



Wirtschafts- und
Sozialwissenschaftliche Fakultät

Falk Ebinger | Philipp Richter

Decentralizing for performance?

A quantitative assessment of functional reforms in the German *Länder*

Suggested citation referring to the original publication:

International Review of Administrative Sciences, 82 (2016) 2, pp. 291–314

DOI <http://dx.doi.org/10.1177/0020852315586916>

ISSN (print) 0020-8523

ISSN (online) 1461-7226

Postprint archived at the Institutional Repository of the Potsdam University in:

Postprints der Universität Potsdam

Wirtschafts- und Sozialwissenschaftliche Reihe ; 92

ISSN 1867-5808

<http://nbn-resolving.de/urn:nbn:de:kobv:517-opus4-405158>



Decentralizing for performance? A quantitative assessment of functional reforms in the German *Länder*

Falk Ebinger

WU - Vienna University of Economics and Business, Austria

Philipp Richter

University of Potsdam, Germany

International Review of
Administrative Sciences

2016, Vol. 82(2) 291–314

© The Author(s) 2015

Reprints and permissions:

sagepub.co.uk/journalsPermissions.nav

DOI: 10.1177/0020852315586916

ras.sagepub.com



Abstract

In the last 10 years, the governments of most of the German *Länder* initiated administrative reforms. All of these ventures included the *municipalization* of substantial sets of tasks. As elsewhere, governments argue that service delivery by communes is more cost-efficient, effective and responsive. Empirical evidence to back these claims is inconsistent at best: a considerable number of case studies cast doubt on unconditionally positive appraisals. Decentralization effects seem to vary depending on the performance dimension and task considered. However, questions of generalizability arise as these findings have not yet been backed by more 'objective' archival data. We provide empirical evidence on decentralization effects for two different policy fields based on two studies. Thereby, the article presents alternative avenues for research on decentralization effects and matches the theoretical expectations on decentralization effects with more robust results. The analysis confirms that overly positive assertions concerning decentralization effects are only partially warranted. As previous case studies suggested, effects have to be looked at in a much more differentiated way, including starting conditions and distinguishing between the various relevant performance dimensions and policy fields.

Points for practitioners

In multi-level systems, reformers of public administration have to decide which level is most appropriate for the implementation of a certain task. In the last years, reformers have often decided to decentralize state functions in the hope of creating an effective and efficient government. Yet, in reality, the claim to deliver public tasks better and, at

Corresponding author:

Dr Philipp Richter, University of Potsdam, Political Science, Administration and Organization, August-Bebel-Str. 89, Haus 7, Raum 219, Potsdam 14482, Germany.

Email: philipp.richter@uni-potsdam.de

the same time, cheaper in decentralized units proves unfeasible. We provide empirical evidence on the performance effects of decentralization and show that it has *other* advantages and *other* disadvantages compared to state service delivery. Reformers of public administration have to ponder these pros and cons in each particular case.

Keywords

decentralization, de-concentration, federalism, local government, performance measurement, public service delivery, social and environmental administration

Introduction

In the past 10 years, most German *Länder* governments initiated administrative reforms, including changes in the function, structure and territory of their administrations. As elsewhere, the devolution of considerable sets of tasks from the state to the local level was the most popular reform measure. Virtually all governments of the 13 territorial states¹ have, will or at least have repeatedly tried to decentralize administrative tasks on a large scale to the local level (cf. Bogumil and Ebinger, 2008). These reforms lead to the strengthened functional profiles of local governments. At a first glance, this is a win-win situation for both *Länder* and local governments: the *Länder* can streamline their administrative structure, chastise the allegedly sprawling bureaucracy and save money at the same time; and local governments (and, here, particularly the counties and cities with county status) can accumulate new tasks and resources in order to gain organizational leeway and to boost administrative and political power within their jurisdiction and beyond. Both partners claim that service delivery by local governments would not only be cheaper, but also more efficient, effective and responsive towards citizens' needs. However, theoretical arguments and empirical evidence on decentralization effects is extremely conflicting (see Kuhlmann and Wayenberg, 2016).

The differing concepts, political strategies, paces and, last but not least, successes in the realization of these reform ventures in Germany have been repeatedly subject to scientific scrutiny (Ebinger, 2010, 2013). Moreover, related performance effects have been analysed in several concise qualitative comparisons featuring differentiated performance definitions (cf. Bauer et al., 2007; Ebinger, 2009; Ebinger et al., 2011; Kuhlmann et al., 2011; for further sources, see Kuhlmann and Wayenberg, this issue). These case studies suggest that a universally positive appraisal of decentralization reforms may not be warranted (cf. Kuhlmann et al., 2011: 279ff.). However, only case studies have been conducted so far. Elaborated quantitative logs of reform effects are absent.

Hence, the subject of this article is the performance effects of decentralization reforms. In particular, we set out with a threefold goal: first, alternative methods to capture organizational performance will be introduced; second, additional empirical evidence as to whether functional reforms are appropriate measures to alter the performance of public administrations is presented for the German case; and, third,

by looking into two strongly differing policy fields – social services and industry inspectorates – claims about the potential policy- and task-dependency of decentralization effects will be substantiated.

To assess institutional impacts, two complementary, data-driven methodological approaches were chosen. First, archival evidence for decentralization effects was gathered for a selected group of tasks within the social services: the diagnosis of disabled persons (cf. Richter and Kuhlmann, 2010; Richter, 2012). In the second analysis, a cross-section comparison drawing on survey data from front-line industry and labour inspectors is applied in order to compare performance in administrative set-ups characterized by varying degrees of decentralization.

Theoretical considerations and empirical observations

Local governments can be the subject of different types of reforms. Dollery et al. (2008) distinguish between structural, functional, financial, jurisdictional and organizational/managerial reforms. This article concentrates on functional reforms, defined as ‘any changes in the number of types of functions performed by municipal government through various means including the realignment of functions between municipal governments and other orders of government’ (Dollery et al., 2008: 7). A transfer of tasks from the state to the local level can be considered the most far-reaching functional reform and is frequently associated with significant performance changes. The performance of public organizations is a complex and multidimensional concept (Boyne et al., 2006: 6; see also Kuhlmann and Wayenberg, 2016). One common classification of public organizational performance is the ‘economy–efficiency–effectiveness’ (‘3Es’) model: ‘economy’ refers to the total input cost; ‘efficiency’ describes the ratio of inputs to outputs; and ‘effectiveness’ is defined as the achievement of the formal objectives of services (Midwinter, 1994: 37). The ‘3Es’ model was criticized, especially in the context of local government performance evaluation, because of its limitations concerning the measurement of responsiveness and democratic outcomes (Boyne, 2002: 18ff.). For that reason, various extensions and concretions of the ‘3Es’ model were undertaken. One of the most comprehensive collections was furnished by Boyne (2002), who introduced five main performance dimensions, including 15 sub-domains (Boyne, 2002: 19). While the multidimensional character of local performance is undisputable, Boyne (2002: 19) nailed down the problem: ‘Whether data are available to apply these evaluative criteria in practice is another matter.’ For the same reason, we limit ourselves here to impact assessment along the ‘3Es’ model and neglect throughput and input legitimacy.

Theoretical basis

The performance effects commonly associated with decentralizations have been widely discussed (cf. Kuhlmann et al., 2011; Schakel, 2010). Scaling down the territorial dimension of task implementation has two effects (Houlberg, 2010).

First, each local jurisdiction administers fewer cases with fewer employees; hence, employee specialization might be reduced and economies of scale may be lost (Swianiewicz, 2010). To the contrary, larger jurisdictions are considered more effective and efficient (Andrews and Boyne, 2009). Second, larger jurisdictions are associated with higher uniformity of the application of law as fewer and potentially more professional authorities share the duty. On the other hand, small jurisdictions might increase the proximity to the addressees of a policy. Especially in situations where local-specific circumstances are important for decision-making, positive effects on the quality of task implementation can be expected (Faguet, 2014; Newton, 1982). However, this increase in responsiveness comes at a price: contrary to non-elected state officials, the elected head of the local authority has to satisfy his or her constituency in order to be re-elected. Hence, incentives are strong to orient service delivery towards relevant local stakeholder groups (cf. Kluth, 2004). This politicization of task implementation may further increase the heterogeneity of service delivery across constituencies and even compromise the legality of execution, especially when tasks feature high political salience (Ebinger, 2010).

The modification of the functional dimension, that is, the change from a single-purpose agency to a multipurpose administration or, rather, the amalgamation of tasks in one local unit, affects output factors via two mechanisms (Boston et al., 1996; Hyman and Kovacic, 2009). On the one hand, the transfer of the tasks from single-purpose agencies to multipurpose local governments promotes cooperation and coordination between different tasks (Derlien, 1996). Hence, the interdependencies of problems are more identifiable and more quickly solved (Hult, 1987). Additionally, economies of scope should lead to increased efficiency. On the other hand, a loss of professional autonomy and, hence, service quality can result due to the lack of a professional background of supervisors (Cohen et al., 2006). Last but not least, the occurrence of these effects is assumed to vary across policy fields and task characteristics (Hooghe and Marks, 2009: 184).

Observations and hypotheses: performance effects of decentralizations in Germany

Germany could be considered a veritable laboratory for students of decentralization policies. Its strong administrative federalism assigns the implementation of federal laws predominantly to the subnational *Länder* level. Moreover, leaving aside the three 'city-states' of Berlin, Hamburg and Bremen, there are 13 territorial states (*Flächenländer*), with a highly differentiated, multilevel bureaucratic structure and strong, constitutionally protected local governments. Furthermore, virtually all the governments of these 13 states have, will or at least have repeatedly tried to reform their administrations, either by moving tasks in considerable quantities, closing or merging hundreds of administrative units, or decentralizing tasks on a large scale to the local level (cf. Ebinger, 2010). These conditions make the German *Länder* administrations the ideal setting to study organizational effects: the advantages of the subnational comparative method proposed by Snyder (2001) can be

fully played out without the drawbacks of cross-national comparisons described by Rodden (2004: 498).

Most scientific evidence on decentralization effects in the German *Länder* has been gathered in the fields of environmental protection (cf. Bauer et al., 2007; Benz et al., 2008; Ebinger, 2009, 2010; Kuhlmann et al., 2011) and welfare policy (Ebinger et al., 2011; Richter, 2013; Richter and Kuhlmann, 2010). By summarizing the most recent and comprehensive research by Kuhlmann et al. (2011) under the established 3Es categories, the following performance effects of decentralization policies can be reported.

Economy. Cost savings can be considered the predominant motive for the relocation of tasks to the local level (cf. Bogumil and Ebinger, 2008). Usually, *Länder* governments linked the devolution of responsibilities to subsequent cutbacks in the corresponding funding provided to the local level. For example, the government of Baden-Württemberg bagged the assumed 'efficiency improvements' of municipalizations by swiftly decreasing the appropriated funds by 20% and hence saving €70 million p.a. from 2011 onwards (Bogumil and Ebinger, 2005: 7). However, the same fiscal target was set for tasks remaining on the state level. Moreover, due to the necessary time gap in evaluating mid- and long-term effects, changes in the context of decentralized tasks due to the revision of statutes, changes in the number of beneficiaries and attainable consumer fees blur the net effects. A first hypothesis to test is therefore: economies (and their variation across policy fields) hence appear to be predominantly the product of political will and assertiveness rather than the product of allocation effects.

Efficiency. Efficiency changes due to decentralizations are well-documented by recent qualitative research. Across policy fields, appraisals deviate dramatically. Obviously, certain groups of task benefit more from decentralization than others. For example, Kuhlmann et al. (2011) report significant potential for efficiency gains of the decentralization of *integration services for disabled persons* in Baden-Württemberg – *despite* initial degradation. While the fragmentation of tasks, the loss of centrally provided back-office services and the reduction of investments necessary to build-up case-management capacities deteriorated the input-output ratio, the bundling of social tasks at the local level could ultimately pay off. Improved horizontal coordination among the various local social services and the provision of tailor-made solutions to disabled citizens via case management slowed down the spiralling of costs and increased value for money. In sum, decentralization facilitated transactions among service providers and triggered meaningful investments that could lead to substantial efficiency gains in the future (Kuhlmann et al., 2011: 92f.).

To the contrary, in the case of the partially decentralized *pollution and trade control* in Baden-Württemberg, the negative effects on efficiency prevail (Kuhlmann et al., 2011: 94ff., 265): while not enough technicians and engineers could be relocated from the state agencies to the scattered local entities, the enforced 20% cut in

funding exacerbated functional deficits. While the bigger administrations could put away this treatment, smaller cities and counties face a persistent efficiency loss due to missing know-how and routines. Consequently, decentralization puts administrations under severe political pressure to reconsider good practices. Summing up, cost savings realized in the course of decentralization often do not match follow-up costs or performance losses, resulting in decreased efficiency. The second hypothesis to test is therefore: decentralization politics yield heterogeneous effects on efficiency depending on the policy field. Social services may benefit from decentralization in the long run while technical tasks suffer severely from de-specialization.

Effectiveness. As described earlier, the effectiveness of the task implementation of social policies can – under favourable conditions – benefit strongly from decentralization. If case-management capacities were installed and coordination with all social policy actors was tightened, better-targeted services can be provided and the overall service quality can be improved (Ebinger et al., 2011: 569). Moreover, when managers not only gain knowledge of the local providers' portfolios, but eventually learn to steer supply, the strategic development of services becomes feasible. As a downside, the heterogeneity of practices and service quality between local entities increases dramatically with decentralization (Ebinger et al., 2011: 563). Nevertheless, decentralization seems to open up new chances for integrated services at the local level.

As described for the efficiency dimension, the decentralized *pollution and trade control inspectorates* resulted in a decline in the effectiveness of service provision. Considerable functional shortcomings resulted from the fragmentation of the formerly highly specialized workforce. The 44 communal entities can muster only three to 15 inspectors each. The former state-run agencies boasted 50–70 experts (Kuhlmann et al., 2011: 113ff.). As the individual inspectors are now responsible for up to 10 industrial branches, they are no longer on a level playing field with companies' experts. Furthermore, the often-lacking personnel resources and political backing leads many places to the factual cessation of proactive inspections (Kuhlmann et al., 2011: 113ff.). As a consequence, the expectation for effectiveness in terms of service, as well as regulative, quality is rather negative. Hence, a third hypothesis is: while communalization seems to bear the potential for improved effectiveness in the field of social services, more technical tasks requiring a high degree of specialized expertise may suffer.

Decentralizing in the German welfare administration

Almost all recent reforms addressed the *diagnosis of severely disabled persons* (*Schwerbehindertenfeststellungsverfahren*; German Code of Social Law IX). This administrative task is mainly about the issuing of so-called *handicapped IDs* to severely disabled citizens. Applicants have to provide information on their health status and corresponding medical reports, which are checked by the

administration. However, this task is characterized by two peculiarities, which are rather atypical for social services: first, the assessment of applicants' entitlements is based on a detailed evaluation scheme, clearly limiting administrative discretion; and, second, no immediate monetary benefits have to be provided to applicants by the issuing authority or government level.² Hence, we are looking at a very special task characterized by little interdependence with other tasks and low political salience (Richter, 2015).

As early as the year 2000, administrative structures in this field were reorganized. However, some states took radical steps and almost completely withdrew from the execution of social services by decentralizing the tasks altogether. First, Baden-Württemberg abolished its former eight lower-tier single-purpose agencies in 2005 and delegated their tasks to the 35 counties. North Rhine-Westphalia, Saxony and Thuringia followed this example in 2008 and made the delegation of the diagnosing of severely disabled persons (SGB IX) to the local level a dominant direction of reform. Nevertheless, almost all governments retained a supervisory function and the elected local councils did not receive any decision-making competences. Obviously, the states tried to find the right balance between 'unloading' tasks via 'administrative decentralization' and retaining an – at least theoretical – say in implementation.

Methodology

To scrutinize the performance effects of municipalization, we will apply two differing methodological approaches: the first analysis draws on a longitudinal comparison of archival performance data from three states – North Rhine-Westphalia, Thuringia and Saxony. This approach can be considered the high road to answer our research question as the resulting data come closest to what Andrews et al. (2006: 16) call 'objective measures' of organizational performance. Three measures of the dependent variable – the average duration of an application, the percentage of successful appeals filed at the opposition authority against first-level decisions and the range of positive administrative decisions between different local authorities – are gathered as performance indicators. Interpretation is restricted by the fact that the indicators could only be gathered selectively as not all *Länder* cases are covered on all dimensions. Furthermore, the presented data cover different periods of time because the starting points of functional reforms, as well as the accessibility of data, vary between the *Länder*. However, additional evidence for or against the stated hypotheses can be provided.

Economy. Cost savings are measured by taking stock of the number of full-time equivalent (FTE) positions. As personnel is one of the main input factors and cost drivers of public administration, this measure seems particularly suitable for evaluating the economy of service delivery.

The government of North Rhine-Westphalia predicted that decentralizing the diagnosis of severely disabled persons would lead to synergies resulting from

integration into the administrations at county level. Explicitly, a reduction of FTEs from 895 in 2007 to 658 in 2014 was envisaged, whereas the lion's share of 162 positions should already be freed in the first year (MAIS, 2010: 64). However, the first evaluation of the financial compensation laws in 2009 revealed that 791 FTEs (or -11.6%) were assigned to the task at the county level. While this implies a significant reduction compared to the years before the reform, it also means that the envisaged savings were not achieved. The target was subsequently adjusted to 759 FTEs in 2014 (Art. 1 Eingliederungsgesetz).

The causal mechanism leading to these cost savings is difficult to trace as cut-backs can result from economies of scope or simply be hierarchical decisions independent of the efficiency of task implementation. Opponents of big-bang decentralization reforms often argue that the transfer of tasks would have no other reason than to mask a hidden agenda – cutting staff (Ver.di, 2012). As the 'optimized staff calculation' is the basis for the financial compensation given to the county level for implementing the task, the local level has little choice but to comply with the saving targets in order to avoid deficits. Stuck between a rock and a hard place, the counties even appealed against the insufficient financial compensation that they agreed upon in the first place in order to get the task assigned (VerfGH NW 23.03.10, 21/08). This indicates that, at best, economies of scope only partially cover the cuts in state allocations. Indeed, the constitutional court of Nord Rhine-Westphalia shared the concerns of the local level but equally ruled that governments have substantial discretion as long as the calculations of the allowances are objectively reproducible (VerfGH NW 23.03.10, 21/08).

Another court ruling – this time in Thuringia – indicates that economies of scope are overestimated. While nothing more than a 'cost-neutral transfer' of tasks was envisaged (LT-Drs. TH 4/3159: 39), one county did take legal action against the *Land*, claiming that the financial transfers were insufficient. Based on their former headcount, the state had allotted funding for eight FTEs to that county while 9.25 FTEs (or +15.6%) were allegedly needed for implementing the transferred task. The administration court upheld the action, stating that the decentralization resulted in a loss of economies of scale because of scattered administrative procedures and increased visitor traffic as a result of the closeness to citizens. Hence, in its ruling, the court asserted that decentralization increases administrative costs. In accordance with the first hypothesis, one has to assume that decentralizations do not result in savings – unless cuts are enforced hierarchically.

Efficiency. To capture efficiency, reported inputs in terms of FTEs are related to the total number of applications as an output indicator. Table 1 illustrates that the decrease in FTEs in North Rhine-Westphalia was paralleled by an increased number of applications. Taking this into account, the appraisal has to be more positive than when considering the economy of task execution only. However, these simple indicators say nothing about the *quality* of the produced output.

The same trend towards a higher number of applications was also observed in Thuringia. However, if we presume the same increase in staffing for all counties as

Table 1. Employees (FTEs) and number of applications in North Rhine-Westphalia^a

Point of reference	FTEs	Annual percentage change	Number of applications	Annual percentage change	Applications per FTE	Annual percentage change
2007 (state administration)	895		576.879		645	
2009 (county level)	791	-11.62%	651.694	+12.97%	824	+27.75%

Note: ^aDecentralization becoming effective on 1 January 2008.

Source: Own compilation. Data: MAIS (2010: 14ff.), LT-Drucksache NW 14/989 and BehStraffG.

recorded for the one who took legal action against the state, the case-to-FTE ratio would still be negative, signifying a decline in efficiency by approximately 6.5%. While we cannot answer the second hypothesis on variations across policy fields in this first approach, we can state that efficiency differs substantially across states.

Effectiveness. The effectiveness of task implementation is covered via three subcategories: formal effectiveness, the speed of service delivery and the uniformity of service delivery (cf. Boyne, 2002: 19). Formal effectiveness is operationalized by the percentage of successful appeals filed at the supervisory authority against first-level decisions. The average time-to-decision represents the speed of service delivery. Finally, the range and standard deviation of selected performance indicators across local entities in one state capture changes in the uniformity of service delivery.

In terms of the formal effectiveness of the diagnosis of severely disabled persons (SGB IX) in Baden-Württemberg, Richter and Kuhlmann (2010) report that decentralization in 2005 resulted in a rising quota of (at least partly) successful appeals against local governments' decisions with the state's opposition authority (see Table 2). In its annual report, this supervisory authority noted that the high success rate of the petitioners in the years 2005–2008 would reflect a lack of diligence in the local bureaucracy: evidence-gathering (*Beweiserhebung*) had been reduced to the 'lowest possible level' (LVA, 2008). In other words, the cuts of 20% negotiated in the course of decentralizations in Baden-Württemberg might come at the price of (over)simplified administrative procedures. However, a loss of quality due to improper interventions by local politicians was not observable (Richter and Kuhlmann, 2010: 405f.).

However, Table 2 not only shows the data for successful appeals until 2008, but also presents updated data for the years 2009 to 2012. What becomes obvious is that the percentage of successful appeals declines systematically and in 2012 – seven years after the implementation of the reform – reaches the level of the pre-reform years. Therefore, the observable rise in successful appeals was only temporary and can be considered a transaction or reform cost.

Table 2. Successful appeals filed at the supervisory authority against first-level decisions in Baden-Württemberg^a

Year	Appeals supervisory authority	Annual percentage change	Successful appeals	Annual percentage change	Quota	Annual percentage change
2003	24.410		812		3.33%	–
2004	22.065	–9.61%	632	–22.17%	2.86%	–13.90%
2005	23.479	+6.41%	900	+42.41%	3.83%	+33.83%
2006	24.042	+2.40%	1.619	+79.89%	6.73%	+75.68%
2007	23.585	–1.90%	1.504	–7.10%	6.38%	–5.30%
2008	24.816	+5.22%	1.479	–1.66%	5.96%	–6.54%
2009	26.336	+6.13%	1.264	–14.54%	4.80%	–19.47%
2010	28.078	+6.61%	1.382	+9.34%	4.92%	+2.55%
2011	27.268	–2.88%	1.099	–20.48%	4.03%	–18.12%
2012	29.349	+7.63%	1.053	–4.19%	3.59%	–10.98%

Note: ^aDecentralization becoming effective on 1 January 2005.

Source: Annual reports of the supervisory authority of Baden-Württemberg (*Regierungspräsidium Stuttgart/Landesversorgungsamt*), 2003–2012. For ANOVA, see Table 6 and Table 7 in the Appendix.

To investigate changes in the speed of service delivery, we can draw on data from Thuringia (see Table 3). Here, decentralization showed positive results overall. After a peak in 2008, the time-to-decision was significantly reduced by one to two months by 2010.³

As case studies in Thuringian local governments reveal, this effect can primarily be attributed to the characteristics of the scrutinized task: the diagnosis of severely disabled persons (SGB IX) is a bulk process with only limited legal discretion and, hence, little need for specialization. The high division of labour in the state authorities formerly responsible was apparently out of place. Due to their capacities, local administrations have little alternatives to an integrative case-management approach. For the task at hand, this obviously minimizes transaction time as ubiquitous administrative bottlenecks no longer delay processes (cf. Kieser and Walgenbach, 2010). Moreover, employees seem satisfied with the new arrangement as the monotony of fragmented responsibilities is eliminated (cf. Bea and Göbel, 2006). However, these results do not imply that decentralization inevitably results in a shorter duration of applications. In North Rhine-Westphalia, time-to-decision was already below three months on average and lead times increased somewhat after decentralization (see Table 4). This contradictory observation shows that such other factors as internal organization and the allocation of resources are also of importance (cf. Krems, 2009).

Concerning the uniformity of service delivery, a major disadvantage in the course of decentralization might be a loss in uniformity across constituencies. As

Table 3. Duration of application for 'diagnosis of severely disabled persons' in Thuringia^a

Year	Ø Duration of application – type I (in months)	Annual percentage change	Ø Duration of application – type II (in months)	Annual percentage change
2004	5.60		5.04	–
2005	5.52	–1.43%	4.84	–3.97%
2006	4.57	–17.21%	3.95	–18.39%
2007	4.82	+5.47%	4.11	+4.05%
2008	6.60	+36.93%	5.73	+39.42%
2009	5.14	–22.12 %	4.53	–20.94%
2010	3.83	–25.49%	3.46	–23.62%

Note: ^aFunctional reform becoming effective on 1 May 2008. Ø = Arithmetic mean.

Source: Supervisory authority (*Landesverwaltungsamt*) Thuringia on request. For ANOVA, see Table 8 in the Appendix.

Table 4. Average duration of application in North Rhine-Westphalia^a

Years	Ø Duration of application – type I (in months)	Annual percentage change	Ø Duration of application – type II (in months)	Annual percentage change
2005	2.67		2.62	–
2006	2.61	–2.25%	2.59	–1.15%
2007	2.78	+6.51%	2.75	+6.18%
2008	3.23	+16.19%	3.26	+18.55%
2009	2.94	–8.98%	2.92	–10.43%

Note: ^aFunctional reform becoming effective on 1 January 2008. Ø = Arithmetic mean.

Source: MAIS (2010: 42). For ANOVA, see Table 9 in the Appendix.

the case of North Rhine-Westphalia shows, this concern is not unwarranted: one year after the reform came into effect in 2007, the number of affirmative administrative decisions rose from 41–49% among the 11 formerly responsible state authorities to 39–53% across the 52 local administrations (see Table 5). As the number and needs of disabled persons are considered to be almost equally distributed across communes, this doubling of the observed range can only be interpreted as the decreased reliability of task execution within states.

This effect can primarily be explained by the dispersion of the highly qualified medical experts from the former 11 state authorities across the now 52 local units. As qualitative inquiries show, the lack of experienced specialists, in combination with the rise in workload, resulted in a partial decline in quality. Similar

Table 5. Range of positive decisions in the diagnosis in North Rhine-Westphalia^a

Year	Ø	Min.	Max.	Range	Annual % change
2005	46.52%	41.52%	48.83%	7.31	–
2006	46.95%	40.70%	50.25%	9.55	+30.64%
2007	46.33%	41.67%	49.93%	8.26	–13.51%
2008	46.24%	38.61%	53.07%	14.46	+75.06%
2009	46.26%	39.75%	52.90%	13.15	–9.06%

Note: ^aFunctional reform becoming effective on 1 January 2008. Ø = Arithmetic mean.

Source: MAIS (2010: 42). For ANOVA, see Table 10 in the Appendix.

observations were made in Baden-Württemberg. As a consequence, the third hypothesis is supported only partially as contradictory effects are observed on the varying subcategories.

Decentralization in German industry-related environmental regulation and health & safety

As said, German *executive federalism* poses the ideal background for a straightforward *most similar systems design*, following Snyder's (2001) proposal. However, as became apparent in the foregoing section, even under these favourable conditions, archival data on administrative performance can be endemically plagued with comparability issues. Hence, to analyse the effects of task allocation, a complementary approach providing a reasonably sized sample of comparable cases has to be found. Using perception data to assess administrative performance could be a viable road to follow (Kim, 2005; Yang and Pandey, 2009: 338f.).

Units of analysis and methodology

To investigate the impact of administrative structures, a cross-section comparison was conducted across the four types of organizational models in which *Länder* governments (as many other states) typically organize task execution: (1) central single-purpose agencies (*Obere Landesbehörden*); (2) regional governments (*Mittelinstanzen*); (3) regional single-purpose agencies (*Untere Landesbehörden*); and, last but not least, (4) city and district administrations (*Kreisfreie Städte & Landkreise*). It is argued that those four most-dominant organizational models vary in *vertical* as well as *horizontal specialization*.

As the field of welfare policy is highly heterogeneous across the *Länder* concerning administrative culture and workforce, we choose to switch to industry-related environmental regulation and health & safety administration (*Arbeits- & Immissionsschutzverwaltung*). Informants targeted in the survey are, hence, labour and environmental inspectors. Addressed were only those employees

entrusted with *operative* tasks in the execution of the Federal Emission Control Act and the Labour Protection Act. The reason for selecting the labour and environmental inspectorates as units of analysis is their unique characteristics. First, licensing and supervising procedures for businesses are among the most complex fields that public administrations in modern states have to offer, requiring outstanding legal and technical know-how. Second, due to its immediate impact on businesses and employees, the work of these administrative units is laden with political salience. Politicians target the administration regularly for being either anti-business and obstructive to economic development or negligent in the protection of the environment and employees (cf. Bauer et al., 2007). Consequently, the impacts of structure should be much more visible in this setting than in other, less contested and sensitive policy fields. It is argued that the aggregated perception of administrators qualifies as reliable performance data if – as is the case here – the executed task is characterized by universally recognized professional standards.

A comprehensive data set containing roughly 500 completed questionnaires from 10 *Länder* administrations was gathered between April and June 2011.⁴ The ‘3Es’ performance dimensions are captured by asking respondents for self-evaluations of their administrative entity’s performance on a 1 to 10 scale – the higher the number, the higher the perceived performance.⁵

Economy

Concerning the perceived *economy* of task execution (see Figure 1; see also Table 11 in the Appendix), the local level shares the top position with the central single-purpose agencies, with an average of 6.6 points. Regional governments achieve 6.3 and regional single-purpose agencies only 6.2 points. At first glance, saving money seems to be one of the local governments’ virtues. However, robust non-parametric tests of variance (Welch, Brown-Forsythe) show no statistically significant differences between the four groups whatsoever. On that basis, the first hypothesis stating that cost effects are primarily politically induced seems to hold for the scrutinized task.

Efficiency

Turning to the efficiency of task execution, the survey reveals surprising results (see Figure 2): overall, the front-line specialists working in state administrations judge their organization slightly higher than those at the local level. While central single-purpose agencies receive on average 5.6 out of 10 points, regional governments score at 5.5 and regional single-purpose agencies 5.2. Local governments, however, reach only 4.7 out of 10 points. Welch and Brown-Forsythe tests show statistically significant differences between the four types of administration. However, Tukey-HSD and Games-Howell post hoc tests show statistically significant differences only between local governments and regional governments, as well as – at a 0.1 level – central single-purpose agencies. Equally remarkable is the distribution of the

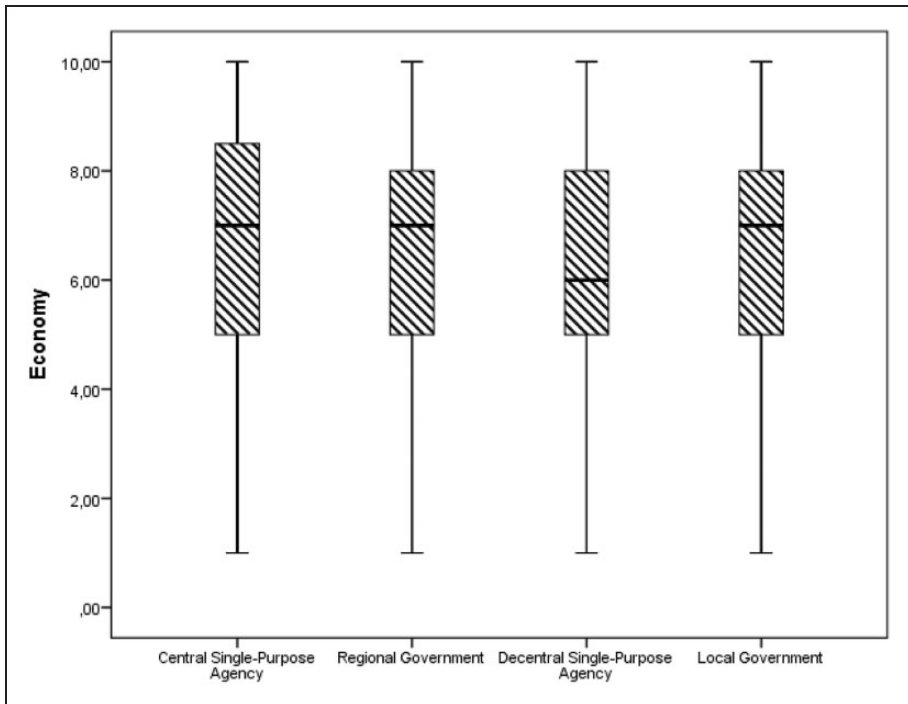


Figure 1. Economy of task execution.

Source: Own data (cf. Ebinger, 2013).

reported values: while some 50% of local government employees judge the efficiency of their unit at 4 points or less, some 25% report a rating of 7 points or more. Obviously, the more decentralized is task execution, the higher the variation in perceived efficiency. A more centralized allocation of tasks hence leads not only to a better, but also to a more homogeneous, perception of its efficiency. Hence, the second hypothesis predicting negative decentralization effects on efficiency for technical tasks is supported by the analysis.

Effectiveness

The effectiveness of task execution is covered by two indicators: *professional quality* and *service quality* (cf. Chun and Rainey, 2005; Kim, 2005; Moynihan and Pandey, 2005). *Professional quality* is supposed to cover the degree to which administrative units master the technical and procedural challenges in their field. Here, local governments not only score well below the state administrations but also show a much broader distribution of reported values. While regional governments take the lead with 7 out of 10 points, central single-purpose agencies achieve 6.9 and regional single-purpose agencies at least 6.8 points on average, local governments are

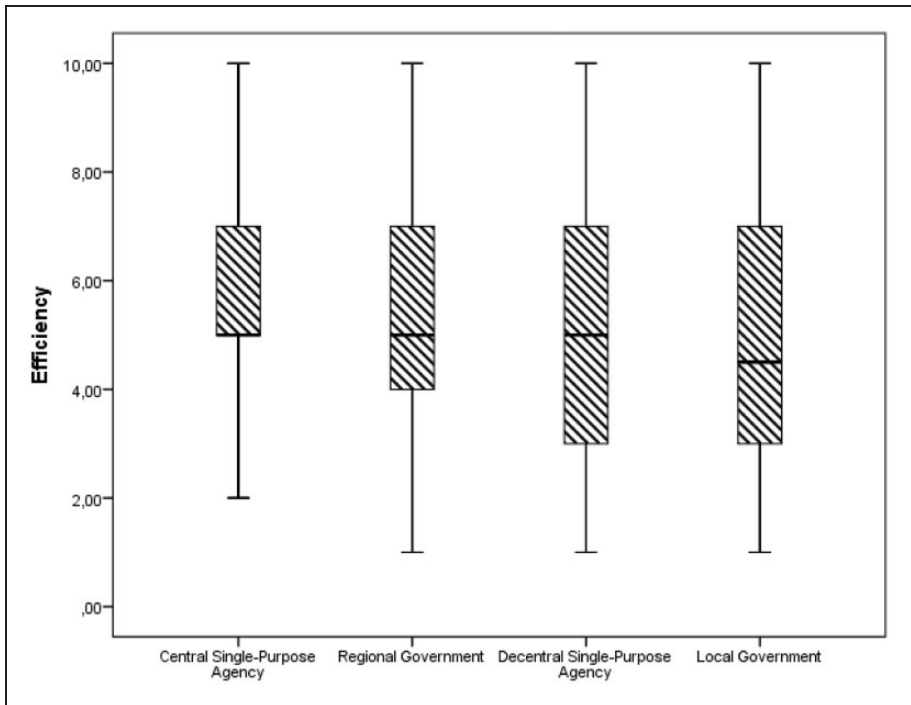


Figure 2. Efficiency of task execution.

Source: Own data (cf. Ebinger, 2013).

chastised with a one-point lower mean of 5.9 points. As Figure 3 shows, the local government employees take disparate positions, indicating a high variation in performance or standards among constituencies. For the first time, not only do Welch and Brown-Forsythe tests show a statistically significant difference between the four types of administration, but Tukey-HSD and Games-Howell post hoc tests also show that the local government level statistically significantly differs from all other groups.

While local governments' limited professional performance matches expectations, the results for *service performance* are surprising: in their presumed showcase discipline, local governments only receive a disappointing 5.9 points and finish last. The non-parametric tests of variance show again statistically significant differences between the four groups. However, Tukey-HSD and Games-Howell post hoc tests only find statistically significant differences between local administrations and regional governments, as well as – at a 0.1 level – regional single-purpose agencies. Hence, the self-evaluation of health and safety inspectors shows the hypothesized negative effect of decentralizations on technical task effectiveness (see Figure 4).

Methodological discussion

While the aim of this article was to present and discuss alternative non-qualitative methodological approaches for research on decentralization effects by ‘triangulating’ the data on the German case, several methodological problems must be discussed. The archival data used for the analysis of decentralization effects in the German welfare administration is obviously patchy as some indicators could be gathered from only part of the country. This highlights the pervasive problem of the (often deliberately) more than dissatisfactory documentation praxis within the administrations and the limited accessibility of data to researchers. Moreover, the indicators extractable by document analysis only partly cover the multidimensional and highly entangled performance concept.

For the second, survey data-based approach, the validity of self-reported performance indicators can be questioned as the respondents may cater to their own vested interests or lack the necessary oversight. However, while claiming ‘objectivity’ for any data set would sound foolish, since Hood’s (2006) ‘Gaming in target world’, we also know that performance-related figures cannot be gathered easily. Perception data, on the other hand, cover latent variables (cf. Yang and Pandey, 2009: 338f.) and can provide highly comparative large-*n* samples for statistical analysis (cf. Ebinger, 2013: 188f.).

Second, as chances to enter the survey were unevenly distributed among the target group due to the diverging number of veto levels in *Länder* administrations and sampling proved unfeasible, a certain but unsystematic bias has to be assumed. Absolute response rates vary among the *Länder*, reflecting size effects, as well as ministerial support and the rate of unionization. Moreover, with the four organizational models, not only does the ‘distance’ from the political centre vary, but also a host of third factors. Observed differences might be attributable to the degree of vertical integration of tasks within the individual agencies and resulting changes in coordination and conflict resolution, the ministry in charge, the (in)direct legitimation of agency heads, and many more factors, resulting in variations in administrative cultures and practices. However, as these factors can be considered as linked to the differing organizational models, their effects are rightfully covered by the analysis.

Conclusion

The decentralization of tasks to the local level can be considered a predominant reform strategy, not only in Germany. Expectations are that the switch from single- to multi-purpose administrations and the increased ‘closeness’ to citizens will lead to a certain despecialization and the loss of efficiencies of scale, but also to improved cross-sector coordination and better ‘fitting’ service provision. Advantages are supposed to outweigh the disadvantages and performance gains (and, in particular, savings) are budgeted. As qualitative analyses doubt this positive appraisal, this article confronts the expectations via two quantitative approaches. The empirical bases were selected

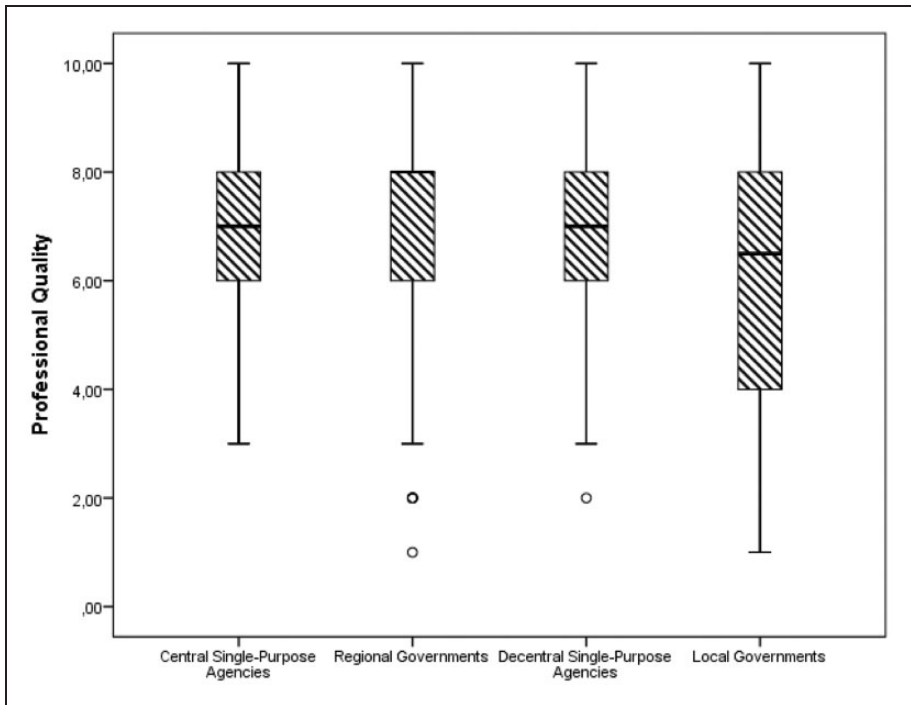


Figure 3. Professional quality of task execution.

Source: Own data (cf. Ebinger, 2013).

administrations in the German *Länder* responsible for the implementation of federal laws. However, as units of analysis, as well as the scrutinized policy fields, vary, direct comparison between the two analyses is inhibited and generalizations are not warranted.

The first hypothesis claimed that economies are predominantly the product of political assertiveness, not of allocation effects. Surprisingly, among the health and safety inspectors, those employed at the local level rate their administrations as the comparatively most economic. However, this finding is of little use in testing the hypothesis as it remains unclear whether this effect results from improved processes or recent politically induced cuts. In the *diagnosis of severely disabled persons*, cost savings could only be observed in one of three *Länder* – Baden-Württemberg. As the political pressure to incur savings was by far highest in this state, the first hypothesis is somewhat supported by this finding.

The second and third hypotheses claim heterogeneous effects of decentralization on efficiency and effectiveness depending on policy field. The second analysis reveals the expected negative effects in the execution of the Federal Emission Control Act and the Labour Protection Act. This confirms previous research

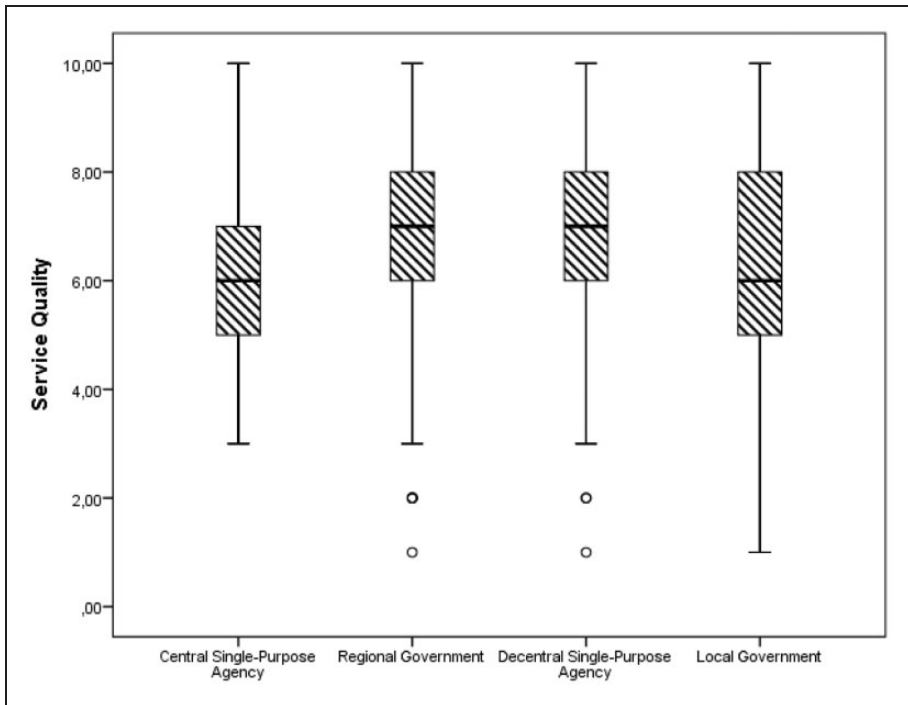


Figure 4. Service quality of task execution.

Source: Own data (cf. Ebinger, 2013).

claiming that technical tasks require territorially extended areas of responsibility in order to attain the critical size necessary for the specialization of employees and economies of scale. For the social policy task, however, efficiency gains are disparate and differ across states. This might presumably be due to the particular ‘technical’ characteristics of the task scrutinized here.

As the support for all three hypotheses is either weak or non-existent, policy implications and directions for future research are unambiguous: it can be concluded that decentralization and especially municipalization as institutional policy makes a difference, but that overly positive claims are not warranted. First, the effects of decentralization cannot be differentiated too broadly among policy fields. More differentiated categorizations drawing on detailed task characteristics have to be employed. This implies that the recent ‘big bang’ reforms observed in Germany, which bundle together a multitude of policy fields and tasks, are unsuited to achieving their objectives. Second, economies are by no means automatic when transferring tasks. Only when combined with strict budget cuts are any savings observable. Hence, negotiations for decentralizations setting up win-win situations seem ill-suited to achieving any positive budgetary outcome. All in all, while further

research is necessary, municipalization seems by no means the foolproof way to advance public services as is often promoted.

Funding

This research received no specific grant from any funding agency in the public, commercial or not-for-profit sectors.

Notes

1. The three city-states of Berlin, Hamburg and Bremen intermingle state and city administration and are hence not considered.
2. The official recognition of a severe disability bears indirect advantages as an increased protection against dismissal, entitlement for early retirement, reduced admission fees and so on.
3. Data are only available for the years 2004–2010. There is no significant difference between the years before (2004–2007) and after (2008–2010) the reform, keeping in mind that the moving of staff and files resulted in a delay of application processes (for ANOVA, see Table 7 in the Appendix). However, the positive trend of a shorter application time in 2010 was confirmed in the expert interviews.
4. The web-based survey was conducted using an online questionnaire. Three *Länder* administrations refused to participate for political reasons, for example, having planned or recently implemented administrative reforms. Absolute numbers and proportionate response rates vary between *Länder* due to variations in task organization, the number of employees and participation. Due to item non-response, the number of responses varies between questions. The sample frame contained roughly 4,200 employees. However, as administrative or support staff, trainees, doctors, and personnel permanently unavailable, as well as inspectors devoting major shares of their working time to such neighbouring tasks as, for example, waste-disposal management or radiation protection, were excluded from the sample, the exact sample size and, hence, the overall response rate cannot be estimated with any certainty. However, with a total of roughly 500 respondents, the validity of conclusions should be assured (cf. Ebinger, 2013). Results can be found in Table 11 in the Appendix.
5. The items were (translated by authors): ‘*How do you assess the performance of your administrative unit concerning: economy, efficiency, professional quality, service quality?*’ As additional tests revealed, the relocation of employees in the context of reforms had no significant impact on their performance assessment. To gather reform effects directly, those employees having been transferred in the course of a structural or functional reform were asked for changes in performance-related aspects: ‘*Is the duplication of work avoided between administrative levels? Do administrations coordinate more effectively? Are processes accelerated? Has it improved the adaption to customer needs?*’ However, while affirmation of these questions was generally rather low in all groups (approximately 4 out of 10 points), robust non-parametric tests of variance (Welch, Brown-Forsythe) failed to produce any statistically significant differences between the four groups.

References

Andrews R and Boyne G (2009) Size, structure and administrative overheads: An empirical analysis of English local authorities. *Urban Studies* 46: 739–759.

- Andrews R, Boyne G and Walker RM (2006) Subjective and objective measures of organizational performance. In: Boyne G, Meier K, O'Toole Jr L, et al. (eds) *Public Service Performance*. Cambridge: CUP, pp. 14–34.
- Bauer M, Bogumil J, Knill C, et al. (2007) *Modernisierung der Umweltverwaltung. Reformstrategien und Effekte in den Bundesländern*. Berlin: Ed.Sigma.
- Bea F and Göbel E (2006) *Organisation. Theorie und Gestaltung*. Stuttgart: Lucius & Lucius.
- Benz A, Koch H-J, Suck A, et al. (2008) *Verwaltungshandeln im Naturschutz*. Bonn: Landwirtschaftsverlag.
- Bogumil J and Ebinger F (2005) *Die Große Verwaltungsstrukturreform in Baden-Württemberg*. Ibbenbüren: ivd.
- Bogumil J and Ebinger F (2008) Verwaltungspolitik in den Bundesländern. Vom Stiefkind zum Darling der Politik. In: Hildebrandt A and Wolf F (eds) *Die Politik der Bundesländer*. Wiesbaden: VS, pp. 275–289.
- Boston J, Martin J, Pallot J, et al. (1996) *Public Management. The New Zealand Model*. Melbourne: OUP.
- Boyne GA (2002) Concepts and indicators of local authority performance. *Public Money & Management* 22(2): 17–24.
- Boyne GA, Meier KJ, O'Toole LJ and Walker RM (2006) Introduction. In: Boyne GA, Meier KJ, O'Toole LJ and Walker RM (eds) *Public Service Performance*. Cambridge: University Press, pp. 14–34.
- Chun YH and Rainey HG (2005) Goal ambiguity and organizational performance in U.S. federal agencies. *Journal of Public Administration Research and Theory* 15(4): 529–557.
- Cohen DK, Cuéllar MF and Weingast BR (2006) Crisis bureaucracy: Homeland security and the political design of legal mandates. *Stanford Law Review* 59(3): 673–760.
- Derlien HU (1996) Zur Logik und Politik des Ressortzuschnitts. *Verwaltungsarchiv* 36(4): 548–580.
- Dollery B, Garcea J and LeSage Jr E (2008) Introduction. In: Dollery B, Garcea J and LeSage Jr E (eds) *Local Government Reform. A Comparative Analysis of Advanced Anglo-American Countries*. Cheltenham: Edward Elgar, pp. 1–15.
- Ebinger F (2009) Vollzug trotz Reform? Die Umweltverwaltung der Länder im Wandel. *Verwaltungsarchiv* 1(100): 55–70.
- Ebinger F (2010) Kommunalisierung in den Ländern – Legitim – Erfolgreich – Gescheitert. In: Bogumil J and Kuhlmann S (eds) *Kommunalisierung, Regionalisierung und Territorialreform in Deutschland und Europa*. Wiesbaden: VS, pp. 347–452.
- Ebinger F (2013) *Wege zur guten Bürokratie. Erklärungsansätze und Evidenz zur Leistungsfähigkeit öffentlicher Verwaltungen*. Baden-Baden: Nomos.
- Ebinger F, Grohs S and Reiter R (2011) The performance of decentralisation strategies compared. *Local Government Studies* 37(5): 553–575.
- Faguet J-P (2014) Decentralization and governance. *World Development* 53: 2–13.
- Hood C (2006) Gaming in targetworld: The targets approach to managing British public services. *Public Administration Review* 66(4): 515–521.
- Hooghe L and Marks G (2009) Does efficiency shape the territorial structure of government? *The Annual Review of Political Science* 12: 225–241.
- Houlberg K (2010) Municipal size, economy and democracy. In: Swianiewicz P (ed.) *Territorial Consolidation Reforms in Europe*. Budapest: LGI, pp. 309–331.

- Hult KM (1987) *Agency Merger and Bureaucratic Redesign*. Pittsburgh, PA: University of Pittsburgh Press.
- Hyman DA and Kovacic WE (2009) Enforcing competition law: Benefits and costs of a multi-purpose agency. University of Michigan School of Law.
- Kieser A and Walgenbach P (2010) *Organisation*. Stuttgart: Schäffer-Poeschel.
- Kim S (2005) Individual-level factors and organizational performance in government organizations. *Journal of Public Administration Research and Theory* 15(2): 245–261.
- Kluth W (2004) Kommunale Selbstverwaltung kontra (staatliche) Verwaltungseffizienz? In: Meyer H and Wallerath M (eds) *Gemeinden und Kreise in der Region*. Stuttgart: Boorberg, pp. 65–79.
- Krems B (2009) *Skript Verwaltungsmanagement*. Köln: Brühl.
- Kuhlmann S, Bogumil J, Ebinger F, et al. (2011) *Dezentralisierung des Staates in Europa. Auswirkungen auf die kommunale Aufgabenerfüllung in Deutschland, Frankreich und Großbritannien*. Wiesbaden: VS.
- Kuhlmann S and Wayenberg E (2016) Institutional impact assessment in multi-level systems: conceptualizing decentralization effects from a comparative perspective. *International Review of Administrative Sciences* 82(2): 233–254.
- LVA (Landesversorgungsamt Baden-Württemberg) (2008) Jahresberichte 2008, Zahlen. Daten. Fakten. Regierungspräsidium Stuttgart.
- MAIS (Ministerium für Arbeit, Integration und Soziales des Landes Nordrhein-Westfalen) (2010) *Evaluation des Gesetzes zur Eingliederung der Versorgungsämter in die allgemeine Verwaltung*. Düsseldorf: MAIS.
- Midwinter A (1994) Developing performance indicators for local government: The Scottish experience. *Public Money & Management* 14(2): 37–43.
- Moynihan DP and Pandey SK (2005) Testing how management matters in an era of government by performance management. *Journal of Public Administration Research and Theory* 15(3): 421–439.
- Newton K (1982) Is small really so beautiful? Is big really so ugly? Size, effectiveness and democracy in local government. *Political Studies* 30(2): 190–206.
- Richter P (2012) Gefahr im „Vollzug“ Die Kommunalisierung staatlicher Aufgaben und ihre Auswirkung auf die Aufgabenerledigung. In: Haus M and Kuhlmann S (eds) *Lokale Politik im Zeichen der Krise?* Wiesbaden: Springer VS, pp. 179–195.
- Richter P (2013) Pluralisierung im unitarischen Bundesstaat: Der zurückgehende Einfluss auf die Landesverwaltung am Beispiel der Versorgungsverwaltung. In: Zentrum für Föderalismus-Forschung Europäisches (ed.) *Jahrbuch des Föderalismus 2013*. Baden-Baden: Nomos, pp. 127–141.
- Richter P (2015) *Die Makroorganisation der Vollzugsverwaltung. Reformeffekte in den Bundesländern am Beispiel der Versorgungsverwaltung*. Wiesbaden: Springer VS.
- Richter P and Kuhlmann S (2010) Bessere Leistung mit weniger Ressourcen? Auswirkungen der Dezentralisierung am Beispiel der Versorgungsverwaltung in Baden-Württemberg. *der moderne staat* 2: 393–412.
- Rodden J (2004) Comparative federalism and decentralization: On meaning and measurement. *Comparative Politics* 36(4): 481–500.
- Schakel AH (2010) Explaining regional and local government: An empirical test of the decentralization theorem. *Governance* 23(2): 331–355.
- Snyder R (2001) Scaling down: The subnational comparative method. *Studies in Comparative International Development* 36(1): 93–110.

- Swianiewicz P (2010) *Territorial consolidation reforms in Europe*. Budapest: Local Government and Public Service Reform Initiative, Open Society Institute.
- Ver.di (2012) Landesaufgaben in Brandenburg: Ver.di kritisiert geplante Kommunalisierung. Press release, 26 October 2012.
- Yang K and Pandey SK (2009) How do perceived political environment and administrative reform affect employee commitment? *Journal of Public Administration Research and Theory* 19(2): 335–360.

Falk Ebinger Assistant Professor at WU Vienna, Institute for Public Management and Governance. He holds a Master of Arts in Politics and Public Administration and earned a doctorate at the Faculty for Social Science at Ruhr-University Bochum, Germany. His fields of research are in organization theory, comparative public sector research and evaluation studies.

Philipp Richter is a Research Associate at the University of Potsdam, Germany, where he studied political sciences and received his diploma degree in 2009. From 2009 to 2014, he worked as a research assistant at the German University of Administrative Sciences Speyer, where he completed his PhD in 2014. His main teaching areas and research interests include public administration, macro-organization, decentralization reforms and open government.

Appendix

Table 6. ANOVA quota of successful appeals filed at the supervisory authority against first-level decisions in Baden-Württemberg before (2003–2004) and after (2005–2009) the reform (short-term).

	Sum of squares	d.f.	Mean square	F	Sig.
Between groups	8.540	1	8.540	7.262	.043
Within groups	5.880	5	1.176		
Total	14.420	6			

Table 7. ANOVA quota of successful appeals filed at the supervisory authority against first-level decisions in Baden-Württemberg before (2003–2004) and after (2005–2012) the reform (long-term).

	Sum of squares	d.f.	Mean square	F	Sig.
Between groups	5.991	1	5.991	4.668	.063
Within groups	10.266	8	1.283		
Total	16.257	9			

Table 8. ANOVA duration of application 'diagnosis of severely disabled persons' in Thuringia before (2004–2007) and after (2008–2010) the reform.

		Sum of squares	d.f.	Mean square	F	Sig.
Application – Type I	Between groups	1.254	1	1.254	1.858	.231
	Within groups	3.375	5	.675		
	Total	4.630	6			
Application – Type II	Between groups	.780	1	.780	1.459	.281
	Within groups	2.673	5	.535		
	Total	3.454	6			

Table 9. ANOVA average duration of application in North Rhine-Westphalia before (2005–2007) and after (2008–2009) the reform.

		Sum of squares	d.f.	Mean square	F	Sig.
Application – Type I	Between groups	.191	2	.095	3.377	.228
	Within groups	.056	2	.028		
	Total	.247	4			
Application – Type II	Between groups	.230	2	.115	3.265	.234
	Within groups	.071	2	.035		
	Total	.301	4			

Table 10. ANOVA range of positive decisions in the diagnosis in North Rhine-Westphalia before (2005–2007) and after (2008–2009) the reform.

	Sum of squares	d.f.	Mean square	F	Sig.
Between groups	35.404	1	35.404	31.367	.011
Within groups	3.386	3	1.129		
Total	38.790	4			

Table 11. Descriptive results – industry-related environmental regulation and health & safety.

	<i>n</i>	Mean	s.d.	s.e.	95% confidence interval mean	
					Lower limit	Upper limit
Professional quality	45	3.478	.7757	.1156	3.245	3.711
	214	3.516	.9400	.0643	3.390	3.643
	65	3.438	.9334	.1158	3.207	3.670
	146	2.949	1.1814	.0978	2.755	3.142
	470	3.326	1.0358	.0478	3.232	3.419
Service quality	42	3.190	.7805	.1204	2.947	3.434
	212	3.344	.8999	.0618	3.223	3.466
	64	3.328	1.0048	.1256	3.077	3.579
	144	2.965	1.0605	.0884	2.791	3.140
	462	3.210	.9699	.0451	3.121	3.299
Efficiency	37	2.824	1.0356	.1703	2.479	3.170
	195	2.759	1.0158	.0727	2.616	2.902
	58	2.603	1.1726	.1540	2.295	2.912
	126	2.361	1.1219	.0999	2.163	2.559
	416	2.623	1.0847	.0532	2.518	2.727
Economy	40	3.325	1.1354	.1795	2.962	3.688
	197	3.185	1.1638	.0829	3.022	3.349
	57	3.132	1.0587	.1402	2.851	3.412
	130	3.292	1.1760	.1031	3.088	3.496
	424	3.224	1.1493	.0558	3.114	3.334