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SUPREME AUDIT INSTITUTIONS: SUPREMELY SUPERFLUOUS? A CROSS COUNTRY ASSESSMENT

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Supreme Audit Institutions: Supremely Superfluous?

A Cross Country Assessment[1]

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Abstract:

This is the first study that assesses the economic effects of supreme audit institutions (SAIs) on a cross country basis. Drawing on two distinct sources (a survey carried out by the International Organization of the SAIs in the early 90ies and an OECD/World Bank Survey of Budget Practices and Procedures carried out in 2003), the effects of SAIs on three groups of economic variables are estimated, namely on (1) fiscal policy, on (2) government effectiveness, and on (3) productivity. On the basis of up to 40 countries, differences in the independence, the mandate, the implementation record, and the organizational model of the SAIs do not seem to have any clear-cut effect on any of the three groups of dependent variables. There is only one exception: perceived levels of corruption (an aspect of government effectiveness) are significantly higher if the SAI is structured along the court model of auditing. Although in isolation the number of observations appears to be quite low, we argue that the results are unlikely to significantly change if the number of observations is increased for two reasons: the two surveys cover different sets of countries and the individual significance levels are usually extremely low indicating that the structure of SAIs could, indeed, be completely superfluous for the effectiveness of these organizations.

JEL classification: H1, H3, H5, H8.

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Supreme Audit Institutions: Supremely Superfluous? A Cross Country Assessment

1 Introduction

To carry out its policies effectively, government depends on scores of bureaucrats to implement government policies faithfully. Many states have attempted to mitigate the underlying principal agent problem by creating Supreme Audit Institutions (SAIs) who are to audit the legality but often also the efficiency and even the effectiveness of the spending behavior of many government bureaus. A paper published by the World Bank (2001) claims that SAIs are "useful in managing public spending, ensuring financial accountability, and strengthening public institutions." Some SAIs pride themselves with their long history: the Chinese SAI, e.g., traces auditing supervision back to the Western Zhou Dynasty that reigned China some 3000 years ago (www.cnao.gov.cn/main/articleshor_artID_725.htm). Almost all countries do have a SAI: INTOSAI, the International Organization of Supreme Audit Institutions, has more than 170 members. Many SAIs are sizeable government bureaus themselves. The US Government Accountability office, e.g., employs 3200 and prides itself with having generated 39.6 billion in measurable financial benefits or "an $83 return on every dollar invested in GAO" (GAO at a glance, found on: www.gao.gov/about/gglance.html). The aggregate number of employees among the approximately 60 countries that participated in the INTOSAI survey from the early 90ies was 124.000.[2] In sum, SAIs have a long history, are government agencies of a substantial size, and claim to generate substantial positive effects. Yet, the economic effects of SAIs have never been systematically assessed on a cross country basis.

If SAIs function effectively, they could indeed have far-reaching consequences: they could affect (i) fiscal policy as government expenditure could be lower which could also affect both government revenue and deficit levels. SAIs could further have an influence on (ii) government effectiveness: monitoring the spending behavior of government bureaus might decrease (perceived) corruption levels as well as increase government effectiveness on a more general level. Eventually, they could even improve (iii) the general productivity of resources used in the economy by improving both labor and total factor productivity. In their book-length study on the economic effects of constitutions, Persson and Tabellini

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2 This number appears extremely high, yet it is correct. The number is, however, largely driven by China's SAI which employs 81.311 alone.

(2003) have analyzed the effects of constitutional institutions on exactly these variables. In a sense, our study can thus be read as an extension of their work. This is even true in a literal sense: many constitutions do mention SAIs explicitly, they can hence also be termed a constitutional institution in the sense that they are explicitly mentioned in the constitution. At the same time, we rely both on the estimation approach as well as on many of the variables used by Persson and Tabellini.

Up till now, the – very small – available empirical literature has focused on analyzing the effects of SAIs across Swiss cantons. Schelker and Eichenberger (2003) find that stronger audit institutions lead to lower tax burdens and expenditures. In Schelker and Eichenberger (2004), the authors posit that stronger audit institutions lead to lower tax rates. Torgler (2005) finds that a more encompassing mandate of SAIs increases tax morale. Torgler and Schaltegger (2006) find that strong audit institutions are one significant variable in determining the level of political discussion among cantons. In sum, all of these studies find that the mandate of SAIs in Swiss cantons has a number of significant empirical effects.

This is the first paper that tries to assess the effects of SAIs on a cross country basis and we are, of course, interested to know whether the results found for Swiss cantons can be generalized. Two data-sets (covering different countries) are used to assess whether differences in the organizational structure of SAIs can be shown to have economic effects. The empirical estimates are, however, quite sobering: as the title of the paper already indicates, the variables used to proxy for the independence, mandate, transparency and the stylized model of the SAIs do not display any significant impact on almost all of the economic variables just discussed. There is, however, one noteworthy exception: the variable proxying for the model on which the SAI is based is significantly (and robustly) correlated with the absence of graft in government. If the SAI is structured like a court, graft is more than one point higher (on a 1-10 scale) than in other countries, *c.p.*.

The rest of the paper is structured as follows: the next section introduces the underlying monitoring problem theoretically. Section three deals with the potential relevance of institutional details of SAIs, in section four, the data underlying our regressions are presented and the estimation approach is described. Section five contains the results, section six concludes.

2 Some Theory

The output of government bureaus is notoriously difficult to evaluate. Since we are dealing with public goods, prices as the outcome of a competitive process are typically absent. Following Niskanen (1971), the economic theory of bureaucracy has identified a number of additional reasons for the difficulty to evaluate the activities of bureaus: First, the bureau does often not even supply output units as such, but rather levels of activities from which output levels must be inferred (ibid., 24-6). Secondly, monitoring bureaucratic behavior is difficult because it is often part of a bilateral monopoly (between the bureau and the executive) which is not subject to competitive pressure that could enhance the bureau's efficiency. Thirdly, inefficiency will be further increased by the way bureaucrats are usually paid: typically, their wages do not contain any (monetary) incentives that reward innovative or simply efficient behavior. Mueller (2003, 363) summarizes: "Thus, the public bureau is characterized by weak external control on efficiency and weak internal incentives." Based on these observations, various approaches modelling the behavior of bureaucrats have been published: The one by Niskanen modelled the bureaucrat as a budget-maximizing actor, later ones perceived him as slack-maximizing (Migué and Bélanger 1974) or risk-avoiding (Peltzmann 1973; Mueller 2003, ch. 16 contains an excellent overview). All models have in common that they explain why it is unlikely to expect a bureau to provide the optimal amount of the public good in an efficient manner.

Given that more standard monitoring mechanisms are unlikely to function – or are even impossible to use -, it seems natural to ask whether SAIs can fill at least part of the gap. The role of the U.K.'s National Audit Office (NAO) can serve as an example for the role of most SAIs, although their mandates as well as the addressees of their reports differ widely. The role of the NAO is "to audit the accounts of all government departments and agencies as well as a wide range of other public bodies, and report to Parliament on the economy, efficiency and effectiveness with which government bodies have used public money." The website of the NAO continues: "Our work saves the taxpayer millions of pounds every year." (both cites from: http://www.nao.org.uk/). That this statement could be true seems at least very plausible: in many highly developed countries, state consumption is around half the entire national product. It seems highly likely that the efficiency of the public sector has a potentially huge impact on growth and per capita income.

What could possible transmission mechanisms between SAIs and our economic variables look like? The first group of economic variables we are interested in are fiscal policy variables. If SAIs have the competence to evaluate both the

efficiency and the effectiveness with which government bodies use public money, this could make bureaucrats spend less money which could mean that government expenditure should, *c.p.*, be lower. Similarly, the auditing activities of SAIs could also result in lower tax revenues: because government bodies work more effectively, fewer resources are needed to provide the same amount of public goods which would, *c.p.*, mean that lower tax rates are necessary. Thirdly, and again closely related, SAIs could lead to lower government deficits.

The second group of dependent variables we are interested in reflect government efficiency. If it is part of the SAIs mandate to audit the efficiency of many government bodies, then – supposing the effectiveness of SAIs – this should be reflected in general indicators for government efficiency. A bit more specifically, the auditing activity of SAIs could make it more risky, and hence less advantageous, for bureaucrats to engage in corrupt behavior. If this were the case, (perceived) rates of corruption should be lower.

The third, and last, group of dependent variables to be used here are proxies of productivity. One way to view public goods is to claim that their provision is a precondition for the production of private goods. The more efficient the provision of public goods, the higher can both labor and total factor productivity hence expected to be.

These conjectures paint a fairly optimistic view of the possibility of SAIs not only to monitor the behavior of many government bodies but also to contribute substantially to the improvement of their behavior. Such an optimistic view might, however, be premature.

Before simply assuming auditors to be effective monitors, a look at their incentives is in order. The relationship between the population and the administration to be audited can be thought of as a triple principal-agent problem: on the first level, the population is the principal and the legislature its agent. On the second level, the legislature assumes the role of principal and the executive becomes the agent. On the third level, the executive can be interpreted as the principal, and the bureaucracy as its agent. On three levels, there is asymmetric information between the principal and the agent, and the principal is incapable of monitoring the agent costlessly. Following the lines of this conceptualization, a SAI can be conceived of as a monitoring organization for three different principals; namely (1) the electorate, (2) the legislature and (3) the executive. We will see later that most SAIs can be thought of as monitoring organizations of either the legislature or the executive.

No matter what model is chosen, creating a SAI as a monitor always creates an additional principal-agent problem: that between the respective principal and the SAI as its agent. Streim (1994, 184) observes: "Thus the question arises whether there are incentives that motivate the chief auditor and his staff to work hard – that means to deliver audit services of high quality." Creating yet another auditor to monitor the behavior of the SAI leads to an infinite regress.

In order to predict the possible consequences of SAIs, it seems thus important to inquire into the incentives of the respective principals to set up an effective monitoring organization and the incentives of the respective SAI to deliver results. Regarding the incentives of the potential principals, two observations: (1) the population at large is not able to overcome the collective action problem which makes it, hence, highly unlikely that it will ever become more than a "virtual" principal. (2) It might be mistaken to assume that legislatures have incentives to control executives as many pork barrel projects require the cooperation with the executive. This argument might be less convincing with regard to presidential - as opposed to parliamentary - systems as legislature and executive are less closely intertwined in presidential systems. The form of government thus needs to be included as a control variable.

This leads us directly to consider the incentives of the SAIs. From principal-agent theory, we know that multitasking has predictable consequences: the agency that is assigned multiple tasks will spend most of its efforts in monitoring those tasks that are comparatively easy to monitor. With regard to empirics, this means that one should control for the breadth of monitoring tasks allocated to a SAI. Other considerations dealing with SAI incentives include the following: (i) Are monitors awarded monetary incentives? If they receive, e.g. a fixed portion of public expenditure saved due to their monitoring, this would create incentives to concentrate on the most important inefficiencies. (ii) Do monitors have 'competitors', i.e. other actors who have an own interest in uncovering government inefficiencies? These could be NGOs, the media and so forth. Given that there are such competitors, we would predict the SAIs to be more active, *c.p.*.

In an early analysis of SAIs, Frey (1994) was very critical concerning their incentives and suggested the following arguments:

- Members of SAIs are bureaucrats themselves; they would hence take recourse to bureaucratic solutions such as even more regulation. Making other bureaus follow bureaucratic rules more closely might even increase inefficiency and constitute an additional source of waste.

- Members of SAIs tend to neglect non-budgetary costs of bureaucratic behavior. The concept of opportunity costs seems to be unknown among accountants.
- Members of SAIs report with great precision on minor deviations from administrative rationality; while often not reporting on major inefficiencies.

A major German public finance text book (Blankart 2006, 540ff.) is even more critical with regard to SAIs:

- Members of SAIs can comment upon the behavior of government bodies but do not have any formal veto power to block expenses.
- The burden of proof concerning inefficient bureaucratic conduct is with the SAIs. As they are outsiders, inefficiency will be difficult to prove.
- Members of SAIs are bureaucrats themselves; SAIs are monopolists of their own, since competition between SAIs seems to be a rare exception.
- Most publications of SAIs report on wasteful behavior that occurred months or even years ago; the public is usually not very interested in this kind of information.
- Members of SAIs might enjoy independence, but they do not have any judicial power in the sense of being able to formally sanction wasteful behavior of bureaucrats.

Adequate incentives of the SAI are, however, only a necessary but not a sufficient condition of its having effects on the three groups of variables described above. Additionally, the executive needs incentives to improve its effectiveness as a consequence of audit reports. Here again, we encounter more than one reason to be skeptical:

Most SAIs audit the behavior of government bodies only *ex post facto.* Hence, the question arises whether government bodies have any incentives to change their behavior in future periods as a consequence of SAI reports. This will supposedly depend on a number of factors, some of them inherent in the institutional details of the SAIs, others rather on the institutional environment. If SAI reports are, for example, not published, their likelihood of inducing bureaucrats to change their behavior appears rather low. Suppose that SAI reports are regularly published. Their impact could then depend on the degree of press freedom realized in a given

country. Published reports that are nowhere reported in the mass media are conjectured to be less likely to induce change in the behavior of bureaucrats.[3]

Based on these arguments, it would be hard to believe that SAIs should have many discernible positive economic effects. Yet, this critique might be premature: to the degree that institutions have been created to which these arguments do not apply, they might have positive effects. E.g., in some jurisdictions, members of SAIs do not only enjoy independence but also have the power to impose sanctions on inefficient bureaucrats. In the next section of the paper, we will, hence, have a closer look at institutional details that are potentially relevant.

3 The Possible Relevance of Institutional Details

The theoretical section has shown that SAIs might very well not have any substantial economic consequences. If they were to have any, these would hinge on institutional details. Some potentially relevant institutional details are, hence, discussed in this section.

(1) The *mandate* of the SAI could have a significant effect on the behavior of its representatives. Three types are conventionally distinguished, namely (i) financial auditing in which the auditor assesses the accuracy and fairness of the financial statements of a government body; (ii) compliance auditing in which the auditor checks whether both revenue and spending have been authorized as well as spent on approved purposes, and (iii) performance or value-for-money auditing in which the auditor checks whether the citizens have received value for their money. Within value-for-money auditing, one can distinguish between evaluations of efficiency and effectiveness (World Bank 2001).

Other aspects of the mandate of SAIs include the following:

- Is the mandate confined to *ex post* auditing or does it also extend to *ex ante* auditing? At least theoretically, the mandate to audit *ex ante* could prevent many cases from wasteful spending entirely. If not only an *ex ante* vote but an *ex ante* approval by the SAI is required, this amounts to giving it veto powers.

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3 It could be argued that the realized degree of freedom of the press is a substitute, rather than a complement to effective SAIs: if government ineffectiveness was not revealed by SAIs, the press could fill in instead. We hypothesize that it is more adequate to view the two as complementary because SAIs often enjoy special investigation rights that the press does not enjoy. On the other hand, for a wide publication of SAI reports, the press appears crucial.

- Once the SAI has produced its report, is the report made available in its entirety to the public? The likelihood that government bodies will change their behavior due to public scrutiny seems to be higher than if the report remains a secret government document.
- Does the SAI have the competence to sanction representatives of government bodies for an improper handling of public money? The mere threat of being sanctioned could be sufficient to induce proper behavior.

(2) The *independence* of the SAI could also be crucial. Independence, broadly conceived, would include independence both from the addressee of the report as well as from the government body to be audited. The degree of independence will be determined by the following institutional details:

- Authority to receive all information deemed necessary for a proper audit; if auditors cannot get the information they believe they need to audit a government body properly, this will decrease the quality of their report.
- Term length of auditors; possibility/necessity to renew their terms; the longer their term, the more independent auditors would, *c.p.*, appear to be.[4] If their terms need renewal, this would, on the other hand, make them more likely to cater to the interests of those who have the power to re-appoint them.
- Appointment procedure of auditors; if government members can choose auditors who are old buddies, effective auditing appears to be less likely.
- Provisions for removal of auditors; if government members who dislike the findings of SAIs can easily get rid off them, this would be inimical to their independence – and the effectiveness of their reports.
- Remuneration of auditors; this will determine the quality of staff the SAI is able to attract.
- Budget of SAI; this will determine the effectiveness as possibilities to receive training in more advanced methods, to keep up with recent literature etc. all depend on an adequate budget of the SAI.
- Mandate and terms of independence guaranteed constitutionally? The constitution is usually more difficult to change than ordinary law. Constitutional guarantees should, hence, make the promised independence of auditors more credible.

(3) The *institutional environment* of SAIs might play an important role, too. Take, e.g., the case in which reports of the SAI are published but press freedom is low

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4 But beware, the argument can easily be turned around: if we encounter a lazy bureaucrat, secure and life-long tenure could make him even lazier.

such that the press is not free to publish the insights freely. Should the SAI have identified cases in which government bodies did not spend public money properly and the SAI does not have the competence to sanction wrong-doers itself, factually independent prosecutors as well as factually independent courts seem to be a precondition for the SAI's report to have any effects. Further potentially important aspects include:

- is the state a federal state with more than a single SAI? Two effects of having more than one SAI appear plausible: on the one hand, a certain degree of competition between the SAIs could be the result. This should, hence, increase the quality of their reports. On the other hand, a variant of the volunteer's dilemma could also dominate: if the members of SAIs are assumed not to derive any utility from working, they might hope that other SAIs might move first and audit a certain government body.
- Over the last number of years, a number of institutions and organizations have been created in many states that seem to complement SAIs. Freedom of Information Acts can increase the transparency of the bureaucracy, regulatory impact assessment is a different route towards ascertaining benefits and costs of regulatory measures, ombudspersons can be an alternative entry of citizens into having the adequacy of administrative behavior checked, Anti-Corruption Agencies can, if successful, reduce the degree of corruption present in government bodies etc. It appears likely that the presence of such organizations could be complementary to SAIs. Their presence is, hence, expected to improve economic outcomes.
- The literature has been proposing competition between state auditors and private auditors. The underlying rationale is, of course, to give state auditors incentives to do a good job.
- Finally, civil society organizations might be instrumental in getting the message of the SAI reports across: active NGOs who aim at improving the efficiency of the public sector might play an important role here.

The possible relevance of the institutional environment reminds us that it might not be the existence of SAIs in isolation that matters but SAIs in conjunction with other institutions or organizations. To the degree that reliable information is available on the aspects just proposed, these will have to be taken into account into the estimation approach.

These are quite a few criteria. If they could be combined arbitrarily, the number of possible organizational structures would be immense. A straightforward question thus is whether there are any typical patterns, combinations of characteristics that

appear time and again. This is, indeed, the case. The literature on SAIs generally stresses the existence of three different models of auditing (World Bank 2001, more details in Department for International Development 2004): (1) the Napoleonic system, (2) the Westminster System, and (3) the board system.

In the Napoleonic or Judicial Model, the SAI is part of the judiciary, hence independent from both legislature and executive. The Court of Accounts has the competence to impose penalties where illegal transactions are found. Wrongdoers are usually held personally liable and imposed with penalties. Since the Court members are judges, they usually enjoy unlimited terms (until a fixed retirement age). In some countries such as Italy, Portugal and Brazil, the SAI has also an *ex ante* control function. Since the primary focus is on legal issues, questions of efficiency and effectiveness play often only a minor role. The lack of parliamentary involvement can result in little public scrutiny and debate (DFID 2004).

In the Westminster Model, the SAI reports to a Public Accounts Committee (PAC), which issues a report of its own to which the government needs to respond. Traditionally, the chairperson of the PAC is an opposition member. The staff usually have a financial background, they are often accountants and auditors. The focus in this model is much more on financial aspects than in the Napoleonic Model.

The Collegiate or Board Model is similar to the Westminster model in that Parliament is its main addressee. The main difference is that it is not headed by a single person but by a board (that may, in turn, have its own chairperson). This can be both an advantage and a disadvantage: the outcome of its work is not so much dependent on a single person, on the other hand, the collegiate structure can make decision making cumbersome and slow.

The Napoleonic Model is most frequently applied in countries with a French legal origin, the Westminster Model in countries with a common law legal origin. There is, however, no perfect fit between the two: both Chile and Peru that are conventionally grouped to have a French legal origin, follow the Westminster Model.

4 Data Description and Estimation Approach

The estimation approach used is straightforward and follows directly from the theoretical part. We are interested in estimating the dependent variable Y that can stand for (i) fiscal policy, (ii) government effectiveness or (iii) economic

productivity of a country. The vector M is made up of a number of standard variables conventionally used to explain Y. The variable SAI is our measure of Supreme Audit Institutions and the Z vector is composed of a number of control variables that can be both economic as well as institutional.

$$Y_i = a_i + ßM_i + ?SAI_i + dZ_i + e_i$$

For the dependent variable Y, we largely draw on the data used by Persson and Tabellini (2003). In order to capture the effects of institutions on fiscal policy, the following variables are used:

- Central government spending (social security included) as a percentage of GDP (CGEXP);[5]
- The size of the budget surplus of the central government as a percentage of GDP (SPL).

To operationalize for government effectiveness, we rely on the following indicators:

- The average of the Corruption Perception Index as produced by Transparency International for the years 2000 to 2004 (recoded such that 0 stands for perfectly clean and 10 for highly corrupt; CPI0004);[6]
- A cluster of the governance indicators produced by Kaufmann et al. (2002) from the World Bank called government effectiveness. It is to combine perceptions of quality of public service provision, the quality of a country's bureaucracy, the competence of civil servants, and their independence from political pressures (GOVEF).

Finally, the variable used for total factor productivity is an updated version of the one presented by Hall and Jones (1999; LOGA). Their calculations were for 1988, we recalculated them for the year 2000.[7] The M-vector changes subject to the specific dependent variable. This is why we describe the vector in conjunction with the specific tests.

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5 Alternatively, we also checked the effect on Total Government Expenditure. This does not change the result.

6 In this case, we also used the variable GRAFT as proposed by Kaufman et al..

7 A more extensive description of how the recalculation was done can be found in Blume and Voigt 2004.

To produce the variables contained in the SAI vector, we draw on two different data sets. The first relies on a survey on Budget Practices and Procedures that was carried out by the World Bank in conjunction with the OECD in 2003. One part of this survey dealt with external audit systems. Answers are available for up to 44 countries, most of them OECD members but also countries from Latin America (Argentina, Bolivia, Chile, Peru, Uruguay), Central and Eastern Europe (Slovenia), the Middle East and Northern Africa (Algeria, Jordan, Morocco), Africa (Kenya, South Africa), and Asia (Indonesia). The other source is a survey carried out by INTOSAI among member organizations in the first half of the 90ies which contains up to 60 countries. The countries coded are a lot more heterogeneous in terms of per capita income than those covered in the World Bank/OECD survey (see table 1 for descriptive statistics and appendix 2 for a list of all countries contained in either of the two surveys, for which the data from Persson and Tabellini 2003 was also available). Since the two surveys cover different countries, similar sizes in the estimated coefficients can already be interpreted as a kind of robustness test.

The answers to the questions of the World Bank/OECD survey were coded and turned into five indicators for various aspects of SAIs. Each of the five variables can take on values between 0 and 1 where greater values indicate a broader mandate or a higher degree of independence. The coding of the variables is documented in more detail in appendix 1, appendix 2 contains the variable values for all countries.

The first variable deals with the independence of SAIs (and is henceforth referred to as *IND*): Does a formal external audit of governments exist at all (the country was coded 0 if that was not the case) and if yes, does it report to the legislature or the executive? Coding relied on the hypothesis that both independence and distance from the executive (as opposed to the legislature) was desirable. This variable gives first hints concerning the *de jure* independence of SAIs.

The second variable focuses on the *mandate* of SAIs (*MAND*). The questionnaire contained four potentially complementary answers plus the option to specify additional aspects of the mandate (attestation of financial accountability of individual agencies; attestation of financial accountability of the government as a whole; audit of financial systems, internal control, and audit functions; mandate covering performance as well as financial compliance). The coding was based on the hypothesis that the more encompassing the mandate, the better. For every option ticked, the country received a score of 0.2.

The third variable is concerned with another aspect of the mandate, namely the question to what degree the recommendations of the SAI are implemented. If no system of keeping track of the implementation record existed, this country was coded 0. If there was a fully fledged tracking system, the country was coded 1. Two intermediate options were, accordingly, coded 0.33 and 0.67 (*TRAC*).

The institutional arrangements (*ARR*) for securing the independence of SAIs are reflected in variable four. All countries have clear legal foundations for their SAIs. In a little less than half of the participating countries, the independence of their SAI is established by law, in a little more than half of them, it is established in the constitution.

The next variable asks how the subjects of audits are determined (*SUBJ*). The questionnaire offered, again, four answers that are not mutually exclusive (legislative request, internally determined, executive request, by request from the public or other civil society actor). An open, fifth, option could also be ticked. Again, every option ticked gained the country 0.2 for a maximum of 1.

The survey conducted by INTOSAI contained almost one hundred questions. In order to reduce the number of potentially relevant explanatory variables, a factor analysis was carried out which produced two principle components with an eigenvalue of 4 and greater. These two components alone explain almost one third of the variance in the original data. The variable with the highest factor loading on the first principle component is a dummy variable that takes on the value 1 if the agency is at least partially organized like a court (and is, hence, grouped as "Napoleonic") and 0 otherwise. We call it *MOD* further on. The variable with the highest factor loading on the second principle component is a measure of the human resources that the agency can rely on, namely the number of employees per 100 000 inhabitants. Based on the assumption that factual independence presupposes manpower this variable is called *FIND* further on. The other variables in the INTOSAI data set did not produce any significant results beyond those based on the World Bank / OECD survey and are not reported here.[8]

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8 This is also true for two variables of the World Bank / OECD survey itself: namely the issue of whether the findings of SAIs are available to the public, and whether the results are circulated and discussed in Parliament. The results are, however, available upon request.

Table 1: Descriptive Statistics of the 7 SAI Variables*

Variable	Min	Max	Mean	St.-dev.	Source	N
IND	0.25	1.00	0.92	0.18	WB/OECD	32
MAND	0.20	1.00	0.64	0.25	WB/OECD	33
TRAC	0.00	1.00	0.69	0.36	WB/OECD	29
ARR	0.67	1.00	0.85	0.16	WB/OECD	32
SUBJ	0.20	1.00	0.45	0.25	WB/OECD	31
FIND	0.00	19.57	4.74	4.99	INTOSAI	39
MOD	0.00	1.00	0.28	0.45	INTOSAI	40

* Confined to those countries that are also included in the dataset provided by Persson and Tabellini 2003.

These indicators are, of course, not ideal as proxies for the criteria named in sections 2 and 3. Some of the criteria are explicitly dealt with (e.g. whether the mandate of the SAI is based on the constitution or on ordinary law, whether the reports of the SAI are publicly available), others remain completely uncovered (e.g. whether the mandate includes value-for-money auditing, whether the SAI can become active ex ante, or whether members of the SAI have the competence to sanction bureaucrats). Yet, these seven indicators cover various relevant aspects of the mandate and the independence of SAIs.[9] A potentially more serious problem regarding these indicators is that they overwhelmingly report the legal situation of the SAIs. To the degree that the factual situation deviates from the legal institutions, this will hence not be sufficiently reflected in the estimates.[10] The only exception is the variable capturing the human resource endowment of SAIs, which is, however, only one of a number of potentially relevant aspects.

We now turn to discuss a number of control variables. Their inclusion is also an attempt to recognize the potential relevance of the institutional environment as discussed in the last section. There, it was argued that the publication of audit reports might remain without effects, if there is no free press that could widely disseminate the findings of these reports. The variable used for press freedom is taken from Freedom House here and higher values indicate a lower degree of

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9 It is noteworthy that only the bivariate correlations between *ARR* and *SUBJ* as well as between *MOD* and *SUBJ* are significant on the ten percent level (r = -0.401; -0.447). All other bivariate correlations turn out to be insignificant. This is why we refrain from presenting an overall index containing all the single variables here. We did create such an indicator which does, however, not lead to more significant results than the ones presented here.

10 In a study dealing with the effects of judicial independence on economic growth, it turned out that *de jure* judicial independence was largely insignificant for explaining growth, whereas *de facto* judicial independence was highly significant (both statistically and economically) as well as very robust (Feld and Voigt 2003).

press freedom. It is plausible to assume that SAIs will only have significant economic effects given a high level of press freedom. This will be taken into account by including an interaction effect between the SAI variable and press freedom.

Suppose, however, that the report of the SAI is published and its contents widely disseminated by a free press. Whether the bureaucrats have incentives to change their behavior will *inter alia* depend on the likelihood that they will be sanctioned by members of the government. This likelihood will, in turn, depend on the probability that voters will vote governments that do not strive to increase bureaucratic efficiency out of office. One possibly relevant factor could be the intensity of competition for office. The higher its intensity, the more likely it seems that audit reports will provoke efficiency enhancing effects. The variable "intensity of party competition" is taken from the Database of Political Institutions (Beck et al. 2000, FRAC). Alternatively, we propose to control for the degree of democracy realized in a country. Polity IV offers an autocracy/democracy measure that can take on values between –10 (complete autocracy) to +10 (complete democracy). The prediction is that higher degrees of democracy make it more likely that SAIs will have significant economic effects. Hence, interaction terms need to be estimated.

Further, federal states often have more than one SAI, which could lead to competition between them (and strengthen the expected impact) but also to the volunteers' dilemma (and weaken the expected impact). No clear-cut prediction concerning the expected sign is, hence, possible and we propose to let the data speak.

A related variable is the degree of independence that both the courts and the prosecutors enjoy. Suppose that a SAI report points out a number of examples for the illegal behavior by bureaucrats. It seems straightforward to assume that these will be prosecuted and sanctioned if found guilty. This reasoning presupposes, however, both independent prosecutors and independent judges. From previous research (Feld and Voigt 2003, Voigt et al. 2006) we know, however, that this cannot be taken for granted. Hence, both *de facto* JI and *de facto* PI are included as control variables. Additionally, both variables are interacted with our indicators for SAIs.

5 Estimation Results

The relevance of SAIs for Government Expenditure

Following Persson and Tabellini (2003), the M-vector used to explain variation in central government expenditure is made up of (1) per capita income in log form for the period between 1992 and 1998 (LYP), (2) the openness of a country measured as the sum of exports plus imports of goods and services as a share of GDP (TRADE), (3) the proportion of the population over the age of 65 (PROP65), and (4) an average of political rights and civil liberties (with lower values indicating better situations) (GASTIL). These four variables "explain" already half of the variation in central government expenditure. In columns (2) through (8), seven variables proxying for various institutional and organizational aspects of SAIs are added to the M-vector. Only one of the seven variables (SUBJ) gets close to reaching conventional levels of significance. But it is not robust to the inclusion of controls via the Z-vector (e.g. judicial independence; not reported in table). The first result to note is that differences in institutional and organizational structures of SAIs do not seem to display a significant impact on central government expenditure.

The relevance of SAIs for Budget Deficits

We now ask whether the institutional structure of SAIs has any discernible consequences for the size of the budget surplus or deficit. The M-vector is slightly modified now. Here, the openness variable is dropped and a dummy-variable for OECD-membership is introduced instead. The model only explains some 25 percent of the variation in budget deficits and the significance of the single variables fluctuates substantially across equations. Regarding the SAI-variables, the indicator for the mandate of the SAI is significant on the 5 percent level. However, it has an – unexpected – negative sign indicating that higher values of the mandate variable are correlated with lower levels of budget surplus (or, equivalently, with higher levels of budget deficit).

Table 2: SAIs and Central Government Expenditures (OLS Regressions)[11]

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	WBOECD	WBOECD	WBOECD	WBOECD	WBOECD	WBOECD	INTOSAI	INTOSAI	INTOSAI
LYP	-3.349 (1.061)	-4.338 (1.018)	-2.649 (0.727)	-5.263 (1466)	-3.368 (0.993)	-6.514(*) (2.014)	-4.089(*) (1.912)	-4.959* (2.192)	-4.027(*) (1.836)
TRADE	0.164** (3.643)	0.156** (3.404)	0.162** (3.414)	0.137* (2.626)	0.178** (3.199)	0.151** (3.202)	0.031 (1.145)	0.043 (1.519)	0.029 (1.014)
PROP65	2.322** (4.936)	2.250** (4.278)	2.253** (4.765)	2.534** (5.033)	2.436** (4.212)	2.203** (4.219)	1.535** (3.869)	1.262** (3.062)	1.541** (3.779)
GASTIL	1.795 (1.109)	1.023 (0.493)	1.934 (1.187)	1.426 (0.855)	2.701 (1.082)	0.323 (0.186)	-2.609(*) (1.737)	-4174* (2.263)	-2.518 (1.572)
IND		4.832 (0.703)							
MAND			-3.439 (0.520)						
TRAC				1.662 (0.439)					
ARR					-3.031 (0.323)				
SUBJ						-9.079 (1.714)			
FIND								-0.372 (1.535)	
MOD									-0.474 (0.170)
Constant	23.473	30.755	20.019	40.271	22.652	61.255	55.622	69.899	55.101
$\overline{R}^2$	0.661	0.631	0.655	0.638	0.649	0.641	0.489	0.491	0.474
SER	6.527	6.840	6.592	6.773	6.709	6.592	7.029	6.812	7.129
JB	2.234	1.501	1.957	1.585	1.593	0.765	1.113	0.896	1.061
N	33	31	33	29	32	31	40	39	40

The numbers in parentheses are the absolute values of the estimated t-statistics, based on the White heteroscedasticity-consistent standard errors. '**', '*' or '(*)' show that the estimated parameter is significantly different from zero on the 1, 5, or 10 percent level. SER is the standard error of the regression, and JB the value of the Jarque-Bera-test on normality of the residuals.

11 Remember that columns 1 through 6 on the one hand, and 7 through 9 on the other represent two largely different samples. Since none of the SAI variables reaches a conventional significance level, we refrain from adjusting the number of observations across columns. This can already be interpreted as a somewhat unusual robustness test of our results.

Table 3: SAIs and Budget Surplus (OLS Regressions)

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	WBOECD	WBOECD	WBOECD	WBOECD	WBOECD	WBOECD	INTOSAI	INTOSAI	INTOSAI
LYP	1.649 (1.415)	1.851 (1.198)	3.250* (2.379)	1.480 (1.100)	1.644 (1.401)	2.173 (1.376)	3.374* (2.295)	3.379* (2.262)	3.334* (2.390)
PROP65	-0.339(*) (1.950)	-0.289 (1.529)	-0.378* (2.383)	-0.355(*) (1.991)	-0.353(*) (1732)	-0.290 (1.397)	-0.271 (1.575)	-0.189 (0.981)	-0.216 (1.119)
GASTIL	-1.540(*) (1.719)	-1.195 (1.183)	-1.550(*) (1.937)	-1.414 (1.444)	-1.640 (1.601)	-1.354 (1.094)	1.183 (1.199)	1.613 (1.451)	1.324 (1.361)
OECD	-3.262(*) (1.835)	-3.030 (1.589)	-5.023* (2.602)	-2.506 (1.160)	-3.261(*) (1.845)	-3.483(*) (1.809)	-2.102 (1.089)	-1.638 (0.753)	-2.166 (1.147)
IND		-1.427 (0.728)							
MAND			-4.094* (2.296)						
TRAC				0.082 (0.063)					
ARR					0.673 (0.221)				
SUBJ						1.543 (0.553)			
FIND								0.126 (0.934)	
MOD									-1.670 (1.317)
Constant	-9.209	-11.119	-19.570	-8.276	-9.404	-15.431	-31.433	-33.902	-31.486
$\overline{R}^2$	0.133	0.017	0.238	0.008	0.101	0.078	0.264	0.255	0.283
SER	2.333	2.414	2.187	2.549	2.375	2.434	3.252	3.236	3.209
JB	0.679	0.326	2.419	0.722	0.586	0.487	0.261	0.012	0.758
N	32	30	32	28	32	30	39	38	39

The numbers in parentheses are the absolute values of the estimated t-statistics, based on the White heteroscedasticity-consistent standard errors. '**', '*' or '(*)' show that the estimated parameter is significantly different from zero on the 1, 5, or 10 percent level. SER is the standard error of the regression, and JB the value of the Jarque-Bera-test on normality of the residuals.

In sum, the institutional and organizational structure of SAIs does not seem to have a significant impact either on government expenditure or on budget deficits. We hence move on to deal with two indicators of government efficiency and begin with the impact of SAIs on (perceived) corruption levels.

The relevance of SAIs for (perceived) corruption

There is no objective way to measure the degree of corruption present in an economy. Ever since 1995, the NGO Transparency International has distributed an indicator for perceived corruption levels that is, itself, based on up to twelve different surveys. The so-called "Corruption Perception Index" is widely used in empirical work. Here, it is the average of the CPI for the years 2000 until 2004

that is used as the dependent variable. The indicator is recoded such that lower levels indicate lower levels of corruption.

Previous studies have identified per capita income (LYP), a mixture of both political freedom and civil liberties (GASTIL), a low degree in the ethno-linguistic fractionalization of the population (AVELF), and the protestant share of the population (PROT80) as the main driving forces explaining the absence of corruption (see, e.g., Treisman 2000). These variables constitute the M-vector and explain already some three quarters of the observed variation in corruption rates across countries. None of the variables based on the World Bank / OECD-survey has any significant impact here. In contrast, one of the two variables taken from the INTOSAI is quite significant: if a SAI is modeled like a court, the country is more likely to suffer from higher levels of corruption than if the country's SAI is not modeled like a court. This result is both very significant and quite robust since it never vanishes when adding the available control variables.[12]

This result is not in line with our intuitions. According to them, the primary focus of the Court model on issues of legality should lead to lower rather than higher corruption.[13] One plausible explanation is the relative lack of parliamentary involvement in the auditing process under the court model (DFID 2004, 8). The relative seclusion of the process makes it less transparent for the public, its results will often not lead to public outcry, and the expected utility of being corrupt is high as the likelihood or being sanctioned by a furious public is correspondingly low.

This result can be interpreted as a first sign that the organizational structure of SAIs does have some significance on the variables that we are interested in. SAIs with a court-like structure are significantly less likely to go along with lower perceived levels of corruption than SAIs organized along different lines.

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12 It also remains robust after controlling for legal origins. This is noteworthy because there is a positive correlation between French legal origins and the court model of SAIs (r = 0.365).

13 Correspondingly, one should expect court model SAIs to be rather weak on the efficiency/effectiveness side. The results on budget surplus offer some confirmation as the dummy MOD has a negative sign and is significant on the ten percent level in a one-sided test. Countries following the court model seem, hence, to have chosen the worst of two worlds.

Table 4: SAIs and (Perceived) Corruption Levels (OLS Regressions)

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	WBOECD	WBOECD	WBOECD	WBOECD	WBOECD	WBOECD	INTOSAI	INTOSAI	INTOSAI
LYP	-1.485** (3.913)	-1582** (4520)	-1.506** (3.700)	-1.316* (2.620)	-1.470** (3.561)	-1.332** (2.865)	-1.741** (3.732)	-1.864** (3.533)	-1.636** (3.967)
GASTIL	0.915** (3.842)	0.875** (3.257)	0.895** (3.618)	1.027** (3.600)	0.868** (2.955)	1.019** (3.367)	0.152 (0.407)	0.146 (0.395)	0.115 (0.360)
AVELF	-0.939 (0.938)	-1.633(*) (1.914)	-0.923 (0.889)	-0.779 (0.683)	-0.938 (0.937)	-1.237 (0.969)	-0.816 (1.206)	-0.770 (1.147)	0.030 (0.044)
PROT80	-0.025** (4.720)	-0.028** (4.616)	-0.026** (4.327)	-0.023** (3.711)	-0.026** (4.741)	-0.025** (4.211)	-0.029** (4.513)	-0.026** (4.109)	-0.025** (5.392)
IND		-0.847 (1.302)							
MAND			0.153 (0.202)						
TRAC				-0.260 (0.356)					
ARR					0.340 (0.253)				
SUBJ						0.526 (0.412)			
FIND								-0.025 (0.698)	
MOD									1.178** (3.060)
Constant	16.233	18.238	16.366	14.502	15.857	14.435	19.768	20.811	18.254
$\overline{R}^2$	0.782	0.816	0.774	0.772	0.767	0.755	0.780	0.804	0.822
SER	1.062	1.007	1.081	1.102	1.086	1.107	1.154	1.095	1.040
JB	0.088	0.366	0.091	0.124	0.021	0.022	0.667	2.197	0.337
N	33	31	33	29	32	31	35	34	35

The numbers in parentheses are the absolute values of the estimated t-statistics, based on the White heteroscedasticity-consistent standard errors. '**', '*' or '(*)' show that the estimated parameter is significantly different from zero on the 1, 5, or 10 percent level. SER is the standard error of the regression, and JB the value of the Jarque-Bera-test on normality of the residuals.

As yet another robustness check we turn away from the CPI and draw on the indicator on government effectiveness instead.

The relevance of SAIs for Government Effectiveness

This more encompassing variable has been constructed by Kaufmann and his co-authors (Kaufmann et al. 2002). It combines perceptions of the quality of public service provision, the quality of the bureaucracy, the competence of civil servants, the independence of the civil service from political pressures, and the credibility of the government's commitment to policies. As the dependent variable is similar to the one just used (the Corruption Perception Index), we also start out by using an identical M-Vector.

Including the seven SAI variables one by one leads to a similar picture as with corruption perception levels: again, none of the five variables from the World Bank / OECD survey turns out to have any significant effect on the level of government effectiveness. This is also the case for the FIND variable from the INTOSAI survey. One reason for using this alternative measure of (the absence of) corruption was to check the robustness of the result obtained in table 4, namely that the model according to which SAIs are structured might be robustly correlated with corruption. As in the previous estimate, the variable MOD is again significant, but only on the ten percent level. As lower values correspond to better outcomes in the government effectiveness indicator, the coefficient means that countries whose SAI is structured along the court model are expected to do worse in terms of government effectiveness. However, as soon as the factual independence of the judiciary (taken from Voigt et al. 2006) is controlled for, MOD is not significant any more.

The relevance of SAIs for Total Factor Productivity

We now move on to the last dependent variable, namely total factor productivity. We include into the M-vector a forecasted trade share which is based on a gravity model (FRANKROM because it is based on the approach of Frankel and Romer), the distance from the equator (LATITUDE), the proportion of the population who speaks English as their first language (ENGFRAC) and a dummy variable for federally organized states (FEDERAL). These four variables already "explain" about a third of the variation in total factor productivity. Adding the seven variables proxying for various features of SAIs reveals that none of them reaches conventional significance levels.

Table 5: SAIs and Government Efficiency (OLS Regressions)

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	WBOECD	WBOECD	WBOECD	WBOECD	WBOECD	WBOECD	INTOSAI	INTOSAI	INTOSAI
LYP	-0.822** (3.878)	-0.878** (4.308)	-0.858** (3.558)	-0.771** (3.114)	-0.782** (3.361)	-0.687** (3.045)	-1.603** (5.586)	-1.671** (5.457)	-1.558** (5.991)
GASTIL	0.803** (6.663)	0.788** (5.745)	0.770** (5.598)	0.764** (5.613)	0.830** (5.250)	0.833** (4.780)	0.167 (0.701)	0.137 (0.568)	0.140 (0.622)
AVELF	0.383 (0.735)	0.069 (0.142)	0.410 (0.735)	0.615 (1.081)	0.335 (0.614)	0.408 (0.616)	-1.019 (1.629)	-0.980 (1.594)	-0.588 (0.836)
PROT80	-0.006* (2.121)	-0.007* (2.292)	-0.006* (2.246)	-0.007* (2.280)	-0.006(*) (1.951)	-0.007** (2.850)	-0.002 (0.758)	-0.002 (0.494)	-0.001 (0.250)
IND		-0.316 (1.184)							
MAND			0.259 (0.541)						
TRAC				0.043 (0.115)					
ARR					-0.466 (0.606)				
SUBJ						0.367 (0.570)			
FIND								-0.021 (1.124)	
MOD									0.559(*) (1.746)
Constant	9.241	10.188	9.466	8.822	9.210	7.874	17.419	18.121	16.774
$\overline{R}^2$	0.803	0.824	0.798	0.805	0.795	0.801	0.779	0.786	0.792
SER	0.605	0.590	0.613	0.620	0.604	0.596	0.834	0.832	0.811
JB	4.533	5.362(*)	3.603	4.995	5.570(*)	8.161*	1.619	2.977	1.559
N	33	31	33	29	32	31	39	38	39

The numbers in parentheses are the absolute values of the estimated t-statistics, based on the White heteroscedasticity-consistent standard errors. '**', '*' or '(*)' show that the estimated parameter is significantly different from zero on the 1, 5, or 10 percent level. SER is the standard error of the regression, and JB the value of the Jarque-Bera-test on normality of the residuals.

Table 6: SAIs and Total Factor Productivity (OLS Regressions)

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	WBOECD	WBOECD	WBOECD	WBOECD	WBOECD	WBOECD	INTOSAI	INTOSAI	INTOSAI
FRANKROM	0.094* (2.057)	0.094(*) (1.938)	0.103* (2.275)	0.086 (1.560)	0.098(*) (1.964)	0.089 (1.538)	0.071 (1.172)	0.101(*) (1.727)	0.114* (2.189)
LATITUDE	0.003** (3.121)	0.003** (2.941)	0.003** (3.068)	0.003* (2.520)	0.003** (3.210)	0.002* (2.501)	0.004** (2.849)	0.003* (2.328)	0.003* (2.605)
ENGFRAC	0.293** (3.724)	0.280** (3.087)	0.297** (3.261)	0.315** (3.588)	0.320** (2.859)	0.286** (3.087)	0.413** (3.901)	0.449** (4.463)	0.503** (5.250)
FEDERAL	0.097(*) (1.682)	0.106 (1.675)	0.148* (2.252)	0.128* (2.198)	0.102 (1.541)	0.101 (1.554)	0.171* (2.318)	0.193* (2.626)	0.211** (3.296)
IND		0.154 (0.870)							
MAND			-0.172 (1.246)						
TRAC				-0.114 (0.641)					
ARR					0.125 (0.430)				
SUBJ						-0.112 (0.538)			
FIND								-0.004 (0.581)	
MOD									0.152 (1.546)
Constant	0.333	0.190	0.406	0.403	0.208	0.400	0.227	0.157	0.061
$\overline{R}^2$	0.344	0.306	0.348	0.362	0.326	0.327	0.325	0.381	0.361
SER	0.187	0.194	0.187	0.190	0.190	0.187	0.228	0.209	0.222
JB	0.357	0.556	0.508	0.137	1.294	0.542	1.649	0.552	0.338
N	31	29	31	27	31	29	39	38	39

The numbers in parentheses are the absolute values of the estimated t-statistics, based on the White heteroscedasticity-consistent standard errors. '**', '*' or '(*)' show that the estimated parameter is significantly different from zero on the 1, 5, or 10 percent level. SER is the standard error of the regression, and JB the value of the Jarque-Bera-test on normality of the residuals.

6 Conclusions and Outlook

This is the first study that analyzes the effects of Supreme Audit Institutions on a cross country basis. Two different surveys (one from the World Bank /OECD, the other one from INTOSAI) are used to generate a number of variables that proxy for various aspects of the institutional and organizational structure of SAIs. Almost throughout, these variables are not significant for explaining differences in (i) fiscal policy, (ii) government effectiveness and (iii) total factor productivity. There is, however, one noteworthy exception: Perceived corruption levels, an aspect of government effectiveness, is significantly higher in countries that follow

a court model in the organization of their SAIs, an organizational structure often also called the Napoleonic model.

These results are quite disillusioning. Does this imply that SAIs are indeed supremely superfluous as the title of this paper asks? Unfortunately, we are not really able to tell as we have delved into analyzing the (economically relevant) effects of different institutional and organizational structures of SAIs. To answer the more basic question, we would have to contrast countries that do not have any audit institutions with those that do. Unfortunately, this is impossible as basically all states do have some form of audit organization. Demanding the immediate dissolution of SAIs based on these results would, hence, be premature.

The INTOSAI survey contains some 100 questions. A lot of institutional variation has thus been recognized in the various variables. Since the results of both surveys are very similar, we dare to call them robust although it would, of course, be a desideratum for further studies to increase the number of countries covered by the surveys. Although 53 countries are covered by the two surveys used here, a broader coverage is certainly desirable, especially since the two surveys cover a number of fairly small states and, in turn, do not cover some of the larger countries.

We conjecture that another aspect might be important to look at more closely in the future: most of the variables are based on the *de jure* foundations of SAIs. In a number of former studies (e.g. Feld and Voigt 2003 on the judiciary, Voigt, Feld, van Aaken 2006 on prosecutors), one key result was that *de jure* independence was often not significant whereas the factual independence of the respective agencies was. Unfortunately, the *de facto* indicator here used (*FIND*) has a rather slim basis as it is exclusively founded on the number of employees of an SAI per 100 000 inhabitants. If an extension of this study seems desirable at all, a broader *de facto* indicator would be a desideratum.

Appendix 1: Coding of the World Bank/OECD-variables

How would external audit arrengements be described?	**IND**
There is no formal external audit of government accounts	0,00
The audit authority reports only within the executive (e.g., to the President)	0,25
The National Audit Body is a legislative body	0,50
A National Audit Body, independent of the executive, audits government accounts and reports to the executive.	0,75
A National Audit Body, independent of the executive, audits government accounts and reports to the legislature.	1,00
What mandate does the National Audit Body have?	**MAND***
Attestation of financial accountability of individual agencies	0,20
Attestation of the financial accountability of the government as a whole	0,20
Audit of financial systems, internal control, and audit functions	0,20
A mandate covering performance as well as financial compliance	0,20
Other, please specify	0,20
Is there a system to track audit recommendations once issued?	**TRAC**
No	0,00
Yes, but the reports are kept internally	0,33
Yes, an annual report is issued of recommendations	0,67
Yes, keeps track of implementation of recommendations	1,00
How is the independence of the National Audit Body from the executive established?	**ARR**
It is not clearly set out in law	0,00
It is set out in administrative regulation	0,33
It is established in law	0,67
It is established in the constitution	1,00
How are the subjects of audits determined?	**SUBJ***
By legislative branch request	0,20
Internally determined	0,20
By executive branch request	0,20
By request from the public or other civil society actor	0,20
Other, please specify	0,20
* Every option ticked gained the country 0.20 for a maximum of 1.00	

Appendix 2: List of Countries

Country	World Bank/OECD-Survey					INTOSAI	
	IND	MAND	TRAC	ARR	SUBJ	FIND	MOD
Argentina	0,50	0,80		1,00	0,40		
Australia	1,00	0,80	1,00	0,67	0,60		
Austria	1,00	0,80	0,67	0,67	0,40	4,05	0,00
Belgium	1,00	0,40	0,33	1,00	0,40		
Bolivia	0,25	0,20	1,00	0,67	1,00		
Brazil						1,16	1,00
Canada	1,00	1,00	1,00	0,67	0,40	2,11	0,00
Chile		0,60	0,33	1,00	0,80		
Colombia	1,00	0,80	0,67	1,00			
Costa Rica						17,18	0,00
Cyprus						14,31	0,00
Czech Rep.	1,00	0,40	0,00	0,67	0,80		
Denmark	0,50	0,80	1,00	0,67	0,60	5,15	0,00
El Salvador						19,57	1,00
Fiji						7,90	0,00
Finland	1,00	0,80	0,67	1,00	0,20	1,74	0,00
France	1,00	0,20	1,00	1,00	0,20	1,59	1,00
Gambia						5,04	0,00
Germany	1,00	0,80	0,67	1,00	0,20	0,85	0,00
Greece						8,36	1,00
Hungary	1,00	0,80	1,00	1,00	0,60	3,33	0,00
Iceland	1,00	0,80	0,00	0,67	0,60	6,32	0,00
Ireland	1,00	0,80	0,33	1,00	0,20	3,55	0,00
Israel	1,00	1,00	0,67	0,67	0,20		
Italy	1,00	0,60	0,00	0,67	0,20		1,00
Japan	1,00	0,20	1,00	1,00	0,40		
Malawi						2,41	0,00
Malaysia						6,92	0,00
Mexico	1,00	0,80	1,00	1,00	0,40		
Namibia						4,90	0,00
Nepal						2,25	0,00
Netherlands	1,00	0,20	1,00	1,00	0,20	2,14	0,00
New Zeland	1,00	0,20	1,00	0,67	0,20	9,81	0,00
Norway	1,00	0,80	0,00	1,00	0,20	10,11	1,00
Pakistan						0,66	0,00
Papua N.G.						2,45	0,00
Philippines						17,11	1,00
Poland						3,76	0,00
Portugal		0,60		0,67	0,60		
Romania						0,11	1,00
Russia						0,10	0,00
Singapor						0,00	0,00
Slovak Rep.	1,00	0,40	1,00		0,80		
South Africa	1,00	0,60	0,67	1,00	0,80	2,73	0,00
South Korea	1,00	0,80	1,00	0,67	0,20	1,71	1,00
Spain	1,00	0,60		1,00		1,53	1,00
Sweden	0,75	0,60	0,67	1,00	0,40	5,69	0,00
Switzerland						1,14	0,00
Thailand						3,74	0,00
Turkey	1,00	0,80	1,00	1,00	0,20	0,09	1,00
USA	1,00	1,00	1,00	0,67	0,80	1,96	0,00
UK	1,00	0,60	0,33	0,67	0,20	1,41	0,00
Uruguaya	1,00	0,80		1,00	0,40		

Appendix 3: List of Variables

Variable	***Description***	***Source***
AVELF	Index of ethnolinguistic fractionalization, 1960. Measures probability that two randomly selected people from a given country will not belong to the same ethnolinguistic group	Persson/Tabellini 2003 ; La Porta et al. 1999
CGEXP	Central government spending (social security included) as a percentage of GDP	Persson/Tabellini 2003
CPI0004	Average of the Corruption Perception Index 2000-2004 (recorded such that 0 stands for perfectly clean and 10 for highly corrupt)	Transparency International 2000-2004
DEFACTOJI	Index of 9 variables measuring de facto judicial independence on a scale of 0-1	Feld/Voigt 2003
DEFACTOPI	Index of 6 variables measuring de facto judicial independence on a scale of 0-1	Voigt et al. 2004
ENGFRAC	Fraction of a country's population that speaks English as a native language	Persson/Tabellini 2003; Hall/Jones 1999
FEDERAL.	Dummy variable taking on a value of 1 if country is a federal country, 0 if otherwise	Persson/Tabellini 2003 ; Adserà et al. 2001
FRAC	Intensity of party competition	Beck et al. 2000
FRANKROM	Natural log of the Frankel-Romer forecasted trade share, derived from a gravity model of international trade	Persson/Tabellini 2003
GASTIL	Average of indices for civil liberties and political rights measured on a scale from 1 to 7; 1 representing the highest degree	Persson/Tabellini 2003; Freedom House
GOVEF	Based on a number of survey indicators, this variable is based on responses on the quality of public service provision, the quality of the bureaucracy, the competence of civil servants, the independence of the civil service from political pressures, and the credibility of the government's commitment to policies	Kaufman et al. 2002
LATITUDE	Absolute value of the Hall/Jones 1999 numbers; divided by 90.	Persson/Tabellini 2003
LEGOR	Dummies for legal origins; Coded 1 if legal origin is common law, french law, german law, scandinavian law, coded 0 if legal origin is any other	La Porta et al. 1999
LOGA	Calculation based on Hall/Jones 1999 as described in text; more recent data from Heston et al. 2002	Hall/Jones 1999; Heston et al. 2002
LYP	Natural logarithm of real GDP per capita in constant dollars	Persson/Tabellini 2003
OECD	Dummy variable taking on a value of 1 if country is member of the OECD, 0 if otherwise	Persson/Tabellini 2003
POLITYIV	Autocracy/Democracy measure that can take on values between -10 (complete autocracy) to +10 (complete democracy)	Persson/Tabellini 2003; Polity IV
PRESS	Press freedom on a scale of 0-100 with 0=completely free	Freedom House 2000
PROP65	% of the population over the age of 65 in the total populatiuon	Persson/Tabellini 2003
PROT80	% of the population in a country professing the protestant religion in 1980	Persson/Tabellini 2003; La Porta et al. 1998
SPL	Size of budget surplus of the central government as a percentage of GDP	Persson/Tabellini 2003
TRADE	Sum of exports and imports of goods and services measured as a share of GDP	Heston et al. (2002)

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