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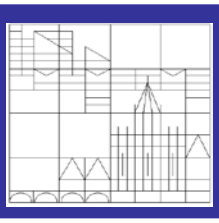

# *Appointed Versus Elected Mayors and Incentives to Pork-Barrel: Quasi-Experimental Evidence from Germany*

Zohal Hessami

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# Appointed versus elected mayors and incentives to pork-barrel: Quasi-experimental evidence from Germany

Zohal Hessami*

**Abstract**

Do incentives and policy choices of public officials depend on whether they are appointed by an elected body or directly elected by voters? I investigate this question using the example of state grants for highly visible municipal investment projects. To attract these grants, mayors must prepare and submit applications to the state government. My identification strategy exploits a natural experiment in a German state where mayor elections were gradually introduced. The difference-in-differences estimation results show that elected mayors attract 7 to 8% more investment grants from the state tier in election years, while for appointed mayors there is no cycle. Results based on hand-collected data for individual mayors exclude alternative transmission channels such as changes in (self-)selection of mayors or partisan alignment in grant allocation.

**Keywords**: Mayor elections; local government; electoral incentives; pork-barrel politics; intergovernmental grants

**JEL codes**: D72, H72, H77

*Department of Economics, University of Konstanz, Box 138, 78457 Konstanz, Germany. Email: zohal.hessami@uni-konstanz.de, Tel.: +49 7531 88 2137, fax: +49 7531 88 3130. I am grateful to Toke Aidt, Massimo Bordignon, Daniel da Mata, Patricia Funk, Christina Gathmann, Carsten Hefeker, Krisztina Kis-Katos, Gabriel Leon, Jo Thori Lind, Stephan Litschig, Raffaele Miniaci, Christoph Schaltegger, Julia Shvets, Steven Stern, Thomas Stratmann, and seminar participants at a Political Economy Workshop at Jesus College in Cambridge, the 2013 Silvaplana Workshop on Political Economy, the 2013 Asian Meeting of the Econometric Society in Singapore, the 2013 Xmas Meeting of German Economists Abroad in Konstanz, the 2014 EPCS Meeting in Cambridge, the 2014 RES Meeting in Manchester, the 2014 IIPF Meeting in Lugano, the 2014 EEA Meeting in Toulouse, the 2014 German Economic Association Meeting in Hamburg and seminars in Bamberg, Brescia, Gothenburg, Heidelberg and Lund for many helpful suggestions. Tobias Steinhauser has provided excellent research assistance. I thank Ulrich Dressler and Stephan Ostgen from the Ministry of the Interior and Sports and Horst Hiess from the Ministry of Finance for answering my questions about the reform in the selection of mayors and the intergovernmental transfer system in Hesse. I thank the University of Cambridge and Universitat Pompeu Fabra for the hospitality that was extended to me during research visits in 2013 and 2014. I acknowledge funding from the Young Scholar Fund (project title: "Local governments, political institutions, and fiscal outcomes: Quasi-experimental evidence from Germany").

# 1 Introduction

A central question in political economy concerns the method of selection of public officials. Public officials may be appointed by an elected body or directly elected by voters.[1] While the theoretical literature provides strong arguments why the choice between election and appointment may or may not influence public officials' incentives and policy choices, there are hardly any empirical studies on this topic, let alone studies that credibly identify a causal effect. In this paper, I exploit a quasi-experiment at the level of German municipalities. To the best of my knowledge, this is the first paper that identifies an electoral cycle in the amount of pork provided to voters that is conditional on how mayors are selected.

From a theoretical viewpoint, it is unclear whether it matters how a public official is selected. On a first encounter with popular election of public officials, one is immediately drawn to the hypothesis that elected public officials are more likely to pander to voters than appointed public officials. The electoral success of elected public officials is a direct function of their popularity with voters. In contrast, for appointed public officials reappointment is only positively correlated with the electoral success of the appointing entity.[2] On the other hand, several theoretical contributions argue that both appointed and elected public officials implement policies that satisfy median voter preferences. Hence, the choice between appointment and election is irrelevant (Baron, 1988; Deno and Mehay, 1987; Laffont, 1996). In view of the ambiguities in the theoretical literature, the influence of appointment and election of public officials on incentives and policy choices is an empirical question.

[1] Another prominent distinction considers the choice between plurality rule and proportional rule for parliamentary elections. Recent contributions provide compelling evidence that the plurality rule encourages politicians to spend more on geographically targetable goods to gain the support of their local constituency, while politicians in a proportional system spend more on public goods to gain the support of broad social groups (Funk and Gathmann, 2013; Gagliarducci, Nannicini, and Naticchioni, 2011).

[2] The link between the electoral success and the reappointment of the incumbent appointee is even weaker when the election of the appointing body does not take place in the same year as the appointment.

The existing empirical literature focuses on U.S. municipalities where two main forms of government are distinguished: the council-manager system (the "manager" is appointed by the city council) and the mayor-council system (the "mayor" is elected by voters).[3] These studies typically use municipal spending as the outcome variable and consider municipalities from one or two U.S. states. Estimations are based on a selection-on-observables approach as there are few municipalities that switch from one system to the other. The studies therefore uncover meaningful and robust correlations rather than causal effects.

The first wave of studies on differences in spending between the two forms of government provides mixed results: mayor-council cities appear to spend more (Booms, 1966; Lineberry and Fowler, 1967) or less (Clark, 1968; Sherbenou, 1961) than council-manager cities. Recent studies are equally divided: MacDonald (2008) finds no differences, while Coate and Knight (2011) find that spending is higher in council-manager cities.

The more recent empirical literature uses disaggregated outcome variables since policy choices may differ even when spending levels are equal. Levin and Tadelis (2010) find that privatizations take place more often in council-manager cities than in mayor-council cities. The reason is that elected mayors can ensure a higher quality in the provision of public services when these services are provided in house. Vlaicu and Whalley (2013) are the first to consider political cycles across the two forms of government: elected mayors hire more police officers in election years to please voters who value security. This is not the case in cities with appointed managers. Enikolopov (2014) focuses on patronage as a tool for targeted redistribution and provides evidence that the number of public employees is larger in mayor-council cities than in council-manager cities, especially in election years.[4]

[3] According to Enikolopov (2014) two-thirds of all U.S. municipalities can be classified into these two types. The remaining ones are municipalities with commission, town meeting or representative town meeting forms of government as well as counties with commission form of government.

[4] A related yet distinct literature compares appointed and elected judges or regulators (Besley and Coate, 2003; Maskin and Tirole, 2004; Choi, Gulati, and Posner, 2008; Iaryczower, Lewis, and Shum, 2013). The general conclusion is that elected judges and regulators are more responsive to voters' interests.

Even though the existing empirical literature provides interesting results, the comparison of mayor-council and council-manager cities does not allow for a causal interpretation. A first reason is reverse causality: citizens in U.S. municipalities choose their form of government via a local referendum. A second reason is co-treatment: managers and mayors in the U.S. differ not only in the way they are selected. Managers are typically nonpartisan bureaucrats required to have a professional background in public administration. Mayors, on the other hand, are professional politicians endowed with more formal powers to influence policy decisions than managers.[5] A third reason is measurement error: official information on the form of government in U.S. municipalities is not available. The aforementioned studies therefore rely on administrative surveys which have been shown to provide contradictory classifications for some municipalities (Coate and Knight, 2011).

This paper makes three major contributions to the existing literature. First, I take advantage of a natural experiment which allows me to identify a causal effect by circumventing the three problems in the existing literature mentioned above (reverse causality, co-treatment, measurement error). In January 1991, a state-wide referendum in the German state of Hesse led to the staggered introduction of mayor elections between 1993 and 1998.[6] The end of the term of the last appointed mayor varies across municipalities for exogenous historical reasons and determines the timing of the switch in a particular municipality. At

[5]The two main forms of government in the U.S. may also differ in other respects as any detail can be changed via a local referendum. Recently, many council-manager cities have additionally selected a mayor who serves on the council but has less political influence than a mayor in a mayor-council city.

[6]I am not the first to analyze reforms of mayor selection in Germany. Previous studies investigate the effect of presidentialism and parliamentarism or the use of the plurality rule versus the proportional rule on fiscal outcomes at the local level. Blume, Doering, and Voigt (2008) find that when mayors are elected local spending and revenues decline in municipalities in Schleswig-Holstein and converge towards municipalities in Baden-Wuerrtemberg where mayors have been elected since World War II. Since expenditures are aggregated at the state level, it is, however, difficult to disentangle the observed effects from state-specific effects. Ade (2013) focuses on three German states and provides evidence that tax rates are lower and public spending is higher in cities with elected mayors. Egger, Koethenbuerger, and Smart (2007) analyze the introduction of mayor elections in Lower Saxony which was accompanied by a large increase in the power and responsibilities of mayors. This reform therefore resembles a move from the U.S.-style council-manager system to the mayor-council system. The authors find that redistributive spending increases with mayor elections.

the same time, the reform did not give rise to any changes in the balance of power and responsibilities between the mayor and the council. Finally, official information on how mayors are selected is available for all municipalities in each year of the sample period.

The staggered nature of the introduction of mayor elections, the absence of concurrent changes to the responsibilities and powers of mayors, and the availability of official data on how mayors are selected allow me to identify the casual effect of the method of selection for mayors on electoral incentives with a difference-in-differences design. The key identifying assumption for my difference-in-differences design is that pre-treatment trends in the outcome variable (log of investment transfers per capita) across the six reform cohorts are similar. I provide graphical evidence that this assumption is fulfilled. I also provide evidence that the timing of the municipality-specific switch to mayor elections is quasi-random which additionally validates my empirical design.

A second contribution of my study is that I use a new outcome variable. The U.S. studies use municipal spending and public employment as the outcome variable. This would be unsuitable in the German municipal setting because these two variables are not under the direct control of mayors. The hiring of police officers, for instance, takes place exclusively at the state level. For this reason, I focus on investment grants from the state tier. A municipality may receive a grant for an investment project if and only if a detailed application is prepared and submitted by its mayor. The grants are restricted to public projects that happen to be highly visible to voters (daycare facilities, road construction, etc.). Transfers are generally an important source of finance for local governments in Germany and hence an obvious channel through which politicians pander to voters.[7] There is also some supporting

[7]This so-called *pork barrel activity* is mostly discussed in the existing literature with regard to state-level legislators who channel resources to their home districts. For instance, Stratmann and Baur (2002) investigate how the electoral rule for legislators (first-past-the-post versus proportional representation) in the German national parliament affects incentives to pork-barrel. The authors find that legislators elected by a geographically concentrated constituency are more involved in pork-barrel politics by serving on parliamentary committees on policies with a regional focus.

anecdotal evidence that mayors indeed utilize their success in attracting investment grants in their electoral campaign via the local media.[8]

A third contribution of my study is that I combine official election and fiscal data at the municipality level with hand-collected information on individual mayors. Especially data on mayor appointments (dates, identities of mayors, party affiliations, etc.) is not available from an official source. In addition to data on mayor appointments, I also collected information on the education level, occupational background and age of both elected and appointed mayors. This unique combination of data allows me to investigate alternative transmission channels which have not been addressed in any previous study.

The difference-in-differences estimation results show that elected mayors attract 7 to 8% more investment grants from the state tier in election years, while for appointed mayors there is no cycle.[9] An important concern with my empirical design is that the increase in grants may be driven by a different channel than electoral incentives. First, the introduction of mayor elections may have induced a different (self-)selection of mayors which may in turn be correlated with the effort and success in attracting investment grants: (i) voters may select mayors according to other criteria than council members; (ii) the direct election by voters might attract other types of candidates. I show that controlling for mayor characteristics does not affect the estimates. I also show that for the subset of mayors who were selected in both regimes, the estimate is similar to the baseline estimate. Second, elected mayors may on average receive more investment grants due to a "supply"-side effect. Partisan alignment

[8]One example is an article in a local newspaper entitled "Mayor election in Langen - Frieder Gebhardt starts the electoral campaign" from 07 December 2013. The mayor strategically mentions his success in attracting investment grants and lists several infrastructure projects: "When he looks back on his six years in office, he thinks: 'It is great what we managed to get done.' Examples are the successful town hall project, the reconstruction of the gymnasium (...), the reconstruction of a child care facility and the construction of an additional childcare facility (...)." (`http://www.op-online.de/lokales/nachrichten/langen/buergermeisterwahl-langen-frieder-gebhardt-spd-eroeffnet-wahlkampf-3259423.html`).

[9]My study can therefore also be related to the literature on political budget cycles that are conditional on institutional features at the level of sub-national governments (Aidt and Mooney, 2014; Aidt, Veiga, and Veiga, 2011; Akhmedov and Zhuravskaya, 2004; Sjahrir, Kis-Katos, and Schulze, 2013).

between the state government and the mayor may play a larger role for the allocation of investment grants in the new regime. The reason is that mayors elected by voters may be more valuable allies for the state government and therefore their grant applications are more often successful.[10] I provide evidence that alignment is not relevant based on estimations that use an interaction between the method of mayor selection and partisan alignment and estimations that rely on a regression-discontinuity design for close mayor elections. Third, the independence of mayor selection from council elections in the new regime makes divided government more likely. With divided government it becomes more difficult for the mayor to receive council approval for an investment project for which he has acquired the funding from the state tier. This reasoning, however, implies that I underestimate the true effect, i. e. my estimates are lower bounds. Finally, municipalities may have received extra funds from the state tier when they switched to the new regime as a compensation for reform-related expenses. However, it is unlikely that such additional resources would be channeled through the investment grants program. Such funds would rather be granted as general budget support transfers. I am also not aware of any such grants having been allocated.

These findings are interesting not only because they provide credible causal evidence that the selection method for public officials such as mayors affects their behavior (internal validity), but also because the Hessian setting has more general relevance (external validity). Many other German states (and even countries such as Italy) have recently replaced mayor appointments with mayor elections. From a policy perspective, it is important to know whether and how the switch as such has affected the behavior of mayors. However, other settings are not as amendable to a causal analysis of this question. The switch to directly elected mayors in other German states, for example, was typically accompanied by a change

[10] Of course, co-partisan mayors still have to make the effort of preparing and submitting the applications for the investment grants.

in mayors' competencies. By isolating the effect of the selection rule, the results in this paper allow us to better understand the implications of various reforms to public official selection.

The remainder of this paper is structured as follows. Section 2 describes the natural experiment. Section 3 provides information on the institutional background, i.e. local politics and procedures for the allocation of state investment grants. Section 4 describes the empirical strategy. Section 5 describes the data. Section 6 provides graphical evidence and estimation results. Section 7 investigates the robustness of the baseline results and analyzes alternative transmission channels. Section 8 concludes.

# 2 From mayor appointment to mayor election

The German state of Hesse was founded in December 1945. The first local council elections throughout Hesse took place in April 1946. The next elections took place in April 1948 and then every four years. Since 2001 elections are held every five years. The local council is the main policymaking body at the municipal level and is elected by proportional rule. The first mayors were appointed by the councils throughout 1946 and 1947. The appointment dates and terms of office were not synchronized across Hessian municipalities. Mayor appointment dates have become even more asynchronous after a substantial wave of municipality mergers between 1972 and 1977 where the number of municipalities was reduced from 2642 to 421.

The introduction of mayor elections was a rather unexpected reform that was strategically placed on the agenda during an electoral campaign at the state level. At the end of the 1980s, the Christian-Democratic president of Hesse, Walter Wallmann, initiated parliamentary deliberations which culminated in a referendum on the introduction of mayor elections. This came as a surprise since this reform was not popular with the ruling conservative-liberal parties (CDU and FDP) but with left-wing parties. Political observers have interpreted the move by Wallman as a strategic maneuver in the run-up to the state election on the 20th of

January 1991. It is therefore also no coincidence that the referendum took place on the same day as the state election (von Arnim, 2002). Yet, not only was the referendum unexpected, but also the popularity of this reform: 82% of voters supported the reform. The relevant laws were finally changed in May 1992. The reform was hence not based on considerations to motivate mayors to exert more effort in applying for state grants. It was simply a strategic maneuver to win the support of voters for the state election.

For historical reasons, the introduction of mayor elections (and the start of the terms of the first elected mayors) was spread out over the time period from 1993 to 1998.[11] Two important sources of this variation are the previously mentioned initial asynchronous dates in 1946 and 1947 and the merger reforms in the 1970s. According to the Hessian municipal code (§42, HGO), the (appointment or election) of a mayor has to take place three to six months before the incumbent steps down.[12] Hence, some of the variation is due to the autonomy that municipalities have in choosing the date within this three-month window and the way in which the dates are shifted further and further apart over the decades. Another reason is that some mayors have not served a full term often for reasons beyond their control (death, sickness, retirement or dismissal by the council).[13] After the last appointed mayor in a municipality had completed his six-year term, the first directly elected mayor took office.

This paper focuses on Hessian municipalities for two reasons that make Hesse a compelling setting to study the effects of the selection method for mayors on incentives and

[11] The first mayor elections took place on 02 May 1993 in Alsfeld, Borken, Gudensberg, Lauterbach, Ottrau, and Waldems. The last municipality that held its first mayor election was Melsungen on 08 November 1998.

[12] If the mayoral term ends for unexpected reasons (death, sickness, etc.), the election has to take place within four months.

[13] To give an example, the first mayor of the Hessian municipality of Hanau (Karl Rehbein) was appointed twice by the local council but died after ten years in office, i.e. two years ahead of the end of his second term. The second mayor (Heinrich Fischer) served a full term of six years. The third mayor of Hanau (Herbert Dröse) was elected twice into office but retired in the middle of his second term. The fourth mayor of Hanau (Hans Martin) served two full terms. Helmut Kuhn was only in office for about 16 months as he was dismissed by the local council. Finally, Hans Martin was elected again into office two times before retiring three years ahead of the end of his last term.

policy choices.[14] First, powers and responsibilities of Hessian mayors were not changed by the reform. This is different in other German states that later introduced mayor elections. A second advantage is that the timing of the switch varies across Hessian municipalities for exogenous historical reasons. These two unique features allow for a clean identification.

# 3 Municipalities, mayors, and investment grants

## 3.1 Municipalities and local public finances

Hesse is among the more prosperous states in the German federation and has been ruled both by left-wing and right-wing governments. The population size of Hesse was 6.1 million at the end of 2012 (about 7.6% of the German population). Hesse consists of 421 regular municipalities and five exceptionally large municipalities which have a special status and therefore assume both municipal and county responsibilities.[15]

Hessian municipalities provide their citizens with a number of goods and services whose provision is either voluntary or compulsory. Compulsory provision includes primary schooling, municipal daycare services, and civil protection. Voluntary provision includes swimming pools, sports venues, and hospitals.

Public provision of goods and services at the municipal level is financed with municipal taxes, user fees, and transfers. In 2013, Hessian municipalities overall had 15.5 billion Euros at their disposal. General expenditures are financed through taxes and transfers, while user fees are charged for specific services. Out of a number of municipal taxes, two are economically relevant: the property tax and the business tax. Each municipality is free to

[14]The reform in Hesse had an impact on West-German local politics beyond the boundaries of Hesse. Other German states where mayors had traditionally been appointed followed suit after the Hessian reform. Only in Bavaria and Baden-Wuerttemberg mayors had always been elected since World War II. Eventually mayor elections were introduced in Rhineland-Palatinate in 1993, North-Rhine Westphalia and Saarland in 1994, in Schleswig-Holstein in 1995 and in Lower-Saxony in 1996.

[15]These five municipalities are Darmstadt, Frankfurt, Kassel, Offenbach, and Wiesbaden.

set the multiplier for these taxes independently. This implies that municipalities are free to expand the provision of public goods and the associated expenditures.

In addition to own-source tax revenues, municipalities in all German states receive revenues from taxes that are shared with the state and federal tier. As a result, municipalities receive a fraction of the income tax and the value-added tax revenues that are collected within the boundaries of a given municipality. The rates for these two taxes are, however, not set by the municipality and they are homogeneous across the entire federation. Municipalities in all German states also receive a number of grants from the state tier that are described in more detail in section 3.3.

## 3.2 Responsibilities and powers of mayors

The municipal code of Hesse (*Hessische Gemeindeordnung*) – the magistrate constitution – stipulates that the local council is in charge of key decisions and monitors the overall administration.[16] The council can, however, hand over some decisions to the mayor. The mayor usually works full-time and is supported by two individuals who work in an honorary capacity. Together they form the magistrate.[17] The mayor is present at the council meetings and is entitled to voice his opinion even though he does not have a vote.

The introduction of mayor elections has not affected the division of formal powers and responsibilities in any way. The reform has, however, removed the dependence of the mayor on the local council. This independence also comes at a cost for the incumbent mayor. When running for re-election the incumbent mayor cannot rely anymore on the entrenched majority of his party in the council.[18]

[16]The council is elected from party lists under a single-district proportional election rule and is headed by an elected chairman who presides over council meetings.

[17]The size of the magistrate is determined by the municipality itself. Especially in large cities there may be more than three magistrate members.

[18]Before the reform the mayor was appointed by the local council via a 2/3 majority vote. The council was able to remove the appointed mayor from office if it wished to do so. After the reform, the mayor is

While the role of mayors is mostly limited to the execution of council decisions, the reform of mayor selection is nevertheless likely to have affected incentives and policy outcomes in Hessian municipalities. As I will describe in the following section, mayors are responsible for the preparation and submission of applications for state investment grants. Mayors can submit these applications without permission by the council. Only when a grant is awarded does the council need to agree via a majority of votes to pursue the project in question. At the point where the financing is already ensured, it is, however, unlikely that the council will not support a project.[19]

## 3.3 Allocation of investment grants

The German constitution requires that citizens have about the same living standard regardless of where they live. Within each of the German states this principle is reflected by a municipal equalization scheme (*Kommunaler Finanzausgleich*). This scheme stipulates that the state government provides poorer municipalities and/or municipalities that face a higher burden of public provision of goods and services with the necessary financial means.

The first step in the municipal equalization scheme is the determination of the total amount of resources to be allocated. This amount varies over the years and depends on the tax revenues collected by the state government. It equals 23% of the state government's total revenues from the income tax, the corporate tax, the sales tax, the wealth tax, the motor vehicle tax, the property acquisition tax, and the apportionment of the business tax plus any additional resources that the state government may wish to add. In 2013, the state government allocated 3.8 billion Euros via the municipal equalization scheme.

More than half of these resources are allocated to Hessian municipalities via general purpose grants (*Schlüsselzuweisungen*). These grants are allocated according to specific

elected by the people. If no candidate receives an absolute majority of votes, a run-off election takes place where the two most successful candidates of the first round run against each other.

[19]Personal communication with employees of the relevant ministries confirms this impression.

rules that take into account the fiscal need and the fiscal capacity of each municipality. The fiscal capacity measure reflects the hypothetical tax-raising potential of a municipality, while the fiscal need measure is a function of a municipality's population size.[20]

Special purpose grants (*besondere Finanzzuweisungen*) differ from general purpose grants since they are tied to a particular purpose (schooling, day-care facilities, nursery schooling, youth welfare services, social welfare, public transport, theaters, museums, libraries, music schools, culture, road construction as well as health resorts). The allocation of special purpose grants in most cases follows a formula. For example, schooling transfers depend on the number of enrolled students, while road construction transfers are a positive function of the kilometers of roads that already exist within a municipality's boundaries.

Investment grants (*Investitionszuweisungen*) are not only tied to a specific purpose but even to a particular investment project. The following types of projects are covered by this grant scheme: hospitals, municipal drinking water systems, municipal (hazardous) waste disposal, public transport, municipal road construction, municipal child-care facilities, municipal elderly care facilities, habitat protection, municipal energy-saving measures, business-related municipal infrastructure, village and city renewal, water protection, libraries, museums, music schools, sports facilities, and municipal facilities for the disabled. In 2010, the Hessian state government allocated 388 million Euros via investment grants.

Investment grants also differ from general purpose and special purpose grants in a second important aspect: they are allocated via an application procedure (*Antrags- und Bewilligungsverfahren*).[21] The type of the project determines to which ministry the application has to be sent. For instance, the Ministry of Social Affairs is responsible for projects

[20] When fiscal need exceeds fiscal capacity, a certain fraction of this difference is compensated via a grant that is allocated to the municipality in question. Any shortfall of fiscal capacity below 80% of the fiscal need measure is completely equalized. When fiscal capacity exceeds fiscal need, a municipality nevertheless receives a minimum amount of general purpose grants. This minimum is a function of population size.

[21] These grants cover a large share but not the full cost of a project. The share of the project covered by the grant depends on the type of project and the type of costs incurred.

regarding elderly care or hospitals, while the Ministry of Economic Affairs, Traffic, and Land Renewal is responsible for projects that concern public transport or village renewal.

The procedure for the allocation of investment grants works as follows. First, in the second half of the preceding year the state government disseminates a call for proposals for each type of project via the state government gazette (*Staatsanzeiger*) and the responsible state ministries. Each call for proposals provides information on the goals of the grant program, details on which kinds of projects can be financed and a list of required documents to support the application.[22] The call for proposals closes with an application form that has to be completed and to which the supporting documents have to be attached. This includes extensive documentation that the project complies to a long list of funding guidelines.

Mayors are responsible for the preparation and submission of the grant application packages. The responsible ministry decides whether a project grant is approved based on whether the project fulfills the catalog of funding guidelines listed in the call for proposals and whether all other important information has been provided. Generally, as long as the funding guidelines are fulfilled and there are enough resources available, municipalities are awarded the grant. The decision is taken by the responsible ministry within a few weeks usually. In principle, it is even possible that in the same year a municipality is awarded more than one grant by one of the ministries. The likelihood that a grant is awarded is generally higher in the beginning rather than the end of a year when – as is usually the case – all resources are depleted. Yet, if an application fulfills all the criteria but no resources are left over, the grant will simply be awarded in the following year.[23]

[22]To give an example, in December 2012 a call for proposals was published in the Staatsanzeiger which concerns projects aiming at the energetic modernization of municipal buildings (Hessisches Ministerium für Umwelt, Energie, Landwirtschaft und Verbraucherschutz, 2012). The application form is eight pages long and at least seven supporting documents are required.

[23]If a large multi-year project such as the construction of a hospital is involved, the grant is paid in yearly installments conditional on the progress of the project.

Mayors who seek to be re-elected have several ways in which they can increase the likelihood that their municipality receives an investment grant. First of all, taking the trouble of preparing and submitting an application is a necessary condition which depends on the mayor's incentives to do so. Second, mayors should submit the applications early rather than late in the year. Third, mayors' efforts in preparing the applications determine whether the application is complete and fulfills all funding guidelines. These three behavioral patterns should be especially observable in the year in which a mayor election is held or the year before. In this paper, I investigate whether there are electoral cycles in the receipt of investment grants to identify this effect.

# 4 Empirical strategy

I investigate whether elected mayors attract more investment grants from the state government than appointed mayors. Elected mayors may have stronger incentives to write grant applications because their electoral benefits are larger. By attracting transfers, mayors provide pork to their constituencies through highly visible investment projects. In turn, voters might be inclined to reelect the incumbent mayor. By virtue of being chosen by the council, electoral incentives are less direct for appointed mayors. Consequently, appointed mayors may exert less effort in attracting state investment grants than elected mayors.

My estimations are based on a difference-in-differences (DiD) approach. The reform divides the sample into pre- and post-treatment periods as well as treatment and control groups. The identifying assumption for any DiD design is that the outcome in the treatment and control group would follow the same trend in the absence of treatment. This assumption is usually verified by comparing pre-treatment trends of the treatment and control group.

Municipalities that introduced mayor elections in 1994 or later serve as the control group for the municipalities that were treated in 1993. The control group for the other annual

cohorts is determined analogously. The identifying assumption for my empirical design is, therefore, that all six cohorts have parallel pre-treatment trends in the outcome variable (log of investment transfers per capita) which is confirmed by figure 1. As argued before, the timing of the municipality-specific switch to mayor elections is due to exogenous historical factors that are orthogonal to investment grant receipts. This natural randomization makes it even more likely that the six cohorts are similar and provide a reasonable approximation for counterfactual post-treatment trends in the absence of treatment. The exogeneity in the timing of treatment is further examined in section 5.3.

I implement the DiD approach using the dummy variable *ElectedMayor* that is 1 for a municipality as of the year when voters have elected their mayor for the first time. The baseline model is specified as follows:

$$y_{it} = \beta \text{ElectedMayor}_{it} + \alpha_i + \mu_t + \mathbf{X}\gamma + \epsilon_{it} \tag{1}$$

where $y$ is the log of investment transfers per capita in Euros.[24] $\alpha_i$ are municipality fixed effects and $\mu_t$ are time fixed effects. To obtain more precise estimates, I also include a number of controls in some of the estimations. The vector $\mathbf{X}$ includes demographic variables (log of population size, share of 0-14 year olds, share of over-65 year olds) as well as fiscal variables (log of rule-based transfers per capita, municipality-specific tax rate multipliers for the business tax rate and the tax rate for residential property).

While the specification in equation (1) implies that differences in electoral incentives between elected and appointed mayors are constant throughout the electoral cycle, it is plausible that differences are particularly pronounced or only significant in the years in which a mayor was selected. I add to the first equation a dummy variable that is 1 in each year where a mayor was either appointed or elected (*Election/AppointmentYear*) and interact this dummy with the *ElectedMayor* dummy. The estimation equation looks as follows:

[24]There are 77 observations with transfers equal to zero. I follow the standard approach in the literature and use log(investment transfers per capita + 1) for all observations.

$$y_{it} = \beta \text{ElectedMayor}_{it} + \delta \text{Election/AppointmentYear}_{it}$$
$$+ \phi \text{ElectedMayor}_{it} * \text{Election/AppointmentYear}_{it} + \mathbf{X}\gamma + \alpha_i + \mu_t + \epsilon_{it} \qquad (2)$$

All hypothesis tests use heteroscedasticity-robust standard errors. Bertrand, Duflo, and Mullainathan (2004) show that autocorrelation is a substantial concern for the difference-in-differences approach. Therefore, in all of my estimations the standard errors are clustered at the level of the 421 municipalities. Some estimations also include county-specific time trends to capture systematic variation over time in a more flexible manner.

# 5 Data

## 5.1 Official data

The source for official information on mayor elections and fiscal variables is the Statistical Office of Hesse. This includes a dataset on mayor elections in all 421 municipalities since 1993. The dataset provides information on the names, gender, and party affiliations of all candidates, the number of valid votes per candidate, and the election date. The Statistical Office also provides data on the amount of investment grants per capita in Euros that a municipality has received from the state government in a certain year. This data is used as the dependent variable in my estimations. Finally, I have obtained data from the Statistical Office on a number of fiscal and demographic variables that I will use in the empirical analysis. Summary statistics are provided in table 13 in the appendix.

## 5.2 Hand-collected data

The data provided by the Statistical Office is not sufficient to conduct the empirical analysis as described in section 4. In particular, data on mayor appointments (names, gender, party

affiliations of mayors, appointment dates) is not available from an official source. Second, in order to conduct an extension of my estimations which investigates the role of (self-) selection of candidates, I need information on the dates of birth, education levels, and fields of occupation for both elected and appointed mayors.

I have hand-collected these two missing types of data from various Internet sources such as municipalities' websites, mayors' personal websites and e-mail communication with the mayors' or their administrative assistants and employees of the municipal archives. The data collection for this unique dataset has taken place between September 2013 and March 2014. The hand-collected data covers about 81.3% of the sample (9926 out of 12209 municipality-year observations).

## 5.3 Exogenous timing of first mayor elections

A closer look at the data suggests that the timing of the municipality-specific switch to mayor elections is indeed quasi-random. There are in particular three pieces of evidence. First, table 1 describes the timing of the introduction of mayor elections in the 421 municipalities between 1993 and 1998. The first mayor elections are distributed quite evenly over these six years as the quasi-experimental nature of the reform would suggest. Second, figure 2 illustrates that the six reform cohorts are not geographically clustered.[25] Third, if this is a true natural experiment, the six reform cohorts should not differ in terms of pre-determined characteristics. I have collected data on ten variables which describe the fiscal stance, the demographic structure, public employment, and the size of municipalities. For each characteristic I calculate averages for the year 1992 and conduct two-group mean-comparison t-tests for each possible pair among the six cohorts. Table 2 summarizes the results for all pairwise t-tests. There are a few significant differences. Yet, they are so few that they can

[25]This excludes imitation of neighboring municipalities which elected their mayor as one motive for self-selection into one of the six cohorts.

be considered as coincidental. There is overall no systematic bias in the pre-determined variables that suggests any kind of sorting into the six cohorts.

# 6 Results

## 6.1 Graphical evidence

Figure 3 plots averages over time for the log of investment grants per capita received by two types of municipalities: those that still retain an appointed mayor (solid line) and those that have introduced mayor elections (dashed line). The solid line covers the time period from 1982 till 1997 and the dashed line covers the time period from 1993 till 2010. There is substantial variation over time in grant receipts. One reason is – as pointed out in section 3.2.1 – that the amount of resources available for the allocation of grants depends on the tax revenues that the state government collects in a particular year which is in turn highly dependent on the business cycle.

Independent of trends in average investment grants, during the phase-in period the solid line is always above the dashed line, i.e. municipalities with elected mayors receive on average more investment grants than municipalities with appointed mayors. Despite the fact that the composition of the two groups of municipalities changes over time as municipalities gradually elect a mayor for the first time, the distance between the two lines is fairly constant. This pattern additionally confirms that the municipality-specific timing of the switch to mayor elections is quasi-random as discussed in section 5.3.

## 6.2 Estimation results

Table 3 collects the results for difference-in-differences regressions that relate a dummy for the mayor selection scheme to investment transfer receipts (see equation (1)). Model I only

includes a dummy for the selection scheme. Model II adds county-specific time trends. Model III additionally includes control variables. The estimated coefficient for the *Elected mayor* dummy is insignificant in all three models, i.e. there are no significant differences in grant receipts between the two regimes.

One reason why the coefficient is not significant is possibly that elected mayors only attract higher transfers when a mayor election is imminent: if electoral incentives drive mayors to exert more effort to acquire transfers, transfer receipts should be significantly higher only when an election is imminent, in particular in the election year itself.

To explore this possibility, I compare transfers receipts in mayor election years with transfer receipts in mayor appointment years. Table 4 has the same structure as table 3. The only difference is that two additional variables are included: the *Election/appointment year* dummy and its interaction with the *Elected mayor* dummy (see equation (2)).

The estimated coefficient for the interaction term in all three models is significant at the 5 percent level, respectively. Transfer receipts are on average about 7 to 7.4% higher in mayor election years compared to mayor appointment years. That is, I observe a cycle only in the new regime. A fortiori, these estimates suggest that while transfers in the new and the old regime do not differ in non-election/appointment years, they differ significantly in election/appointment years. I conclude that electoral incentives are stronger when mayors are elected rather than appointed.

# 7 Robustness tests and alternative explanations

## 7.1 Robustness tests

### 7.1.1 Effects on investment grants in pre-election/appointment years

It is possible that mayors already try to acquire additional investment grants in the pre-election/appointment year. Not accounting for such early attempts to attract investment grants may lead me to underestimate the importance of the cycle. The first robustness check hence investigates whether there are also significant differences in electoral cycles across the two regimes one year ahead of an election/appointment. I define the dummy variable *Election/appointment year - 1* that is 1 before each election or appointment year and interact this dummy with the *Elected mayor* dummy.

Table 5 summarizes the estimation results for three models. The structure of the table is otherwise identical to tables 3 and 4. The estimation results suggest that one year ahead of a mayor election there are no significant differences in grant receipts compared to one year ahead of a mayor appointment. This suggests that mayors increase their efforts in attracting grants when the payoff is largest and voters are most likely to be aware of the grant. It should also be noted that the coefficient of the interaction term in the election years has slightly increased in size to up to 7.9 percent.

### 7.1.2 Inclusion of lagged dependent variable

The second robustness check includes a lagged dependent variable in the regression equation. There is likely to be some degree of inertia in the grants received since large projects may cover multiple years. The non-inclusion of a lagged dependent variable may have biased the baseline estimation results.

Table 6 summarizes the estimation results. The coefficient of the interaction between the *Elected mayor* dummy and the *Election/appointment year* dummy is slightly larger in size (7.9 to 8.3 percent) than in the baseline estimations. The lagged dependent variable is highly significant and appears to pick up some of the variation in the dependent variable (see the size of the R-squared). It can be concluded overall, however, that the inclusion of the lagged dependent variable does not substantially affect the baseline results.

### 7.1.3 Exclusion of zero transfers per capita

The third robustness check addresses an issue that arises from using the log of the dependent variable. In 77 out of 12209 observations, a municipality has received zero investment grants from the state government. In the previous estimations, I have for this reason specified log(investment transfers per capita + 1) following a common approach in the literature. There is generally no consensus on how to deal with this problem. With the third robustness, I take an alternative approach and exclude the observations where investment grant receipts are equal to zero.

The estimation results in table 7 underline the robustness of the baseline results. The coefficient of the relevant interaction term is again larger (7.9 to 8.3 percent) than in the baseline estimations.

## 7.2 Alternative explanations

The previous results show that grant receipts are higher in election years than in appointment years. While my interpretation of these reduced-form results is that elected mayors have larger incentives to attract investment, there are a number of alternative explanations which I will explore in the following.

### 7.2.1 (Self-)selection of mayors

One alternative transmission channel considers the (self-) selection of candidates. Do elected mayors have other characteristics than appointed mayors which make them more able or more motivated to successfully apply for investment grants? This effect may come about via a selection or a self-selection channel.

Self-selection of mayors occurs when the introduction of mayor elections induces a different breed of candidates to run for the mayor's office. First, with mayor appointment, party affiliation was an implicit prerequisite for being eligible for this office while this is not the case for elected mayors. Therefore, elected mayors are more often independent candidates which may also differ in other respects from appointed mayors. Second, with mayor elections, the identity and personal characteristics of the candidates have become more salient. Candidates are also more exposed to the public in a personalized election campaign. Finally, elected mayors are therefore more likely to enjoy a greater personal satisfaction and reputational reward from getting elected than appointed mayors.

On the other hand, a selection bias arises if the people select mayors according to other criteria than the established local political elite, i.e. members of the local council. It is likely that voters are more interested in a candidate's charisma, career achievements, and education level, whereas council members may prefer a loyal and obedient party member.

If appointed and elected mayors indeed differ in their characteristics due to selection or self-selection, how could this explain the observed differences in investment grant receipts? First, differences in mayor characteristics may be correlated with the skills and ambition in attracting investment grants. Second, for instance differences in the age or educational and professional background of mayors may indicate differences in outside options on the job market. A candidate with few outside options should respond more strongly to electoral incentives, i.e. he should exert more effort to ensure that he stays in office.

In order to investigate the role of (self-)selection of mayors, I have gathered hand-collected data on the following variables: education level, gender, previous occupation, party affiliation, and age. First, I want to investigate whether there are any significant differences in observable mayor characteristics. Table 8 provides averages for the two groups of mayors regarding each of these variables. The t-tests provide evidence that there are some significant differences: elected mayors are more likely to have a degree from a higher education institution, they have studied other subjects at the university, they have a different professional background, they are more likely to be independent candidates, they are more often female and they are older.

Do these differences in mayor characteristics have a systematic influence on investment grant receipts? Given that appointed mayors were in office before the mid-90s, while elected mayors were in office after the mid-90s, it is possible that the t-tests reported in table 8 simply capture a time trend in the type of mayors. The mayor's office may have become more demanding over time in terms of educational requirements and administrative professionalization. Such secular changes in the characteristics of mayors would be taken care of in the estimations by the time fixed effects.

To check whether the differences in the characteristics of mayors drive the baseline results, table 9 controls for the observable mayor characteristics in the framework that underlies the baseline estimations. With this specification, I analyze whether the inclusion of mayor characteristics as covariates affects the size of the coefficient for the interaction term that captures differences in the electoral cycles.

Note that the sample size is slightly smaller in these regressions as it was not possible to collect data on mayor characteristics for the full sample of mayors. The coverage of the sample is, however, fairly high with 398 of the 421 Hessian municipalities being included. I first re-run the baseline regression without any covariates but with the smaller sample as a benchmark. The results are collected in model I of table 9. The coefficient estimate in this

model is 6.4, slightly smaller than the baseline estimate of 7.0 to 7.4, and insignificant. The decline in the magnitude and statistical significance of the coefficient is arguably due to the smaller sample size.

Model II includes the education level, model III also includes information on the professional background of mayors, model IV adds the gender and age of mayors, model V also includes the party affiliation of mayors. The coefficients remain at the same order of magnitude as in model I. The results hence provide evidence that (self-)selection plays only a minor role. The coefficient of the interaction term is hardly affected by the inclusion of mayor characteristics.

I have also pursued a second strategy to investigate whether (self-)selection provides an alternative explanation for the baseline results. Table 10 estimates the baseline model for the subsample of mayors that were facing an election or appointment as an incumbent mayor. This reduced sample covers 124 out of 421 municipalities. By considering this subsample, I exclude (self-)selection and test whether the same person has responded differently to an imminent appointment or election. The estimation results are not significant given the smaller sample and the standard errors that are consequently larger. Yet, the coefficients have the same order of magnitude as in the baseline estimations and provide suggestive evidence that the electoral rules have given rise to different kinds of incentives. I conclude that (self-)selection of mayors does not drive my baseline estimation results.

### 7.2.2 Political alignment

A second concern builds on the recent literature on partisan alignment in the allocation of intergovernmental grants (Brollo and Nannicini, 2012). I extend this literature and investigate whether a potential change in the importance of political alignment after the introduction of mayor elections explains the baseline results. Elected mayors might be more valuable allies for the state government than appointed mayors given that they have a more prominent po-

sition in local politics. Consequently, the state government might grant additional transfers to elected mayors that are aligned. The effect in the baseline regressions may hence be due to a "supply" effect (changing incentives of the state government), rather than a "demand" effect (more effort by elected mayors).

If the baseline results are due to the higher importance of political alignment after the reform, only aligned mayors should receive more transfers after the introduction of mayor elections while unaligned mayors should receive the same amount or even less. Thus, a straightforward test of the partisan alignment theory is to analyze with interaction models whether only aligned mayors receive higher transfers after the switch.

Table 11 reports results from such a model. This basic model is a straightforward extension of the baseline model and incorporates the dummy *Aligned mayor* that indicates whether a mayor is aligned with the state government. That is, I code whether a mayor was supported by the parties that form the state government; if he had such support, the dummy is 1 and 0 otherwise. Since this information was not available for all mayors in my sample, the sample shrinks from 12209 to 10400 observations. I interact the *Aligned mayor* dummy with the *Elected mayor* dummy. If the higher transfers after the switch are due to a "supply" effect, the coefficient for the interaction term should be significantly positive.

I estimate several variants of the basic model to test for partisan alignment in the allocation of investment grants. First, I replicate the original regressions with the full sample (Models I to III). Second, I restrict the sample to the second half of mayor terms (Model IV to VI) as in Brollo and Nannicini (2012). In both specifications, the interaction effect is insignificant which indicates that political alignment is not the reason why transfers increase in election years.

In table 12, I implement a second strategy to test for alignment effects. I acknowledge that municipalities that are aligned with the state government might be different than municipalities that are unaligned. To credibly identify the causal effect of alignment, therefore,

I implement a regression-discontinuity design (RDD) using close elections. I estimate various parametric RDDs using different polynomials (linear, quadratic, cubic) for the control function that is based on the margin of victory when one aligned and one unaligned candidate where among the first- and second-ranked candidates in the last mayor election. I also distinguish between models that consider either full mayor terms or the second half of mayor terms as in table 11. None of the estimates in models (I) to (VI) indicate that aligned mayors receive more transfers after the switch to mayor elections. I conclude that changes in the incentives of the state government due to partisan alignment do not drive my baseline estimation results.

### 7.2.3 Divided government

A third concern is that prior to the switch to mayor elections, divided government was less of an issue since by default the council-appointed mayor had the support of the council.[26] After the introduction of mayor elections, divided government became more likely. Since investment projects require the approval of the council, a mayor cannot credibly apply for investment grants without the support of the council. Consequently, municipalities with elected mayors might on average receive fewer transfers. However, note that while divided government is a possible confounding factor and consequently a valid concern, it cannot explain the positive reduced-form coefficients that I estimate for election years. If at all, the divided government channel causes an underestimation of the true effect of electoral incentives on investment transfer receipts.

### 7.2.4 Special transfers to cover reform-related expenses

A final alternative explanation is that the state government might have increased transfers to switching municipalities to account for any special expenses in the year of the switch,

[26]Before the reform, divided government was possible temporarily because council elections took place every four years, while mayor appointment took place every six years.

which by definition is the year of the first direct election. However, I am not aware of any special transfers that were granted to switching municipalities. In addition, such transfers, if they did flow, would in all likelihood not be paid through the investment transfer program but through other transfer programs, eg. general budget support transfers.

# 8 Conclusion

This paper uses the unique setting provided through a reform of mayor selection in a German state. I investigate whether incentives and policy choices of mayors differ depending on whether they are appointed by the local council or directly elected by voters. The estimation results show that elected mayors attract 7 to 8% more investment grants from the state tier in election years. For appointed mayors, there is no cycle.

My interpretation of these findings is that elected mayors exert more effort toward acquiring investment transfers than appointed mayors, particularly in election years. I rule out alternative transmission channels, such as a change in the (self-) selection of mayors or an expansion in partisan motives of the state government after the switch. Overall, my results indicate that the way in which mayors are selected matters for incentives.

A broad literature explores the importance of selection rules for public officials. While selection rules appear to matter for judges or regulators, empirical evidence for public officials is still scarce. Should public officials be elected or should they be appointed? Does it make a difference at all? I show that the selection rule indeed matters. Elected mayors exert more effort than appointed mayors to attract investment transfers for their constituencies. One of the key agency problems in collective decision making is to keep public officials motivated. My results suggest that popular elections are a solution to this problem.

However, even if elections motivate officials to exert effort and thereby please voters in the short run, it is not necessarily the case that the effort is welfare-improving. While elected

mayors attract more transfers in election years according to my results, it is not clear that writing grant applications is the best use of their time. Mayors could use their limited time to pursue other activities that would possibly be more beneficial but less visible to voters than attracting additional investment transfers. Electoral incentives may thus lead public officials to reallocate their efforts from productive but invisible to less productive but highly visible tasks, and it is not clear that such a shift is necessarily welfare-improving.

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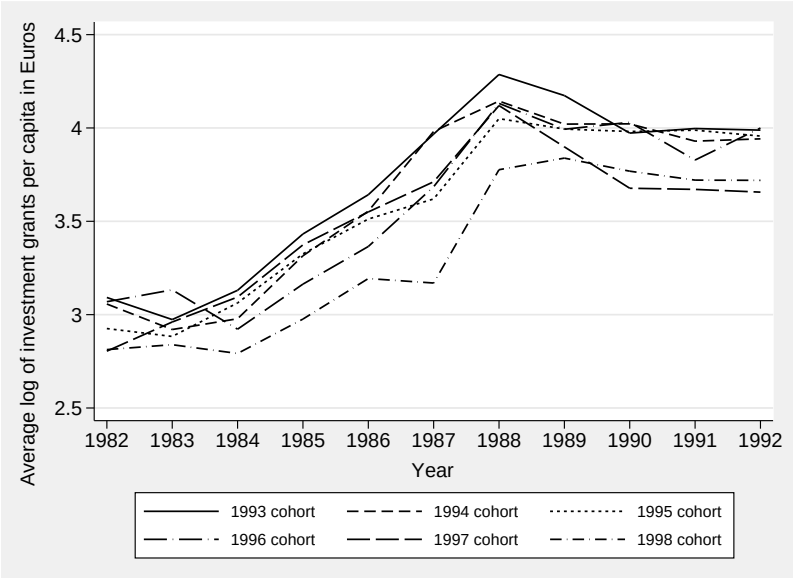


**Figure 1:** Parallel pre-treatment trends in the outcome variable across the six reform cohorts

Notes: The 421 municipalities are divided into six cohorts according to the year in which a mayor was first elected in a municipality. Each line in the figure represents averages in the log of investment transfers per capita for one of the six cohorts.

**Table 1:** Variation in the number and share of appointed and elected mayors in office between 1992 and 1998

| Year | Mayors selected by council appointment | | Mayors selected by direct election | |
|---|---|---|---|---|
| | Number | Share | Number | Share |
| 1992 | 421 | 100% | 0 | 0% |
| 1993 | 338 | 80.3% | 83 | 19.7% |
| 1994 | 253 | 60.1% | 168 | 39.9% |
| 1995 | 175 | 41.6% | 246 | 58.4% |
| 1996 | 90 | 21.4% | 331 | 78.6% |
| 1997 | 46 | 10.9% | 375 | 89.1% |
| 1998 | 0 | 0% | 421 | 100% |

Notes: The table summarizes how many appointed and elected mayors were in office between 1992 and 1998. This coincides with the period in which mayor elections were introduced. Increases in the number of mayors selected by direct election indicate the number of municipalities that introduced mayor election in a given year.

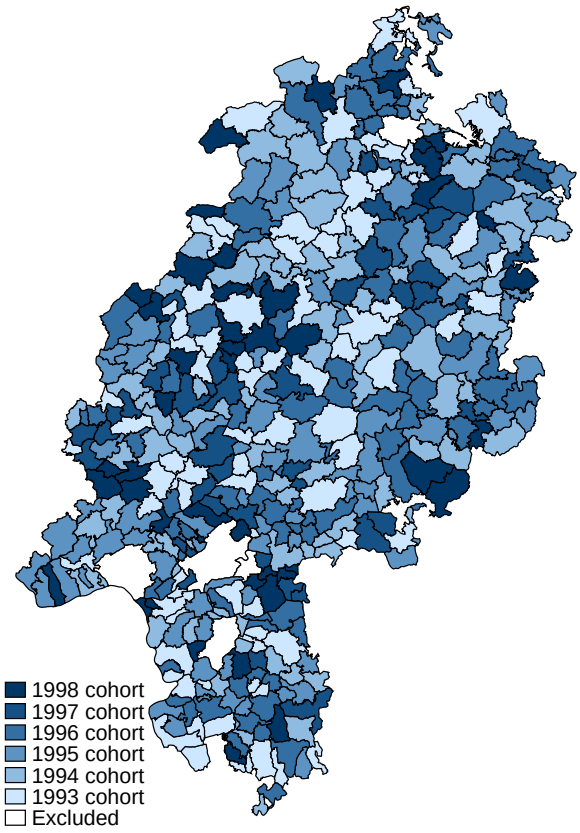


**Figure 2:** Spatial distribution of municipalities by reform cohort

Notes: Each shade represents one of the six reform cohorts which are defined by the year of the first mayor election in a municipality. The category "excluded" refers to five exceptionally large municipalities that are not included in the empirical analysis.

**Table 2:** Pairwise mean-comparison t-tests across the six reform cohorts, pre-determined characteristics in 1992

| | (a) Share of population < 15 years | | | | | | (b) Share of population > 65 years | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cohort | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 |
| 1993 | 0 | | | | | | 0 | | | | | |
| 1994 | -0.082 | 0 | | | | | -0.253 | 0 | | | | |
| 1995 | -0.058 | 0.025 | 0 | | | | -0.106 | 0.148 | 0 | | | |
| 1996 | -0.127 | -0.044 | -0.069 | 0 | | | -0.068 | 0.185 | 0.038 | 0 | | |
| 1997 | 0.165 | 0.247 | 0.223 | 0.291 | 0 | | -0.591 | -0.338 | -0.486 | -0.523 | 0 | |
| 1998 | 0.07 | 0.153 | 0.128 | 0.197 | -0.095 | 0 | 0.012 | 0.265 | 0.118 | 0.08 | 0.603 | 0 |
| | (c) Area in square km | | | | | | (d) Total population in thousands | | | | | |
| Cohort | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 |
| 1993 | 0 | | | | | | 0 | | | | | |
| 1994 | 1.751 | 0 | | | | | 5.681* | 0 | | | | |
| 1995 | 2.481 | 0.73 | 0 | | | | -3.769 | -9.450 | 0 | | | |
| 1996 | 7.058 | 5.308 | 4.578 | 0 | | | 7.041** | 1.360 | 10.810 | 0 | | |
| 1997 | 5.004 | 3.253 | 2.523 | -2.054 | 0 | | -2.935 | -8.615* | 0.834 | -9.976** | 0 | |
| 1998 | 8.094 | 6.343 | 5.613 | 1.036 | 3.090 | 0 | 3.833 | -1.848 | 7.602 | -3.208** | 6.768 | 0 |
| | (e) Business tax rate multiplier | | | | | | (f) Property tax rate multiplier | | | | | |
| Cohort | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 |
| 1993 | 0 | | | | | | 0 | | | | | |
| 1994 | 9.471** | 0 | | | | | 4.647 | 0 | | | | |
| 1995 | 1.063 | -8.407* | 0 | | | | 7.254 | 2.607 | 0 | | | |
| 1996 | 11.435** | 1.965 | 10.372** | 0 | | | 12.118* | 7.471 | 4.864 | 0 | | |
| 1997 | 0.889 | -8.582 | -0.174 | -10.546* | 0 | | -0.288 | -4.935 | -7.541 | -12.405 | 0 | |
| 1998 | 2.522 | -6.949 | 1.458 | -8.914* | 1.633 | 0 | 3.976 | -0.671 | -3.278 | -8.142 | 4.263 | 0 |
| | (g) Rule-based transfers per capita in Euros | | | | | | (h) Municipal debt per capita in Euros | | | | | |
| Cohort | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 |
| 1993 | 0 | | | | | | 0 | | | | | |
| 1994 | -11.556 | 0 | | | | | 74.329 | 0 | | | | |
| 1995 | 3.911 | 15.467* | 0 | | | | -103.000 | -177.329** | 0 | | | |
| 1996 | -0.753 | 10.804 | -4.663 | 0 | | | 75.047 | 0.718 | 178.047** | 0 | | |
| 1997 | 5.978 | 17.535 | 2.068 | 6.731 | 0 | | 11.716 | -62.613 | 114.716 | -63.331 | 0 | |
| 1998 | 17.151 | 28.708** | 13.241 | 17.904 | 11.173 | 0 | 120.559* | 46.230 | 223.559** | 45.512 | 108.843 | 0 |
| | (i) Full-time employees in municipal administration | | | | | | (j) Municipal personnel expenditures in thousands of Euros | | | | | |
| Cohort | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 |
| 1993 | 0 | | | | | | 0 | | | | | |
| 1994 | 114.235 | 0 | | | | | 3.319 | 0 | | | | |
| 1995 | -160.032 | -274.267 | 0 | | | | -5.032 | -8.351 | 0 | | | |
| 1996 | 170.047** | 55.812 | 330.079 | 0 | | | 4.244** | 0.925 | 9.275 | 0 | | |
| 1997 | -41.269 | -155.505 | 118.763 | -211.316** | 0 | | -1.878 | -5.197* | 3.154 | -6.121** | 0 | |
| 1998 | 139.709 | 25.474 | 299.741 | -30.338* | 180.979 | 0 | 3.083 | -0.237 | 8.114 | -1.161** | 4.960 | 0 |

Notes: The classification of the 421 municipalities into six cohorts is based on the year in which a municipality has held its first mayor election. Each subtable numbered from (a) to (j) considers a different pre-determined characteristic of municipalities. Within each subtable, I report pairwise differences for these characteristics in the year 1992 (pre-treatment period) across all six reform cohorts. Stars indicate significance levels at 10% (*), 5% (**) and 1%(***).

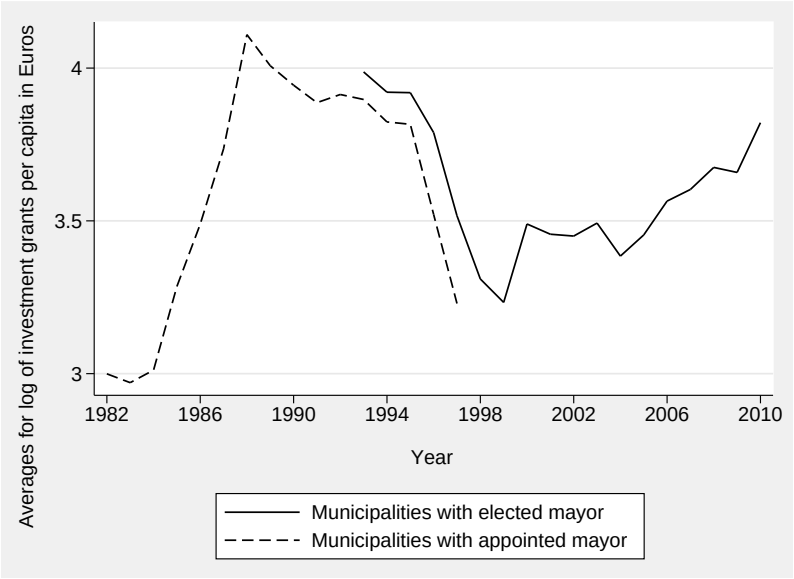


**Figure 3:** Average investment transfer receipts over time, municipalities with elected mayor vs. municipalities with appointed mayor

Notes: The dashed line plots the evolution of average investment transfer receipts in municipalities where an appointed mayor is in office in a particular year. The solid line plots the evolution of average investment transfer receipts in municipalities where an elected mayor is in office in a particular year.

**Table 3:** Appointed vs. elected mayors and investment grants from the state-tier

| | (I) | (II) | (III) |
|---|---|---|---|
| Elected mayor | 0.039 | 0.040 | 0.038 |
| | (0.046) | (0.046) | (0.046) |
| Year fixed effects | YES | YES | YES |
| Municipality fixed effects | YES | YES | YES |
| County-specific time trends | NO | YES | YES |
| Control variables | NO | NO | YES |
| Observations | 12209 | 12209 | 12209 |
| Municipalities | 421 | 421 | 421 |
| R-squared | 0.122 | 0.138 | 0.143 |

Notes: The dependent variable is the log of investment transfers per capita. Standard errors in parentheses are robust to heteroscedasticity and clustered at the municipality-level. Control variables include share of population over 65 years, share of population below 15 years, log of population size, log of rule-based transfers per capita, and business and property tax rate multipliers. R-squared does not account for the contribution of municipality fixed effects. Stars indicate significance levels at 10% (*), 5% (**) and 1%(***).

**Table 4:** Appointed vs. elected mayors and electoral cycles in investment grants from the state-tier

| | (I) | (II) | (III) |
|---|---|---|---|
| Elected mayor*Election/appointment year | 0.070** | 0.073** | 0.074** |
| | (0.035) | (0.035) | (0.035) |
| Elected mayor | 0.017 | 0.019 | 0.016 |
| | (0.048) | (0.048) | (0.048) |
| Election/appointment year | -0.026 | -0.029 | -0.030 |
| | (0.028) | (0.028) | (0.028) |
| Year fixed effects | YES | YES | YES |
| Municipality fixed effects | YES | YES | YES |
| County-specific time trends | NO | YES | YES |
| Control variables | NO | NO | YES |
| Observations | 12209 | 12209 | 12209 |
| Municipalities | 421 | 421 | 421 |
| R-squared | 0.123 | 0.139 | 0.144 |

Notes: The dependent variable is the log of investment transfers per capita. Standard errors in parentheses are robust to heteroscedasticity and clustered at the municipality level. Control variables include share of population over 65 years, share of population below 15 years, log of population size, log of rule-based transfers per capita, and business and property tax rate multipliers. R-squared does not account for the contribution of municipality fixed effects. Stars indicate significance levels at 10% (*), 5% (**) and 1%(***).

**Table 5:** Robustness check 1: Appointed vs. elected mayors and electoral cycles in investment grants from the state-tier, dummy for pre-appointment/election year included

| | (I) | (II) | (III) |
|---|---|---|---|
| Elected mayor*Election/appointment year - 1 | 0.026 | 0.027 | 0.029 |
| | (0.039) | (0.039) | (0.039) |
| Elected mayor*Election/appointment year | 0.074** | 0.077** | 0.079** |
| | (0.037) | (0.037) | (0.037) |
| Elected mayor | 0.025 | 0.026 | 0.024 |
| | (0.050) | (0.050) | (0.050) |
| Election/appointment year - 1 | -0.007 | -0.011 | -0.012 |
| | (0.032) | (0.032) | (0.032) |
| Election/appointment year | -0.020 | -0.020 | -0.020 |
| | (0.034) | (0.034) | (0.033) |
| Year fixed effects | YES | YES | YES |
| Municipality fixed effects | YES | YES | YES |
| County-specific time trends | NO | YES | YES |
| Control variables | NO | NO | YES |
| Observations | 12209 | 12209 | 12209 |
| Municipalities | 421 | 421 | 421 |
| R-squared | 0.123 | 0.139 | 0.144 |

Notes: The dependent variable is the log of investment transfers per capita. Standard errors in parentheses are robust to heteroscedasticity and clustered at the municipality level. Control variables include share of population over 65 years, share of population below 15 years, log of population size, log of rule-based transfers per capita, and business and property tax rate multipliers. R-squared does not account for the contribution of municipality fixed effects. Stars indicate significance levels at 10% (*), 5% (**) and 1%(***).

**Table 6:** Robustness check 2: Appointed vs. elected mayors and electoral cycles in investment grants from the state-tier, lagged dependent variable included

| | (I) | (II) | (III) |
|---|---|---|---|
| Elected mayor*Election/appointment year | 0.079** | 0.082** | 0.083** |
| | (0.038) | (0.038) | (0.038) |
| Elected mayor | -0.011 | -0.009 | -0.012 |
| | (0.038) | (0.038) | (0.038) |
| Election/appointment year | -0.032 | -0.035 | -0.034 |
| | (0.031) | (0.031) | (0.030) |
| Lagged dependent variable | 0.376*** | 0.365*** | 0.362*** |
| | (0.013) | (0.013) | (0.013) |
| Year fixed effects | YES | YES | YES |
| Municipality fixed effects | YES | YES | YES |
| County-specific time trends | NO | YES | YES |
| Control variables | NO | NO | YES |
| Observations | 11788 | 11788 | 11788 |
| Municipalities | 421 | 421 | 421 |
| R-squared | 0.240 | 0.246 | 0.249 |

Notes: The dependent variable is the log of investment transfers per capita. Standard errors in parentheses are robust to heteroscedasticity and clustered at the municipality level. Control variables include share of population over 65 years, share of population below 15 years, log of population size, log of rule-based transfers per capita, and business and property tax rate multipliers. R-squared does not account for the contribution of municipality fixed effects. Stars indicate significance levels at 10% (*), 5% (**) and 1%(***).

**Table 7:** Robustness check 3: Appointed vs. elected mayors and electoral cycles in investment grants from the state-tier, only positive transfers included

| | (I) | (II) | (III) |
|---|---|---|---|
| Elected mayor*Election/appointment year | 0.079** | 0.082** | 0.083** |
| | (0.038) | (0.038) | (0.038) |
| Elected mayor | 0.018 | 0.021 | 0.018 |
| | (0.050) | (0.050) | (0.050) |
| Election/appointment year | -0.039 | -0.043 | -0.042 |
| | (0.031) | (0.031) | (0.031) |
| Year fixed effects | YES | YES | YES |
| Municipality fixed effects | YES | YES | YES |
| County-specific time trends | NO | YES | YES |
| Control variables | NO | NO | YES |
| Observations | 12132 | 12132 | 12132 |
| Municipalities | 421 | 421 | 421 |
| R-squared | 0.117 | 0.134 | 0.139 |

Notes: The dependent variable is the log of investment transfers per capita. Standard errors in parentheses are robust to heteroscedasticity and clustered at the municipality level. Control variables include share of population over 65 years, share of population below 15 years, log of population size, log of rule-based transfers per capita, and business and property tax rate multipliers. R-squared does not account for the contribution of municipality fixed effects. Stars indicate significance levels at 10% (*), 5% (**) and 1%(***).

**Table 8:** (Self-)selection of mayors as an alternative transmission channel: Mean-comparison t-tests for mayor characteristics, appointed vs. elected mayors

| **Panel A: Education level (highest degree)** | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Hauptschule | | Realschule | | Abitur | | Higher education | | Higher education: University of applied sciences (FH) | | Higher education: University | |
| Type of mayor | Mean | N | Mean | N | Mean | N | Mean | N | Mean | N | Mean | N |
| Appointed | 0.075 | 664 | 0.196 | 664 | 0.298 | 664 | 0.431 | 664 | 0.264 | 664 | 0.167 | 664 |
| Elected | 0.033 | 1236 | 0.143 | 1236 | 0.186 | 1236 | 0.638 | 1236 | 0.388 | 1236 | 0.249 | 1236 |
| Difference | 0.042*** | 1900 | 0.053*** | 1900 | 0.112*** | 1900 | -0.207*** | 1900 | -0.125*** | 1900 | -0.082*** | 1900 |
| (t-statistic) | (4.116) | | (2.974) | | (5.621) | | (-8.843) | | (-5.497) | | (-4.128) | |
| **Panel B: Major if higher education degree** | | | | | | | | | | | | |
| | Public administration | | Law | | Business studies | | Teaching | | Engineering | | Economics | |
| Type of mayor | Mean | N | Mean | N | Mean | N | Mean | N | Mean | N | Mean | N |
| Appointed | 0.250 | 664 | 0.095 | 664 | 0.024 | 664 | 0.027 | 664 | 0.015 | 664 | 0.003 | 664 |
| Elected | 0.356 | 1236 | 0.101 | 1236 | 0.059 | 1236 | 0.042 | 1236 | 0.035 | 1236 | 0.010 | 1236 |
| Difference | -0.106*** | 1900 | -0.006 | 1900 | -0.035*** | 1900 | -0.015 | 1900 | -0.020** | 1900 | -0.007 | 1900 |
| (t-statistic) | (-4.752) | | (-0.435) | | (-3.448) | | (-1.651) | | (-2.493) | | (-1.628) | |
| **Panel C: Last job/occupational sector** | | | | | | | | | | | | |
| | Civil administration | | Lawyer | | Business sector | | Business sector: banking | | Business sector: industry | | Teacher | |
| Type of mayor | Mean | N | Mean | N | Mean | N | Mean | N | Mean | N | Mean | N |
| Appointed | 0.784 | 684 | 0.054 | 684 | 0.050 | 684 | 0.009 | 684 | 0.039 | 684 | 0.034 | 684 |
| Elected | 0.674 | 1270 | 0.072 | 1270 | 0.106 | 1270 | 0.017 | 1270 | 0.086 | 1270 | 0.038 | 1270 |
| Difference | 0.110*** | 1954 | -0.018 | 1954 | -0.056*** | 1954 | -0.009 | 1954 | -0.046*** | 1954 | -0.004 | 1954 |
| (t-statistic) | (5.137) | | (-1.497) | | (-4.214) | | (-1.517) | | (-3.853) | | (-0.470) | |
| | Engineer | | Craftsman | | Police officer | | Farmer | | Researcher | | | |
| Type of mayor | Mean | N | Mean | N | Mean | N | Mean | N | Mean | N | | |
| Appointed | 0.013 | 684 | 0.026 | 684 | 0.012 | 684 | 0.010 | 684 | 0.003 | 684 | | |
| Elected | 0.026 | 1270 | 0.015 | 1270 | 0.025 | 1270 | 0.006 | 1270 | 0.008 | 1270 | | |
| Difference | -0.013* | 1954 | 0.011* | 1954 | -0.014** | 1954 | 0.004 | 1954 | -0.005 | 1954 | | |
| (t-statistic) | (-1.865) | | (1.757) | | (-2.011) | | (0.950) | | (-1.336) | | | |
| **Panel D: Party affiliation, gender, age** | | | | | | | | | | | | |
| | Independent candidate | | CDU candidate | | SPD candidate | | Female | | Age | | | |
| Type of mayor | Mean | N | Mean | N | Mean | N | Mean | N | Mean | N | | |
| Appointed | 0.164 | 641 | 0.298 | 641 | 0.538 | 641 | 0.006 | 721 | 45.651 | 702 | | |
| Elected | 0.300 | 1264 | 0.256 | 1264 | 0.445 | 1264 | 0.051 | 1320 | 48.442 | 1284 | | |
| Difference | -0.136*** | 1905 | 0.042** | 1905 | 0.094*** | 1905 | -0.045*** | 2041 | -2.791*** | 1986 | | |
| (t-statistic) | (-6.512) | | (1.973) | | (3.878) | | (-5.363) | | (-7.387) | | | |

Notes: This table summarizes differences in average personal characteristics for appointed and elected mayors. All variables except the last one (age) are dummy variables. Averages for appointed and elected mayors therefore represent the share of mayors which have a certain characteristic. The first six variables (panel A) refer to the highest educational degree that a mayor has obtained. The German education system is characterized by tracking that occurs after elementary school. A Hauptschule degree is obtained after successful completion of 9th grade, a Realschule degree after successful completion of 10th grade, an Abitur degree after successful completion of 13th grade. A University degree is typically a Diplom-degree equivalent to a Master's degree. The variables in panel C indicate the occupational sector of mayors just before they were appointed or elected. In panel D, age is mayor's age in the year he was appointed or elected. Stars indicate significance levels at 10% (*), 5% (**) and 1%(***).

**Table 9:** (Self-)selection of mayors as an alternative transmission channel: Appointed vs. elected mayors and electoral cycles in investment transfers from the state-tier, mayor characteristics included

| | (I) | (II) | (III) | (IV) | (V) |
|---|---|---|---|---|---|
| Elected mayor*Election/appointment year | 0.064 | 0.064 | 0.061 | 0.061 | 0.064 |
| | (0.041) | (0.041) | (0.041) | (0.041) | (0.041) |
| Elected mayor | 0.007 | 0.005 | 0.005 | 0.006 | 0.009 |
| | (0.051) | (0.051) | (0.051) | (0.051) | (0.051) |
| Election/appointment year | -0.016 | -0.017 | -0.016 | -0.016 | -0.019 |
| | (0.036) | (0.037) | (0.037) | (0.037) | (0.037) |
| Realschule degree | | -0.117 | -0.084 | -0.087 | -0.089 |
| | | (0.089) | (0.103) | (0.103) | (0.103) |
| Abitur degree | | -0.147 | -0.130 | -0.139 | -0.142 |
| | | (0.093) | (0.109) | (0.109) | (0.109) |
| University of applied sciences degree | | -0.070 | -0.038 | -0.046 | -0.040 |
| | | (0.094) | (0.111) | (0.111) | (0.111) |
| University degree | | -0.100 | -0.153 | -0.160 | -0.168 |
| | | (0.097) | (0.125) | (0.125) | (0.126) |
| Civil administration | | | -0.043 | -0.051 | -0.058 |
| | | | (0.121) | (0.122) | (0.123) |
| Lawyer | | | 0.003 | -0.002 | 0.012 |
| | | | (0.147) | (0.149) | (0.150) |
| Business sector | | | -0.005 | -0.007 | -0.001 |
| | | | (0.141) | (0.142) | (0.142) |
| Teacher | | | 0.203 | 0.197 | 0.204 |
| | | | (0.170) | (0.172) | (0.174) |
| Engineer | | | 0.201 | 0.184 | 0.189 |
| | | | (0.181) | (0.184) | (0.182) |
| Craftsman | | | 0.025 | 0.016 | 0.023 |
| | | | (0.183) | (0.184) | (0.181) |
| Police officer | | | 0.221 | 0.201 | 0.220 |
| | | | (0.172) | (0.172) | (0.175) |
| Farmer | | | -0.154 | -0.160 | -0.155 |
| | | | (0.184) | (0.185) | (0.184) |
| Researcher | | | -0.071 | -0.067 | -0.076 |
| | | | (0.240) | (0.234) | (0.242) |
| Female mayor | | | | -0.099 | -0.101 |
| | | | | (0.098) | (0.098) |
| Age of mayor | | | | -0.000 | -0.001 |
| | | | | (0.002) | (0.002) |
| CDU candidate | | | | | 0.007 |
| | | | | | (0.073) |
| SPD candidate | | | | | 0.070 |
| | | | | | (0.074) |
| Independent candidate | | | | | -0.002 |
| | | | | | (0.077) |
| Year fixed effects | YES | YES | YES | YES | YES |
| Municipality fixed effects | YES | YES | YES | YES | YES |
| County-specific time trends | YES | YES | YES | YES | YES |
| Control variables | YES | YES | YES | YES | YES |
| Observations | 9926 | 9926 | 9926 | 9926 | 9926 |
| Municipalities | 398 | 398 | 398 | 398 | 398 |
| R-squared | 0.118 | 0.119 | 0.121 | 0.121 | 0.122 |

Notes: The dependent variable is the log of investment transfers per capita. Standard errors in parentheses are robust to heteroscedasticity and clustered at the municipality level. Control variables include share of population over 65 years, share of population below 15 years, log of population size, log of rule-based transfers per capita, and business and property tax rate multipliers. R-squared does not account for the contribution of municipality fixed effects. Stars indicate significance levels at 10% (*), 5% (**) and 1%(***).

**Table 10:** (Self-)selection of mayors as an alternative transmission channel: Appointed vs. elected mayors and investment transfers from the state-tier, subset of mayors that were both appointed and elected during their career

| | (I) | (II) | (III) |
|---|---|---|---|
| Elected mayor*Election/appointment year | 0.063 | 0.076 | 0.073 |
| | (0.068) | (0.067) | (0.067) |
| Elected mayor | 0.046 | 0.043 | 0.060 |
| | (0.098) | (0.098) | (0.094) |
| Election/appointment year | 0.022 | 0.018 | 0.016 |
| | (0.051) | (0.050) | (0.050) |
| Year fixed effects | YES | YES | YES |
| Municipality fixed effects | YES | YES | YES |
| County-specific time trends | NO | YES | YES |
| Control variables | NO | NO | YES |
| Observations | 2537 | 2537 | 2537 |
| Municipalities | 124 | 124 | 124 |
| R-squared | 0.184 | 0.211 | 0.221 |

Notes: The dependent variable is the log of investment transfers per capita. Standard errors in parentheses are robust to heteroscedasticity and clustered at the municipality level. Control variables include share of population over 65 years, share of population below 15 years, log of population size, log of rule-based transfers per capita, and business and property tax rate multipliers. R-squared does not account for the contribution of municipality fixed effects. Stars indicate significance levels at 10% (*), 5% (**) and 1%(***).

**Table 11:** Partisan alignment as an alternative transmission channel: Appointed vs. elected mayors and investment grants from the state-tier, dummy for partisan alignment between mayor and state government included

| | Full mayor terms | | | Second half of mayor terms | | |
|---|---|---|---|---|---|---|
| | (I) | (II) | (III) | (IV) | (V) | (VI) |
| Aligned mayor*Elected mayor | -0.028 | -0.027 | -0.029 | 0.001 | 0.010 | 0.004 |
| | (0.047) | (0.044) | (0.044) | (0.060) | (0.059) | (0.059) |
| Aligned mayor | 0.033 | 0.036 | 0.037 | 0.034 | 0.040 | 0.043 |
| | (0.035) | (0.034) | (0.034) | (0.048) | (0.047) | (0.047) |
| Elected mayor | 0.067 | 0.070 | 0.066 | 0.044 | 0.043 | 0.039 |
| | (0.051) | (0.051) | (0.051) | (0.059) | (0.059) | (0.059) |
| Year fixed effects | YES | YES | YES | YES | YES | YES |
| Municipality fixed effects | YES | YES | YES | YES | YES | YES |
| County-specific time trends | NO | YES | YES | NO | YES | YES |
| Control variables | NO | NO | YES | NO | NO | YES |
| Observations | 10400 | 10400 | 10400 | 5241 | 5241 | 5241 |
| Municipalities | 421 | 421 | 421 | 421 | 421 | 421 |
| R-squared | 0.097 | 0.108 | 0.113 | 0.108 | 0.118 | 0.123 |

Notes: The dependent variable is the log of investment transfers per capita. Standard errors in parentheses are robust to heteroscedasticity and clustered at the municipality level. Control variables include share of population over 65 years, share of population below 15 years, log of population size, log of rule-based transfers per capita, and business and property tax rate multipliers. R-squared does not account for the contribution of municipality fixed effects. The *Aligned mayor* dummy indicates whether a mayor was supported by one of the parties that form the state government. Stars indicate significance levels at 10% (*), 5% (**) and 1%(***).

**Table 12:** Partisan alignment as an alternative transmission channel: Elected mayors and investment grants from the state-tier, regression-discontinuity design for close mayor elections (polynomial specification)

| | (I) | (II) | (III) | (IV) | (V) | (VI) |
|---|---|---|---|---|---|---|
| Aligned mayor | 0.027 | 0.096 | 0.004 | 0.046 | 0.028 | 0.042 |
| | (0.063) | (0.093) | (0.065) | (0.107) | (0.082) | (0.122) |
| Polynomial | Linear | Linear | Quadratic | Quadratic | Cubic | Cubic |
| Sample | Full term | 2nd half of term | Full term | 2nd half of term | Full term | 2nd half of term |
| Year fixed effects | YES | YES | YES | YES | YES | YES |
| Municipality fixed effects | YES | YES | YES | YES | YES | YES |
| County-specific time trends | YES | YES | YES | YES | YES | YES |
| Observations | 3522 | 1690 | 3522 | 1690 | 3522 | 1690 |
| Municipalities | 357 | 348 | 357 | 348 | 357 | 348 |
| R-squared | 0.074 | 0.063 | 0.075 | 0.064 | 0.075 | 0.066 |

Notes: The dependent variable is the log of investment transfers per capita. Standard errors in parentheses are robust to heteroscedasticity and clustered at the municipality level. Control variables include share of population over 65 years, share of population below 15 years, log of population size, log of rule-based transfers per capita, and business and property tax rate multipliers. R-squared does not account for the contribution of municipality fixed effects. The *Aligned mayor* dummy indicates whether a mayor was supported by one of the parties that form the state government. Stars indicate significance levels at 10% (*), 5% (**) and 1%(***).

# Appendix

**Table 13:** Summary statistics

| Variable | Mean | Std. Dev. | Minimum | Maximum | Observations |
|---|---|---|---|---|---|
| Log of investment transfers per capita | 3.576 | 1.123 | 0 | 7.382 | 12209 |
| Elected mayor | 0.547 | 0.498 | 0 | 1 | 12209 |
| Election/appointment year | 0.174 | 0.379 | 0 | 1 | 12209 |
| Share of population below 15 yrs | 9.851 | 1.122 | 5.992 | 14.677 | 12209 |
| Share of population over 65 yrs | 16.711 | 3.286 | 7.679 | 31.762 | 12209 |
| Log of rule-based transfers per capita | 4.618 | 0.913 | 0 | 6.371 | 12209 |
| Log of population size | 8.977 | 0.763 | 6.433 | 11.399 | 12209 |
| Business tax rate multiplier | 314.707 | 28.803 | 200 | 430 | 12209 |
| Property tax rate multiplier | 237.802 | 43.334 | 100 | 400 | 12209 |

UNIVERSITY OF KONSTANZ
Department of Economics

Universitätsstraße 10
78464 Konstanz
Germany

Phone: +49 (0) 7531-88-0
Fax: +49 (0) 7531-88-3688

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