



Working paper

# Do ministers matter for audit performance?

Evidence from cabinet appointments during South Africa's 'State of Capture'

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Public finance and service delivery



## Abstract

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Do political leaders affect the audit performance of their organisations? A large literature aims to assess the impact of leaders in both private and public sector settings. Focusing on South Africa, we extend this work to ministers within central government by investigating whether and to what extent they are linked to the audit outcomes of their departments. These audits provide reliable, comparable and objective information on how well an organisation is run. Our empirical approach allows us to separate the role of individual leadership from underlying structural or organisational differences between departments, or time-specific factors. Despite strong audit oversight and institutionalised public financial management practices in South Africa that should serve to minimise individual leader effects, the majority of our empirical tests offer support to the claim that 'ministers matter' for audit performance. Leader effects are even stronger among departments involved in social and basic services than among other departments. These findings are robust across a large number of alternative modelling choices, and do not appear to be attributable to leadership transitions that are deliberately timed or targeted based on audit performance. Our study highlights the importance of political leadership for public financial governance, even in relatively highly institutionalised settings.

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# Acronyms

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<b>ANC</b>	African National Congress
<b>PEFA</b>	Public Expenditure and Financial Accountability
<b>PFMA</b>	Public Finance Management Act
<b>SOE</b>	State-owned enterprise

# 1 Introduction

Do political leaders affect the audit performance of their organisations? Much of the applied literature on public finance has focused on formal procedures and institutions (e.g. World Bank, 1998; Allen et al., 2013; PEFA, 2019). The influence of political leaders on financial governance in the public sector has received less attention. Case studies suggest that individual leaders can have a tremendous impact on institutions, both positive (Okonjo-Iweala, 2012) and negative (Pauw, 2017). While leadership effects are difficult to quantify and compare in systematic ways, a growing literature discusses the impact of leaders, notably on the growth performance of countries (Jones and Olken, 2005; Besley et al., 2011; Easterly and Pennings, 2020) and cities (Yao and Zhang, 2015); the financial performance of firms (e.g. Bertrand and Schoar, 2003; Jarosiewicz and Ross, 2022); and productivity in the public sector (Janke et al., 2020; Fenizia, 2022). Berry and Fowler (2021) analyse the performance of political and business leaders, as well as sports coaches.<sup>1</sup> We extend this work to ministers within central government by investigating whether and to what extent they are linked to the audit outcomes of their departments.

Impartial, credible and comparable measures of the performance of government organisations can be hard to come by. We analyse an underused and perhaps underappreciated source of reliable and objective information on how well an organisation is run: independently produced audits of public bodies (Olken, 2007; Ferraz and Finan, 2008). Public financial management practitioners recognise reliable public finance information in compliance with reporting standards, as certified by audits, as an important precondition – albeit not a sufficient one – for effective service provision and delivery (PEFA, 2019). We draw on the annual audit outcomes produced by the Auditor-General of South Africa for all national government departments between 2006 and 2021. This period includes the presidency of Jacob Zuma (2009–2018), whose tenure is associated with corruption and the ‘capture’ of the state by private and criminal interests. We collect information on the political and administrative leaders of each department. This allows us to test whether individual ministers matter for audit outcomes, while accounting for a range of observable and unobservable covariates. Our approach allows us to separate the role of leadership from other important potential explanations, such as portfolio-inherent factors, or those that vary over time and affect departments in general, such as economic crises, elections or the Covid-19 pandemic.

South Africa offers a rich and important context in which to explore the relationship between individual ministers and departmental audit performance. As we discuss in detail in the

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1 A separate but related literature connects various outcomes directly to specific personal characteristics of leaders or managers, such as their gender or educational background, without focusing on individual leader effects as such. This includes studies of mayors (Avellaneda, 2009), legislators and heads of government (Carnes and Lupu, 2016; Garikipati and Kambhampati, 2021), chief executives of firms (Malmendier et al., 2011; Acemoglu et al., 2022), and public sector managers (Esteve et al., 2013). This is a potential avenue for follow-up research.

following section, the country's audit institution is highly regarded internationally and the legal framework for public financial management provides a strong foundation with clearly assigned responsibilities (Fölscher, 2007). Strong audit oversight and institutionalised public financial management practices are two important reasons to expect ministers *not* to matter, thus making South Africa a hard case for substantial ministerial influence on audit outcomes. Despite this, the majority of our empirical tests offer support to the claim that 'ministers matter' for audit performance. Moreover, our analysis shows that the variation in audit performance related to individual ministers is substantively large and of similar magnitude as the variation associated with portfolio-inherent differences, and far exceeds that of year-specific variation that affects all departments. Hence, these influences are likely to be even stronger in similar yet less institutionalised contexts, where political leadership is less constrained by formal processes and checks and balances.

Our findings add to the academic and applied literature on public finance and, more specifically, audits. There is a growing set of studies that looks at audits as an important source of information about government performance and how this affects corruption (Olken, 2007) and accountability (Ferraz and Finan, 2008; Dunning et al., 2019; Berliner and Wehner, 2022). Yet there has been less emphasis on explaining audit performance itself, which is what we look at in this paper. In doing so, our project assembles a uniquely comprehensive dataset that constitutes a resource for practitioners and other scholars. The analysis also adds a new angle to the broader literature on ministerial appointments and governance. For example, other studies highlight a link between the size of African cabinets and outcomes such as corruption (Wehner and Mills, 2022) and political stability (Arriola, 2009). Our work goes one level deeper, beyond the aggregate size of the cabinet, by analysing the implications for audit outcomes of individual ministerial appointments.

Our study complements research on public financial governance that has assessed government-wide frameworks and procedures (e.g. Hallerberg et al., 2007). This approach is reflected in work by donors and international organisations, which have tended to promote key institutional reforms at the centre of government, such as the introduction of medium-term expenditure frameworks or other 'best practices' (Andrews, 2013). Over the past decade, however, there has been growing recognition of variation among agencies or departments even within the same level of government (e.g. Williams, 2015; Rasul and Rogger, 2018). Diagnostic frameworks such as the Open Budget Index and the Public Expenditure and Financial Accountability (PEFA) framework, which were initially designed to assess national-level institutions, increasingly have been used to assess or compare subnational governments, and particular sectors such as education and health have received more attention (Hadley et al., 2020). By analysing audit outcomes across all central government departments, our project answers the call to build up understanding of the sources of variation in public financial management within countries (Miller et al., 2021: 31).

We proceed as follows. The next section provides background on the appointment of ministers to South Africa's national government. We then discuss how we measure audit performance across

entities and time and attribute these to the relevant minister, and examine the distribution of audit outcomes. Next, we set out our statistical model and present the main results. We discuss how adjusting for entities and years affects our estimates and carry out several robustness checks that respond to potential concerns about the validity of the results. The conclusion sets out implications and paths for further research.

## 2 Governance and ministerial appointments in South Africa

South Africa has a decentralised system of government in which provinces and local authorities play an important role in service delivery (Abedian et al., 1997). For instance, provinces provide public health care and primary and secondary education, while the responsibilities of local governments include provision of essential basic services such as water and electricity. The national government retains important regulatory functions as well as service delivery responsibilities in areas such as social grants, tertiary education, policing, defence, the justice system and prisons, and the oversight of major public enterprises. Our focus in this paper, and as a first step towards a larger project, is on the national level.

In South Africa, the stewardship of public finances by national and provincial departments is governed by the Public Finance Management Act (PFMA) of 1999.<sup>2</sup> Much effort has been invested in creating and adapting this legal framework as part of a wider process of reforming budgetary institutions (Fölscher, 2007). This is reflected in the fact that South Africa has continuously been ranked in the top tier of public finance governance indicators such as the Open Budget Index (International Budget Partnership, 2022). Yet despite comprehensive common rules and procedures, audit reports year after year reveal huge variation in the quality of financial and performance reporting, and in compliance. Evidently, while shared legal frameworks are important, they only go so far. Our data allow us to assess whether and to what extent individual ministers are linked to these outcomes.

At the centre of the process of appointing the most senior national officials is the president of the country. South Africa has a parliamentary system of government in which the president is elected from among the members of the National Assembly in its first sitting after an election (section 86 of the Constitution of 1996). The president is both the head of state and the head of government and has wide-ranging powers to shape the structure of government and to make the most senior appointments. Specifically, the constitution gives the president powers to appoint the deputy president and ministers, to assign their powers and functions, and to dismiss them (section 91). Ministers are the political heads of government departments responsible for broad areas such as welfare, housing and defence.<sup>3</sup> The cabinet, which consists of the president, the deputy president and ministers, also appoints directors-general, who are the administrative counterparts of

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2 Separate legislation applies to local government, the Municipal Finance Management Act (MFMA) of 2003.

3 In this context, the term ‘department’ is synonymous with ‘ministry’.

ministers and are responsible for the day-to-day running of departments or ministries, including public financial management as set out in the PFMA. As the head of the cabinet, the president thus has crucial control over these appointments as well.<sup>4</sup>

One check on the president's power is their own party. The African National Congress (ANC) has been in government since the first democratic elections in 1994. Every five years, in the run-up to elections, the party chooses a president and five other top officials, who jointly constitute its National Executive Committee. The president of the party is also its candidate for president of the country following an election. On two occasions over the past three decades, the party has forced the resignation of an incumbent president – Thabo Mbeki in 2008 and Jacob Zuma 10 years later. These have been extreme events, where a ruling president has lost the political backing of his own party towards the end of his electoral mandate. The two events are also linked to a specific president and his rise and fall from power. One mechanism through which the ANC has been involved in key appointments is through an internal deployment committee that has made 'recommendations' on appointments of its 'cadres' to a wide variety of senior posts, including the cabinet. However, Zuma allegedly often made appointments without informing this committee (Haffajee, 2022).

Zuma was president from 2009 to 2018, though allegations of malfeasance predate his presidency by at least a decade, when he was implicated in corruption during a major arms procurement deal. An investigation led to the conviction of his financial advisor Shabir Shaik, who had made payments to Zuma (Feinstein, 2009). Mbeki subsequently dismissed Zuma as Deputy President in 2005. Zuma then mobilised political support to claim the leadership of the ANC and secured the presidency following the 2009 elections. Throughout this period, he was involved in a series of legal wrangles over corruption charges (Holden and van Vuuren, 2011). Once in power, Zuma diverted state resources on a large scale (Zondo Commission, 2022). One high-profile, if mainly illustrative, case involved his private residence in Nkandla. South Africa's Public Protector (comparable to an ombudsman) found he had spent 241 million rand – more than five times the amount incurred by four previous presidents of the country<sup>5</sup> combined – on 'security upgrades', including an infamous 'fire-pool' (a water reservoir to be used in case of fire) that ended up a swimming pool (Public Protector of South Africa, 2014).

Zuma also forged a thoroughly corrupt relationship with members of the Gupta family, who had significant business interests in the country, and facilitated their systematic looting of public coffers.<sup>6</sup> A key mechanism for this was the appointment of corrupt public officials to key posts that gave them control over state resources and contracts. In 2016, Public Protector Thuli

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4 Moreover, the president controls the configuration of portfolios. He can create, terminate, merge or split portfolios, or shift functions from one department or ministry to another. Unlike in some other countries, such as the United States, these changes do not require legislation.

5 Figure 8 of the report provides estimates of the 2013 equivalent for the private residence security costs for Presidents Botha, de Klerk, Mandela and Mbeki (Public Protector of South Africa, 2014: 188).

6 At the centre of these activities were the three brothers Ajay, Atul and Rajesh 'Tony' Gupta.

Madonsela's 'State of Capture' report considered 'complaints of alleged improper and unethical conduct by the president and other state functionaries relating to alleged improper relationships and involvement of the Gupta family in the removal and appointment of ministers and directors of State Owned Enterprises (SOEs) resulting in improper and possibly corrupt award of state contracts and benefits to the Gupta family's businesses' (Public Protector, 2016: 4).<sup>7</sup> These ultimately gave rise to the Judicial Commission of Inquiry into Allegations of State Capture, Corruption and Fraud in the Public Sector including Organs of State, led by Deputy Chief Justice Raymond Zondo – the 'Zondo Commission'.

One illustration of how Zuma facilitated the 'capture' of the state through ministerial appointments attracted particularly wide attention. On 9 December 2015, Zuma announced the dismissal of respected Finance Minister Nhlanhla Nene and his replacement with an obscure backbencher, Des van Rooyen. Van Rooyen was widely regarded as fundamentally unfit for the job. Virtually unknown to the wider South African public, his previous leadership experience was as mayor of Merafong, a municipality in the West Rand of Gauteng province close to Johannesburg. His tenure concluded before the end of his electoral term when the ANC removed him from office after unrest in the municipality and sent him to parliament instead. At the time of van Rooyen's appointment as Finance Minister, press reports noted that Nene had blocked the unaffordable purchase of aircraft by the state-owned airline. Nene's removal triggered a barrage of criticism including from members of the ANC, church leaders and labour unions, and brought on a sharp deterioration in the exchange rate. At the end of the following weekend, and just in time to avert further market turmoil the next morning, Zuma announced the dismissal of van Rooyen and appointed the country's third finance minister within a week. Temporarily yielding to market and public pressure, he was forced to choose another highly regarded former Finance Minister, Pravin Gordhan (New York Times, 2015). Gordhan was in turn replaced in March 2017 with the more pliable and corrupt Malusi Gigaba. Gigaba had previously served as Minister of Public Enterprises, where he had facilitated abuses of procurement procedures in SOEs to benefit firms linked to the Gupta family (Bhorat et al., 2017; Zondo Commission, 2022).<sup>8</sup>

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7 Although we do not include SOEs in this paper, they also receive audit opinions and are a promising avenue for future research.

8 The Zondo Commission subsequently investigated the attempted capture of the National Treasury by the Guptas (see volume 1 of part IV of its report). It transpired that in October 2015, prior to Zuma's removal of Nene, the Guptas had offered the job of Finance Minister and money to the then Deputy Finance Minister, Mcebisi Jonas, in return for his cooperation in the looting of public funds.

Directors-general constitute a potential counterweight to ministers, as they act as accounting officers in charge of the financial administration of government departments.<sup>9</sup> This means they can refuse to sign off on questionable transactions, although at the risk of conflict with their minister that may shorten their tenure. For instance, when the Minister of Water Affairs, Edna Molewa, awarded an IT contract worth almost half a billion rand to a private company instead of going through the State Information Technology Agency as required, her Director-General, Maxwell Sirenya, refused to sign off on the contract, leading to his suspension (Ndenze, 2015). Other directors-general may be too concerned about their careers to follow this example, and some have been associated with corruption themselves. Among the latter is Richard Seleke, who resigned as Director-General of the Department of Public Enterprises in 2018 after his association with the Gupta family put him in conflict with his minister, Pravin Gordhan. This followed reports of Duduzane Zuma, the president's son, receiving an email with Seleke's CV ahead of his appointment to the post (Quintal, 2018). Such conflicts have contributed to instability in the tenure of the country's most senior civil servants (Merten, 2022). Where directors-general serve in an acting capacity pending a permanent appointment, their ability to challenge a minister over financial decisions may be weakened further. Hence, in assessing how ministers affect the performance of their departments, we must check that any findings are also robust to accounting for directors-general and their status.

This background provides the setting for our study of the link between ministerial appointments and the audit performance of South African government departments. The period we examine overlaps with Zuma's presidency, when presidential powers were used as a tool of corruption, including at the ministerial level. While the Auditor-General's office remained highly independent during this time, the influence of Zuma's regime affected other guardians of the public finances – not just key positions in the National Treasury but also at the level of directors-general. It is strongly suggestive of an environment in which ministers were encouraged to bypass or even actively weaken compliance with financial management standards assessed through the audit process. The following sections discuss our data and empirical approach.

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9 In this paper, we use the terms 'director-general' and 'accounting officer' interchangeably, unless specifically noted otherwise. According to 36(2)(a) of the PFMA, 'the head of a department must be the accounting officer for the department'. At the national level, this is the director-general in almost all cases, or the commissioners for the South African Revenue Service and the South African Police Service (which are excluded from our analysis). Section 36(3) allows officials other than the administrative head of a department to have this role in 'exceptional circumstances' and with Treasury approval. This is rare in our dataset but occurred for instance in relation to some budget votes for ministers in The Presidency. Chapter 5 of the PFMA defines the responsibilities of accounting officers in general terms as well as specifically in relation to budgetary control and reporting. Treasury regulations also require all departments to appoint chief financial officers (Fölscher, 2007: 525). However, section 44(2)(d) of the PFMA is clear that any delegation to other officials 'does not divest the accounting officer of the responsibility concerning the exercise of the delegated power or the performance of the assigned duty'. This is different at the municipal level, where chapter 9 of the MFMA directly sets out specific responsibilities of the chief financial officer of a municipality.

### 3 Measuring audit performance

The principal outcome we study is the audit opinion expressed by the Auditor-General on the accounts of a government department. As we explain more fully below, audit opinions incorporate information from three types of audits that judge whether financial statements are a fair presentation of the financial position of the department; compliance with laws and regulations covering financial matters; and the reliability and credibility of performance information for predetermined objectives.<sup>10</sup> This information has been recorded systematically in consolidated reports over the past two decades, and we compiled the available audit opinions for all national government departments for fiscal years 2006–7 to 2020–21. These allow us to distinguish audit performance across five categories, from best to worst, as summarised in Table 1. We also indicate

**Table 1** Audit outcome categories

Audit outcome	Description	Numeric value
Clean	The financial statements are free from material misstatements (in other words, a financially unqualified audit opinion) and there are no material findings on reporting on performance objectives or non-compliance with legislation.	5
Unqualified	The financial statements contain no material misstatements, but findings have been raised on either reporting on predetermined objectives or non-compliance with legislation, or both.	4
Qualified	The financial statements contain material misstatements in specific amounts, or there is insufficient evidence for us to conclude that specific amounts included in the financial statements are not materially misstated.	3
Adverse	The financial statements contain material misstatements that are not confined to specific amounts, or the misstatements represent a substantial portion of the financial statements.	2
Disclaimer	The auditee provided insufficient evidence in the form of documentation on which to base an audit opinion. The lack of sufficient evidence is not confined to specific amounts or represents a substantial portion of the information contained in the financial statements.	1

Note: Clean audits have at times been called ‘unqualified with no findings’, in which case unqualified audits were called ‘unqualified with findings’. Audit outcomes can also be ‘outstanding’, indicating that the audit was not yet finalised (the results are most often filled in subsequently, and listed in the next year’s report from where we source them in such cases). We treat the very small number of such outcomes remaining in our panel as missing values (all are for the last year of the panel in cases that had not yet been filled in).

<sup>10</sup> Section 20 of the Public Audit Act of 2004 requires these types of audits. It also allows for performance audits to assess economy, efficiency and effectiveness in the use of public funds.

the numeric value that we assign to each audit outcome in the analyses below.<sup>11</sup> In addition, the reports contain narrative information and supplementary data (e.g. Auditor-General of South Africa, 2014).

Given the importance of this information for our analysis, can we be sure that these audit outcomes are credible and reliable? One indication is that they are widely cited and relied upon by a wide range of South African media outlets as a key governance indicator (Berliner and Wehner, 2022). Moreover, external assessments consistently rate the Auditor-General of South Africa as one of the world's leading public audit bodies. A recent World Bank analysis of the independence of supreme audit institutions in 118 countries put it in the top category, attesting a 'very high' level of independence (World Bank, 2021: Figure 2). Similarly, the Open Budget Survey of 120 countries – undertaken by the International Budget Partnership, a civil society organisation – gives the South African auditor the maximum score for audit oversight (International Budget Partnership, 2022: Annex F). Previous surveys returned the same score. Taken together, this is very strong evidence that the audits produced by the Auditor-General of South Africa are impartial and of the highest possible quality.

Substantively, a crucial question is what we can and cannot infer from these audit outcomes. An unqualified audit opinion certifies that the financial information is credible, in contrast to a modified audit opinion (qualified, adverse or disclaimed). In the case of qualified audit opinions, where the Auditor-General highlights specific misstatements, only some areas in the financial statements cannot be trusted. Adverse and disclaimed opinions indicate that the information in the financial statement 'can be discarded' as it 'cannot be trusted' (Auditor-General of South Africa, 2018: 70). Material misstatements that lead to a modified opinion are varied (we give examples in the next section). While an unqualified audit opinion is not sufficient to guarantee effective service provision, it is a necessary condition for good financial governance. It also has intrinsic importance, as citizens have a right to know what governments do with their money.

One caveat is that our measure is arguably too generous, as some departments have used the audit process itself to clean up their financial statements. For instance, in its consolidated report on the national and nine provincial governments for the 2017–18 financial year, the Auditor-General notes that only 45% of all auditees submitted financial statements without material misstatements. Of 217 auditees that did not, 119 then corrected the material misstatements the Auditor-General identified. This lifted the final share of auditees with unqualified audit opinions for that year to 75%. Three national departments consistently submitted poor financial statements over a four-year period yet nonetheless obtained unqualified opinions in this way: the Departments of Art and Culture; Labour; and Rural Development and Land Reform (Auditor-General of South Africa, 2018: 69). Moreover, departments can

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11 In a robustness check, we also combine 'clean' and 'unqualified' outcomes to both have numeric value 4. In another, we instead construct an indicator for only 'clean' outcomes and compare these against all others.

use consultants to prepare financial statements in an effort to improve their audit opinion. These practices mean that audit outcomes are more likely to overstate rather than understate the actual quality of financial reporting by departments.

While the audit outcomes in Table 1 are mostly based on audits of financial statements, the distinction between ‘clean’ and ‘unqualified’ incorporates further information about reporting on predetermined objectives and on compliance with legislation. One requirement related to the latter is that auditees have to identify and fully disclose any ‘unauthorised’, ‘irregular’ and ‘fruitless and wasteful’ expenditure, often incurred as a result of non-compliance with legislation.<sup>12</sup> For instance, procurement fraud yields ‘irregular’ expenditure (e.g. Begg, 2022). The 2016–17 audit report noted irregular expenditure ‘caused by weaknesses in supply chain management’ of over 45 billion rand, based on information for two-thirds of auditees. Of this total, 78% were disclosed by the auditee and the remainder detected during the audit, and more than one-third related to previous years. Audits not yet finalised were likely to include significant further amounts in this category (Auditor-General of South Africa, 2017: 95). Since these figures are rarely complete, can include spending for previous years and are not available for all years in our dataset, we instead focus on audit opinions as a more reliable measure.

Reporting on performance is fundamental for tracking service delivery outcomes. The aim of the audit of this information is to determine whether the annual reporting on the achievement of an auditee’s predetermined objectives is useful and reliable, which requires valid, accurate and complete information. For example, in 2019 the Auditor-General considered performance information for district health services related to HIV and Aids, Tuberculosis, and maternal and child health. The national health budget included 20 billion rand for the HIV/Aids sub-programme to provide resources to provinces for testing, treatment and prevention. Accountability relied on a series of performance indicators, for example tracking the number of HIV tests conducted or the number of clients for whom antiretroviral treatment was initiated and sustained. In this case, the Auditor-General ‘could not confirm if the sector had met its targets, as we could not determine the accuracy of the data reported’. The report cites ‘significant deficiencies’ in systems and internal controls that make the reported data unreliable (Auditor-General of South Africa, 2019: 67). This finding contributed to the Department of Health obtaining a ‘financially unqualified’ audit outcome instead of a ‘clean’ one in 2018–19. To partly incorporate findings on compliance and performance reporting, one of our robustness checks focuses specifically on the distinction between ‘clean’ and all other audit outcomes combined.

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12 These terms are defined in the PFMA (section 1), where ‘unauthorised expenditure’ designates overspending or spending not in accordance with the purpose of a vote (the budget of a department) or programme within it; ‘irregular expenditure’ is incurred in contravention of applicable legislation including the PFMA and on procurement; and ‘fruitless and wasteful’ expenditure is spending that was ‘made in vain and would have been avoided had reasonable care been exercised’.

Overall, these audits thus verify key information that is essential for the stewardship of public funds, compliance with key legislation and the achievement of policy objectives. But there are important limitations, which the Auditor-General summarises as follows:<sup>13</sup>

Due to the test nature and other inherent limitations of an audit, together with the inherent limitations of internal control, there is an unavoidable risk that some, even material, misstatements in reported information may not be detected, and the completeness and the accuracy of the information reported are not guaranteed. Due to the focus on specific areas in key legislation, the audit does not provide assurance that all applicable legislation has been complied with. Although possible fraud may be identified during the audit, this is not the main purpose of the audit. The audit does not provide assurance that service delivery has been achieved, only that the annual performance report is useful and reliable.

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13 <https://www.agsa.co.za/AuditInformation/AuditProcess.aspx> [last accessed 14 November 2022].

## 4 Data and descriptive statistics

The audit outcome of a department for a financial year is based on the funding approved at the start of that year. We consulted budget information tabled annually for approval by the National Assembly. The Estimates of National Expenditure set out detailed spending plans that provide the basis for an annual appropriation (or ‘vote’) to each department. We collected the entities listed in each relevant edition of the estimates and associated appropriation acts (which formally authorise the funding). This allows us to track how departmental structures evolve over time, and match each department with the relevant audit outcomes. The estimates also formally state the relevant executive authority (e.g. minister of foreign affairs) as well as the accounting officer (i.e. the relevant director-general in the case of national departments). The latter is the most senior civil servant who accounts for the use of public funds to the Auditor-General and the Standing Committee on Public Accounts in the National Assembly. In some cases, one minister is responsible for more than one department. For example, the Minister of Defence and Military Veterans runs both the Department of Defence as well as the (much smaller) Department of Military Veterans.

While the budget documents provide the formal titles of the political and administrative leaders of the main government entities, they do not give their identity. In fact, there is no unified dataset or repository that tracks in detail when exactly ministers are appointed, moved or fired. Many of these appointments are announced in government press releases, but not always, and access to these may be patchy. We use several sets of sources to establish the individuals in charge. One is the official South Africa Yearbook, published at more or less regular intervals (e.g. Government Communications, 2021). We also consulted national government handbooks published by a private company, as well as official annual reports by departments. One drawback with these sources is that they do not record in detail when individual ministers change. Most detailed is a report by van Onselen (2017) that tracks turnover of ministers and directors-general during Zuma’s presidency, and covers the years 2009 to 2017. Where questions remained, we used ancillary online and media sources, as documented in Appendix 1.

To match audit outcomes with the relevant departments, we must also address several significant restructurings of the national executive.<sup>14</sup> For instance, in 2009 Zuma split the Ministry of Minerals and Energy into separate Ministries of Mining and of Energy (a move which President Cyril Ramaphosa reversed 10 years later). When there are major reconfigurations such as these,

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14 According to Dunleavy and White (2010) there are five types of major changes to the structure of ministries or departments: ‘Mergers’ involve the creation of a new organisational entity from previously separate departments, while ‘demergers’ do the opposite and unbundle (see also Hood et al., 1985). In contrast, ‘start-ups’ consist of the creation of a new ministry to deal with new functional priorities, while ‘terminations’ are closures of ministries due to government abandoning major functions it previously exercised. A fifth category of ‘major acquisitions’ comprises transfers of significant functions between existing ministerial entities.

we count the resulting departments or ministries as new entities. For all restructurings, we used our institutional knowledge to decide what counts as continuity and what warrants separate entities.

We present several descriptive illustrations of the audit outcomes across national departments in our panel (from 2006–7 to 2020–21 financial years) in Figures 1 through 4. In Figure 1, we graph the average audit outcome over time across national departments. We see that audit performance generally improves over time, aside from a large decline after 2014 that reached a temporary low in 2017 and 2018 before increasing again. The decline aligns with Zuma’s second term as president (re-elected in 2014), and the increase comes after Ramaphosa took office as president in 2018.

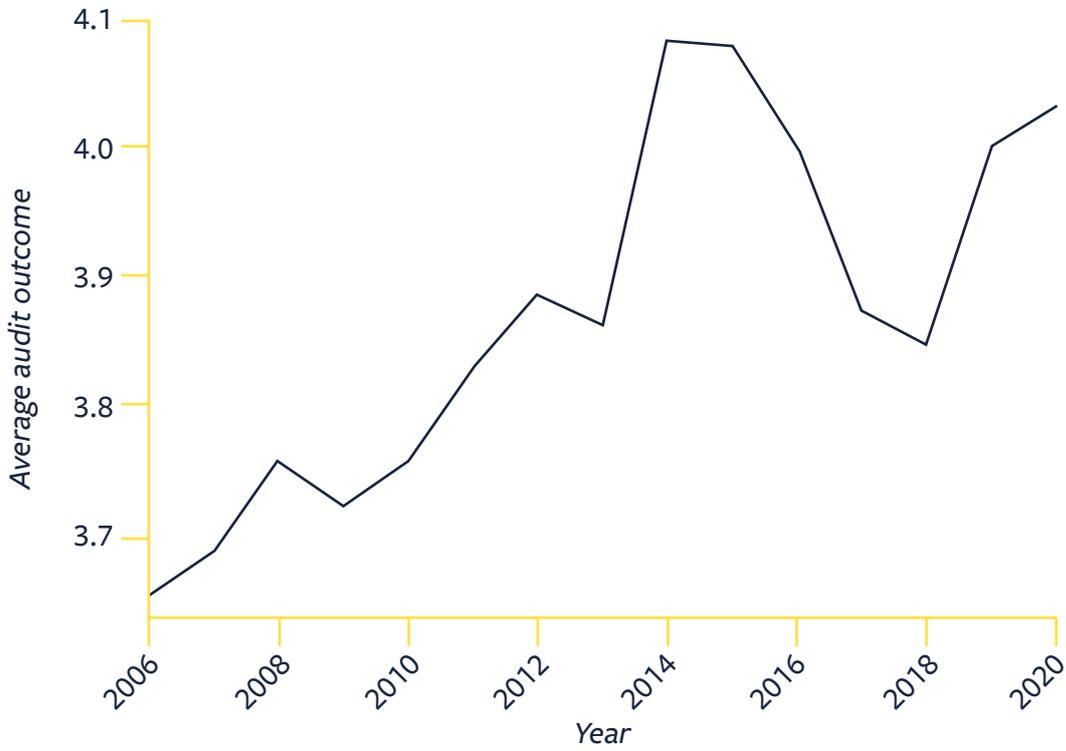
In Figure 2, we separate out those national departments that focus on social and basic services, including Education (later split into Basic Education and Higher Education and Training), Health, Housing (later called Human Settlements), Social Development and Water Affairs. We see in this illustration that departments for social and basic services have greater volatility in their audit performance than other departments. Notably, the declines in audit outcomes in 2017 and 2018 came predominantly from social and basic services departments. Several of the relevant departments are among the larger and more complex votes funded from the National Revenue Fund.

In Figure 3, we use an alluvial plot to illustrate the changes over time in audit outcomes with greater detail, indicating which changes took place between which levels. This figure highlights that a plurality or majority of departments each year obtained unqualified audits, with smaller numbers obtaining better clean audits (also called unqualified without findings), or worse qualified, adverse or disclaimer audit outcomes. Importantly, this figure also shows that improvements over time in audit performance included *both* shifts from qualified (or lower) to unqualified, as well as shifts from unqualified to clean.

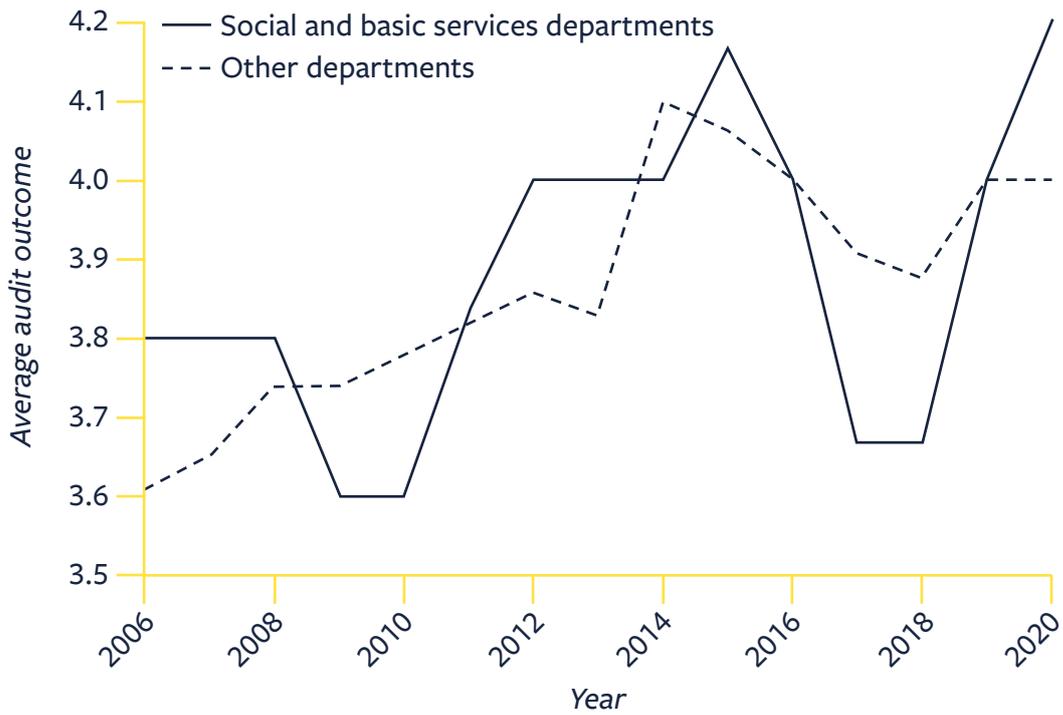
Finally, Figure 4 indicates that there is substantial variation in audit performance both across individual leaders and across departments, in both cases much greater than the overall variation over time. Notably, while the leader-specific averages cover the full range of possible audit outcomes, department-specific averages cover a smaller range. Further, the standard deviation of the leader-specific averages is 0.54, while the standard deviation of the department-specific averages is 0.43. These differences provide strong motivation for testing whether leaders play substantively important roles in shaping audit performance. However, it remains to be seen to what extent this variation is attributable to individual leaders, as opposed to the entities or periods in which they are in post.

Beyond these aggregates, it is useful to consider to what extent the audit outcomes of specific departments suggest a link with individual ministerial appointments. Among the social and basic services departments with a volatile audit performance is the Department of Social Development,

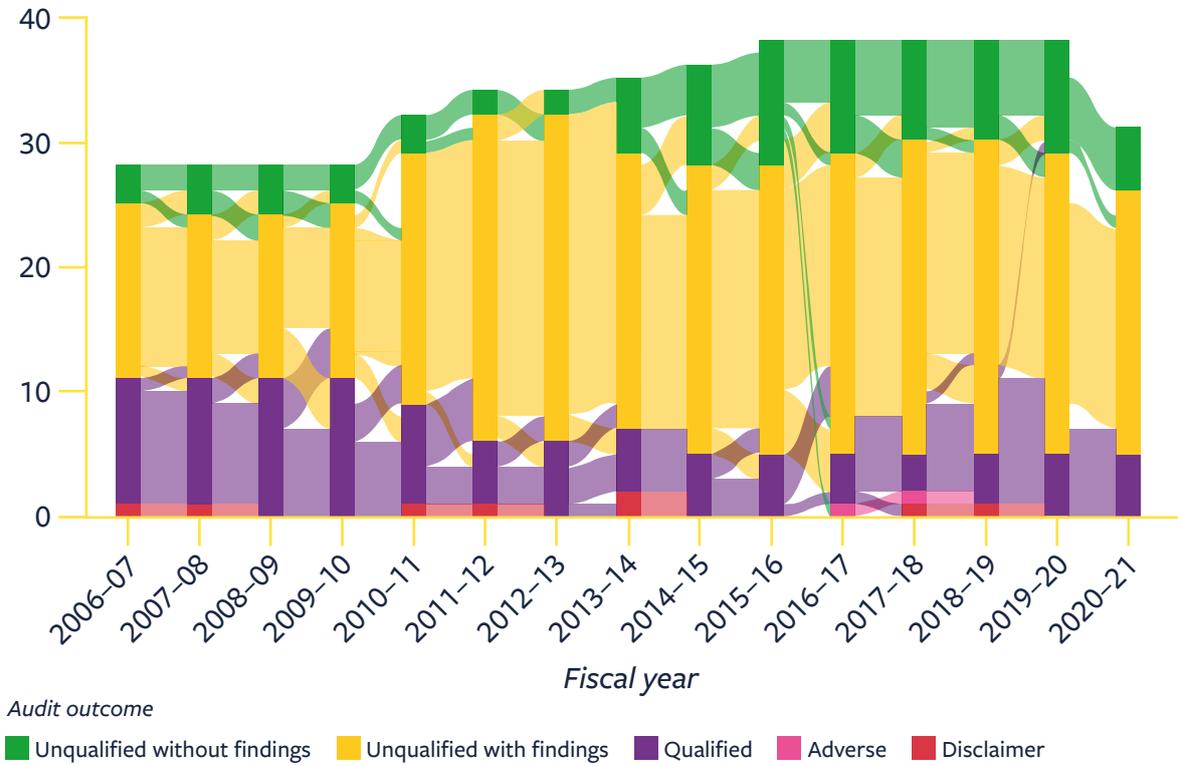
**Figure 1** Average audit outcomes over time across national departments



**Figure 2** Average audit outcomes for departments that focus on social and basic services and for others

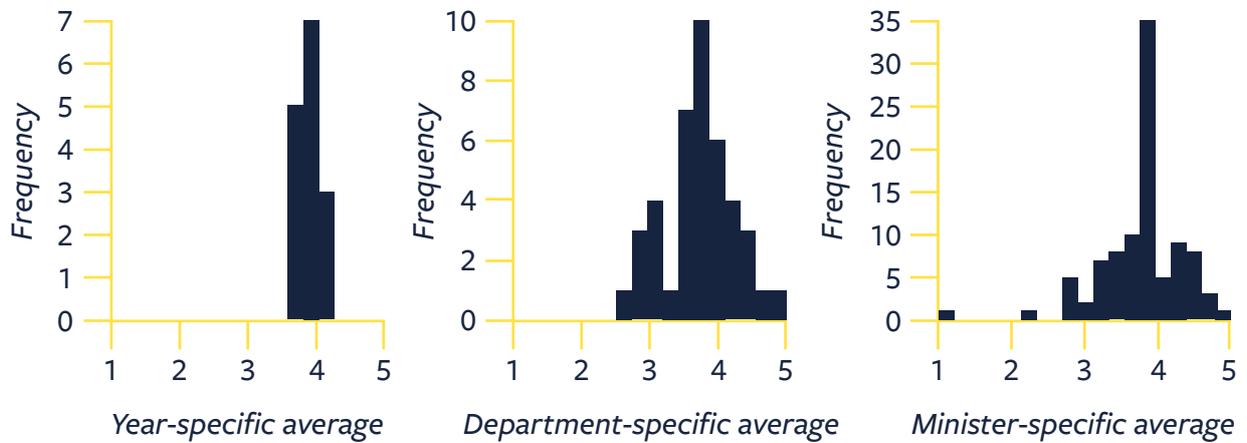


**Figure 3** Alluvial plot showing changes in audit outcome over time



Note: Flows indicate specific changes from one outcome to another.

**Figure 4** Histograms of year-specific, department-specific and minister-specific average audit outcomes; each without adjusting for the others



**Table 2** Audit outcomes of the Department of Social Development

Fiscal year	Minister	Audit opinion	Objectives	Compliance
2006–7	Z. Skweyiya	Unqualified	N/A	N/A
2007–8	Z. Skweyiya	Unqualified	N/A	N/A
2008–9	Z. Skweyiya	Unqualified	–	Findings
2009–10	B. Molewa	Qualified	–	–
2010–11	B. Molewa	Qualified	Findings	Findings
2011–12	B. Dlamini	Unqualified	–	Findings
2012–13	B. Dlamini	Clean	–	–
2013–14	B. Dlamini	Clean	–	–
2014–15	B. Dlamini	Clean	–	–
2015–16	B. Dlamini	Clean	–	–
2016–17	B. Dlamini	Clean	–	–
2017–18	B. Dlamini	Unqualified	–	Findings
2018–19	S. Shabangu	Qualified	–	Findings
2019–20	L. Zulu	Clean	–	–
2020–21	L. Zulu	Clean	–	–

Note: For each fiscal year in our dataset, the table shows the minister in charge of the department for the majority of that fiscal year, the overall audit opinion as reported by the Auditor-General, and whether this included findings on reporting on performance objectives or non-compliance with legislation. N/A indicates the information was not available and a dash indicates the absence of findings in the relevant category.

where audit opinions moved from qualified in 2010–11 to clean two years later, dropping again to unqualified in 2017–18 and qualified the following year. The Department mismanaged a crisis in the payment of social grants during this period and the responsible Minister, Bathabile Dlamini, was later convicted for unlawful and criminal conduct in the course of her duties (Black Sash, 2022). However, looking at the detailed breakdown in Table 2 shows that this service delivery crisis is not associated with striking changes in the audit performance of the department. One reason is that the distribution of payments is handled on its behalf by the South African Social Security Agency, which is audited separately. In cases such as these, where important activities are carried out by entities that are subordinate to a department, the audit outcome of the department may understate the extent of mismanagement associated with a particular minister.

Other instances illustrate clearly how variation in the audit performance of national departments could be linked to ministerial changes. Table 3 shows the equivalent information for the Department of Cooperative Governance. The department achieved solid audit outcomes in the initial two years we cover. Audit performance deteriorated under Minister Sicelo Shiceka, who

was found to have misused public funds to pay for lavish travel and accommodation for purely private purposes (Public Protector of South Africa, 2011). It then improved again until around the time of the appointment of Des van Rooyen, who was moved to this portfolio following Zuma's failed attempt to install him as Minister of Finance. Under van Rooyen's stewardship between 2015 and 2018, the department's audit performance collapsed to a disclaimer. Among several findings of the Auditor-General on the 2017–18 financial statements are inadequate records to document payments to implementing agents for a community work programme intended to provide income security and work experience in areas of high unemployment. For this programme, the auditor also could not verify some participants, noted the absence of accurate timesheets to support payments and detected 'deceased participants' among the beneficiaries (Department of Cooperative Governance, 2018: 123). Departmental audit outcomes improved marginally after van Rooyen's removal and during the Covid-19 pandemic. In the next section, we proceed to a more systematic test of leader effects.

**Table 3** Audit outcomes of the Department of Cooperative Governance

Fiscal year	Minister	Audit opinion	Objectives	Compliance
2006–7	S. Mufamadi	Unqualified	Findings	Findings
2007–8	S. Mufamadi	Unqualified	Findings	Findings
2008–9	S. Shiceka	Qualified	Findings	Findings
2009–10	S. Shiceka	Unqualified	Findings	Findings
2010–11	S. Shiceka	Qualified	Findings	Findings
2011–12	S. Shiceka	Unqualified	Findings	Findings
2012–13	R. Baloyi	Unqualified	Findings	Findings
2013–14	S. Tsenoli	Unqualified	Findings	Findings
2014–15	P. Gordhan	Unqualified	Findings	Findings
2015–16	P. Gordhan	Qualified	Findings	Findings
2016–17	D. van Rooyen	Qualified	Findings	Findings
2017–18	D. van Rooyen	Disclaimer	Findings	Findings
2018–19	Z. Mkhize	Disclaimer	Findings	Findings
2019–20	N. Dlamini-Zuma	Qualified	–	Findings
2020–21	N. Dlamini-Zuma	Qualified	–	Findings

Note: Initially called the Department of Provincial and Local Government, the entity was renamed and then split into two departments, Cooperative Governance and Traditional Affairs. From 2014–15, audit outcomes refer to the Department of Cooperative Governance only. For each fiscal year in our dataset, the table shows the minister in charge of the department for the majority of that fiscal year, the overall audit opinion as reported by the Auditor-General, and whether this included findings on reporting on performance objectives or non-compliance with legislation. A dash indicates the absence of findings in the relevant category.

## 5 Do ministers matter?

Our aim is to empirically assess the extent to which individual leaders make a difference to the quality of financial governance. Do ministers matter, or are audits instead shaped more by organisation-specific factors particular to individual departments, time-specific factors that affect all departments similarly, or other factors entirely? To answer this question, we need an empirical method that can distinguish the variation in audit outcomes explained by individual ministers from the variation explained by these other dimensions.

To accomplish this, we draw on pioneering work by Bertrand and Schoar (2003) examining how individual managers are related to the performance of US corporations. The core of this empirical approach is to compare two different model specifications against each other in order to test which best fits the available data. A first, simpler model contains fixed effects for each entity and time period. Fixed effects can be thought of as a set of separate indicator variables, in this case with one for every single entity and one for every single year. These fixed effects capture variation in the outcome variable that varies systematically from entity to entity and from time period to time period, and that thus might be driven by factors specific to those dimensions, such as entity-to-entity differences in complexity or capacity, or temporal shifts that affect all entities similarly. A second model then adds an additional set of fixed effects in the form of separate indicators for each individual leader, while still including the fixed effects for entity and time period that also feature in the first model. By evaluating how well each of these two models fits the available data, researchers can test how much explanatory ‘added value’ the leader fixed effects contribute, and whether this difference is statistically significant. In this approach, researchers are thus not interested in a single specific coefficient, as in a standard regression analysis, but rather in whether a full set of multiple leader indicators collectively add explanatory power to the model.

Importantly, this approach is most powerful when individual leaders appear across multiple entities. This is because the effect of an individual who only ever leads one entity is difficult to distinguish from other factors that may have shaped the outcome of interest for that same entity at the same time period. When the same individual has led multiple entities, the underlying circumstances at those entities are much more likely to be different from each other, thus making it easier to empirically isolate the effect of the individual themselves. It is worth noting, however, that in many political settings, leaders do not appear across multiple entities. National leaders, for instance – as in the work by Besley et al. (2011) and Easterly and Pennings (2020) – generally only ever lead a single country. Thus, while numerous scholars have sought to study leader effects in political settings, many past studies have not been able to fully leverage the potential of the Bertrand and Schoar (2003) approach for this reason. Our study is able to partially go beyond these limitations by focusing on ministers in national departments, many of whom have indeed led across multiple departments.

The specific implementation of this approach in our setting, however, requires careful consideration of several specific choices about how to treat these leader effects. We discuss how these are incorporated into the model below, before presenting our primary empirical tests.

The main model deployed by Bertrand and Schoar (2003: 1179) exploits information on managers that move across individual firms in their dataset. They regress measures of corporate performance and policy onto a series of year and company fixed effects, time-varying firm-level controls, as well as manager fixed effects. Their sample consists of US firms in which at least one top executive can be observed in at least one other firm. Managers are coded with a fixed effect when they moved between at least two firms and had a minimum length of tenure in each firm of three years (ibid: 1175–1176). They reason that managers who can only be observed in a single firm correspond to period-firm-specific effects (ibid: 1180). In our case, there are multiple ministers for each department or entity in our dataset, but not all of them move across different institutions and some only feature for short periods. Nonetheless, in our sample 50.5% of ministers appear across multiple departments.

Our basic regression model is as follows:

$$\text{Audit}_{i,t} = \theta_i + \gamma_t + \lambda_{\text{Minister}} + \varepsilon_{i,t} \quad (1)$$

In equation 1, the audit outcome for a given fiscal year  $t$  and department  $i$  is regressed onto a set of fixed effects for ministers ( $\lambda_{\text{Minister}}$ ). In our main specification, we require that we observe ministers across at least two departments, and with a minimum of two attributable years in each. We thus follow Bertrand and Schoar (2003) by not estimating individual fixed effects for ministers who are only observed within a single entity, as these might capture department-year-specific shocks rather than any governance effects of individual ministers – but we examine various alternatives in robustness checks. Effectively, those ministers that do not meet our criteria constitute the reference category. Thus, any observation with a leader who did not appear for two or more years across multiple departments (for example, at only one department even if for five years, or at three departments but for only one year each) is instead included in this reference category for the leader fixed effects. However, we vary this approach in several robustness checks.

Although this primary approach assigns separate fixed effects to only 28 out of 95 (29.5%) unique ministers appearing in our national sample of entity-years, these leaders account for 287 out of 615 (46.7%) observations, due to these 28 leaders having held positions for longer periods than others.

The department fixed effects ( $\theta_i$ ) and fiscal year fixed effects ( $\gamma_t$ ) are important to account for when estimating leader effects. We would expect some departments to be much harder to run than others, for instance those that have complex budgets and organisational structures (e.g. Dunleavy, 1991). Department fixed effects account for any such portfolio-inherent challenges. In addition, fiscal year fixed effects capture common shocks that affect all departments equally.

For example, in some years politicians might be distracted by campaigning for elections, or the running of departments may be affected by economic changes, pandemics or shifts in power from one president to another. Our setup thus allows us to estimate minister-specific effects conditional on these entity and time-specific factors that absorb any unobserved time-invariant and portfolio-specific characteristics as well as any government-wide period-specific shocks. For robustness, in some tests we also include fixed effects for accounting officers (typically directors-general, see footnote 9), who formally control the use of public funds, as well as an indicator for entity-years where these officials serve in an acting capacity only.

In order to test whether leaders matter, we follow Bertrand and Schoar (2003) by comparing equation 1 against a benchmark equation that excludes the minister fixed effects ( $\lambda_{Minister}$ ) yet is otherwise identical. An F-test between these two specifications amounts to a test of the joint significance of the leader effects. We also compare adjusted R-square values between the two models.<sup>15</sup>

In Table 4, we show both these comparisons of model fit between equation 1 and the benchmark equation omitting leader fixed effects. Each row in this table presents a separate test between two such models, with the first row presenting our primary approach and subsequent rows presenting results for the sample split by social and basic services versus other departments. This does not include the typical presentation of regression coefficients that is common to most quantitative analyses, because in our case the quantity of interest is the overall test for the joint significance of all leader fixed effects collectively.

Our main test, in the first row of Table 4, is clear that the inclusion of leader fixed effects leads to an improvement in model fit. The formal F-test between the two models shows that the leader fixed effects are jointly statistically significant. The adjusted R-square increases from 0.335 in the benchmark equation to 0.39 in equation 1, an increase of 0.055. Given that our outcome variable only takes five unique values, and given that the addition of more variables to a model itself serves to pull the adjusted R-squared downwards, this is a notable increase in model fit. Our primary approach thus demonstrates that ministers do indeed matter for audit outcomes among national departments over the period we study.

In the next two rows of Table 4, we repeat these comparisons between equation 1 and the benchmark equation omitting leader fixed effects, but with different samples of entities. In order to compare departments that focus on social and basic services with other departments, we split the sample in tests 2 and 3 (considering social and basic services departments as including

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15 We use conventional standard errors in all models. Alternative tests using standard errors clustered by department showed *more* significant F-tests. This is due to the fact that, in our empirical setting, the relatively high number of variables in these models relative to the number of clusters means that clustered standard errors are smaller than conventional standard errors. This reduction in uncertainty is reflected in the overall model fit as well. We thus retain conventional standard errors as the relatively more conservative choice given this setting.

Education, Basic Education, Higher Education and Training, Health, Housing, Human Settlements, Social Development, and Water Affairs). We see statistically significant leader effects in both sub-samples. However, the evidence for leader effects is stronger in the case of departments that focus on social and basic services, with both a more significant F-test and with a larger increase in adjusted R-squared. It is important to note, however, that this approach does not allow for directly testing the statistical significance of this difference itself. Additional robustness checks appear in Table 7 in Appendix 2 and are discussed in a later section of this paper.

**Table 4** Results of F-tests comparing pairs of models with and without leader fixed effects

Test	Sample	N	F-test statistic	F-test p-value	Increase in Adjusted R-sq.
1	Full	504	2.45	0.0001 ***	.055
2	Social and basic services depts.	84	5.73	0.0000 ***	.253
3	Other depts.	420	2.19	0.0006 ***	.055

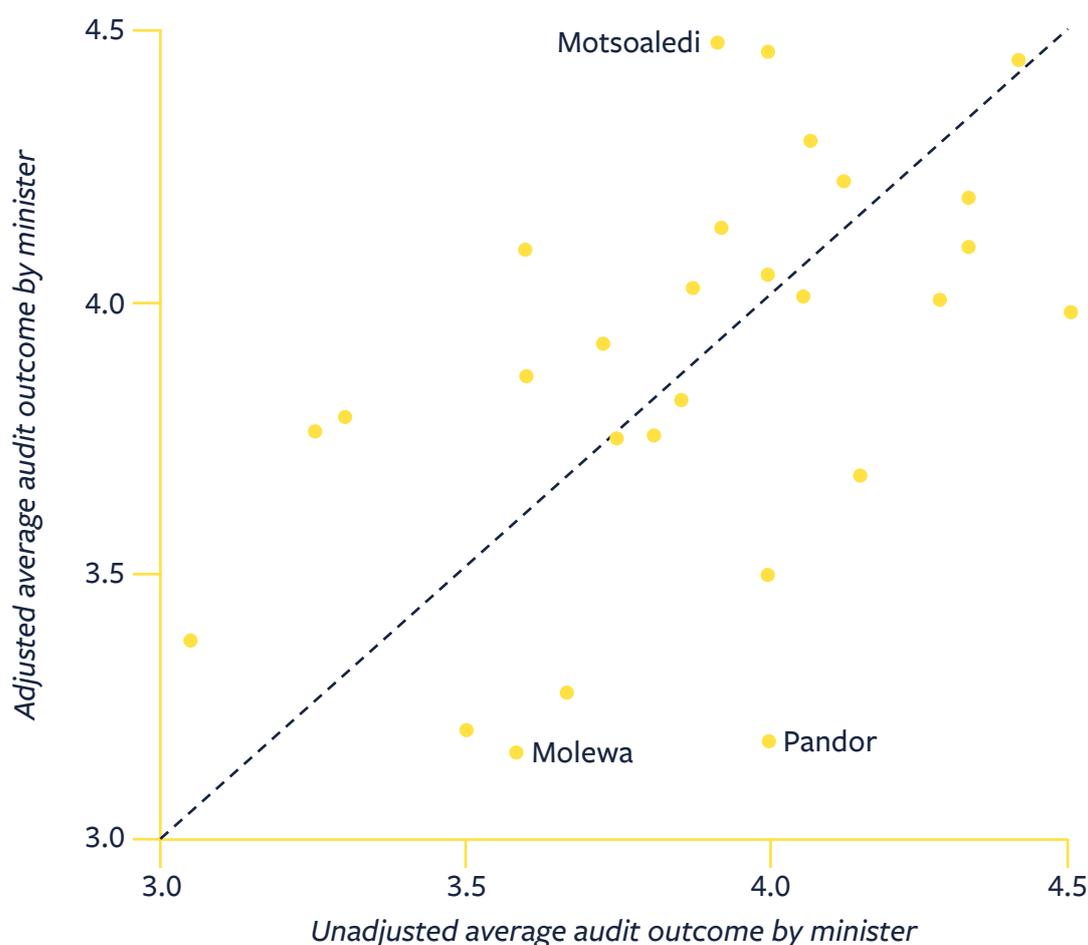
Note: For each test, equation 1 regresses audit outcomes on entity and year fixed effects, while a benchmark equation regresses audit outcomes on entity, year and leader fixed effects. The 'F-test' columns show the test statistics and p-values from F-tests between the two equations. The column 'Increase in Adjusted R-Square' shows the increase in adjusted R-square between the benchmark equation and equation 1. Statistical significance: \*\*\*  $p < 0.001$ , \*\*  $p < 0.01$ , \*  $p < 0.05$

As another way to understand the contributions of individual ministers, we can apply a variance decomposition analysis to the same equation 1 discussed above – regressing audit outcomes on entity, year and individual minister fixed effects. For these purposes, it makes the most sense to include separate indicators for each individual minister, without any exclusions on the basis of how often each appears in the data. We average over variable orderings following the method proposed by Lindeman, Merenda and Gold (1980). Such an analysis shows that minister indicators explain 28.8% of overall variation in audit outcomes, compared to 31.5% of overall variation for entity indicators and 2.6% for year indicators. Put differently, individual minister-to-minister differences explain nearly as much variation (91.3% as much) as do department-to-department differences. Given the substantial differences in size and structure across national departments in South Africa, and the country's relatively highly institutionalised public financial management procedures, this is striking indeed.

## 6 Adjusted leader audit performance

We next explore the insights offered by this empirical approach as to the relative financial management performance of different ministers. We use the minister fixed effects from our primary test of equation 1 (including leader, entity and year fixed effects) to produce ‘adjusted’ average audit outcomes for each of the 28 ministers with an individual fixed effect in our primary empirical approach. We then compare those against the ‘unadjusted’ raw average audit outcomes for those same 28 ministers, in Figure 5. The dashed 45-degree line indicates perfectly equivalent scores, where the minister tended to be responsible for ‘average’ entities at ‘average’ times such that their simple observed average audit outcomes are not adjusted either upwards or downwards on the basis of time or entity effects. It is important to note, however, that these adjusted averages are the result of just one of several possible methodological approaches to

**Figure 5** Scatterplot of unadjusted and adjusted average audit outcomes for each of the 28 leaders with an individual minister fixed effect in our primary model testing equation 1



Note: The dashed 45-degree line indicates perfect equivalence.

defining leader effects (with alternative choices made in robustness checks presented in Table 7 in Appendix 2), and therefore should be considered only as illustrations rather than as definitive statements of the governance contributions of specific individuals.

Several insights are immediately apparent. First, there remains substantial variation in audit performance across individual leaders, even after accounting for entity-specific and year-specific differences. The distance between the highest and lowest individual minister fixed effects is 1.3 – greater than an entire category of audit outcomes on a one-to-five numbered scale. Second, many individual leaders' adjusted averages are markedly higher or lower than their raw unadjusted average audit outcomes. For example, Aaron Motsoaledi has the highest individual fixed effect despite a relatively middling unadjusted average audit outcome score. Meanwhile, Naledi Pandor has one of the lowest individual fixed effects, despite having an unadjusted average audit outcome score that is actually higher than Motsoaledi's (we return to these cases below). These are of course extreme examples, and for most ministers the scores are substantially more similar. Indeed, the correlation between the unadjusted and adjusted averages is 0.52.

Exploring a few examples in detail is also useful to understand how the entity-specific and year-specific fixed effects contribute to these adjusted averages. We focus on three ministers where the individual fixed effect – represented by the adjusted audit score in Figure 5 – is the highest (Motsoaledi) and lowest (Molewa), and where it differs most from the unadjusted average (Pandor). Again, we highlight that these individual-specific estimates reflect just one potential modelling approach out of many alternatives. They are, however, illustrative of how ministers are making a difference to the audit outcomes of the departments that they lead.

The minister with the highest individual fixed effect is Motsoaledi. He was Minister of Health from the 2009–10 financial year to the 2018–19 financial year, and then Minister of Home Affairs beginning in the 2019–20 financial year. The Department of Health obtained unqualified audits in all years he was Minister except for one, a qualified audit for 2010–2011. In two years covered by our panel when he was Minister, the Department of Home Affairs obtained unqualified audits in both years. While the departments overseen by Motsoaledi obtained nearly all unqualified audits, they never obtained clean audits. Why then does he appear as the minister with the highest individual fixed effect? This is primarily because both of these departments saw worse audit performance in most of the years when Motsoaledi was not minister. The Department of Health saw qualified audits in all three years of our panel before he became minister. The Department of Home Affairs saw strikingly poor audits in most years before he became minister, including six qualified audits and three disclaimer audits. Thus, once accounting for these departments' own low averages, Motsoaledi's individual contribution becomes much more positive.

The leader with the lowest individual fixed effect is Molewa. She was Minister of Social Development in 2009–10 and 2010–11 and then Minister of Water and Environmental Affairs. Her department was subsequently split into two separate entities and she remained Minister of Environmental Affairs until her death in 2018. She oversaw a wide range of audit performance at

these departments, including several qualified audits, but also four clean audits and two adverse audits at Environmental Affairs. Notably, both the Department of Social Development and the Department of Environmental Affairs saw clean audits in several years when she was not minister, leading to her adjusted average audit outcome being downweighted.

The leader with the second lowest individual fixed effect is Pandor, who served as minister across five different entities during the period covered by our panel. Across these, audits ranged from a disclaimer at Home Affairs in 2013–14, and qualified audits at International Relations in two years, to clean audits at the Departments of Education and of Science and Technology in five separate years. Why then is her individual fixed effect so low? Both the Departments of Education and of Science and Technology only ever received unqualified or clean audits, thus having high entity fixed effects of their own, meaning that Pandor’s strong performance there receives less ‘credit’. On the other hand, her two years at the Department of International Relations saw two qualified audits. These are downweighted quite strongly, given both that the department received higher audits in many other years (importantly, including early years of the panel when audits elsewhere tended to be poorer), and that they came in 2019–20 and 2020–21, when audits elsewhere tended to be much stronger. Home Affairs, where Pandor was responsible for a disclaimer audit, saw a range of outcomes over time including other disclaimers but also six unqualified audits. It is thus in relation to performance elsewhere in each entity and each year that Pandor’s own ‘leader effect’ on audit outcomes is estimated to be so low.

These examples illustrate the importance of taking into account both department-specific and time-specific differences when assessing individual leader contributions to audit performance.

## 7 Tests for robustness and selection

For our primary tests presented in Table 4, we made one set of justified choices regarding sample, measurement, attribution and the construction of indicators for leader effects. In this section, we show results making alternative choices in these regards, in order to assess the robustness of the finding that ministers matter for audit performance. We also assess concerns over whether the timing of ministerial changes, or the selection of different leaders into different departments, might themselves be shaped by audit performance.

In Table 7 in Appendix 2, we present a series of robustness tests varying such choices. For ease of reference, we first repeat the same tests 1–3 that were presented in Table 4.

Next, we vary how we attribute audit outcomes to leaders. In our primary approach we attribute the audit outcome to the minister in office for the majority of the relevant financial year. However, in tests 4 and 5 we lag the leader indicator by one and two years, respectively. This will capture if the contributions of leaders to the quality of financial management emerges only with some delay. In tests 6 and 7, we conduct placebo tests temporally shifting the leader indicator in the opposite direction with leads of one and two years, respectively. Here we expect *no* significant F-test or substantial increases in model fit, given that future leader identities should not explain past performance. If we did find significant results for these placebo tests, this could suggest that some of the main findings could be artifacts of serial correlation. In tests 8 and 9, we next vary the choice to attribute leadership by the majority of the financial year, instead attributing to the minister in office as of the beginning and end of the financial year, respectively. Across all of these robustness checks except for the two placebo tests, we still see clear evidence of leader effects. For the two placebo tests, we instead see statistically insignificant F-tests, and increases in adjusted R-squares that are substantially smaller in magnitude than in any other test.

Next, we vary our treatment of leaders who appear either only in a single entity, or only for single years. In test 10, we include fixed effects for all leaders, even if they only appeared in a single entity and/or for single years. In test 11, we restrict the sample to include *only* leaders who appeared for multiple years across multiple departments (rather than including the other observations in the sample but simply assigning them to the reference category of leader fixed effects). In test 12, we include leader fixed effects for all leaders who appeared across multiple departments, even if for a single year in one or more. In test 13, we include leader fixed effects for all leaders who were in office for more than a single year (in any given department), even if they only ever appeared in a single department. Finally, in test 14, we restrict the sample to the ‘largest connected set’ of entities that are ‘linked’ by leaders having appeared across multiple among them, following the approach recommended by Abowd et al. (2002). Across all of these choices, we still see clear evidence of leader effects.

In test 15, we use an alternative coding of the audit outcome variable, combining ‘unqualified without findings’ (also called a ‘clean’ audit) and ‘unqualified with findings’ into a single value. In effect, this means we only consider information from financial audits that assess the quality of the financial statements, ignoring results from audits of reporting on predetermined objectives and on compliance with legislation that distinguish the top two categories (see Table 1 and related text). In test 16, we instead dichotomise the outcome variable to an indicator of whether audit outcomes are ‘clean’ versus all other categories. And in test 17, we restrict the sample by omitting all observations with either the highest or lowest audit outcome levels, in case of potential ceiling and floor effects. All three of these tests leave much less variation to be explained, but nonetheless we still see evidence of leader effects across all three.

Finally in tests 18 and 19, we also include additional fixed effects for directors-general in both models being compared. As already noted, directors-general are the accounting officers of a department and have legal responsibility for administration and financial governance under the PFMA. Our earlier examples showed how directors-general could both mediate the impact of a poor minister on financial standards or add to the problems. It is also likely that variations in the experience or skill of a director-general could shape audit outcomes. However, far fewer directors-general than ministers appear across multiple entities – only 12%. As such, we do not construct their fixed effects using the more restrictive approach we use for minister fixed effects. Rather, we test two approaches. First, we assign a separate fixed effect for all directors-general, regardless of how long and across how many departments they appear. Second, we use an alternate version of these fixed effects where we combine any director-general who served for only a single year into a reference category. In both cases, we also include a dummy variable indicator for acting directors-general (the coefficient for which turns out not to be statistically significant). These are particularly demanding tests, as the director-general fixed effects will already account for much of the within-department variation in audit outcome over time. Indeed, in light of this, the increases in R-square from adding minister fixed effects are smaller than in many of the previous tests (excluding the two placebo tests), and the F-tests not as strongly statistically significant. Nonetheless, we still see statistically significant evidence of minister effects even in these two tests, using two alternative versions of director-general fixed effects along with dummy variable indicators for acting directors-general.

We now turn to consider the potential that the selection of particular kinds of leaders into particular kinds of entities might be responsible for the findings we observe. Our primary empirical approach tests for leader effects by comparing models with and without fixed effects for individual leaders, while also including fixed effects for entities and years. One potential inferential threat to this approach would arise through selection effects shaping which leaders became ministers of different departments at different times. Although we account for time-invariant entity differences, it might be the case that higher or worse audit performance is associated with the timing of leadership transitions, or that certain types of leaders are more or less likely to be placed into departments at times of higher or lower audit performance. For example, this might be the case if some individuals tend to be placed into entities achieving

good audit outcomes and then rotated to other entities also achieving good audit outcomes, while other individuals tend to be placed into entities achieving poor audit outcomes and then rotated into other entities also achieving poor audit outcomes. Under such a scenario it might appear that ministers matter, on the basis of these rotation patterns, even if they do not actually have any independent effects of their own. To the extent possible, we test for these possibilities in this section.

We do this in two separate approaches. First, we construct a ‘leader turnover’ indicator that takes values of one when the leader at a department changes from one year to the next. We regress leader turnover (from year  $t$  to year  $t+1$ ) on audit outcome in year  $t$ , with varying combinations of fixed effects based on equation 1. This approach would indicate whether, for example, poor audit performance was associated with a greater likelihood of leader replacement. We use linear probability models to accommodate the large number of fixed effects included in some of these. The results presented in Table 5 show that in none of these models is there any significant association between audit outcome and leader turnover. Neither higher nor lower audit outcomes are associated with turnover in ministers. This offers some additional confirmation of our main findings.

Second, we examine the transfers that do take place among entities in our panel. We focus on instances where an individual becomes minister of an entity in year  $t$  and also appears as minister of another entity in the previous year  $t-1$ . Unfortunately, there are only 70 such instances, limiting the complexity of analyses we can conduct in this setting. Nonetheless, within this sample, we construct a dependent variable capturing the audit outcome obtained by the entity (that the incoming minister joins) in their final year ( $t-1$ ) under the previous minister. We regress this on the final year audit outcome (also as of  $t-1$ ) obtained by the new incoming leader in their previous department (averaged where they previously had responsibility for two entities). This approach would indicate if, for example, leaders who obtained good audits tended to be rotated to under-performing entities to ‘clean up’, or if leaders who obtained poor audits tended

**Table 5** Results of regression models testing for audit outcome effects on leader turnover

	Model 1	Model 2	Model 3	Model 4
	DV: Leader turnover	DV: Leader turnover	DV: Leader turnover	DV: Leader turnover
Audit outcome	-0.0064 (0.0294)	-0.0234 (0.0374)	-0.0219 (0.0302)	-0.0353 (0.0363)
Entity FE		X	X	X
Year FE			X	X
Leader FE				X
R-squared	0.0001	0.0721	0.4410	0.5949
Num. obs.	504	504	504	504

Note: Statistical significance: \*\*\*  $p < 0.001$ , \*\*  $p < 0.01$ , \*  $p < 0.05$ .

to be rotated to high-performing entities for political reasons. Alternatively, this approach would indicate if leaders who obtained good audits tended to be ‘rewarded’ by placement at other high-performing institutions. This would suggest our overall finding in favour of leader effects might be an artifact of selection processes.

In the first model in Table 6, we see a negative and statistically significant coefficient on the previous audit outcome obtained by the incoming minister. This suggests a relationship whereby higher-performing ministers tend to be shifted to lower-performing entities, and/or lower-performing ministers tend to be shifted to higher-performing entities. The difference between these two scenarios is substantively very meaningful. In order to test them separately, we split the ‘previous audit of the incoming minister’ measure into three separate indicators, for a previous audit below unqualified, a previous unqualified audit (which we treat as the reference category), and a previous audit above unqualified. We see a statistically significant coefficient only for the latter of these. This indicates that, among the sample of transfers, ministers obtaining particularly good audits in their previous department tend to be moved to lower-performing entities, whether to ‘clean up’ or, more cynically, to be rewarded with opportunities for greater rents.

However, this should be considered a very tentative finding given the small size of the sample. Indeed, the relationship appears to be driven primarily by just two observations. Nonetheless, this pattern goes against the direction that would suggest the greatest concern that our main finding is an artifact of selection effects. If higher-performing leaders tended to be placed into already higher-performing entities, then we might worry that our main results were biased. However, if higher-performing leaders tend to be transferred into more challenging situations, this might if anything bias against our main finding of leader effects. And indeed, this is what we find among the sample of transfers.

Of course, more complex forms of selection processes could still be possible, but these tests go at least some way towards ensuring that our main findings are not an artifact of transfers that are endogenously timed or targeted. Future research extending these analyses to both provincial-level departmental leaders, and to cross-level transfers between provincial and national levels, will be better able to test more nuanced hypotheses regarding potential selection effects.

**Table 6** Results of regression models testing for audit outcome effects on leader transfers

	<b>Model 1</b>	<b>Model 2</b>
	DV: Previous audit outcome of new dept.	DV: Previous audit outcome of new dept.
Previous audit outcome of incoming Minister	-0.2987 * (0.1404)	
Previous audit < Unqualified		0.2000 (0.2390)
Previous audit > Unqualified		-0.5679 * (0.2509)
R-squared	0.0624	0.0995
Num. obs.	70	70

Note: Statistical significance: \*\*\* p<0.001, \*\* p<0.01, \* p<0.05.

## 8 Conclusions

We examine whether ministers matter for public financial governance, as captured by the audit performance of government departments. This is an important measure, as it indicates whether legislatures and citizens can trust the available information on how government spent public money. Poor-quality financial management can also facilitate corruption and undermine effective service delivery. The magnitude of variation in average audit performance across ministers during the period that we study is substantial and shows individuals are closely linked to the audit performance of their departments. Our statistical tests confirm this even when adjusting for portfolio-inherent differences, as well as trends over time that affect all departments. This finding is very robust and it does not appear that leadership transitions are timed or targeted based on audit performance.

While our analysis focuses on South Africa, we have reasons to believe that this pattern is not limited to this specific setting. The British Treasury model influenced not only South Africa but also many other Commonwealth countries, despite political or constitutional differences (Lienert and Jung, 2004; Lienert, 2007; Pattanayak, 2016). This includes the roles of ministers and accounting officers, the design of supreme audit institutions and their approach to audits, and the accountability process via a public accounts committee. Since the quality of the public financial management framework and the audit process are relatively high in South Africa, we would expect even stronger effects of ministers on audit outcomes in settings with less institutionalised practices, and where ministerial appointments serve as rewards with opportunities for rent extraction (e.g. Wehner and Mills, 2021).

Our analysis raises the possibility that leaders may matter especially for departments that focus on social and basic services, where we highlighted more pronounced volatility in performance as measured by audits. This aspect could be further deepened in follow-up research that extends our analysis to the provincial level. In South Africa's decentralised setting, provincial departments have the main responsibility for service delivery in crucial areas such as primary and secondary education, health care or housing. An extension of our dataset to provincial departments would also increase both the quality and quantity of leader effects, as many politicians move from provincial to national government.<sup>16</sup>

Our study reveals both potential advantages and disadvantages of relying on headline audit opinions to assess organisational performance or even financial governance. In our case,

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16 For instance, former Minister of Mineral Resources Mosebenzi Zwane did not hold any other national cabinet appointments and hence drops out of our set of minister fixed effects. He would be included if our data also covered his earlier period in charge of the agriculture portfolio in the Free State province. Zwane was implicated in Gupta-linked corruption in both roles. He was arrested and charged in 2022 (O'Regan, 2022).

one advantage is that we have consistent and credible information with extensive coverage across entities and time, allowing a statistical test of the role of ministers in the financial management system. In other studies, audit findings serve as a proxy for corruption (e.g. Ferraz and Finan, 2008) or reveal the extent that funding was diverted from intended purposes (Olken, 2007). While some of the audit information produced in South Africa – in particular on irregular expenditure – is strongly suggestive of corruption, the availability and usefulness of this more granular data are limited. In our case, therefore, we cannot be sure that what the audit outcome captures is necessarily linked to corruption, as opposed to poor management, or both. Another limitation relates to our focus on national departments. While this ensures we analyse comparable entities, the locus of corruption may be outside departmental boundaries, for example in other entities under the control of a department (e.g. Borat, 2017).

Despite any such limitations, our analysis highlights the importance of thinking beyond uniform systems, structures and procedures in analysing the performance of public financial management and organisational performance more generally. Good governance depends not only on institutional design or legal frameworks, but also on who is in charge.

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## Appendix 1 Dataset and sources

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Our initial monthly dataset (before being aggregated to annual data for analysis) contains the names of the minister and director-general matched to each entity for each month from fiscal year 2006–7 to 2020–21 (the fiscal year in South Africa is from 1 April to 31 March). We include national departments that had an audit opinion in a given fiscal year. Additionally, we included an indicator showing where the director-general was ‘acting’ rather than a permanent appointment.

The entity variable reflects a common name for a department across relevant years. As described in the main paper, we assessed whether changes to a department warrant treating the restructured entity as a new and separate department. This allows us to ensure consistency for our entity fixed effects, disregarding minor function shifts or a renaming of the department that did not fundamentally affect its structure.

Audit outcomes are from a five-year expenditure review for 2006–7 to 2009–10 and from the annual PFMA audit reports published by the Auditor-General from 2010–11 onwards. If the audit opinion was reported as not finalised in time for a given report, we used the subsequent report, which also provides the previous year’s opinion. In this sense, we do not punish departments for failing to provide timely reports.

The minister, director-general (or accounting officer in a small number of cases where this was not the former), and the ‘acting’ dummy are sourced from the van Onselen report for the period from May 2009 to July 2017, and from a variety of other sources otherwise. We consulted the official annual yearbooks published by the Government Communication and Information System, the National Government Handbooks (a commercial publication), as well as the official annual reports of departments. All of these annual snapshots come with the limitation that they may have gaps in cases of frequent turnovers, especially of directors-general, and they often lack details about the timing of turnovers. For this reason, we also consulted a variety of other sources, including answers to parliamentary questions, departmental press releases, newspaper reports and other internet sources in our attempts to pin down the exact timing of turnovers to the extent possible. In general, we assigned higher priority to official sources over newspaper reports or publicly available CVs. We scrutinised official documents for discrepancies and, in exceptional circumstances, made adjustments, notably when multiple other sources indicated an ‘acting’ director-general was in charge in-between permanent appointments.

The resulting dataset has few gaps, especially where there was a high turnover of ‘acting’ directors-general. The van Onselen report lists some as ‘unknown’, indicating the difficulty of tracking their turnover in highly volatile departments. In rare exceptions we diverge from the van Onselen report if multiple other sources suggested the information might not be entirely

accurate. Despite careful consideration and triangulation of information, minor inconsistencies may remain, especially for chaotic periods in some departments. We do not believe that these potential errors significantly influence our results, especially as this concerns directors-general, which we only include in some robustness checks.

The publication details and links for main data sources discussed in this appendix are listed below (last accessed 3 October 2022):

1. Annual reports of government departments. <https://www.gov.za/document/latest> and various departmental websites
2. Auditor-General of South Africa, PFMA Reports. <https://www.agsa.co.za/Reporting/PFMAReports.aspx>
3. Government Communications (GCIS), South Africa Yearbook. <https://www.gcis.gov.za/content/resourcecentre/sa-info/yearbook>
4. Parliament of the Republic of South Africa (2013): Five Year Expenditure Review of National Departments 2006/07–2010/11. Cape Town, Parliament of the Republic of South Africa, Research Unit, Finance and Public Accounts Cluster. <https://www.parliament.gov.za/storage/app/media/BusinessPubs/5YearExpReview.pdf>
5. Van Onselen, G. (2017) Political Musical Chairs: Turnover in the National Executive and Administration Since 2009. An Analysis of the Turnover Rates for Directors-General and Ministers in Jacob Zuma's National Administration, May 2009–July 2017. Melville, Johannesburg, South African Institute of Race Relations. <https://irr.org.za/reports/occasional-reports/files/irr-political-musical-chairs.pdf>
6. Yes! Media, The National Government Handbook: South Africa. <https://nationalgovernment.co.za>

## Appendix 2 Robustness checks

**Table 7** Further results of F-tests comparing pairs of models with and without leader fixed effects

Test	Sample	Leader FE	Leader attribution	Audit measure	N	F-test statistic	F-test p-value	Increase in Adjusted R-sq.
1	Full	Standard	Majority of t	Standard	504	2.4517	0.0001 ***	0.0552
2	Social and basic services depts.	Standard	Majority of t	Standard	84	5.7267	0.0000 ***	0.2529
3	Other depts.	Standard	Majority of t	Standard	420	2.1860	0.0006 ***	0.0550
4	Full	Standard	Majority of t-1	Standard	460	3.2417	0.0000 ***	0.0604
5	Full	Standard	Majority of t-2	Standard	420	2.1967	0.0035 **	0.0361
6	Full	Standard	Majority of t+1 (placebo test)	Standard	462	1.3781	0.1017	0.0163
7	Full	Standard	Majority of t+2 (placebo test)	Standard	422	1.2872	0.1611	0.0130
8	Full	Standard	Start of t	Standard	504	2.2454	0.0006 ***	0.0431
9	Full	Standard	End of t	Standard	504	1.8816	0.0028 **	0.0405
10	Full	All	Majority of t	Standard	504	2.2699	0.0000 ***	0.1374
11	Obs. w/ multi-dept., multi-year leaders	Standard	Majority of t	Standard	286	2.5040	0.0002 ***	0.0902
12	Full	Multi-dept leaders	Majority of t	Standard	504	1.8109	0.0013 **	0.0531
13	Full	Multi-year leaders	Majority of t	Standard	504	2.1310	0.0000 ***	0.1093
14	Largest connected set	Standard	Majority of t	Standard	468	2.4089	0.0001 ***	0.0563
15	Full	Standard	Majority of t	Alternate	504	2.4960	0.0001 ***	0.0644
16	Full	Standard	Majority of t	Clean (0/1)	504	1.7432	0.0119 *	0.0289
17	Omit highest and lowest audit outcomes	Standard	Majority of t	Standard	414	1.9411	0.0040 **	0.0477
18	Full	Standard, plus all DG FE	Majority of t	Standard	504	1.5939	0.0350 *	0.0236
19	Full	Standard, plus multi-year DG FE	Majority of t	Standard	504	1.8946	0.0049 **	0.0332

Note: For each test, equation 1 regresses audit outcomes on entity and year fixed effects, while a benchmark equation regresses audit outcomes on entity, year, and leader fixed effects. The column 'Increase in Adjusted R-Square' shows the increase in adjusted R-square between the benchmark equation and equation 1. The 'F-test' columns show the test statistics and p-values from F-tests between the two equations. The first row is our primary approach, while subsequent rows are robustness checks varying choices on the treatment of the sample or different measures. 'Standard' leader fixed effects include separate fixed effects only for those leaders appearing across multiple departments for multiple years, with other observations treated as a reference category. Our 'standard' audit measure includes all five values, whereas our 'alternate' measure combines unqualified with and without findings into a single value. Tests 6 and 7 are placebo tests for which we expect *no significant* contribution of leader effects.

Statistical significance: \*\*\*  $p < 0.001$ , \*\*  $p < 0.01$ , \*  $p < 0.05$