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Working Paper

Grant Dependence, Regulation and the Effects of Formula-based Grant Systems on German Local Governments: A Data Report for Saxony-Anhalt

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**Grant Dependence, Regulation and the Effects of
Formula-based Grant Systems on German Local
Governments: A Data Report for Saxony-Anhalt**

Peter Haug

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Grant Dependence, Regulation and the Effects of Formula-based Grant Systems on German Local Governments: A Data Report for Saxony-Anhalt

Abstract

Recent empirical studies have found – seemingly – efficiency-enhancing effects of vertical grants on local public service provision. The main purpose of this paper is to prepare an elaborate theoretical and empirical analysis of these contradictory results. Therefore, it investigates if certain fiscal and institutional conditions (fiscal stress, fiscal rank-preserving vertical grant systems, input- and output regulation), that might help to explain these empirical findings, are characteristic of at least some parts of the local government sector or certain regions. The German state of Saxony-Anhalt is chosen for case study purposes. The main results are: First, the local governments suffer from severe fiscal problems such as high grant dependency, low tax revenues and the prevalent inability to finance investments by own resources. Second, the output- and input-regulation density of certain mandatory municipal services (schools, childcare facilities, fire protection) is high. Finally, the most important vertical grant category for local governments, the formula-based grants (“Schlüsselzuweisungen”), can be described as mainly exogenous, unconditional block grants that in most cases preserve the relative fiscal position of the grant recipients.

Keywords: vertical grants, local public finance, fiscal equalization, regulation of the public sector, Saxony-Anhalt

JEL Classification: H71, H72

Zuweisungsabhängigkeit, Regulierung und Auswirkungen von Schlüsselzuweisungen auf die deutschen Kommunen: Ein Datenbericht für Sachsen-Anhalt

Zusammenfassung

In einigen neueren empirischen Untersuchungen wurde ein – scheinbar – effizienzsteigernder Effekt von vertikalen Zuweisungen auf die kommunale Leistungserstellung festgestellt. Der vorliegende Beitrag stellt eine Vorstufe zu einer ausführlichen theoretischen und empirischen Analyse dieser widersprüchlichen Befunde dar. Zu diesem Zweck wird das Vorliegen bestimmter fiskalischer und institutioneller Rahmenbedingungen (Finanzschwäche, rangerhaltende vertikale Zuweisungssysteme, Input- und Outputregulierung), die möglicherweise zur Erklärung dieser Ergebnisse beitragen können, für Teile des kommunalen Sektors oder zumindest bestimmte Regionen untersucht. Das Bundesland Sachsen-Anhalt wird dazu als Fallstudie herangezogen. Die wesentlichen Ergebnisse sind: Erstens leiden die Kommunen unter schwerwiegenden fiskalischen Problemen wie ausgeprägter Abhängigkeit von Zuweisungen, niedrigen Steuereinnahmen und der weitverbreiteten Unfähigkeit zur Eigenfinanzierung von Investitionen. Zweitens ist die Output- und Inputregulierungsdichte für bestimmte kommunale Pflichtaufgaben (Schulden, Kindertagesstätten, Brandschutz) sehr hoch. Schließlich lässt sich die für die Kommunen bedeutendste Kategorie der vertikalen Zuweisungen, die Schlüsselzuweisungen, als im Wesentlichen exogene, nicht-zweckgebundene Zuweisungen charakterisieren, die in den meisten Fällen die relative fiskalische Position der Zuweisungsempfänger nicht verändern.

Schlagwörter: Vertikale Finanzaufweisungen, Kommunalfinanzen, Kommunaler Finanzgleich, Regulierung des öffentlichen Sektors, Sachsen-Anhalt

JEL-Klassifikation: H71, H72

1. Introduction

There has been a long and still ongoing discussion about the effects of vertical grants on spending decisions and efficiency of subordinate levels of government. At least since the paper of Silkman and Young (1982) the common opinion in the literature is that primarily unconditional block grants increase local government spending and inefficiency.

One popular explanation in the literature is known as the “flypaper effect” (Hines and Thaler 1995): If the output quantities were more or less fixed, municipalities might have incentives to use inefficiently large input quantities (e. g. “representative” public buildings, “state-of-the-art” technology). This effect is supposed to stem from individuals (politicians) treating money on hand (grants) differently than money that has to be raised by taxation of the own citizens. Alternatively, inefficiencies caused by transfer payments may be the result of “softening” the budget constraints (Kornai, Maskin and Roland 2003) for local governments.

This rather negative attitude towards redistributive vertical grant systems seems to have been confirmed by a number of global municipal efficiency analyses: Balaguer-Coll et al. (2007), Balaguer-Coll and Prior (2009), Vanden Eeckaut et al. (1993), De Borger and Kerstens (1996) or Loikkanen and Susiluoto (2005). Lately Kalb (2010) finds negative effects on cost efficiency caused by the German local government fiscal equalization grants in Germany (Baden-Württemberg).

In contrast, recent efficiency analyses for Belgian (Geys and Moesen 2009) or German municipalities (Bönisch et al. 2011 for Saxony-Anhalt) find positive relationships between grants and municipal efficiency.

The preliminary working hypothesis why this latter – at first glance – contradictory effect might occur is that the results of the underlying cross-section or panel data analyses do not indicate that grants suddenly have turned out to be efficiency-enhancing. It seems much more likely that especially high grant dependence, i.e. a high share of grants in total municipal revenues, is an indicator of fiscal weakness. If relative municipal inefficiency in public good production increased with total municipal revenues, no matter what their source is, “poor” municipalities might be forced to produce more efficiently than “rich” communities. This effect can be explained in a bureaucrat model framework á la Migué and Bélanger (1974), Breton and Wintrobe (1975), Bendor et al. (1985), Moesen and Cauwenberge (2000) or Kalb (2010). In “poor” municipalities the local budget- as well as slack-maximizing bureaucrats might find it optimal to acquire a smaller fiscal residuum *per unit of output*¹ than in “rich” municipalities. It is important

¹ It seems rather trivial that bureaucrats in “rich” municipalities can – ceteris paribus – acquire a higher *total* fiscal residuum than in “poor” municipalities due to their higher equilibrium quantity of public outputs provided and/or their citizens’ higher willingness to pay for public outputs. Hence, the to-

that the vertical grant system should not fundamentally invert the ranking of municipal fiscal power by turning most of the former relatively “poor” (in tax revenues per capita) into “rich” (in grants plus tax revenues per capita) municipalities and vice versa.

This effect could be further intensified by the common output regulation higher levels of government (e. g. subnational, national or supranational institutions) subject local governments to. In case of a minimum output quantity fixed by the state government (e. g. all children of a certain age group are entitled to full-day care in public childcare facilities) the bureaucrats in “poor” communities might be forced to give up some of their acquired fiscal residuum just to be able to provide the requested minimum quantity or are completely unable – even with production at minimum cost and zero fiscal residuum – to provide the requested quantity without additional grants.² In contrast, the output-regulation might turn out to be non-binding for “rich” communities whose bureaucrats have no reason for changing their habits.

The central purpose of this paper is to prepare and supplement the more detailed theoretical and empirical analysis of the observed “perverse” grant effect on municipal efficiency in a follow-up paper (Bischoff et al. 2013) by checking some of the aforementioned assumptions for its main focus of interest, the municipalities and municipal associations of the German state of Saxony-Anhalt. The rest of this paper deals with the following research questions: 1) Is the municipal output highly regulated by other levels of government? 2) Do the local governments have highly insufficient own financial resources (mostly “poor” municipalities)? 3) Do the grants received within the local government fiscal equalization system disturb the relative fiscal strength of the municipalities?

The paper proceeds as follows. In section 2, the main characteristics of the local government structure in Saxony-Anhalt are described. Section 3 deals with the output (and input-) regulation issue. The fiscal strength of the municipalities is analyzed in section 4. In section 5 the vertical grant system of Saxony-Anhalt is described and its effects on the relative fiscal strength of the municipalities are analyzed. Section 6 concludes.

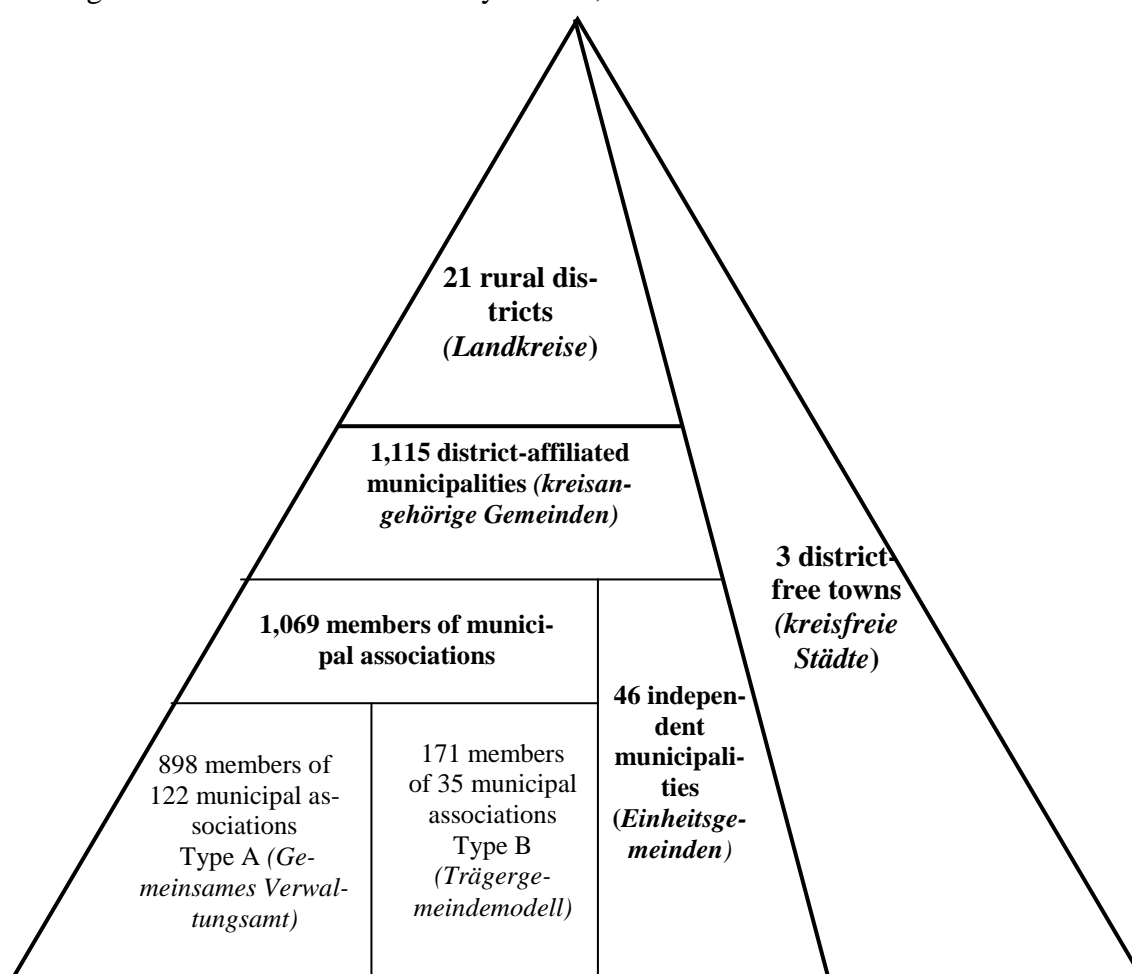
tal fiscal residuum cannot serve as a measure –neither in theory nor in empirical research – for relative municipal inefficiency.

² The same effect, i.e. the local bureaucrats are forced to reduce their acquired fiscal residual, might occur even without output regulation. *Bischoff et al. (2013)* show in their theoretical model that in case of fiscal illusion additional grants might cause increased efficiency if the voters overestimated the grants the bureaucrats had received.

2. Local government structure in Saxony-Anhalt

The local governments in the eastern part of Germany (the former GDR) show many characteristics that make them suitable for the theoretical and empirical analysis of grant effects, especially their high grant dependence. This will be shown in the following for the state Saxony-Anhalt. Figure 1 gives an overview of the local government structure for the year 2004.³

Figure 1:
Local government structure in Saxony-Anhalt, 2004^a



Notes: ^a municipal boundaries of 31 December 2004

Source: Authors' illustration based on Statistical Office Saxony-Anhalt (2005:7)

³ The year 2004 has been chosen because it was the “eve“ of a fundamental local government reform in Saxony-Anhalt. In 1990, after the German reunification, the numbers of municipal governments were even higher: Three district-free towns and 37 rural districts with 1364 district-affiliated municipalities. Municipal associations did not exist before 1995.

Since 2004 the municipal government structure has undergone substantial changes (Figure 2). The number of rural districts has been reduced by 10 to 11 and instead of 1,118 towns and municipalities there are only 218 left. Municipal associations do now only exist in rural areas and only as type C associations (“Verbandsgemeinde”) like in Rhineland-Palatinate or Lower-Saxony.⁴

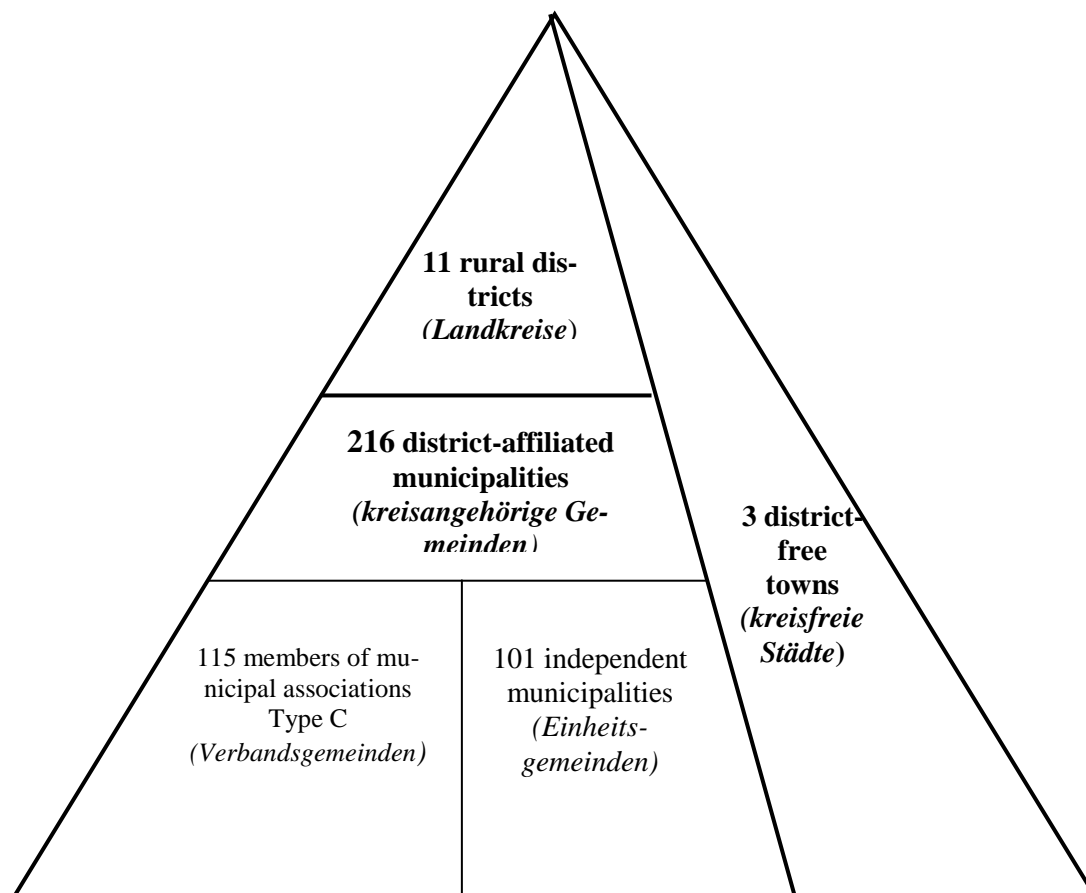
Compared to other German states Saxony-Anhalt’s municipal structure ensures a mostly homogenous range of services to be provided by the different levels of local government. For example there are no district-affiliated towns with a special status (“Große Kreisstadt”) carrying out district tasks. Furthermore, the number of inhabitants ranged from about 2,200 to 46,000 (district-affiliated municipalities) in 2004, if the total population of the municipal associations is taken into account.⁵ These figures contrast with the small size of the individual district-affiliated municipalities which ranged from 54 inhabitants to nearly 46,000 (mean: 1,751; median: 619). In 2004 about 85% of the district-affiliated had less than 2000 inhabitants.⁶

⁴ The main difference between Type A and Type B associations is that in the first case the member municipalities finance and share a joint administration office which carries out most municipal tasks on behalf of the members. In the second case, one (usually the largest) member municipality provides own resources to produce all municipal services. In both cases, political decisions with regard to the whole association are made by a council formed of the mayors of the member municipalities (“Gemeinschaftsausschuss”). Thus, although there is no directly elected council or mayor at the association level for Type A and B a strongly institutionalized decision-making process exists, nevertheless. Type C associations are similar to the Type A associations. However, in type C associations the formal institutionalization of the association level is much stronger because they have, in addition to identical institutions at the member municipality level, a directly elected council (“Verbandsgemeinderat”) and also a directly elected mayor (“Verbandsgemeindebürgermeister”). It should be noted that in all types of municipal associations the association level has no own tax or grant revenues (except for Type C associations that receive grants at the association level). If its revenues from fees, contributions or other sources do not cover its expenditures – which is generally the case – the remaining costs will be passed on to the member municipalities.

⁵ In 2010 the population numbers ranged from 6,900 to 49,500 for district-affiliated municipalities (*Statistical Office Saxony-Anhalt* 2011a).

⁶ Author’s calculations based on *Statistical Office North Rhine-Westphalia* (2006). Since then the average municipal size has increased significantly because of the effects of the local government reform: In 2011 population numbers ranged from 254 to 49,076 (mean: 8,117, median: 3,678) and only 37% of the district-affiliated municipalities had less than 2000 inhabitants (author’s calculation based on *Federal Statistical Office* 2012).

Figure 2:
Local government structure in Saxony-Anhalt since 2011



Source: Author's illustration based on <http://www.statistik.sachsen-anhalt.de/gk/fms/fms1li.html>, sub-menu "Übersicht" (accessed 18/07/2012).

3. Output regulation of local public goods

3.1 Mandatory and non-mandatory tasks

First of all, it is investigated whether most of the municipal expenditure categories – and hence, the municipal output quantity and -quality – are regulated by higher levels of government. Table 1 and Table A1 in the Appendix provide an overview of the expenditure structure of the different local government levels in Saxony-Anhalt.

Table 1: Composition of current expenditures for different levels of local government
- Saxony-Anhalt 1995-2008

	District-free towns				Rural districts				District-affiliated municipalities			
	1995	2000	2004	2008	1995	2000	2004	2008	1995	2000	2004	2008
Total current budget in Mio. Euro ^a	1,126	975	1,022	1,026	1,622	1,574	1,651	1,845	1,661	1,497	1,442	1,373
Index total (1995 =100)	100	86.6	90.8	91.1	100	97.0	101.7	113.7	100	90.2	86.8	82.6
Percentage of non-mandatory tasks	27.8	24.7	24.0	20.6	8.4	7.1	6.1	5.8	15.6	15.8	12.7	13.7

^a Book keeping items (e. g. imputed costs), internal offsets and the category 9 “financial management” are excluded from the calculations.

Source: Author’s calculation based on the local government finance statistics provided by the Statistical Office Saxony-Anhalt.

Several conclusions can be drawn from table 1 and table A1: First, the different levels of local government have different expenditure foci. As the district-free towns and the rural districts are responsible for social assistance, they have to spend a considerable share of their current budget on social benefits (rural districts up to 50%). The district-affiliated municipalities’ main budget items include central administration and expenditures for day care facilities for children.⁷ The 10 items with the highest average rank over the four selected years (bold letters) cover between 86% (district-free-towns 1995) and 97% (rural districts 2000) of the current budget. A second trend, that can be deducted from the tables, is that total current expenditures have decreased in nominal terms (and thus, even more in real terms) for the district-free towns⁸ and the district-affiliated municipalities, whereas the budgets of the rural districts have increased between 2004 and 2008 by 13% in nominal terms. It is not possible to conclude from the mere data

⁷ Although a considerable share of the rural district’s budget is also spent on day care facilities for children, this merely consists of grants in aid or cost refunds to district-affiliated municipalities or to non-profit organizations. The districts do not seem to run hardly any childcare facilities.

⁸ The slight increase between 2004 and 2008 for the district-free towns might have been caused by the merger of the former district-affiliated town Roßlau with the district-free town Dessau to the new district-free town Dessau-Roßlau in 2007.

whether the district-affiliated municipalities have increased their overall efficiency or if the budget increase of the rural districts is just a transitory result of the 2007 district reform.

The most important result for the forthcoming analysis is the low share of expenditures for non-mandatory tasks, i.e. the tasks for which the local governments are not subject to output- or input regulation. Hence, the local governments could only decide about roughly between 5.7% (rural districts 2008) and 27.8% (district-affiliated towns 1995) of their current expenditures in the core budget, especially about the “if” and the “how” of the related tasks. This relatively small percentage seems to be quite representative for all German local governments because percentages of 12.0 (2004) and 11.6 (2008) can be found for the aggregated German local government sector.⁹ Hence, except for categories such as culture, science, research or sports facilities, public swimming pools, parks and gardens or recreational facilities, most expenditures can be subsumed under mandatory responsibilities, either state-delegated (“Auftragsverwaltung”) responsibilities or self-administered (“Pflichtaufgaben im eigenen Wirkungskreis”) responsibilities. The regulation density is very high for both categories, although only in the case of delegated responsibilities one could expect that the municipalities have to follow detailed regulations how to fulfill their tasks. In practice, however, numerous laws and regulations at the EU-, federal- or state level or “technical guidelines” issued by several professional associations (e. g. by the “Deutscher Verein des Gas- und Wasserfachs” for water and gas provision or by the “Forschungsgesellschaft für Straßen und Verkehrswesen” in cooperation with the Federal Highway Research Institute [“Bundesanstalt für Straßenbau”] for road construction) limit this freedom as they prescribe in detail not only output quality and quantity but often also “recommend” the obligatory input quality or quantity.

3.2 Law and order in German local government service provision

To illustrate the regulation intensity of the local public services provided by district-affiliated municipalities, the most important legal restrictions for some of the main expenditure categories will be described in the following: childcare, fire protection and primary schools.

To what extent the output and inputs are regulated in Saxony-Anhalt for childcare facilities (mandatory self-administered task) can be seen from the “Kinderförderungsgesetz

⁹ Authors’ calculations based on data from *Federal Statistical Office* (2006, 2010). See also *Zimmermann* (2009: 97). However, the core budget does not show the complete picture because many of the discretionary responsibilities have been outsourced to (or are traditionally carried out by) separate organizational units with separate budgets. These include municipal savings banks (“Sparkassen”), energy provision (“Stadtwerke”; only water provision and sewage disposal are mandatory municipal tasks, solid waste disposal is usually a mandatory task of the districts and district-free towns), public transport, public housing companies, adult education, museums, theatres and opera houses, economic development.

KiföG” which came into force 2003. The most relevant points of output- and input regulation are:

Every child (and therefore its parents) between the age of 0 and about 12 is legally entitled to at least a half-day place in a kindergarten, nursery or a day care centre for schoolchildren (§ 3 KiföG). This legal entitlement is against the residential municipality of the child (§ 3 KiföG). Although attending a childcare facility is not obligatory [§ 2 (1) KiföG], the proportion of children attending nursery schools, kindergartens or day care centers in Saxony-Anhalt is high: 50.2% for children under 3 years in 2006 (56.0% in 2010), 91.1% for children between 3 and 6 years in 2006 (94.4% in 2010), 52.0% for children between 6 and 11 years (2010: 61.5%), but only 0.9% for youngsters between 11 and 14 years (2010: 1.9%).¹⁰ Thus, each municipality has to plan a de facto 100% supply at least of kindergarten places although it does not necessarily have to run the child care facilities itself (but has to pay compensations per child to a private *non-profit* [§ 9 (1) KiföG] operator instead).

The law lists an impressive number of educational objectives the childcare facilities should meet: development of an autonomous and social personality (§1 KiföG), enhancement of the physical, mental, musical and emotional development, improvement of social behavior, instilling social values such as tolerance, education - especially preparation for primary school - , social integration of disabled children, compensation for social inequities (especially low family incomes and problematic family background) [§5(2) KiföG], qualified supervision of homework for schoolchildren [§5(5) KiföG]. However, the operators of the facilities are free to choose (at least in principle) how to fulfill these goals [§5(3) KiföG].

Further output regulations consider the entrance conditions and the opening hours: Parents are entitled to register their children at any time of the year (§16 KiföG), the facility has to provide adequate care for at least ten hours per day and 50 hours per week for a full day care place. For schoolchildren, the day care centers have to offer at least 6 hours care and supervision per school day and full-day care during school holidays [§17(2) KiföG].

Regulation of the “intermediate outputs” includes: suitable meals have to be provided on request [§17(2) KiföG] and schoolchildren have to be accompanied on their way from school to the day care center [§17(4) KiföG]. The facility has to provide special opportunities for disabled children to avoid – if possible – sending them to specialized childcare facilities (§8 KiföG) and also has to provide the necessary therapies for early intervention [§ 18(3) KiföG].

¹⁰ See *Statistical Office Saxony-Anhalt* (2008, 2011b). Only 0.7% of the children between 0 and 3, 0.1% of the children between 3 and 6 years and hardly any children over 6 were attended by independent child-care professionals in 2010.

The law also includes several input regulations: The rooms have to be appropriate and child-friendly [§14 (1) KiföG], day care teachers must have certain formal qualifications (continuing training is obligatory for staff members) [§21(3)-(5) KiföG] and there are fixed maximum numbers of children per teacher [§21 (2) KiföG]. For day care outside childcare facilities (§6 KiföG) a maximum of 5 children per caregiver is allowed, suitable rooms have to be provided and the caregiver should have some minimum qualification in child care (at least an intensive preparatory course is obligatory).

The regulations of the law are specified in a number of additional regulations, e. g. regulation about the qualifications of persons providing day care at home or the regulation of the requirements for day care centers.

Another example of even more detailed output- and input regulation is fire protection (mandatory self-administered task): According to the fire protection law of Saxony-Anhalt (“Brandschutz- und Hilfeleistungsgesetz des Landes Sachsen-Anhalt BrSchG”; amended version of the version of July 2001) and similar laws in other German states, each district-affiliated municipality has to form a voluntary fire brigade (§8 BrSchG) or in the (very rare) case of a lack of volunteers has to call up citizens for fire protection services (§11 BrSchG). Potential diseconomies and excess capacities might be caused by the fact, that municipalities with a professional fire brigade also have to form a voluntary fire brigade [§8 (1) BrSchG]¹¹. Furthermore, even in a municipal association or in municipalities with spatially separated localities, separate fire brigades have to be formed for each member municipality or each locality [§8 (2) + (3) BrSchG]. The fire brigade must be able to reach any fire not later than 12 minutes after the alarm call [§2 (2) BrSchG]. The law is further specified by a number of regulations considering the minimum equipment and group size (“Verordnung über die Mindeststärke und -ausrüstung der Freiwilligen Feuerwehren MindAusrVO-FF”), uniforms (“Verordnung über die Dienstkleidung der Feuerwehren Fw-DienstklVO”), ranks (“Laufbahnverordnung für Mitglieder Freiwilliger Feuerwehren LVO-FF”) or training (“Verordnung über die Aus- und Fortbildung in Freiwilligen Feuerwehren AusbVO-FF”). The actual fire prevention, fire protection and fire fighting measures as well as the vehicles and the portable equipment (ladders, respirators etc.) used are meticulously regulated by numerous service regulations (“Feuerwehr-Dienstvorschriften”) issued by the committee for fire protection, rescue services, disaster protection and civil defense of the conference of the German ministers of the interior. These regulations form the basis for state specific regulations and are often combined with the German DIN-regulations.¹²

Relevant regulations for primary schools (mandatory self-administered task) are part of the school law of Saxony-Anhalt (“Schulgesetz des Landes Sachsen-Anhalt SchulG

¹¹ District-affiliated municipalities with a professional fire brigade are further “punished” because they have to take over additional tasks in fire protection [§4 (2) + (3) BrSchG].

¹² See *Federal Office of Civil Protection and Disaster Assistance* (2012).

LSA”; amended version of the version of August 1996). The output is regulated by the ministry of education of Saxony-Anhalt, which sets up the curricula and organizational structures and evaluates and supervises all public and private schools (§82, §83 SchulG).

The municipalities are responsible for the provision of the buildings and the school inventory as well as for employing the non-teaching staff (§70 (1) SchulG). Teachers are employed by the state of Saxony-Anhalt (§30 (2) SchulG), that also pays their salaries (§69 SchulG) and regulates teacher training etc. (§30(3)-(5) SchulG).

The municipalities cannot even freely design and construct their school buildings. There exist numerous regulations - or at least more or less obligatory “recommendations” - for school buildings.¹³ However, even recommendations might become obligatory if the municipalities wanted some of their construction costs refunded by the state of Saxony-Anhalt (§ 73 SchulG) or their district (§74 SchulG) .

Further examples of regulation in municipal service production and provision (e. g. streets and street-related services) could be easily found. Moreover, it would be interesting to check whether the state laws are just a one-to-one implementation of national or supranational laws and regulations or if Saxony-Anhalt tries to exceed the standards. Nevertheless, the three exemplary service categories should be sufficient to get an impression of the regulation density of local public goods and services.

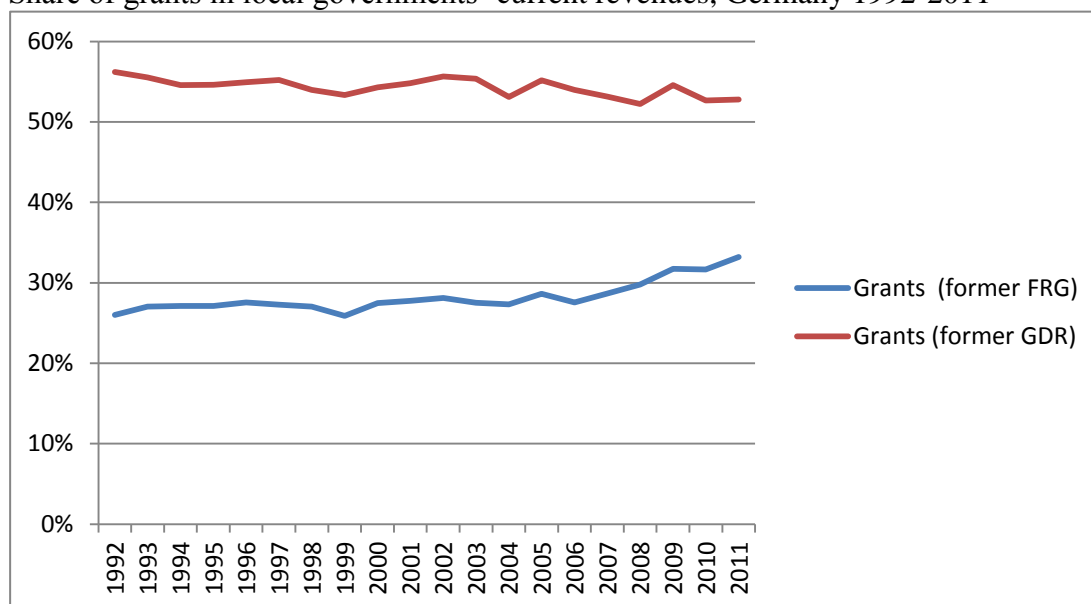
4. Fiscal problems of East German municipalities

The next question is whether the municipalities in Saxony-Anhalt have been or are still suffering from fiscal stress. Figure 3 shows a generally higher dependence of local governments on grants in aid in eastern Germany (2011: 53%) than in western Germany (2011: 33%). This has not changed significantly since 1992 (former FRG: 26%; former GDR: 56%) although there has been a slight upward trend in western Germany and an even slighter downward trend for the eastern local governments.

¹³ For an overview see for example *Central office of standardisation and efficiency in education* (2008).

Figure 3

Share of grants in local governments' current revenues, Germany 1992-2011

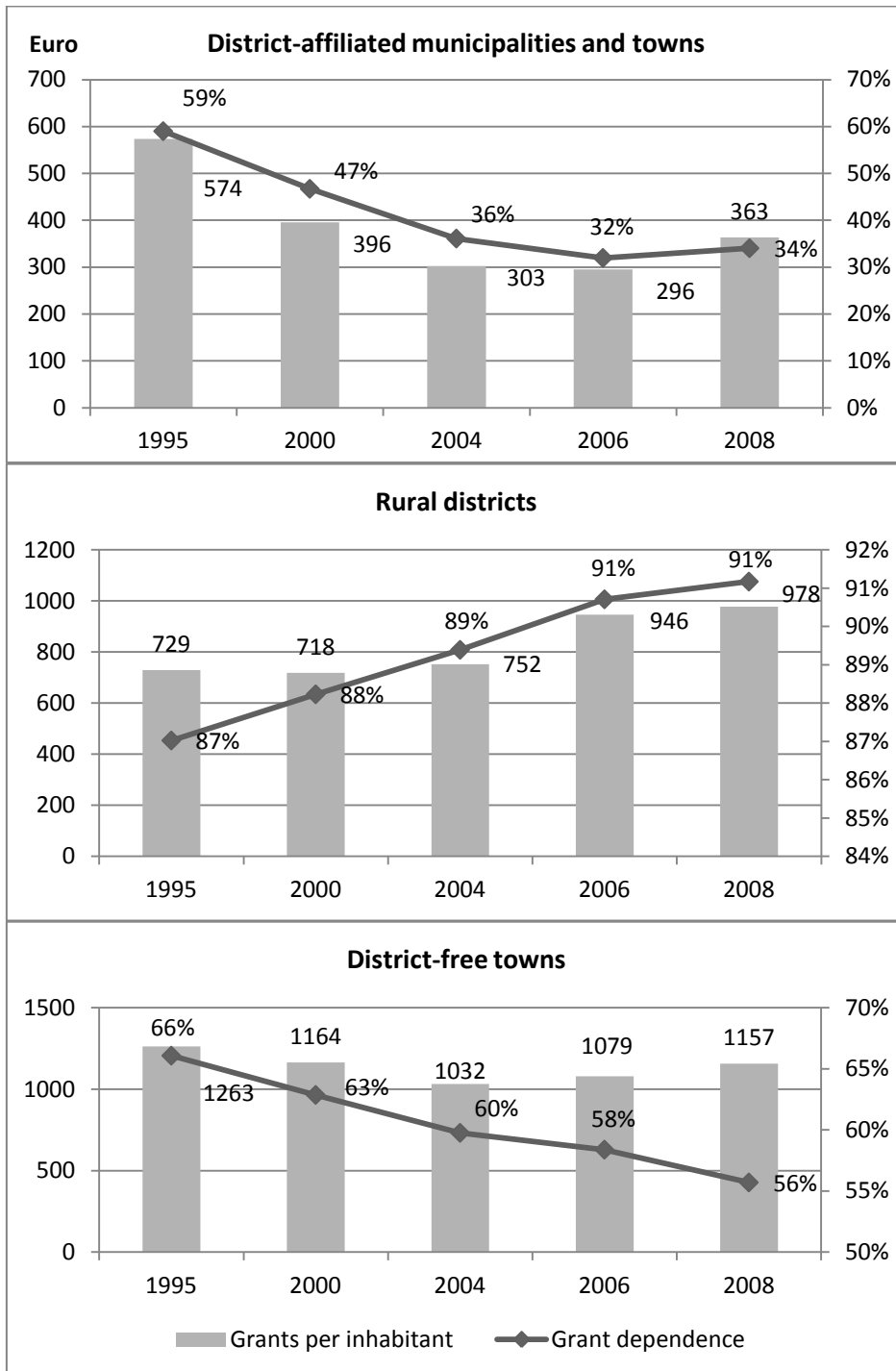


Notes: Estimations for 2011.

Source: Authors' calculation based on Gemeindefinanzbericht (2010, 2011)

However, these very popular revenue figures above aggregate different levels of local governments (rural districts, district-free towns and district-affiliated municipalities). This is highly problematic, because the districts do not have own tax resources and have to finance their expenditures either by state grants or transfer payments (“Kreisumlage”) from their district-affiliated municipalities. Hence, the revenue composition of the districts differs considerably from the district-free towns and the municipalities. The following figure 4 illustrates the share of non-investment grants and cost refunding in the corrected current revenues as well as the grants per inhabitant for all three local government levels in Saxony-Anhalt:

Figure 4:
 Grant dependence and grants per inhabitant for current expenditures
 - Aggregated local government levels Saxony-Anhalt -



Source: Author's calculation based on the local government finance statistics provided by the Statistical Office Saxony-Anhalt

Figure 4 shows that the grant dependence is highest for the rural districts – as expected – and lowest for the district-affiliated towns and municipalities. The district-free towns are “piggy in the middle”. Furthermore, we can see that except for the district-free towns the share of grants and cost refunds in current revenues seems to be positively correlated with the per-capita grants and reimbursements.

Corresponding to the high grant dependence, current budget deficits are a widespread burden for the municipalities in Saxony-Anhalt. The following calculations focus on the aggregated level of the municipal associations and independent municipalities in Saxony-Anhalt. One indicator of fiscal weakness is the modified current budget surplus or deficit (MCBS/D)¹⁴. It is calculated by deducting the withdrawals from the capital budget plus debt redemption and plus additional loan costs from the current budget surplus or deficit. It measures (similar to the Cash Flow in private enterprises) the “own”¹⁵ funds available for investment purposes. Hence, municipalities with a low positive or negative MCBS/Ds are considered as fiscally weak because they are unable to finance their investments by own resources.

Since about 2000 the MCBS/D has been negative or quite small for the majority of the municipal associations in Saxony-Anhalt (table 2). The situation seems to have slightly improved between 2004 and 2008, although mainly because the municipal tax revenues in eastern and western Germany have reached an all-time high in 2008.¹⁶ According to the investment coverage rate, only a small minority (1-6%) of the municipal associations has been (and still is) able to finance their investments without investment grants or further borrowing.

¹⁴ In the German public finance and public administration literature the expressions “Freie Spitze” or “freie Investitionsspitze” can be found for this indicator (*Zimmermann 2009: 281-282*).

¹⁵ Considering the fact that about one third of the current revenues (district-affiliated municipalities) are grants, a surplus is not necessarily a result of good tax policy or economical spending but simply a result of intensive grant acquisition.

¹⁶ However, the situation in 2004 is difficult to compare with 2008 because in 2008 the latest municipal reform was in full flow in Saxony-Anhalt and the number of municipal associations has been reduced from 205 (municipal boundaries of 30 June 2004) to 127 (municipal boundaries of 30 June 2008).

Table 2:

Modified current budget surplus or deficit (MCBS/D) and investment coverage rate of the district-affiliated municipalities in Saxony-Anhalt

- Descriptive statistics 1995-2008 -

Modified current budget surplus or deficit (1,000 Euro)						
	Mean	Standard deviation	Minimum	Median	Maximum	Percentage MCBS/D <0
1995 ^a	163.42	2,088.50	-11,559.42	359.64	7,517.69	0.33
2000 ^a	-384.59	2,412.71	-18,333.67	85.44	3,867.92	0.47
2004 ^a	-215.80	2,012.77	-11,634.05	-166.14	16,117.39	0.63
2008 ^b	-412.90	3,454.11	-20,899.44	-102.99	17,408.97	0.57
Investment coverage rate (MCBS/D ÷ investment expenditures)						
	Mean	Standard deviation	Minimum	Median	Maximum	Percentage rate < 1
1995 ^a	0.05	0.55	-4.43	0.15	2.22	0.99
2000 ^a	-0.18	1.15	-12.36	0.03	1.95	0.99
2004 ^a	-0.13	1.46	-5.34	-0.07	17.47 ^c	0.98
2008 ^b	-0.50	2.58	-26.12 ^c	-0.06	2.67	0.94

Notes: ^a municipal boundaries of 30 June 2004; N=205 ^b municipal boundaries of 30 June 2008; N=127 ^c The extreme outlier values resulted from either extraordinarily high debt repayments and relatively low investments or from extraordinarily high tax revenues and relatively low investments.

Source: Author's calculation based on the local government finance statistics provided by the Statistical Office Saxony-Anhalt

Table 3:
Tax revenues per capita of district-affiliated municipalities^a in Germany

	Gross tax revenues per capita ^b					Net tax revenues per capita ^c				
	1995	2000	2004	2008	2010	1995	2000	2004	2008	2010
“Poor” West German states ^d (Euro)	539.03	573.29	582.48	776.04	725.84	493.60	520.81	523.85	712.57	664.21
All East German states except Berlin (Euro)	257.59	274.07	323.39	512.82	496.13	251.01	258.91	302.83	490.57	472.84
Saxony-Anhalt (Euro)	240.83	279.18	359.03	535.33	501.70	234.14	263.20	334.24	509.14	476.69
East÷West	48%	48%	56%	66%	68%	51%	50%	58%	69%	71%
Saxony-Anhalt÷West	45%	49%	62%	69%	69%	47%	51%	64%	71%	72%

Notes: ^a District-free towns are excluded. ^b Includes gross local business tax revenues, property tax and the municipal shares in the national income tax and the national value added tax. ^c after deduction of the redistributed local business tax revenues ^dSchleswig-Holstein, Lower Saxony (except region of Hannover), Rhineland-Palatinate and Saarland (except region of Saarbrücken).

Source: Author’s calculations based on www.regionalstatistik.de, Genesis Database of the Federal and the State Statistical Offices, tables 356-11-4 and 173-01-4.

Table 3 shows that, although things have improved since 1995, the East German municipalities and the municipalities in Saxony-Anhalt still reach less than 70% of the gross tax revenues of the “poor” West German states. The relations for gross per-capita revenues and net revenues differ only by two to three percent. Thus, the effect of the higher percentage of local business tax revenues the West German municipalities have to transfer to their states (“Gewerbesteuerumlage”) does not have a dramatic equalization effect.

The following conclusions can be drawn from the empirical facts about the financial situation of Saxony-Anhalt’s district-affiliated municipalities:

- 1) They suffer from significantly lower tax revenues compared even to the municipalities in the “poor” West German states because they reach only about 70% of their tax revenues per capita.
- 2) The district-affiliated municipalities in Saxony-Anhalt are mostly unable to cover even their current expenditures by own revenues. On average about one third of their current budget revenues consists of grants in aid, debt service assistance or cost reimbursements.

3) The majority of the municipalities are - despite of the considerable grant revenues in the current budget – unable to finance their investments from own resources (indicator: current budget surplus or -deficit minus debt repayments).

5. Municipal grants and the system of fiscal equalization

5.1. Formula-based unconditional grants

As grants play an important role in municipal finance, especially in the eastern part of Germany, the composition of the grants that Saxony-Anhalt's municipalities have received in the past has to be analyzed in detail (Table 4):

Table 4:
Composition of grants in district-affiliated municipalities
- Saxony-Anhalt 1995-2008 -

	1995	2000	2004	2006	2008
Municipal fiscal equalization – formula-based-grants	47.27%	49.90%	45.71%	55.88%	58.77%
Municipal fiscal equalization – grants for municipalities with special financial requirements	0.50%	0.85%	2.43%	0.30%	0.33%
Miscellaneous unconditional grants for current expenditures	0.57%	0.67%	1.95%	0.74%	5.66%
Reimbursements/debt assistance/allowances/conditional grants for current expenditures	25.40%	11.16%	6.23%	5.69%	5.26%
Investment grants	26.27%	37.42%	43.69%	37.39%	29.98%
Total	100.00%	100.00%	100.00%	100.00%	100.00%

Source: Author's calculation based on the local government finance statistics provided by the Statistical Office Saxony-Anhalt

Table 4 shows that between 56% and 74% of the municipal grants and reimbursements consist of grants to cover current expenditures. These differences over the years have been caused by the greater volatility of investment grants (and municipal investments) compared to other grant categories. The most important transfer payments are the grants received from the municipal fiscal equalization system allocated according to a certain

formula¹⁷ (formula-based grants, “Schlüsselzuweisungen”), so they deserve a closer look on how they are calculated.

The sum of the formula-based grants $FG(i)$ which municipality i receives is calculated in most German states according to the following formula

$$FG(i) = \begin{cases} \alpha \cdot (BA \cdot WI(i) - FC(i)) > 0 & \text{if } WI(i) - FC(i) > 0 \\ 0 & \text{if } WI(i) - FC(i) < 0 \end{cases} \quad (1)$$

where BA is the base amount per inhabitant (calculation is shown below), $WI(i)$ represents the sum of the “weighted” inhabitants. The weights are fixed by state law and differ between the German states.¹⁸ However, they have in common that the weights increase with increasing population numbers (so-called “Einwohnerveredelung”). Since $BA \cdot WI(i)$ represents the municipality’s imputed financial needs, larger cities are assumed to have higher expenditures per inhabitant (e. g. due to agglomeration costs or spillover effects of certain local public goods). $FC(i)$ is the financial capacity of municipality i . It is calculated by summing up the local shares in the revenues of the national income tax (approximately 15% of the local income tax revenues) and of the national value added tax (roughly 2.2% of the local VAT revenues) and the “standardized” revenues from the local property tax (“Grundsteuer A und B”) and the local business tax (“Gewerbesteuer”).¹⁹

The (positive) difference between the assumed financial need and the potential fiscal capacity is not fully covered, but only up to a certain percentage or fill-up rate $\alpha < 100\%$ (α is usually fixed ex ante). Municipalities with a surplus will receive zero grants (“abundant” municipalities). The only purpose of the base amount BA is to ensure that the exogenously given fiscal equalization mass M is completely divided among the number of non-abundant municipalities a :²⁰

¹⁷ Readers, who are familiar with the subject, might object that the different German local government fiscal equalization systems contain other conditional or unconditional grants that are also allocated according to certain “formulas” (e. g. street length, number of pupils, welfare and unemployment expenditures, number of childcare facilities etc.). However, as the formula-based grants that are intended to cover the gap between some proxy for financial need and the standardized tax revenues (“Schlüsselzuweisungen nach der mangelnden Steuerkraft”) are the most important vertical grant category the term “formula-based grants” is used as a synonym for these grants.

¹⁸ In many German states the number of weighted inhabitants (“Hauptansatz”) is further increased by adding weighted pupils, weighted soldiers or weighted students (“Nebenansätze”).

¹⁹ The German municipalities can set the tax multipliers for the property tax and the business tax more or less freely. Thus, to avoid any strategic behaviour, the local tax base is multiplied by a uniform (standardised) tax multiplier (“Nivellierungshebesatz”), for example the state’s average tax multiplier. The result is interpreted as the *potential* tax capacity, although the calculation is based on the strong assumption that no interdependencies between tax base and tax rate exist.

²⁰ The German state Baden-Württemberg is an exception because here BA is fixed ex ante. Hence, α and a are now the unknown variables in equation (2) and (3). See the fiscal equalisation law (FAG) for Baden-Württemberg §5 (2) and §7 (2) [http://www.landesrecht-](http://www.landesrecht-bw.de/wwrt/wwrt.html)

$$M = \sum_{i=1}^a FG(i) = \alpha \cdot \left(BA \cdot \sum_{i=1}^a WI(i) - \sum_{i=1}^a FC(i) \right) \quad (2)$$

$$\text{or } BA = \frac{\frac{M}{\alpha} + \sum_{i=1}^a FC(i)}{\sum_{i=1}^a WI(i)}. \quad (3)$$

The major problem is that both BA and a are unknown variables. Hence, in practice an iterative numerical procedure is applied to eliminate the abundant municipalities step by step from equation (3).

In this paper, it is only possible to briefly sketch the basic concept of the rather complicated systems of municipal fiscal equalization in Germany. Although the general principles are similar, the details differ quite significantly between the German states. As an example, the situation in Saxony-Anhalt 2004 is described to illustrate the basic components of the system according to the fiscal equalization law (Finanzausgleichsgesetz FAG; amended version of 2004) of Saxony-Anhalt:

M : 23.82126% of the states share in the national income tax, the national corporation tax, the VAT and the redistributed local business tax (“Gewerbesteuerumlage”) plus 23.82126% of the revenues from state taxes (e. g. tax on real estate sales, the vehicle tax, but with the exception of the fire protection tax and the taxes on bets on races or lotteries) plus 23% of the grants Saxony-Anhalt has received from the German federal financial equalization system (“Länderfinanzausgleich”) [§3 (2) FAG]. Roughly 25% of this sum was allocated according to other criteria (expenditures for social aid, expenditures for asylum seekers, length of district roads) or as grants to extremely fiscally weak municipalities or as investment grants among the districts, district-free towns and district-affiliated municipalities (§4, §10-§11a FAG). Before calculating the actual formula-based grants the remaining M is divided into three “sub-masses”, 30% for the rural districts, 43% for the district-affiliated municipalities and 27% for the district-free towns (§6 FAG). Each sub-mass is then divided separately according to equation (3). However, α , WI and FC are (partly) calculated in different ways depending on the level of local government. It is easy to see that M is rather volatile because of the volatility of the underlying tax revenues which also influences the grants received from the German federal financial equalization system.

α : 70% for district-affiliated municipalities, district-free towns and rural districts (§5 (2) FAG).

<http://www.iwh.uni-leipzig.de/jportal/?quelle=jlink&query=FinAusglG+BW&psml=bsbawueprod.psml&max=true&aiz=true> or *Kalb* (2010).

WI: For the weights per inhabitant for the district-affiliated municipalities and the district-free cities see appendix B. The calculation of *WI* for the districts is different (see also appendix B).

FC: The fiscal capacity of district-affiliated municipalities and district-free towns is calculated by adding up 80% of the standardized gross revenues from property tax and local business tax and 80% of the municipality's share in the national income tax and the national value added tax. The average multiplier of Saxony-Anhalt (calculated separately for district-free towns and district-affiliated municipalities) is used for the standardization of the property tax and the local business tax revenues (§8 FAG). As the German rural districts have hardly any tax revenues²¹, their fiscal capacity is calculated as 30% of their district-affiliated municipalities' aggregated fiscal capacity, including 90% of the key grants those municipalities have received (§9 FAG).

Meanwhile there has been a reform of the fiscal equalization system in 2009 which included the following main changes:

- *M* is fixed by law to increase planning reliability and reduce revenue volatility (1,595,491,102 € in 2010, 1,590,623,669 € in 2011 and 1,559,763,326 € for 2012); *M* is annually adapted [§ 2 (1) FAG]. The percentage of *M* that is allocated according to other criteria is regulated more explicitly (§§3-11, §§16-17 FAG). However, the division of the remaining *M* for the formula-based grants into the three submasses for district-free towns, rural districts and district-affiliated municipalities remained unchanged [§12(1) FAG].
- The share of *M* distributed via formula-based grants has decreased: According to own calculations based on the current fiscal equalization law, total formula-based grants of about 890 million Euro can be expected for 2012, whereas the total formula-based grants in 2004 amounted to 1.281 billion Euro.
- Calculation of *WI* and *FC* has been modified.
- Although equation (1) remains valid for abundant local governments, district-affiliated municipalities with $FC(i)$ exceeding $BA \cdot WI(i)$ by more than 50% have to pay 30% of the excess to a special fund ("Ausgleichsstock") to finance grants to local governments in extreme fiscal calamities (§ 3 No.1 and § 17 FAG).²² Exceptions are made for local governments with above-average debts (§ 23 FAG). Similar arrangements for horizontal equalization elements within the vertical grant system have been introduced during the last few years in other German states: Thuringia (§31a ThürFAG), Saxony (§25a SächsFAG), Brandenburg (§17a BbgFAG), Lower

²¹ For example, the only tax source for Saxony-Anhalt's districts was a tax on hunting and fishing. The annual revenues amounted to about 150,000 Euro, but the tax was abolished in 2003 because the costs of raising the tax had exceeded the tax revenues.

²² The current version of the FAG for the year 2013 has abandoned this idea. Now all municipalities have to pay 10% of their $FC(i)$ plus their (now preliminary) formula-based grants. This money is then used to increase *M* and then the formula-based grants are calculated again. Payments are deducted from the formula-based grants [§12 (3) FAG].

Saxony (§16 NFAG), Schleswig-Holstein (§29 FAG), Rhineland-Palatinate (§23 LFAG) or Baden-Württemberg (§1a FAG).

All in all, the formula-based grants of the German local government fiscal equalization system can be characterized as unconditional, closed-ended (M determines the maximum grant) nonmatching (no financial contribution of the recipient necessary) grants. As they are mainly a means of vertical redistribution between the state and the local government level (“rich” cities receive no grants, but – until recently - also do not have to give up some of their revenues to support “poor” municipalities) and are not intended to fully cover the actual deficits, fiscal surpluses or deficits are still possible in the abundant as well as the grant-receiving municipalities. Furthermore, the determinants of the grants α , M , FC and WI are either exogenous or difficult to manipulate for the receiving local governments. Thus, except for increasing the population without an increase in public spending²³ there are hardly any incentives or possibilities for the local governments to increase the amount of formula-based grants they receive.²⁴ Hence the key grants can be considered as exogenous for the local politicians and bureaucrats.

5.2. Some distributive effects of the fiscal equalization system in Saxony-Anhalt

First of all, it is tested whether “poor” municipalities, i.e. municipalities with a low tax base, receive higher per-capita grants. This does not necessarily have to be the case because especially larger towns and municipalities with high per-capita tax bases also have higher multipliers per inhabitant to calculate WI . Hence, the difference $\alpha \cdot (BA \cdot WI(i) - FC(i))$ might become higher per capita in large, fiscally strong communities compared to small towns and fiscally weak municipalities.

However, the following table 6 shows a significant and relatively strong negative correlation (Spearman rho) between per-capita tax revenues (instead of the tax bases) and

²³ This is usually achieved by “encouraging” existing inhabitants – especially students – to register their place of living as the main residence.

²⁴ Lowering the fiscal capacity FC by deliberately lowering the tax base of the local business tax (e. g. driving off local enterprises by restrictive planning of new business districts, restrictive environmental requirements etc.) might only be attractive if the actual local tax multiplier t^{act} was lower than the standardized tax multiplier $t^{stand.}$ multiplied by the fill-up rate α and 80% (only 80% of the business tax base are taken into account to calculate FC), that is in 2004 it must not exceed 56% of the standardized tax multiplier. In this case the losses in business tax revenues are lower than the gains in additional key grants. According to *Statistical Office North Rhine-Westphalia* (2006), table 356-11, in 2004 the average local business tax multiplier was 338 in Saxony-Anhalt. Hence, t^{act} had to be lower than 189 which had been the case in 4 out of 1,118 municipalities in Saxony-Anhalt at that time, all of them rather small and remote rural communities. Consequently, incentives to destroy the own tax base in order to profit from higher formula-based grants seem almost totally unlikely.

formula-based grants per capita in 2004. The results do not change significantly if instead of the single municipalities the correlation coefficient is calculated for the aggregated municipal association level. Similar figures are not calculated for the districts and the district-free towns because the rural districts have no own tax resources and for only three district-free towns no statistically meaningful results can be obtained.

Table 6:

Correlation between tax revenues and formula-based grants for district-affiliated municipalities

- Saxony-Anhalt 2004 -

	Per-capita tax revenues ^a - municipalities -	Per-capita tax revenues ^a - municipal associations -
Per-capita formula-based grants - municipalities -	Spearman rho: -0.641 P-value (two-sided test): 0.00000 N=1,140 ^b	-
Per-capita formula-based grants - municipal associations -	-	Spearman rho: -0.651 P-value (two-sided test): 0.00000 N = 205b

Notes: ^a includes property tax, (net) local business tax and the municipal share in the national income and value added tax - ^b municipal boundaries of 30 June 2004

Source: Author's calculation based on the local government finance statistics provided by the Statistical Office Saxony-Anhalt

Although the results have shown that per-capita grants tend to decrease with increasing tax revenues (as intended), this does not necessarily mean that the ranking in fiscal strength remains unchanged before and after receiving formula-based grants.

Table 7:

Correlation between fiscal ranking with and without formula-based grants for district-affiliated municipalities

- Saxony-Anhalt 2004 -

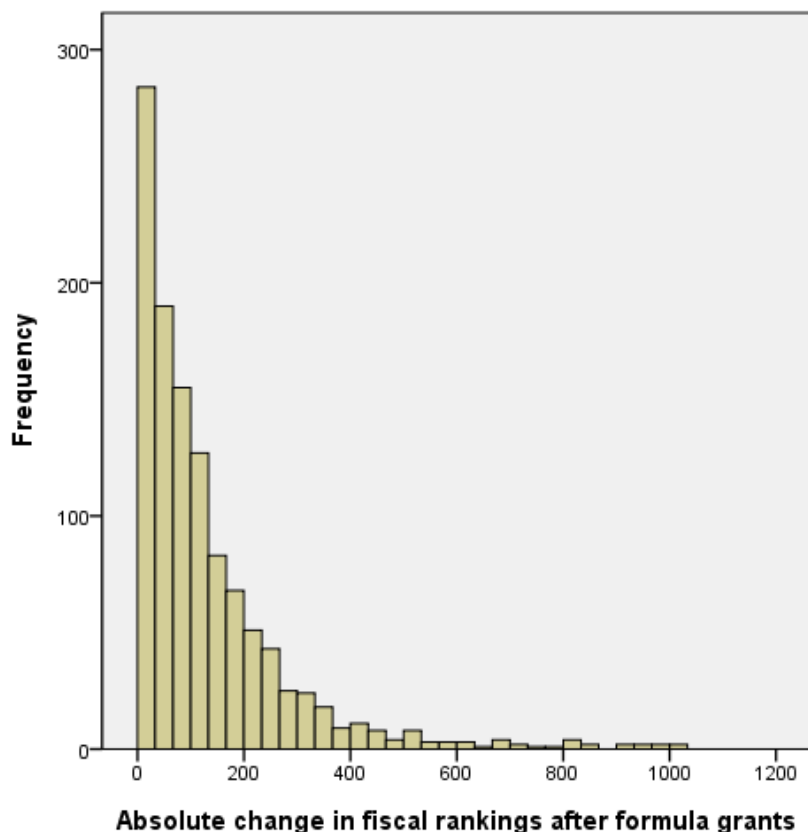
	Rank per-capita tax revenues ^a -municipalities -	Rank per-capita tax revenues ^a - municipal associations -
Rank per-capita tax revenues plus formula-based grants - municipalities -	Spearman rho: +0.813 P-value (two-sided test): 0.00000 N=1,140 ^b	-
Rank per-capita tax revenues plus formula-based grants - municipal associations -	-	Spearman rho: +0.895 P-value (two-sided test): 0.00000 N = 205 ^b

Notes: ^a includes property tax, (net) local business tax and the municipal share in the national income and value added tax - ^b municipal boundaries of 30 June 2004

Source: Author's calculation based on the local government finance statistics provided by the Statistical Office Saxony-Anhalt

According to the results shown in table 7, municipalities with high rankings in own tax revenues usually will be also highly ranked if formula-based grants are included. However, in some cases the rankings changed significantly:

Figure 5:
Changes in fiscal ranking after formula-based grants for district-affiliated municipalities
- Saxony-Anhalt 2004^a -

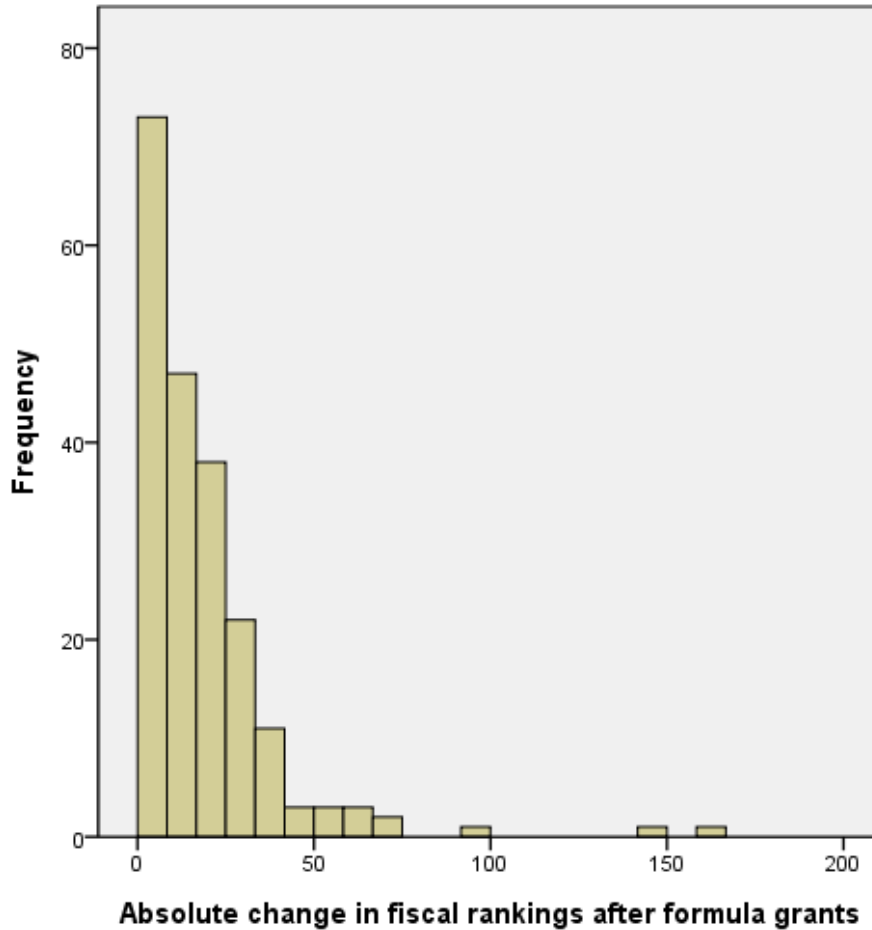


Notes: ^a municipal boundaries of 30 June 2004, N = 1,140

Source: Author's calculation

The histogram in figure 5 shows that for most of the municipalities their fiscal ranking changes by less than 200 (mean: 131.15, median: 84). Yet, in 40 cases the rankings change drastically by 500 to even 1000 – upwards as well as downwards. It is not clear whether these extreme changes result from accounting problems, extraordinary fiscal events or from the preliminaries of the ongoing municipal reform. The same goes for the municipal association level (mean: 17.81, median: 13). Again, in 11 cases the rankings change by more than 50 places, in two extreme cases even by 149 and 162 (figure 6).

Figure 6:
Changes in fiscal ranking after formula-based grants for municipal associations
- Saxony-Anhalt 2004^a -



Notes: ^a municipal boundaries of 30 June 2004, N = 205

Source: Author's calculation

All in all, it can be concluded from the results that the main recipients of the formula-based grants in Saxony-Anhalt are usually the “poor” municipalities and that for the majority the changes in fiscal ranking caused by the formula-based grants remain within reasonable limits – although extreme changes are possible.

6. Conclusions

In this paper some components of the fiscal and institutional framework have been analyzed empirically that might explain the - seemingly - efficiency-enhancing effect of vertical grant systems found by recent studies for Belgian and German (Saxony-Anhalt) municipalities.

The empirical findings for Saxony-Anhalt could be summed up like this: First, the municipalities suffer from severe financial problems. This can be concluded from the high grant dependency, the low (even compared to the “poor” West German states) tax revenues and the inability of most municipalities to finance investments by own resources.²⁵

Second, the output (and input-) regulation density of municipal service provision is high. Local governments have to spend most of their budget on mandatory tasks, which are often regulated in detail by supranational, national or state laws or regulations and also by more or less obligatory “recommendations” or “guidelines” developed by professional associations or research institutions. This is illustrated by the relevant legal frameworks for child care facilities, fire protection services and schools. It is beyond the scope of this paper to judge the sense (or nonsense) of certain regulations – it is merely observed that the municipalities are often considerably limited in their choice of output- and input quantity or –quality.

Finally, the most important vertical grant category, the formula-based grants (“Schlüsselzuweisungen”), can be described as mainly exogenous (from the recipients’ perspective), unconditional block grants. As the local government financial equalization system of Saxony-Anhalt – until 2009 – does not include horizontal redistributive elements it can be expected that the formula-based grants will not change the municipalities’ rankings in per-capita revenues. And indeed, a significant and strong negative correlation between tax and formula-based grant revenues and a strong positive correlation between the rankings in per-capita revenues before and after formula-based grants can be found. For most municipalities the rankings will change only modestly, though in rare cases extreme changes are possible.

All in all, the “stylized facts” for Saxony-Anhalt suggest that the basic assumptions of the paper’s working hypothesis and hence, the underlying assumptions for an elaborated theoretical model are sufficiently fulfilled. The detailed theoretical and empirical investigation of the grant effect on municipal efficiency is conducted in Bischoff et al. (2013).

²⁵ The results would not necessarily change if municipal enterprises or institutions outside the core budget in were included in the analysis. Apart from allocation problems (for enterprises owned by more than one local government) and the fact that these units represent not only assets and revenues but also significant costs and additional debts (especially the East German municipal housing companies), *Bönisch et al.* (2011) find that municipal enterprises are more important for the rural districts and the district-free towns and that there are only loose connections between the core budget and the municipal enterprises.

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Appendix A: Municipal expenditure structure

Table A1:
Composition of current expenditures (core budget only, without municipal enterprises) for different levels of local government
- Saxony-Anhalt 1995-2008 -

Non- mandatory task? ^a	District-free towns				Rural districts				District-affiliated municipalities				Mean rank ^b		
	1995	2000	2004	2008	Mean rank ^b	1995	2000	2004	2008	Mean rank ^b	1995	2000		2004	2008
Council, mayor, central administration, auxiliary service units, real estate not allocated to certain tasks	7.1%	9.3%	9.7%	9.5%	4.3	10.5%	8.7%	9.0%	7.5%	3.8	29.5%	32.2%	31.8%	31.1%	1
Administration of civil engineering, school administration, administration of social affairs, local health authorities	8.4%	9.0%	8.0%	9.3%	4.8	8.5%	8.1%	8.7%	10.3%	4.0	6.4%	6.6%	6.6%	6.1%	3.5
Administration of non-mandatory tasks	0.2%	0.3%	0.3%	0.3%	17.3	0.5%	0.2%	0.1%	0.2%	15.5	0.5%	0.8%	0.6%	0.5%	17.5
Public order, environmental protection, fire protection, civil protection, emergency medical service	5.4%	6.7%	7.5%	8.3%	6.5	7.6%	8.3%	8.7%	7.5%	4.8	4.8%	5.2%	6.0%	6.8%	4.5
Primary and secondary schools	1.9%	1.5%	2.5%	2.2%	13.0	0.3%	0.3%	2.5%	1.4%	12.0	6.0%	5.0%	4.7%	4.9%	6
Academic high schools, vocational schools, comprehensive schools, special schools, school transport	6.3%	4.9%	3.1%	3.7%	8.3	10.5%	10.9%	6.7%	5.8%	4.3	1.8%	1.1%	0.1%	0.1%	15.3

Non-mandatory task? ^a	District-free towns				Rural districts				District-affiliated municipalities				
	1995	2000	2004	2008	1995	2000	2004	2008	1995	2000	2004	2008	Mean rank ^b
X	10.6 %	12.2 %	11.9 %	10.2 %	2.9 %	2.8 %	2.2 %	1.9 %	3.3 %	3.7 %	2.8 %	3.3 %	8.5
	19.1 %	22.5 %	27.2 %	27.5 %	44.4 %	37.1 %	42.8 %	48.2 %	4.0 %	4.4 %	3.7 %	0.5 %	1.0
	13.8 %	10.4 %	10.2 %	10.3 %	2.5 %	13.3 %	10.4 %	9.6 %	24.4 %	19.2 %	23.5 %	26.6 %	3.8
X	5.0 %	2.0 %	1.5 %	1.2 %	1.6 %	0.9 %	0.5 %	0.3 %	2.1 %	1.7 %	1.2 %	1.0 %	12.8
	2.8 %	2.1 %	0.8 %	0.9 %	1.3 %	0.9 %	0.8 %	0.3 %	0.7 %	0.4 %	0.1 %	0.1 %	12.3
X	3.7 %	3.1 %	2.7 %	2.6 %	0.2 %	0.2 %	0.2 %	0.2 %	6.8 %	6.3 %	5.2 %	5.8 %	15.8
	4.3 %	5.2 %	4.8 %	5.0 %	1.6 %	1.5 %	1.3 %	1.0 %	4.1 %	4.3 %	4.6 %	5.4 %	10.5
	0.1 %	0.1 %	0.1 %	0.1 %	0.0 %	0.0 %	0.0 %	0.0 %	0.6 %	0.9 %	0.9 %	1.1 %	18.5
	2.1 %	2.7 %	1.6 %	2.1 %	4.4 %	3.8 %	3.1 %	2.5 %	1.3 %	4.1 %	4.4 %	2.8 %	6.8
	0.8 %	0.8 %	0.4 %	0.4 %	0.0 %	0.0 %	0.0 %	0.0 %	0.9 %	0.9 %	0.9 %	0.9 %	18.5

Non-mandatory task? ^a	District-free towns				Rural districts				District-affiliated municipalities						
	1995	2000	2004	2008	1995	2000	2004	2008	1995	2000	2004	2008	Mean rank ^b		
X	1.0%	2.3%	2.7%	1.8%	12.8	2.2%	2.5%	2.6%	2.4%	8.5	1.1%	1.5%	1.1%	1.3%	11.8
X	6.9%	4.6%	4.6%	4.2%	7.8	0.8%	0.3%	0.3%	0.4%	13.3	0.9%	0.9%	0.8%	0.8%	15
X	0.3%	0.2%	0.2%	0.2%	17.8	0.1%	0.1%	0.1%	0.4%	15.8	0.9%	0.9%	0.9%	1.0%	14.5
	100%	100%	100%	100%		100%	100%	100%	100%		100%	100%	100%	100%	
	100.0 %	86.6%	90.8%	91.1%		100.0 %	97.0 %	101.7 %	113.7 %		100.0 %	90.2%	86.8%	82.6 %	
	27.80 %	24.74 %	23.98 %	20.63 %		8.35%	7.09 %	6.08%	5.76%		15.55 %	15.79 %	12.72 %	13.67 %	

^a Characterization is based on Kregel (1998: 57-69) and Kregel (2005:63-74). ^b Average rank over the years 1995, 2000, 2004 and 2008 according to the budget share of the item. ^c This includes playgrounds, youth clubs etc. ^d Book keeping items, internal offsets and the category 9 "financial management" are excluded from the calculations.

Source: Author's calculation based on the local government finance statistics provided by the Statistical Office Saxony-Anhalt

Appendix B: Multipliers per inhabitant to calculate the fiscal needs

Table B1:

District-affiliated municipalities (attachment to § 7 (2) FAG Nr.1, version of 2004)

≤ 5,000 inhabitants	100%
5,001- 9,999 inhabitants	103%
10,000-24,999 inhabitants	105%-115%
25,000-60,000	118% - 125%

In 2004 no district-affiliated towns with over 60,000 inhabitants in Saxony-Anhalt existed (and still do not exist). For members of municipal associations the multiplier refers to the total number of inhabitants of all member municipalities in the association. One exception is associations formed by one large municipality (more than 20,000 inhabitants) and a number of small municipalities (less than 2,000 inhabitants). In this case, only the large municipality is weighted by the higher multiplier, the inhabitants of the small municipalities are weighted according to the multiplier for their actual size (100%).

Table B2:

District-free cities: (attachment to § 7 (2) FAG Nr. 1, version of 2004)

≤ 149,999 inhabitants	100%
≥ 150,000 inhabitants	112%

Rural districts (§ 7 (2) FAG Nr. 2, version of 2004):

$$WI(i) = \sum_{t=1999}^{2002} w_t \cdot in_{i,t} + A_i \cdot 15$$

w_t : 1999: 85%; 2000: 90%; 2001: 95%; 2002: 100%

$in_{i,t}$: number of inhabitants of district i in year t .

A_i : Area in square kilometre of district i . (Year does not matter for 2004 because there have not been any changes in the districts' areas between the mid 1990ies and 2007 in Saxony-Anhalt.)