Agencification and Public Sector Performance

A Systematic Comparison in 20 Countries

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Abstract

The increased establishment of semi-autonomous agencies in most countries from the 1980s on has been justified by claims of expected improvement in public sector performance. Empirical research to test these claims has been scarce, based on single cases and showing mixed results. This study tests these claims at the macro-level in twenty countries, using a range of indicators and variables. Overall, we find a negative effect of agencification on both public sector output and efficiency . This refutes the economic claims about agencification.

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Agencification and Public Sector Performance: A Systematic Comparison in 20 Countries

From the 1980s on, the number of semi-autonomous agencies increased strongly in almost all countries around the globe (Pollitt et al. 2001; Van Thiel 2001; Van Thiel 2004; Verhoest et al. 2010). Semi-autonomous agencies are organizations that carry out public tasks like social benefits, education, market regulation and policing, operating at arm's length of the government administration. Every country has its own types of agencies, as we will explain below. Under the guise of the New Public Management paradigm, politicians have justified the creation of semi-autonomous agencies by claiming that they will bring economic, political, and organizational benefits (Pollitt et al. 2001; Smullen 2010; Verhoest et al. 2012). In this article, we will focus on the expected effects of agencification on public sector performance. We question whether these acclaimed effects of agencification have actually been realized: has public sector performance gone up in countries where many tasks have been transferred to semi-autonomous agencies?

To answer this question, we will discuss the concept of agencification and the expected effects thereof on public sector performance. Based on the literature we have selected different indicators for performance, which have been put to the test in a series of systematic quantitative analyses. The reader should be aware that we focus on macro-level effects only using aggregated data at the central or federal level of twenty countries. This means that the number of cases in our analyses is low: N=20 (see method section). Analyses were replicated several times with data from different sources, such as the World Bank, IMD Business School, and the World Economic Forum (WEF), to improve the robustness and validity of our findings. Our findings show that public sector output has not improved in countries with larger numbers of agencies, and that efficiency has decreased. This raises new questions for research, but also for policy makers as agencification is an important part of recent government reform policies, aiming to combat the effects of the financial and monetary crises (cf. Verhoest et al. 2012).

Effects of Agencification

Underneath the label of 'semi-autonomous agencies' lies a wealth of different types of organizations, both between countries and within countries. Generally speaking, a semi-autonomous agency has three key features (Talbot 2004): (i) it is structurally disaggregated from a ministry, (ii) it carries out public tasks, and (iii) it operates under more business-like conditions than traditional government bureaucracies. Agencies possess managerial autonomy to shape their own organization structure and independently determine, for example, personnel and financial matters. Other features of autonomy depend on the legal conditions and politico-administrative traditions

of a country. Consequently, there is no single form of agencies; internationally, many different kinds and types have been set-up (Christensen and Lægreid 2007a; Pollitt and Talbot 2004; Ongaro 2010; Verhoest et al. 2012).

In this article we will make use of a typology that was developed by Van Thiel (2012). This typology distinguishes three categories or types of agency with comparable (but not similar) characteristics. Type 1 is a semi-autonomous unit within the government, without legal independence, such as the British Next Steps Agencies, most Scandinavian 'agencies', and the German indirect administration. Type 2 is a statutory body, with legal independence, such as the British Non-Departmental Public Bodies, Dutch ZBOs, and the public establishments in France, Italy, and Portugal. Type 3 is a private law-based organization, such as state-owned companies and foundations. By using this categorization we can compare agencification between different countries. Concerning the effects of agencification, politicians have claimed, among others, that agencies would be more professional, their management would be more business-like, and they would offer higher quality services compared to traditional government bureaucracy (Osborne and Gaebler 1992; Pollitt et al. 2001). Besides better output quality, agencies are expected to be more efficient public services providers (e.g. Bach 2012; Pollitt et al. 2001). Claims are not limited to economic benefits though. Other benefits of agencies would include political arguments, such as that agencies would work closer to citizens and involve stakeholders in policy implementation (e.g. MacCarthaigh and Boyle 2012; Verhoest, Demuzere, and Rommel 2012) and that agencies lead to less politics in policy implementation (for example Pollitt et al. 2001). In this article, we will focus solely on the claims about public sector performance.

Public Sector Performance

Public sector performance may encompass many different aspects: effectiveness, efficiency, quality, compliance, implementation, meeting standards of good governance, sustainability, and so on. Boyne (2002, 18) identifies three aspects of public sector performance in what he calls the inputs-outputs-outcomes (IOO) model of organizational performance: inputs, outputs, and outcomes. The IOO model focuses on these dimensions and their relationships. While the model is simple (Talbot 1999), it is a useful heuristic tool for our purposes. It facilitates a clear specification of performance's constituents. The model guides many empirical studies into public sector performance (Boyne 2003; Jonker 2012; Talbot 1999). Moreover, its broad dimensions, such as outcomes, cover the elements of performance in more complex models like the balanced scorecard (Kaplan and Norton, 1996), without distinguishing between possibly competing values. We will return to the constituents of output and outcome in more detail in our operationalization section.

Looking at the model, we see that firstly, outputs concern both quantity (e.g. number of operations performed in hospitals, hours of teaching delivered in schools, number of houses built) and quality (e.g. speed and reliability of service, courtesy of staff) of public service delivery (Boyne 2003). Secondly, outcomes concern the results (e.g. percentage of pupils passing exams, percent-

age of hospital patients treated successfully) of public service delivery (*ibid.*). Thirdly, there is the relationship between outputs and financial inputs: (technical) efficiency (Jackson 1983), as well as the relation between outcomes and financial inputs (value for money). In general, we can conclude that a country's public sector is supposed to perform well if outputs and outcome are high; if governments attain these results with low expenses, the public sector is efficient and yields value for money. As stated before, dimensions such as satisfaction and responsiveness are located outside the scope of this study.

Factors influencing organizational performance for individual public sector organizations are abundant (e.g. Rainey and Steinbauer 1999). However, as Boyne (2003, 369) noted: 'Rigorous causal reasoning and integrated sets of precise propositions do not characterize the literature on organizational success in the public sector.' Nevertheless, Boyne (*ibid.*) identifies five groups of explanatory variables for public sector performance, including resources, regulation, market structure, organization, and management. Because of our focus on the macro level, we omit management as an influential factor and focus on resources, regulation, market structure, and organization. We will use this perspective to hypothesize the effect of agencification on public sector performance, while keeping track of other potential sources of change in public sector performance.

Firstly, resources or expenditures will be positively related to performance, for example, because they enable governments to recruit more and better-trained staff. This might be qualified into a weaker statement as, for example, Hanushek (1997) showed that there is no strong or consistent effect of resources on educational performance. These findings suggest that spending enough resources is a necessary, though not a sufficient, condition for performance (Boyne 2003). Yet, resources remain a necessary prerequisite for any performance. Our first hypothesis is, therefore, that more resources lead to an improvement in public sector performance (**H1**). Secondly, good regulation is a prerequisite for a well-performing sector (Porter and van der Linde 1995). The rules of the game have to be well defined and clearly stated for (quasi-)markets to function (Chang 2002; Williamson, 1991). Bad regulation has a negative effect as it leads to de-motivation and confusion on the part of the regulated party (Boyne 2003, 379). Other effects could include the destruction of a level playing field and corruption (Lederer 2012). The concept of 'good regulation' has, in this sense, become widely used in the debate on public sector improvement (for an extensive discussion, see Coote, Dunlop, and James, 2009). Our second hypothesis reads that the less regulation is perceived as a burden, the more public sector performance improves (**H2**). Both explanatory factors do not have a direct link with agencification; the two remaining factors, however, do.

Thirdly, the effect of market structure is expected to be influential, yet contested in the literature. Following public choice theory, a large advantage of (internal and/or quasi) markets over governments is expected (Hood, 1991; Lane 2009). Competition should lead to service improvement at the risk of the exit option for citizen-customers. But the empirical impact of competition on

service improvement will likely vary with transaction costs and across dimensions of service performance and, therefore, not be uniformly positive (Boyne 2003, 370). Nevertheless, we hypothesize, based on the public choice logic, that, on average, an increase in (public) service provision through markets will improve public sector performance (**H3**). We discuss the relationship between agencification and market structure in the next section. Lastly, many public sector reforms include a different form of organizing government, including fragmentation, decentralization, and indeed, agencification (Pollitt and Bouckaert 2011). Altering the organizational structure remains a core element of most attempts to public sector performance improvement. We will also discuss the relationship between altering organizational structures and performance in more detail in the next section, where we will formulate our last hypotheses.

Agencification and Public Sector Performance Improvement

Unfortunately, politicians have seldom offered substantive arguments to support their claims about the expected economic effects of agencification (Van Thiel 2001). The most noteworthy exception is found in New Zealand (Boston 1996), where neo-institutional economic theories like principal agent and transaction cost economics are used to argue why agencification would lead to improved public sector performance. Following this logic, agencification would lead to specialized and expert public services, leading to a better fit between client demands and services offered which will improve quality on the one hand and improve efficiency (or reduce waste) on the other. In this model, agencies operate under competitive (market) pressures. Because citizens will have more choice options, agencies feel an *external* incentive to improve their services and keep innovating to meet demand (Jilke 2015). The logic, thus, hinges between arguments that deal with market structure arguments on the one hand and organizational structure arguments on the other.

The market structure argument assumes an inherent beneficial effect of market provision on public sector performance. Competition is assumed to lead to lower costs per output unit, thereby increasing efficiency (Savas 1987). Public choice theorists consider monopolies to have a negative effect on performance (Ostrom and Ostrom 1971). The absence of markets in the provision of public services by large bureaucracies reduces the incentive for civil servants to work efficiently (Niskanen 1971; Osborne and Gaebler 1992). Agencification can facilitate a breakdown of a state monopoly on public services, mostly in combination with market liberalization, such that other providers can enter the market (Héritier 2001). Citizens are, then, supposed to make informed decisions about their choice of service provider and have an exit option in case of bad performance (Aberbach and Christensen 2005). Examples of such organizations are railroad operators, universities, or hospitals. Hiving off public services can indeed facilitate competition with third parties, although agencification is no guarantee for the creation of a market. Sometimes internal markets or quasi-markets are created through agencification (Verhoest, Bouckaert, and Peters 2007), but the agency model does not suggest an inherent competition

(James 2003, 5). Based on the public choice argument, we expect that agencification will lead to increased public sector performance, in particular, increased efficiency (**H4**).

A second logic refers to a change in organizational structure, and is borrowed from large business corporations consisting of multiple divisions (James and Van Thiel 2011). Firstly, this logic implies a beneficial effect of a reduction in organizational size. Increasing size is supposed to return marginal benefits, but only up to a certain point. When the span of control becomes too large and coordination problems arise, large size leads to increased transaction costs (Andrews 2010; Williamson 1967). Agencies are smaller than a central ministry, and therefore form a potential solution to the problem of an inefficient bureaucracy (James 2003; Lane 2009). Secondly, giving managers more operational freedom to spend their budgets would, supposedly, lead to increasing innovative use of funds, thereby increasing value for money (Osborne and Gaebler 1992). This freedom would go hand in hand with an increase in new forms of accountability, such as measurable performance standards (Andrews 2010). These new forms of accountability shift the pressure from process to results and, thus, aim to increase output (Behn 1998). Therefore, we hypothesize on the basis of these claims that agencification leads to increased value for money, as well as to increased output (**H5**).

Empirical studies into the economic and performance-related effects of agencification are scarce. Furthermore, results are often mixed. For example, in a review study of more than 500 evaluation reports of NPM-related reforms such as agencification, Pollitt and Dan (2013) observed that two out of the three studies did not report about effects, only about processes. Andrews (2010) found some positive effects but mostly no changes in his review of six studies. This mixed picture is also found in the limited number of studies of single cases, sectors and/or countries. For example, Yamamoto (2006) found only partial support for performance and efficiency as a result of an increase in autonomy, while James (2003, 132) noted that the effects of agencification in the United Kingdom were more consistent with bureau shaping rather than with public interest. Senior officials would delegate certain tasks to agencies to gain time for their preferred activities, such as policy making. Beblavy (2011) warned against the possible perverse effects of agencification, particularly in CEE countries where agencification has become prolific due to EU accession requirements (Van Thiel 2011a). We will return to this debate later on. An exception in both scope and findings is the work by Janice Caulfield. She studied countries in Sub-Saharan Africa (Caulfield 2006), a region that will not be covered in this study. Her findings are positive. She reports that after a wave of agencification the economy has been growing by more than five per cent, has nearly doubled per capita income, budget deficits have been minimal, and inflation has fallen to about five per cent, although she states that it is difficult to attribute the results at a macro level to specific reform initiatives (2006, 24).

To sum up our argument so far: the expectations about effects of agencification on public sector performance are high, but evidence is scarce and mixed. Most empirical research refers to single, select numbers of cases, dealing with processes of reform rather than actual effects. Therefore,

to test the effects of agencification as a public sector-wide trend, we need a different approach (James 2003, 8). To test the expectations about performance effects at the macro level, that is, at the level of the central or federal governments, we will make use of existing indicators about public sector performance and link those to the degree of agencification per country. The next sections will explain this approach in more detail. Our working hypothesis is that in countries where many services are provided through agencies rather than through traditional government bureaucracy public sector performance will be higher than in countries with a low number of agencies. In particular, efficiency will increase through the increase in market-type provision of public services, while output and value for money will increase through the changes in organizational structure. Cross-country comparisons are always hindered by the lack of comparability between countries because of their unique characteristics. Therefore, we will have to include other predictors of public sector performance as well. The next sections explain how we did this.

Operationalization and Data Sources

This study focuses on four aspects of performance improvement: output, outcome, efficiency, and value for money. We have used these as a yardstick to select indicators from several existing sources. These dimensions of public sector performance are widely discussed in the academic literature, as well as among practitioners. Measuring and comparing outcomes culminates into country rankings based on information from international organizations such as the World Bank or the OECD (Afonso, Schuknecht, and Tanzi 2005; 2006; Kaufmann, Kraay, and Mastruzzi 2009). These rankings are all based on somewhat distinct measures of the public sector performance dimensions (Hood, Dixon, and Beeston 2008; Van de Walle 2006; 2008; 2009). We will discuss the specific coupling between the elements of public sector performance and the public sector performance indicators in greater detail below.

Data were taken from data banks collected by the World Bank, the IMD Business School, the Netherlands Institute for social research (SCP), and the WEF. The World Bank and the SCP cover mostly quality and quantity of output, although some elements could also be considered as outcome. The IMD and the WEF offer a perception measure of efficiency. Lastly, own calculations based on World Bank and SCP data provided indicators for a combination of efficiency and value for money. Next, we will discuss the different indicators, including some assets and risks of the measurements.

For *output* and *outcome*, we used the following data sources from the World Bank and the SCP:

- The World Bank World Governance Indicators (WGI) contains a measure for government effectiveness (Kaufmann, Kraay, and Mastruzzi 2010). This indicator aggregates data from

different sources. It measures perceptions of the bureaucratic competence and the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies and is based on opinion and expert surveys. These measurements cover parts of public sector output, as well as outcome. The advantages of the indicator are the broad range of concepts that is covered and the large number of countries that is included, while the risk is that this indicator might measure slightly different things in different countries (Van de Walle 2006, 439). We use values from 2010. The World Bank aggregated the measurements into an index between -2.5 and 2.5, where a higher number means higher performance.

- The SCP measured performance of the administration, where they compare public sector performance in various OECD countries. Like the World Bank data, this indicator covers a combination of output and outcome. Their index is largely based on OECD data, supplemented with data from other sources (Jonker 2012). Performance is measured in dimensions that stem from the Dutch Ministry of the Interior's Good Governance Code, including transparency, participation, good services, effectiveness, legitimacy, learning, and accountability. The advantage of this indicator is its comprehensiveness. The risk for this indicator is that it is difficult to interpret the aggregate score of the seven aspects, which are all rather distinct from each other. Another problem with this data is the limited number of included countries. Lithuania, Romania, and Israel are, in contrast to those in the World Bank data, not part of this index. The scores run from 0 (lowest) to 10.

For public sector *efficiency* we will use two indicators from the IMD and the WEF; for a combination of *efficiency* and *value for money*, we will use two indicators as well. The latter two are calculated by the authors, using data on performance and the part of a country's GDP that is spent by the government

- The IMD Business School composes an aggregate indicator for government efficiency. They use a total of seventy-one criteria ranging from public finance to business legislation (Rosselet-McCauley 2007). Efficiency is, therefore, conceptualized in a somewhat different way than we do in this study, yet it is consistent with the logic that public service is provided through open markets that facilitate the entry of outsiders. 'Rather than measuring the efficiency of the public administration, these indicators assess government as a whole, with a preference to for these forms of organization that hinder business least' (Van de Walle 2006, 442). The measurement consists of objective statistics, as well as results from an executive opinion survey, and was calculated in 2011. The scores in our dataset run from around 35 to 76 (highest efficiency).
- A similar indicator is provided by the WEF, from which we took the indicator for 'wastefulness of government spending'. This is an indicator for the extent to which the spending of a government is perceived as being wasteful. As with the IMD scores, these rankings are mostly used by investors, and therefore less useful for comparative public administration.

Moreover, these scores are biased towards countries with low tax levels and that promote free trade. Scores in the WEF index were calculated in 2011 and range from 1 (extremely wasteful) to 7 (Sala-i-Martin and Schwab 2011).

- Two indicators for efficiency and value for money are own calculations based on the World Bank WGI effectiveness measure (see first point) and the SCP public sector performance from 2012. We took the part of GDP that is spent by the government as an indicator for the amount of resources, and divided the performance scores by the percentage of GDP spent by government. The original SCP indicator is a measure for total public sector performance, in which outcome quality in several sectors is represented. These sectors include education, health, social safety, and housing. An advantage of this index is the broad coverage of sectors and the comparability of countries among each other. The main problem of this index is the selection of sectors. SCP chose the four sectors for convenience, rather than for theoretical reasons. The availability of data was the most important argument for choosing these sectors (Jonker and Boelhouwer 2012, 321). It is not possible to clearly distinguish output from outcome in the original measurements, and therefore, we do not distinguish between efficiency and value for money in our analyses of these indicators.

Using existing databases has obvious advantages, like comparability and access to data, but also several disadvantages (see Van de Walle, 2006 for an extensive discussion). But the combination or triangulation of datasets should allow us to draw more generalized conclusions.

The operationalization of the explanatory variables was done as follows:

- *Resources* are operationalized as government expenditure per inhabitant in US dollars PPP to measure the amount of resources spent. OECD calculated these numbers in 2011. For the non-member countries in our analyses (Romania and Lithuania), the scores are based on our own calculations, using Eurostat data and the IMF exchange rate to US dollars PPP for the appropriate years.
- As a measure for the *regulatory burden* in a country, we use the perceived regulatory burden, which is published by the World Economic Forum in 2011 (Sala-i-Martin and Schwab 2011). Scores range from 0 (very burdensome) to 7. Note that the quality of regulation is inversely related to the experienced regulatory burden.
- The *market structure* in a country is operationalized by looking at the proportion of government spending of GDP. The size of the market needs to be scaled to the size of the economy. The underlying idea is that in countries with a big government, a smaller share is left for the market. This measure fails to acknowledge the (recently created) market structures in, for example, health care. In some countries several public services are provided through a market system or outsourcing, but paid for by the government. Therefore, we deduct the amount of GDP spent on government outsourcing (OECD 2011) from the government expenditure as a percentage of GDP in 2011. The latter numbers are based on Eurostat data or national statistics offices. High percentages indicate a greater share for government, while

low percentages indicate a greater share for the market. For the non-OECD members Romania and Lithuania, the amount spent on government outsourcing in unknown, and replaced by the mean for all OECD countries.[1]

- The last explanatory factor is the public sector's *organizational structure*. To determine the extent to which a government provides its services through agencies, we developed a measure for the degree of agencification. We focus on agencies with executive tasks, like providing public services to citizens. Regulatory agencies, which develop and monitor regulation for citizens or companies (Levi-Faur and Jordana 2005; Majone 1997), are not included in this study. We used existing data on the extent to which twenty-five tasks were carried out by agencies in 2008 or 2009 (for more details, see Van Thiel 2012). In twenty-one countries,[2] academic experts rated whether tasks were carried out through agencies, and if so which of the three aforementioned types. These tasks included services in the fields of registration, security, education, payments, caretaking, and infrastructure. These tasks were chosen on the basis of prior scientific evidence on the creation of agencies (Van Thiel and CRIPO Team 2009), and therefore they are believed to give a good and comparative image of the agency landscape across the different countries. We see that some services tend to be carried out by agencies in most countries, such as broadcasting and meteorological services (charged to an agency in at least 95 per cent of cases) or road maintenance (90 per cent), while for other services the delegation to agencies is less popular, such as the prosecution office (55 per cent), issuing driver's licences (42.1 per cent), or prisons (41.2 per cent). Figure 1 presents an overview of the degree of agencification per country.

Method

The effects of agencification and the control variables on public sector performance are systematically tested in repeated OLS regression analyses. Six models are estimated with different indicators for public sector performance, based on different indicators.[3] In every model, the same four independent variables are entered: the degree of agencification, resources, regulatory burden and the degree of marketization. Through these repeated analyses, we are able to provide a robust and valid image of the effects. Table 1 shows the descriptive statistics and correlations between the different variables that are used in all of the models. The table shows a (high) correla-

[1] The Central and Eastern European OECD member states (Czech Republic, Hungary, Slovak Republic, Estonia, Slovenia, and Poland) all spend a percentage of GDP that is within one standard deviation from the average of the OECD countries.

[2] Among these countries Tanzania stands out, not only geographically, but also with regard to development of the public sector. Moreover the availability of data on the dependent variables is low. Therefore, the case of Tanzania is not included in our further analyses.

[3] Additional models were calculated using implementation capacity as a dependent variable to increase the scope of the performance concept. These models did not show any statistically significant effect for agencification.

tion between the performance indicators. This is expected; although the separate indicators measure these variables in different ways, the high correlations show that they are consistent in their results (Van de Walle 2006).

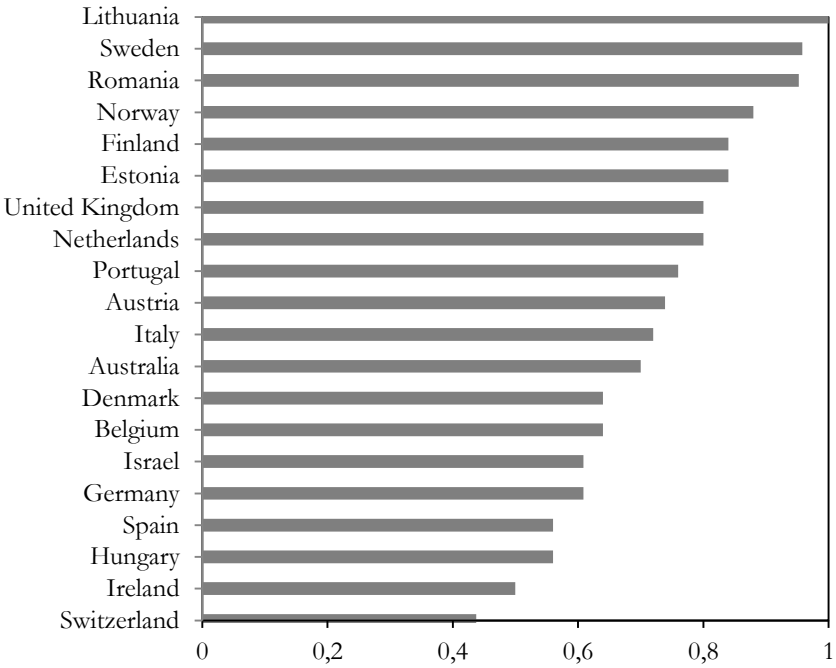

Figure 1: Degree of Agencification. Based on: Van Thiel *et al.* (2009).

The presented models are based on a relatively small number of observations (in most cases N=20 countries), but this does not have to be problematic for the OLS regression models. Cook and Hawkins (1990), for example, suggest at least five cases per dimension as a rule of thumb to prevent over-fitting. We carefully checked for normality in the distributions, and multicollinearity between parameters.[4] As a robustness check, we controlled all models using robust regression and employing MM-estimation (Andersen 2008). In all models, similar patterns occurred, and no changes in significance were observed, except for models 5 and 7, where SCP data were used. The models including Switzerland yielded significant results; however, these models are driven by a single observation as a large number of tasks is delegated to the regional of local level. Removing the Swiss case gave more reliable results, all of which were confirmed by the aforementioned robust regression estimates.

[4] For almost all variables, data were normally distributed. Only the variable 'market structure' has a skewed distribution. Calculating the logarithm resulted in a non-skewed distribution, but the results of the regression analyses did not change substantially with the recalculated variable. For easier interpretation, we used the original variable.

Table 1: Descriptive Statistics and Correlations

	Source	N	Min/Max	Mean (SD)	A	B	C	D	E	F	G	H	I
Output / outcome	A) World Bank	20	-0.14/2.24	1.39(.62)									
	B) SCP	17	1.6/8.6	5.46(1.96)	.609**								
Efficiency / value for money	C) World Bank	20	-0.003/0.055	.029(.014)	.893**	.499*							
	D) SCP	17	0.072/0.187	.111(.030)	.604*	.423	.877**						
Efficiency	E) IMD	20	35.5/76.22	53.88(11.97)	.812**	.570*	.888**	.851**					
	F) WEF	20	2.2/5.0	3.625(.944)	.881**	.625**	.865**	.780**	.920**				
Independent variables	G) Degree agencification	20	0.438/1.00	.7272(.15806)	-.138	.607**	-.200	.033	-.070	-.013			
	H) OECD Resources	20	8979/25814	17107(4239)	.472*	.612**	.234	.259	.281	.470*	.267		
	I) WEF reg. burden	20	2.2/4.4	3.22(.66)	.670**	.414	.673**	.584*	.831**	.764**	.122	.165	
	J) Non-market exp.	20	24.3/58.6	37.2(7.5)	.137	-.254	-.218	-.613**	-.241	-.142	-.272	.342	-.113

Note: * $p < .05$; ** $p < .01$.

Results

Table 2 represents the results of the analyses.[5] Regarding the effect of agencification on *output* and *outcome*, we see an effect only when using the World Bank data. All models show a large proportion of explained variation. In the World Bank model, agencification is found to have a negative effect. The model based on the SCP data does not show any effect; therefore we are careful to draw definitive conclusions. As we noted earlier, the World Bank data includes data from more countries, including Israel, Lithuania, and Romania. This might explain the different results, especially since the latter two tend to have high degrees of agencification, while they score lower on the other indices of public sector performance. Not including Romania in model 1 would render the effect of agencification statistically insignificant. Other potential explanations are elaborated in more detail at the end of this section.

Table 2: Explaining Public Sector Performance

	Output/Outcome		**Efficiency**		**Efficiency/Value for Money**	
	(1) World Bank	**(2) SCP**	**(3) World Bank**	**(4) SCP**	**(5) IMD**	**(6) WEF**
Agencification	-0.358*	-0.011	-0.500**	-0.095	-0.372**	-0.344*
Resources	0.483*	0.689**	0.410*	0.646**	0.386**	0.573**
Regulation	0.627**	0.351*	0.618**	0.322*	0.770**	0.672**
Market Structure	-0.055	-0.538**	-0.424*	-0.767**	-0.387**	-0.356*
N	20	16	20	16	20	20
R^2	0.69	0.809	0.704	0.857	0.867	0.838
Adj. R^2	0.607	0.739	0.626	0.806	0.832	0.795
F	8.351**	11.643**	8.936**	16.536**	24.543**	19.409**

Note: Independent variables in rows, dependent variables in columns; standardized regression weights; * $p < .05$; ** $p < .01$.

Both resources and a lower regulatory burden are significantly and positively correlated with variation in the output and outcome indicators. Especially the burden of regulation proves to be a strong predictor. This is in line with our hypotheses H1 and H2. The public provision of services versus market provision had a no effect when using World Bank data, while based on the SCP indicator, private provision was correlated with higher output and outcome (H3).

Regarding *efficiency*, as well as *value for money*, all models explain a large proportion of the variation in the data. It becomes clear from the models that, contrary to the expectations hypothesized

[5] Added variable plots of agencification and the different dependent variables are presented in Appendix I.

earlier, agencification is not associated with positive effects on efficiency or value for money. Contrastingly, in three of the models, there is a statistically significant negative correlation between agencification and efficiency. In the two other models, there also is a negative effect of agencification on efficiency, although not statistically significant. In other words, there is a consistent negative correlation between the degree of agencification and government efficiency in all tested models. It should be noted that the perceived burden of regulation is also associated with public sector efficiency, that is, less perceived regulation leads to a more efficient public sector (H2). The same goes for the variable market structure. More market, indeed, is associated with a more efficient public sector (H3). At the same time, the more resources governments spend the more public sector efficiency is observed (H1).

In sum, more resources, less perceived regulation and more market contribute to public sector performance in a positive direction, as hypothesized based on the NPM logic. Agencification, on the other hand, is negatively related to performance. The selected indicators have proven to be powerful predictors for the variation in most of our models, and the outcomes of our analyses are substantially better than simulations using random numbers. Separate analyses leaving out specific cases or variables did not lead to different conclusions, nor did weighing the data for different types of agencification (types 1-3). This suggests robust findings and conclusions.

Additional Patterns

To gain more in-depth insight into patterns, that is specific tasks, countries, and short-term versus long-term effects, we further investigated the available data. Firstly, we looked for any patterns between tasks and performance; then, we compared average dates of agency creation per task. Lastly, country patterns were identified. Partial correlations between agencification and the six indicators for public sector performance were calculated separately for each task.[6] Figure 2 presents the results.[7] The agencification of student loans distribution, prison services, and universities shows higher correlations with improvement of public sector performance in general, whereas the agencification of EU subsidy distribution, land registry, and tax services is correlated more with a decrease in general public sector performance.

The average date of creation of an agency varies per task. The average creation of prosecution offices and prison services in their current form in the twenty countries, for example, took place in 1946 and 1961, respectively. Many other services were created after 1980, during the heyday of NPM. An overview of these average dates of creation is found in figure 2. The majority of agencies created before 1980 is associated with public service improvement. All agencies marked with

[6] Correlations were calculated controlling for resources, regulation and market structure.

[7] We omitted those sectors where the task was not performed by an agency in only one single country. These tasks included railway operation, broadcasting (both no agencies only in Hungary), and the meteorological office (no agency in Italy).

an asterisk in Figure 2 have an average date of establishment in their current form before 1980. An over-representation of these agencies at the top of the chart stands out.[8] [9]

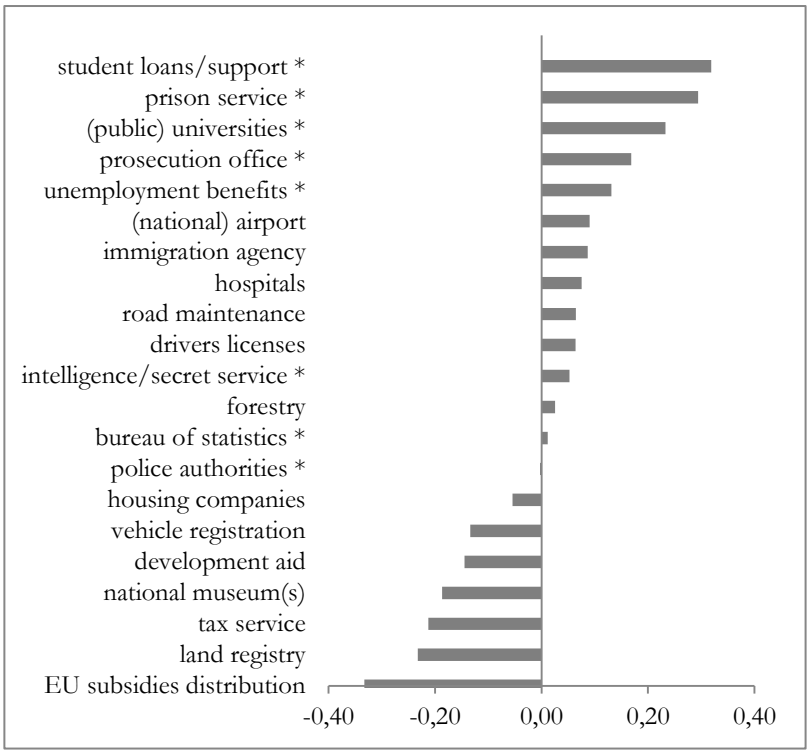

Figure 2: Average correlation of agencification to public sector performance by task.
* Average date of creation in current form before 1980.

Lastly, we looked at the predicted effects of agencification, based on our models, and compared these to the actual observations. The figures in Appendix show these differences; the regression line is the predicted effect. Some observations with large differences are identified based on their studentized residuals ($p < .05$). Romania has a high degree of agencification (.95) and is consistently observed below the predicted regression line on both output and efficiency. Finland also has a high degree of agencification (.84) but scores worse than predicted on output (model 2). Sweden, on the other hand, has a high degree of agencification as well (.96), yet the country performs better than predicted on both output (model 2) and the two models for value for money. Australia has an average degree of agencification (.70), and scores better than predicted in the

[8] Average date of creation is calculated as the mean year of establishment in current form in all countries. Omitted sectors (see note 7): railway operators (avg. creation date 1990), meteorological offices (1956), and broadcasting companies (1986).

[9] We controlled for average date of creation in our regression models as a robustness check, to see whether time elapsed since agency creation affected public sector performance. This did not alter our findings.

two efficiency models. Belgium also has an average degree of agencification, but scores worse than expected on efficiency (model 4).

Discussion

We found that a larger market share in the provision of public services leads to more output, efficiency, and value for money. Agencification, in contrast, does not. This leads to a paradox regarding the market structure argument (**H4**). This logic implied that agencification would be a way to counter the negative implications of government monopolies in public service delivery. However, in practice agencification has not led to real market creation, rather to internal or quasi-markets (e.g. in health care; Le Grand and Bartlett 1993; James 2003). The resulting efficiency loss would be a logical consequence thereof. The lack of a pure market mechanism in the public domain is, however, a self-explaining fact; the government often takes on the production of goods and services that a pure market cannot provide, or at least not in the most efficient way. More interesting in this regard is the finding that agencification has become correlated with negative performance mostly in recent years. This could suggest that the market structure worked at first, but lost its effect when agencification spread out to other, perhaps less marketable, policy sectors (see also different findings for different tasks). This would suggest that the market argument only holds for specific tasks or sectors, not for the public sector as a whole. An alternative explanation is the rise of re-regulation after agencification (Pollitt & Bouckaert 2011). Regulation costs may have reduced the efficiency gains of agencification. And, as re-regulation was not imposed until a few years after the onset of reforms (1990s rather than 1980s), the negative effects on efficiency did not occur immediately either.

The hypothesis based on the organizational structure argument cannot be supported either (**H5**). Negative effects were found for value for money, and negative, none or few effects were found for efficiency, output, and outcome. Again, the costs of re-regulation and coordination could help to explain this finding as we have also shown that a reduction in regulatory burden is positively associated with public sector performance. This finding would suggest that policy makers should not impose too much regulation on agencies. However, it is doubtful whether policy makers would be willing to do so because regulation enables them to combat their loss of control after agencification (cf. Pollitt 2005; Van Thiel 2011b; Van Thiel, Verhoest, Hajnal, et al. 2012). Prolific agencification has led to fragmentation of the public sector and a need to restore coordination between agencies, and between agencies and government bureaucracies (Bouckaert, Peters, and Verhoest 2010). Ambiguous roles and the undermining of political control were negatively affecting coordination in Norway (Christensen and Lægreid 2003), as well as in the Netherlands and France (Overman, Van Thiel, and Lafarge 2014). Several governments are, therefore, undertaking new reforms to restore coordination. This has been labelled the 'whole of government' approach (Bouckaert et al. 2010; Christensen and Lægreid 2007b; Lodge and Gill 2011).

Hypothesis 5 was formulated under the assumption of increasing coordination costs for large bureaucratic organizations. The inverse might, thus, be the case. The reduction of efficiency we found to be associated with higher numbers of agencies in specific countries could provide empirical support to the conclusions of the predominantly anecdotal approach of the 'whole of government' debate.

Finally, there are some shortcomings that need to be taken into account and that should be repaired in future research. First of all, we found stronger and more consistent effects of agencification on efficiency and value for money than on output and outcome. This raises the question whether we should expect different effects for these different aspects of performance. As outlined before, there is limited theoretical underpinning of agencification, which does not really differentiate between measures of performance. Empirical evidence is also limited, as was explained before. Further elaboration is necessary to determine whether different dimensions of performance lead to different effects, and should be measured and analysed separately.

Secondly, we have used a small sample of twenty countries and twenty-five executive tasks. Although we were able to identify some potential patterns in the data, these should be supported by more empirical evidence. Future studies could be carried out with more cases, more or other indicators, and more and other tasks like regulation, see for example Levi-Faur and Jordana (2005).

Thirdly, we have already mentioned several of the flaws in the public sector performance indicators used (see also Van de Walle 2006). On the other hand, there were no serious contradictions between findings. Nevertheless, the indicators are measured at very abstract levels and often based on expert assessments (or opinions). Therefore, replacement of indicators with 'hard' data would contribute to even more robust and valid outcomes.

A fourth and important limitation of our analysis is the fact that we have used a fixed measurement. To ascertain the effects of agencification and attribute causality, a longitudinal would be most preferable, with data on all individual agencies for all countries. This would also help us to get more insight into the causal relationship between performance and agencification. However, the scope of such a study goes beyond our means and our current data.

Concluding Remarks

More resources for the government, less perceived regulation, and more market positively influence public sector performance (**H1-3**). Agencification is hardly related to output and outcome, and negatively related to efficiency and value for money (**H4-5**). The economic claims underlying agencification programs are, therefore, refuted. The fact that similar findings were obtained using

different data sources suggests that findings are robust and generalizable. We were not able to identify particular clusters of countries that consistently perform better or worse than expected based on the measured variables. Interestingly, countries with similar cultural and politico-administrative traditions, such as Finland and Sweden, performed contradictory. Therefore, we cannot conclude that agencification is a solution suitable for particular country-specific circumstances. This has important implications both for theory and for policy makers.

There are also important lessons for policy makers to be learnt from our findings. Our findings show, for example, that more resources lead to higher efficiency; however, agencification often coincides with budget cuts (cf. Van Thiel, Verhoest, Bouckaert, et al. 2012). Perhaps policy makers should not immediately cut agencies' budgets or even increase budgets during the transition towards more autonomy.

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Appendix I: Added variable plots of agencification.

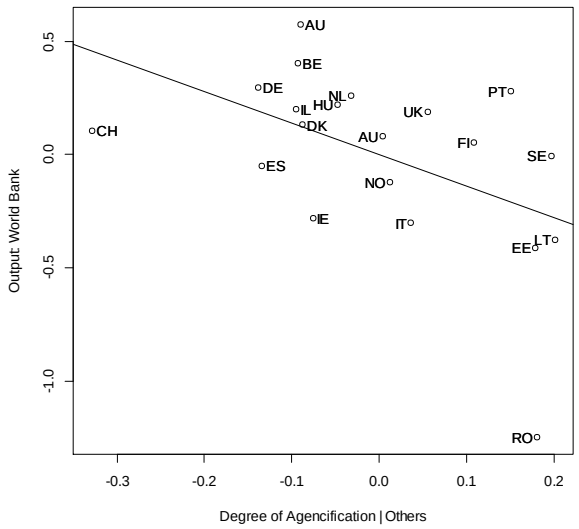

Figure 3: Added Variable Plot of Agencification Model 1. Note: 95% Confidence Intervals.

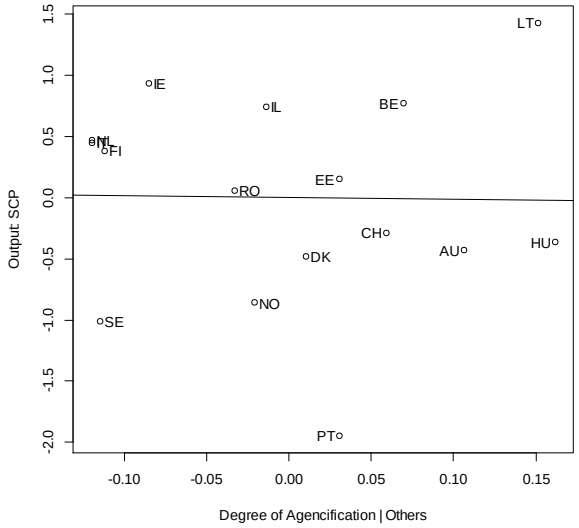

Figure 4: Added Variable Plot of Agencification Model 2. Note: 95% Confidence Intervals.

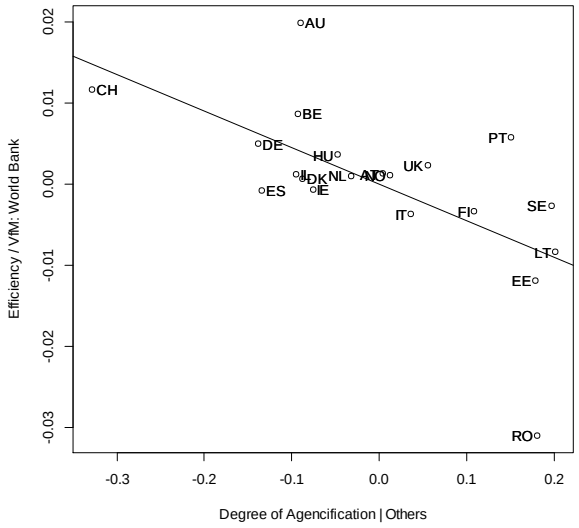

Figure 5: Added Variable Plot of Agencification Model 3. Note: 95% Confidence Intervals.

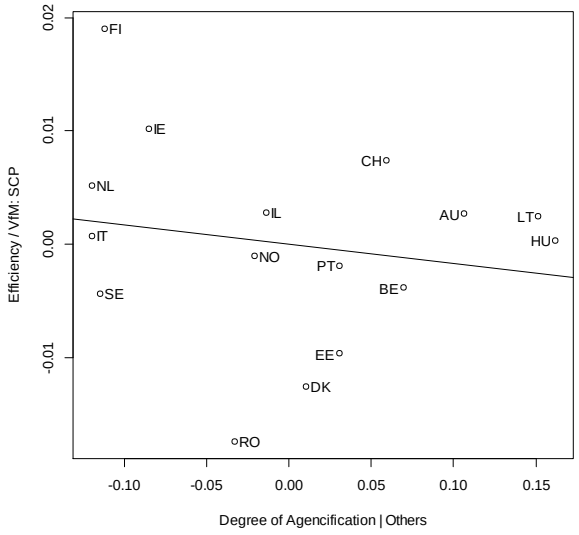

Figure 6: Added Variable Plot of Agencification Model 4. Note: 95% Confidence Intervals.

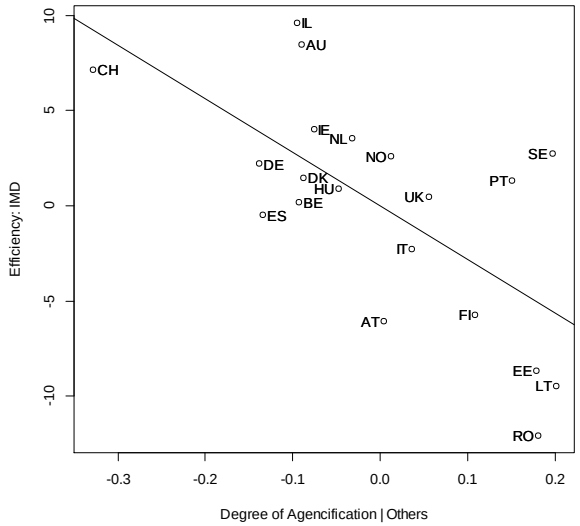

Figure 9: Added Variable Plot of Agencification Model 5. Note: 95% Confidence Intervals.

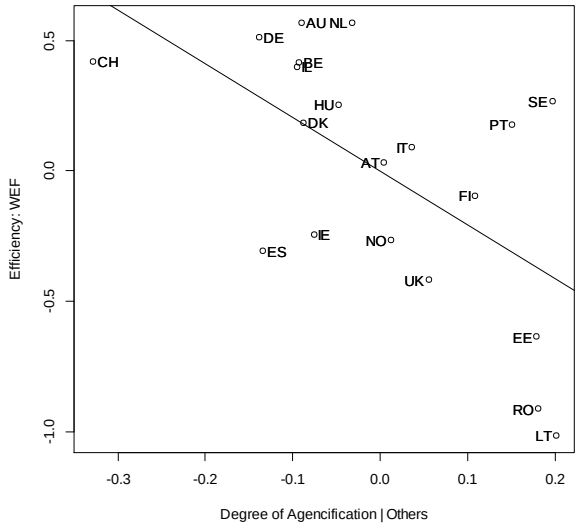

Figure 10: Added Variable Plot of Agencification Model 6. Note: 95% Confidence Intervals.