

The impact of Controlling Departments in German Municipal Administrations

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1 Introduction

The current financial crisis has stimulated many European municipalities to consider making their administrations more efficient and effective (Torres et al. 2010: 3). Before, many European municipalities needed a long time to start to adapt the ideas of New Public Management (NPM) (Hood, 1991, 1995; ter Bogt 2008: 32 f.; Guthrie et al. 1999: 221-225; Pollitt 2000: 184-85; Pollitt/Bouckaert 2004: 74-96; Groot/Budding 2004: 421; Stanley et al. 2008: 411).

In almost all of the literature regarding this subject, tested private sector management tools are being designated as central elements of NPM. Examples of such management tools include a bookkeeping-supported financial system, double-entry bookkeeping, cost accounting, product budgeting and the introduction and recording of financial success indicators. The implementation and application of these management tools make up the basic requirement of "managerial or internal accountability" within municipalities (Guthrie et al. 1999; Groot/Budding 2004: 421; Kasperskaya 2008: 363; Reginato 2008: 21; also Sinclair 1995; Stewart 1984). The NPM reforms tended to improve the transparency of the behaviour of the municipalities related to the local council (Torres et al. 2010: 3).

While many municipalities in Europe have been paying more attention to continuous improvements of efficiency since the 1980s (Jorge 2008; ter Bogt 2008: 31-33; Kloot/Martin 2000: 232; Pina et al. 2009: 794), the Germans started implementing elements of NPM in the 1990s (Reichard 2003: 349; Ridder et al. 2005: 444). The quest for more efficiency and effectiveness within municipalities experienced a two-way split in development. On the one hand, eleven of Germany's sixteen federal states committed to the implementation of a commercial accounting system (double bookkeeping) at a municipal level (Hirsch et al. 2009: 53 f.). This has made German municipalities the forerunners in the reformation of financial systems (Reginato 2008, 23). On the other hand, theoretically speaking at least, the requirement to implement a controlling department within municipalities has played an important role (Weise 2009; Bundesministerium des Innern 2006: 14; Kegelman 2007: 91; Kibler et al. 1997: 23; Rembor 1997: 1; Reichard 1996: 248 ff.). It is the controlling department's task to increase the efficiency and effectiveness of the municipal processes by consistently orientating employee and faculty processes within municipal administrations towards the aims of the (entire) administration department, thereby counteracting a

centrifugal bias and a disintegration of the collective administration (Kegelman 2007: 91 ff.; Postlep 1994: 14; Kißler et al. 1997: 24; Schedler/Proeller 2006: 94; Bogumil et al. 2007: 10).

When considering controlling more closely in the context of public management in Germany, it can be assumed that a uniform understanding about the relevance of controlling does not exist. Even though this understanding could substantially influence the controlling of municipal economic procedures and the associated efficiency and effectiveness, we do not know of any relevant empirical surveys. Such empirical studies could describe and analyse both our understanding and the assigned and administered tasks of the controlling department within municipal administrations.

To bridge this gap, we performed a large survey on the relevance and structure of controlling departments within German municipal administrations. Because controlling departments should be orientated towards increasing the efficiency and effectiveness of municipal processes, we made the success contribution of these departments our focus. Our results show that an increase in the efficiency and effectiveness of municipal processes is strengthened when double-entry bookkeeping is already used in the municipalities. Before our results, all prior attempts to point out the improvement of the efficiency and effectiveness throughout the use of different instruments were in vain (Groot/Budding (2004: 422); Lapsley (1999), Pollitt (2000) Pollitt/Bouckaert (2000)).

In the second part of our paper, we review the literature about the existing studies conducted in our area. We also examine the specific role that the controlling departments play in municipalities. Then, we develop our hypotheses, which we test in the third section. We use an online survey that was answered by German municipalities with more than 25,000 inhabitants; the results are discussed in the fourth section of our paper, followed by a small summary. Finally, we demonstrate the need for further research requirements.

2 Theoretical perspectives and the development of our hypotheses

2.1 Theoretical perspectives of our analyses

A diverse literature about modern accounting and controlling systems in organisations exists. Many authors use an institutional theory perspective to describe the changes in accounting systems (Scapens 1994, Burns/Scapens 2000; Lapsley 2001; Nyland/Pettersen 2004). Feldman/March (1981) indicated that managers in the public sector did not use the information from the accounting system to increase the effectiveness and efficiency of the municipalities; instead, managers were only looking to legitimise their decisions. Often, information is not collected because it is useful but rather collected to reveal the process of collecting information. There is no desire to use the information in a sensible way. The

information is more often used either as a symbol or to improve the image and the proof of identity. Dalehite (2008) indicated that a rational choice behaviour is some kind of a social norm, especially in the public sector. However, that is why managers in the public sector feel obliged to behave this way. The implementation of a double-entry bookkeeping system could be interpreted as a sign of increasing responsibility and good management quality in the public sector (Sutcliffe 2003; Pina et al. 2009: 769 f.).

Only a few empirical studies exist that have already investigated the effects of implementing accounting/controlling departments as independent organisational units in the public sector. Despite studies about the reforms of the accounting systems in Spain, no criteria exist for implementing controlling systems in municipalities (Vela 1996: 221). In Sweden, at least, some accounting departments have been implemented in public organisations (Brorström 1998). These departments support the municipal decision makers with the identification of decision-relevant problems and with the reduction of uncertainty (Brorström 1998: 330). New Zealand has also implemented accounting units as a service in the municipalities to support the municipal leaders (Lapsley/Pallot 2000: 225).

If we examine the situation in Germany, we see that there is no pressure from a superior authority (for example, either the federal or the local government departments) to make the behaviour of the municipalities more effective and efficient. In 2011, the German parliament dissented about changing the federal government budget planning into a system using products instead of simply recording expenditures and revenues (Rickens 2010). Federal states using a product-orientated budget planning system are exceptional cases (Koch 2010; Weiland 2009: 45). Controlling departments at a federal ministry level are still noticed and advertised as an innovation (Weiland 2009: 45 f.; Oltmanns et al. 2002).

Additionally, there is no pressure either from the local or from the federal superior authority to implement controlling departments in municipalities. Thus, there is both no need and no time pressure for municipalities to implement controlling departments. From our point of view, the use of institutional theory to analyse the implementation of controlling departments in German municipalities is not appropriate.

For our study, the contingency theory should fit (Burns/Stalker 1961; Perrow 1970; Thompson (1967); Chenhall 2009). From this perspective, the specific configuration of a formal organisational structure influences its efficiency (Chenhall 2007: 179; Höhne 2009: 85). The organisational structure and the organisation's processes have to be adapted to the environmental circumstances; then, the organisation is able to ensure efficiency.

The reason for choosing this theoretical perspective depends on the specific function of the controlling departments. We use Weber/Schäffer's study (2008) where they research the

controlling departments as support functions for management, improving efficiency and the effectiveness of organisations by increasing the rationality of decision making. The rationality of decision making is interpreted as both a function and as an institution (Weber/Schäffer 2008). We transfer this theoretical perspective directly into the field of the public sector (Hirsch et al. 2008).

According to the argumentation of Weber/Schäffer (2008), the analysis of the implementation and functioning of controlling departments refers to an ideal economic behaviour of the municipalities as a reference point (Lapsley/Palot 2000: 216.) We do not study the social or political reasons for analysing the implementation of controlling departments (contrasted with: Abrahamson, 1991; Abrahamson/Rosenkopf 1993; Palmer/Dunford 2001; Anessi-Pessina et al. 2008: 326). Our contribution to theory is that we have found empirical evidence for the high relevance of controlling departments for efficiency and effectiveness in municipalities.

2.2 Hypotheses

Figure 1 shows the basic model of the contingency theory. It is assumed that the situation of an organisation influences the organisational structure directly and also has an indirect influence on the behaviour of the members and the efficiency of the organisation (Pugh et al. 1968).

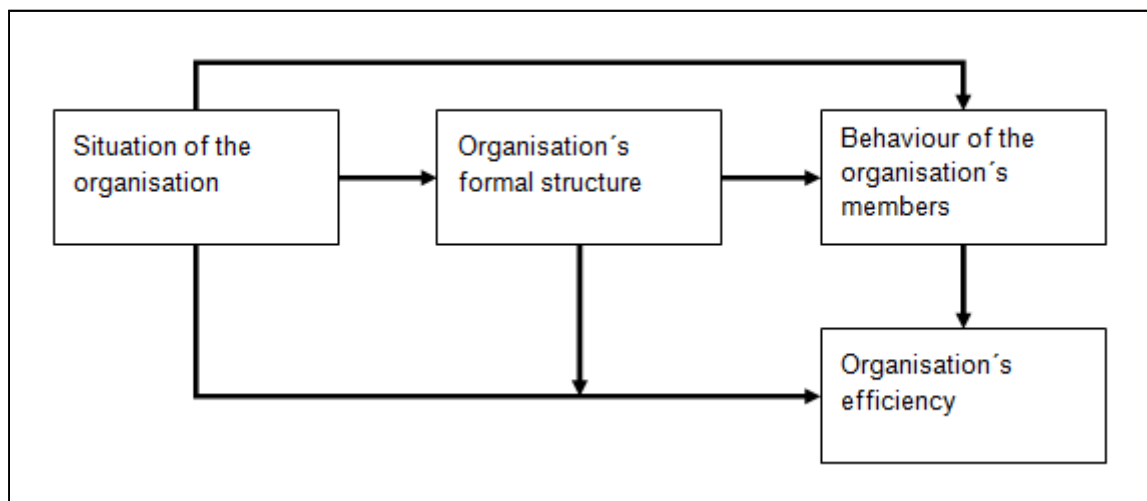


Figure 1: Model of contingency theory (see: Kieser/Kubicek 1992: 57)

In public administrations, the environmental circumstances are strongly influenced by the so-called “public administration culture” (Pina et al 2009: 770). German municipalities have to deal with this public administration culture (Dunleavy/Hood 1994; Kickert 1997; Pollitt/Bouckaert 2000; Torres 2004). The administration culture in Germany is strongly

influenced by Weber's theory of bureaucracy. As a result, the public administration is characterised by very complex connections between federal and local governmental institutions. The practise of administrative behaviour is characterised by the due process of law, which follows a legalistic philosophy (Pina et al. 2009: 771; Schedler/Proeller 2009: 24 f.).

German municipalities have adapted their organisational structure to follow the bureaucratic approach. The widely used principle of directives, consequent to the due process of law, establishes a strong hierarchical system both within and between offices and with directives that regulate the functions in considerable detail (Pina et al. 2009: 771). Therefore, municipalities act in inflexible environmental circumstances, following a high rate of rules of conduct, processes and instructions that have been put in writing. With the standardisation and formalisation of governmental behaviour, they follow the principles of bureaucracy as described by May Weber (Pugh et al 1968: 74f.).

There are good reasons to assume that the organisational structure of municipalities strongly depends on the specific environmental circumstances that municipalities have to deal with (Lawrence et al. 1967; Pugh et al. 1968; Woodward 1994). The contingency theory describes municipal size as one of the most important variables that influence the organisation (Blau 1970). Nevertheless, this variable is very important for controlling the municipalities. In Germany, about 12,000 independent municipalities exist (Statistisches Bundesamt 2010: 36). In many aspects, they are very heterogeneous. For example, they have to satisfy a lot of different local legal stipulations (Reginato 2008: 27; Pina et al. 2009: 771). The differences in the sizes of the municipalities are also very noticeable, which depend on the differences in the amount of their inhabitants (Statistisches Bundesamt 2010: 40). As a consequence, municipalities have different needs for employees that affect the size of the municipal department.

One outcome of the contingency theory is that the organisational size has an influence on the formal organisational structure and the organisational efficiency (Chenhall 2007: 182; see Fig. 1). Major organisations are able to better specialise their employees. However, this specialisation causes a higher dimension of coordination of the behaviour of the organisational members due to reaching the organisational objectives (Kieser 1973; Child, 1972; Blau/Schoenherr 1971). This is the reason why the organisational complexity increases with the increasing organisation size (Chenhall 2007:183).

The contingency perspective makes us think that the described coherences should also be in the field of the municipalities. Therefore, the increasing size of a municipal organisation causes an increasing complexity in the fulfilment of its tasks. We assume this because the

greater complexity of processes leads to major municipalities having more difficulties in increasing their efficiency and effectiveness. Equivalently, there should be some difficulty in increasing the effectiveness caused by the complex processes of coordination and negotiation. Therefore, we state our first hypothesis:

H1: An increasing size in the municipality causes a lower level of efficiency and the effectiveness of municipal behaviour.

Referring to contingency theory, the behaviour of an organisation's members is influenced by the formal organisational structure, in addition to the specific organisational situation (Chenhall 2007: 179 f.; see Fig. 1). The formal organisational structure consists of dimensions of specialisation, coordination, configuration, centralisation and formalisation (Pugh et al. 1968: 66 ff.; Chenhall 2007: 179).

Regarding typical organisational structures, the dimensions of specialisation (for example, experts are focused on special tasks) and coordination (for example, adapting the behaviour of the organisation's employees to the major organisational objectives) are influenced by an organisation's size. We have already illustrated these coherences. The organisational structure of German municipalities is influenced by legalistic expectations from a superior authority (see page 4). This is one of the reasons for the strong formalisation of the municipalities. The municipalities react to public expectations with a high rate of written rules of conduct, processes and instructions. The intention of these rules is to adapt the behaviour of the organisation's employees so that they comply with the regulations. Thus, the alternative adaption to the achievement of output and fulfilling of efficiency and effectiveness (see Schedler/Proeller 2009: p. 76-77; p. 183 ff.), as requested by NPM has been made more difficult.

If the municipality wants to influence the behaviour of the organisation's employees in a certain way so that they pay more attention to the output as mentioned by the contingency theory, the municipality has to change its formal organisational structure. From our point of view, the municipalities have to change the organisational structure depending on the specialisation of controlling employees.

From a specialisation in the creation of positions in the field of controlling, we expect a positive influence on the improvement of effectiveness and efficiency in the municipalities. Therefore, it is necessary that controllers are able to reach their individual performance goals set by the administrative management. Reaching the performance goals depends on the ability of the controlling department to work effectively and efficiently. The individual performance goals should be defined in a way that supports the adaption of the behaviour of all organisational employees to the main goals of the municipality. In addition, the controlling

department should have the opportunity to assist the management of the municipality in making better decisions because of its support function for the administrative management.

The more the controlling department is able to support the administrative management, the more the administrative management is able to make effective and efficient decisions (Weber/Schäffer 2008). In our opinion, depending on the contingency theoretical view, drawbacks at bigger municipalities could at least be partly reduced by effectively and efficiently operating controlling departments. As a moderator variable, the effectiveness and efficiency of controlling departments affect the direction and/or the strength of the relationship between an independent or predictor variable (in our case the organisation size) and a dependent or criterion variable (in our case the effectiveness and efficiency of the municipalities). Effective and efficient controlling departments mitigate the negative influence on the effectiveness and efficiency of the municipalities depending on the organisational size. Therefore, we have developed our second hypothesis:

H2: High effectiveness and efficiency of the controlling department mitigate the negative influence on the effectiveness and efficiency of the municipalities depending on the organisational size.

The second hypothesis comes close to empirical evidence from the private sector. In this sector, it has already been shown that a controlling department has a positive influence on the success of an enterprise (see Welge 1988; Liedtke 1991; Weber et al. 1995; Bauer 2003 p. 250; Sill 2008 p. 104-105).

From a contingency theory perspective, the effectiveness and efficiency of a controlling department is a sufficient, but not an exclusive, reason for changes in the behaviour of the organisation's employees. Based on contingency theory, we expect that changes in employees' behaviour will be realised if changes (configuration) in the organisational structure are also realised. This hypothesis indicates concretely that the controlling departments have to be allowed to give reports and, at the very least, have the informal power to advise administrative managers. The latter should be the right to be heard or a right to give expert advice before important (investment) decisions are made by the municipal leadership. On the other hand, the organisational structure should be changed in relation to the hierarchical embedding of the controlling department (Pugh et al. 1968: 78). This change could be reflected in an adequate payment of the head of the controlling department in relation to the other department heads. If these structural changes occur, the influence on the controller will change the behaviour of the municipal decision maker. The decision makers will change their behaviour depending on the organisational objectives that are adjusted to increase the effectiveness and efficiency of the municipalities. The negative

influence in the size of municipalities cannot be completely negated by the level of relevance of the controlling department, but it can be supportive to improve it. Therefore, the relevance of controlling is expected to interact like a moderator variable.

Our contingency theoretical argumentation comes close to empirical evidence that has already been found in the private sector field. It was possible to demonstrate the positive coherence between the integration of the controller's advice in management decisions and the success of an enterprise (see Zoni/Merchant 2007; for further evidence see Sill 2008; Bauer 2003). Therefore, here is our third hypothesis:

H3: High relevance of a controlling department mitigates the negative influence on the effectiveness and efficiency of the municipalities depending on the organisation's size.

A further central, necessary factor (Fig. 1) influencing the organisational structure, and therefore the organisational effectiveness and efficiency depending on the contingency theoretical view, is the information and communication technology used in the organisation (Sugumaran/Arogyaswamy, 2003/2004; Chenhall 2007: 174-175). Its most important function is to supply every single organisation with the information that is required. Moreover, the information has to have the right form and has to arrive on time (Höhne 2009: 90).

Applying this argumentation to the circumstances of German municipalities, we come to the role of double-entry bookkeeping. Traditionally, the German municipalities work with governmental accounting techniques (cameralistics). After the implementation of double-entry bookkeeping, decision makers are provided with information about the consumption of resources (for example, in the form of depreciation) about the achievement of target agreements and the achievement of performance goals. This information enables the municipality leaders to draw a comprehensive and realistic picture of their financial state and their changes during budgeting periods of their organisation (Budäus 2009: 15-16; Nix 2009: 269; Binus 2007).

In the past, mistakes were made by the municipal management because of missing measurements of effectiveness and efficiency. Reginato (2008: 36) noted that for municipalities that continue to use governmental accounting: "[L]ocal authorities do not know anything about their performance in terms of efficiency and effectiveness". This tendency could be counteracted with the application of modern communication systems, such as double-entry bookkeeping. In the sense of our contingency theoretical argumentation (Fig. 1), it is possible, throughout the change of the specific dimension of organisational circumstances of the municipality, to influence the behaviour of an organisation's member or, as in this case, of municipal decision makers (similar: Nix 2009: 259). Thus, decisions made by municipal decision makers, which regard submissions to facilitate the decision-making

process based on double-entry bookkeeping, are expected to boast the level of efficiency and effectiveness.

If double-entry bookkeeping had been introduced in the municipalities and had been accepted as the basis for decision-making by the municipal decision maker, then it could have already changed the “modes of thought” (Jaruga/Nowak 1996; critical: Kegelmann 2007: 232 ff.) of the municipal decision makers, who pay more attention to thriftiness. Therefore, we assume that the influence in a highly relevant and competent controlling department in municipalities is lower when they have already changed to double-entry bookkeeping as opposed to when they still use the governmental accounting. Therefore, we have developed our fourth hypothesis:

H4: The two moderator variables “relevance” and “effectiveness and efficiency” in controlling departments affect the relation between an organisation’s size and effectiveness and efficiency of the municipality less when the municipality has already introduced double-entry bookkeeping instead of still using governmental accounting.

Figure 2 summarises our hypotheses and illustrates the coherence of our argumentation. We assume that the organisation size has a negative influence on the effectiveness and efficiency of municipalities (H1). In addition, we assume that effectiveness and efficiency (H2) and relevance (H3) of a controlling department fulfils functions as moderator variables. We divide the participants into groups for testing Hypothesis 4.

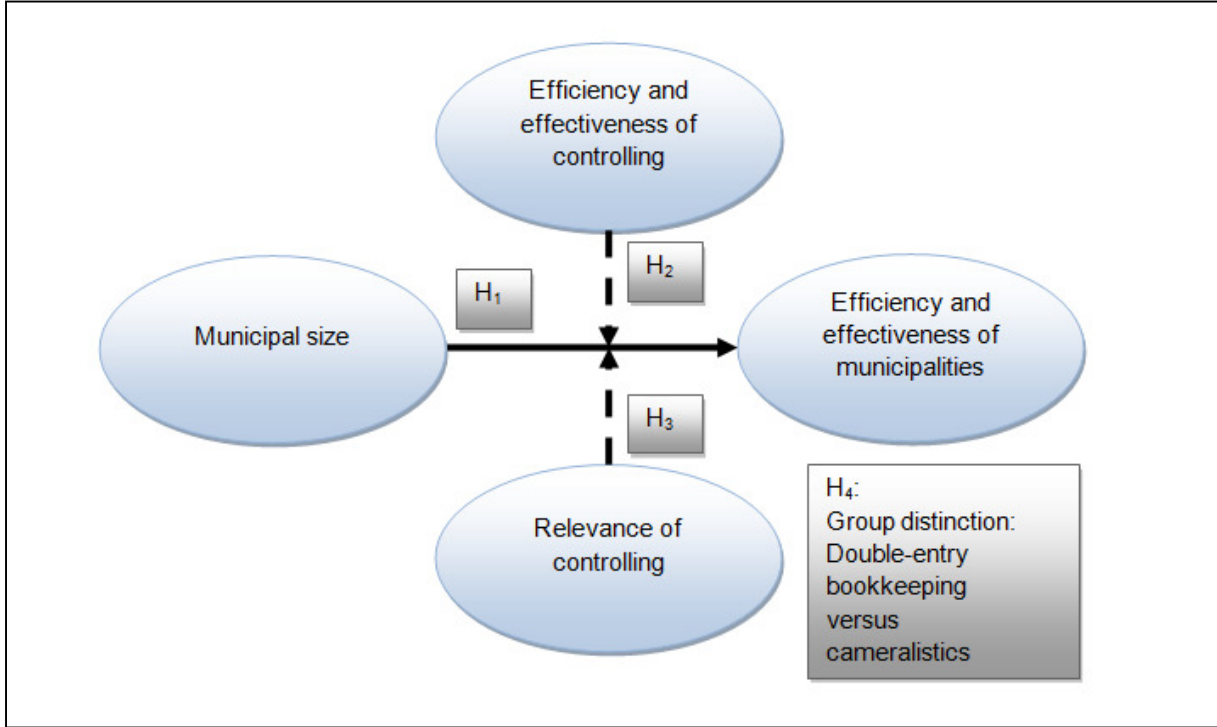


Figure 2: Total model

3 Method and results

3.1 Selection and description of the sample

For the empirical verification of the research model, we used an online survey for the German municipalities. The survey was directed at people responsible for controlling in municipalities. The online survey started in the first half of 2010. Altogether, 743 membership municipalities with more than 25,000 inhabitants of the “Kommunale Gemeinschaftsstelle für Verwaltungsmanagement” (KGSt) were contacted. To increase the amount of participants, a reminder letter was sent. Thus, two possibilities to complete the survey were offered to participants after announcements in KGSt’s monthly newsletter.

The survey used was developed together with the KGSt and the Bertelsmann Stiftung in regards to the current status of the theoretical discussion. To ensure the reliability and validity of the survey, interviews with experts and treasurers were performed. We also conducted a pre-test.

The response contained 140 useable surveys; this number was in accordance with a response rate of 18.8%. Most of the answers were given by people responsible for controlling in municipalities that have between 50,001 and 150,000 inhabitants (Fig. 3).

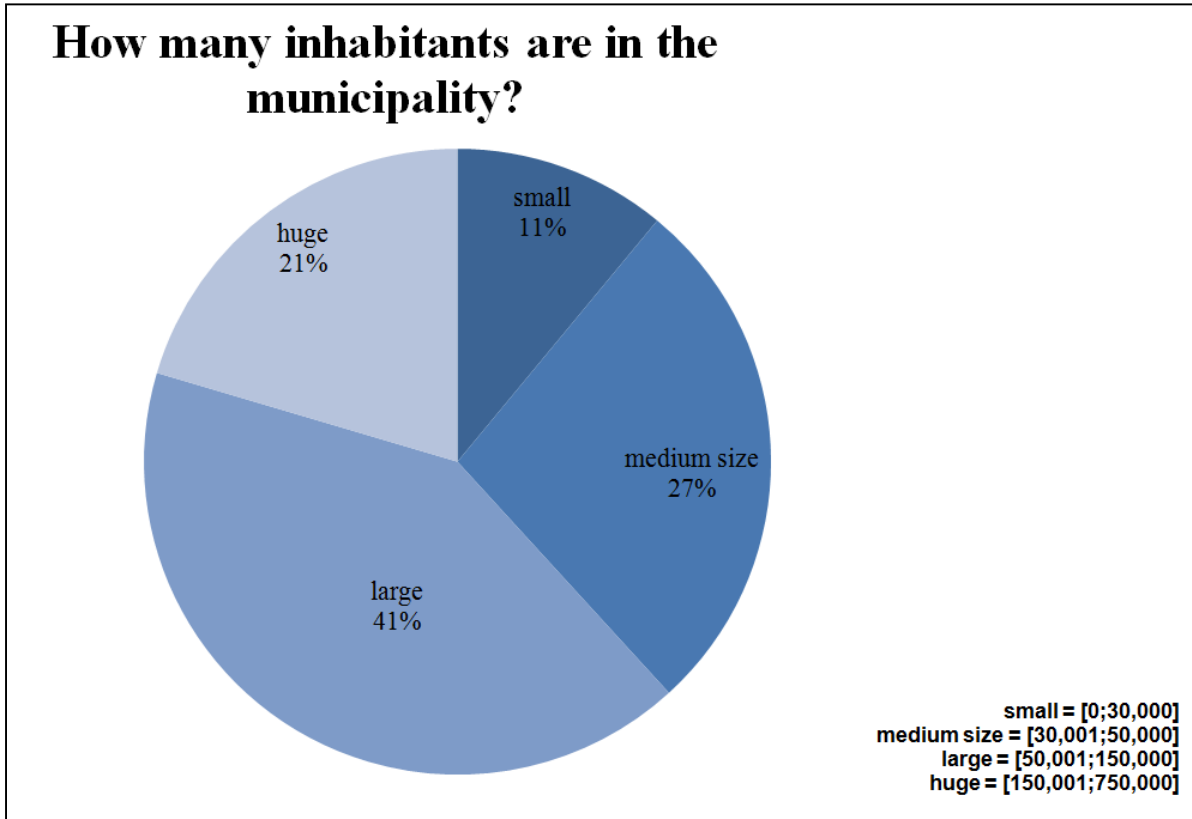


Figure 3: Distribution of population figures

3.2 Measuring the Variables

To test our hypotheses, the latent variable of the size of the municipality, the effectiveness and efficiency of the municipality, and the relevance, effectiveness and efficiency of controlling were measured.

On the one hand, the local government is determined by the number of (active) employees. On the other hand, the size of the local government is also influenced by the population, the annual budget and the number of hierarchy levels (Christiaens 1999: 31; similar: Groot/Budding 2004: 427). All four indicators were taken into consideration to determine the latent variable size of the municipality.

The last three latent variables were imposed according to specific indicators with the help of estimates by the head of controlling. To measure the success of the municipalities, we relied on established concepts to gauge the success of private companies. The use of this method to measure the success of the municipality is derived from the goals of the NPM. The NPM is directed at the attempt to improve the cost-effectiveness and effectiveness of the expenditure of labour power from public means. It includes, among other things, the demand to establish more of a market orientation and the acquisition of private business instruments and processes (see Budäus/Grünning 1998: 4; Budäus 1998: 4; Bogumil 1997: 30; Naschold 1995: 32; Reichard 1993, 1995: 63 ff.; Hood 1991: 4 f.; for possible releaser of the transformation processes depending on the NPM see Naisbitt 1984: 24 ff.). There is a multitude of proposals on how to measure the success of organisations. They are differentiated through objective and subjective measurements of success (Harris 2001: 25 f.; Daschmann 1994: 75.; Dess/Robinson 1984; Robinson/Pearce 1988; Venkatraman/Ramanujam 1986). Objective measurements can be controlled by means of accessible public information and is of a predominately quantitative nature. In contrast, subjective measurements describe the subjective perception and evaluation of the person surveyed. They are in the hypothetical contingency of the customary accounting research (Chenhall 2007: 170). In the literature, many reasons are given for when and why subjective measurements of success can or must be used instead of the objective ones (Dess/Robinson 1986; Gupta/Govindarajan 1984; Muckler/Seven 1992; Covin/Slevin/Schultz 1994, Dawes 1999; Wall et al 2004; Ailawadi/Dant/Grewal 2004). In the present case, the success of a municipality is based on a twofold factor that is not assessed by objective success standards. An interactive municipality does not often share the objective information about success with the public; thus, it is questionable as to whether the data presented could be compared within the municipality (Dess/Robinson 1984: 266 f.).

Therefore, only subjective measurements of success were used to calculate the accomplishments of the municipality in our research. There is evidence in the literature that subjective and objective measurements of success are correlated; thus, similar results are expected (Spatz 2008: 86; Harris 2001: 25 f.; Narver/Slater 1990: 27; Dess/Robinson 1984; Robinson/Pearce 1988; Venkatraman/Ramanujam 1986; critical: Sapienza et al. 1988).

The success of the municipality was measured according to Irving's standards (Irving 1995), who used a three-dimensional construction for performance measurements. Irving divided the company's success into three dimensions: effectiveness, efficiency and adaptability (similar: Spatz 2008: 87; Sill 2008: 104 ff.) Our study focuses on the two dimensions of effectiveness and efficiency; the adaptability measurements have been disregarded. According to Ruekert et al. (1985: 15), adaptability is "the ability of the organisation to adapt to changes in its environment". Since municipalities, in comparison to private companies, operate in a stable environment (see section 2), this dimension was not considered a notable or relevant measure of success. The effectiveness measures the attainability of the companies' goals, which alludes to the case under consideration— the attainability of the goals of the municipality. The efficiency is measured by the cost effectiveness of the municipality.

The effectiveness (goal attainment) and efficiency (optimisation of effort) of the municipality are operationalised by the following indicators: the efficiency of the municipality is reflected in the controlling accountability estimations in the municipality to cover costs, new indebtedness of the community, a well-balanced budget and the speed at which files are handled. The effectiveness is measured through the estimations of the accountability of the municipality to reach political set targets.

The operationalisation of the success of the controlling follows Sill (2008). Sill's (2008: 38 ff.) arguments are based on Fessmann's (1980), Liedtke's (1991), and Gleich's (1997) ideas that the view of efficiency and effectiveness of a company can also be used for business operations fields. The efficiency is measured using the estimation of controlling's contribution to the success of their field, the completion of arranged duties and responsibilities, efficient work and setting realistic, feasible objectives that are agreed upon. On the other hand, the effectiveness is rendered through the estimation of controlling's duties and responsibilities towards the attainability of the set goals.

We measured the relevance of controlling with the following four indicators: data are collected on whether the controlling's organisational unit regularly reports to the head of administration about the development of the municipality, whether they regularly involve the head of controlling in important decisions, whether they have a temporary power of veto and

whether the head of controlling for business operations is compensated just as well as other executive managers.

3.3 Statistical modelling with the PLS approach

The assessment is conducted with a present analysis of the explanation of the interdependency of latent variables (as is typical in empirical research today) by means of the second generation's multivariate analytic process (Fornell 1987: 411 f.). The causal analytical processes mentioned below serve to examine complex casual connections and to connect (for this purpose) regression and factor analytical elements (Millsap 2002: 257 f.). Thereby, high-performance statistical analysis methods are enjoying an ever-increasing popularity in business (Reinartz et al. 2009: 332). Causal analyses check whether a theoretical elaborated hypotheses system is in agreement with the empirical data (Diamantopoulos/ Sigauw 2000: 4). For this reason, causal models, as a matter of principle, have a confirmatory nature and are therefore also allocated to hypotheses checking processes (Millsap 2002: 259).

To check the structural models of equations, we selected the Partial Least Square (PLS) method with the utilisation of a software application called SmartPLS 2.0. (Ringle et al. 2005) PLS, a variance-based method, offers a co-variance-based method with different advantages and disadvantages in comparison with, for instance, LISREL. As a result, it lends itself to the application of PLS very well when (i) a more explorative context of analysis with little empirical and theoretical background knowledge is available, (ii) there is rather a low level of cases, (iii) when a relatively highly complex model is on hand, (iv) when the multiple normal distribution assumption are not functioning correctly and when (v) formative measuring models are used (Henseler et al. 2009: 283 und Nitzl 2010. 15 ff.). Based on the first two arguments, we selected the PLS method to check the relationships between the research model methods since, on the one hand, the influence of controlling on the municipality has barely been researched; on the other hand, the number of cases is 140, which is below the limit of 250 (Reinartz et al. 2009. 342). Furthermore, almost half of the applied items, which were checked with the help of skew and kurtosis, do not follow a normal distribution. Therefore, this also argues in favour of point (iv) or the application of PLS. Above all, the properties of PLS in comparison with other methods lead to a better estimation of the influence of the moderators (point estimates), as the ones available in Hypotheses 2 and 3 (Chin et al. 2003: 203). This argument also corroborates with the purpose for selecting the PLS method in the research model.

3.4 Results

The evaluation of the model according to PLS occurs in a two-stage process (Chin 2010: 669 f.). First of all, the measuring models are checked. Afterward, based on the prerequisite that reliable measurements of latent variables are available, the checking of the relationships between the structure model's methods is performed. Finally, based on the examination of the two previous steps, an evaluation and an interpretation of the complete model occur in section 4.

For the purpose of evaluating the quality of the measurements, we used an indicator reliability that should be higher than 0.7, yet has a minimum of 0.4 (Hulland 1999: 198); the construct reliability ρ_c that should be higher than 0.6; the average variance extracted (AVE) that should be larger than 0.5; and the discrimination variance that shows that the root of the AVE is bigger than the amount of correlation that should come from reflective measuring latent variables (Götz et al. 2010, 694 ff.). The first three treated criteria serve to check the validity of convergence that states that they must have a strong relation together with a construct of assigned indicators (Hair et al. 2010: 709 f.). The fourth criterion serves as a verification of the validity.

In Table 1 below, the estimations for the measurement parameters of the complete model are given:

Description	Loading	ρ_c	AVE
Size			
Annual budget	0.852		
Number of (active) employees	0.530	0.852	0.600
Number of inhabitants	0.921		
Number of hierarchy levels	0.737		
Efficiency and effectiveness of municipality			
Cost coverage	0.775		
No new indebtedness/ budgetary balance	0.676	0.820	0.553
Quick treatment of administrative acts	0.699		
Achievement of political set goals	0.765		
Efficiency and effectiveness of controlling			
We, as the people mainly responsible for controlling, are very successful	0.747		
We, as the people mainly responsible for controlling, fulfil the requirements that are put to us at any time	0.690	0.859	0.552
We, as the people mainly responsible for controlling, work very efficiently	0.826		
We, as the people mainly responsible for controlling, always	0.773		

achieve our set goals

Our set goals are always realistic and realisable 0.668

Relevance of controlling

The organisational unit regularly reports to the head of administration about the development of the municipality 0.712

The organisational unit is regularly involved in important decisions made by the head of administration 0.743

The organisational unit has the temporary power of veto in the case of investment decisions 0.667 0.785 0.478

The head of the organisational unit is compensated just as well as other executive managers 0.639

Table 1: Estimations for the measurement parameters of the complete model (n=140)

From Table 1, one can see that the necessary quality criteria for the measurements are fulfilled. For the simple relevance construct of controlling (RC), a marginal exceeding of the critical AVE value of 0.5 must be reached. However, the loadings as well as the construct reliability p_c are above their critical values of 0.4, respectively of 0.6, so that no adjustments have to be examined at this point. Furthermore, the measurements as shown in Table 2 are controlled according to their discrimination validity:

	EEC	EEM	Size	RC
EEC	0.743			
EEM	0.254	0.730		
Size	-0.064	-0.153	0.774	
RC	0.128	0.335	-0.047	0.691

Table 2: Discrimination validity of the complete model (n=140)

The italicised, bold diagonal elements in Table 2 depict the roots of the AVE values for the various latent constructs. According to the Fornell-Larcker criteria, they must be greater than the absolute value of the reflective measured latent variables (Fornell/Larcker 1981: 46). This criteria applies to all the latent constructs used for correlations in the research model, as can be gathered from Table 2.

In addition to the examination of the complete model, the verification of Hypothesis 4 is distributed to the entire sample in two subcategories. Thereby, the first group consists of municipalities who have already been adapted double-entry bookkeeping (n=99), and the second group of municipalities that still work with a cameralism system (n=41). Both of these subgroups are deemed to be defined by the above mentioned illustrated performance evaluation of the measurements. For reasons of clarity, the individual evaluators' accounts are not taken into consideration. It can be ascertained that the individual marginal infringement of the performance criteria measurement levels are in accordance with both subcategories. Nevertheless, the demand for an absolute invariance of measurements is hard to guarantee in practice (Huber et al. 2007: 118). Yet, attention must be given to operationalise the measurements via the same indicators. For this reason, no adjustments to the measurement levels for the individual groups are conducted by, for example, deleting individual items to improve the target of the subcategories performance criteria levels.

Based on the measurements' reliable estimations, it is possible to examine the relationships' connections in the next step of the structural equation modelling. At the same time, the tests from moderators that occur in connection with the measurements of the PLS-basic model are taken into consideration because the moderator variables are not automatically an important part of the effect, but instead react to the strength of a direct, casual external correlation (Chin et al. 2003: 198).

The path co-efficiency (direct path relationship and moderator effect) expresses the strength of the influence from latent constructs. The co-efficiency of the path of moderator effects is estimated with the help of the product-indicator assessment (Chin et al. 2003: 198 f., Nitzl/Schloderer 2010). To check the statistical significance of the co-efficiency of the path, we used the bootstrap method of individual changes by means of 1,000 bootstrap drawings (Henseler et al. 2009: 307) to calculate the standard error that is necessary for the calculation of the t-test. Besides the evaluation of the strength and significance of the path relationships under consideration, the Stone-Geisser test was also drawn upon to evaluate the prognosis relevance Q^2 (Stone 1974, Geisser 1974). If the value of the Stone-Geisser test is larger than 0, then the model is able to make predictions for each target response variable considered. In addition to Q^2 , the coefficient of determination R^2 is also consulted to evaluate the model. In the process, no definite specifications for evaluation can be determined because the height is closely related to each research question. In the present context of the success factor research, the R^2 normally possesses a relatively low value between 0.1 and 0.2 (Nitzl 2010: 34). Finally, the effect size f^2 of the individual endogenous variables is calculated. The magnitude of the effect (effect size) f^2 provides information on whether an exogenic latent variable has a substantial influence on an endogenous latent

variable in the case of our EEM (Chin 1998: 316). f^2 values of 0.02, 0.15 and 0.35 indicate whether an exogenic latent variable has a small, medium or large influence, respectively, on the endogenous latent variable (Cohen 1988: 413). In Table 3 below, both the estimated path coefficient and the performance criteria for both the complete sample as well as the individual subcategories are depicted in an overall view.

Based on the measured performance values in Table 3, every path co-efficiency for both the direct effect on the different groups as well as the moderator effect possesses a high significance. The path relationship from the size to the EEM is always negative.

Path	Direct path relation	Effect of moderating variable	Q ²	R ²	f ²
Total model (n=140)					
size -> EEM ¹	-0.174***		0.008	0.030	0.031
EEC -> size/EEM		0.170***	0.137	0.259	0.058
RC -> size/EEM		0.191***			0.170
Double-entry bookkeeping (n=99)					
size -> EEM ¹	-0.270***		0.029	0.073	0.079
EEC -> size/EEM		0.185***	0.210	0.357	0.073
RC -> size/EEM		0.225***			0.226
Cameralistic (n=41)					
size -> EEM ¹	-0.236***		0.002	0.056	0.059
EEC -> size/EEM		-0.085	0.172	0.335	0.095
RC -> size/EEM		0.339			0.083

*** p < 0,01 (estimated with the help of 1000 Bootstraps of the "individual changes" method; two-sided test)

¹ The given values of the path relation size -> EEM were estimated independently from the influence of moderator variables.

Table 3: Direct and moderator effects

Based on the measured performance values in Table 3, every path co-efficiency for both the direct effect on the different groups as well as the moderator effect possesses a high significance. The path relationship from the size to the EEM is always negative.

In contrast, the influence from the EEC and RC moderator variables to the moderator influence of the EEC cameralistic sample is steadily positive. The insignificant moderator effects from the sub-assembly of each municipality that use cameralism are in debt partly due to the small group sizes of 41. Yet, with the help of the effect sizes of 0.095 and 0.083, it is obvious that these have a negligible influence in spite of the insignificance of the path co-

efficiency of both the EEC and RC moderator variables. All groups have a Q^2 above zero, which indicates the model's predictability. Additionally, good R^2 values can be attested for all groups in comparison to the success factor research of typically available R^2 values. All endogenous variables exhibit a marginal influence on the exogenic EEM variable. The moderator influence on the entire population as well as in the sub-assembly double-entry bookkeeping has a medium-strength influence on EEM.

As shown in Table 3, we can confirm Hypotheses 1, 2 and 3 in the basic model (n=140). Hence, the size of the municipality has a highly significant negative influence on the efficiency and effectiveness. This negative effect is counteracted significantly positively and is even overcompensated through both the moderator effects of the relevance, as well as the efficiency and effectiveness of controlling.

Besides the separate observations of the different groups, we examined if the individual path relationships between the sub-assemblies double-entry bookkeeping significantly differentiated themselves from the cameralistic sub-assemblies. The test of whether the path co-efficiency differentiates itself significantly is conducted by means of a parameter-free difference test developed by Henseler and revised by Nitzl (Henseler 2007 und Nitzl 2010: 47). Thereby, the typically applied t-test deviation is contradictory to the distribution-free character of the PLS methodology (Chin 2000). With the help from the values of the bootstrap process, the following formula is estimated:

$$P(\hat{\beta}^{(1)} > \hat{\beta}^{(2)} | \beta^{(1)} \leq \beta^{(2)}) = 1 - \sum_j \sum_i \frac{\theta \left((b_j^{(1)} + \hat{\beta}^{(1)} - \bar{b}^{(1)}) - (b_i^{(2)} + \hat{\beta}^{(2)} - \bar{b}^{(2)}) \right)}{J^2}$$

J , at the same time, denotes the number of random samples based on the bootstrap process. $b_j^{(1)}$ and $b_i^{(2)}$ signify each individually produced bootstrap value per partial sample (1) and (2), respectively. $\bar{b}^{(1)}$ and $\bar{b}^{(2)}$ represent the refined average over each individually produced bootstrap value per partial sample (1) and (2), respectively, as well as $\hat{\beta}^{(1)}$ and $\hat{\beta}^{(2)}$ that come from the path co-efficiency based PLS model per partial sample (1) and (2), respectively. θ describes a step function that takes on a value of 1 when the figure in brackets is positive; otherwise, it denotes a value of 0. All J^2 possible combinations from the individual bootstrap random samples are calculated in numbers to determine how often the co-efficiency from group (1) exceeds the co-efficiency of group (2). The figure in the denominator means that the number is divided by all possible combinations.

The test whether the path co-efficiency differentiates itself significantly is usually checked by means of a one-sided test. In Table 4 below, an overview comparing the three models of the path relationships concerned are given.

Path	Double-entry		Difference
	bookkeeping	Cameralistic	
size -> EEM ¹	-0.270***	-0.236***	-0.034
EEC -> size/EEM	0.185***	-0.085	0.270**
RC -> size/EEM	0.225***	0.339	-0.114

** p < 0,05 (estimated with the help of 1000 bootstraps of the "individual changes" method; one-sided test)

*** p < 0,01 (estimated with the help of 1000 bootstraps of the "individual changes" method; two-sided test)

¹ The given values of the path relation size -> EEM were estimated independently from the influence of moderator variables.

Table 4: Tests for whether the path co-efficiency differentiates itself significantly

As shown in Table 4, EEC has a significantly diverse moderator influence on the different partial samples. Therefore, the EEC influence is significantly higher on the double-entry bookkeeping than on the cameralistic ones. Furthermore, Quershi and Compeau assert that PLS group differences are recognised rather late as being significant even if the difference of the co-efficiencies of the two groups is comparatively large (Quershi/Compeau 2009: 206). Thus, even though a significant group difference in the RC moderator variable in this case might not be ascertained, the presumption states that these differentiate in empiricism, especially when there are a large number of cases. In contrast to the assumption in Hypothesis 4, the moderator effects of the relevance of controlling alone are lower in municipalities with double-entry bookkeeping as are those that are cameralistic. However, this difference is not statistically significant. On the contrary, the impact of the efficiency and effectiveness of the controlling department is even significantly higher in the double-entry bookkeeping municipalities. Thus, the difference between the both partial samples is opposite to Hypothesis 4.

Moreover, it is interesting to notice that the R² coefficient of determination for the double-entry booking group at 0.357 is clearly above the cameralistic group's 0.335 for the coefficient of determination of the entire sample, which is 0.259. This finding indicates that through the differentiation in the accounting regulation systems, the explanatory content of the model noticeably increases because it is assumed that there is a moderate influence on the double-entry bookkeeping and cameralistic group differences.

4. Discussion and conclusion

Section 3.4 shows that all four of our formulated hypotheses from the perspective of the contingency theory were verified. The results from our study show that the municipality administration size has a negative influence on the efficiency and effectiveness of a municipality. Nevertheless, we were able to prove that through an effective and efficiently run controlling department, as well as through the recognition of the controlling field in the municipality administration (the relevancy of controlling), the negative effect on the success of the municipality due to its administration size is not only attenuated but can also be transformed into a positive effect. The results of the statistical values strengthen our presumption that the establishment of a specific institution, such as a controlling department, attempts to reach the goal of a higher level of effectiveness and efficiency in the municipality administration that can contribute to the success of a municipality in terms of a higher level of efficiency and effectiveness. Therefore, our results contradict the *institutional theory* arguments that the implementations of accounting reforms, in particular, administration legitimating efforts, do not explicitly retract the goal of a larger cost-effectiveness in the municipality.

The connection between the success of controlling and the successfully established installation of double-entry bookkeeping in municipalities is also interesting. Our study shows that the use of double-entry bookkeeping illustrates the basis in which the effect of successful controlling can be omitted (0.19***), whereas in cameralism no effect can be seen (-0.08). In fact, in municipalities where a modern accounting system is already implemented, the influence of the relevance of controlling relativises the success of the municipality. Instead, the effectiveness and efficiency of the controlling area no longer have any effect on the efficiency and effectiveness of the municipality. This finding indicates that the implementation of a new, modern accounting system in municipal administration can cause changes in the decisive logic of municipal decision makers. These changes seem to align the decision behaviour closely to the goals of the cost effectiveness and take on the active guidance, that is, the support through controlling. This presumption is supported through the following data: municipalities that use double-entry bookkeeping have on average a higher population (92,964 > 77,450) than municipalities that still use a cameralistic accounting system. Municipalities with double-entry bookkeeping have on average a lower number of employees (510 < 561) in their administration and work with a lower budget. These findings indicate that double-entry bookkeeping municipalities are more efficient and effective.

For municipalities with cameralism, this can, above all, increase their effectiveness and efficiency if a controlling department that focuses on an effective control system is not only established, but is also assigned a higher relevance (0.35). The moderator effect of controlling relevance for a cameralistic partial sample in a two-sided test did not prove to be significant; however, this is, in particular, owed to a relatively low random sample size of $n=41$. For a one-sided test, this has a weak significance level of $p<0.1$. The high, relative coefficient of determination ($R^2 = 0.36$ and $R^2 = 0.33$) also suggests a good controllability of success of a municipality through the institution of a controlling department.

Our results demonstrate, as we see for the first time, the high relevance that controlling departments have on an efficient and effective control system in German municipalities. Hence, municipal administrations should think about the implementation of controlling departments, in the case that they would like to place more importance on the future effectiveness and efficiency considerations in their decisions. Such a recommendation is especially relevant for municipalities that continue to use a cameralistic accounting system as the basis for decisions. In this case, a large impact can be expected from the implementation of a controlling area.

For research, our results imply that the basic assumptions of institutional theory have been proved by an empirical examination. Thus far, institutional theory in the public sector has been regularly empirically confirmed through case studies, and our survey releases a large number of preferred examinations because a higher external validity of the results from the study is expected. Our results show that through a group differentiation between the double-entry bookkeeping and cameralism, the explanatory content (the coefficient of determination) of the model is noticeably increased. We conclude that the identification of success drivers in the public context is essentially differentiated between both the double-entry bookkeeping and cameralistic accounting regulation systems.

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