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Abstract

A large literature in political science asserts that formula-based grants are immune to political whims and pork barrel politics. In contrast, we argue that formula-based grants can be leveraged politically as central policymakers have the power to influence the design of the formula allowing grants to be targeted to specific geographically defined constituencies. Using the Danish large-scale 2020 municipal equalization and grants reform as a case, we test our argument. We find that several new formula-based grants have a relatively high degree of political targetability while at the same time having a large impact on redistribution. These grants correlate with constituencies where the incumbent and its supporters are strongly represented before the reform. The new grants also impact voting in the election following the reform suggesting that formula-based grants may also pay off electorally. We find no robust statistically significant relationship for formula-based grants based on low targetability.

Keywords: Pork barrel politics, distributive politics, grants, formula-based grants, targetability, mixed methods

JEL: P16; P30; P35; H40

Introduction

Fiscal equalization and grants systems in Western democracies channel and redistribute vast amounts of economic resources across different levels of government and are hence important for distributive politics. Politicians often claim these transfers follow economic imperatives, not political ones, and point to the process used to determine these transfers: they emphasize the use of formulas, which should not be subject to their political whims (Council of Europe, 2000). Likewise, in the academic literature (Banful, 2011; Dahlberg & Johansson, 2002; Litschig, 2012), discretionary grants are mainly viewed as being subject to strategic political use, while formula-based grants are not because formulas prevent politicians from channeling funding for political purposes. In this paper, we question the extent to which formulas yield an apolitical distribution of grant allocation. We argue that formula-based grants may also be subject to strategic political use as central policymakers have the power to influence the design of formula-based grants according to their own preferences. By carefully selecting criteria and setting deliberate thresholds for grants, policymakers can to some extent leverage formula-based grants to target specific constituencies. Simply put, a high degree of targetability allows policymakers to more easily (re)distribute grants as they see fit.

A long-standing tradition in political economy engages with fiscal equalization (Buchanan, 1950; Oates, 1999). Fiscal equalization and grants can have a stabilizing effect functioning as insurance against local-specific business cycles, structuring economic and political incentives for local governments, influencing public finance, impacting equity and social cohesion across regions, and ensuring roughly equal financial opportunities between local governments

enabling a satisfying allocation. With the remarkable 'exceptionalism' of the United States, all developed democracies have well-established and politically entrenched fiscal equalization and grants systems at the national or federal level (Béland & Lecours, 2014), although they are structured very differently (Boadway et al, 2007; Brenton, 2020). An extensive literature also shows that grants can be leveraged strategically to (re)win or reward voter groups in geographically defined constituencies both at the national (Cox & McCubbins, 1986; Lindbeck & Weilbull 1987; Brollo et al, 2011; Dahlberg et al., 2002; Stokes, 2005; Stokes et al., 2013; Kauder et al. 2016; Mookherjee & Nath, 2023) and at the European level (Bouvet & Dall'Erba, 2010; Dellmuth & Stoffel, 2012; Dellmuth, 2011; Kemmerling & Bodenstein, 2006).

We argue that formula-based grants can also be leveraged politically when targetability is high. We define targetability as the extent to which a grant design allows allocations to a specific constituency regardless of the socio-economic condition. We distinguish between programmatic (legitimate targeting) and political targeting (pork barrel targeting). A central government can choose to either increase or decrease redistribution between local governments. A government campaigning on lowering regional inequalities can for example choose to redistribute resources from the rich to the poor local governments, regardless of the local government's partisan affiliation. However, it can also choose to redistribute resources between local governments for strategic political reasons by for example redistributing resources from the areas where it gains little support to the areas where it has its strongholds, regardless of the socio-economic conditions in those said areas. Central governments could also target "swing" states or districts. The specific strategic motive is of secondary importance to the concept of targetability. Crucially is that the government can choose to (re)distribute resources based on political-strategic reasons. When we use the concept of

targetability we have its political use in mind[i]. Our argument hence tries to introduce nuance into the thinking about the formula-based grant-making process.

Using the Danish large-scale 2020 municipal equalization and grants reform as a case we analyze how changes in the institutional set-up of the municipal equalization and grants system are driven by distributive politics, and how these reform changes ultimately impact the electorate. With some notable exceptions (see e.g. Tavits, 2009) the broader institutional framework of fiscal equalization and grants systems are left out of the political science mainstream. Many instead focus narrowly on discretionary grants without taking other grants in the fiscal equalization and grants systems into account. Our paper highlights that this is an omission as studying these systems allows us to address well-known questions from a new angle. Of central interest to social scientists more broadly and political scientists in particular are questions of how can regional inequalities be addressed, who gets what, and how pork barrel politics are pursued. Studying municipal equalization and grants systems allows us to tackle important questions like these.

We find that several of the newly introduced special grants have a relatively high degree of targetability as they are based on deliberate thresholds and unjustifiable criteria. We also show that these new grants have a substantial impact on regional redistribution. Leveraging election data from the 2019 parliamentary election and the 2020 municipal equalization and grants reform we further find that the size of these new grants correlates positively with votes for the incumbent, its parliamentary supporting parties, and the reform coalition. Finally, leveraging voting station and new survey data from the 2022 parliamentary election we find that some of these new grants are also associated with voting: The newly introduced grants with a higher degree of targetability correlate with votes for the government and especially its

parliamentary supporters, while changes in grants based on a relatively low degree of targetability do not.

We moreover argue that Denmark represents an interesting case for testing our argument in two important respects. First, the literature argues that localism and pork-barrel politics play a minimal role in a multiparty parliamentary system – Denmark represents such a case (Kjærgaard, 2016; Tavits, 2009). Second, if we are correct in highlighting the importance of targetability for the strategic room to maneuver, Denmark should according to the mainstream literature represent a least likely case as its system builds on a long-institutionalized tradition of formula-based grants based on well-known criteria (Mau Pedersen, 1995). If distributive politics influences the degree of targetability of formula-based grants in this context we should expect targetability to be influenced by similar politics in other developed democracies as well.

The paper speaks to the broader literature on distributive politics (Golden & Min, 2013; Lasswell, 1936). More specifically, it speaks to the literature on distributive politics of grant allocations (Cox & McCubbins, 1986; Lindbeck & Weilbull 1987), by showing how formula-based grants can be leveraged politically. It also addresses the literature on the political returns to allocation (Fiorina, 1977; Samuels, 2002; Weingast et al., 1981), as we link changes in the politically leveraged formula-based grants to electoral behavior after the reform. Our findings suggest an understanding by the central government and its supporters that a non-targeted allocation might not have had the same electoral payoff. This also suggests that the government actually uses the increased room to maneuver politically created by the higher degree of targetability. By showing how resources can be leveraged for political purposes the paper also speaks to a related though separated debate in international political

economy on the allocation of foreign aid (Arel-Bundock et al., 2015; Brigs, 2021; Dietrich, 2016). This literature finds that foreign aid is often not allocated to those most in need and that foreign aid programs are leveraged politically (although often for different political purposes than domestic electoral reasons). Lastly, the paper addresses the literature on institutional change by examining which strategies and instruments policymakers can pursue to change institutions to suit their own interests (Streeck & Thelen, 2005). As we show, replacing existing formula-based grants with new ones may be an effective strategy to use grants as pork barrel politics.

The paper contributes three new insights to the literature. First, we theorize that formula-based grants can be subject to political-strategic use when targetability is high. Second, we show empirically how changes in institutions (grants) influence targetability. Third, we show empirically that (some) grants with higher targetability are related to voting.

The paper first reviews the literature on the strategic use of grants. It then introduces the main theoretical argument. Next, the article's data is presented. In four steps we then (1) analyze the substantive policy changes in the Danish 2020 municipal equalization and grants reform and the redistributive consequences of different grants; (2) analyze the political strategic considerations behind the introduction of these grants; (3) analyze the electoral consequences of the newly introduced grants with voting station data; (4) analyze the electoral consequences of the newly introduced grants with new individual-level survey data. The last section concludes.

Strategic use of grants

There is a significant body of research in political economy on the strategic use of government grants, also known as 'pork barrel politics' and opportunistic behavior (Arrington, 1969; Balla et al., 2002; Lindbeck et al, 1987; Milligan & Smart, 2005, Stokes, 2009). The strategic use of grants may happen when a central state/federal authority transfers funds to a decentralized level or when distributing funds between local governments. Central to this literature is how grants can be used strategically to increase parties' chances of re-election and political support in general, i.e. a purpose that goes beyond the recognized equalization policy objectives of leveling the economic playing field for local governments. This rests on the assumption that local decision-makers respond to the grants. Moreover, it is often assumed that local voters understand or are told about grant changes, or at least are receptive (responsive) to the effects of the grant on, among other things, local expenditures and services, as well as local financing (Cox & McCubbins, 1986, Bracco et al, 2015).

The mechanism can be both direct, in the form of payment or 'bribe' for agreeing with the subsidizing politicians, or more indirect, in the form of signaling. A signal is a form of nudging enabling local politicians, through an increased subsidy, to improve the level of local services provided to citizens, who may reward them electorally for what they perceive as good competence (Bracco et al, 2015). In this context, parts of the literature have also addressed the so-called 'flypaper effect'[ii] – i.e. whether additional subsidies are 'sticky' and result in increased local consumption or lower taxes (Bækgaard & Kjærgaard, 2016; Inman, 2008; Lago et al., 2022).

Much of this literature analyses discretionary grants from the central to the local level of government (Bracco et al, 2015; Brollo & Nannicini, 2011; Dahlberg & Johansson, 2002, Jarocinska, 2022). The motivation for focusing on discretionary grants is that the central

authorities are mainly capable of tailoring these types of grants according to their political preferences. In contrast, when using a formula-based grant, it is more difficult to tailor grants according to specific partisan preferences. As Banful (2011: 381) succintly puts it: "*The prevailing assumption is that distributing resources by a formula based on economic and welfare variables, will suspend the arbitrariness that allows politically motivated targeting*". Contrasting discretionary grants with formula-based grants Jarocinka (2022:683) more recently writes: "*The discretionary grants that we use (…) are appropriate for testing theories of distributive politics, because their allocation is controlled by the federal government and no prescribed formula for their allocation exists*". For this reason, the literature has generally recommended formula-based grants (Bracco et al, 2015; PETFF; 2006; but see Khemani, 2007). In addition, strategic grants can also refer to development grants, tax allocations, and equalization grants (Fiorillo & Merkaj, 2020).

Although admittedly crude, we identify two main models in the literature (Cox & McCubbins, 1986; Lindbeck & Weilbull, 1987)[iii]. One prominent model is referred to as the 'core voter/loyalty model' (Cox & McCubbins, 1986). According to this model, the national party in power tries to support the voter base in jurisdictions where its party is strongly represented and whose preferences are therefore well known. That is, the party assesses the likelihood and certainty of support as highest in these localities. The second and equally prominent model is the 'swing voter model' (Dixit & Londregan, 1996; Dahlberg & Johansson, 2002). According to this model, the party in power seeks to appeal in particular to those jurisdictions where the election is 'close' and relatively few voters are needed to gain a majority. The logic is that especially in electoral systems with winner-takes-all principles, grants can potentially have an electoral big impact in those electoral districts where the

election result is difficult to predict. It may thus be strategically more worthwhile to channel funds to swing states relative to areas where the party has a secure majority.

Relevant to these two main models, Cox & McCubbins (1986) point out that the degree of risk aversion of central policymakers also plays a role in the approach chosen. A swing voter approach may be riskier, as relatively small changes in voter turnouts in the undesirable direction may significantly affect the outcome.

As a consequence of the focus on federal states, the literature has paid less attention to how different coalitions affect grants in countries with multi-party and proportional voting systems (Kjærgaard, 2016). However, several studies point to the importance of party composition in a coalition for understanding which parties' interests are served (Budge & Keman, 1990, Bäck et al., 2013), while others point to the ability of all coalition parties to be served (Arulampalam et al, 2009). Some also argue that the parties in the government have more influence because of their proposal power (Ansolabehere et al., 2005). A coalition can be understood both as a government coalition (parties in the incumbent government), a parliamentary coalition (a mix of parties in government and not in government but supporting the government), and as a reform coalition (parties supporting a reform regardless of their affiliation to the government) (Häusermann, 2010; Kjærgaard, 2016).

Targetability and the scope for political-strategic use of grants

We argue that the degree of targetability affects the scope for political-strategic use of grants, whether or not the grant is formula-based. By targetability, we mean the extent to which it is possible to design a grant in a way that it can be distributed to a specific constituency, i.e,

leveraged politically strategically. If a grant is easily distributed to a specific constituency, targetability is high. If a grant is difficult to distribute to a specific constituency the degree of targetability is low. It is a strong assumption in the literature that discretionary grants have a high degree of targetability while formula-based grants have a low degree. When distributing a discretionary grant, it is in principle possible for a central government to freely pick the "winner" or beneficiary. The central government can for example freely choose to give the grant to Municipality A but not Municipality B regardless of the socio-economic status or need in the two respective municipalities. Central policy-makers are contrary constrained by formula-based grants as this grant type dictates – based on economic welfare variables – how much municipality A and municipality B respectively receive. We argue that this assumption about inherent constraints from formulas is misleading, as central policy-makers have the power to influence the formula and its elements in formula-based grants. Catering to specific constituencies, central policy-makers can for example set deliberate thresholds or choose which variables are included or not in the formula. The latter refers to the central government's power to make "non-decisions" when designing a formula-based grant (Bachrach & Baratz, 1962). The central government may therefore be able to design a grant in a way that suits some political interests over others even though the (formula-based) grant appears as sensible and technically sound.

This implies that formula-based grants at least to some extent can be targeted to some constituencies instead of others. By introducing new grants or changing grant criteria in existing formula-based grants, patrons can more easily target clients in specific constituencies. As we test in more detail in later sections, several of the newly introduced grants in the Danish 2020 municipal and grants reform are formula-based, yet they seem to be

targeted at specific local governments. The consequence of our targetability argument is hence that formula-based grants may be subject to political strategic use.

Several studies in the fiscal equalization literature frequently use the concept of "objectivity" – often with reference to formula-based grants (Council of Europe (2000); OECD, 2012, 2020, 2021, Solé-Ollé, 2013, Jarocinska,2022; Junghun & Lotz, 2007; Oulasvirta, 1997)[iv]. By "objectivity", it is often meant that the calculation of a grant is transparent and relates to recognized needs. This implies that the data and calculation of the grant must be transparent and replicable, and a plausible link (of causality) between criteria and needs is established (for example via statistical analysis). In the Nordic countries, a grant is, moreover, said to be 'objective' if municipality behavior does not impact the allocation of grants (at least in the short to medium turn) (Junghun & Lotz, 2007; Oulasvirta, 1997). Discretionary grants are often viewed as being less "objective" since they can be distributed as the central government sees fit, whereas formula-based grants are seen as more objective, as they are based on an "objective" formula. As Jarocinska (2022: 696) for example states: "*formula-based grants by definition capture the objective need for grants*". Although related, where targetability differs from "objectivity" is that even though a formula is based on seemingly "objective" criteria, the criteria can to some extent be designed to target specific constituencies. This goes counter to the prevailing assumption in the literature, and we try to nuance this widely held belief in the literature.

We are, however, not the first to claim that formula-based grants can be subject to strategic use. Khemani (2003) for example argues that the ability to leverage formula-based grants strategically can be circumvented when political agencies as opposed to independent Finance Committees are in charge of policy recommendations[v]. As such, this institutional mechanism

can curb political influence. Our theory of targetability fits nicely with Khemani's (2003) argument, and we see the institutional mechanism she presents as one way of influencing targetability. Media attention and opposition critique (Mehiriz, 2017) may also influence targetability. However, the crucial factor, we contend, is whether or not the grant can be targeted to specific constituencies. Targetability may be achieved via different mechanisms and our theory is agnostic about how it is achieved.

Based on our theory of targetability we should hence expect the following:

Proposition 1: Formula-based grants with a low degree of targetability will not be subject to political strategic use.

Proposition 2: Formula-based grants with a high degree of targetability will be subject to political strategic use.

Data

We base the empirical analyses partly on qualitative secondary sources, and partly on quantitative data on (re)distribution between municipalities from the 2020 equalization reform bill, and new election data from the 2019 and 2022 Danish national elections at the municipality, voting station, and individual level. The 2019-election is the last election before the reform and 2022-election the first after reform implementation. Appendix 1-6 provide data sources and descriptive statistics.

For the qualitative analysis of the substantive changes of the 2020 municipal equalization and grants reform, we primarily rely on the legal text from the 2020 reform bill (Ministry of Social Affairs and the Interior, 2020b) and the Ministry of Interior's background material for the reform. To track policy changes, we compare changes in the 2020 reform with the annual grant announcement published by the Ministry. As a supplement, we also use secondary analyses of the principles of the Danish municipal equalization and grants system. All sources are cited in the text.

To quantitatively test the strategic use of municipal equalization schemes and grants, we leverage data from the Ministry of Social Affairs and the Interior, Municipal Key Figures (www.noegletal. dk), and the Danish Electoral Database on the 98 municipalities. To test the strategic determinants of the reform, the dependent variables measure the change in per capita kroner (DKK) from the respective grants in 2021 (the year after the 2020 reform is implemented). Positive numbers indicate that a municipality receives more money from the scheme/grant, while negative numbers indicate that the municipality has to contribute. The dependent variables thus measure how much each municipality receives/contributes per capita per scheme/grant.

To measure grants with low targetability, we use the changes in the equalization of expenditure needs and tax bases, as well as the overcompensation scheme. This part of the system includes tax bases and expenditure needs and relies on “objective” allocation criteria based on publicly available regression analysis (Ministry of Social Affairs and the Interior, 2020b: 19, 40). To measure grants with a relatively high degree of targetability, we use three new specific grants: The Metropolitan Grant (n=34)[vi], Island & Rural Grant (n=98), and Special Compensation Grant (n=98). We analyze in more detail in later sections why these

grants rely on a high degree of targetability.

To measure distributive politics we use data from the 2019 general election to calculate the share of votes at the municipality level by dividing the number of votes for party x by the number of valid votes in municipality *i* multiplied by 100. We measure (1) the share of votes for the Incumbent (Social Democratic Party), (2) the Incumbent and its parliamentary supporters (Social Democratic Party, Reed-Green Alliance, Green Left, Social Liberal Party, and The Alternative), and (3) the reform coalition (Social Democratic Party, Liberal Party, Green Left, Social Liberal Party, and The Alternative). All data are from the Danish Electoral Database.

To measure swing voters we compute the following variable: $Swing\ voter = \sqrt{(CL_i - CR_i)^2}$, where CL measures the share of votes for center-left bloc (the incumbent and the parliamentary supporters), CR measures the share of votes for the center-right bloc (all other parties), and *i* is the respective municipality. The measure thus indicates the margin between the two blocs. The value 1 for example indicates that there is one percentage point between the two blocs (measured as the share of votes). Lower values (smaller margins) should thus, according to the swing voter model, be correlated with higher grant allocations.

To test if the three newly introduced grants subsequently impact the electorate, we leverage voting station-level data from the 2022 parliamentary election. The Danish National Election Database contains 1347(1346) voting stations in 2022(2019) with data on votes for the respective parties. The smallest election station has 31 eligible voters whereas the biggest has 22.152. Each voting station refers to a fixed geographical area (based on postal codes) within voting districts. These geographical areas fit within municipality borders allowing us to

leverage a multi-level regression design, where we have voting stations within municipalities.

Furthermore, to measure votes at the voting station level we follow the coding of political constellations above (i.e. incumbent, incumbent & its parliamentary supporters, and reform coalition). We merge the voting station data with the municipality-level reform data using the municipal identifier number by assigning each voting station to a municipality. We have 1345 observations (i.e. voting stations) after merging the data. Due to missingness, we ended up with 1330 observations in the full models[vii].

Moreover, to measure votes at the individual level we leverage a new large-n representative national survey consisting of 4.218 respondents. The survey is fielded by YouGov in the aftermath of the Danish national election on November 1, 2022, and respondents are drawn from YouGov's Denmark Panel. To ensure representativity data is weighted by age, gender, education, and residency. Respondents are asked which party they voted for in the 2022 and 2019 national elections allowing us to measure core voters (voters that voted for the same party/coalition in two consecutive elections) as well as vote switchers. This allows us to test to what extent grants may strengthen voter loyalty and attract new voters. We merge the individual-level survey data with the municipal-level data on grants by using respondents' reported municipality of residence.

Empirical analysis

The empirical analysis is structured as follows: First, we analyze the policy content of the 2020 reform focusing on targetability; Second, the strategic motivations of the reform; Third,

the consequence of the reform on voting in the subsequent 2022 national election leveraging voting station data; Fourth, the reform's impact on voting leveraging the individual survey data.

Content of the 2020 reform and targetability

The Danish welfare state is one of the most decentralized in the world, both in terms of GDP and as a share of public sector expenditures (Ivanyana & Shah, 2012). Danish municipalities provide the majority of welfare-related services (child care, elderly care, primary schools, employment services, etc.). The economic-institutional prerequisite ensuring that municipalities have roughly equal financial opportunities to provide these services is the municipal fiscal equalization and grants system.

Throughout the years, the system has consisted of a *general part* (the 'General System') and a *special part* with special grants and compensation schemes (Etzerodt & Mau Pedersen, 2018). The general – and most comprehensive – part is addressing the main differences across municipalities in tax bases and expenditure needs and the allocation of the block grant. The special schemes address specific issues that the general system does not capture.[viii]

Over the years, a professional tradition of 'objectivity' in the system has emerged, first and foremost through requirements for the expenditure needs criteria that have been included in the general part. These include requirements that the data stems from a public source (normally Statistics Denmark), and have a sound professional justification relating needs and criteria via arguments of causal relationship including published statistical analysis (Mau Pedersen, 1995, Junghun & Lotz, 2007, Finance Committee, 2012). Moreover, it is also

required that the criteria do not depend on the municipalities' own behavior. As this part of the system relies on well-known and carefully chosen criteria the degree of targetability is relatively low in this part of the system. There has been no tradition in the special part of the system of pursuing a similar vigor with regard to factuality.

In 2020, the system underwent a large-scale reform. The political reform process was long-lasting and first failed in 2018 and then later adjourned in 2020 with a four month long and intense negotiation process between several parties in government (Ministry of Social Affairs and the Interior, 2020b). The normative policy project was clear from the beginning of the 2020-negotiations: A better balance in municipalities' economic opportunities, including greater redistribution of economic resources between municipalities, which also resulted in a substantial increase in the overall redistribution (Ministry of Social Affairs and the Interior, 2020a). The 2020 municipal equalization and grants reform preserved the main principles of objectivity in the general part, but with adjustments of the expenditure needs as well as an increase in the equalization intensity (Blom-Hansen & Mau Pedersen, 2020).

The reform however introduced several new special grants. We focus on the arguably most significant three new special grants: Metropolitan Grant, Island & Rural Grant, and Special Compensation Grant. We describe the grants in detail in table 1.

Financially most importantly, the reform first replaced parts of the general system with two quite substantial special grants. The previous metropolitan equalization scheme was replaced with the special grant called the 'Metropolitan Grant' and the previous grant for municipalities outside the metropolitan area with a weak tax base was replaced with another special grant called the 'Island and Rural Municipalities Grant'. For both grants, the criteria

are only (superficially) explained in the legal text, and not further documented in supplementary material. It is noteworthy that the calculations for the two grants are not documented in the otherwise detailed yearly report on the municipal equalization and grant system from the ministry (Ministry of the Interior and Housing, 2022). However, according to the legal text, the grants in question were allegedly distributed to so-called vulnerable municipalities that meet one or more criteria, but the calculation and the criteria were not publicly released (Ministry of Social Affairs and the Interior, 2020b: 19). For both schemes, the law also unconventionally explicitly mentions by name the 15 and 34 beneficiary municipalities respectively, with the corresponding distribution factor. The grants are finally 'frozen', i.e. unchanged from year to year except for corrections in population-size– again without any further justification or documentation. This means that if the socioeconomic conditions change in a municipality (either for the better or worse) the grant distribution is unchanged. The new grants therefore seem to have a built-in "drift" mechanism (Streeck & Thelen, 2005) as the grants will not address changes in municipalities' economic conditions. Lastly, there were no publicly available analyses showing a plausible link between criteria and needs.

Specifically, both grants have rather targeted prerequisites for the grant allocation. For the Metropolitan grant, it is a prerequisite for a recipient municipality to have an average tax base below 220.000 DKK (1 EUR roughly equals 7.5 DKK). In addition, the municipality must fulfill at least one of five criteria – the more criteria the municipality fulfills the bigger the grant will be. One criterion is for example the "percentage of social housing per capita is above 12% and the tax base below 215,000 DKK per capita". Social housing as an indicator seems reasonable and "objective", however, it is unclear why it has to be above 12 % and at the same time why it is only applicable for those municipalities with a tax base below

215.000 DKK – especially since the municipality already in the first place must have a tax base below 220.000 DKK.

For the Island and Rural Grant, it is a prerequisite that the municipality is classified as a "peripheral" or a "middle" municipality and with an average tax base is below 190.000 DKK. In addition, the municipality must fulfill at least three out of seven criteria. For each criterion above three the municipality fulfills the larger the grant will be. For example, one criterion is "Proportion of 70+-year-olds is over 15.5%". Again, the proportion of 70+-year-olds seems like a reasonable and "objective" measure, however, that the proportion has to be above 15.5% seems odd – especially since this is not justified. Why use 70 years and not 75 years as a threshold? Further, why a 15.5 pct. as a cut-off point and not 16.5 pct. – or any other value for that matter? Moreover, the general part of the system already grants disproportionally more money to municipalities with many elderly (using fine-grained age intervals) via equalization of expenditure needs (demography is a central factor in the calculation of expenditure needs) so the government could easily have addressed this issue via well-known schemes and publicly available distributional formulas. That is, the policymakers had the opportunity to use existing schemes but chose to create brand new ones. Moreover, several of the criteria are new and have not previously been used to allocate grants via the municipal equalization system. Municipality types and rural districts are good examples of this.

Second, the reform introduced an equally large grant called the Special Compensation Grant. This grant distributes funds to municipalities with the greatest losses from some – but not all – elements of the reform measured by the size of the loss. The scheme applies thresholds to delimit the definition of a "great" loss: More than 0.4% of the tax base, regardless of the municipality's tax base; More than 0.15% of the tax base if the municipality has a tax base

below DKK 180.000 per capita. Moreover, we find no attempts to justify the specific values and cut-off points. The grant resembles a classical transitional grant to temporarily facilitate the adaption of a new reform and its distributional changes. However, the Special Compensation Grant is permanent and the reform already entails a temporary transitional grant. Finally, the fact that only some, but not all, losses stemming from the reform are addressed in this grant is suspicious.

Table 1. The three new grants

	Metropolitan grant	Island & Rural Grant	Special compensation grant
Grant history	Replaces the previous Metropolitan equalization grant	Replaces the previous grant for municipalities outside the metropolitan area with a weak tax base	New grant
Prerequisite	It is a prerequisite that the municipality's tax base is less than DKK 220,000 per inhabitant. The municipality must moreover meet at least one of the following criteria:	It is a prerequisite that the municipality is a "peripheral" or "middle" municipality outside the metropolitan area and the municipality's tax base is less than DKK 190,000 per capita. The municipality must moreover meet at least 3 of the following criteria:	In principle applicable for municipalities with losses from the reform, however, depends on specific criteria. The scheme compensates municipalities with losses of:
Grant criteria	- Percentage of social housing per capita above 12% and tax base below DKK 215,000 per capita.	- Proportion of 70+ year olds is over 15.5%	- More than 0.4% of the tax base, regardless of the municipality's tax base.
	- Years of life lost in relation to average life expectancy for 65+ year olds in relation to the population above 47%	- Rural district rate above 60%	- More than 0.15% of the tax base if the municipality has a tax base below DKK 180,000 per capita.
	- Proportion of "old" disability pensioners (awarded disability pension before 2010 and 40+ years old at the time of award) per capita over 0.7%	- Number of jobs per 100 17-64 year olds is below 79.5	
	- Outer or intermediate municipality	- Island and independent municipality	The compensation is calculated once and for all and is allocated with a fixed amount annually until the next time an equalization reform is implemented.
	- If a municipality has a corporate tax revenue of more than DKK 6,000 per capita, it counts negatively, so the municipality meets one less of the above criteria.	- Tax base below DKK 178,000 per capita	
		- Proportion of "old" early retirees (granted early retirement before 2010 and 40+ years old at the time of granting) per capita over 0.7%	
		- The proportion of early retirees (all early retirees per capita) is over 1.75%	

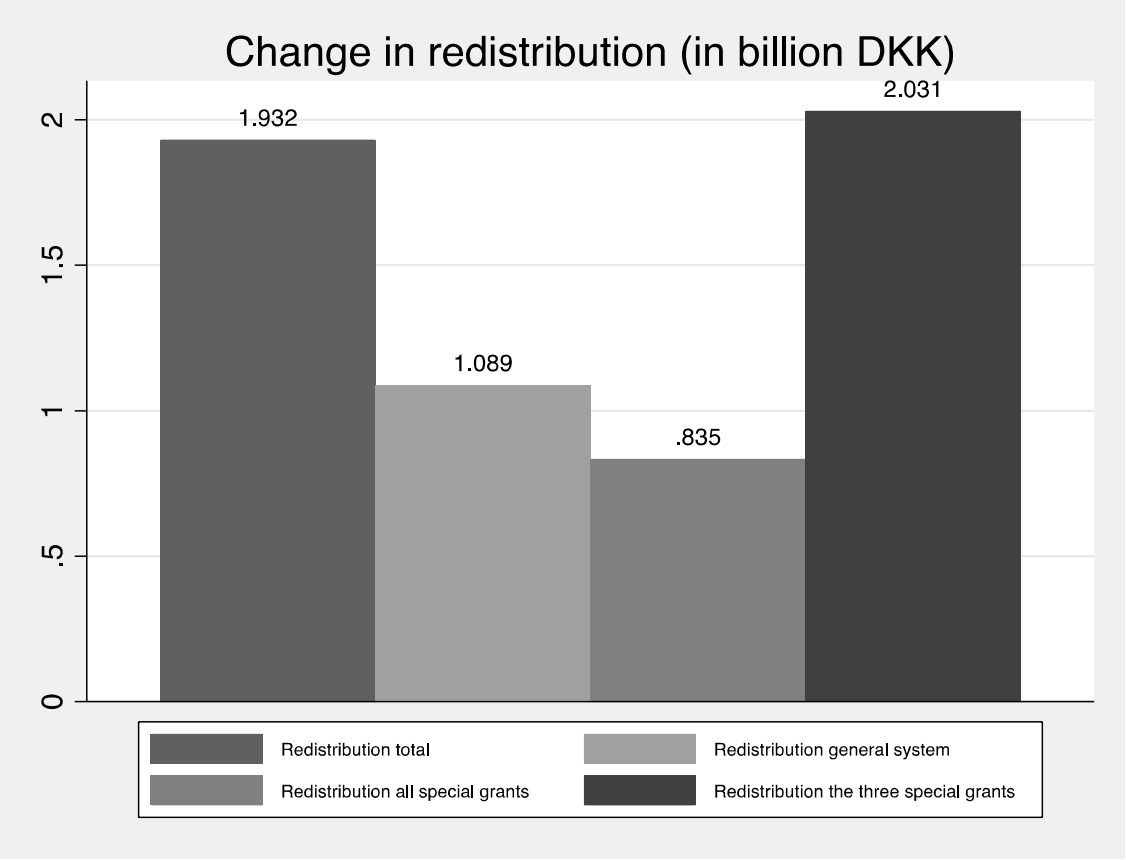
Note: Based on Ministry of Social Affairs and the Interior (2020b). Authors own translation.

Taken together, these three new grants seem to have a relatively high degree of targetability. The calculations are hidden from the public, the criteria included are not justified, the cut-off points seem deliberately specific, and the grants are "frozen". We do not have a smoking gun, however, the fact that the included criteria are unjustified (which they normally are not in the general part) and the cut-off points seem oddly specific suggests that these grants are intentionally designed to target specific constituencies. To summarize, this qualitative analysis of the reform's content changes suggests that the grants *are* designed to target specific constituencies.

The importance of all of the newly introduced special grants and schemes can also be illustrated by their impact on overall redistribution from the municipal equalization and grants system. To indicate this, we calculate the magnitude of redistribution resulting from subparts of the 2020 reform. We distinguish between redistribution from the entire system (i.e. all reform changes combined), from the general part, from the special part (minus the three new grants), and finally from the three abovementioned new grants.

Figure 1 shows the redistribution consequences of the reform and its subparts. It shows that the change in redistribution from the entire system corresponds to around 1.9 bn. DKK, which is equivalent to 10 pct. (from 20 bn. DKK before the reform to 21.9 bn. DKK after the reform). This is a substantial change in the redistribution of resources. The increase resulting from the general part of the system accounts for 1.1 bn. DKK with a residual increase for the special part of the system of 0.8 bn. DKK. Finally, the three new grants, account for around 2 bn. DKK, i.e. a very significant part of the increase in redistribution.

Figure 1. Change in redistribution 2020-2021 after implementation of the reform, bn. DKK.



Note: We follow Statistics Denmark (Nørtoft et al., 2022) and calculate redistributive consequences for the year in question as the sum of negative (corresponding to positive) differences for single municipalities between the actual equalization grants and grants calculated for a 'neutral' situation, i.e. where the considered equalization grant system did not exist but the sum of net grants from the central government to local governments were distributed to municipalities in proportion to their share of inhabitants. See also appendix 8.

Source: Authors' own calculations based on yearly reports on the equalization and grant system from the Ministry, cf. App. 8.

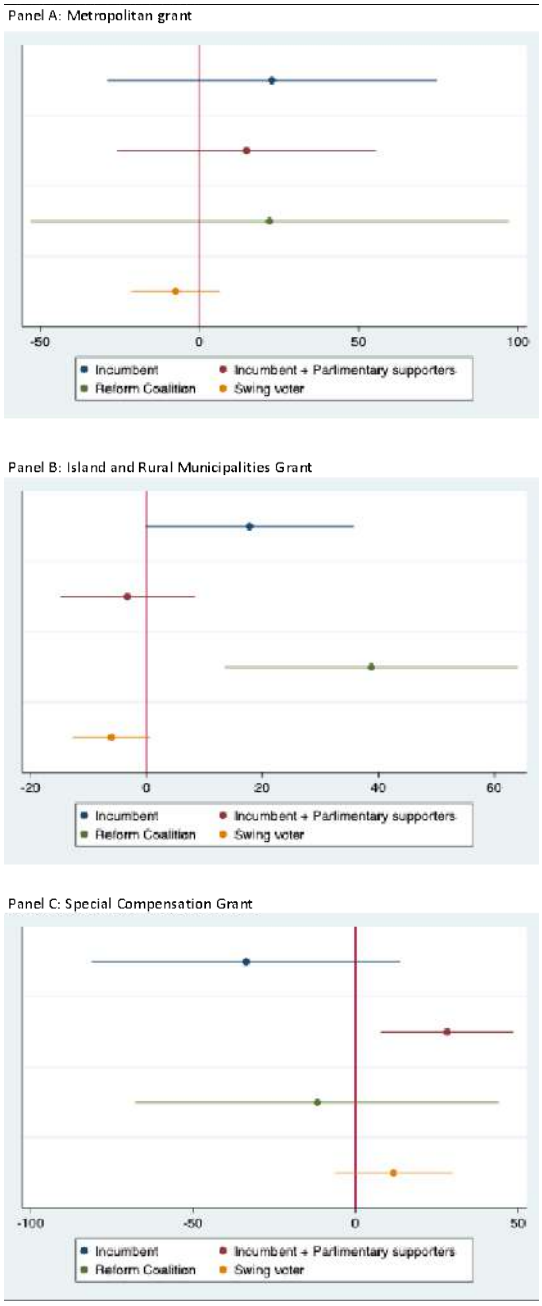
Strategic motivations and grant changes

To test the political motives behind the reform we run a set of linear (OLS) regressions with standard errors clustered at the municipality level. We hereby intend to measure the impact of party support for the different political parties/coalitions in the 2019 election (outlined in the

data section) on grants per capita after the 2020-reform[ix]. In all models, we control for several structural conditions which likely impact the allocation of (equalization) grants: Number of inhabitants, population growth, tax base per capita, expenditure needs, the share of elderly (67+ years old), and the share of persons without vocational education. For the sake of simplicity, we only plot the estimate of the political variables of interest below, however, the full regression models are available in Appendix 9-11. Robustness checks are described in the text and available in Appendix 12-13.

Figure 2 shows the main results. Panel A first shows the results of the new Metropolitan Grant. When we control for several structural conditions, there is no statistically significant relationship between the political variables and changes in the size of grants. The estimates, however, have the expected direction, and the few observations (n=34) naturally make it harder to get conventionally acceptable p-values. Panel B further shows the results for new Island & Rural Grant. For this grant, only the share of votes for the reform coalition is positively and statistically significantly correlated with changes in the amount of grants from the scheme. However, the share of votes for the incumbent (Social Democrats) is positive and significant at the 0.1 level. Robustness checks, however, show that it is only the share of votes for the reform coalition that remains systematically statistically significant. Panel C finally shows the results for the Special Compensation Grant showing that the incumbent and its parliamentary supporters seem to gain relatively more from this grant. This result is robust to the other specifications. Moreover, appendix 12-13 show that there is no statistically significant relationship between the political variables and changes in the general system that is based on a low degree of targetability.

Figure 2. Relationship between political constellations and compensation and grant funds



Note: Controls are included in all models. Circles show estimates, while horizontal lines show a 95% confidence interval. Appendix 9-11 presents the full models.

All in all, we find no statistical support for the claim that changes in the general part of the system are driven by political-strategic motives – the included political-strategic variables certainly do not appear to be systematically correlated with grant allocations. The Special Compensation Grant seems to be particularly beneficial for those municipalities where the

incumbent and its parliamentary supporters are well represented. For the new Island and Rural Municipalities Grant, it seems to benefit particularly those municipalities where the reform coalition has its stronghold. We find no significant correlations for the new Metropolitan Grant, though, all coefficients are in the expected direction, and with an n-value of 34 the nonsignificant results are less surprising. These results hence suggest a partisan bias in the allocation of some of the grants with high targetability, while there seems to be no political bias in the allocation of grants with a low degree of targetability. Taken together we interpret these results as suggestive of our propositions.

Grants and voting in the 2022 national election: Voting station level evidence

To test the electoral consequences of the 2020 municipal equalization and grants reform, we run a set of multi-level linear (OLS) regressions with standard errors clustered at the municipality level (Stegmueller, 2011). We measure the impact of the respective grants on support for the different political coalitions at the voting station level. In all models, at the municipality level, we control for the number of inhabitants, tax base per capita, expenditure needs, share of elderly (67+ years old), and share of persons without vocational education. At the voting station level, we further control for adult population size, unemployment, income inequality (80/20-ratio), and votes for the respective political party/coalition in the 2019 election (the latter is done to measure changes in votes). Except for tax base and expenditure needs per capita these controls are frequently used when analyzing electoral behavior in developed democracies. We only plot the coefficient for the variables of interest; however, the full models are available in appendix 14-16, and alternative tests and robustness checks are in appendix 17-19. We focus on the three new special grants below and present models for the general scheme in the appendix.

Figure 3. Relationship between grants and votes: Voting station evidence 2022

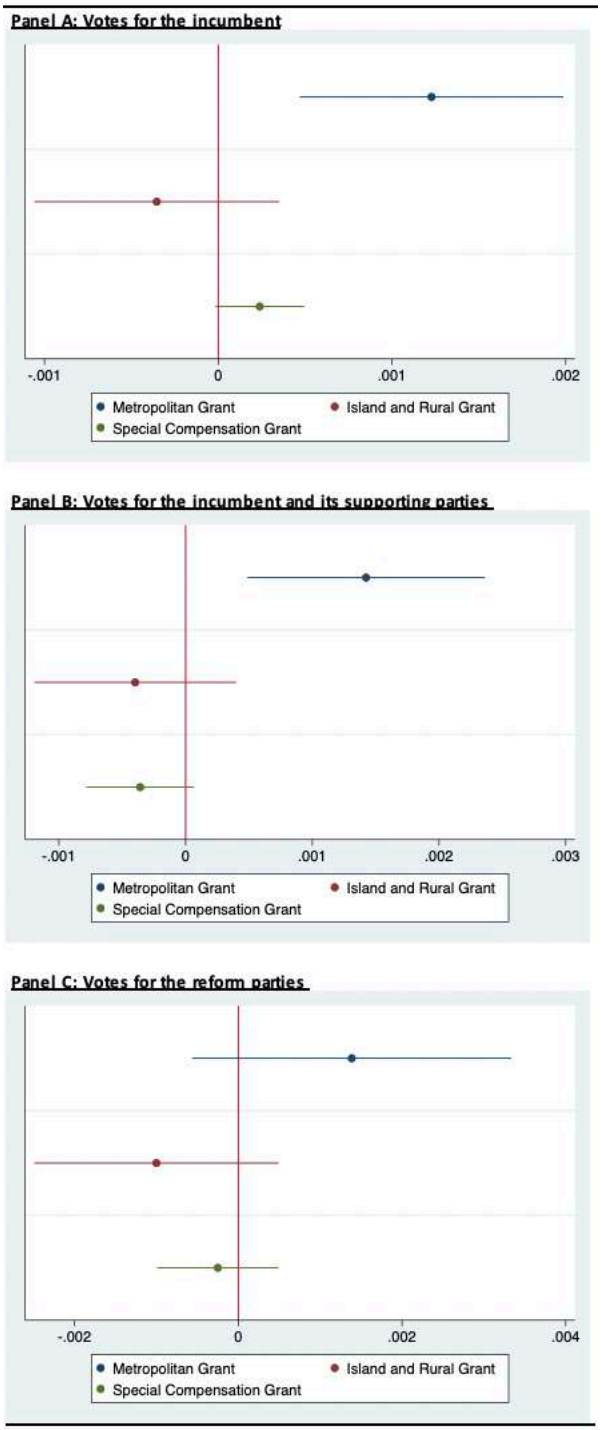


Figure 3 shows the main results from the analysis of the impact of the 2020 municipal equalization and grants reform on votes in the subsequent 2022 national election. Panel A shows that increases in funds from the new Island and Rural Grant is not correlated with

votes for the incumbent. The Special Compensation Grant is positively correlated with votes for the incumbent, although only significant at the 0.1-level (p=0,067). The new Metropolitan Grant does however seem to increase votes for the incumbent. An increase of 655 DKK (equal to one standard deviation) in the grant increases votes for the incumbent by 0.80 percentage points. Panel B moreover shows that increases in funds from Island and Rural Grant and the Special Compensation Grant are insignificantly correlated with votes for the incumbent and supporting parties and the special compensation scene is negative and significant at the 0.1-level. The new Metropolitan Grant is positively associated with votes for the incumbent and its supporters. An increase of 655 DKK (equal to a standard deviation) in the grant seems to increase votes for the incumbent and its supporters by 0.93 percentage points. These effect sizes seem relatively considerable. It should be noted that the results of the special compensation scheme are not robust to alternative specifications.

We further test the same models with the reform coalition (see Appendix 17). These models indicate that all three grants insignificantly correlate with votes for the reform coalition parties. We further test if the results are the same for the Liberal Party (the only opposition party in the reform coalition), and find that they are indicating that the insignificant correlation is primarily driven by the Liberal Party (see appendix 18).

Moreover, since the 2020 reform overall increased the level of transfers from the state to local governments (i.e. many winners, relatively few losers), we also test if our results are driven by this. We do so by running the models on votes for the Conservatives – a party that should not gain electorally from the grants if our expectations are correct. Appendix 19 confirms our expectations.

Furthermore, we test if the sum of the three new specific grants is influencing votes controlling for changes in the general part of the system (the latter should not have any discernable impact when controlling for the relevant structural factors). Appendix 20 indicates that the sum of the three new specific grants is increasing votes for the incumbent and its parliamentary supporters while changes in the general system do not. All in all, these results indicate that the new Metropolitan Grant is increasing votes for the incumbent and its parliamentary supporters while changes in the general parts of the system do not. The special compensation scheme also seems to increase votes for the incumbent, although this finding is less robust.

Grants and voting in the 2022 national election: Individual-level evidence

To test the electoral consequences of the 2020 municipal equalization and grants reform, we moreover leverage new individual survey data. As a supplement to the previous analysis, the individual-level data allows us to address voter movements between the different political blocs. We hence distinguish between core (a voter that voted for the same bloc in 2019 and 2022) center-right/left voters and voters that switched from the center-right to the center-left[x] (center-left is equal to the incumbent and its parliamentary supporters). In all models, we run multi-level multinomial logistic regression and control for respondents' age, gender, education, income, unemployment, ruralness, life satisfaction, self-reported health, immigration preferences, redistribution preferences, and European Union preferences.

Table 2. Grants and voting: Individual-level evidence

	1		2		3	
Ref: Core center-right voter	Core center-left voter	Center-right to center-left	Core center-left voter	Center-right to center-left	Core center-left voter	Center-right to center-left

Island & Rural Grant	0.000200	-8.03e-05				
	(0.000126)	(0.000231)				
Metropolitan Grant			0.000473***	0.000599**		
			(0.000164)	(0.000272)		
Special Compensation Grant					0.000129***	-0.000207
					(4.51e-05)	(0.000204)
Constant	0.174	-1.771	1.139	0.905	0.147	-1.809
	(0.800)	(1.203)	(1.418)	(1.716)	(0.790)	(1.208)
No. groups (municipalitites)	97	97	34	34	97	97
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2,753	2,753	930	930	2,753	2,753

Note: We run the multi-level multinomial models with the gsem function in Stata. *** p<0.01, ** p<0.05, * p<0.1. Municipality clustered standard errors in parentheses. Weights for age, gender, education, and residency, are implemented in all models.

Table 2 presents the main results from the individual-level analysis. Model 1 in table 2 indicates that the Island & Rural Grant is shy of statistically significant (p=0,11) and positively associated with core center-left voters relative to core center-right voters whereas there is no statistically significant relationship between this grant and voters switching from the center-right bloc to the center-left bloc. Model 2 moreover shows that there is a positive association between the Metropolitan Grant and core center-left voters as well as voters switching from the center-right to the center-left relative to center-right voters. The probabilities are plotted in Appendix 20. A one standard deviation increase in the grant roughly increases the probability of being loyal to the incumbent and its parliamentary supporters by 2.7 %, of being a vote switcher by 1.1 %, and being loyal to the center-right bloc parties by 3.8 %. These probabilities are relatively modest. Model 3 finally indicates a positive association between the Special Compensation Grant and core center-voters, but not to vote switchers. Taken together individual-level evidence suggest that all three grants may have strengthened voter loyalty amongst center-left voters. The Metropolitan grant may even have attracted new voters from the oppositional bloc.

In Appendix 21, we furthermore test how the three new specific grants combined impact voting controlling for changes in the general part. This test shows that the three grants combined are statistically and positively correlated with core center-left voters but not vote switchers. The general system is once again insignificantly related to voting behavior.

Conclusion and discussion

Fiscal equalization and grants systems in Western democracies channel and redistribute vast amounts of economic resources across different levels of government. This paper examines how distributive politics drive reforms of municipal equalization and grants systems, and how reform changes subsequently influence electoral politics. Contrary to the common view in the literature, we argue that formula-based grants may be subject to political-strategic use if the formula has a high level of targetability, i.e. is designed in a way that it can be distributed to a specific constituency. Using Denmark as an arguably least likely case – a parliamentary system with a long tradition of criteria objectivity – we analyze this argument in four steps.

Leveraging qualitative data from the Danish large-scale 2020 equalization and grants reform, we first find that three newly introduced grants have a high level of targetability. Moreover, the three new grants contribute significantly to the increase in the overall redistribution of economic resources between local governments. We link these three new grants with distributive politics by showing that constituencies winning from these grants are also well represented prior to the reform by the incumbent government, its parliamentary supporters, and the reform coalition partners. We find no indications that this is also the case for changes in the system's general part that are characterized by low targetability.

Leveraging voting station data from the subsequent 2022 general parliamentary elections, we further link the reform changes with electoral behavior. We find that the new non-objective grants seem to increase votes for the incumbent and especially its parliamentary supporters. We find no such relationship for changes in the general system that is based on a low degree of targetability. This suggests that strategically motivated reform changes can pay off electorally. As a final test, we moreover leverage new individual survey data showing that some of the new grants may have supported voting loyalty as well as attracted new voters to the incumbent and its parliamentary supporters. These findings suggest that politicians – even in a presumably least likely case – can leverage formula-based grants as pork-barrel politics for electoral purposes.

These findings challenge models arguing that pork-barrel politics and clientelism are mainly features of systems with winner-takes-all voting and weak parties (Lancaster & Patterson, 1990; Morgenstern & Swindle, 2005) or developing countries (Kitschelt, 2000). While winner-takes-all voting and weak parties may be sufficient conditions for the presence of pork barrel politics these institutional features may not be necessary conditions – our paper at least suggests the latter.

Of some curiosity, we find that the grants statistically significant in the first quantitative analysis are not necessarily significant in the second set of quantitative analyses. This suggests that the strategic motives behind the allocations of grants and the electoral returns of the allocations are not identical. First, credit claiming could be a potential explanation for this difference. If a party cannot convince its local constituencies of perceived or realized welfare improvements due to the reform changes it may be difficult to obtain the credit for those said

improvements. Second, crowding out of resources in some local governments may influence whether or not the granted resources actually are allocated to welfare improvements. If parts of the budget are soaring in the local governments, they may crowd out the grant allocations received.

Our findings suggest that politicians can tailor reforms according to specific partisan preferences when reforming local equalization and grants systems – but only to the extent that they manage to circumvent the disciplinary effects of using formula-based schemes. As shown here, a strategy to achieve this is replacing grants characterized by a low level of targetability with new grants characterized by a high level of targetability. Introducing brand new grants with high targetability or freezing grant criteria could be other potential strategies. These institutional changes relate nicely to theories of gradual institutional change identified in comparative political economy (Streeck & Thelen, 2005).

While targetability of grants may strengthen the electoral power of one political coalition over another it also comes with several challenges and disadvantages. One obvious danger is welfare loss, as the funds channeled to the 'friends' are not necessarily channeled to where they are most efficiently spent. Another drawback is that if this type of strategic policymaking depends on the increasing use of targetable grants, these systems may become unnecessarily complex, and challenge public democratic discussions about these systems. A third potential danger is that the increasing politicization stemming from the use of targetable grants may challenge the stability of these systems if the distribution of funds is increasingly perceived as unfair and as a battleground for scarce economic resources. These issues point to the importance of political independence for choosing criteria and setting thresholds in the formula (Khemani, 2003; Arel-bundock et al., 2015; Koop & Hanretty, 2018). However,

echoing Khemani, while independent grant agencies may be a good overall solution to curb political influence, they are no panacea as they can also be subject to biases.

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[i] Discretionary grants and targetability are different from each other. Discretionary grants refer to a formalized way of allocating grants where the grantor selects the grantee.
[ii] The existing literature does not focus much on the motivation itself for investigating and analyzing the topic, but regularly states that the strategic use of grants presumably have welfare-reducing effects. The phenomenon is thus an expression of prioritizing own welfare (re-election) over the welfare of citizens (Fiorillo & Merkaj, 2020).
[iii] The literature also engages with a third 'alignment model' (Arulampalam et al., 2009, Solé-Ollé & Sorribas-Navarro, 2008). This model argues that local governments (municipalities) politically aligned with central government, are allocated more funds.
[iv] The OECD moreover has recommendations for 'good practice' in elaborating grant and cost equalization although they do not specify precisely the concept of objectivity.
[v] For the importance of political independence see also Arel-bundock et al. (2015) and Koop & Hanretty (2018).
[vi] The Metropolitian grant is allocated to only the 34 municipalities in the metropolitan area.
[vii] The 16 missing observations are the 15 smallest voting stations plus one voting station with 1540 eligible voters in Frederikshavn Municipality. One of the voting stations moreover does not appear in 2022.
[viii] Specifically, we include the equalization of tax bases and expenditure needs, the correction for so-called over-compensation schemes and block grants in the general part of the system. We include the other 20 schemes in the special part, i.e. mainly permanent financing grants, new island and rural municipalities grant, new grant for metropolitan municipalities, new Special Compensation Grant, corporate tax equalization, the foreigner's equalization scheme, special compensation, special grants on application and several smaller schemes for transportation to island municipalities, border municipalities, municipalities with residential areas with particularly high crime rates, etc.
[ix] However, given the nature of the design, we do not claim to identify a causal relationship in a strict econometric sense (Wooldridge, 2012). The quantitative empirical analysis thus provides indicative evidence of the relationship between political-strategic factors and changes in grants allocated. The same methodological caveat applies for the subsequent empirical analyses of the electoral impact of the reform changes.
[x] The models include 1.562 core voters amongst the incumbent and its parliamentary supporters, 1.343 core voters in the center-right oppositional bloc, and 182 voters going from the center-right bloc to the incumbent and its parliamentary supporters

Online appendix

This is the online appendix for the paper "Formula-based Grants as Pork Barrel Politics: Targetability and the Political-strategic Use of Grants". All appendices are cited in the main text, and appendix references are provided below.

Appendix 1. Sources and operationalization of municipal-level variables

Explanatory variables

Variable	Operationalization	Source
Votes for the incumbent	Share of votes for the socialdemocratic party in the 2019 national election. Measured at the municipality-level	The Danish Election Database (Den Danske Valg Database)
Votes for the incumbent and its parliamentary supporters	Share of votes for the socialdemocratic party and its parliamentary supporters (S, Å, Ø, SF og RV) in the 2019 national election. Measured at the municipality-level	The Danish Election Database
Votes for the reform parties	Share of votes for the 2020 grant reform parties (S, Å, SF, RV og V) in the 2019 national election Measured at the municipality-level.	The Danish Election Database
Socialdemocratic/incumbent mayors	See text	Own coding
incumbent and its parliamentary supporters mayors	See text	Own coding
Reform parties mayors	See text	Own coding
Swing voter	$\sqrt{(CL_i - CR_i)^2}$, where CL denotes votes for the center-left parties (i.e. the incumbent and its parliamentary supporters) CR denotes the center-right parties (i.e. the opposition parties), *i* denotes the municipality.	The Danish Election Database

Control variables (at the municipality-levet)

Variable	Operationalization	Source
Inhabitants	No. of inhabitants as of January 1 2021.	Noegletal.dk, Ministry of Interior & Housing
Population growth	Population growth (2016-2020).	Noegletal.dk
Tax base per capitaBeskatningsgrundlag per indbygger	Municipalitites budgetted tax base for personal income taxes and taxes on public duties (afgiftspligtige grundværdier).	Noegletal.dk
Expenditure need	The municipality's expenditure needs in DKK per inhabitant as calculated in connection with the annual calculation of municipal equalization and subsidies. A municipality's expenditure needs are found as the sum of two numbers: the socio-economic expenditure needs and the age-specific expenditure needs. The municipality's socio-	Noegletal.dk

	economic expenditure needs are determined on the basis of a number of socio-economic criteria. The calculated expenditure requirement for the municipality is divided by the number of inhabitants calculated on 1 January of the year in question, but before 2021 by the population of the paying municipality.	
Elderly	Share of 67+ years old.	Noegletal.dk
Individuals without vocational training [Personer uden erhvervsfaglig uddannelse]	Share of 25-64 years old without furhter education [vocational education].	Noegletal.dk

Appendix 2. Sources and operationalization of voting station-level variables

Variable	Operationalization	Source
Votes for incumbent	Same as appendix 1, however, with voting station data	The Danish Election Database/Den Danske Valg Database
Votes for incumbent and its supporters	Same as appendix 1, however, with voting station data	The Danish Election Database/Den Danske Valg Database
Votes for the reform coalition	Same as appendix 1, however, with voting station data	The Danish Election Database/Den Danske Valg Database
Inequality	80-20 income ratio.	The Danish Election Database, based on register data from Statistics Denmark
Unemployment	Percentage unemployed of adult population.	The Danish Election Database, based on register data from Statistics Denmark
Population size	Number of persons age 18+ years old	The Danish Election Database, based on register data from Statistics Denmark

Appendix 3. Sources and operationalization of individual-level variables

Preferences for income inequality:
"To what extent do you agree or disagree with the following statement: "Higher incomes should be taxed higher than is the case today". 1) Completely agree, 2) Somewhat agree, 3) Neither agree nor disagree, 4) Somewhat disagree, 5) Completely disagree.

Preferences for immigration:
"Immigration is a serious threat to our national identity" (split samle50/50) "Immigration is a serious threat to Danish culture" (split samle50/50) (both split sample questions combined to one variable).

Preferences for the European Union
How are your general attitude towards the EU? (1) Very Positive, (2) Predominantly positive, (3) Neutral/neither positive nor negative, (4) Predominantly negative, (5) Very negative.

Preferences for a climate tax
A climate fee for air travel should be introduced. 1) Completely agree, 2) partly agree, 3) neither agrees nor disagrees, 4) partly disagree, 5) completely disagree.

Life satisfaction
0-10 where 10 is Very satisfied with life.

Self-reported health
How would you say your health is all in all? 1) Exelent, 2) Pretty good, 3) Good, 4) Less than good, 5) Bad

Age
Self-reported age (18-97 years in the sample).

Gender
Woman = 1 & Man = 2.

Unemployed
0=not unemployed. 1 =unemployed. Unemployed includes people on social assistance and unemployment benefits (including job training) as well as people on other social benefits (students, pensioners, parental leave and sick leave)

Personal income
Self-reported personal income in 15 scales ranging from 0-99.999 kr. to 1.000.000 and above.

Educational attainment
Highest educational attainment on the previous scale: 1) Elementary school 2) High school 3) Vocational/professional education 4) Short further education 5) Medium further education 6) Long further education

City Size/type
Self-reported city size or place of residence 1) Copenhagen 2) Aarhus, Aalborg or Odense 3) < 40.000 inhabitants 4) 20-39.999 inhabitants 5) 5.000-19.999 inhabitants 6) 1.000-4.999

inhabitants 7) <1.000 inhabitants 8) Country-side

Appendix 4. Descriptive statistics municipal level variables

Variable	Obs	Mean	Std. Dev.	Min	Max
Incumbent	98	27.241	5.658	11.468	39.949
Incumbet + parl. supporters	98	49.118	7.658	30.631	71.295
Reform coalition	98	68.49	3.106	59.489	76.94
Swing voter	98	11.49	10.391	.008	44.947
Metropolitan Grant	34	289.964	740.808	-1306.559	1561.308
Island & Rural Grat	98	330.086	598.772	-87.92	2067.761
Special Compensation Grant	98	83.492	805.903	-238.746	4969.435
General system	98	-39.089	919.788	-2977.852	2244.51
Population	98	59591.378	74539.997	1764	638117
Pop growth (4 years)	98	.006	.018	-.034	.059
Tax base	98	198.046	40.455	162.851	388.832
No vocational education	98	19.266	4.666	7.6	30
Elderly	98	20.1	4.142	9	35.5
Expenditure needs	98	64922.908	4863.321	56143	82154

Appendix 5. Descriptive statistics voting station level variables

Variable	Obs	Mean	Std. Dev.	Min	Max
Inequality	1330	1.729	.173	1.328	2.76
Unemployment	1330	2.068	1.01	.182	16.176
Adult population	1346	7.704	.918	3.434	10.006

Appendix 6. Descriptive statistics individual level variables

Variable	Obs	Mean	Std. Dev.	Min	Max
party vote	3087	1.929	.968	1	3
climate tax	3923	2.284	1.309	1	5
tax high income	3912	2.669	1.299	1	5
immigration threat	3939	2.851	1.437	1	5
eu perceptions	3853	2.763	1.2	1	5
life satisfaction	4162	7.614	2.193	1	11
health	4217	2.934	.968	1	5
city size	4176	3.788	2.191	1	8
age	4217	51.536	17.339	18	93
gender	4217	1.463	.499	1	2
personal income	4217	5.176	3.602	1	13
education	4217	3.392	1.631	1	6
unemployment	4218	.03	.172	0	1

Appendix 7. The three new specific grants from the 2020 equalization reform.
Source: Own elaboration based on Ministry of Social Affairs and the Interior (2020b)

A. General description

a. Island and Rural Municipalities Grant

Total grants 2022: around 1.5 bn.DKK. Funding: all municipalities 1/3, central government 2/3
Distribution mechanism for municipal recipients:

1) municipality must fullfill two framing conditions and meet at least three out of seven criteriaGrants are distributed among municipalities according to a corrected number of inhabitants where correction factor varies depending on number of criteria fulfilled.

b. Metropolitan Grant

Total grant 2022: around 0,6bn.DKK. Funding: metropolitan municipalities > 1/2, central government the rest.
Distribution mechanism for municipal recipients:

Same method than for Island and Rural Municipalities Grant including fulfill one out of five criteria. Grants also distributed according to a corrected number of inhabitants.

c. Special Compensation Grant

Redistribution grant among all municipalities. Recipients receive in total 1 bn.DKK from contributors. Funding: non-recipient municipalities.
Distribution mechanism:

1) Recipient: municipalities having a calculated loss from selected elements of the equalization reform more than 0.15 pct of tax basis if tax base per capita lower than a threshold.
2) Recipient: municipalities having a calculated loss from selected elements of the equalization reform more than 0.4 pct of tax basis if tax base per capita higher than a threshold.
3) Contributors: Municioalities not included in 1) and 2), according to number of inhabitants.

All grants settled in a, b and c calculated once and for all, for a and b exclusive of changes in number of inhabitants.

B. Specific criteria definitions

a. Island and Rural Municipalities Grant

General prerequisite-criteria for a municipality to be recipient:

- Municipality is a middle or outer municipality (definition not specified)
- Tax base per capita less than DKK 190.000

Further selection criteria:

- Share of population age 70+ exceeding 15.5 pct.
- Share of population in rural areas (villages less than 1.000 inhabitants) exceeds 60 pct.
- Number of workplaces per 17-64 years old below 79.5 pct.
- Being an island and separate municipality
- Tax base per capita below DKK 178.000
- Share of 'old' recipients of early retirement pension, i.e. recipient granted pension before 2010 and 40+ years at that time, exceeding 0.7 pct.
- Share of all recipients of early retirement pension exceeds 1.75 pct.

b. Metropolitan Grant

General prerequisite-criterion for a municipality to be recipient:

- Tax base per capita less than DKK 220.000.

Further selection criteria:

- Share of social housing exceeds 12 pct. and tax base per capita less than DKK 215.000
- Share of years of life lost in relation to average life expectancy for 65+ exceeds 47 pct.
- Share of 'old' recipients of early retirement pension, i.e. recipient granted pension before 2010 and 40+ years at that time, exceeding 0.7 pct.
- Municipality is a middle or outer municipality (definition not specified)
  If corporate tax revenue exceeds DKK 6.000 pr. capita it counts as a negative criterion.

Appendix 8. Calculating redistributive changes
Redistribution from equalization and grant system before and after reform calculated for different parts of the system

million DKK	(1)	(2)	(3)
Part of equalization and grant system	**2020**	**2021**	**change**
Total system	19.960	21.883	1.923
General system	18.687	19.775	1,088
Special system (incl. three new grants)	1.273	2,108	0,835
Of which three new grants	-	2.031	2.031

Source: Calcutated from yearly reports from Ministry on grants and equalization for the next budgetary year.
Method: For a given year, calculated by adding all grants together (net), afterwards comparing the actual distribution of those grants, including negative payments, for each municipality with a 'neutral' net-grants distribution solely according to number of inhabitants. Finally subtracting the last calculated distribution from the actual distribution and adding all positive (as well as negative) differences together measures the amount of redistribution. The redistributive changes for the Special system calculated as the residual redistribution Total minus redistribution General system.
Note: To be able to measure the consequences of the 2020-reform implemented in 2021 for redistribution in relation to the starting point (2020) the redistribution is calculated from the actual differences between the equalization payments in 2021 compared with 2020 payments (cf. Nørtoft et al, 2022). This may deviate somewhat from the reported consequences of the exact equalization reform passed through the Parliament in 2020 and used for the statistical regression analysis, cf. Appendix 9-14.
Since the change in redistribution from three new grants exceeds the change from the total special system it implicates a reduction of redistribution from other parts of the special system than the three new grants.

Appendix 9: Regressions models for three specific grants

Regression for New Metropolitan Grant.

	(1)	(2)	(3)	(4)
Incumbent	22.76			
	(25.43)			
Incumbent + parl. supporters		14.73		
		(19.99)		
Reform coalition			22.00	
			(36.89)	
Swing voter				-7.429
				(6.815)
Population	-0.000110	-0.000704	-0.000386	-0.000137
	(0.000784)	(0.000474)	(0.000536)	(0.000734)
Population growth	-4,338	-2,737	-2,685	-3,869
	(3,870)	(3,813)	(3,651)	(4,311)
Tax base	-6.804**	-6.723**	-7.744***	-8.084***
	(2.663)	(2.954)	(2.764)	(2.113)
No further education	13.70	27.92	10.09	7.469
	(32.82)	(36.98)	(33.31)	(30.36)
Elderly	5.754	18.13	12.37	1.279
	(29.59)	(38.93)	(28.65)	(29.42)
Experndiure needs	0.0316	0.0274	0.0474**	0.0559**
	(0.0229)	(0.0240)	(0.0189)	(0.0210)
Constant	-975.1	-1,406	-2,757	-1,388
	(1,126)	(1,581)	(3,224)	(1,223)
Observations	34	34	34	34
R-squared	0.823	0.822	0.821	0.825

Note: Municipality-clustered standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Appendix 10
Regression for New Island and Rural Grant.

	(1)	(2)	(3)	(4)
Incumbent	17.80*			
	(9.071)			
Incumbent + parl. supporters		-3.284		
		(5.869)		
Reform coalition			38.80***	
			(12.74)	
Swing voter				-6.069*
				(3.373)
Population	0.00111*	0.000927*	0.00107*	0.00114**
	(0.000561)	(0.000486)	(0.000543)	(0.000543)
Population growth	-12,229***	-11,263***	-10,527***	-11,642***
	(2,937)	(2,900)	(3,010)	(2,889)
Tax base	-5.380***	-6.876***	-4.362***	-6.183***
	(1.602)	(1.475)	(1.623)	(1.473)
No further education	-42.72***	-45.33***	-31.59**	-41.60***
	(13.76)	(14.41)	(14.30)	(14.03)
Elderly	75.97***	74.81***	79.85***	72.31***
	(12.93)	(14.17)	(12.61)	(12.95)
Expenditure needs	0.0199*	0.0312***	0.0274***	0.0329***
	(0.0104)	(0.0107)	(0.00915)	(0.00899)
Constant	-1,081	-789.9	-4,239***	-1,161
	(757.3)	(768.2)	(1,365)	(753.0)
Observations	98	98	98	98
R-squared	0.656	0.646	0.672	0.653

Note: Municipality-clustered standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Appendix 11

Regressions for Special Compensation Grant.

	(1)	(2)	(3)	(4)
Incumbent	-33.67			
	(23.93)			
Incumbent + parl. supporters		28.19***		
		(10.26)		
Reform coalition			-11.75	
			(28.16)	
Swing voter				11.69
				(9.085)
Population	-0.00123	-0.00132	-0.000834	-0.00131
	(0.00111)	(0.00105)	(0.00104)	(0.00119)
Population growth	8,179	4,162	6,650	7,070
	(6,257)	(6,391)	(7,027)	(6,748)
Tax base	3.011	6.314	4.967	4.508
	(4.006)	(3.822)	(4.866)	(3.561)
No further education	77.69	92.53*	76.11	75.50
	(47.71)	(52.77)	(56.53)	(50.87)
Elderly	-52.82*	-40.87	-54.47*	-45.77
	(30.71)	(28.21)	(32.02)	(29.04)
Expenditure needs	0.0694*	0.0284	0.0540*	0.0448
	(0.0371)	(0.0270)	(0.0322)	(0.0307)
Constant	-4,511**	-5,304**	-3,960	-4,348**
	(1,871)	(2,023)	(3,367)	(1,925)
Observations	98	98	98	98
R-squared	0.261	0.284	0.240	0.255

Note: Municipality-clustered standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Appendix 12

Robustness check. Testing significant models against competing explanation. We first test all significant models presented above against the swing voter model + on the general system (see model 1). Second, although insignificant in the initial analyses, we also test these models on the Metropolitan Grant in this appendix (second table below).

	(1) General system	(2) Special Compensation	(3) Island & Rural	(4) Island & rural
Incumbent	44.31		13.84	
	(30.31)		(10.35)	
Incumbent + parl. supporters		31.58***		
		(10.33)		
Reform coalition				35.84**
				(14.05)
Swing voter	-14.44	15.05*	-3.602	-2.527
	(12.80)	(7.945)	(3.819)	(3.790)
Population	0.000531	-0.00208*	0.00122**	0.00117**
	(0.00116)	(0.00122)	(0.000576)	(0.000568)
Population growth	-4,810	3,951	-12,117***	-10,629***
	(6,756)	(6,543)	(2,923)	(3,010)
Tax base	0.260	4.842	-5.328***	-4.289**
	(4.943)	(3.614)	(1.588)	(1.636)
No further education	13.01	88.50*	-41.64***	-31.59**
	(54.44)	(52.43)	(13.87)	(14.46)
Elderly	-36.53	-29.56	73.69***	77.93***
	(29.40)	(25.53)	(13.11)	(13.08)
Expenditure needs	-0.0577	0.0139	0.0245**	0.0294***
	(0.0382)	(0.0267)	(0.0115)	(0.00933)
Constant	3,092	-4,510**	-1,223	-4,118***
	(1,875)	(1,842)	(757.8)	(1,420)
Observations	98	98	98	98
R-squared	0.158	0.311	0.658	0.674

Note: Municipality-clustered standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

	(1) Metropolitan Grant	(2) Metropolitan Grant	(3) Metropolitan Grant
Incumbent	18.47		
	(27.10)		
Incumbent + parl. supporters		17.06	
		(18.63)	
Reform coalition			20.47
			(35.77)
Swing voter	-6.608	-8.142	-7.226
	(7.006)	(7.247)	(6.584)
Population	0.000164	-0.000295	-9.10e-06
	(0.000892)	(0.000721)	(0.000727)
Population growth	-4,423	-2,868	-2,991
	(4,362)	(4,238)	(4,317)
Tax base	-6.716**	-5.919**	-7.343**
	(2.820)	(2.824)	(2.742)
No further education	11.69	29.66	8.827
	(32.67)	(35.48)	(32.52)
Elderly	2.784	16.99	8.861
	(29.73)	(38.62)	(27.87)
Expenditure needs	0.0438	0.0366	0.0578***
	(0.0275)	(0.0250)	(0.0211)
Constant	-1,496	-2,200	-3,232
	(1,322)	(1,705)	(3,152)
Observations	34	34	34
R-squared	0.828	0.830	0.828

Note: Municipality-clustered standard errors in parentheses.

Appendix 13 Testing against competing explanation + jackknife

	(1)	(2)	(3)	(4)	(5)
	General system	Special Compensation	Island & Rural	Island & rural	Island & rural
Incumbent	44.31			13.84	
	(38.19)			(10.93)	
Swingvoter	-14.44	15.05	10.83	-3.602	-2.527
	(14.63)	(9.210)	(9.337)	(4.120)	(4.132)
Population	0.000531	-0.00208	-0.00153	0.00122	0.00117
	(0.00136)	(0.00189)	(0.00220)	(0.00120)	(0.00118)
Population growth	-4,810	3,951	6,631	-12,117***	-10,629***
	(8,191)	(7,915)	(8,059)	(3,336)	(3,445)
Tax base	0.260	4.842	5.617	-5.328***	-4.289**
	(6.429)	(4.349)	(4.349)	(1.847)	(1.887)
No further education	13.01	88.50	82.40	-41.64***	-31.59*
	(66.96)	(63.39)	(61.92)	(15.57)	(15.97)
Elderly	-36.53	-29.56	-47.39	73.69***	77.93***
	(34.55)	(29.77)	(33.37)	(15.44)	(15.43)
Expenditure needs	-0.0577	0.0139	0.0396	0.0245*	0.0294***
	(0.0482)	(0.0313)	(0.0347)	(0.0126)	(0.0104)
Incumbent + parl. Supporters		31.58**			
		(12.06)			
Reform coalition			299.9*		
			(154.7)		
Constant	3,092	-4,510**	-4,457**	-1,223	-4,118***
	(2,019)	(2,082)	(2,193)	(868.2)	(1,544)
Observations	98	98	98	98	98
R-squared	0.158	0.311	0.287	0.658	0.674

Note: Municipality-clustered standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Appendix 14

Votes for incumbent

	(1)	(2)	(3)
	Incumbent	Incumbent	Incumbent
Metropolitan grant	0.00123***		
	(0.000387)		
Island & rural grant		-0.000354	
		(0.000360)	
Special compensation grant			0.000239*
			(0.000130)
Population	-1.49e-07	-2.50e-06*	-2.69e-06**
	(1.18e-06)	(1.45e-06)	(1.30e-06)
Elderly	0.0682	0.00485	-0.0145
	(0.0421)	(0.0557)	(0.0433)
Inequality (voting station)	-0.0270	1.471***	1.460***
	(0.483)	(0.412)	(0.413)
Unemployment (voting station)	-0.0725	-0.374**	-0.381**
	(0.0798)	(0.154)	(0.153)
Adult population (voting stat.)	0.0986	0.283	0.282
	(0.226)	(0.176)	(0.176)
Tax base	0.00230	-0.00918*	-0.00857
	(0.00501)	(0.00550)	(0.00564)
No vocational education	-0.0446	-0.114***	-0.125***
	(0.0550)	(0.0438)	(0.0458)
Expenditure needs	-4.15e-05	0.000151***	0.000130***
	(4.95e-05)	(3.28e-05)	(3.49e-05)
Votes 2019	1.018***	0.946***	0.947***
	(0.0266)	(0.0308)	(0.0308)
Constant	2.597	-6.511**	-4.713*
	(3.259)	(2.663)	(2.561)
Observations	307	1,330	1,330
Number of municipalities	34	98	98

Note: Municipality-clustered standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Appendix 15

Votes for the incumbent and its parliamentary supporters

VARIABLES	(1) Incumbent + supporters	(2) Incumbent + supporters	(3) Incumbent + supporters
Metropolitan grant	0.00142***		
	(0.000478)		
Island & rural grant		-0.000398	
		(0.000406)	
Special compensation grant			-0.000359*
			(0.000217)
Population	1.72e-06*	1.22e-07	-4.49e-07
	(1.00e-06)	(1.68e-06)	(1.46e-06)
Elderly	0.216***	0.223***	0.164***
	(0.0646)	(0.0666)	(0.0496)
Inequality (voting station)	-0.274	1.459***	1.317**
	(0.542)	(0.520)	(0.527)
Unemployment (voting station)	-1.746***	-1.045***	-1.046***
	(0.220)	(0.170)	(0.172)
Adult population (voting stat.)	-0.155	0.204	0.222*
	(0.180)	(0.133)	(0.132)
Tax base	-0.00932	-0.0268***	-0.0226***
	(0.00692)	(0.00596)	(0.00642)
No vocational education	0.0148	-0.109	-0.0778
	(0.0868)	(0.0669)	(0.0693)
Expenditure needs	-0.000116**	4.84e-05	5.37e-05
	(5.51e-05)	(4.28e-05)	(3.99e-05)
Votes 2019	0.986***	0.909***	0.914***
	(0.0291)	(0.0182)	(0.0184)
Constant	6.634*	-1.061	-1.896
	(3.393)	(3.027)	(2.847)
Observations	307	1,330	1,330
Number of municipalities	34	98	98

Note: Municipality-clustered standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Appendix 16

Votes for the reform coalition

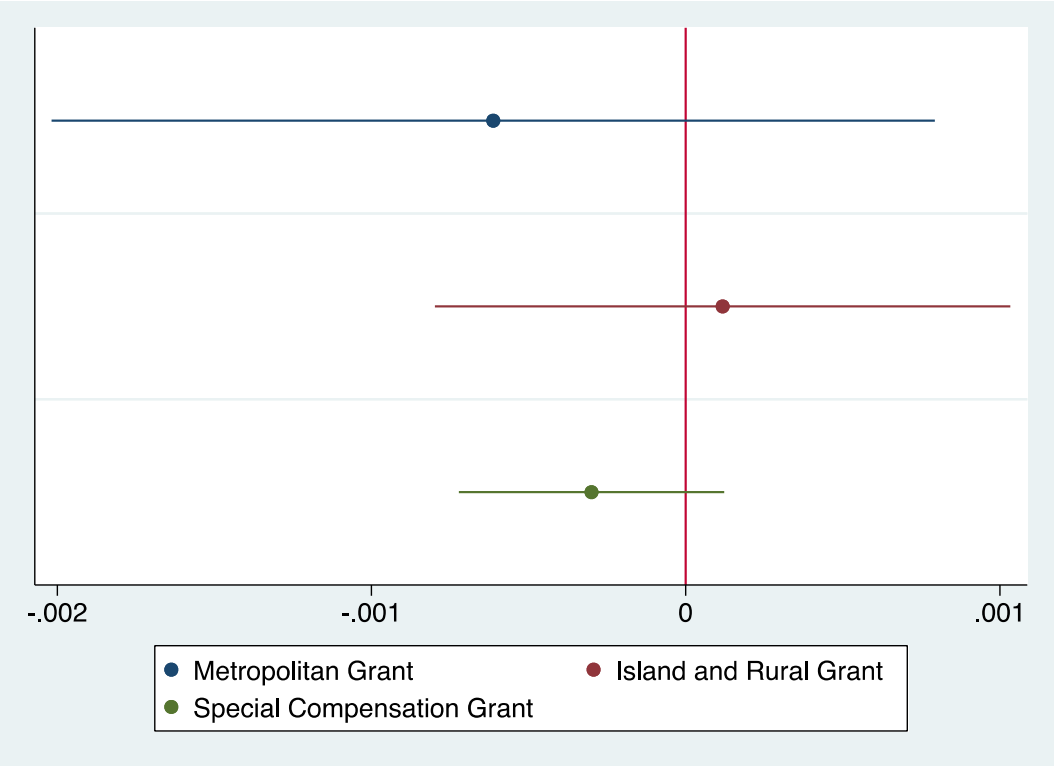
VARIABLES	(1) reformcoalition_2022	(2) reformcoalition_2022	(3) reformcoalition_2022
Metropolitan grant	0.00139		
	(0.000995)		
Island & rural grant		-0.001000	
		(0.000761)	
Special compensation grant			-0.000250
			(0.000378)
Population	-2.89e-06	-5.02e-07	-1.57e-06
	(3.15e-06)	(2.83e-06)	(2.73e-06)
Elderly	-0.0141	0.0755	-0.0341
	(0.225)	(0.116)	(0.109)
Inequality (voting station)	2.059*	3.322***	3.272***
	(1.165)	(0.691)	(0.696)
Unemployment (voting station)	-0.116	-0.201	-0.199
	(0.263)	(0.140)	(0.140)
Adult population (voting stat.)	0.784***	1.497***	1.516***
	(0.270)	(0.219)	(0.221)
Tax base	-0.0389**	-0.0330***	-0.0272**
	(0.0192)	(0.0121)	(0.0128)
No vocational education	-0.448**	-0.209*	-0.185
	(0.192)	(0.107)	(0.118)
Expenditure needs	0.000206	0.000186***	0.000172**
	(0.000131)	(6.53e-05)	(6.86e-05)
Votes 2019	0.691***	0.503***	0.500***
	(0.207)	(0.0400)	(0.0398)
Constant	2.535	1.047	2.435
	(19.41)	(5.696)	(6.015)
Observations	307	1,330	1,330
Number of municipalities	34	98	98

Note: Municipality-clustered standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Appendix 17.
Votes for the Liberal Party (Venstre)

The Liberal Party underwent massive party organization change between 2019 and 2022 as its previous party leader (Lars Løkke) and the party's second in charge (Inge Støjberg) each created a new party – both of which got elected into parliament in the 2022 election. The Liberal Party hence split up into three parties between the election in 2019 and 2022. For this reason, we also control for votes for these two new parties in the 2022 election.

Coefficient plot



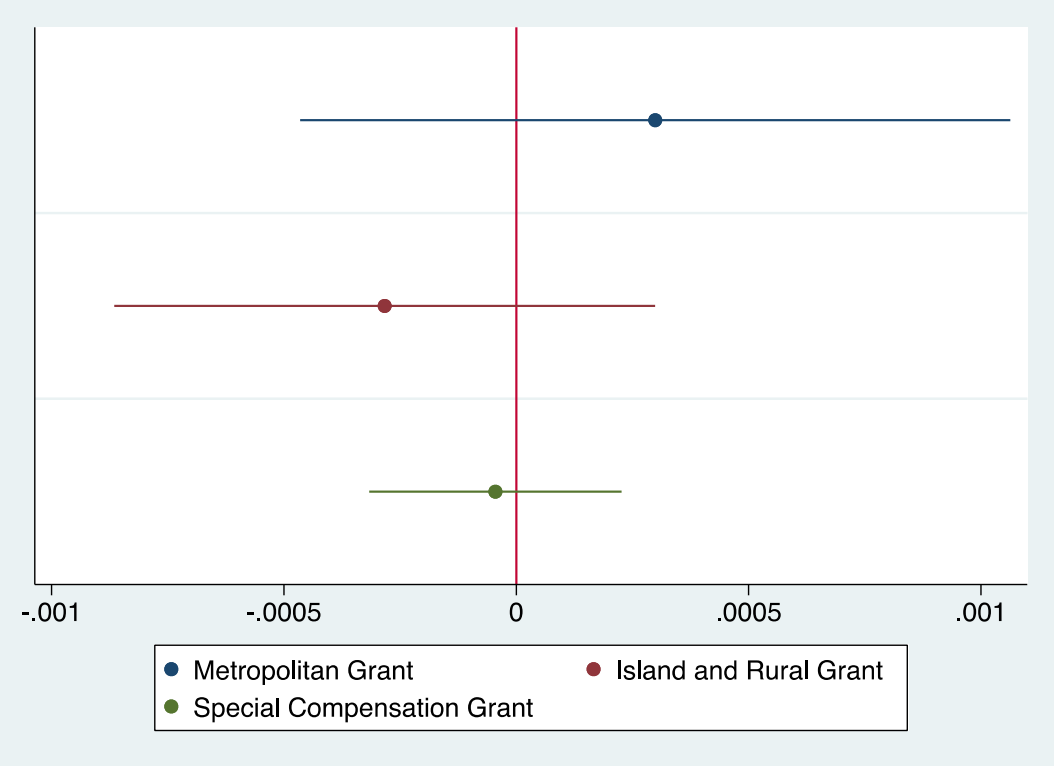
Regression output

VARIABLES	(1) venstre_2022	(2) venstre_2022	(3) venstre_2022
Metropolitan grant	-0.000612		
	(0.000717)		
Island & rural grant		0.000118	
		(0.000467)	
Special compensation grant			-0.000300
			(0.000215)
inequality	-0.180	-0.528	-0.535
	(0.534)	(0.362)	(0.360)
unemployment	-0.146	0.0158	0.0186
	(0.117)	(0.122)	(0.121)
Population	-1.55e-06	-9.18e-07	-1.01e-06

	(1.28e-06)	(2.05e-06)	(1.92e-06)
Tax base	0.0143**	0.0256***	0.0264***
	(0.00583)	(0.00612)	(0.00597)
Not vocational education	0.0702	0.194***	0.211***
	(0.107)	(0.0719)	(0.0767)
Elderly	-0.0123	-0.0651	-0.0724
	(0.0628)	(0.0843)	(0.0715)
Expenditure needs	-2.74e-05	-0.000109***	-9.02e-05**
	(5.37e-05)	(4.23e-05)	(4.46e-05)
Votes Danish Democrats 20222	-0.260***	-0.325***	-0.326***
	(0.0479)	(0.0366)	(0.0367)
Votes Moderates 2022	-0.278***	-0.532***	-0.530***
	(0.0704)	(0.0823)	(0.0823)
Votes Liberal party 2019	0.591***	0.646***	0.645***
	(0.0354)	(0.0232)	(0.0230)
Constant	2.494	6.336*	4.856
	(3.753)	(3.450)	(3.488)
Observations	307	1,330	1,330
Number of municipalities	34	98	98

Note: Municipality-clustered standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Appendix 18. Votes for the Conservatives



VARIABLES	(1) conservatives_2022	(2) conservatives_2022	(3) conservatives_2022
Metropolitan grant	0.000263		
	(0.000380)		
Island & rural grant		-0.000219	
		(0.000304)	
Special compensation grant			-6.78e-05
			(0.000146)
Population	0.0406	0.180	0.174
	(0.219)	(0.158)	(0.158)
Elderly	-0.0692	-0.0459	-0.0456
	(0.0864)	(0.0299)	(0.0301)
Inequality (voting station)	0.339***	0.196***	0.198***
	(0.106)	(0.0454)	(0.0454)
Unemployment (voting station)	-9.81e-07	7.14e-07	4.82e-07
	(1.04e-06)	(1.13e-06)	(1.06e-06)
Adult population (voting stat.)	0.00670	-0.00133	4.39e-05
	(0.00456)	(0.00630)	(0.00537)
Tax base	-0.0142	-0.00126	0.00507
	(0.0537)	(0.0525)	(0.0543)
No vocational education	-0.0766*	0.0668	0.0430
	(0.0452)	(0.0846)	(0.0714)
Expenditure needs	-7.82e-06	-2.82e-05	-3.08e-05

	(3.80e-05)	(2.58e-05)	(2.55e-05)
Votes 2019	0.575***	0.565***	0.565***
	(0.0334)	(0.0424)	(0.0425)
Constant	-0.639	0.719	0.918
	(2.712)	(1.937)	(1.980)
Observations	307	1,330	1,330
Number of municipalities	34	98	98

Note: Municipality-clustered standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Appendix 19. Change in general system and specific grants (combined) and votes

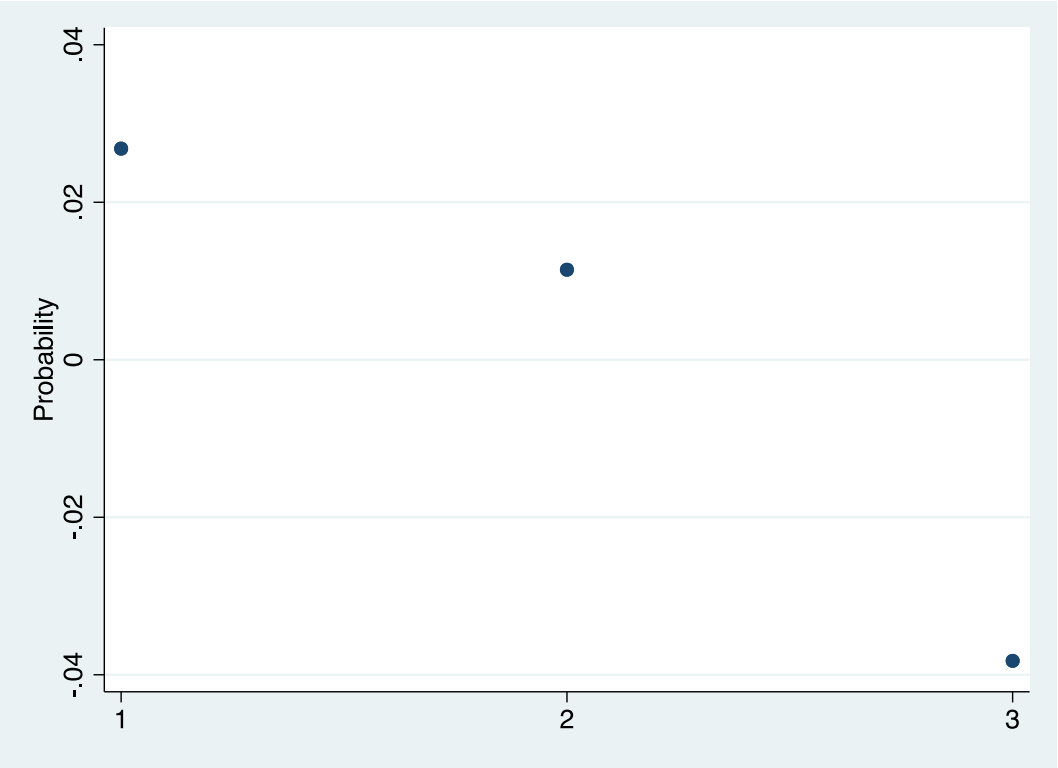
VARIABLES	(1) socdemvotes_2022	(2) socdemcoalition_2022	(3) reformcoalition_2022	(4) socdemvotes_2022	(5) socdemcoalition_2022	(6) reformcoalition_2022
General system	-8.38e-05	0.000333*	3.97e-05	0.000194	0.000386	9.26e-05
	(0.000137)	(0.000194)	(0.000329)	(0.000204)	(0.000277)	(0.000421)
Specific grants (combined)				0.000433**	8.39e-05	8.14e-05
				(0.000196)	(0.000289)	(0.000398)
Population	-2.89e-06**	1.62e-06	-1.39e-06	-2.18e-06*	1.84e-06	-1.24e-06
	(1.33e-06)	(1.41e-06)	(2.79e-06)	(1.29e-06)	(1.52e-06)	(2.87e-06)
Elderly	-0.0306	0.198***	-0.0180	-0.0185	0.200***	-0.0155
	(0.0418)	(0.0556)	(0.100)	(0.0419)	(0.0548)	(0.102)
Inequality (voting station)	1.447***	1.327**	3.284***	1.454***	1.331**	3.288***
	(0.412)	(0.526)	(0.696)	(0.413)	(0.530)	(0.696)
Unemployment (voting station)	-0.376**	-1.057***	-0.203	-0.388**	-1.059***	-0.204
	(0.153)	(0.172)	(0.139)	(0.153)	(0.173)	(0.140)
Adult population (voting stat.)	0.288	0.218*	1.511***	0.282	0.218*	1.510***
	(0.176)	(0.132)	(0.221)	(0.176)	(0.132)	(0.221)
Tax base	-0.00785	-0.0150***	-0.0282**	-0.00520	-0.0141***	-0.0277**
	(0.00577)	(0.00425)	(0.0129)	(0.00569)	(0.00527)	(0.0130)
No vocational education	-0.110**	-0.109**	-0.201*	-0.136***		-0.206*
	(0.0461)	(0.0462)	(0.108)	(0.0462)		(0.113)
Expenditure needs	0.000138***	2.33e-05	0.000161**	0.000103***	1.53e-05	0.000154**
	(3.41e-05)	(4.18e-05)	(6.77e-05)	(3.85e-05)	(4.74e-05)	(7.34e-05)
Votes 2019	0.946***			0.945***		
	(0.0308)			(0.0308)		
Votes 2019		0.914***			0.913***	

		(0.0179)			(0.0182)	
Votes 2019			0.500***			0.500***
			(0.0399)			(0.0400)
Constant	-5.361**	-3.703	3.346	-3.510	-3.436	3.725
	(2.570)	(3.070)	(5.852)	(2.662)	(3.283)	(6.185)
Observations	1,330	1,330	1,330	1,330	1,330	1,330
Number of municipaities	98	98	98	98	98	98

Note: Municipality-clustered standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Appendix 20

Marginal Effects of (standardized) Metropolitical Grant on different voter groups



Note: Outcome 1= Core Incumbent + Parliamentary supports; 2= Voter switcher; 3= Core center-right voter.

Appendix 21. The three specific grants combined, the general system, and votes (individual-level)

Ref: Core center-right voter	(1) Core center-left voter	(2) Center-right to center-left
Specific grants (total)	0.000160***	4.54e-06
	(5.91e-05)	(0.000125)
General system	7.14e-05	0.000165
	(7.24e-05)	(0.000195)
Constant	0.325	-1.685
	(0.869)	(1.188)
No. groups (municipalitites)	97	97
Full set of individual controls	Yes	Yes
Observations	2,746	2,746

Note: The multi-level multinomial models are run with the gsem function in Stata. *** p<0.01, ** p<0.05, * p<0.1. Municipality clustered standard errors in parentheses. Weights for age, gender, education, and residency are implemented in all models.

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