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FINANCIAL SUPPORT FOR PARTY SUPPORTERS? HOW POLITICS INFLUENCE THE AMOUNT OF GOVERNMENT TRANSFERS RECEIVED BY LATVIAN MUNICIPALITIES

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Abstract

One of the widely discussed topics in public choice literature is the misallocation of intragovernmental transfers by politicians to achieve their personal goal of increasing their chances of being elected or re-elected. One of the common ways of doing so is to bring fellow party members to power in municipalities by allocating more transfers to the municipalities that are aligned with the ruling party or ruling parliamentary coalition. Members of the same party or coalition as leaders of the municipality can be useful allies during the central parliamentary elections and might tilt the odds of winning a parliamentary election to their party's favour. The goal of our research is to evaluate whether the political alignment of Latvian municipalities influences the amount of transfers that municipalities receive. To achieve this goal, we employ a regression discontinuity design that helps us to isolate the causal effect of political alignment from other factors. We find that municipalities aligned with the ruling coalition receive from 96.18% to 289.42% more EU transfers than non-aligned municipalities and might receive more discretionary earmarked intra-governmental transfers as well. We believe that this finding might prompt the Latvian government to pay closer attention to the ways transfers are allocated and initiate a policy discussion on how the allocation of EU transfers should be governed.

Keywords: regression discontinuity, political alignment, fiscal federalism, public choice, intragovernmental transfers

1. Introduction

Transfers from the central government are among the most significant sources of revenue for municipalities for many countries, accounting for a sizeable share of the overall municipal budget. Thus, the goal of a central government when designing a transfer system should be to allocate these transfers efficiently, enhancing the welfare of citizens. However, in practice, this is often not the case. While older research on transfers followed a normative route and dealt purely with questions of designing the most efficient and equitable transfer system, nowadays one of the most widely discussed topics in transfer literature is how political factors play a role in the allocation of discretionary transfers (Sole-Olle & Sorribas-Navarro, 2006). Numerous papers have documented that central governments often attempt to influence local elections to ensure that municipalities are controlled by representatives of the same party or coalition. This is because having municipal leaders as allies is beneficial for the central elections — they can effectively reach out to the local population via local media and gain local insights (Borck & Owings, 2003). There is a vast array of theoretical and empirical literature that attempts to understand how exactly transfers can be translated into political gains, and what are the strategies of politicians for using tactical grant allocation as means to their personal goals. While early research started in the 1980s and yielded different contradicting results, a relatively new approach gaining traction nowadays is studying whether the political alignment of a municipality influences different facets of fiscal policy. There are several studies which show that the alignment of local municipal governments with the central ruling parliamentary party (coalition) or pronounced support for the winning party (coalition) from the population of a municipality can influence the process of government transfer allocation (Brollo & Nannicini, 2012; Bracco et al., 2015; Baskaran & Hessami, 2017; Migueis, 2013). A paper by Veiga in 2012 also found that the distribution of transfers from EU authorities to municipalities might also be affected by political goals, not only intra-national transfers as it was thought before. This body of research is important and has far-reaching implications for public policy because it uncovers one of the mechanics which is abused by politicians to enhance their personal welfare at the expense of citizens' welfare.

Latvia might also not be exempt from this pattern. Transfers from the central government and the EU are some of the main sources of revenue for Latvian

municipalities[1] and make up a large portion of the yearly municipal budget. Moreover, the system of Latvian transfers allows for discretionary (i.e. allocated purely by governmental discretion and not guided by a specific set of formulae) transfers, which are the easiest to misallocate. This leads us to the following research questions:

1) **How does the political alignment between the central and municipal governments of Latvia affect the amount of discretionary government transfers received by municipalities?**
2) **How does the political alignment between the central and municipal governments of Latvia affect the amount of EU transfers received by municipalities?**

In order to evaluate the effects of political alignment on the amount of government transfers received by Latvian municipalities, we employ a regression discontinuity design developed by Folke (2014) and implemented in similar papers on German (Baskaran & Hessami, 2017), Italian (Bracco et al., 2015), Spanish (Curto-Grau et al., 2012), and Portuguese (Migueis, 2013) municipalities. While older papers on similar topics were using other methodologies, such as differences-in-differences estimations, the regression discontinuity design has been shown to be more appropriate and reliable in this context and became widely adopted in this kind of research (Baskaran & Hessami, 2017).

To the best of our knowledge, no prior research was conducted in Latvia on whether the amount of transfers that municipalities receive from the central government is influenced by political alignment. The number of papers using the regression discontinuity design method for these specific goals worldwide is also limited, which adds to our novelty. Moreover, we know of only one study which researched whether political factors influence the allocation of EU transfers, and it was executed using methods considered less appropriate than the regression discontinuity design for such types of analysis. Given that intranational transfers in Latvia are measured in hundreds of millions of euros, and intra-EU transfers in billions of euros, we hope that our research would be valuable both for international discussions on public policy and for Latvian stakeholders — especially in the light of the upcoming administrative reform,

[1] Note: for convenience, we use the “municipality” and “administrative division” interchangeably for all Latvian administrative divisions, including 110 municipalities and 9 republican cities.

which is expected to drastically cut the number of municipalities in Latvia by more than two thirds - from 119 to 36 (lsm.lv, 2019). The population of Latvian municipalities differs in its demographics and political preferences, which means that merging the municipalities would create new political realms where different political players might come into power. If, indeed, governmental and EU transfers are affected by factors such as the political alignment of the municipal council, this might have long-lasting effects on the welfare and development of various Latvian municipalities. Thus, we believe that our paper would positively contribute to the academic discussion in this context and can be useful for public policy analysis.

Our study finds that political alignment indeed is positively associated with increased transfers to municipalities. Being aligned with the ruling coalition makes municipalities receive from 96.18% to 289.42% more EU transfers and there is preliminary evidence that such municipalities might receive an increased amount of discretionary transfers as well. Section 2 of our work discusses relevant literature, covering topics of normative theory on transfer allocation, public choice literature, and the theoretical and practical evidence of transfer misallocation. Section 3 describes the Latvian institutional background: political structure, party system and transfer system. Section 4 describes our methodology, including panel regressions, RD design, and regression specifications, justifies our choice of research design, and describes the data collection and adjustment process. Section 5 contains an analysis of the results of our work, where we provide regression results and outcomes of robustness checks performed. In section 6 we discuss the obtained results in the context of relevant literature and Latvian institutional background, as well as explore the possible implications of our findings. Section 7 presents the conclusions of our work.

2. Literature review

2.1. The normative approach to transfer allocation

One of the primary sources of income for municipalities are transfers (or grants) from the central government. Such transfers are widely used around the world and usually form a significant part of municipal budgets. As per World Bank classification (Shah, 2006), transfers can be “earmarked” (meaning that this grant can be spent only to finance the specific project the grant was designed for), or “general-purpose”, thus non-

earmarked (such grants can be treated as municipalities' income, with municipal authorities free to use this money any way they want to). Non-earmarked transfers are often "formulaic" or "formula-based", meaning that the amount of the grants provided to municipalities is based on specific parameters, e.g. population size. Earmarked transfers can be "mandatory" (if there are clear commitments by the government to provide the grant while stating the grant amount and conditions for receiving it), or "discretionary" (such transfers can be provided or not provided, ad hoc, to municipalities at the discretion of the central government). Earmarked transfer amounts can sometimes be determined by formulae, too. A similar classification is presented by the OECD (Bergvall et al., 2006). EU grants can be considered a special type of transfers, but with a reasonably high level of discretion attached as well, since they are received by the government and redistributed among municipalities for specific projects. However, in practice, many transfers sometimes can be way more discretionary than expected. Baskaran & Hessami's (2017) study of the German state of Hesse showed that some of the transfers supporting municipal budgets (the ones that fund education, healthcare and other municipal expenses), while being partially dependent on formulas which account for statistical indicators of the municipality, can still be manipulated in a discretionary manner by the central government via tweaking the available amounts, accepting or denying the grant request by the municipality, and other methods. Case (2001) similarly showed that the Albanian program of grants to local municipalities, while being technically guided by local population income, is subject to central government discretion.

Three main goals of having a system of transfers from the central government to municipalities are discussed by Oates (1999). The first goal is to "subsidise" the municipalities to allow for more spending and avoid drastic tax inefficiencies all over the country (the central government would prefer different municipalities to be able to provide a similar level of public services and them not having dramatic differences in tax levels in municipalities). The second goal is to "equalise" the economic conditions in the nation — redirect resources from the richer municipalities to the poorer ones. Oates (1999) notes that while there are economic justifications for it, the main argument is redistributive — such transfers exist mostly to increase equity within the country and promote national unity. The third goal is to internalise benefits created for the inhabitants of other municipalities by providing some local good or service (e.g. if a

large public building is being built in one municipality but will benefit many of them, the government might want to partially fund it with central money collected from taxpayers from different municipalities). Thus, a normative approach to designing the transfer system would allow for the fulfilment of these goals.

When designing a transfer system, there are various criteria to aim for — economic efficiency, flexibility, accountability, ease of administration, as well as equity of the transfer program — but a majority of researchers agree that the most important criteria and design principles are equity and economic efficiency of transfer program (Kitchen, 2006). Achieving an equitable system of transfers means that different municipalities with the same tax revenue but different expenditure requirements are able to provide similar services to its inhabitants. Achieving economic efficiency means that transfers to municipalities should not encourage wasteful spending, and the amount of transfers received cannot be influenced by municipalities tweaking their expenditures (Kitchen, 2006).

2.2. Public choice literature

When discussing public policies, an important distinction needs to be made between a normative approach ("how the system should be designed to achieve desired goals of efficiency and equity") and a positive approach ("how the system is designed as the result of political choices and varying stakeholder goals and actions"— Sato, 2006). While the normative approach to transfers has been discussed in part 2.1, we have not touched upon the positive approach yet. In his influential work, James Buchanan (1999) notes that if an actor is free in his actions, the chances are that he would not stick to the agreed norms that would be perfect for the society. Buchanan (1999) then makes a transition to the conclusion that no system can be free from some people exploiting other people if these people are free to act in their interests, and refers to his analysis where he uses the assumption that every person engaged in politics would pursue his own goals even at the expense of others.

This brings us to the fact that while the normative approach would expect them to act as unbiased agents, in practice, politicians have their own goals and utility functions different from their voters' ones. Being in office opens possibilities for rent extraction. Brollo et al. (2013) discuss political rents within the context of bribes, as well as "ego rents" resulting from being active as an elected politician. Svaleryd &

Vlachos's (2009) paper about rents in non-corrupt democracies highlights other important mechanics of political rent-seeking except bribes, such as public officials being able to channel public resources for their own party benefits, set high wages for themselves, organize public employment in ways that are inefficient and suboptimal but allow private gains for the officials, and others. Given this, politicians can be considered as being incentivised to be elected and re-elected, since it gives them the opportunity for personal gains. Bracco et al. (2015) call politicians "quasi-benevolent", noting that while they still care about voters' welfare, they also are interested in staying in office as long as possible by winning elections and re-elections.

The connection between success in local and central elections has been well-documented. Central government politicians have incentives to support their party members during local elections due to the numerous benefits this can have for their own election chances. If the leader of a municipality belongs to the same party as a central government official, he can be a significant asset during the next parliamentary elections. Borck & Owings (2003) explain that local politicians can use the resources of local party units to support the central election struggle, utilise local media to promote the cause of the party, and ensure that the population of the municipality knows that some public projects are executed with the support of a specific party, as well as provide local insights and information to their fellow party members so they would be able to conduct more efficient election campaigns during parliamentary elections. Brollo & Nannicini (2012) also note that politically aligned municipal politicians can be allies in rent-seeking as well. Thus, bringing allies into power in municipalities is an important task for central politicians.

2.3. Positive approach to transfer allocation

2.3.1. Link between transfers and elections

In part 2.1, we have discussed the normative approach to designing a transfer system, but, as discussed in part 2.2, politicians often act in their own interests and do not stick to the normative approach. It applies to the transfer system as well, because transfer design and allocation in practice are often guided by motivation and criteria different from normative ones. Indeed, the first wave of research about transfers had a predominantly "normative" approach, focusing on efficiency and attempting to optimise welfare redistribution and transfer allocation (Oates, 1968; Dixit, Londregan, 1998).

However, newer papers also started including political motivation into their models, pinpointing the motivations of politicians to use transfer systems for their private goals of rent-seeking, and highlighting the importance of screening and monitoring of politicians due to agency problems that transfers bear (Arulampalam et al., 2009; Bracco et al., 2015). Bracco et al. (2015) develops the idea even further, noting that as long as there is a positive political payoff for the central government when allocating transfers in a certain way, the government will continue channelling resources to specific municipalities even if this is inefficient from an economic point of view.

The reasons why politicians might misallocate transfers are linked to politicians' goals to be elected and re-elected. Politicians have been trying to influence local elections by infusions of money for a long time, with Gordon (1993) arguing that Egyptian pyramids were the first documented instance of "pork-barrelling" (channelling resources towards specific municipalities to achieve some political goals). Employment on pyramid construction sites provided work and, thus, income to the local poor peasants in the direst seasons, and thus prevented them from rebelling against the government. However, even if we omit such extreme examples, pork-barrelling electoral tactics have been flourishing for over a century (Leigh, 2008). One of the most widely used strategies among politicians is using intergovernmental transfers to bring money into the desired municipalities to reach their own political goals by winning voters' sympathies. Bracco et al. (2015) provide a comprehensive overview of the process of how increased transfers "get converted" into votes. First, the aligned municipality receives more transfers. Second, these transfers will be used for boosting spending (even if municipal taxes will be lowered, the net change in tax revenue would be smaller than the increase in transfer revenue). Third, since voters attribute the increased spending (and thus their increased consumption of public goods) to the local municipality, governed by the party aligned with the central government, they are more likely to re-elect this party during local elections.

2.3.2. Partisan alignment as a predictor of increased transfers

There are different theoretical predictions as to which municipalities politicians would choose to allocate more transfers to, in order to achieve their electoral goals. One of the literature strands, represented by influential work by Dixit & Londregan (1998), argues that the central government would funnel more transfers to municipalities that have the largest numbers of "promising" voters, whose votes politicians want to capture

during the upcoming elections. In this setup, the central government would divert most of the transfers to "swing" municipalities — loyal supporters in loyal municipalities will stay loyal anyways, and the voters in "swing" municipalities would see the increased transfers and solidify their propensity to vote for the ruling party. Different prediction is yielded by Cox & McCubbins (1986), who state that the central government would allocate most of the transfers to aligned municipalities (municipalities where the ruling local party is the same, or in the coalition with the ruling central party or coalition) to keep the main bulk of their electorate secured. This idea is further developed by Arulampalam et al. (2009) who argues that aligned municipalities would receive more transfers because voters are not always able to differentiate between sources of funding (whether some specific project is funded by the local government or the central government), so the central government would fund projects in aligned municipalities, thus ensuring that voters would either way attribute the project funding to the ruling party (because both the local and central governments are controlled by the same party).

A number of papers have researched how theoretical predictions align with actual transfer allocation. Some of the scholars have embarked on testing the original model by Dixit and Londregan (1998) and found that politicians indeed tend to favour swing municipalities. For example, Johansson (1993) researched Swedish intergovernmental grants and concluded that municipalities with more swing voters receive more transfers. Arulampalam et al. (2009) also finds that swing states receive more transfers, no matter what the ruling party in the local government is. However, many of the older papers suffer from methodological biases. Brollo et al. (2012) mention that both panel estimators and differences-in-differences regressions (used in the aforementioned papers) are suboptimal and are highly likely to suffer from omitted variable bias. As later noted by Baskaran & Hessami (2017), the regression discontinuity design used by Brollo & Nannicini (2012) in their research on intergovernmental transfers in Brazil was a breakthrough in studying the political effects of such transfers. Since introducing the regression discontinuity method, most of the studies using it show that the alignment between municipal and state governments is the main predictor for increased transfers when considering political factors. Brollo & Nannicini (2012) conclude that if a mayor of a municipality is politically aligned with the President's party or coalition, this municipality is expected to receive >25% more transfers than non-aligned municipalities in specific time periods. Bracco et al. (2015)

identify that Italian municipalities aligned with the central ruling party receive >36% more transfers than non-aligned ones. In their research on the municipalities of the German state of Hesse, Baskaran & Hessami (2017) find that political alignment on its own is not a sufficient predictor for increased transfers; however, political alignment paired with enough population support for the central government prove to be sufficient.

2.3.3. Transfers misallocation

As discussed in part 2.1, transfers should pursue various goals and fulfil the criteria of equity, economic efficiency, and others. However, prioritising political goals while distributing transfers can violate the economic goals of utility maximisation and can result in inefficiencies and wasteful spending (Veiga, Veiga, 2013). Grossman (1994) concluded that transfer allocation cannot be explained only by equity and efficiency, and thus should also be explained by personal goals of politicians allocating the transfers — namely, securing support of the people owning relevant political capital, such as municipal politicians, advocacy groups, and others. Borck & Owings (2003) in their analysis of political determinants for transfer distribution conclude that transfers are not determined only by economic efficiency but also by political goals (for example, the ideology of a municipality's population can influence the amount of transfers they receive), and that transfer allocation does not always maximise welfare.

As discussed in part 2.1, transfers can have a very different nature (discretionary, formulaic, etc.), and thus bear different chances of being misused and allocated inefficiently. The allocation of equalisation and strictly formulaic transfers is harder to manipulate due to them being dependent on specific formulae for estimating the exact amount of the transfer, which are essentially the same for all municipalities, which in turn makes it harder for politicians to meddle with the numbers arbitrarily (Migueis, 2013). Discretionary transfers, on the other hand, are pronouncedly different — since their amount can be increased or decreased by the central government without too many formal criteria being necessarily met, they have been proven to be frequently misused in political struggles (Solé-Ollé & Sorribas-Navarro, 2006; Grossman, 1994). Since the allocation of EU grants is governed by the government too and can be subject to governmental discretion, some findings suggest that the distribution of EU funding among municipalities is not always based only on efficiency and equality, but often also on pursuing political goals such us influencing municipal elections (Veiga, 2012).

2.4. Choice of research design

The regression discontinuity (RD) design has been employed by numerous influential papers which have studied the effects of political alignment and partisan support on the allocation of intergovernmental transfers and other fiscal policy issues. One of the earlier papers to use an RD design to study this issue is Migueis's (2013) study conducted on a sample of Portuguese municipalities, which uses a basic RD model to analyse such an effect within a simplified context of a two-party political system and majoritarian representation in government institutions. Others, like Brollo & Nannicini (2012) and Baskaran & Hessami (2017) employ more advanced RD models to investigate the effect of political alignment and partisan support on municipal transfers and voting outcomes in federal governments with multi-party political systems and proportional representation in governing bodies, such as Brazil and Germany. Moreover, similar methods were also used to estimate the effect of political alignment on other types of public policy in unitary states like Italy, Spain, Norway, and Sweden (Bracco et al., 2015; Curto-Grau et al., 2012; Fiva et al., 2018; and Folke, 2014 respectively).

Ultimately, the form of regression discontinuity design used in such papers and, in particular, papers that analyse the effect of political alignment between central and local governments on intergovernmental transfers varies based on several factors pertaining to the political structure of the country where the study is conducted. Some of these factors include the form of government (i.e., presidential vs. parliamentary), political system (two-party vs. multi-party), electoral system (majoritarian, plurality, or proportional representation), method of seat allocation in government bodies (Sainte-Laguë, Hare–Niemeyer, or other methods), and state structure (unitary vs. federal) of the analysed country. Our methodology follows two papers which analyse these particular effects in states with proportional representation systems and overall political settings comparable to Latvia: the Fiva et al. (2018) paper on alignment effects in Norway – a parliamentary state – and Baskaran & Hessami's (2017) paper on the alignment effect within the German federal state of Hesse, described as quasi-parliamentary by the authors. Due to the structural similarities between these three European states, we choose to employ a similar strategy in our analysis of Latvian municipalities.

3. Institutional background

3.1. Political structure

Latvia is a democratic, unitary parliamentary republic, where the executive branch, led by a Prime Minister, is appointed by and held accountable to a parliament (Saeima) directly elected by Latvian citizens. Latvia has a multi-party political system, whereby its citizens elect the legislature on a national level and the municipal councils on a local level through party-list proportional representation. The Latvian parliament has 100 seats, allocated to different parties and independent candidates through proportional representation with a 5% vote threshold using a modified version of the Sainte-Laguë method (Saeima Election Law 2018, Article 38).

On the local level, each of the 119 Latvian administrative divisions – 110 municipalities and 9 republican cities – is led by a municipal council, which is the highest-level local political institution and has executive power over a variety of local policy areas. Municipal council seats are allocated in a similar manner to the Saeima seats (City Council and Municipality Council Election Law 2013, Article 41), and there can be from 9 to 19 members in a local council, depending on the size of the population in each municipality. The Riga City Council is an exception, with 60 council members (City Council and Municipality Council Election Law 2013, Article 2). The local councils are fronted by a chairman, who is elected through a majority vote of the councillors, thus typically being a member of the leading party or coalition in the municipality.

Elections on both national and local levels are held every four years, with municipal elections typically taking place one year before parliamentary elections. In the ten-year span (2010-2018) analysed in this paper, local elections in Latvian municipalities were held in 2013, and 2017, and parliamentary elections in the Saeima took place in 2010, 2011, 2014, and 2018.

3.2. Party system in Latvia

The Latvian political party system consists of national-level parties, which participate in national and sometimes municipal elections, and local municipal parties, which participate in municipal elections only. While national parties are usually centred around some ideology (e.g. “The New Conservative Party” stands for conservative values), municipal parties such as, for example, “Honor to Serve Riga” are more

focused on municipal issues (konservativie.lv, n.d.; godskalpotrigai.lv, n.d.). Oftentimes, national parties and municipal parties form alliances and participate in municipal elections on the same party lists. Between 2010 and 2018, there were 330 parties or combinations of parties that participated in elections at the municipal level, including both national and local parties (Central Election Commission of Latvia, n.d.). The parties that participate in the Saeima elections usually need to form a parliamentary coalition after the elections to secure an absolute parliamentary majority. For our analysis, we denote municipalities where the parties aligned with the Saeima coalition in a given legislative period have a collective absolute majority as aligned with the government, and not aligned otherwise (Appendix E).

3.3. Transfer system in Latvia

In Latvia, the three main types of transfers present in municipal budgets are: (1) equalisation transfers (or transfers from the Municipal Equalisation Fund); (2) earmarked transfers; (3) the municipality's share of EU grants to Latvia (often earmarked as well). The equalisation transfer amounts are governed by specific formulae, which depend on different variables such as the population size and others. However, the largest amounts of transfers in municipal budgets consist of earmarked and EU transfers (State Treasury of Latvia, n.d.).

Following a review of legislation on Latvian state budgets approved in the past several years, as well as information provided by the OECD (Bergvall et al., 2010) about budgeting in Latvia, we assume that while equalisation transfers are clearly formulaic and hard to manipulate, earmarked transfers can be either discretionary or formulaic. The formulaic transfers are typically calculated based on functions of demographics and indicators of the economic situation in individual municipalities, so there is less discretion for the government while allocating them. A lion's share of these earmarked formulaic grants is related to municipal expenses in the field of education (likumi.lv, 2018; Ministry of Finance, 2018). The remaining earmarked transfers are more discretionary and can be allocated in a way that the government considers the most appropriate. Therefore, we obtain our best estimates for earmarked discretionary transfers by isolating discretionary transfers from formulaic ones in two steps: 1) researching state budget laws to identify the largest formulaic transfers, obtaining this data, and subtracting it from the total earmarked transfers; 2) using municipality-fixed effects in the regression together with control variables to capture the remaining

formulaic transfers for which data is unavailable. By doing this, we hope to achieve a good-enough estimate of the values of discretionary transfers in Latvia.

Transfers from the EU are mostly money received by municipalities that applied for the EU grants from the European Regional Development Fund (ERDF), European Social Fund (ESF), and other funds (esfondi.lv, 2020). Project initiators in a municipality can submit their project to the Central Finance and Contracting Agency (CFLA) – an institution subordinated to the Ministry of Finance (cfla.gov.lv, 2019). CFLA, in its turn, creates the evaluation commission, which is comprised of members of respective governmental institutions that oversee the project's sphere and, if necessary, includes representatives of the respective ministry (likumi.lv). Thus, the EU transfer allocation is primarily guided by the CFLA and respective ministries, which are, in their turn, appointed by the Saeima. Therefore, it is safe to assume that the Saeima has a certain degree of influence over which EU grant applications are forwarded for approval, and thus can control which municipality is more likely to receive transfers from EU funds.

4. Methodology and data

4.1. Preliminary analysis

As part of our preliminary data analysis, we run a simple panel model with time-fixed and municipality-fixed effects to evaluate the correlation between the level of discretionary transfers per capita received by municipality *i* in year *t* with the alignment of the municipality's local government to the central government. We run simple panel regressions for discretionary transfers and EU transfers separately, using the following specification:

$$lT_{it} = \beta_0 + \beta_1 D_{it} + \alpha_i + \gamma_t + Z_{it} + \varepsilon_{it}, \quad (1)$$

where the variables are defined as follows:

- lT_{it} is the natural logarithm of the amount of discretionary/EU transfers per capita received by municipality *i* in year *t*;
- D_{it} is a dummy variable which denotes the alignment of the municipality *i* with the central government in year *t*; $D_{it} = 1$ if the ruling parliamentary coalition has a majority in municipality *i* in year *t*, meaning the municipality and central

government are aligned, and $D_{it} = 0$ otherwise;

- α_i denotes the municipality-fixed effects for the sample in year *t*;
- γ_t denotes the time-fixed effects for the sample in year *t*;
- Z_{it} is a vector of control factors;
- ε_{it} is a random error term.

While the panel regression can provide us with a general idea of whether there exists a correlation between the amount of transfers received by municipalities and their alignment to the central government, this model is not suitable for estimating the treatment effects of the binary alignment variable. The main issue with running a simple panel model for a treatment effect analysis is that this method of comparing the amount of transfers received by municipalities aligned with the central government to that received by non-aligned municipalities does not allow to precisely identify the effect of political alignment and isolate it from the effects of local partisan support or other, potentially unobserved factors (Baskaran & Hessami, 2017). There might exist hidden factors that can simultaneously influence both the political preferences of local voters and the amount of transfers received by a given municipality, thus introducing a certain level of omitted variable bias. In the next sub-sections, we describe in more detail why a regression discontinuity design is a more suitable method for analysing the causal effect of political alignment on the amount of transfers received by municipalities.

4.2. Regression discontinuity design

In order to isolate the effects of political alignment on the amount of government transfers received by Latvian municipalities, we will use a regression discontinuity design (RDD). As demonstrated in the work of Baskaran & Hessami (2017), Folke (2014), and other empirical studies referenced in this paper, this quasi-experimental research design makes it possible to isolate the effects of political alignment between municipal councils and the central government from other factors, both observed and unobserved, which might influence the level of transfers received by municipalities.

Taking into account the political structure of Latvia, we base our methodology primarily on two papers: Baskaran & Hessami's (2017) paper about the impact of political alignment and partisan support on intergovernmental transfers to German municipalities, due to its analogous scope of research and the close similarity between

the German and Latvian political and electoral systems – as well as Folke's (2014) paper on party alignment effects in proportional election systems, which was the first to develop an RD method for analysing such issues in multi-party parliamentary systems with proportional representation. Additionally, we follow Imbens & Lemieux's (2008) paper on regression discontinuity designs as a guideline for best practices and robustness checks for implementing RDD in our paper.

According to Imbens & Lemieux (2008), the regression discontinuity design is used in studies where the causal effect of a binary treatment variable is the main research interest. Observations in an analysed sample can be either exposed or not exposed to a treatment, based on the value of the treatment variable $Xi \in \{0,1\}$. If Yi(X) is a function which determines the outcome for observations in an analysed sample, then Yi(1) denotes the outcome where the observation is exposed to a treatment, and Yi(0) – where the observation is untreated. The difference between Yi(1) and Yi(0) represents the causal effect of the binary treatment variable. As these two distinct outcomes can never be observed together, the RD method analyses the average effects of the treatment instead of unit-level effects. Aside from the treatment variable Xi and the outcome/dependent variable Yi, the basic RD specification includes a running variable and a vector of covariates, which can be denoted as Fi and Vi respectively.

The fundamental logic behind the RD design is that the value of the binary treatment variable (either 1 or 0, true or false, treated or untreated) is determined by the value of a predictor – the running variable Fi – being on either side of a predetermined fixed threshold. The running variable may itself be correlated with the potential outcomes, but the relationship is typically assumed to be smooth, and so any discontinuity of the outcome function occurring close enough to the threshold can be interpreted as proof of the treatment's causal effect (Imbens & Lemieux, 2008; Baskaran & Hessami, 2017).

Lastly, the regression may include a vector of covariates Vi, which usually consists of time-fixed and/or entity-fixed effects, as well as other control variables. Therefore, a simple RD specification function can be defined in the following manner:

$$Y_{it} = \beta_1 X_{it} + \beta_2 F_{it} + \beta_3 X_{it} * F_{it} + V_{it} + \gamma_t + \varepsilon_{it} \quad (2)$$

To illustrate the RD mechanism, we can imagine a simplified example with only two parties to be elected into government – the Red party and the Blue party – where

the party which gains more than 50% of the votes wins the election and thus has an absolute majority in the government. In this case, the binary treatment variable denotes whether the Red party has won a majority and it is assigned the value of 1 if the share of votes gained by the party (i.e., the running variable) is higher than the threshold of 50% of the total votes, and 0 otherwise (i.e., a "Blue" majority). Suppose we want to analyse the effect that government alignment (Red or Blue) has on public spending and that in some years, the Red party had gained 49.99% of the votes, while in other years, it has gained 50.01% of the votes. Both results are very close to the 50% threshold, and the 0.02% difference in votes gained by the Red party may not reflect a significant change in voter preferences; however, it could have a significant impact on the adopted public spending policy. If we find that in the years when the Red party has barely lost the election the government spent significantly more than in the years it has barely won, we can infer that the "colour" of the government has a pronounced causal effect on public spending levels. This way, the RD model allows us to isolate the causal effect of this binary variable.

4.3. RD Specification

As the initial specification in this paper we employ the following parametric RD design, which is an augmented form of the simple RD specification described above, in line with the one proposed by Baskaran & Hessami (2017):

$$lT_{it} = \beta_1 A_{it} + f(c_{it}) + A_{it} * f(c_{it}) + Z_{it} + \alpha_i + \gamma_t + \varepsilon_{it}, \quad (3)$$

where the variables are defined as follows:

- lT_{it} is the logarithm of the amount of earmarked/EU transfers per capita received by municipality *i* in year *t*, and is the outcome or dependent variable in our regression discontinuity model;
- A_{it} is the treatment (dummy) variable which denotes the alignment of the municipality *i* with the central government in year *t*; $A_{it} = 1$ if the ruling parliamentary coalition has a majority in municipality *i* in year *t*, meaning the municipality and central government are aligned, and $A_{it} = 0$ otherwise;
- c_{it} is the running variable, which denotes an index of how close the previous local elections have been in municipality *i*. This perturbation index is calculated based on the minimum number of votes that needs to be reallocated among local

council parties to shift the seat majority from aligned to non-aligned parties (or vice-versa) in the current year *t* (see section 4.6 for a more detailed description of the running variable);

- the function $f(c_{it})$ is a flexible polynomial (up to fourth order) of the running variable c_{it}; using a higher-order polynomial creates a smooth function, such that if a discontinuity occurs when the seat distribution between aligned and non-aligned parties changes, it must reflect the effect of political alignment on transfers, as the slight change in vote distribution does not reflect a significant change in partisan support;
- Z_{it} is a vector of control factors, including municipal expenditures per capita, municipal tax income per capita, and others;
- α_i denotes the municipality-fixed effects for the sample in year *t*;
- γ_t denotes the time-fixed effects for the sample in year *t*;
- ε_{it} is a random error term.

Although the logic behind the RD design is quite straightforward, Folke (2014) highlights a complex methodological challenge that arises when using such designs in electoral systems with proportional representation and develops a reliable method to overcome this challenge. The main issue with proportional representation is that, under this system, the number of seats a party receives in the council or parliament depends not only on its own vote share, but also on its competitors' vote shares. This means that there is no universal threshold (such as a 50% threshold for an absolute majority, for instance) that can be used to define the binary treatment variable (e.g., having a majority of seats in a council), as the threshold varies depending on the distribution of votes among all parties in the council[2]. This, in turn, makes it problematic to use vote shares or seat shares as running variables, because depending on the vote distribution among its competitor parties, one party might get a different number of seats even if its share of

[2] This is beautifully illustrated by Folke (2014, p. 8-9) using a simplified three-party system. He uses vectors to describe the allocation of seats in a council (e.g. V_p=(1,0,2) means that Party 1 got 1 vote, Party 2 got 0 votes, and Party 3 got 2 votes), and then changes the distribution of an increasingly larger share of votes (e.g. starting from 0.05% of total votes and increasing it in 0.05% increments), until the share of redistributed votes is high enough to cause a shift in seat distribution (e.g. now V_p^1=(2,0,1) as a result of vote redistribution). This number is then recorded as the value of the forcing variable for this particular council. For a more comprehensive explanation, see Folke (2014).

votes remains constant (Folke 2014). Thus, Folke adapts the RD design to fit proportional representation settings by calculating the "minimal distance to seat change" (let it be denoted Sm), or the minimal share of total votes that needs to be redistributed among all parties in order for a shift in seat majority allocation to occur, and then using this number (Sm) as the running variable in the RD model (Folke, 2014).

Baskaran & Hessami (2017) and Fiva et al. (2018) employ a similar strategy based on Folke's approach and use RD designs to estimate the effects of political representation and alignment on public policy in parliamentary settings. They do so by checking whether a slight change in the distribution of votes received by the different parties in the election can shift the alignment of a municipality. The slight difference in vote distribution is not enough to infer significant changes in voter preferences (i.e., if a party's vote share changes from 13.8% to 14%, it does not reflect a significant change in the level of support it has from local voters), but can lead to significant changes in the outcome (i.e., receiving one more seat that can lead to winning a majority, and thus lead to the municipality receiving more transfers), which can then be interpreted as the causal effect of the treatment variable denoting political alignment (Baskaran & Hessami, 2017; Fiva et al., 2018).

4.4. Description of the data

Our dataset represents a compilation of publicly available data from several secondary sources, comprising all 119 Latvian administrative divisions and spanning the period between 2010 and 2018. Thereby, the dataset consists of 1,071 observations (119 municipalities x 9 years). We choose 2010 as the start year for our analysis due to the significant change in the territorial structure of Latvia, which occurred in the previous year as a result of the administrative and territorial reform enacted by the government. Prior to 2009, Latvia was split into 553 administrative divisions, which were then merged into the 110 municipalities and 9 metropolitan areas it has today. Due to the mismatch in the number and structure of administrative divisions, we choose to only analyse the period following the 2009 reform.

The primary source for election results data is the Central Election Commission (CEC) of Latvia, which manages Saeima and local elections, compiles and publishes election results. During the analysed sample period there have been 3 municipal and 4 parliamentary elections in Latvia, the results of which are provided on the CEC's

website, including the number of votes and percentage share of votes received by each party, as well as the number of seats allocated in the municipal council or Saeima, depending on the type of the election (Central Election Commission of Latvia, n.d.).

The main data source for the amounts of state transfers received each year by municipalities is the State Treasury of Latvia – an autonomous entity subordinated to the Ministry of Finance which oversees the financial accounting and implementation of government budgets and publishes monthly and annual public finance management reports (State Treasury of Latvia, n.d.). In particular, we compile our dataset using figures from the annual general budget consolidation reports provided by each municipality, which break down the transfers received from the central government into four main categories: (1) earmarked government budget transfers; (2) transfers to projects financed by the EU and other foreign assistance; (3) grants received from the Municipal Finance Equalisation Fund; (4) other transfers from the central government. Moreover, we gather the data on the main category of earmarked formulaic transfers – transfers for education purposes – from state budget legislation documents (Likumi.lv, n.a.) and subtract it from the total amount of earmarked transfers to obtain our estimate for earmarked discretionary transfers. As an alternative definition of discretionary transfers, we sum up the aforementioned result with the category of "other transfers," as they do not have any specific purpose and are likely discretionary in nature.

We obtain demographic and economic data for control variables such as municipal expenditures per capita, tax income per capita, and others from the public database of the Regional development indicators module (RAIM.gov.lv, n.a.) – an information system which compiles data on Latvian regions and municipalities from sources including the Central Statistical Bureau of Latvia, the State Treasury, and other trusted governmental sources. This data is reported on a yearly basis, as is most data used in the analysis, except for election results.

4.4.1. Data adjustments

We make an initial adjustment to the original dataset containing 1,071 observations by removing the observations where only parties aligned with the coalition or only those not aligned participated in the last local elections. We perform this adjustment because, in such instances, we cannot run the algorithm which re-allocates votes to parties from the opposing bloc in any given election simulation as they did not participate in the elections in the first place.

Additionally, we make a second adjustment to the dataset by removing observations for which we believe the data to be inaccurate. For instance, when calculating our estimate for discretionary earmarked transfers by subtracting transfers for educational purposes from total earmarked transfers received by municipalities, we obtain negative results for some observations, which normally should not happen, as the transfers for education are a subcategory of earmarked transfers and, therefore, should be entirely contained within that category. Because this data is collected from different sources, we assume that there have been inconsistencies in data reporting in the specific observations where we obtain negative results. Thus, we remove the municipalities and years for which the data is inconsistent, namely the year 2010 and the municipalities of Jelgava, Mērsrags, and Skrunda.

4.5. The running variable

The running variable in our regression discontinuity model is an index which indicates how close the previous municipal elections have been in any given municipality. It is calculated as the minimum share of votes that needs to be re-allocated randomly between parties for which the local government majority shifts from one party bloc to another. In order to obtain the values for this index, we run iterative simulations where we randomly re-allocate an increasing number of votes *x* among parties of different party blocs until we reach an *x* that shifts the outcome of the election. We start with a small-enough number *x* and run 100 simulations where we randomly take away *x* votes from one party bloc and distribute them randomly among the opposing party bloc. Then, we convert the newly redistributed votes into seats using the seat allocation procedure described in Latvian electoral law (*City Council and Municipality Council Election Law 2013,* Article 41) and compare the total number of votes each party bloc has after the seat allocation procedure. If the local council majority shifts from one party bloc to the other in at least 50% of the simulations, we record the index as *x* divided by the total number of votes cast in the municipality. Otherwise, we gradually increase *x* by a constant step and repeat the simulation procedure again and again until we reach the minimum required value of *x*.

The simulation procedure used in this paper is similar to the ones used by Folke (2014) and Baskaran & Hessami (2017), with adjustments that account for the different seat allocation method and other characteristics of the Latvian electoral system. To make this possible, we have developed an algorithm which randomly generates the

values of the running variable according to the procedure described above for each of the 119 municipalities for the years 2010-2018. The output of the algorithm is a variable which takes on positive values for the municipalities where the ruling central coalition initially had a majority, and negative in those municipalities where it had a minority. This ensures that all the treated observations have strictly positive values, while all untreated values have negative values, thus ensuring a sharp RD design where the threshold or cut-off point is equal to zero.

5. Analysis of results

5.1. Descriptive statistics

For our analysis, we have gathered data for 119 Latvian municipalities for the time period 2010-2018. Over the analysed time period, the total amount of transfers to municipalities has been fluctuating around 5.5-6 million euro annually, but it has noticeably increased in the last 2 years, jumping to over 7.5 million euro in 2018. This trend is mirrored, albeit with some discrepancies, in total transfers per capita. While formulaic and equalisation transfers are important and major components of total transfers, our research is mostly concerned with discretionary and EU transfers. Annual mean discretionary transfers for Latvian municipalities have increased by more than 50% over the last 8 years (from 1.61 million euro in 2010 to 2.53 million euro in 2018), with transfers per capita increasing even threefold, from 57 euro per capita to 154 euro per capita. The EU transfers, on the contrary, have declined over time, dropping from 2.26 million euro in 2010 to 1.83 million euro in 2018 (~20% decrease) and per capita values decreased from 143 to 125 euro per capita (~12% decrease). However, the pattern for EU transfer allocation is less smooth and values for EU transfers vary greatly over the years (Appendix A).

Both discretionary and EU transfers constitute a big share of total transfers. Over the last 9 years, the average total transfers for municipalities were 439 euro per capita. During this time span, mean EU transfers were 81 euro per capita (18.5% of total transfers) and mean discretionary transfers were 113 euro per capita (25.7% of total transfers). Together, discretionary and EU transfers on average constitute 44% of total transfers, which highlights the importance for their correct and efficient allocation to municipalities.

5.2. Regression results

For each type of transfer – EU, discretionary earmarked, and discretionary earmarked including others – we perform and report the results of the following regressions: (I) linear panel data regression with time-fixed and municipality-fixed effects; (II) RD model with time-fixed and municipality-fixed effects; (III) RD model with time-fixed and municipality-fixed effects, and control for municipal expenditures per capita and municipal tax income per capita; (IV) RD model with time-fixed and municipality-fixed effects, and control for municipal per capita income from property tax and corporate income tax. We use the post-adjustment dataset for our main analysis, but results for other sub-samples are provided in Appendix C and D. The STATA package *rdrobust* used in these regressions does not report coefficients for control variables, and thus they will not be included in our analysis of results.

Table 1. *Effect of political alignment of municipalities on EU transfers per capita*

EU transfers per capita	(I)	(II)	(III)	(IV)
Annual values	1.0024	1.3977	0.9618	1.1336
	(2.79)***	(3.35)***	(2.09)**	(2.71)***
N	666	666	666	666
In-between-elections averages	0.9973	2.8942	2.6505	2.643
	(5.32)***	(13.74)***	(70.02)***	(69.4)***
N	667	667	667	667

Notes. (a) T-statistics appear in parentheses below coefficients and stars indicate significance levels at 10%(*), 5%(**), and 1%(***). (b) RD regressions performed in Stata using the rdrobust package with optimal parameters according to Calonico et al. (2014).

The results for the effect of political alignment of a municipality on the amount of EU transfers per capita received from the central government are robust, positive, and statistically significant (Table 1). In most specifications it is significant at a 99% confidence level, with only a few cases where significance is lower or not present. Thus, we believe that there is substantial evidence to conclude that the political alignment of a municipality is indeed a predictor of increased EU transfers per capita, and the regression discontinuity model suggests that political alignment has a significant causal (treatment) effect on the amount of EU transfers received by a municipality. The RD plot (Figure 1) clearly shows a discontinuity or “jump” around the cut-off point for any

order of polynomial fit of the model (up to fourth order), which shows the political alignment factor has a causal treatment effect on the EU transfer allocation.

The coefficients for the alignment variable vary depending on the specification and the sample, with them ranging from 96.18% to 289.42% higher EU transfers for the aligned municipalities compared to non-aligned municipalities. This seems to be a fairly large discrepancy both in relative and absolute terms: mean EU transfers to municipalities over the researched period are 81 euro per capita, which means aligned municipalities are expected to receive an additional 78 to 234 euros per capita in EU transfers compared to municipalities not aligned with the central government. These results, which are comparatively higher than in the EU countries studied by other similar papers, open up the possibility for further research on which institutional specifics of Latvia might lead to such results. We believe the higher end of the range to be more indicative of the alignment effect because these are the results produced after we have removed inconsistencies and made adjustments to improve the quality of the dataset.

The results for the discretionary transfers are less conclusive. The panel data regression results are not significant, and we cannot state that the majority of regression discontinuity specifications provide significant and robust results (Tables 2 & 3). Moreover, the regressions on one of the data samples (adjusted for non-participating coalition or opposition parties) unexpectedly result in significant negative coefficients.

Table 2. *Effect of political alignment of municipalities on discretionary earmarked transfers per capita*

Discretionary earmarked transfers per capita	(I)	(II)	(III)	(IV)
Annual values	-0.1045	0.1777	0.0795	0.2289
	(-1.51)	(3.05)***	(1.3)	(3.79)***
N	667	667	667	667
In-between-elections averages	-0.1010	0.1161	0.3316	0.0706
	(-2.37)**	(3.27)***	(2.72)***	(7.64)***
N	667	667	667	667

Notes. (a) T-statistics appear in parentheses below coefficients and stars indicate significance levels at 10%(*), 5%(**), and 1%(***). (b) RD regressions performed in Stata using the rdrobust package with optimal parameters according to Calonico et al. (2014).

Table 3. *Effect of political alignment of municipalities on discretionary earmarked and other transfers per capita*

Discretionary earmarked and other transfers per capita	(I)	(II)	(III)	(IV)
Annual values	-0.0301	0. 1837	-0.0731	0.0757
	(-0.41)	(2.75)***	(-0.99)	(1.16)
N	667	667	667	667
In-between-elections averages	-0.0196	0.1431	0.2612	0.0971
	(0.45)	(26.84)***	(2.79)***	(6.43)***
N	667	667	667	667

Notes. (a) T-statistics appear in parentheses below coefficients and stars indicate significance levels at 10%(*), 5%(**), and 1%(***). (b) RD regressions performed in Stata using the rdrobust package with optimal parameters according to Calonico et al. (2014).

Given this, we conclude that results for discretionary transfers cannot be considered robust, because the significance and even coefficient signs change if we change the specifications, covariate sets, or adjust the dataset. However, we believe that there still is preliminary evidence of political alignment influencing the amount of discretionary transfers received by municipalities. Even though the results are not robust, after we apply the adjustments to the dataset that we consider necessary for improving the quality of the data, the results become significant for the in-between-elections discretionary transfer averages and some specifications that use annual transfer values. The plot also shows a discontinuity around the cut-off point (Figure 2).

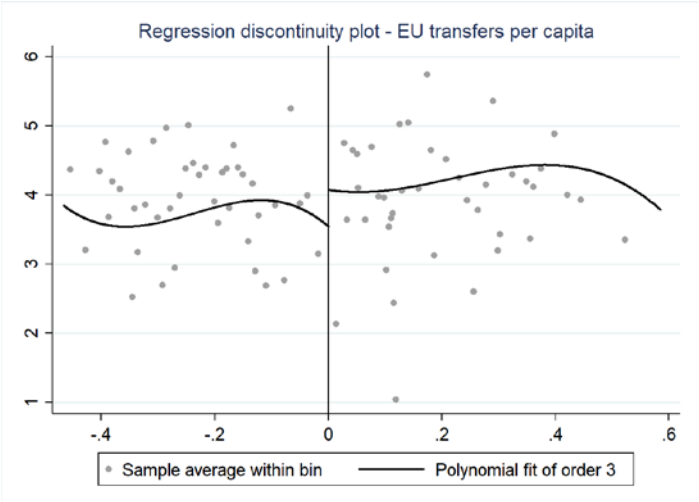

Figure 1. Regression discontinuity plot for EU transfers per capita, using a polynomial fit of order 3 and optimal parameters according to Calonico et al. (2014). Graph created by the authors using the rdplot package in Stata.

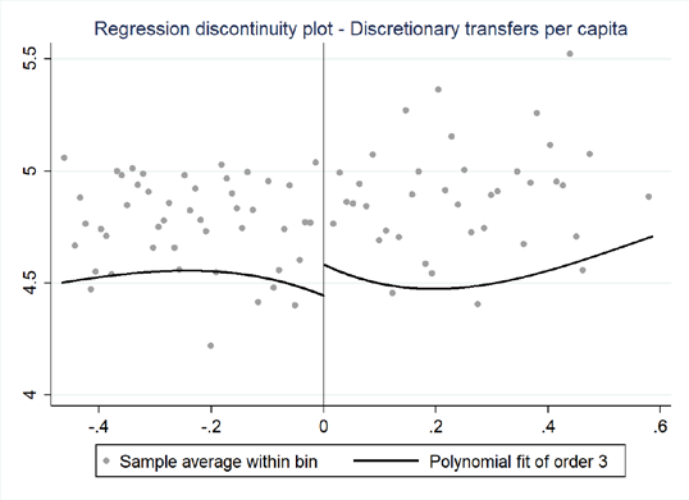

Figure 2.Regression discontinuity plot for discretionary transfers per capita, using a polynomial fit of order 3 and optimal parameters according to Calonico et al. (2014). Graph created by the authors using the rdplot package in Stata.

5.3. Robustness of results

To make sure that our results are robust and valid, we have run multiple regressions using different specifications: simple panel data regressions with time-fixed and municipality-fixed effects, regression discontinuity models with the same fixed effects, and RD models fixed effects and two different sets of covariates. We run all these models on slightly different samples of our dataset, namely before and after making the two adjustments described in section 4.4.1. Thus, we use three data samples: the original data before any adjustments, the data after the first adjustment for non-participating parties, and the final dataset after all adjustments have been made. Moreover, we perform our analysis using two different definitions of discretionary transfers — transfers only labelled as “earmarked”, and transfers labelled as “earmarked” together with those labelled as “others”. In addition, we run the model twice for each of these cases — once for annual transfer values, and once for in-between-elections averages. We take in-between-elections averages to account for the fact that the magnitude of both EU and discretionary transfers varies greatly in some consecutive years. Using the mean values for each legislative period allows us to smooth out the sharp differences in values between consecutive years.

5.3.1. Control for pre-treatment variables

One way to test the validity of a regression discontinuity design proposed by Baskaran & Hessami (2017) is to check whether any covariates which are exogenous and un-affected by the treatment variable affect the results of the regressions in the

analysis. In order to check for any existing pre-treatment variable effects, we perform regressions in which we adjust the baseline models to include several pre-treatment municipal characteristics as covariates, namely total municipal expenditures per capita, municipal tax income per capita, municipal income per capita from property tax and corporate tax. In this sense, we need to ensure that the values of the pre-treatment covariates used in the regressions are un-affected by the current alignment status and are thus pre-determined before each election. To achieve this, we use a similar method as the one proposed by Baskaran & Hessami (2017), where we use the average values from the previous legislative period as the values for the pre-treatment variables.

The results of this test (Table 4) are robust for EU transfers, delivering positive and significant coefficients consistent with baseline results, which indicates that the baseline results of the regressions for EU transfers are not effected by hidden pre-treatment characteristics. For discretionary transfers, however, the results are inconsistent, which suggests that the baseline regression estimates for discretionary transfers may in fact be driven by some pre-treatment effects.

Table 4. *Control for pre-treatment variable effects for EU transfers, discretionary earmarked transfers, and discretionary earmarked & other transfers per capita*

Transfers	(V.a)	(V.b)	(VI.a)	(VI.b)
EU transfers	2.1385	2.2004	1.1489	2.6318
	(5.8)***	(10.17)***	(2.35)**	(16.04)***
N	666	667	666	667
Discretionary earmarked transfers	-0.7629	-0.8887	0.1468	-0.3916
	(-10.8)***	(-5.8)***	(2.49)**	(-1.28)
N	667	667	667	667
Discretionary earmarked & other transfers	0.0477	0.2784	0.0639	0.1922
	(0.68)	(4.07)***	(0.92)	(0.86)
N	667	667	667	667

Notes. (a) T-statistics appear in parentheses below coefficients and stars indicate significance levels at 10%(*), 5%(**), and 1%(***). (b) Tested pre-treatment covariates – (V) average municipal expenditures per capita & municipal tax income per capita in the previous legislative period; (VI) average municipal income per capita from property tax and corporate tax in the previous legislative period – using a) annual values and b) in-between-elections averages of transfers. (c) RD regressions performed in Stata using the rdrobust package with optimal parameters according to Calonico et al. (2014).

5.3.2. Discontinuity in the density of the running variable

Another important test for a valid RD model is to test for any potential manipulation of the running variable around the cut-off point. If a discontinuity of the density of the running variable at the threshold can be found, it would suggest that there are unobserved characteristics that allow agents to manipulate both close election results, as well as transfer allocation. For instance, a positive discontinuity of the running variable at the cut-off point might indicate that the coalition of parties leading the central government might be able to manipulate election results in its favour. Given that Lavian municipalities use complex procedures to allocate council seats based on the vote shares of all participating parties, and assuming that municipal elections in Latvia adhere by all democratic and transparency standards, we might infer that the manipulation of seat allocation is highly unlikely. However, upon performing a manipulation testing procedure using local polynomial density estimators (Figure 2), as proposed by Calonico et al. (2014) and McCrary (2008), we do find a minor discontinuity in the density of the running variable at the threshold, which might suggest possible manipulation of election results and thus could potentially cast some doubt on the validity of our results. Nonetheless, Imbens & Lemieux (2008) suggest that such discontinuities do not constitute sufficient evidence that the RD model is invalid.

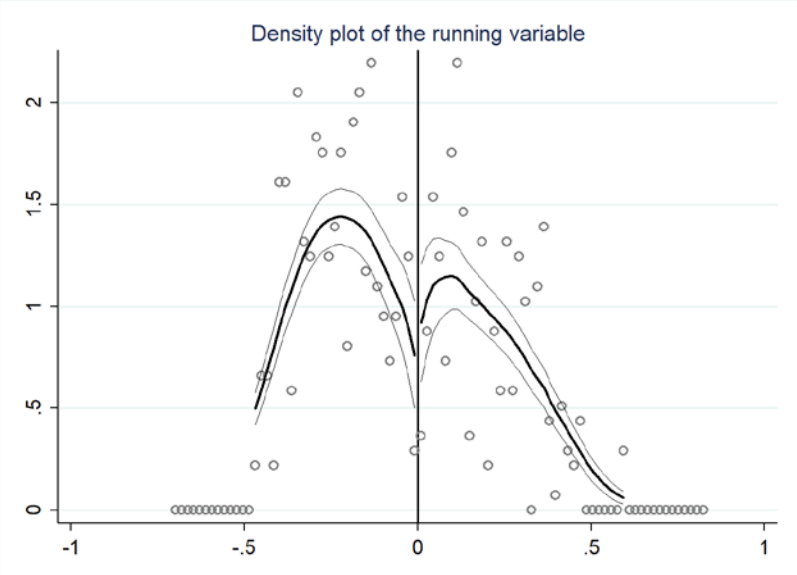

Figure 3.Density plot of the running variable, showing a minor discontinuity at the threshold. Graph created by the authors in Stata using McCrary's (2008) DCdensity package.

6. Discussion

Our findings are in line with our expectations about political alignment being associated with increased transfers to municipalities. This corresponds well to the empirical evidence observed in other countries, such as Portugal (Veiga, 2012), Germany (Baskaran & Hessami, 2017), Brazil (Brollo & Nannicini, 2013) and others. The coefficients for the discretionary transfers (7.95% to 33.16% more discretionary transfers per capita for aligned municipalities) are similar to those of Brollo & Nannicini (2012), who found that aligned municipalities receive ~25% more transfers, and Bracco et al. (2015), who found an ~36% increase in transfers for the aligned municipalities. However, the values for the EU transfers are unusually high — our results showed that aligned municipalities receive from 96.18% to 289.42% more EU transfers than non-aligned municipalities. While these values are quite high, they can be explained by smaller absolute values of EU transfers which imply higher percentage change.

The fact that politically aligned municipalities tend to receive larger transfers (and this abnormal increase is solely determined on whether the municipality is politically aligned or not, a finding we identified by using the regression discontinuity design for the analysis) can be potentially interpreted as an indicator of corruption and agency problems. For instance, as noted by researchers quoted in this paper, larger transfers to politically aligned municipalities often are not a coincidence, but a deliberate attempt by the central government to influence future elections by supporting their own “power base” via channelling more resources into respective municipalities (Dixit & Londregan, 1998; Sole-Olle & Sorribas-Navarro, 2006). This is because central government politicians want to bring their fellow party members into power in municipalities, since local municipalities can support the central election struggle via a number of ways (Borck & Owings, 2003). This is an undesirable situation, because having transfers allocated based on the personal goals of politicians often does not fulfil the crucial criteria of a successful transfer system as per Kitchen (2006) — economic efficiency. Allocating excess money to municipalities in this way can be considered “pork barrelling” and can encourage wasteful spending — municipalities might engage in projects that are too expensive or not provide enough value for their costs, and then get “bailed out” by transfers. As Sato (2006) notes, it is not the personal goals of politicians that are the problem per se, but the resulting lack of fiscal discipline in

municipalities and increased wasteful spending. Such practices might indeed be present in Latvia: the Latvian State Audit Office has oftentimes noted that municipalities tend to spend money in questionable ways (State Audit Office, 2018). Another repeating pattern which might signal about wasteful spending is engaging in ambitious infrastructure projects that are costly for the municipal budgets and seem to have questionable use, such as, for example, building a stadium costing 850 thousand euros in a municipality with a population of less than 3000 people (lsm.lv, 2019).

The Latvian transfer allocation system indeed provides opportunities for misallocation of transfers. A big part of all transfers received by municipalities are earmarked and non-formulaic, which means that their allocation strongly depends on governmental discretion (State Treasury of Latvia, n.d.). Since the Latvian parliament holds the key role in the approval of the ministers (who later draft the budget laws) and the approval of annual budget laws, the composition of the parliament is one of the most crucial factors influencing budgeting decisions — including the allocation of earmarked transfers (likumi.lv, 1994). Thus, the ruling coalition has an influence over the budgeting process and can thereby influence discretionary transfer allocation. The process of EU transfer allocation to municipalities follows a different route but allows for misallocation as well. Municipal applications for EU grants are evaluated by respective ministries and a specially designated institution within the Ministry of Finance; and while there are formal guidelines for evaluation, a degree of evaluator's discretion is still present. Thus, the ruling coalition in the parliament has indirect control over the EU transfer allocation by approving the ministers, who are the "gatekeepers" for EU transfers.

We believe that the implications of our findings are important for the Latvian society. First, our findings might be of use to policymakers when discussing budgeting and state audit mechanisms. If indeed in the last 8 years politicians have been systematically reducing the welfare of Latvian citizens by engaging in transfer misallocation, then policymakers should consider paying attention to it by attempting to enforce stricter control over the process of transfer allocation. Second, we believe that our findings might be discussed as one of the factors that might shape the upcoming Latvian municipal reform. The reform would reduce the number of municipalities from 119 to 36, and it might influence the political landscape in Latvian municipalities (lsm.lv, 2019). The new municipal entities will consist of merged municipalities that

could have had previously different political alignment (i.e. some municipalities were aligned with the ruling coalition at the time and some were not), but the resulting entity will eventually become aligned or non-aligned as a whole. If the pattern of granting more transfers to aligned municipalities would persist, some regions would start getting more transfers than before, and some would see a reduction in funds available. This might influence local development and is a factor that should be considered.

Another implication is related to the EU institutions and their efficiency. While the transfer system was initially designed to have transfers granted objectively and in a welfare-maximizing way, the fact that EU transfers might be systematically misallocated reduces the efficiency of the ERDF, ESF, and other European cohesion initiatives. This is in line with other research conducted on the effects of ERDF fund inflows in Latvia. For instance, a study by Benkovskis, Tkacevs & Yashiro (2019) showed that access to ERDF funds often do not lead to impressive growth in productivity and exports for Latvian firms, contrary to what one might expect. We believe that this paper might encourage other researchers to conduct similar studies and assess whether misallocation of EU transfers occurs in other EU member states as well. If this is phenomenon not only confined to Latvia, then it might raise questions about the ideal model for the governance of such cohesion programs. If the transfer allocation is left to local politicians who tweak and influence it to achieve their personal goals at the expense of their citizens' welfare, then EU policymakers might consider reducing the frequency of such malpractices, for instance by establishing more efficient governance mechanisms.

We believe that these findings are important and novel. This research has found evidence for the misallocation of transfers in Latvia, which has not been done before in this country. Moreover, to the best of our knowledge, the misallocation of EU transfers to municipalities was studied only in one other paper and using methods less optimal than discontinuity design, so we hope that this research might shed some light on important factors that play a role in the allocation of EU transfers. Conceptually, our research takes a public choice approach and studies the political factors behind transfer allocation, similar to Dixit and Londregan (1998) and other papers. However, we take a less theoretical and more empirical approach, more resembling studies done by Bracco et al. (2015), Baskaran & Hessami (2017), and others. We believe that it contributes to a

nascent but promising international body of research that applies regression discontinuity designs for estimating alignment effects on transfers to local governments.

6.1. Limitations & suggestions for further research

One of the limitations of our study is the impossibility to perfectly account for formulaic earmarked transfers and to perfectly isolate discretionary transfers from other categories of transfers, because there is no publicly available data on the discretionary transfers received by Latvian municipalities. While we obtain what we believe to be close-enough estimates by accounting for formulaic transfers using available data and municipality-fixed effects, we believe this aspect of our paper could benefit from further research and suggest obtaining more precise data from the Ministry of Finance or other authorities in order to better separate different categories of transfers.

Another limitation is the potential unreliability of some transfer data from the different sources used in our paper – in some years and municipalities, we have discovered inconsistencies in the data, where the total earmarked transfer values reported by the State Treasury were lower than the values of earmarked transfers for education purposes, which is only a subcategory of total earmarked transfers. We account for this by removing the years and municipalities for which we have discovered inconsistencies. However, if possible, we suggest that future research use data from only one reliable source to avoid potential issues with matching data and inconsistent reporting.

One other area that would benefit from more precision is our definition of coalition and opposition. In some cases, municipalities are governed by unstable coalitions that can also include regional and sometimes even opposition parties. In a more detailed study one might research each municipality's political structure more in depth (e.g. which parties were represented in the municipal coalition, which local parties can be considered unofficially aligned with the ruling parliamentary coalition, etc.). However, conducting such a detailed analysis of each municipality's political setting was out of the scope of our research, given the time and capability limitations for the Bachelor Thesis.

Lastly, while the results of our analysis of the effect of political alignment on EU transfers are fairly robust, the results for discretionary transfers are less reliable, and thus further research is needed to analyse the existence and magnitude of this effect in

Latvian municipalities. Furthermore, since our paper is one of the first to research the effect of political alignment on EU transfers received by the municipalities of an EU member state, we believe further research should explore the existence and magnitude of this effect in other EU member states in order to extend and further test the results of this paper.

7. Conclusion

Latvia has a transparent political system and is a member of the EU, which makes it a good candidate for researching how politics influence discretionary and EU transfer allocation to municipalities. The goal of our paper was to investigate whether the political alignment of Latvian municipalities affects the amount of EU and discretionary transfers received by municipalities. To investigate potential transfer misallocation, we have run several regression models on various datasets and answered our research questions: the political alignment of a municipal government with the ruling parliamentary coalition increases the amount of EU transfers received by the municipality and might increase the amount of discretionary earmarked transfers received as well. We believe that these are important findings, because transfer misallocation influences regional development in a negative way, corrupts local politics, and reduces the efficiency of intra-national and EU transfer programs. We hope that this research can benefit Latvian society by becoming a starting point for the public discussion of efficiency of transfer allocation in Latvia and can be used for policymaking aimed at reducing transfer misallocation and wasteful spending. We also hope that our paper might be of use for the European policymakers who might consider implementing more efficient governance and oversight mechanisms over the ways that politicians allocate transfers from the ERDF, ESF, and other cohesion-promoting funds.

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9. Appendices

Appendix A. Means of transfers to municipalities over time.

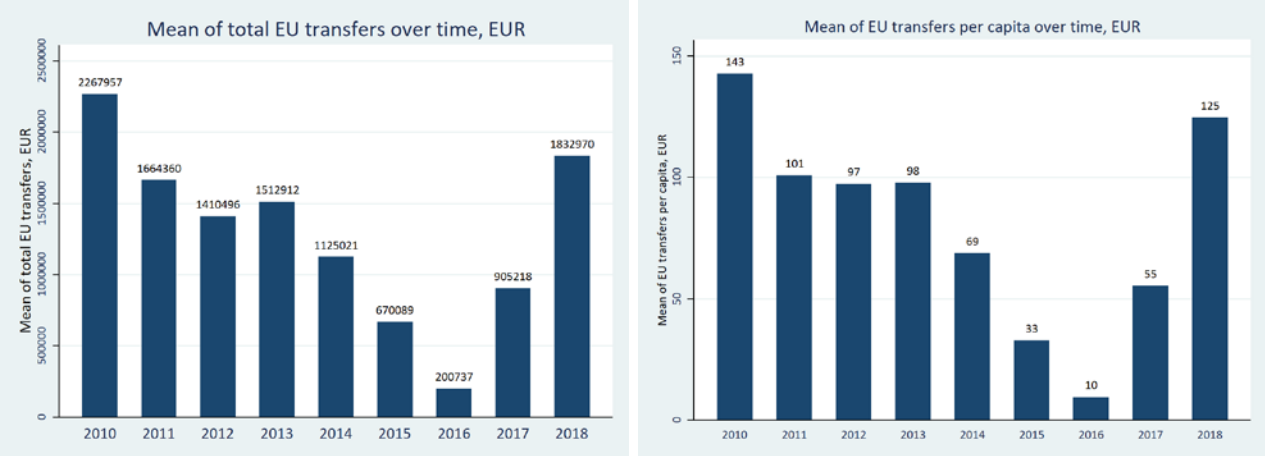

Figure A. 1. Means of total EU transfers and EU transfers per capita over time, from 2010 until 2018. Graphs created by the authors using Stata software. Data retrieved from the State Treasury of Latvia.

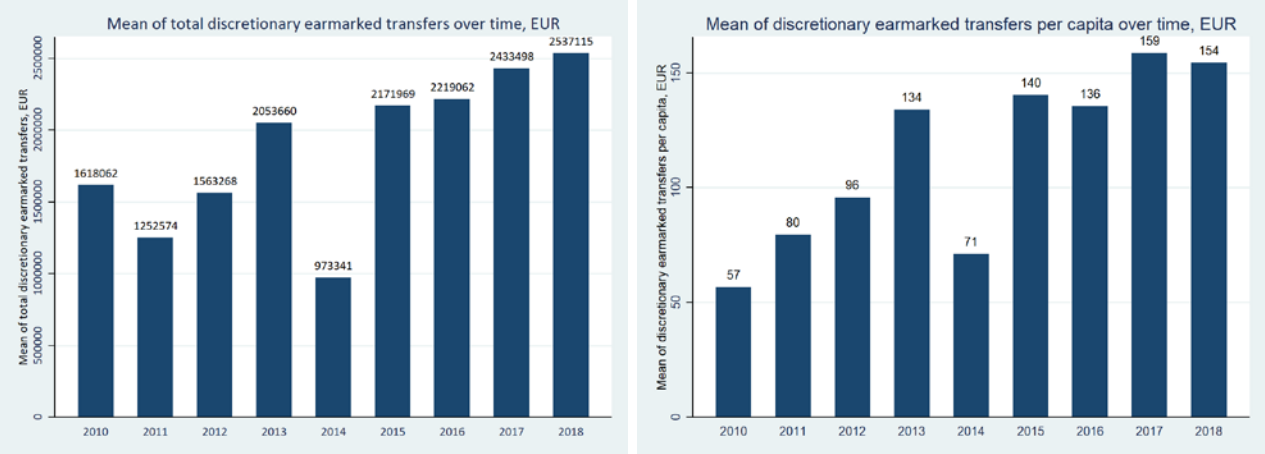

Figure A. 2. Means of total discretionary earmarked transfers and discretionary earmarked transfers per capita over time, from 2010 until 2018. Graphs created by the authors using Stata software. Data retrieved from the State Treasury of Latvia.

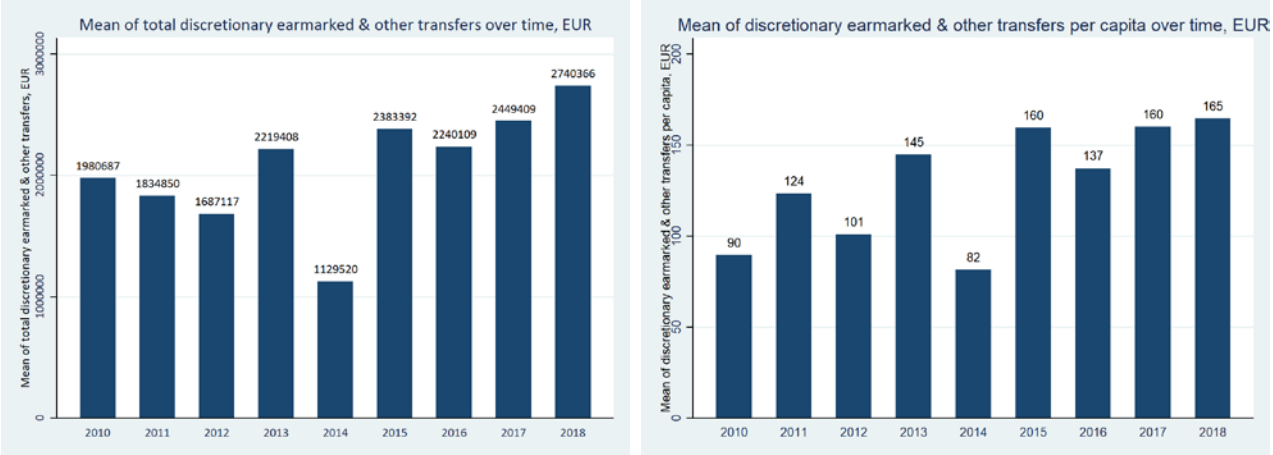

Figure A. 3. Means of total discretionary earmarked & other transfers and discretionary earmarked & other transfers per capita over time, from 2010 until 2018. Graphs created by the authors using Stata software. Data retrieved from the State Treasury of Latvia.

Appendix B. Datasets and algorithms used for generating the running variable

A Google Drive folder which includes cleaned-up and formatted datasets describing the party alignment, vote and seat distributions in municipalities and in the Saeima, as well as the source code, inputs, and outputs of the algorithm that generates the running variable for our RD model can be accessed by clicking here.

Appendix C. Regression results for un-adjusted full dataset

Table C.1. *Effect of political alignment of municipalities on EU transfers per capita*

EU transfers per capita	(I)	(II)	(III)	(IV)
Annual values	0.7050	0.5525	0.3494	0.1117
	(3.22)***	(2.69)***	(1.68)*	(0.52)
N	1067	1067	1067	1067
In-between-elections averages	0.6616	0.4306	1.7254	1.8383
	(5.39)***	(3.96)***	(27.71)***	(28.51)***
N	1070	1070	1070	1070

Notes. (a) T-statistics appear in parentheses below coefficients and stars indicate significance levels at 10%(*), 5%(**), and 1%(***). (b) RD regressions performed in Stata using the rdrobust package with optimal parameters according to Calonico et al. (2014).

Table C.2. *Effect of political alignment of municipalities on discretionary earmarked transfers per capita*

Discretionary earmarked transfers per capita	(I)	(II)	(III)	(IV)
Annual values	0.0117	0.0601	-0.0801	-0.0363
	(0.21)	(0.76)	(-1.17)	(-0.5)
N	1049	1049	1049	1049
In-between-elections averages	0.0392	0.0480	-0.0031	0.0247
	(0.91)	(2.30)**	(-0.14)	(1.21)
N	1051	1051	1051	1051

Notes. (a) T-statistics appear in parentheses below coefficients and stars indicate significance levels at 10%(*), 5%(**), and 1%(***). (b) RD regressions performed in Stata using the rdrobust package with optimal parameters according to Calonico et al. (2014).

Table C.3. *Effect of political alignment of municipalities on discretionary earmarked and other transfers per capita*

Discretionary earmarked and other transfers per capita	(I)	(II)	(III)	(IV)
Annual values	0.0240	-0.0308	-0.0978	-0.1022
	(0.47)	(-0.42)	(-1.88)*	(-1.45)***
N	1055	1055	1055	1055
In-between-elections averages	0.0398	-0.0735	-3.3098	0.0215
	(1.09)	(-4.46)***	(-10.96)***	(1.49)
N	1055	1055	1055	1055

Notes. (a) T-statistics appear in parentheses below coefficients and stars indicate significance levels at 10%(*), 5%(**), and 1%(***). (b) RD regressions performed in Stata using the rdrobust package with optimal parameters according to Calonico et al. (2014).

Appendix D. Regression results for subsample adjusted for municipalities in which only aligned or non-aligned parties participated in the election

Table D.1. *Effect of political alignment of municipalities on EU transfers per capita*

EU transfers per capita	(I)	(II)	(III)	(IV)
Annual values	0.9779	0.2203	1.4184	0.0956
	(3.41)***	(1.08)	(6.26)***	(0.44)
N	772	772	772	772
In-between-elections averages	1.0106	0.3768	0.5847	0.1864
	(6.22)***	(3.24)***	(5.57)***	(1.7)*
N	773	773	773	773

Notes. (a) T-statistics appear in parentheses below coefficients and stars indicate significance levels at 10%(*), 5%(**), and 1%(***). (b) RD regressions performed in Stata using the rdrobust package with optimal parameters according to Calonico et al. (2014).

Table D.2. *Effect of political alignment of municipalities on discretionary earmarked transfers per capita*

Discretionary earmarked transfers per capita	(I)	(II)	(III)	(IV)
Annual values	-0.0199	0.6696	0.5235	0.7002
	(-0.29)	(7.08)***	(5.86)***	(7.65)***
N	756	756	756	756
In-between-elections averages	-0.0042	-3.6589	-3.6589	-3.6589
	(-0.09)	(-11.36)***	(-11.12)***	(-11.51)***
N	758	758	758	758

Notes. (a) T-statistics appear in parentheses below coefficients and stars indicate significance levels at 10%(*), 5%(**), and 1%(***). (b) RD regressions performed in Stata using the rdrobust package with optimal parameters according to Calonico et al. (2014).

Table D.3. *Effect of political alignment of municipalities on discretionary earmarked and other transfers per capita*

Discretionary earmarked and other transfers per capita	(I)	(II)	(III)	(IV)
Annual values	0.0038	0. 0968	0.2061	0.0079
	(0.06)	(1.55)	(3.18)***	(0.13)
N	760	760	760	760
In-between-elections averages	0.0154	-3.3098	-3.3098	-3.3098
	(0.33)	(-10.74)***	(-10.70)***	(-10.87)***
N	760	760	760	760

Notes. (a) T-statistics appear in parentheses below coefficients and stars indicate significance levels at 10%(*), 5%(**), and 1%(***). (b) RD regressions performed in Stata using the rdrobust package with optimal parameters according to Calonico et al. (2014).

Appendix E. Intermediate results: municipality alignment from 2010 to 2018.

Note: "A" indicates the given municipality is aligned with the central government in a given year, and "-" indicates a lack of alignment. There are 343 observations where alignment is present, and 728 observations with no alignment.

#	Municipality	2010	2011	2012	2013	2014	2015	2016	2017	2018
1	Riga	-	-	-	-	-	-	-	-	-
2	Daugavpils	-	-	-	-	-	-	-	-	-
3	Jēkabpils	A	-	-	-	-	-	-	-	-
4	Jelgava	A	-	-	-	A	A	A	A	A
5	Jūrmala	-	-	-	-	A	A	A	A	A
6	Liepāja	-	-	-	-	-	-	-	-	-
7	Rēzekne	-	-	-	-	-	-	-	-	-
8	Valmiera	A	-	-	-	-	-	-	-	-
9	Ventspils	-	A	A	A	A	A	A	A	A
10	Aglona Municipality	-	-	-	-	-	-	-	-	-
11	Aizkraukle Municipality	A	-	-	-	-	-	-	-	-
12	Aizpute Municipality	A	-	-	-	A	A	A	A	A
13	Aknīste Municipality	-	-	-	-	-	-	-	-	-
14	Aloja Municipality	-	-	-	-	A	A	A	A	A
15	Alsunga Municipality	-	-	-	-	-	-	-	-	-
16	Alūksne Municipality	A	-	-	-	A	A	A	A	A
17	Amata Municipality	A	A	A	A	A	A	A	A	A
18	Ape Municipality	-	-	-	-	-	-	-	-	-
19	Auce Municipality	A	A	A	A	A	A	A	A	A
20	Ādaži Municipality	-	-	-	-	-	-	-	-	-
21	Babīte Municipality	-	-	-	-	-	-	-	-	-
22	Baldone Municipality	-	-	-	-	-	-	-	-	-
23	Baltinava Municipality	-	-	-	-	-	-	-	-	-
24	Balvi Municipality	A	A	A	A	A	A	A	A	A
25	Bauska Municipality	-	-	-	-	A	A	A	A	-
26	Beverīna Municipality	-	-	-	-	-	-	-	-	-
27	Brocēni Municipality	A	-	-	-	A	A	A	A	A
28	Burtnieki Municipality	A	-	-	-	A	A	A	A	A
29	Carnikava Municipality	A	A	A	A	A	A	A	A	A
30	Cēsis Municipality	A	-	-	-	A	A	A	A	A
31	Cesvaine Municipality	-	-	-	-	-	-	-	-	-
32	Cibla Municipality	-	-	-	-	A	A	A	A	A
33	Dagda Municipality	A	-	-	-	-	-	-	-	-
34	Daugavpils Municipality	A	-	-	-	-	-	-	-	-
35	Dobele Municipality	A	-	-	-	A	A	A	A	A
36	Dundaga Municipality	-	-	-	-	-	-	-	-	-
37	Durbe Municipality	-	-	-	-	-	-	-	-	-
38	Engure Municipality	A	A	A	A	A	A	A	A	A
39	Ērgļi Municipality	-	-	-	-	-	-	-	-	-
40	Garkalne Municipality	-	-	-	-	A	A	A	A	A
41	Grobiņa Municipality	A	A	A	A	A	A	A	A	A
42	Gulbene Municipality	A	-	-	-	A	A	A	A	A
43	Iecava Municipality	A	A	A	A	A	A	A	A	A
44	Ikšķile Municipality	-	-	-	-	A	A	A	A	A
45	Inčukalns Municipality	-	-	-	-	-	-	-	-	-
46	Ilūkste Municipality	A	A	A	A	A	A	A	A	A
47	Jaunjelgava Municipality	-	-	-	-	A	A	A	A	A
48	Jaunpiebalga Municipality	-	-	-	-	-	-	-	-	-
49	Jaunpils Municipality	-	-	-	-	A	A	A	A	A
50	Jēkabpils Municipality	A	A	A	A	A	A	A	A	A
51	Jelgava Municipality	A	-	-	-	A	A	A	A	A
52	Kandava Municipality	A	-	-	-	A	A	A	A	A
53	Kārsava Municipality	-	-	-	-	-	-	-	-	-
54	Kocēni Municipality	A	A	A	A	A	A	A	A	A
55	Koknese Municipality	A	-	-	-	-	-	-	-	A
56	Krāslava Municipality	A	A	A	A	A	A	A	A	A
57	Krimulda Municipality	-	-	-	-	A	A	A	A	A
58	Krustpils Municipality	-	-	-	-	A	A	A	A	A
59	Kuldīga Municipality	A	-	-	-	-	-	-	-	-

60	Ķegums Municipality	A	A	A	A	A	A	A	A	A
61	Ķekava Municipality	-	-	-	-	-	-	-	-	-
62	Lielvārde Municipality	-	-	-	-	-	-	-	-	A
63	Līgatne Municipality	-	-	-	-	-	-	-	-	-
64	Limbaži Municipality	A	-	-	-	A	A	A	A	A
65	Līvāni Municipality	A	-	-	-	A	A	A	A	A
66	Lubāna Municipality	-	-	-	-	-	-	-	-	-
67	Ludza Municipality	A	-	-	-	-	-	-	-	-
68	Madona Municipality	-	-	-	-	A	A	A	A	A
69	Mālpils Municipality	-	-	-	-	-	-	-	-	-
70	Mārupe Municipality	-	-	-	-	A	A	A	A	A
71	Mazsalaca Municipality	-	-	-	-	-	-	-	-	-
72	Mērsrags Municipality	-	-	-	-	-	-	-	-	-
73	Naukšēni Municipality	-	-	-	-	-	-	-	-	-
74	Nereta Municipality	-	-	-	-	-	-	-	-	A
75	Nīca Municipality	-	-	-	-	-	-	-	-	-
76	Ogre Municipality	-	-	-	-	-	-	-	-	A
77	Olaine Municipality	-	-	-	-	-	-	-	-	-
78	Ozolnieki Municipality	A	A	A	A	A	A	A	A	A
79	Pārgauja Municipality	-	-	-	-	-	-	-	-	-
80	Pāvilosta Municipality	-	-	-	-	-	-	-	-	-
81	Pļaviņas Municipality	A	-	-	-	-	-	-	-	-
82	Preiļi Municipality	-	-	-	-	-	-	-	-	A
83	Priekule Municipality	A	A	A	A	A	A	A	A	A
84	Priekuļi Municipality	A	A	A	A	A	A	A	A	A
85	Rauna Municipality	-	-	-	-	-	-	-	-	-
86	Rēzekne Municipality	A	-	-	-	A	A	A	A	-
87	Riebiņi Municipality	-	-	-	-	-	-	-	-	A
88	Roja Municipality	A	-	-	-	A	A	A	A	A
89	Ropaži Municipality	-	-	-	-	-	-	-	-	A
90	Rucava Municipality	-	-	-	-	-	-	-	-	-
91	Rugāji Municipality	-	-	-	-	-	-	-	-	-
92	Rundāle Municipality	-	-	-	-	-	-	-	-	-
93	Rūjiena Municipality	-	-	-	-	-	-	-	-	-
94	Salacgrīva Municipality	A	-	-	-	-	-	-	-	-
95	Sala Municipality	-	-	-	-	-	-	-	-	-
96	Salaspils Municipality	A	-	-	-	A	A	A	A	A
97	Saldus Municipality	-	-	-	-	A	A	A	A	A
98	Saulkrasti Municipality	-	-	-	-	A	A	A	A	A
99	Sēja Municipality	-	-	-	-	-	-	-	-	-
100	Sigulda Municipality	-	-	-	-	-	-	-	-	A
101	Skrīveri Municipality	-	-	-	-	-	-	-	-	-
102	Skrunda Municipality	-	-	-	-	-	-	-	-	-
103	Smiltene Municipality	A	-	-	-	A	A	A	A	A
104	Stopiņi Municipality	A	-	-	-	-	-	-	-	A
105	Strenči Municipality	-	-	-	-	-	-	-	-	-
106	Talsi Municipality	A	-	-	-	-	-	-	-	-
107	Tērvete Municipality	-	-	-	-	-	-	-	-	-
108	Tukums Municipality	-	-	-	-	-	-	-	-	A
109	Vaiņode Municipality	-	-	-	-	-	-	-	-	-
110	Valka Municipality	A	-	-	-	-	-	-	-	-
111	Varakļāni Municipality	-	-	-	-	-	-	-	-	-
112	Vārkava Municipality	-	-	-	-	-	-	-	-	-
113	Vecpiebalga Municipality	-	-	-	-	-	-	-	-	-
114	Vecumnieki Municipality	A	-	-	-	-	-	-	-	A
115	Ventspils Municipality	A	A	A	A	A	A	A	A	A
116	Viesīte Municipality	-	-	-	-	-	-	-	-	-
117	Viļaka Municipality	A	-	-	-	-	-	-	-	-
118	Viļāni Municipality	A	-	-	-	-	-	-	-	-
119	Zilupe Municipality	-	-	-	-	-	-	-	-	-