax B				-0.0063**
				(0.0025)
Δ Rev. Trade Tax				0.0007
				(0.0006)
Δ Rev. Interest payments				-0.0014
				(0.0021)
Regional Dummies	YES	YES	YES	YES
Political Controls	YES	YES	YES	YES
Demographics	YES	YES	YES	YES
Budget Composition	YES	YES	YES	YES
N	1314	1309	1309	1314
Pseudo R2	0.2119	0.2207	0.2293	0.2250

Notes: A leading Δ indicates variables measured as difference to coalition mean. The regression constant is not reported. Fiscal and financial variables are measured in per capita values. Standard errors in round parenthesis and marginal effects at mean in squared brackets. All standard errors are clustered on the level of the individual merger. *, **, and *** indicate statistical significance at levels 10, 5, and 1 percent, respectively.

Table 7: Probit Regression Results using Different Measures of Budget Heterogeneity and Budget Composition: Voluntary vs. Simulated

	Dependent Variable: Voluntary Merger			
Specification	I	II	III	IV
Dominant Party Share	0.2480**	0.2457**	0.2431**	0.2114*
(within coalition partners)	(0.1221)	(0.1224)	(0.1223)	(0.1230)
	[0.0363**]	[0.0362**]	[0.0358**]	[0.0308*]
Community size	-0.0000	-0.0000	-0.0000	-0.0000
	(0.0000)	(0.0000)	(0.0000)	(0.0000)
Δ Community size	0.0002***	0.0002***	0.0002***	0.0002***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)
Total Pop. Involved	-0.0001***	-0.0001**	-0.0001**	-0.0001***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)
Merger Size	0.0681**	0.0676**	0.0685**	0.0699**
	(0.0213)	(0.0243)	(0.0245)	(0.0215)
HHI of Expenditures	0.2673	0.2784	0.3429*	
(municipal level)	(0.2068)	(0.1946)	(0.2061)	
HHI-spread of Expenditures		0.0527	0.0327	
(coalition level)		(0.3214)	(0.3217)	
Total Expenditures			-0.0001	-0.0001
			(0.0001)	(0.0001)
Rev. Property Tax A			0.0014	0.0055*
			(0.0024)	(0.0033)
Rev. Property Tax B			-0.0002	0.0003
			(0.0008)	(0.0009)
Rev. Trade Tax			0.0003**	0.0004**
			(0.0002)	(0.0002)
Rev. Interest payments			0.0009	0.0011
			(0.0006)	(0.0007)
Δ Total Expenditures				-0.0000
				(0.0001)
Δ Rev. Property Tax A				-0.0068*
				(0.0037)
Δ Rev. Property Tax B				-0.0012
				(0.0013)
Δ Rev. Trade Tax				-0.0001
				(0.0003)
Δ Rev. Interest payments				-0.0002
				(0.0009)
Regional Dummies	YES	YES	YES	YES
Political Controls	YES	YES	YES	YES
Demographics	YES	YES	YES	YES
Budget Composition	YES	YES	YES	YES
N	9825	9666	9666	9825
Pseudo R2	0.0702	0.0725	0.0737	0.0725

Notes: A leading Δ indicates variables measured as difference to coalition mean. The regression constant is not reported. Fiscal and financial variables are measured in per capita values. Standard errors in round parenthesis and marginal effects at mean in squared brackets.

All standard errors are clustered on the level of the individual merger. *, **, and *** indicate statistical significance at levels 10, 5, and 1 percent, respectively.

Table 8: Robustness tests

	Dependent Variable: Voluntary Merger					
	Logit		Merger Size ≤ 11		Adjusted	Minimum
	Forced	Simulated	Forced	Simulated	Simul.	Popul.
Dominant Party Share	0.6324	0.4943*	0.4060*	0.1915	0.1979	0.2407**
(within coalition partners)	(0.4456)	(0.2552)	(0.2451)	(0.1203)	(0.1507)	(0.1227)
	[0.1055]	[0.0343*]	[0.1230*]	[0.0264]	[0.0373]	[0.0345*]
Community size	-0.0000	-0.0000	-0.0000**	-0.0000	-0.0000***	-0.0000
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
Δ Community size	0.0003**	0.0004***	0.0002**	0.0002***	0.0002***	0.0002***
	(0.0001)	(0.0001)	(0.0001)	(0.0000)	(0.0000)	(0.0000)
Total Pop. Involved	-0.0002**	-0.0002**	-0.0001**	-0.0001***	-0.0001***	-0.0001***
	(0.0001)	(0.0001)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
Merger Size	0.1400*	0.1561**	0.1125*	0.0454*	0.1312***	0.0779**
	(0.0773)	(0.0525)	(0.0679)	(0.0269)	(0.0314)	(0.0266)
Total Expenditures	-0.0004**	-0.0002*	-0.0002*	-0.0001*	-0.0002**	-0.0001*
	(0.0002)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)
Rev. Property Tax A	0.0084	0.0104**	0.0009	0.0043*	0.0050	0.0052**
	(0.0091)	(0.0048)	(0.0047)	(0.0024)	(0.0039)	(0.0024)
Rev. Property Tax B	-0.0009	-0.0014	-0.0001	-0.0007	0.0014	-0.0007
	(0.0022)	(0.0014)	(0.0013)	(0.0007)	(0.0011)	(0.0007)
Rev. Trade Tax	0.0011	0.0006**	0.0005	0.0002*	0.0008*	0.0003**
	(0.0008)	(0.0003)	(0.0004)	(0.0001)	(0.0004)	(0.0001)
Rev. Interest payments	0.0014	0.0008	0.0007	0.0004	0.0010	0.0004
	(0.0019)	(0.0010)	(0.0010)	(0.0005)	(0.0007)	(0.0005)
(Max-Min) Total Expend.	-0.0002	0.0001	-0.0001	0.0000	0.0001	0.0000
	(0.0003)	(0.0002)	(0.0002)	(0.0001)	(0.0001)	(0.0001)
(Max-Min) Rev. Prop. Tax A	-0.0022	-0.0163*	-0.0019	-0.0035	-0.0145**	-0.0081**
	(0.0125)	(0.0089)	(0.0078)	(0.0037)	(0.0049)	(0.0041)
(Max-Min) Rev. Prop. Tax B	-0.0060*	0.0008	-0.0043**	0.0000	-0.0013	0.0002
	(0.0033)	(0.0024)	(0.0021)	(0.0013)	(0.0015)	(0.0012)
(Max-Min) Trade Tax	0.0012**	0.0000	0.0006**	0.0001	-0.0001	-0.0000
	(0.0006)	(0.0004)	(0.0003)	(0.0002)	(0.0003)	(0.0002)
(Max-Min) Rev. Int. payments	0.0045	0.0020	0.0027	0.0013	0.0003	0.0010
	(0.0035)	(0.0014)	(0.0019)	(0.0008)	(0.0010)	(0.0008)
Regional Dummies	YES	YES	YES	YES	YES	YES
Political Controls	YES	YES	YES	YES	YES	YES
Demographics	YES	YES	YES	YES	YES	YES
Budget Composition	YES	YES	YES	YES	YES	YES
N	1314	9825	1152	9118	4208	9825
Pseudo R2	0.2279	0.0776	0.2150	0.0736	0.4221	0.0770

Notes: A leading Δ indicates variables measured as difference to coalition mean. The regression constant is not reported. Fiscal and financial variables are measured in per capita values. Standard errors in round parenthesis and marginal effects at mean in squared brackets.
All standard errors are clustered on the level of the individual merger. *, **, and *** indicate statistical significance at levels 10, 5, and 1 percent, respectively.