TECHNICAL REPORT:

SUBMISSION FOR THE DIVISION OF REVENUE

2019/20

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Abbreviations and acronyms

BaU	Business as usual
BBBEE	Broad Based Black Economic Empowerment
CGE	Computable general equilibrium
CoGTA	Cooperative Governnance and Traditional Affairs
CSP	Cities Support Programme
DBSA	Development Bank of South Africa
DEA	Data envelope analysis
DHET	Department of Higher Education and Training
DORA	Division of Revenue Act
EIG	Education Infrastructure Grant
FFC	Financial and Fiscal Commission
FLISP	Finance Linked Individual Subsidy Programme
FGT	Foster-Greer-Thorbecke
FMG	Financial Management Grant
FPL	Food poverty line
GDP	Gross domestic product
GEAR	Growth Employment and Redistribution
GMM	Generalised method of moments
GVA	Gross value added
GVA-R	Regional gross value added
HSDG	Human Settlement Development Grant
IA	Implementing agent
IDMS	Integrated Development Management System
IDP	Integrated development plan
IGFR	Intergovernmental fiscal relations
IDT	Independent Development Trust
IMF	International Monetary Fund
INEP	Integrated National Electrification Programme
LBPL	Lower-bound poverty line
LED	Local economic development
LGES	Local government equitable share
MFMA	Municipal Finance Management Act
MSA	Local Government: Municipal Systems Act
MTEF	Medium Term Expenditure Framework
MTSF	Medium Term Strategic Framework
NATED	National Accredited Technical Education Diploma
NDoH	National Department of Housing
NDP	National Development Plan
NPC	National Planning Commission
OECD	Organisation for Economic Co-operation and Development
PES	Provincial equitable share
PFMA	Public Finance Management Act
PPP	Public private partnership
QLFS	Quarterly Labour Force Survey
RBIG	Regional Bulk Infrastructure Grant
SACN	South African Cities Network
RSC	Regional services council levy

SAM	Social accounting matrix
SARS	South African Revenue Service
SDG	Sustainable Development Goal
SIBG	School Infrastructure Backlog Grant
SIPDM	Strategic Infrastructure Procurement and Delivery Management
SIPS	Strategic Infrastructure Projects
Stats SA	Statistics South Africa
TVET	Technical and Vocational Education and Training
UBPL	Upper-bound poverty line
VECM	Vector-error correction model
WHO	World Health Organisation

Executive Summary

The Financial and Fiscal Commission was established to make recommendations to Parliament on financial and fiscal matters pertaining to government. This submission is made in terms of sections 220 and 214(1) of the Constitution of the Republic of South Africa, 1996 (Act No. 108 of 1996), section 9 of the Intergovernmental Fiscal Relations Act, 1997 (Act No. 97 of 1997) and section 4(4c) of the Money Bills Amendment Procedure and Related Matters Act, 2009 (Act No. 9 of 2009).

The submission is part of the Commission's constitutionally defined mandate, which is to advise Parliament and state organs on how the money collected by national government should be allocated fairly and equitably among the three spheres of government, to enable them to carry out their constitutional and other legal mandates. Intergovernmental fiscal transfers are a dominant feature in South Africa, as the bulk of government revenue is raised at the national level and then allocated to sub-national government (municipalities and provinces) through the equitable share and other grants. On 31 May 2018, the Commission tabled its Annual Submission for the 2019/20 Division of Revenue at Parliament. This volume of technical chapters is published as a companion document to the annual submission.

The theme of this year's submission is *Re-engineering the intergovernmental fiscal relations (IGFR) system for national development in a fiscally constrained environment.* This technical report underlines the argument that for redistribution to achieve its intended goals, the current battery of policies that try to address issues of equity should be appraised against the broader context of the Constitution in which a multi-sphered government system requires cooperation in order to be successful. It is against this backdrop that government implemented a programme of measured fiscal consolidation aimed at narrowing the budget deficit and stabilising public debt levels. This was effected through tax policy measures to raise additional revenue (notably the value added tax (VAT) increase) and, on the expenditure side, by lowering the expenditure ceiling through reductions in the operating budgets of national departments as well as reduced transfers to public entities and sub national governments.

Infrastructure grants in particular have been targeted with projected, reduced funding over the 2018 Medium Term Expenditure Framework (MTEF) period. Government cited previous underspending and the relative ease with which planned provincial projects can be delayed or rescheduled as motivation for the cuts. In its submission on the 2018 Division of Revenue Bill, the Commission argued that while the cuts are understandable and perhaps even unavoidable in terms of the pressing need for fiscal consolidation and the need to stave off threats of a sovereign credit downgrade, reductions in conditional grants do not appear to follow any clear pattern, except for the fact that they fall disproportionately on bigger grants (in terms of value). The Commission called for a more rigorous analysis of the performance of each grant before reductions to grants are made as well as continuous monitoring and evaluation of the effects of the cuts. This is because infrastructure grant reductions are not ideal as they play a key role in decreasing historical backlogs and achieving important constitutional imperatives such as economic growth and poverty reduction. Many transferring departments do not have the performance status of their grants in terms of delivery on hand

and this should be addressed. Under the theme of *Re-engineering the IGFR system for national development in a fiscally constrained environment*, this submission continues with similar assessments of other areas of public finance and reviews the effectiveness and performance of the current of current IGFR system. It also makes recommendations to re-engineer current fiscal instruments, incentives and other measures to address challenges to achieving the National Development Plan's (NDP) objectives.

Understandably, the NDP has set very ambitious objectives, especially considering that during the last 10 years, annual real gross domestic product (GDP) growth has been consistently low and the new realities are rising public debt and revenue under collection. Yet it is conceivable that South Africa can rid itself of poverty and glaring inequality . The basic message, set out in chapter 1 and elaborated on in the rest of the chapters is that continuing with "business as usual" policies and interventions will fail to meet the poverty and inequality reduction targets set for 2030. Instead, more than ever before, the focus should be on re-engineering IGFR instruments and incentives for interventions aimed at poverty and inequality reduction without further compromising public finances that are already severely constrained. This is at the heart of the recommendations. With such goals, the submission argues that three overarching tasks, at a minimum, are tackled. . First, there is the need to understand the country's economic challenges and address them directly. Second, government needs to firmly establish a balanced fiscal position that can be sustained over the long term. Third, there is a need to improve the efficiency of government expenditure across all three spheres so that citizens can get the greatest value for the taxes they pay.

The six chapters that make up this Technical Report are briefly described below.

In Chapter 1, Ramos Mabugu examines the past performance of and prospects for the economy at the national and sub-national levels. The linkages between various fiscal constraints are examined as these place new limitations on the equitable sharing of nationally raised revenue and on policy formation. The focus on the nature of South Africa's fiscal crisis and implications for re-structuring intergovernmental fiscal instruments across provinces and municipalities are also investigated.

In Chapter 2, Sasha Peters, Sabelo Mtantato and Poppie Ntaka examine whether administrative and fiscal (or financial) recentralisation towards the national sphere can be a credible avenue for ensuring better value for money and improved service delivery during this period of fiscal constraint. Using multiple research techniques, including case studies, the authors find that national government is not necessarily better at delivering sub-national services than sub-national government itself. They recommend that national government should not automatically increase its role in this regard. . Moreover, the nature and design of intergovernmental fiscal instruments should be aimed specifically at improving service delivery to attain national priorities, rather than as tools to support consolidation efforts during times of fiscal stress. Government should rather focus on supporting sub-national programme implementers and on monitoring and evaluation. The authors further recommend that when recentralising a function is necessary, a differentiated approach will be required.

In Chapter 3, Eddie Rakabe assesses the extent to which provinces can restructure their health care services and whether the intergovernmental fiscal instruments are responsive to such a need. The author finds that institutional arrangements largely prevent provinces from making discretionary fiscal adjustments. In addition, the chapter reveals that

budget adjustments tend to flow directly from national government, through changing both the rate of growth of grant transfers to provinces and their composition. Non-fiscal adjustment measures are also imposed, most of which are rarely implemented. In selected cases, provinces reduce health delivery outputs and accounting accruals to manage current pressure on their expenditure. Provincial fiscal strain is therefore not simply the result of fiscal imprudence and operational mismanagement in provinces. In the context of these constraints, national and provincial treasuries must develop clear, measurable financial and non-financial frameworks to assist provinces tackle issues related to serious financial strain, given demand-induced expenditure pressures, especially from the poor. The offsetting of accounting accruals must be considered.

In Chapter 4, Hammed Amusa assesses whether reducing intergovernmental transfers to municipalities facilitates reduced dependency on grant transfers and spurs innovation for local government to raise its own revenue. This is particularly important because municipalities are expected to use their main revenue raising tools to address significant historical inequities and to equitably distribute socio-economic infrastructure and resources. The author's research finds reduced dependency on transfers as the main drivers of expenditure and revenue for municipalities in the metropolitan areas and secondary cities. However, for smaller and rural municipalities, transfer reductions correlate significantly with lower financing of capital and operating budgets. The chapter recommends that intergovernmental transfers strike a balance between the need to enhance fiscal autonomy through reduced transfers on the one hand, and the important stimulus that increasing conditional grants provides for funding capital expenditure in fiscally vulnerable municipalities on the other. More flexibility must be built into the grants for vulnerable municipalities. Grants should also incentivise municipal effort to increase own revenue.

In Chapter 5, Ghalieb Dawood considers how provincial infrastructure grants can be re-engineered during this period of austerity. The chapter findings suggest there are widespread inefficiencies in infrastructure delivery across the three main infrastructure sectors of health, education and road maintenance. The findings also show that opportunities for fiscal misappropriation are particularly evident during the procurement and implementation stages. To address these inefficiencies, the chapter calls for oversight over consultants and contractors to be strengthened. In addition, holding the implementing agent accountable for funds spent on infrastructure projects will more closely align the incentives of the implementing agent with that of the sector department.

In Chapter 6, Mike Muller and Nomonde Madubula outline the current regulatory structure and the implications of fiscal constraints in respect of water challenges. Providing water services is one of the most important social and economic functions of local government. The Constitution mandates municipalities to exercise this responsibility and empowers national government to regulate and guide municipal performance of the functions. Considerable progress has been made in expanding water service infrastructure and ensuring that affordability does not prevent people from accessing basic water services. However, research indicates that while water supply infrastructure reaches 95 per cent of the population, its reliability is declining. While fiscal constraints may be aggravating this, the performance of intergovernmental financial instruments can, however, be enhanced. Measures to monitor and control operations and maintenance budgets for water services are necessary - as is a review of affordable service delivery standards and the use of related conditional grant transfers.

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Ramos Mabugu is a Fellow at the University of Stellenbosch. He has published on topics related to applied economics, public finance, tax policy, and intergovernmental fiscal relations. Most of his economic modelling work is on the application of computable general equilibrium (CGE) models, social accounting matrix (SAM) methods, input-output methods, and macroeconomic models. In collaboration with colleagues, he pioneered the first applications of CGE microsimulation (static and dynamic) in two southern African countries. He has taught and supervised at postgraduate level at the University of Zimbabwe and the University of Pretoria. While at the latter, he was instrumental in setting up a collaborative environmental economics MSc and PhD training programme. He has served as a consultant for many organisations, was an external examiner for several universities and has taught economic modelling courses at the Ecological and Environmental Economics Programme at the Abdus Salam International Centre for Theoretical Physics (ICTP) in Italy. In 2003/04, he provided technical advice at the Centre for International Forestry Research (CIFOR), Indonesia, and Sida, Sweden. In 2006, he was awarded a visiting fellowship award from Curtin University in Australia, in recognition of his contributions to intergovernmental fiscal relations modelling. He earned his PhD in economics from the University of Gothenburg, Sweden.

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Chapter 1: Re-engineering the IGFR system in a constrained fiscal environment

Ramos Mabugu

Introduction

1.1 The issue

Despite great efforts to reduce poverty and inequality since 2000, inequality has risen, and poverty has fallen only slightly. At around 0.70 (up from 0.66 in 1993), South Africa has one of the world's highest Gini coefficients. Poverty, although on the decline since 1994, remains high and recently started increasing again. More than ever before, the focus is on speeding up economic growth, fighting poverty and breaking down barriers to equal access of opportunities. Similar policy objectives are also stipulated in the National Development Plan (NDP, 2011)) and are at the heart of the recommendations in the forthcoming Commission's Annual Submission 2019/2020.

Every year, the Commission makes recommendations to Parliament on the division of revenue among the three levels of government through submission to Parliament. This submission is made in terms of Section 214(1) of the Constitution of South Africa, Section 9 of the Intergovernmental Fiscal Relations Act, 1997 (Act No. 97 of 1997) and Section 4(4c) of the Money Bills Amendment Procedure and Related Matters Act (Act No. 9 of 2009). This year, under the theme of *Re-engineering the IGFR system for National Development*[1], the submission argues that government can use public money strategically to grow the economy and reduce the budget deficit[2] and government debt on the one hand, while, on the other, maintaining the current levels of social spending to protect the most vulnerable groups. Such a strategy will lay the foundation for future long-term growth and prosperity for all South Africans. There is a need also to appropriately adjust the revenue sharing arrangements including conditional and indirect grants, invest in social and basic infrastructure and improve administrative and management skills within Government so as to eliminate wastage.

However, controlling government spending alone will not have the hoped-for impact on poverty and inequality. Addressing these challenges requires coordinated and mutually supportive financial and non-financial solutions, including addressing incentive structures and governance arrangements around responding to fiscal shocks and optimal centralisation of government funds and functions.

[1] To change and improve IGFR system to realise national development.
[2] A budget deficit is when government spends more money than it receives in a given year.

1.2 Distribution, redistribution, growth and political economy

A significant proportion of the country's population is at risk, with high unemployment, poverty and other forms of social exclusion threatening the social fabric. The population has high expectations, and most people expect demonstrable improvements in their circumstances today and in the future. The problem confronting the country is thus of unfulfilled expectations, and justifiable impatience amongst the populace as well as a growing sense of disenchantment with the democratic political order, that is seen to be enriching a few at the expense of the majority and the most vulnerable. The country is concerned with the quality of life not just in terms of income growth, but for greater equity among current and future generations. People yearn for reduced poverty, environmental sustainability, and for social, health and ethical dimensions of human welfare.[3] Fundamental instability and uncertainty apparent in corporate and public institutions is cause for concern. . The damage caused by this instability and uncertainty has had a palpable impact on South Africa's economic fabric. Clearly the need to address the development agenda, presents the most critical policy challenge for fiscal integration.

[3] Here the palpable crisis of quality in the education system has destroyed much hope for most of the future generation and their chances of social mobility and economic inclusion leading to the phenomenon of youths with "No Income No Jobs or Assets" (NINJAs). NINJAs are likely to feel most socially alienated and economically and spatially excluded.

Table 1: South African GDP 2000 — 2016

Date	Gross Domestic Product (yearly at current prices R millions)	Gross Domestic Product (yearly at constant 2010 prices R millions)	Real Gross Domestic Product yearly % change)
2000	946 324	1 954 710	4,2
2001	1 046 144	2 008 181	2,7
2002	1 217 265	2 081 837	3,7
2003	1 325 766	2 143 232	2,9
2004	1 476 623	2 240 847	4,6
2005	1 639 254	2 359 099	5,3
2006	1 839 400	2 491 295	5,6
2007	2 109 502	2 624 840	5,4
2008	2 369 063	2 708 600	3,2
2009	2 507 677	2 666 939	-1.5
2010	2 748 008	2 748 008	3.0
2011	3 023 659	2 838 258	3.3
2012	3 253 851	2 901 076	2.2
2013	3 539 790	2 973 292	2.5
2014	3 807 676	3 023 826	1.7
2015	4 049 759	3 063 101	1.3
2016	4 338 858	3 071 658	0.3

Source: SARB, pp S-152 Quarterly Bulletin June 2017

However, it is well known that the market mechanism will result in self-reinforcing inequalities which are likely to be judged socially unnatural. This indicates a need for intervention by the state, provided that the resulting improvements are regarded as outweighing the costs of achieving them. Although South Africa is an upper middle income country, poverty is much higher in South Africa than one would expect to find in a country with a relatively high level GDP per capita.

Moreover, despite social interventions by the state in recent times, economic growth declined in 2016 to its lowest level since the global financial recession, with the economy barely recording any growth (0.3 per cent , down from 1.5 per cent in the preceding two years). GDP growth fell to -0.7 per cent in Quarter (Q) 1 2017, from -0.3 per cent in Q4 of 2016. The negative growth of Q1 2017 represented the first consecutive quarters of q/q seasonally-adjusted negative growth (signalling a technical recession) since the recession of 2008/09. The loss of confidence in the economy is reflected, inter alia, in an 83 000 increase in discouraged work seekers. This assisted in limiting the increase in the narrow definition of unemployment rate, which remained unchanged at 27.7 per cent. However, on the basis of the expanded definition of unemployment, which includes discouraged workers, the unemployment rate rose to 38.3 per cent in Q2 2017 from 37.9 per cent in Q1 2017. Clearly, even if jobs are being created, the number of new jobs is insufficient to accommodate the increase in the labour force, which grew by 5.2 per cent on a year on year basis. The official

unemployment rate rose significantly for those in the age bracket 15 to 44 years, although it fell for those over the age of 45.

Therefore, it is reasonable to begin from the premise that socially unacceptable levels of poverty, inequality and unemployment exist, warranting remedial action by the state. This is further reinforced by the fact that, in the absence of economic growth and redistributive policy interventions designed specifically for this purpose, unemployment and poverty would take a long time, to be significantly reduced. Given this scenario, we can proceed to discuss what ought to be the nature and extent of the role of government.

Essentially two main strategies of redistributive interventions can be pursued by the government:

- An approach that emphasises the redistribution of existing wealth and income in favour of the poor – often called static redistribution; and/or
- An approach that emphasises an improved distribution of future additions to income and wealth, so that most of the benefits of growth henceforth accrue to the poor – also known as dynamic redistribution or redistribution through growth

The static approach would use government's power of taxation, spending and legislation in order to ensure the reduction of extreme income disparities. To achieve major results, it would involve large reductions in incomes of the rich through high income tax rates, the taxation and/or nationalisation of property and the reallocation of government services in favour of the neediest. The South African government has repeatedly indicated its intention to use available policy instruments to redistribute resources (including capital ownership) and opportunities (Broad Based Black Economic Empowerment (BBBEE), through public procurement) to disadvantaged groups. South Africa's budget already plays an important redistributive role to reduce inequalities and extreme poverty. This (static?) model could explore the impact of amplifying redistribution through greater tax progressivity and/or more generous transfers to the poorest households. An alternative option would be to explore the impact of transferring ownership of capital. This would require considering governance risks associated with the choice of beneficiaries and the impact on the productivity of the transferred capital. Both options could require considering their impact on human and physical capital flight. Increasing transfers to the poorest households would require selecting a fiscal closure rule; that is, lower current expenditures, higher fiscal deficit or higher taxation to finance them. On the basis of some work done on the static redistribution policy approach, a conclusion that one can draw is that policies of static redistribution cannot eradicate poverty. They can, nevertheless, make a valuable contribution to its alleviation.

The idea of redistribution through growth is more comprehensive than static redistribution. The main components of what government needs to do in this dynamic approach is (i) define sectorial priorities that focus on where the greatest impact of welfare enhancement can be found (presumably agriculture/rural and small scale non-farming activities in towns and rural areas); (ii) rural development; (iii) priorities favouring labour intensity and employment creation; and (iv) improved access and quality (e.g. good quality education and health services, piped water and power for the poor, housing irrigation, and roads designed to reach poor). This is really what the new proposal is about, the idea of dynamic redistribution through growth, and functional/social assets accumulation.

1.3 Options analysis

South Africa remains saddled with disparities between and within regions. Sizeable gaps remain between regions in income and other well-being indicators. Income disparities also exist within regions. The highly unequal society that has emerged makes the issue of redistribution for equity compelling. Broadly defined, the redistribution of wealth is the transfer of income, wealth or property from some individuals to others, implemented through social mechanisms such as taxation, monetary , welfare, and nationalisation . Although South Africa has several policies to facilitate the redistribution of wealth, there is a general feeling that this has not proceeded beyond the static approach of reduction in inequality through economic growth. Instead, such frustration led to intensification of the call for "radical economic transformation, a term first used in the MTSF adopted by government in 2014 to guide the work of this current administration, and an acceleration of the economic transformation process. Alongside 'radical transformation' are hotly contested slogans such as the nationalisation of mines, land redistribution, BBBEE, all of which have had mixed results to date in bringing equity in employment, ownership and management control of business entities.

At a broader strategic level, three options define the space available to the policy maker to re-engineer the system:

1.3.1 Option 1: 'Do nothing' scenario

In this scenario, nothing is changed and the current IGFR system of public finance continues on its present course. Conservatives favour this approach as it maintains the *status quo* and keeps us in our comfort zone. The economy will continue growing gradually with a GDP growth rate of about 2 per cent per annum, and it could take 30-50 years to eliminate poverty and reduce inequality.

1.3.2 Option 2: 'Gradualism with experimentation/innovation'

This option stays the course of gradualism but with a degree experimentation/innovation built in. It is a form of re-engineering the IGFR system, notably to change and improve it through incremental steps. For example, indigent policy and top-up investments would continue through cross-subsidisation and aggressively pursuing targeting and efficiency; ensuring utilisation of all of annual housing subsidies and being innovative within that framework; harnessing the growth potential of peri-urban and rural areas;[4] and strengthening intergovernmental relations (e.g. incentives for performance need to be boosted, especially in places where large regional disparities and/or weaknesses need to be overcome.

[4] For example, Lewis-type processes can drive productivity growth between regions, at least for some time, but need to be complemented by policy efforts to sustain productivity growth within peri-urban and rural areas by e.g. (i) aggressively pursuing integrated transport within a defined framework, and (ii) using economic analysis to improve social and spatial impacts of public and private investments).

1.3.3 Option 3: "Big bang" or "bang bang" approach

This is the more revolutionary approach in which gradualism or notions of 'learning by doing' and changing at the margins is abandoned. Instead, irreversibility is created and emphasised, and movement on all fronts is fast (big bang approach).

It is worth noting that theoretically, Option 2 dominates Option 3 only if the option of early reversal or salvage has value and increases the expected payoff because of the lower cost of experimentation. So the real policy question before a choice is made is "Does one risk catastrophic collapse by assuming otherwise?" i.e. that option value of early reversal has no value? What safeguards are there?

1.3.4 Preliminary assessment and guiding principle

This submission henceforth takes the view that if "nationhood"[5] is to have practical meaning, it should find concrete reflection in the outcomes that people actually experience – in particular, the poverty and inequality outcomes. This is not to regard other aspects as unimportant: policy interventions also affect education, health care, transport, water and sanitation services and the retirement income of non-poor citizens. Public programmes providing these services are important to rich and poor alike, and the degree of commonality people have in their personal experiences with these programmes is important in fostering a common sense of purpose and destiny.

Research methodology

A micro-macro framework is developed to set the goals and milestones for halving poverty and eliminating hunger by 2030 in South Africa. The framework consists of layered micro and macro models linked in a top-down fashion. The micro model builds on the non-parametric approach of modelling income distribution across the population. The model assesses changes in the aggregate consumption expenditure level and distributions across the population (inequality) to achieving the NDP or Sustainable Development Goals (SDGs) on poverty and hunger. The macro model builds upon the economy wide general equilibrium technique to capture the growth and investment targets related to the achievement of the SDGs on poverty and hunger. The micro and macro models are discussed further in the following sections.

2.1 The micro model

Poverty and inequality measures are assessed at the individual level and rely on micro data. Thus, the micro model enables direct measurement of poverty and inequality levels. A given poverty level is associated with an income or expenditure level and its distribution across the population (Ravallion, 2004 and 2007). Thus, the micro model assesses targets for the aggregate consumption expenditure level (growth) and its distribution across the population (inequality) to achieving, for example, the SDGs targets on poverty and hunger.

The micro model is based on a probability distribution of individual consumption expenditure in a given population. Changes in probabilities associated with individual consumption levels induced by change in mean per capita consumption expenditure is captured though a "generalised entropy" measure (Lee and Judge, 1996). Thus, changes in consumption

[5] The term "nationhood" means a country's status as a nation.

behaviour occur within the population through changes in the probability distribution across individual consumption expenditure levels in response to (macro) policies and shocks.

The model minimises the Kullback-Leibler cross-entropy measure of the distance between the posterior (w) and the prior (v) probability distributions of consumption expenditure (i),

$$Min\ \Omega = \sum_i w_i \cdot \ln \frac{w_i}{v_i}$$

with $\sum_i w_i = 1$ and given aggregate data on:

Population growth and urbanisation; θ is the urbanisation rate, u the rural population share ($u \subset i$),

$$\sum_u w_u = \theta$$

Mean per capita consumption expenditure (Y), y_i is individual (i) consumption expenditure:

$$\bar{Y} = \sum_i w_i \cdot \bar{y_i}$$

Poverty headcount ratio (P_z), by national and food poverty lines (z); $p_{i,z}$ is individual (i) poverty status according to a specific poverty line (z):

$$\bar{P_z} = \sum_{i,} w_i \cdot \overline{p_{i,z}} \cdot i(\bar{y_i} < z)$$

The first order condition derivatives μ, α, β and μ are Lagrangian parameters associated with constraints related to the posterior probability distribution, population growth and urbanisation, mean consumption expenditures, and poverty headcount ratios

$$\log w_i - \log \bar{v_i} + 1 - \mu - \alpha - \beta_g \cdot \overline{y_{i,g}} - \mu_z \cdot \overline{p_{i,z}} = 0$$

The Poverty assessment used the Foster-Greer-Thorbecke (FGT) family of poverty measures. An individual is poor if his or her income or expenditure level is below a given threshold or poverty line. The standard technique of measuring hunger is to compare the number of calories eaten by a person to the number of calories needed. To construct the poverty line, a consumption bundle considered adequate for basic food and non-food consumption needs must be specified and its cost estimated. Statistics South Africa (Stats SA) (2017) defines the food poverty line (FPL) as "the rand value below which individuals are unable to purchase or consume enough food to supply them with the minimum per-capita-per-day energy requirement for adequate health". The poverty line adds the basic non-food items to the food poverty line to measure the minimum amount of money to satisfy both the basic food and non-food needs. Stats SA then defines a lower?-bound poverty line (LBPL) and an upper-bound poverty line (UBPL) which add the non-food component to the FPL. "Individuals at the LBPL do not have command over enough resources to purchase or consume both adequate food and non-food items and are therefore forced to sacrifice food to obtain

essential non-food items. Meanwhile, individuals at the UBPL can purchase both adequate levels of food and non-food items" (Stats SA, 2017, P7). Thus, poverty is measured by the proportion of the population below the upper-bound poverty line, and hunger is measured by the proportion of the population below the food poverty line.

The 2011 Income and Expenditure Survey by Statistics South Africa is used to validate the micro model. The validation process implies the calibration of the consumption expenditure distribution across the population with respect to the 2011 and 2015 poverty and food poverty measures (Table 2), as well as Engel's law.[6] The model is validated with a truncated probability distribution, i.e. a conditional distribution derived from restricting the probability at the upper tail of the distribution.

Table 2: Poverty and hunger goals and targets (%)

	Survey year 2011	Base year 2015	Change 2011-2015
Poverty line	53.2	55.5	4.3
Food poverty line	21.4	25.2	17.8

Source: Statistics South Africa (2017).

Note: Poverty Line = R992 per person per month in 2015 prices (upper-bound poverty line). Food Poverty Line = R441 per person per month in 2015 prices.

2.2 The macro model

The macro model is grounded in neoclassical general equilibrium theory, i.e. profit maximising producers and utility maximising consumers respond to relative prices and determine the quantities supplied and the quantities demanded in order to clear all markets simultaneously. A computable general equilibrium (CGE) model is developed to assess the SDGs goals and milestones for South Africa. The specificities of the model from standard CGE framework are presented next.

The model features ninety categories of worker and labour markets with urban rural linkages. These are distinguished by province, settlement type and skills category. Evidence from South Africa shows that high skilled labour markets have lower unemployment rates and pay higher wages and salaries, and that the unemployment rate is higher in rural than urban areas (See Figure 1 at end of this chapter). Rural household groups relied heavily on unskilled and low skilled labour income for all regions (See Table 14 at end of this chapter).

The treatment of the labour markets reflects empirical evidence in South Africa as shown in Figure 1 and advanced by Kingdon and Knight (2004 and 2007). Thus, an imperfect labour market is assumed for unskilled, low skilled, semi-skilled, and skilled labour markets. This is implemented through a wage curve specification (Blanchflower and Oswald, 1995). On the other hand, a competitive market clearance rule applies for high skilled labour markets, i.e. full employment. For each skill category, workers are perfectly mobile across industries in each of the nine provinces as well as between locations, i.e. urban versus rural.

[6] The Engel's law associates a decrease in percentage of income or expenditure allocated to food purchases with an increase in total income or expenditure. In other words, the elasticity of food expenditures with respect to total expenditure increase is set to be less than the one.

When it comes to rural urban migration and remittances, the model specifies an exogenous setting of labour mobility between rural and urban areas as well as across provinces for each skill category. An exogenous change in the share of labour income spent in the original location (remittances) is also specified. As labour migrates from the original to the final location, labour remittances flow from the final to the original location. Levies on labour income are redistributed across household categories using initial distributional shares of labour income. The rates are ranked between 0 (when labour income is fully spent in the final location) and 1 (when labour income is fully spent in the initial location). With this exogenous setting, we assume that urban rural migration and remittances are affected by both economic and noneconomic drivers. While economic factors are well handled in our framework, noneconomic factors are exogenous to the model.

Commodity markets feature an imperfect integration of local product markets. There is a separation between producers and consumer markets, while both markets are linked through local trade. Local trade activities along with other market activities are explicitly modelled. Commodity based local traders or activities use private services to move commodities from producers to consumer markets. Trade services are provided by three industries: "Wholesale and retail trade", "Transport and storage", and "Finance and insurance". The model features a profit maximising representative trader. Finally, the model features 18 representative household categories by province and urban or rural settlement type.

Capital markets follow the neoclassical market clearance rule with the real interest rate equilibrating aggregate savings and aggregate demand for investment. Savings are driven by investment. Finally, the external current account is equilibrated through a flexible exchange rate and the government fiscal balance is a fixed share of GDP.

The CGE model is calibrated using a social accounting matrix (SAM) built from the 2013 supply and use table, the 2011 income and expenditure survey, as well as the 2013 labour force survey. The 2013 SAM features 30 industries, 30 commodities, 90 labour categories, four tax accounts, and 21 institutional accounts including 18 household categories.

3. Findings

The validated micro-macro framework is used to implement two simulation scenarios: business as usual (BaU) and SDGs. The BaU scenario is built on the recent trend of the per capita final consumption expenditure and income inequality, and the changes in urban and rural demographic and urbanisation pattern. The SDGs scenario upholds the demographic and urbanisation targets while relying on the SDGs on poverty and hunger to assess the implied changes in expenditure growth and income inequality.

Urban and rural demographic and urbanisation pattern is captured by the micro model. Total population, estimated at 55.0 million of individuals in 2015, is projected to grow to 69.3 million individuals by 2030 (

Table 3). Between 2015 and 2030, South Africa's population will increase by 26.0 per cent, i.e. a compound annual growth rate of 1.6 per cent. Urban population will increase more than rural population, i.e. by 39.1 per cent (annual rate of 2.2 per cent) and 1.8 per cent (annual rate of 0.1 per cent) respectively. Consequently, the urbanisation rate increases from 65 per cent in 2015 to 72 per cent by 2030, i.e. an increase of 10.3 per cent between 2015 and 2030.

Table 3: Population growth and Urbanisation

	Total population			Proportion of population in urban areas
	South Africa	Urban	Rural	
2015	55 011 977	35 648 311	19 363 666	0.648
2030	69 288 037	49 573 849	19 714 188	0.715
Change (%)	26	39.1	1.8	10.3

Source: Source: United Nations (2017).

3.1 The BaU scenario

Data from Stats SA (Table 4) show a stagnation of the *per capita* final consumption expenditure between 2012 and 2016. In the same vein, income inequality has not changed significantly between 2010 and 2015; the Gini index is estimated at 0.70 and 0.68 respectively (Stats SA, 2017). Thus, the BaU scenario projects the current trend of the economy, i.e. in terms of expenditure growth and income inequality, and the change in urbanisation to assess the poverty and hunger outcomes.

Table 4: Percent change in GDP and final consumption expenditure 2012 - 2016

Year	GDP growth	Household final consumption expenditure	Per capita final consumption expenditure
2012	2.5	3.7	2.3
2013	2.8	2	0.5
2014	1.5	0.7	-0.9
2015	1.2	1.7	0.1
2016	0.5	0.8	-0.7
Average	1.7	1.8	0.2

Source: Source: Stats SA (2017).

Table 5: Per capita expenditure, poverty, inequality, hunger - 2012 - 2016

	Year 2015	Year 2030	Percentage change
Per capita expenditure (ZAR)	30,565	31,723	3.8
Gini index	0.673	0.683	1.5
Poverty index	0.552	0.561	1.6
Hunger index	0.231	0.236	2.2

Source: Stats SA (2017) and Authors from the simulation results (2017). Note: Poverty Line = R992 per person per month in 2015 prices (upper-bound poverty line). Food Poverty Line = R441 per person per month in 2015 prices.

Under the BaU scenario, the proportion of the population below the poverty line of R992/month is projected to increase slightly from 55.2 per cent in 2015 to 56.1 per cent by 2030 (Table 5). The absolute number of poor people is expected to increase substantially between 2015 and 2030 with population growth. Thus, the goal of halving poverty between 2015 and 2030 will not be met under current economic trends, i.e. the BaU scenario. In the

same vein, extreme poverty and hunger will not be eliminated by 2030 as 23.6 per cent of the population will still live below the income threshold of R441/month.

3.2 The NDP and/or SDG scenario

Table 6 presents the initial poverty and hunger measures and the SDG targets for South Africa. The poverty headcount ratio is estimated at 55.5 per cent in 2015 (Stats SA, 2017). By 2030, the proportion of poor, i.e. the population below the income threshold of R992/month, should not exceed 27.7 per cent. The proportion of the population below the food poverty line of R441/month or the extreme poor, is estimated at 25.2 per cent (Stats SA, 2017). Under the SDG scenario, South Africa should have lifted everyone out of extreme poverty and hunger by 2030.

Table 6: Poverty and hunger goals and targets

	Base year 2015	SDGs target 2030	Change (%)
Poverty line	0.555	0.277	-50
Food poverty line	0.252	0	-100

Source: Statistics South Africa (2017).

Note: Poverty line = R992 per person per month in 2015 prices (upper bound poverty line). Food poverty line = R441 per person per month in 2015 prices

The SDGs on poverty and hunger are achieved with an increase in *per capita* final consumption expenditure of 46.5 per cent between 2015 and 2030 (
Table 7). This implies an annual increase of 2.6 per cent of the per capita consumption expenditure. When population growth is accounted for, household final consumption expenditure target is set at an annual average of 4.2 per cent.

The expenditure growth target must be coupled with a decline in income inequality. The Gini index declines to 0.513 by 2030 from an estimated value of 0.673 in 2015. Although the income growth strategy is important to reduce the number of hungry persons, income redistribution appears to be a key component of the inequality reduction strategy. The expenditure increase of an annual average of 4.2% will not be sufficient to lift everybody above the income threshold of R441 per month by 2030. Thus, social assistance must be provided to 10 per cent of the population (i.e. 6.9 million persons) to eradicate extreme poverty and hunger between 2015 and 2030. An economy wide growth rate of an annual average of 4.5 per cent is required to meet the SDGs consumption expenditure target (Table 4). Thus, the current growth performance of 2.0% must be doubled between 2015 and 2030 to achieve the SDGs on poverty and hunger.

Table 7: Income growth and inequality reduction targets, SDGs scenario

	Year 2015	Year 2030	Percentage change
Poverty index	55.2	27.5	-50
Hunger index	23.1	0	-100
Income (SAR)	30 565	44 778	46.5
Gini index	67.3	51.3	-23.8

Source: FFC from the simulation results (2017).

There are several routes that South Africa can take to meet the economic growth target. The target for the investment level required to support the SDG growth is set at an annual average of 5.7 per cent, nearly twice the BaU growth rate (Table 8).

The income inequality target is investigated through the spatial perspective of income growth and distribution. Table 9 displays changes in expenditure between the SDGs and BaU scenarios for the nine provinces and by residential area, i.e. urban and rural. It indicates that, to achieve the SDGs on poverty and hunger, greater emphasis should be on rural areas. Thus, the following top five geographical areas are referred to as SDG-focused areas: i) rural Eastern Cape, ii) rural Limpopo, iii) rural Mpumalanga, iv) rural KwaZulu-Natal, and v) rural Northern Cape.

Table 8: GDP and investment targets, mean annual change (%)

Selected variables	Scenario	
	BaU	SDGs
GDP	2	4.5
Investment	3	5.7

Source: FFC from the simulation results (2017).

Table 9: Consumption expenditure by province, per cent change SDGs vs BaU

Provinces	Urban	Rural
Western Cape	21.2	48.1
Eastern Cape	66.6	149
Northern Cape	69.5	90.9
Free State	62.4	37
KwaZulu-Natal	42.3	105
North West	58	49.2
Gauteng	14.2	-12
Mpumalanga	39.1	110
Limpopo	34.1	129

Source: FFC from the simulation results (2017).

Table 10 focuses on the relationship between income and expenditure growth in the SDGs-focused areas and the employment and earning opportunity by skills category.

Table 10: Annual change in expected wage rate, SDGs scenario (%)

SDGs focused Areas	Unskilled	Low skilled	Semi-skilled	Skilled	Highly skilled
Rural Eastern Cape	6.1	6.2	6.1	7.4	7.4
Rural Northern Cape	14.2	15.5	16.5	14.7	17.8
Rural KwaZulu-Natal	2.5	2.7	2.8	4	4.4
Rural Mpumalanga	4.2	3.8	4.2	5.5	6.3
Rural Limpopo	3.6	3.9	3.8	4.7	5.5

Source: Author from the simulation results (2017). Note: Unskilled (No schooling and less than Grade 1); Lower skilled (Grade 1 to 7); Medium skilled (Grade 8 to 12); Skilled (Certificate and diploma); and Highly skilled (degree and postgraduate diploma).

Changes in expected wage rates are computed and compared for five skilled labour categories in each SDG-focused area. Results show skilled (certificate and diploma) and highly skilled (degree and postgraduate diploma) labour markets offer better employment and earning opportunities in all SDG-focused areas except Northern Cape (.

Table 10). However, households in SDG-focused areas rely primarily on unskilled, low and medium skilled labour employment and earning. Thus, skill development programmes across the SDG-focused areas are likely to contribute to meeting the income inequality target. Moreover,

Table 11 and Table 12 present the number of people to be assisted by province and residential area to eliminate extreme poverty and hunger. It appears that both rural and urban areas are targeted to receive assistance, with a focus on the following six areas: Rural Limpopo, rural and urban KwaZulu-Natal, rural and urban Eastern Cape, and urban Gauteng.

Table 11: Distribution of income by category of factor, rural areas (%)

Province	Unskilled, low and medium skilled labour	Skilled and highly skilled labour	Capital and transfers	Total
Western Cape	59	34	7	100
Eastern Cape	54	31	15	100
Northern Cape	46	45	9	100
Free State	33	23	44	100
KwaZulu-Natal	55	28	17	100
North West	56	17	26	100
Gauteng	40	45	15	100
Mpumalanga	60	29	11	100
Limpopo	58	32	9	100

Source: FFC calculations from the 2011 Income and Expenditure Survey (2016).

Table 12: Number of assisted persons, SDG scenario

Provinces	Urban	Rural
Western Cape	253 771	64 100
Eastern Cape	491 462	894 376
Northern Cape	119 063	10 347
Free State	281 061	69 460
KwaZulu-Natal	524 597	1 357 482
North West	181 638	386 901
Gauteng	614 971	3 259
Mpumalanga	162 578	333 409
Limpopo	66 614	1 120 113

Source: FFC from the simulation results (2017).

4. Conclusion

The basic premise of this chapter, which is elaborated on in detail in the remainder of the technical report chapters, is that BaU policies and interventions will fail to achieve the poverty and inequality reduction targets set for 2030. Instead, the focus should be on re-engineering IGFR instruments and incentives for interventions aimed at poverty and inequality reduction without further compromising public finances. The Commission identifies three tasks facing government:

- It should understand the country's economic challenges and address them directly and innovatively;
- It should establish a balanced fiscal position that can be sustained over the long term; and
- It should sharpen the efficiency of all government activities so that the public receive the best possible value for money from the taxes it pays, thereby honouring the social compact.

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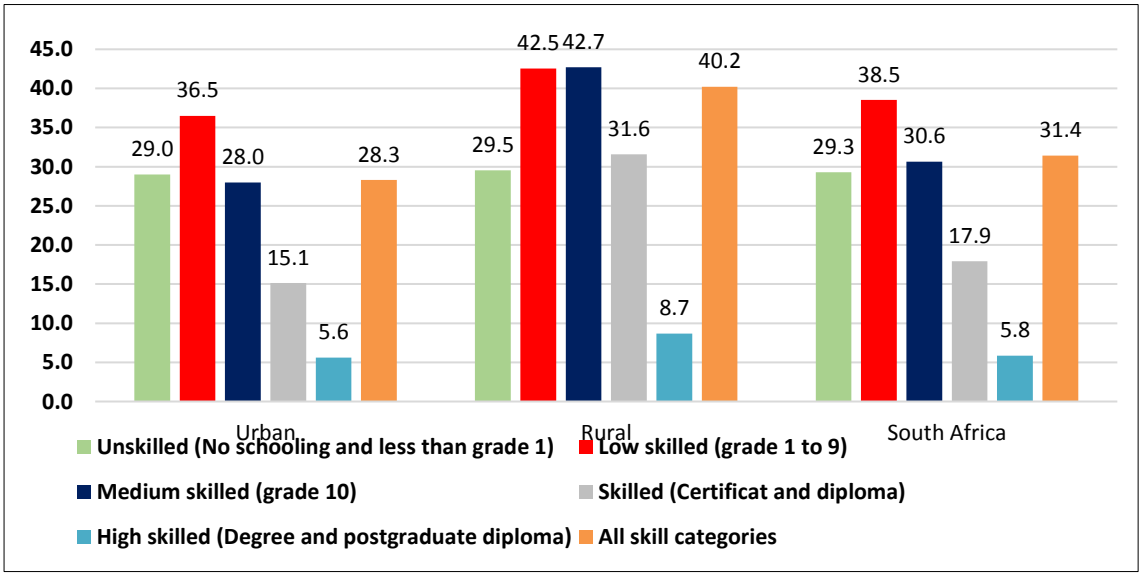
Appendix 1: Income inequality, unemployment, household and labour income

Table 13: Income Inequality Measures, Past Trend 2006 — 2011

Year	Gini index (%)	Income share held by lowest 20%	Income share held by highest 20%
2006	64.79	2.58	71.06
2008	63.01	2.6	68.68
2011	63.38	2.47	68.94

Source: World Bank (2017)

Figure 1: Unemployment rates by skill category, including discouraged job seekers



Source: FFC calculations from 2013 Labor Force Survey (2016)

Table 14: Distribution of labour income by level of education, region, and area (%)

Skill Category	Western Cape		Eastern Cape		Northern Cape		Free State		KwaZulu-Natal	
	Urban		Urban		Urban		Urban		Urban	
No schooling and less than grade 1	1.3	7.5	1.7	7.5	3.4	10	2.8	3.5	1.7	7.5
Standard 1 to 9	41	61	48	67	42	65	44	68	38	59
Standard 10	37	24	32	16	37	14	33	17	41	25
Standard 1 to 9	41	61	48	67	42	65	44	68	38	59
Standard 10	37	24	32	16	37	14	33	17	41	25
Standard 1 to 9	41	61	48	67	42	65	44	68	38	59

Source: FFC calculations from the 2011 Income and Expenditure Survey (2016).

Table 15: Urban households income share by factor (%)

Province	Labour					Capital	All
	Unskilled	Low skilled	Semi-skilled	Skilled	Highly skilled		
Western Cape	0.2	15	22.9	15.2	29.4	17.3	100
Eastern Cape	0.2	19.1	22.5	19.8	24	14.4	100
Northern Cape	0.5	16.2	26.6	16.2	27.1	13.4	100
Free State	0.5	16.6	21.8	19.4	25.8	15.9	100
KwaZulu-Natal	0.2	13.4	27.2	18.4	23.4	17.4	100
North West	1.1	19.6	34.8	16.5	15.2	12.8	100
Gauteng	0.3	11.2	21.9	21.2	26.7	18.7	100
Mpumalanga	0.8	17	29.2	19	18.7	15.3	100
Limpopo	0.3	10.6	16.8	23.8	32.1	16.5	100

Source: FFC calculations based on model simulation results (2018)

Table 16: Rural households income share by factor (%)

Province	Labour					Capital	All
	Unskilled	Low skilled	Semi skilled	Skilled	Highly Skilled		
Western Cape	1.9	31.2	26.2	8.6	25.3	6.8	100
Eastern Cape	2	35.8	15.9	18.4	13.1	14.9	100
Northern Cape	1.8	31.1	13.1	28.5	16.2	9.3	100
Free State	0.5	22.5	10.3	9.2	13.9	43.6	100
KwaZulu-Natal	1.8	31.7	21.9	17.8	10	16.8	100
North West	1.5	34.2	20.7	12.5	4.7	26.3	100
Gauteng	1.2	17.4	21.5	16.8	28.4	14.7	100
Mpumalanga	2	34.2	24	21.2	7.6	11.1	100
Limpopo	2.8	34.7	21	22.5	9.9	9.1	100

Source: FFC calculations based on model simulation results (2018)

Chapter 2: Recentralisation: Implications for Service Delivery and Intergovernmental Fiscal Relations in South Africa

Sasha Peters, Sabelo Mtantato and Poppy Ntaka

Introduction

Since the 1980s, decentralisation has been a trend in developing countries. Decentralisation took root as many newly democratised countries sought to relocate political and economic power and achieve more equitable and effective service delivery – aspects that were thought to underpin decentralisation (Dickovick, 2011a). For the newly democratic South Africa in 1994, decentralisation was one of the outcomes of the country's negotiated political settlement. The 1994 Constitution provides the institutional and fiscal framework for the decentralised system of governance in South Africa. It established three distinctive, interdependent and interrelated spheres of government (Section 40(1)) and set out various aspects of intergovernmental and fiscal relations. For example, expenditure assignments detailed in schedules four and five of the Constitution outline the service delivery responsibilities of the national, provincial and local spheres of government. A transfer system that entitles sub-national governments to an equitable share of nationally raised revenue is specified in section 214 (a-j), while specific revenue raising powers and functions are described in sections 227 to 230A (Constitution, 1996). A multi-level system of government emerged, in which national departments are tasked largely with policy making and oversight responsibilities, provinces are responsible for rolling out education, health and social development services, and municipalities are tasked with expanding access to key basic services such as water, sanitation, electricity and refuse removal, among others. A combination of own revenue and intergovernmental transfers (in the form of equitable share allocations and conditional grants) and, to a limited extent borrowing, are used to fund service delivery at sub-national level.

More than two decades later, it is questionable whether decentralisation has yielded the many benefits that proponents of the approach believed it would. According to Dickovick (2011a), numerous Latin American and sub-Saharan African countries that previously embarked on extensive decentralisation processes, seem to have reached a turning point where devolved powers and functions are being overturned in what is referred to as "recentralisation". Mabugu and Kayizzi-Mugerwa (2014) define the concept of recentralisation as, "…central government intervention seen as necessary to ensure that a modicum of results are achieved", thus emphasising that recentralisation is based on the perception that national governments are more capable and perform better than their sub-national counterparts. Put differently, recentralisation refers to the reduction in the autonomy of sub-national governments. There are three types of recentralisation: political, fiscal and administrative (Dickovick, 2011b). Political recentralisation involves reducing the right of authorities in a sub-national jurisdiction to govern via independent elections. Fiscal and administrative recentralisation, on

the other hand, entails reduced autonomy over fiscal resources and expenditures respectively. According to Lopez-Murcia (2015) and Horga and Costea (2015), recentralisation reforms are most likely to occur, or are heightened, during times of economic crisis.

1.1 The problem

Recentralisation raises various public finance related concerns. It runs contrary to the spirit and principles underpinning the multi-level system of government that has been established. While persistent poor performance of sub-national government, especially local government, are a cause for concern, section 154 of the Constitution enjoins the national sphere to assume a primary role in building the capacity of sub-national government, specifically municipalities, to carry out their mandate (Constitution, 1996). In terms of sections 100 and 139 interventions, these interventions are temporary and limited to correcting the performance of sub-national government.

In South Africa, which embraces the principle of "funds follow function", the relocation of functions is accompanied by fiscal implications for the government sphere gaining as well as the one losing the function. Due to the fact that most functions at the sub-national level are funded via the discretionary equitable share (in combination with other forms of funding), sub-national governments tend to understate actual spending on a function so as to mitigate the negative impact of large funding reductions. South Africa is experiencing an economic crisis. Growth has been, and is projected to remain, muted. This has precipitated significant fiscal consolidation and a drive to ensure value for money and more efficient spending across government. In this constrained economic environment, recentralisation is likely premised on the national sphere being better able to deliver services within a limited resource envelope.

Looking back to the global financial crisis of 2007/08 and its aftermath, an expansion in the role and control of the national sphere was evident. Following the onset of the global financial crisis in 2007/08, the proportion of conditional grants relative to equitable share grants increased from 16 per cent of total intergovernmental transfers in 2007/08, to 23 per cent by 2012/13. Real growth in conditional grants, where allocations grew by a real average of 15.6 per cent over the period 2009/10 to 2012/13, also significantly outstripped real growth in block grants, whose real average allocations grew by 3.8 per cent over the same period. This implies stringent and stricter financial and fiscal control by national government. The extent to which a block grant such as the provincial equitable share (PES) can be discretionary is questionable since often the transfer of these resources comes with conditions on how they should be spent to meet norms and standards.

In addition to the reduction in the expenditure autonomy of sub-national governments, several shifts of functions from this level to the national sphere have taken place. Examples include:

- shifting of the social security grants from provinces to the South Africa Social Security Agency in 2006;
- relocation of responsibility for technical and vocational education and training (TVET) and adult basic education and training from the nine provincial education departments to the national Department of Higher Education and Training (DHET) in 2012;
- abolition in 2006 of the regional services council (RSC) levy at local government level which was replaced with the centrally collected fuel levy in 2009/10;

- shifting of the National Health Laboratory Services to the national Department of Health in 2015; and
- ongoing reorganisation of the public health care system, largely run by provincial health departments, into a national health insurance scheme.

If the expansion of national government's footprint occurred together with upscaled sub-national capacity and improved, more cost-efficient service delivery, then a larger role for the national sphere may be justified. Research findings on the impact of recentralisation reforms are inconclusive and the impact of these reforms therefore depends on the country context and manner in which recentralisation takes place. It is common for countries to reverse processes of decentralisation and embark on centralisation during times of economic crisis. This appears to be the case in South Africa. Key questions that need to be answered are:

- is recentralisation the solution for South Africa during times of financial constraints?
- what are its economic, social, and other implications for South Africa?
- is recentralisation cause for concern from the fiscal, service delivery and broader, intergovernmental system-wide perspectives?
- is the dominant role assumed by the national sphere due to national government being better able to ensure performance than its sub-national counterparts?
- does recentralisation pose a credible avenue for ensuring better value for money and improved service delivery during this period of financial and fiscal constraint?

The objectives of this research are to:

- analyse the fiscal and service delivery implications of fiscal and administrative recentralisation;
- assess whether the service delivery and spending performance of the national sphere is qualitatively better than that of sub-national government; and, if so,
- determine whether recentralisation provides an avenue for ensuring better value for money in a fiscally-constrained environment.

Literature review

2.1 Definition and dimensions of recentralisation

Eaton and Dickovick (2004) refer to the concept of recentralisation as "a series of changes designed to reverse prior reforms that expanded sub-national autonomy and thereby limited the prerogatives of national government". For Lopez-Murcia (2015), recentralisation can be understood as the opposite and subsequent process to decentralisation. The definition proposed by Mabugu and Kayizzi-Mugerwa (2014) posits that recentralisation is driven by superior national government performance, where recentralisation is necessitated by the need, "…to ensure that a modicum of results are achieved". This analysis subscribes to the relatively broader definition of recentralisation proposed by Mabugu and Kayizzi-Mugerwa (2014) as it allows for instances of the growing role of central government over and above the shifting of previously devolved functions. There are three kinds of recentralisation: political, fiscal and administrative (Dickovick, 2011b). Table 17 explains these different forms..

Table 17: Different dimensions of recentralisation

Dimension	Explanation
Fiscal autonomy: three types	Reducing sub-national control over fiscal resources.
Revenue autonomy	Recentralisation changes can be in the form of reducing revenue shares of sub-national governments, removing tax bases from common revenue pool and raising rates on unshared taxes than on shared taxes.
Expenditure autonomy	Recentralisation reforms can be in the form of forcing sub-national authorities to spend their transfers on expenditure priorities set by the national government.
Borrowing autonomy	Some of the recentralisation changes include the closing down of or privatising banks formerly owned by sub-national governments.
Political autonomy	A reduction in sub-national political autonomy via independent elections to govern in a jurisdiction
Administrative autonomy	A reduction in sub-national administrative autonomy over expenditures, personnel, and planning processes

Source: Eaton and Dickovick, 2004; Dickovick, 2011.

2.2. Understanding recentralisation: The politics of decentralisation and intergovernmental fiscal relations

The concept of decentralisation refers to the transfer of authority to lower levels of government. Intergovernmental fiscal relations (IGFR) refer to the, "…structure of public finances in a state with more than one tier of government: how taxing, spending and regulatory functions are allocated among the various levels, as well as the nature of transfers between national, provincial and local governments" (Ajam, 2014). Ajam (2014) further notes that the manner in which IGFR arrangements and institutions are structured creates incentives that impact on the equity and efficiency of government service delivery.

Recentralisation therefore has an impact on the role and functions of different spheres of government and the relationships underpinning them. As implied by the Mabugu and Kayizzi-Mugerwa (2014) definition of recentralisation, the dominant role assumed by the national sphere is based on the notion that a central government is better able to ensure performance. Poor performance by sub-national governments can arise due to a wide variety of reasons including lack of human and financial capacity, corruption, weak institutions or low levels of innovation. Tanzi (1995) drawing significantly from Prud'homme's (1995) views on the dangers of decentralisation, lists the following challenges that can hamper sub-national performance within a system of multi-level governance:

- lack of citizen information or power to influence local policymakers to take efficient and effective resource allocation decisions;
- corruption or the probability for misspending public resources may be higher at the local level;
- poor quality of local bureaucracies can exist particularly in countries where scarcity of skills is pervasive; and
- poor public expenditure management systems can impede prudent financial decision making and tracking. The skills required to underpin and manage these systems are scarce, particularly in developing countries (Tanzi, 1995:303).

Frequently, the pace at which decentralisation occurs can lead to challenges and the need for central government to step in. De Melo (1999) cites Latin America as an example of a region

that experienced a too speedy shift to decentralisation. According to de Melo, when powers and functions are devolved too quickly, it leaves little space to build local expertise to manage, "…larger resources and to deal effectively with expenditure management" (de Melo, 1999). Similarly, South Africa also initiated fiscal decentralisation reforms following the advent of democracy and political decentralisation. We now know, as pointed out by Dickovick (2011a), that numerous Latin American and sub-Saharan African countries that previously embarked on extensive decentralisation processes, seem to have reached a turning point where the role and control of the national sphere is expanding, and previously decentralised functions are being shifted to the centre. This process is known as recentralisation.

While decentralisation and IGFR systems legitimise the role and functions of different spheres of government, governments should ultimately be focussed on delivering quality services to taxpayers and not be hamstrung by bureaucratic rigidities around roles and responsibilities, particularly when it comes to delivering services to the poor. In this scenario national government should assume a stronger role, not in the interests of increasing its sphere of influence but to ensure viability of sub-national governments and improved service delivery. An important message from Mabugu and Kayizzi-Mugerwa's (2014:3) analysis is that, "…in low income African countries, intergovernmental fiscal relations work best (i.e. in terms of impact on infrastructure provision) when the central government takes an active interest in strengthening institutional frameworks at the local level, i.e. helps to strengthen local agencies of restraint, supervises implementation of programs, and holds local bureaucracies accountable". In South Africa, there is a constitutional imperative for national government to play this role. Section 154(1) of the Constitution requires national (and provincial) government to support and strengthen the capacity of municipalities such that they are able to manage their affairs and perform their functions (Constitution, 1996). This principle is supported in the literature – see for example Rondenelli *et al* (1989) who hold that the key ingredient to ensure sound decentralisation and, by extension, sub-national performance is through institutional capacity building that is facilitated by central government.

2.3. Fiscal recentralisation

One of the major questions arising with respect to fiscal reforms relates to its impact on performance. According to the Center for Global Development (2015), fiscal transfers should be designed to generate incentives to improve sub-national government's spending quality and performance outcomes. Therefore, fiscal instruments should enhance efficiency and effectiveness of service delivery. While the literature acknowledges that conditional grants may be required in some instances to achieve the grantor's (national government's) objectives, a good intergovernmental fiscal transfer system should give recipients autonomy in how funds are to be used and flexibility in setting priorities.

A form of fiscal recentralisation that has negatively affected the expenditure autonomy of sub-national governments is the pervasive use of conditional grants. In the South African context, indirect grants and a rising trend of earmarked conditional grants are key examples of a growing national footprint in controlling the expenditure of sub-national governments. Indirect conditional grants are allocated to the receiving authority, but the actual funding is not transferred to the receiving authority. Rather, the funds are controlled by the national department providing the grant. For Bowser *et al* (2006), direct conditional grants aim to achieve certain standards or requirements, while earmarked or ring-fenced conditional grants

focus on achieving specific activities. Ring-fenced conditional grants have relatively more stringent conditions attached to them and funding can only be used within the parameters of a narrowly defined programme or project. As noted by Blöchliger and King (2006), earmarked conditional grants constitute distortionary central interference in the decision-making sphere of recipient governments, while block grants are less damaging and a useful means of controlling grant costs for central governments. Weston (2011) concurs with this view, noting that while there are good reasons for ring-fenced funding (notably the justification that it allows national government to exert some control in ensuring that spending is aligned to the attainment of national priorities), there have been attempts over the past three decades to provide more flexibility over ring-fenced funding (Weston, 2011).

2.4. Administrative recentralisation

A comparative analysis of countries that have embarked on administrative recentralisation processes reveals that the extent to which these have been successful depends largely on the service and the sector of the service being recentralised. Furthermore, it depends on whether or not the entire sector of that service is being recentralised. However, there may be a differential impact across the countries as the context or the circumstances under which recentralisation takes place will differ from country to country. For example, the effect of recentralising the health sector for a country with a more developed system or well-developed infrastructure is expected to differ from a country that has poor infrastructure. The differential impact across the countries may also be influenced by the fact that the rationale for recentralising will differ by country.

With respect to the recentralisation of the health sector, the literature generally records positive results. Owing mainly to issues around cost containment and inefficiencies, Norway recentralised its hospital sector in 2002 with the intention of improving cost control and efficiency as well as reducing waiting times (Magnussen et al,2006; Kittelsen, 2008). Magnussen *et al* (2006), in investigating the effects of recentralisation on the economic dimensions of health systems, found that in the first two years of the recentralisation reform, there was an improvement in efficiency but the effect on total costs was unclear. Kittelsen (2008) expanded on the study conducted by Magnussen *et al* (2006) by empirically testing whether recentralisation improved hospital productivity. Kittelsen (2008) found that recentralisation improved the level of productivity by a magnitude of about 4 per cent. In the case of the Lao People's Democratic Republic, recentralisation of the health sector, which occurred between 1992 and 1996, was a result of the poor implementation of health care decentralisation reforms (Phommasack *et al*, 2005). In particular, recentralisation of the sector sought to address the inequities in the provision of health services across the 18 provinces (Phommasack *et al*, 2005). Phommasack *et al* (2005) who studied the effects of both decentralisation and recentralisation on the Lao People's Democratic Republic health system found that during the recentralisation period there was a gradual improvement in the quality of service provided. While the four rural health centres located in the Pukngum district saw an improvement in the utilisation of their facilities, the utilisation rates remained low (Phommasack *et al*, 2005).

With respect to the education sector, the impact of centralisation and recentralisation yields divergent outcomes as this depends on which aspect of the education sector is recentralised. In Ghana, for example, the recruitment and deployment of teachers is centralised. A consequence is that teacher management and accountability has been eroded (UNESCO, 2017). Furthermore, high levels of teacher absenteeism, attributable to the absence of systems

that monitor teacher attendance, present a significant challenge for Ghana's schooling system as it negatively impacts teacher performance and the quality of teaching as well as the educational outcomes (UNESCO, 2017). In Estonia, the recentralisation process which occurred in 2014 involved shifting the responsibility of general upper secondary schools (grades 10 to 12) from the municipalities to the national level. The rationale behind the recentralisation process was to address quality concerns in this part of the schooling system, as well as the slow and incomplete adjustment by municipalities to changes in demographic trends (European Commission, 2017). Given that the reform has been recently implemented, there is limited literature on the effects of recentralisation on this part of the schooling system.

Research methodology

The research employed multiple techniques to fulfil its objectives. In particular, case studies of key examples of recentralisation were used to generate broad lessons applicable to the public sector. With respect to fiscal recentralisation, the use and performance of earmarked conditional grants were assessed. In the case of administrative recentralisation, TVET colleges were analysed.

3.1 Case study: Financial recentralisation of earmarked conditional grants

With respect to the financial recentralisation case study, an assessment of financial and non-financial performance data was undertaken. The data chosen was determined by when an earmarked grant was introduced. In certain instances, data goes back to 2009/10. For the purposes of this study, earmarked funding in the human settlements sector and the Human Settlements Development Grant (HSDG) was emphasised. An assessment of the performance of specific programmes in the HSDG was conducted to ascertain whether recentralisation through the use of earmarked conditional grants has resulted in a discernible improvement in service delivery. To complement the quantitative analysis as well as to gain a greater understanding of the dominant institutional issues that have arisen as a result of recentralisation, interactions with relevant stakeholders were also undertaken.

3.2 Case study: Administrative recentralisation of TVET colleges

In this case study, a "before and after" analysis was used to identify how the performance of colleges changed as a result of the function being relocated from sub-national to national government. Through the use of performance data, the analysis investigated the institutional and educational performance outcomes of the fifty public TVET colleges before and after the recentralisation of the function. The study focused on 2013 and 2015 to reflect the period prior to and post the recentralisation of the function. While recentralisation reform was legislated in 2012, the transfer of the function came into effect only in April 2015. 2013 and 2015 are thus appropriate proxies of the period prior to and post the recentralisation of the function. The study used outcome indicators relating to efficiency and the quality of the teaching and learning process.

With respect to assessing institutional performance or how efficiently TVET colleges use resources, the study employed a two-stage methodological approach.

- In the first stage, the non-parametric data envelopment analysis (DEA) technique was used to measure the technical efficiency of TVET colleges (i.e. whether or not TVET colleges are optimally using their inputs to maximise outputs). Under the assumption

of variable returns to scale, an input-orientated DEA was used to estimate the efficiency scores for a sample of fifty urban and rural TVET colleges.
- In the second stage, a cross-section Tobit regression model was used to identify the factors that have an influence on the estimated efficiency scores for the period before and after the recentralisation of the function.

According to Kinara (2014), the size of a TVET institution has a marginal effect on its efficiency. Its location also has a significant impact on efficiency, particularly if it is in an urban area. Furthermore, recurrent and development expenditure negatively influences the efficiency of a TVET institution (Kinara, 2014). With respect to evaluating the effect of recentralisation on the educational performance of TVET colleges, the study followed a similar approach to the before-treatment/after-treatment research design without a control group that was reviewed in Meyer (1995) and Duleep and Liu's (2016) papers.

According to Zhang (2009), Webber and Ehrenberg (2010), Agasisti (2011) and Webber (2012), graduation rates are influenced by institutional expenditure on student services, academic support, research and instruction. However, the impact on graduation rates differs across the various categories of institutional expenditure, and the relationship between expenditure and educational performance is not necessarily linear across various education systems. For example, it is possible to achieve high graduation rates with few resources.

To complement the quantitative analysis, questionnaires were sent to officials from the South African College Principal Organisation (SACPO) and the Department of Higher Education and Training (DHET).

Findings

This section summarises the findings according to financial and administrative recentralisation.

4.1. Financial recentralisation

The first finding from the analysis relates to the change in the way the government has broadly responded to instances of fiscal stress, with specific focus on the period between the 2007/08 global financial crisis and the current outlook for the 2018 MTEF. The differences in the responses are illustrated in Table 18 and Figure 2.

Table 18 illustrates the proportional composition of intergovernmental transfers while Figure 2 shows the real year-on-year growth in conditional grants relative to block grants. Together these diagrams illustrate the growing emphasis placed on conditional grants relative to block grants at the onset of the global financial crisis of 2007/08 and for a few years following. The proportional allocation to conditional grants relative to block grants peaks at 26.5 per cent in 2011/12 but fails to return to the 15-16 per cent pre-crisis range. It is interesting to note that while the current economic climate (2018 MTEF period) is muted, government has not used the same approach of reducing block grants relative to conditional grants. However, on average, over the whole period 2002/03 up to the 2020/21 projections, conditional grants illustrate stronger real growth relative to block grants. More specifically, conditional grants grew by a real annual average of 7 per cent relative to the 4.2 per cent growth in block grants. Notwithstanding the strong real growth in conditional grant funding, it should be noted that block grants such as the PES are earmarked for particular programmes and/or projects

identified by national government.[7] Earmarking pockets of PES funding for national priorities implies reduced discretion for provinces as they cannot fully decide where and how to utilise this discretionary pool of funding.

A deeper assessment of Figure 2, specifically on the real year-on-year growth in period 2008/09 to 2012/13 relative to period 2017/18 to 2020/21, reveals insight into government's responses during periods of fiscal constraint. In the latter period, block grants grew by a real average of 2.8 per cent, while conditional grants show a marginal real average growth of 1 per cent. With respect to the 2018 MTEF period, there has been an interesting increase in the number of earmarked conditional grants. While conditional grants are not being significantly increased, pockets of funding in existing grants are being ring fenced with more stringent conditions. This means that a less robust recentralisation is being applied.

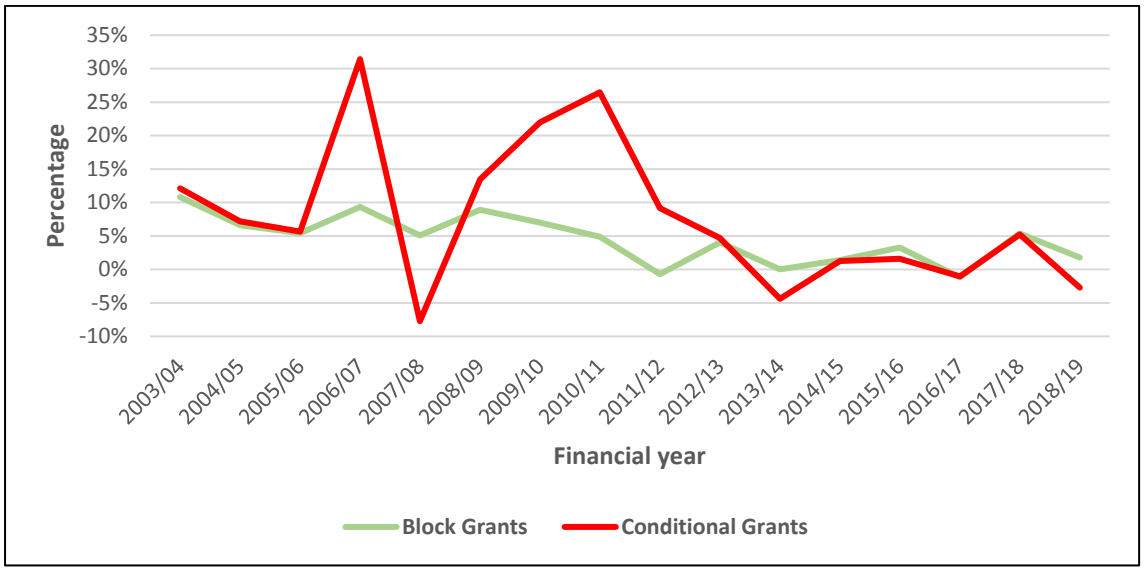
Table 18: Proportion (%) of block grants and conditional grants, 2002/03 — 2017/18

Year	Block grants (BGs)	Conditional grants (CGs)
2002/03	85	15
2003/04	85	15
2004/05	85	15
2005/06	85	15
2006/07	82	18
2007/08	84	16
2008/09	83	17
2009/10	82	18
2010/11	79	21
2011/12	77	23
2012/13	77	23
2013/14	78	22
2014/15	78	22
2015/16	78	22
2016/17	78	22
2017/18	78	22

Source: Own calculations based on National Treasury data (2006-2017a).

[7] In respect of the 2018 MTEF period, pockets of funding channeled through the PES are earmarked, for example, for prevention and intervention programmes to combat women and child abuse and wage inflation.

Figure 2: Real growth in block and conditional grants, 2003/4 –2019/20

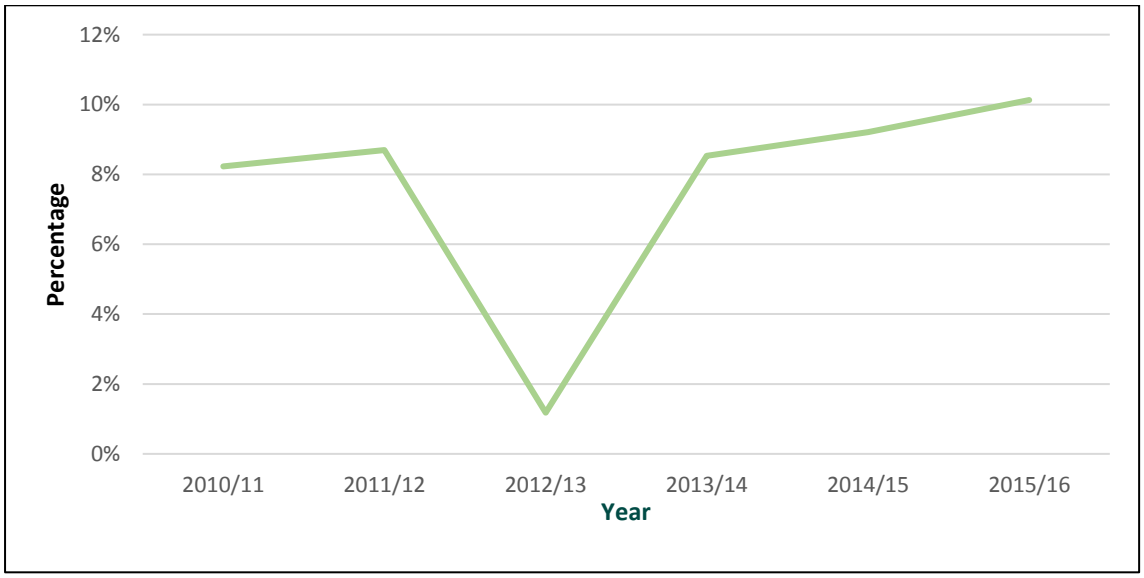


Source: FFC calculations using National Treasury data (2006-2018).

4.2 Earmarked conditional grant funding

The use of earmarked conditional grant funding appears to increase in recent years. This is particularly evident within the human settlements sector as illustrated in Figure 3. The percentage of ring-fenced funding within the human settlements sector increased from 1.2 per cent in 2012/13, to 8.5 per cent in 2013/14, equating to a difference of 7.3 percentage point increase. Ring fenced conditional grant funding reached 10.1 per cent in 2015/16.

Figure 3: Percentage of earmarked funding within human settlements-related grants



Source: FFC calculations using National Treasury data (2010b-2015b).

The human settlements sector is mainly responsible for providing different subsidised housing products (ranging from fully subsidised housing opportunities to those to which households contribute some funding) to different income groups (earning from R0 up to R15 000 per month). These housing opportunities are mainly funded by the fiscus through the HSDG (in full – Human Settlements Development Grant?) conditional grant. Previously the HSDG was mainly used as a block grant in the human settlements sector to fund any housing

related projects. However, in recent years there has been an increasing number of ring fenced or earmarked funding pockets in the HSDG which means that provinces and municipalities cannot used a certain proportion of the grant to undertake housing development projects as they see fit. Instead, they have to undertake specific programmes identified by the national government.

The discretion to use HSDG funding continues to decrease as earmarked conditional grant funding in the HSDG has continued to increase in recent years. Prior to 2012/13, there was only one earmarked fund in the HSDG. This has increased to four in 2017/18. The number of earmarked funds in the HSDG is still rising as two new earmarked conditional grants will be introduced in 2018/19.

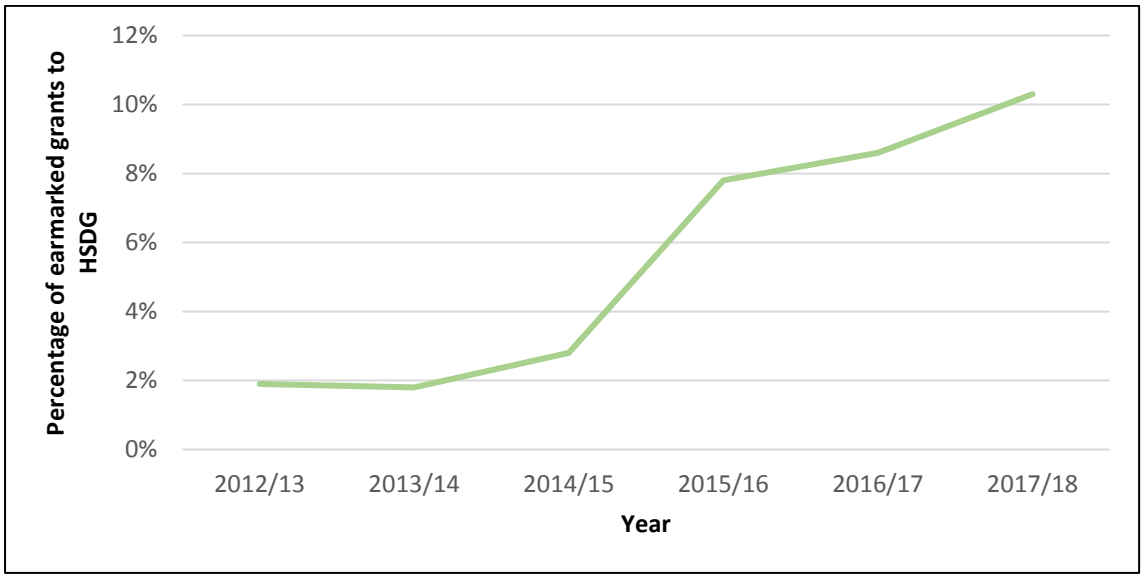
Table 19: Number of earmarked funds in the human settlements sector

Financial year	Number of earmarked funds
2012/13	1
2013/14	1
2014/15	2
2015/16	2
2016/17	3
2017/18	4

Source: National Treasury, (2012b-2017b).

An increase in the number of earmarked funds in the human settlements sector reduces the funding available from the HSDG that can be used by provinces at their discretion for their specific and unique housing delivery needs and purposes. Figure 4 illustrates the share of earmarked funds compared to the share of HSDG. It also illustrates that, as the number of earmarked conditional grants increased as shown in **Error! Reference source not found.**, the share of earmarked funding also increased. This implies a decreasing share of HSDG. For example, in 2012/13, there was only one earmarked fund in the sector and the number increased to four in 2017/18, while the share of earmarked funding increased from 1.9 per cent to 10.3 per cent over the same period. Earmarked funding for the implementation of Finance Linked Individual Subsidy Programme (FLISP) also exists, although this is not quantified, since provinces were not determining allocations upfront. If this earmarked funding was taken into account, the share of earmarked funding would be higher than illustrated in Figure 4.

Figure 4: Share of earmarked funds compared to share of HSDG, 2012/13-2017/18

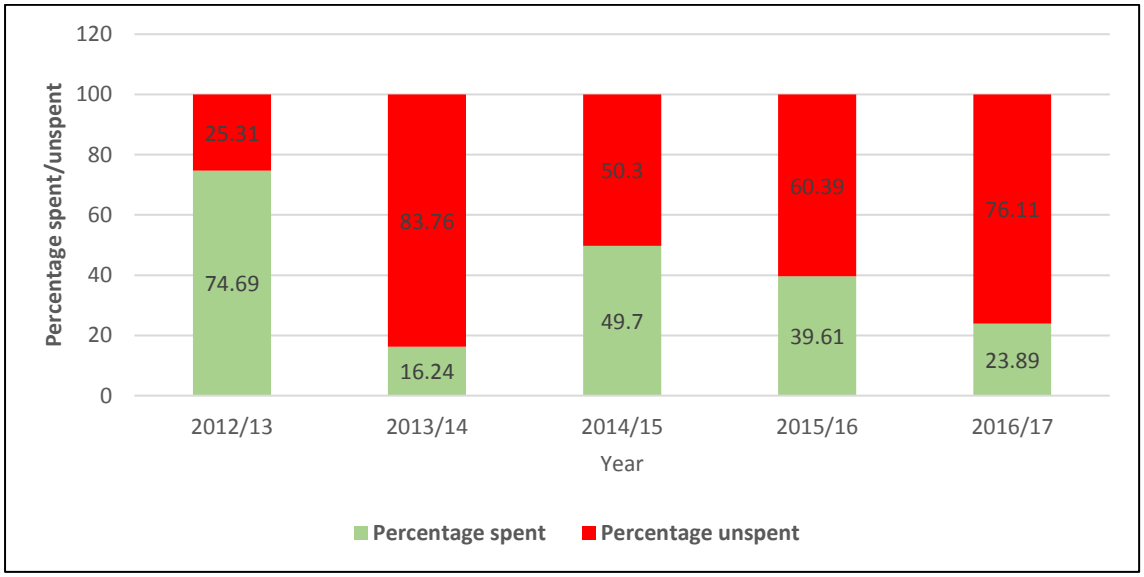


Source: FFC calculations using National Treasury data (2012b-2017b).

4.2.1 Performance of FLISP

Part of the HSDG is earmarked for the implementation of FLISP. One of the major challenges for FLISP in the past arose as a result of each province having to determine how much to allocate for the programme. In a number of provinces, resources for this programme were inconsistently allocated. Underspending of allocated funding has been common in provinces since 2012/13. This underspending was as high as 83 per cent in 2013/14 and remained at 76.1 per cent in 2016/17 (see Figure 5).

Figure 5: Spending performance of the FLISP, 2012/13 - 2016/17

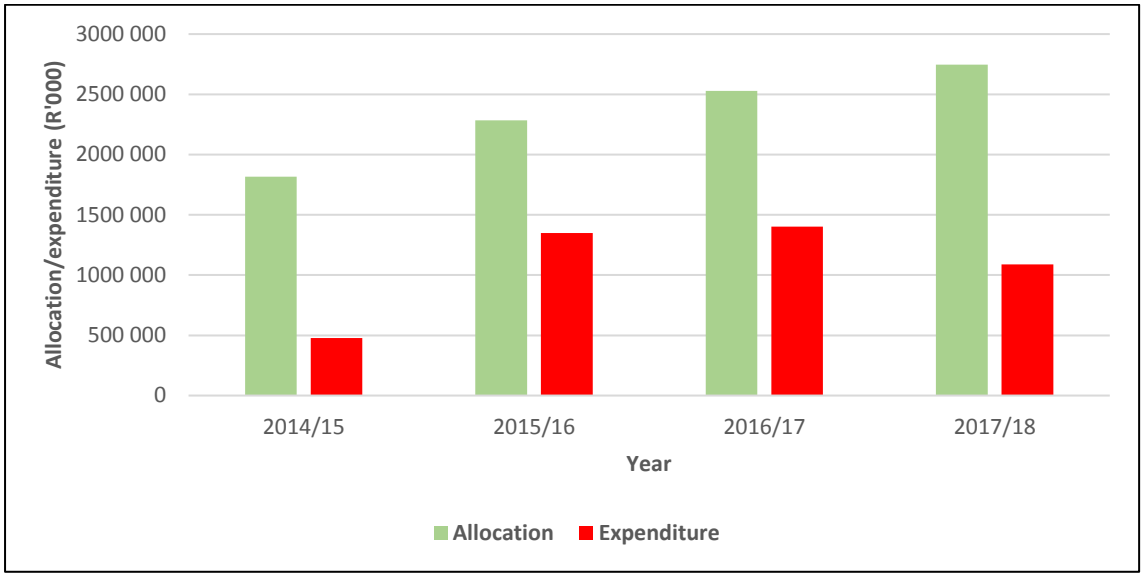


Source: FFC calculations using National Department of Human Settlements Database (2012-2016).

4.2.2 Performance of grant earmarked for informal settlements in mining towns

Municipalities benefiting from this grant are in six provinces: Gauteng, Mpumalanga, Limpopo, North West, Northern Cape and Free State. Since 2014/15, this earmarked grant has performed poorly in terms of spending allocated funding as illustrated in Figure 6.

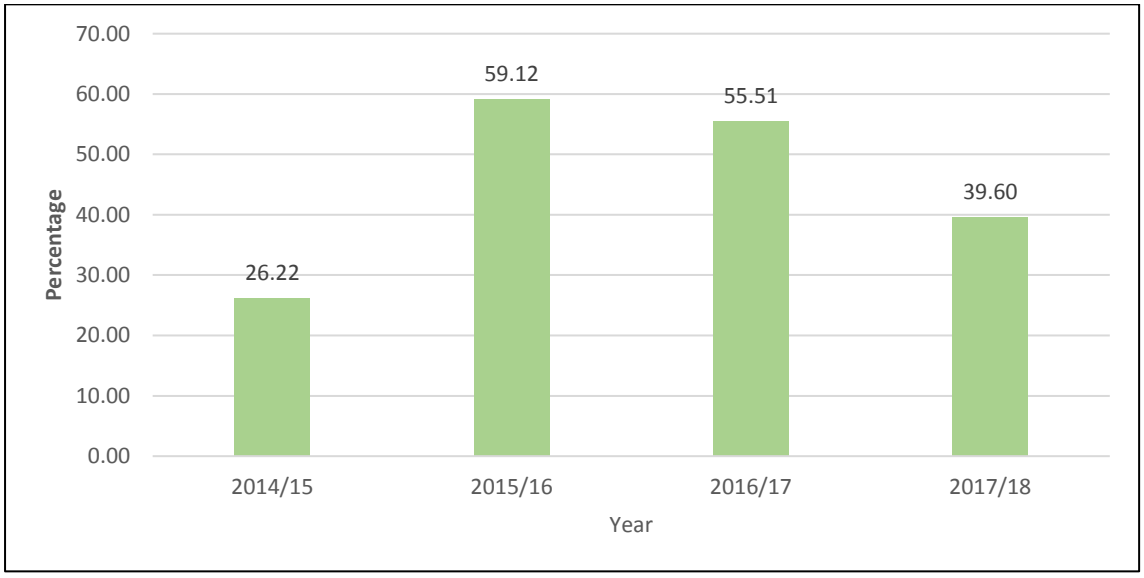
Figure 6. Performance of earmarked funding for upgrading of informal settlements in mining towns, 2014/15-2017/18



Source: FFC calculations using National Department of Human Settlements Database (2014-2017).

Figure 7 illustrates the performance of the grant earmarked for upgrading informal settlements in mining towns. Since 2014/15, when the grant was introduced, it has performed poorly; the highest expenditure was 59 per cent in 2015/16.

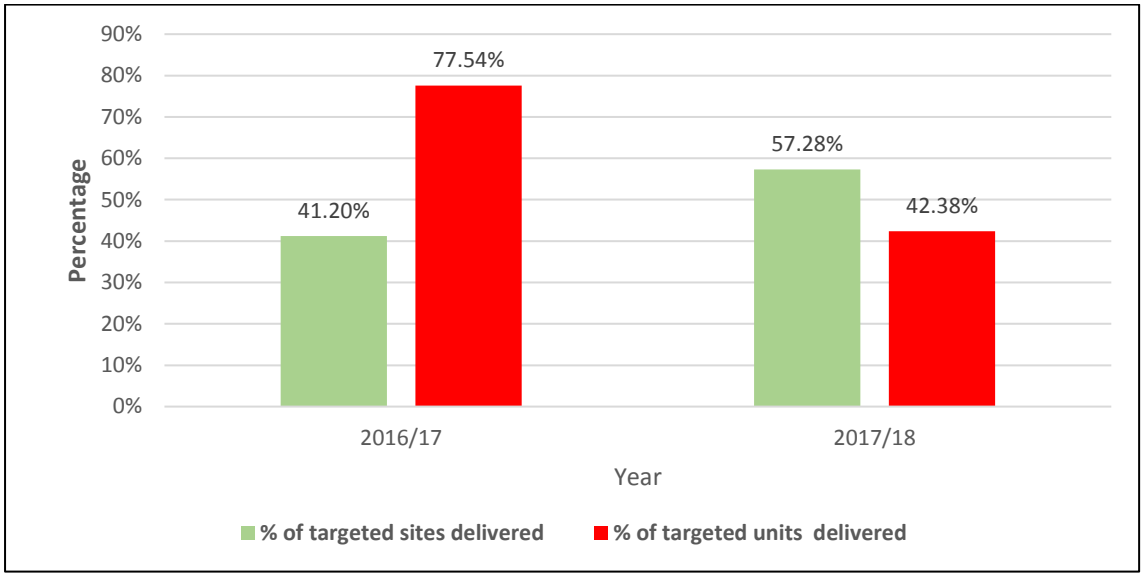
Figure 7: Performance of earmarked funding for upgrading of informal settlements in mining towns: percentage spending



Source: FFC calculations using National Department of Human Settlements database (2014-2017).

With respect to the non-financial performance, although data to compare sites and units delivered is not available for earlier years, such data is available for 2016/17 and 2017/18 (up to December 2017). Analysis of non-financial performance with respect to sites and units for funding earmarked for the upgrading of informal settlements in mining towns shows that performance is poor on both sites and units. Figure 8 illustrates that only 41 per cent and 77.5 per cent of targeted sites and units respectively were delivered in 2016/17.

Figure 8: Percentage of sites and units delivered



Source: Own calculations using National Department of Human Settlements Database (2016-2017).

In conclusion, the analysis of the human settlements sector shows that there has been an increasing trend in the use of earmarked funding. The number of earmarked funds has increased in recent years and is still increasing as new earmarked funding is introduced into the system (two new earmarked grants were introduced in 2018). Increasing the number of earmarked conditional grants increases the quantum of funds allocated to provinces, but also reduces the usage of funds by provinces according to their discretion and needs in their respective regions. Both major earmarked funds in the human settlements sectors perform poorly in terms of spending and service delivery. The introduction of earmarked funding is aimed at ensuring that a specific objective is achieved. However, given the poor performance of these grants and the fact that the funds go unspent, this may not be the best way to improve service delivery.

4.3 Administrative recentralisation

4.3.1. Overview

In South Africa, significant service delivery backlogs and spatial inequalities persist. These exist alongside poor implementation capacity and financial management challenges at sub-national level. In a number of cases, government has proposed a relocation of functions from sub-national to national level, out of concern for lack of sub-national capacity and stark variances in the equity and quality of services delivered. The next section provides a more detailed assessment of the recentralisation of TVET colleges and how the reform impacted college efficiency and performance.

4.3.2. Case study of TVET colleges

Schedule 4A of the Constitution assigns all levels of education, except tertiary, to provinces (Constitution, 1996). Up until 2012, however, TVET, formerly Further Education and Training (FET), colleges had been overseen by the nine provincial education departments. While located in the nine provincial departments of education, colleges were funded via the PES allocation. Provinces are at liberty as to how to distribute the PES resource envelope across their various functions. As a result of this provincial discretion, TVET colleges were funded and managed differently across the nine provinces.

Whereas provincial education budgets often consume the largest share of the PES, the colleges' allocation competed with those of basic education, which is a key provincial competence. According to Annexure W1 of the 2015 Budget Review R7 billion was shifted from the PES to the DHET's budget over the three years of the 2015 Medium Term Expenditure Framework period (MTEF) (National Treasury, 2015a).

In recognition of the importance of the post-school sector and the critical role that TVET colleges play in growing skills that support the economy, government embarked on a restructuring process that saw the colleges function being recentralised from provinces to the national sphere, specifically to the new DHET. Table 20 outlines key challenges that were experienced by colleges prior to the DHET assuming responsibility for the colleges.

Table 20. Challenges facing TVET colleges prior to recentralisation of the function

- Inequitable distribution of funding across the nine provinces;
- Delays in the processing and transfers of college funds by the provincial departments;
- Reported acts of mismanagement and non-compliance with supply chain management processes;
- Irregular appointments and inconsistent conditions of service across the system;
- Inadequate capacity to offer new programmes and qualifications;
- Lack of staff development programmes;
- Lack of learner, teacher study materials (LTSMs); and
- Significant infrastructure backlogs.

Source: DHET and South African College Principal Organisation (SACPO).

The rationale underpinning the recentralisation of the colleges' was to implement a uniform funding and management approach to apply equally to all TVET colleges. More broadly, it was also to develop an integrated post-school education and training sector, as well as signal a renewed emphasis and priority attached to TVET colleges and the important role that they play in growing skills. South Africa's National Development Plan (NDP) sets out ambitious targets for TVET colleges to meet by 2030. It includes improving the graduation rate for the National Certificate Vocational (NCV)[8] programme to 75 per cent and producing 30 000 artisans per year (National Planning Commission 2011).

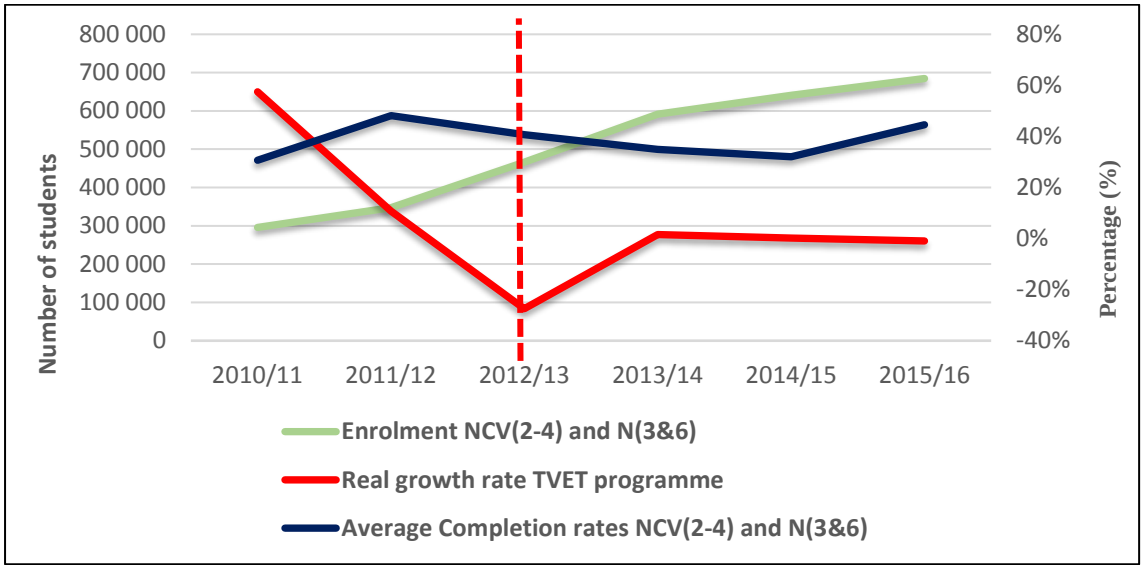
[8] The National Certificate Vocational (or NCV) consists of four levels (from NCV 1 to NCV4) and is equivalent to Grades 9, 10, 11 and 12.

As at 2017, a number of the challenges experienced when provincial education departments oversaw colleges remain. These primarily relate to funding. Funding for TVET colleges is meant to comprise a DHET subsidy covering 80 per cent programme funding with the remaining 20 per cent being covered by National Student Financial Aid Scheme. As noted by SACPO, the subsidy from the DHET has been reduced to significantly below the 80 per cent mark. Infrastructure backlogs at TVET colleges also pose a major challenge and are particularly important to address in light of the growing enrolment numbers. TVET colleges do not, however, have a dedicated subsidy for capital spending.

a. Contextualising the environment facing TVET colleges prior to and post the DHET assuming responsibility

Figure 9 provides an illustration of the funding and performance context facing TVET colleges. It illustrates that real growth in the allocations to TVET colleges were on a downward trend prior to 2012/13, the year in which the shift was legislated. However, since the function has been recentralised, real growth in allocations to TVET colleges have not turned around to show real growth. Alongside this, enrolment has more than doubled over the same period. Although performance has shown some improvement since 2010, completion rates remain low and, at 44.5 per cent as in 2015, are a cause for concern. Whereas at the provincial level, TVET colleges competed with funding for basic education (which is also a provincial competency and is comprised of primary and secondary schooling), it appears that universities are prioritised significantly more than TVETs at the national level,. The result is that colleges were underfunded at the provincial level in the past and are likely to continue to be underfunded at the national level. In the context of a subdued economic outlook that will negatively affect government spending, it is unlikely that funding for TVET colleges will be prioritised in the near future. The consequence is that the country's skills base runs the risk of not being developed adequately or in a way that reduces the mismatch between the skills needed in the labour market and the skills of available workers. Based on TVET-related targets set out in the NDP and the context facing colleges as outlined in Figure 9, it is important that government align adopted policy priorities with funding and institutional resources. Not only is marginal growth in funding hampering achievement of targets, but not all TVET colleges are able to absorb big increases in the numbers of students and ensure that all college entrants develop into high quality graduates.

Figure 9: Overview of financial and non-financial performance of TVET colleges prior to and post the DHET assuming responsibility



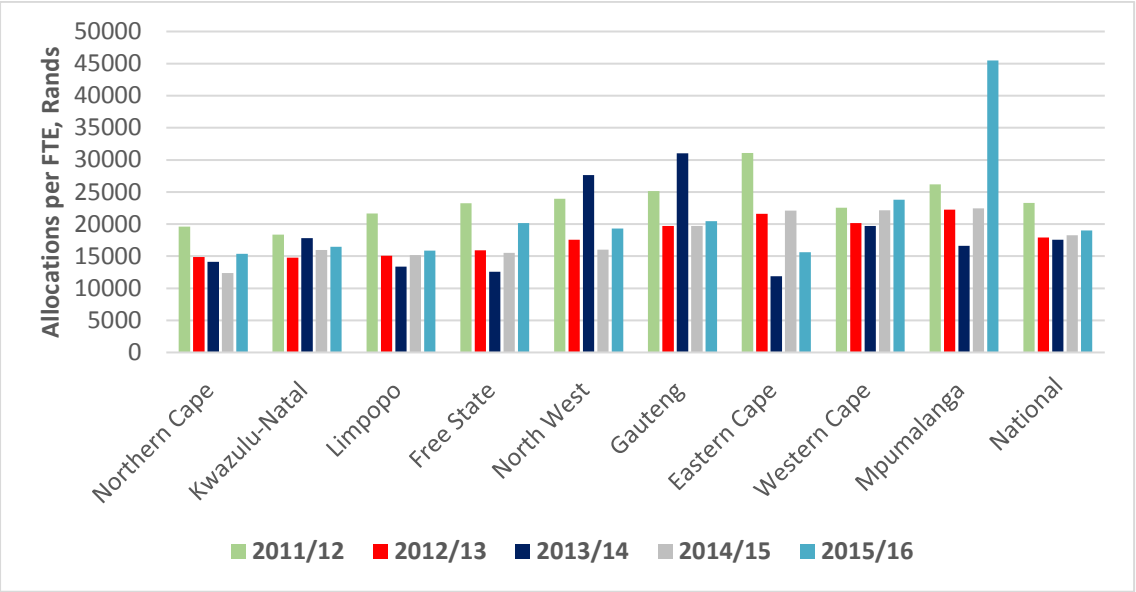
Source: FFC calculations using DHET (2010-2011, 2013a, 2013b, 2014 2015a, 2015b, 2015c, 2017) data.

b. Equity amongst TVET colleges prior to and post the DHET assuming responsibility

Prior to the recentralisation of the colleges function, TVET colleges in some provinces (Gauteng, Western Cape, Mpumalanga and Eastern Cape) were regarded as relatively better funded than in others (Northern Cape, KwaZulu-Natal, Limpopo, Free State and North West), which were categorised as underfunded. Figure 10 illustrates the funding allocation per full time equivalent (FTE)[9] student across the nine provinces for the period 2011/12 to 2015/16. An assessment of the FTE gives a sense of per student funding and thus an indication of the extent to which the under- and unequal funding persists at the national level. Figure 10 reveals that apart from colleges located in the Western Cape and Mpumalanga, colleges across all the other provinces experienced a decline in allocations per FTE between 2011/12 and 2015/16. In particular, allocations per FTE for the majority of colleges located in previously underfunded provinces for the period 2012/13-2015/16 never exceeded those of 2011/12. This reflects the perpetuation of past underfunding. Furthermore, allocations per FTE for the majority of colleges located in previously underfunded provinces remain below the national average, whereas allocations per FTE for the provinces that previously had appropriate budgets allocated to their colleges remain above the national average. In general, allocations per FTE for colleges located in previously better funded provinces tend to be higher than those of previously underfunded provinces for the period under review, which suggests that despite recentralisation, inequities in the allocations across the provinces remain.

[9] FTE is a unit that indicates the workload of a student in a manner that makes workloads comparable across different contexts

Figure 10: Allocations per FTE by province, 2011/12-2015/16



Source: FFC calculations using DHET (2011, 2013a, 2014 2015a, 2017) data.

c. Efficiency of TVET colleges prior to and post the DHET assuming responsibility

With respect to the efficiency of TVET colleges prior to and post the recentralisation of the function, the analysis first identified the top ten and bottom ten performers in terms of completion rates and assessed changes in their efficiency as a result of the reform. The rationale for doing so is that the main aim of colleges is to produce quality graduates. The analysis found that the majority of the top ten colleges are located in provinces that previously had better funded budgets, while the bottom ten consists mostly of colleges that are located in previously underfunded provinces. For the top ten colleges, most were efficient prior to the function being moved to the national sphere, and most remained efficient post the function being moved to the national sphere. Others either experienced a decline in their efficiency scores or an improvement in their efficiency scores but not a big enough improvement to regard them as efficient. For the bottom ten colleges, only one was regarded as efficient, but close to 50 per cent of the bottom ten colleges became efficient post the function being moved to the national sphere.

Table 21: Top ten TVET colleges in terms of completion rates (NCV and NATED programmes) and efficiency (prior and post recentralisation)

TVET college	Previously under/better funded budgets	Pre recentralisation, 2013		Post recentralisation, 2015	
		Completion rate	Efficiency score	Completion rate	Efficiency score
Eastern Cape Midlands	Better funded	52.2%	100%	66.2%	74.3%
Gert Sibande	Better funded	52.2%	100%	65.7%	100%
Boland	Better funded	47.7%	100%	65.6%	100%
Nkangala	Better funded	47.7%	93.6%	67.2%	100%
Sekhukhune	Under funded	47.6%	100%	55.6%	96.8%
Northern Cape Rural	Under funded	46.6%	100%	70.2%	100%
South Cape	Better funded	45.2%	100%	62.3%	100%
False Bay	Better funded	45.1%	99.7%	60.5%	74.5%
Majuba	Under funded	44.9%	100%	64.9%	100%
College of Cape Town	Better funded	43.7%	72.3%	64.6%	78%

Source: FFC calculations using DHET (2013a, 2015a, 2017) data.

Table 22: Bottom ten TVET colleges in terms of completion rates (NCV and NATED programmes) and efficiency (prior and post recentralisation)

TVET college	Previously under/better funded budgets	Pre-recentralisation, 2013		Post-recentralisation, 2015	
		Completion rate	Efficiency score	Completion rate	Efficiency score
Ehlanzeni TVET College	Better funded	33.5%	80.9%	57.6%	72.6%
Elangeni TVET College	Under funded	29.8%	77.0%	52.6%	78.7%
Flavius Mareka TVET College	Under funded	32.4%	94.1%	58.6%	100%
Goldfields TVET College	Under funded	33.7%	88%	57.8%	100%
Ingwe TVET College	Better funded	30.8%	99.9%	61.8%	72%
King Hintsa TVET College	Better funded	31.3%	100%	68.6%	100%
Mopani South East TVET College	Under funded	25.6%	84.6%	53.2%	71%
Motheo TVET College	Under funded	31.8%	47.3%	67.8%	100%
Orbit TVET College	Under funded	33.4%	57.4%	61.3%	56.2%
Umgungundlovu TVET College	Under funded	31.6%	84.6%	50.2%	100%

Source: FFC calculations using DHET (2013a, 2015a, 2017) data.

With respect to the determinants of TVET college efficiency, Table 23 presents the results of the Tobit regression for two models. The first model considers the period prior to the DHET assuming responsibility, while the second model considers the period after the DHET assumes responsibility. In the period prior to the DHET assuming responsibility, the size of the institution appears to negatively impact on efficiency. This result is to be expected especially in cases where colleges experience limited increases in their budget allocations in the context of rising enrolment rates. In the period after the DHET assumes responsibility, the extent to which the funding of colleges is equitable and adequate (determined by the allocation per FTE) is the main driver of efficiency and positively impacts on the efficiency of colleges. This finding reiterates that equitable funding across all TVET colleges remains a challenge that affects institutional performance.

Table 23: Tobit regression results on determinants of college efficiency

Dependent variable: College efficiency scores	Model 1: Prior to recentralisation of function, 2013		Model 2: Post recentralisation of function, (2015	
	Coef.	Robust Std. err.	Coef.	Robust Std. err.
Rural dummy (reference group=urban)	0.1277477	(0.0847678)	-0.0947035	(0.1335113)
Log allocation per FTE	0.0815531	(0.0584281)	0.2006354**	(0.0713468)
Size of institution	-.0000147*	(5.84e-06)	-6.55E-06	(5.76e-06)
Underfunded dummy (reference group=relatively better funded)	0.0423651	(0.0748475)	0.1384641	(0.0972209)
Audit outcomes (reference group= unqualified):				
Qualified	-0.0955405	(0.0815973)	-0.0380947	(0.1299059)
Disclaimer	-0.0133519	(0.0920226)	-0.1024958	(0.1003819)

Poverty rate	-0.1820599	(0.5143755)	1.118941	(0.6179193)
Constant	0.3954459	(0.587474)	-1.257125	(0.7716234)
Sigma				
Constant	0.1992693***	(0.0278416)	0.2544091***	(0.0333887)
PseudoR2	0.4024231		0.261436	
Observations	50		48	
Prob>F	0.0579154		0.066788	

Note: For an observed value of the t-statistic, the p-value is the smallest significance level at which the null hypothesis can be rejected (Woolridge, 2009). For example, if α=0.05 (the significance level) is used as the cut off for hypothesis testing, then if p-value ≤ α the null hypothesis can be rejected, there is only a 5% probability that the variable has no effect on the expected value of the outcome or that the variable is statistically significant at the 5% level.

*p-value: * p<0.05, ** p<0.01,*** p<0.001*

d. Performance of TVET colleges prior to and post the DHET assuming responsibility

Table 24 presents the results from the regression model which evaluated the effects of the location of the function on the educational performance of TVET colleges when all colleges are considered and when colleges are differentiated according to whether or not they were previously underfunded or previously relatively better funded. The results show that the location of the function influences the educational performance of TVET colleges irrespective of whether or not the college was previously underfunded. In particular, recentralisation of the function is associated with an increase in completion rates. This result is consistent with some of the interventions initiated by the national DHET as a way of addressing the challenges faced by many colleges of inadequate capacity to offer new programmes and qualifications. These interventions include the implementation of lecturer development programmes and ensuring curriculum support through the development of a national framework for curriculum review. However, when one considers the different programmes offered at the colleges, namely the NCV4 and the NATED[10] 6 programmes, the location of the function only influences the educational performance of previously better funded colleges. More specifically for NCV 4, location of the function negatively affects performance, whereas in the case of the NATED 6 programmes, location of the function positively affects performance. These effects are illustrated in more detail in Tables C1 and C2 in the appendix. Furthermore, throughput rates positively influence the educational performance of colleges.

[10] NATED refers to National Accredited Technical Education Diploma. This programme consists of 18 months' theoretical studies at a college and 18 months' practical workplace application.

Table 24: Regression results of the effects on performance as a result of shifting TVET colleges' function

Dependent variable: completion rate (NCV & NATED)	Model 1: Full		Model 2: Under funded		Model 3: Better funded	
	Coef	Std. err	Coef	Std. err	Coef	Std. err
Location of function: National sphere (reference group=provincial sphere)	0.0352214***	-0.008311	0.0410589*	-0.019041	0.0399295**	-0.011284
Log allocation per FTE	-0.000519	-0.003543	-0.005041	-0.004932	0.004305	-0.005796
Efficient dummy (reference group = inefficient)	-0.002202	-0.005053	0.005288	-0.009257	-0.007764	-0.007442
Size of institution	-2.74E-07	-5.26E-07	-9.22E-07	-7.27E-07	4.20E-07	-8.87E-07
Throughput rate	0.9448398***	-0.041662	0.9117011***	-0.093019	0.9089516***	-0.057569
Poverty rate	0.091145	-0.24923	0.186517	-0.643928	-0.073896	-0.359139
Audit outcomes (reference group= unqualified):						
Qualified	-0.00806	-0.005911	-0.015215	-0.00728	0.004349	-0.012213
Disclaimer	-0.012122	-0.006309	-0.018744	-0.011807	0.003035	-0.012846
Constant	0.039822	-0.104167	0.058176	-0.252021	0.050865	-0.143422
PseudoR2	0.994716		0.996105		0.995281	

Note: For an observed value of the t-statistic, the p-value is the smallest significance level at which the null hypothesis can be rejected (Woolridge, 2009). For example, if α=0.05 (the significance level) is used as the cut off for hypothesis testing, then if p-value ≤ α the null hypothesis can be rejected, which means that there is only a 5% probability that the variable has no effect on the expected value of the outcome or the variable is statistically significant at the 5% level.

*P-value: * p<0.05, ** p<0.01,*** p<0.001*

Conclusion and recommendations

Economic crises and fiscally constrained environments necessitate changes in the intergovernmental fiscal relations and administration of some functions and responsibilities for different spheres of government. Central to these changes is the fiscal and administrative recentralisation which has been implemented in South Africa. This chapter investigated whether recentralisation poses a credible avenue for ensuring better value for money and improved service delivery during the current period of financial and fiscal constraints. Two case studies of key examples of recentralisation were used to generate broad lessons applicable to the public sector.

With respect to fiscal recentralisation, the use and performance of earmarked conditional grants were assessed. In the case of administrative recentralisation, TVET colleges were analysed. The analysis shows that over the full period reviewed (2002/03 to 2020/21) conditional grants grew at a stronger rate than discretionary block grants. However, during periods of fiscal constraints, this was not necessarily the case. For example, during the period post the 2007/08 financial crisis, conditional grant funding increased dramatically in accordance with international literature, while block grants grew more moderately. Conversely, over the current fiscally constrained period, the opposite occurred, with real

growth in block grants strengthening relative to real growth in conditional grants. Notable is the increase in earmarked conditional grant funding. This type of conditional grant involves ring fencing and the application of more stringent conditions to pockets of funding in an existing conditional grant. This represents a less robust approach to recentralisation than would be evident with simply increasing the number of conditional grants relative to block grants.

The main result of the two case studies is that national government does not necessarily perform better at service delivery compared to sub-national government. This brings into question the rationale behind recentralisation. Poor spending and service delivery performance of earmarked conditional grants is evidence of this, making them an unsuitable avenue for achieving improved service delivery. Second, with respect to administrative recentralisation, a blanket approach is unsuitable, as results show that some colleges that were efficient prior to recentralisation saw a decline in levels of efficiency post the reform. Third, the analysis indicates a negative impact on the achievement of policy goals in situations where recentralisation occurs in the context of a misalignment between policy aspirations, resources allocated, and institutional capabilities.

Recommendations

1) *The Commission recommends that executive branch not automatically resort to increasing the role of national government in the current constrained fiscal environment in which resources are limited, since historical performance data does not generally support that doing so leads to improved performance.*

This argument is based on case-studies of:

1) The performance of earmarked conditional grants, and
2) The impact of recentralisation on the efficiency and performance of TVET colleges.

Government could improve the quality of service delivery and achievement of national socio-economic objectives through adequate training of sub-national government implementers, and/or changing the manner of delivery rather than changing the location of a function.

2) *The Commission recommends that the National Treasury, together with relevant line departments, develop and strengthen control measures other than earmarked conditional grant funding to improve service delivery and attainment of specific priority outcomes. The control measures should be underpinned by tighter monitoring and reporting of sub-national governments on the use of grant funding and associated outcomes of such spending. National Treasury should ensure that decisive action such as withholding of funds is taken by national sector departments as soon as cases where grant funding is inefficiently and/or ineffectively spent have been detected.*

Government must continually assess the impact of different funding instruments on service delivery performance. For example, with respect to earmarked conditional grant funding, analysis shows that they currently perform poorly and are thus not a suitable avenue for achieving improved service delivery. Introducing rigidity in earmarked conditional grants does not result in better performance.

3) *The Commission recommends that government implement a targeted approach to reforms to ensure that sub-national governments previously lacking in capabilities and funding do not continue to be disadvantaged. The Commission also recommends that a differentiated*

approach to recentralising a function, in which function shifts are piloted and assessed, is adopted.

This will avoid unnecessary disruption and the high cost of readjustment of a function across the board. Ideally government should focus on weaknesses in performance and on addressing these before applying a blanket approach which may inadvertently have a negative effect on good performers.

4) *The Commission recommends that government conduct a detailed cost benefit analysis prior to recentralisation and ensure close alignment between policy goals, and funding and institutional capacity.*

In the absence of sufficient and sustainable funding and institutional capabilities to translate policy into actions and meet outcome targets, achievement of only some targets is meaningless.

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Written inputs to FFC questionnaire on the recentralisation of TVET colleges were provided by the following respondents:

1. Ms Hellen Ntlatleng, President: SA College Principals Organisation (SACPO)
2. Mr Themba Msipha, head: function shift unit, DHET.

Appendix 1: Summary of variables used for efficiency and performance analysis

Variable	Description	Anticipated sign (negative/positive)	Proxy	Data source
Efficiency analysis using DEA: Inputs				
Budget allocation for TVET colleges	2013/14 and 2015/16 budget allocation to each of the 50 TVET colleges	-	Actual data	DHET, final budget allocation, 2013/14 and 2015/16
Enrolment	Enrolment at each of the TVET colleges: headcount and full time equivalent enrolment	-	Actual data	DHET, statistics on post-school education and training in SA, 2013/14 and 2015/16
Student-lecturer ratio	Number of students for each lecturer	-	Actual data	DHET, statistics on post-school education and training in SA, 2013/14 and 2015/16
Efficiency analysis using DEA: Outputs				
Completion rate	Measured by the number of students who complete a programme (NCV2-4, NATED 1-6 Engineering and NATED 4-6 Business Studies) as a percentage of the number of students who wrote the exam required to complete the programme	-	Actual data	DHET, statistics on post-school education and training in SA, 2013/14 and 2015/16
Throughput rate	Used DNA economics' definition of annual throughput rates calculated as follows: = [completion rate]x[1-Dropout rate]	-	Actual data	DHET, 2013/14 and 2015/16
Highest qualification level	Measure of quality: number of students who have obtained highest qualification level for each programme offered at TVETs, which is NCV4 (equivalent to matric) for the NCV programme and N6 (equivalent to a diploma) for the NATED programme	-	Actual data	DHET, statistics on post-school education and training in SA, 2013/14 and 2015/16
Efficiency analysis: second-stage variables used in Tobit regression				
Efficiency score (dependent variable)	DEA efficiency scores (%) generated for the various financial years	-	Actual data	Obtained from running the DEA model

Geographical location/area dummy (reference group= urban)	Dummy variable indicating whether TVET located in a rural or urban area. Calculated using the categorisation methodology developed by the Department of Cooperative Governance and Traditional Affairs (CoGTA) and the Department of Rural Development and Land Reform	Negative	Proxy	
Log allocation per FTE	Gives an indication of the extent to which the funding of TVET colleges is adequate and equitable: measured by = budget allocation/full time equivalent enrolment	Positive	Actual data	DHET, 2013/14 and 2015/16
Underfunded dummy	Dummy variable indicated colleges that were previously underfunded and those previously relatively better funded. Previously underfunded colleges are located in Northern Cape, KwaZulu-Natal, Limpopo, Free State and North West provinces. Previously (relatively) better funded colleges are located in Gauteng, Eastern Cape, Western Cape and Mpumalanga	Negative		DHET
Audit outcomes	Dummy variable indicating the audit outcomes of TVET colleges: unqualified (reference group), qualified, disclaimer,	In comparison to an unqualified audit outcome, having a qualified or disclaimer is expected to impact negatively on efficiency	Actual data	DHET, 2013/14 and 2015/16
Poverty rate	Poverty rates at a municipal level	Negative	Actual data	Global Insight database, 2013/14 and 2015/16
Performance analysis: explanatory variables (at the institutional level)				
Completion rate (dependent variable)	Measured by the number of students who complete a programme (NCV2-4, NATED 1-6 Engineering and NATED 4-6 Business Studies) as a percentage of the number of students who wrote the exam required to complete the programme		Actual data	DHET, statistics on post-school education and training in SA, 2013/14 and 2015/16
Location of function: national sphere, provincial sphere (reference group)	Dummy variable indicating whether the function is located at the national or provincial sphere	Negative/Positive		
Log allocation per FTE	Gives an indication of the extent to which the funding of TVET colleges is adequate and equitable: measured by = budget allocation/full time equivalent enrolment	Positive	Actual data	DHET, 2013/14 and 2015/16

Efficient dummy (reference group= inefficient)	Dummy variable indicating whether college is efficient or not- a college is efficient if its efficiency score is 100% and inefficient if its score is less than 100%	Positive	Actual data	Calculated from the efficiency scores obtained from running DEA model
Size of institution	Proxied by institutions' enrolment	Negative	Proxy	DHET, 2013/14 and 2015/16
Throughput rate	Used DNA economics' definition of annual throughput rates calculated as follows: = [completion rate]x[1-Dropout rate]	Positive	Actual data	DHET, 2013/14 and 2015/16
Poverty rate	Poverty rates at a municipal level	Negative	Actual data	Global Insight database, 2013/14 and 2015/16
Audit outcomes	Dummy variable indicating the audit outcomes of TVET colleges: unqualified (reference group), qualified, disclaimer,	In comparison to an unqualified audit outcome, having a qualified or disclaimer is expected to impact negatively on educational performance	Actual data	DHET, 2013/14 and 2015/16

Source: Compiled by FFC

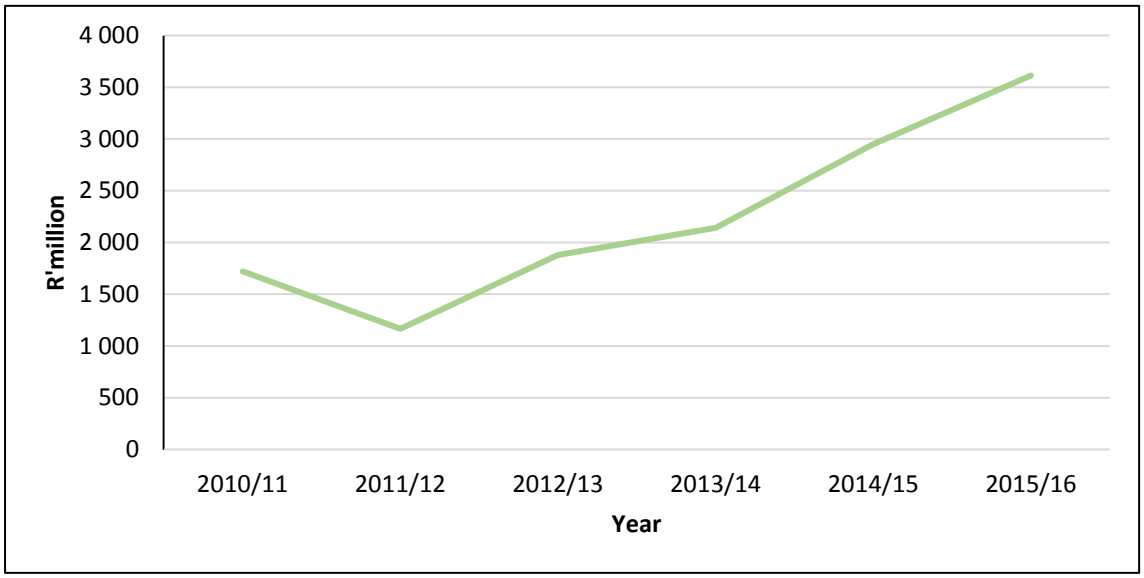
Appendix 2: Updated assessment of performance of indirect grants

An assessment of indirect grants based solely on the extent of resource allocations would be insufficient to judge their performance. This section therefore looks at funding relative to output/service delivery performance. In summary the performance of indirect grants suggests that stronger central government intervention does not necessarily result in improved performance. Thus recentralisation is not necessarily a route to achieve improved service delivery, and the previous recommendation of the Commission — the need to build capacity so that municipalities are capable of carrying out their mandate — is reiterated.

a. Integrated national electrification programme (INEP)

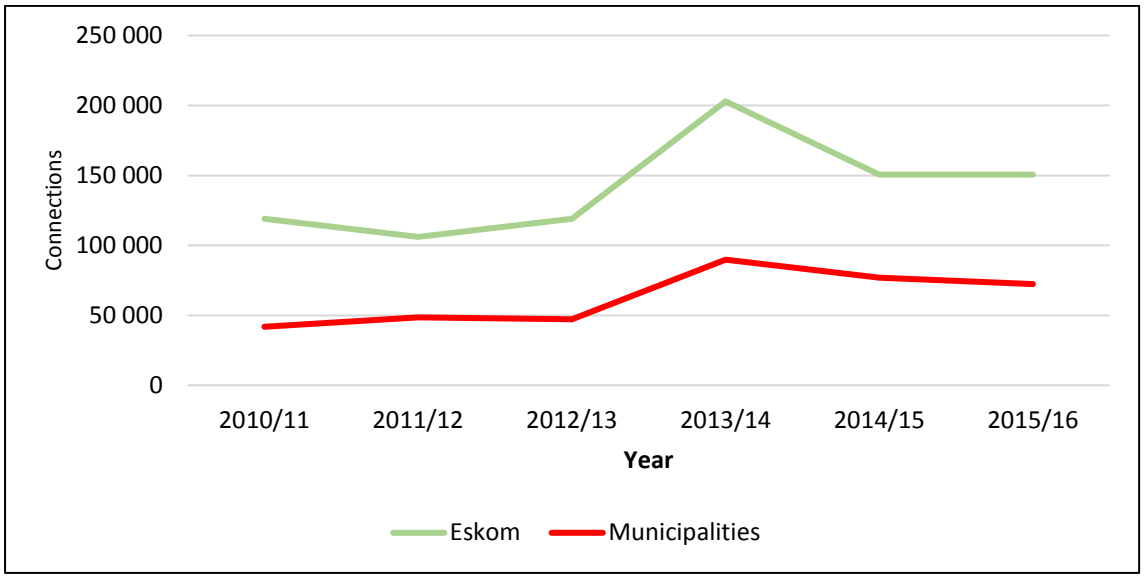
The objective of the INEP is to reduce the backlog of unelectrified households and to fund bulk infrastructure to ensure constant electricity supply. It is implemented by municipalities (where municipalities have the requisite capacity), and by Eskom where municipalities lack capacity to implement the programme. An assessment of INEP allocations relative to performance (Figure 11 and Figure 12) shows that between 2010/11 and 2013/14, the performance generally mimicked the funding trend. As of 2013/14 however, performance has declined, even though funding continued to increase.

Figure 11: INEP Allocation, 2010/11 — 2015/16 (R'million)



Source: National Treasury, DoRB (2010b-2015b)

Figure 12: Performance of the INEP, 2010/11 — 2015/16

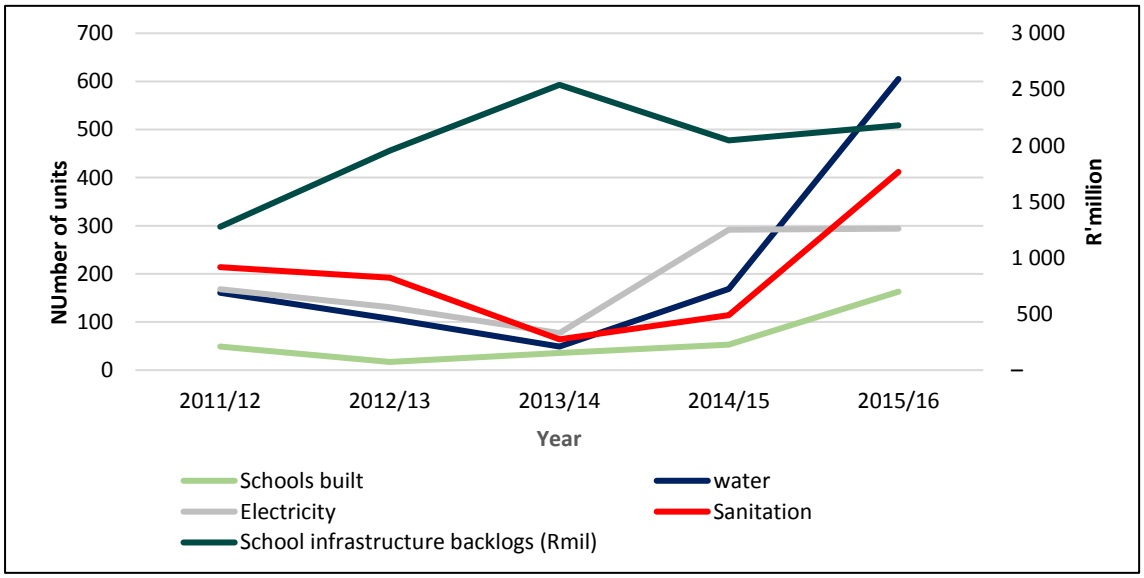


Source: National Treasury, DoRB (2010b-2015b)

b. School Infrastructure Backlog Grant (SIBG)

The purpose of the SIBG is to eradicate inappropriate education structure and backlogs in basic service including electrifying schools and provide water and sanitation. As is evident in Figure 13, there was a decrease in respect of performance i.e. in the provision of infrastructure over the period 2011/12 to 2013/14, even though there was an increase in funding of this indirect grant. The opposite trend is visible between 2013/14 and 2014/15 during which period the allocation to this indirect grant declined, in spite of an increase in performance.

Figure 13: Performance of the SIBG, 2011/12 — 2015/16

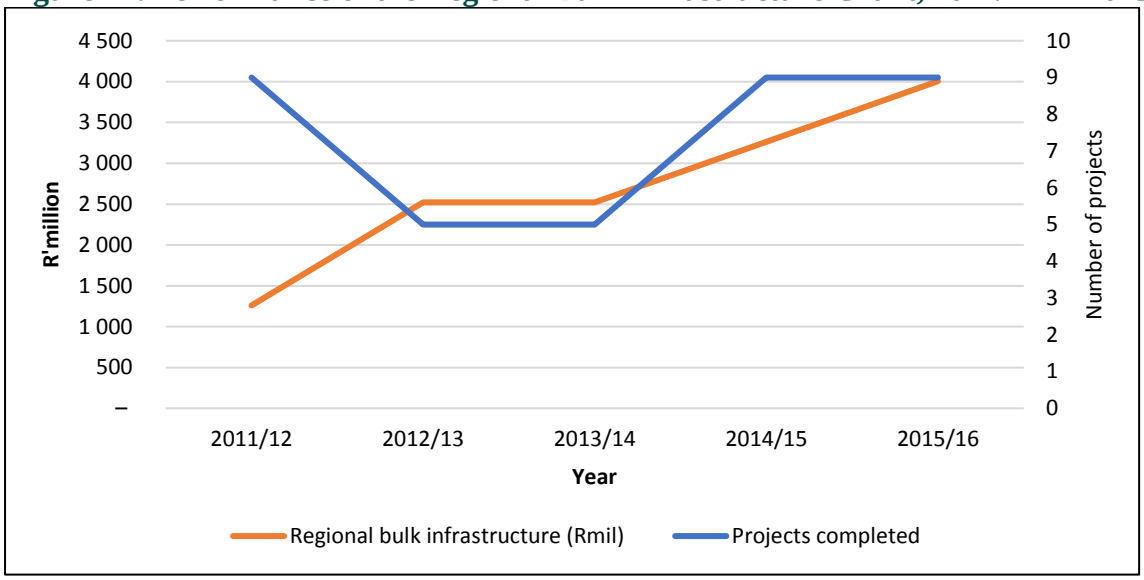


Source: National Treasury, DoRB (2011-2015)

c. Regional Bulk Infrastructure Grant

The strategic goal for the Regional Bulk Infrastructure Grant is to facilitate achievement of targets for access to clean water through execution and implementation of regional bulk infrastructure. As per Figure B4, the funding allocation and infrastructure delivery trends show a contrast between 2011/12 and 2012/13 as funding was on the increase but infrastructure delivery was on the decrease. Post 2013/14, both the allocation and delivery show an increasing trend.

Figure 14: Performance of the Regional Bulk Infrastructure Grant, 2011/12 — 2015/16



Source: National Treasury, DoRB (2011b-2015b)

Appendix 3: Performance analysis

Table 25: Regression results of the effect on performance as a result of recentralising TVET colleges' function

Dependent variable: completion rate NCV(4)	Model 1: Full		Model 2: Under funded		Model 3: Better funded	
	Coef	Std. err	Coef	Std. err	Coef	Std. err
Location of function: National sphere (reference group=provincial sphere)	-0.1381319**	-0.0410449	-0.1318326	-0.1109794	-0.1298906**	-0.0412538
Log allocation per FTE	0.027084	-0.0174965	0.0571738	-0.0287435	-0.0241598	-0.0211899
Efficient dummy (reference group = inefficient)	-0.0228463	-0.0249577	0.0136091	-0.0539545	-0.0060367	-0.027209
Size of institution	-1.45E-07	-2.60E-06	8.12E-07	-4.24E-06	-3.09E-07	-3.24E-06
Throughput rate	1.004295***	-0.2057593	0.8403951	-0.5421481	1.115634***	-0.2104722
Poverty rate	0.6684268	-1.230903	1.163421	-3.753064	-1.107398	-1.313025
Audit outcomes (reference group= unqualified):						
Qualified	-0.0365062	-0.0291929	-0.0484406	-0.0424324	-5.15E-07	-0.0446498
Disclaimer	-0.0178908	-0.0311575	0.0002983	-0.068817	-0.0313029	-0.0469638
Constant	-0.4684639	-0.5144617	-0.9439399	-1.468879	0.580948	-0.5243569
PseudoR2	0.5465051		0.5460197		0.7715104	
Observations	98		49		49	

Note: For an observed value of the t-statistic, the p-value is the smallest significance level at which the null hypothesis can be rejected (Woolridge, 2009). For example, if α=0.05 (the significance level) is used as the cut off for hypothesis testing, then if p-value ≤ α the null hypothesis can be rejected, which means that there is only a 5% probability that the variable has no effect on the expected value of the outcome or the variable is statistically significant at the 5% level.

*p-value: * p<0.05, ** p<0.01,*** p<0.001*

Table 26: Regression results of the effect on performance as a result of recentralising TVET colleges' function

Dependent variable: completion rate N6	Model 1: Full		Model 2: Under funded		Model 3: Better funded	
	Coef	Std. Err	Coef	Std. Err	Coef	Std. Err
Location of function: National sphere (reference group=provincial sphere)	0.1936693***	-0.0508178	0.211287	-0.1154775	0.203495**	-0.06946
Log Allocation per FTE	0.0261957	-0.0216176	-0.0006279	-0.0300395	0.0428953	-0.035678
Efficient dummy (reference group = inefficient)	-0.0081488	-0.0305722	0.0433287	-0.0550714	-0.0351791	-0.0458125
Size of institution	2.18E-07	-3.18E-06	-2.75E-06	-4.33E-06	3.45E-06	-5.46E-06
Throughput rate	0.4518809	-0.2532613	0.2301057	-0.5595194	0.478076	-0.3543773
Poverty rate	0.2843706	-1.519975	-0.4293855	-3.826549	0.7901171	-2.210772
Audit outcomes (reference group= unqualified):						
Qualified	-0.0217671	-0.0357818	-0.0421918	-0.0436058	-0.0245597	-0.0751779
Disclaimer	-0.037386	-0.0381508	-0.0645134	-0.0702769	0.0136921	-0.0790741
Constant	-0.1601471	-0.6304342	0.4775768	-1.492396	-0.5508646	-0.8828724
PseudoR2	0.8958716		0.9073626		0.9216013	
Observations	97		48		49	

Note: For an observed value of the t-statistic, the p-value is the smallest significance level at which the null hypothesis can be rejected (Woolridge, 2009). For example, if $\alpha=0.05$ (the significance level) is used as the cut off for hypothesis testing, then if p-value $\leq \alpha$ the null hypothesis can be rejected, which means that there is only a 5% probability that the variable has no effect on the expected value of the outcome or the variable is statistically significant at the 5% level.

*p-value: * p<0.05, ** p<0.01,*** p<0.001*

Chapter 3: Provincial Fiscal Adjustment Mechanism in Times of Protracted Tight Fiscal Environments: A Case Study of the Health Sector

Eddie Rakabe

Introduction

Provinces play a crucial role in the delivery of primary health care. Health allocations account for 30 to 35 per cent of total provincial budgets and are under severe pressure as a result of rapidly growing demands and inadequate growth in transfers. Health facilities lack the basic medical equipment and operate with understaffed clinical professionals. National Department of Health (DoH) estimates show that the health budget is underfunded by R13 billion in 2018 and this shortfall accumulates annually due to unresponsive transfers. Health transfers are growing at a nominal average rate of 6 per cent in comparison to an 8 per cent annual growth in personnel costs and other key health related inputs (medication, food, buildings and technology). When incorporating factors such as dilapidated infrastructure and shortage of medical equipment, the shortfall estimates run into hundreds of billions. The ongoing pressure on the health infrastructure and equipment budget is exacerbated by national consolidation objectives which have resulted in budget cuts to selected health conditional grants. Health infrastructure grants declined by 14 per cent over the 2018 MTEF period (DoH, 2017; National Treasury, 2018)

Rising health demands and stagnant transfers prompt provinces to employ numerous strategies to smooth the fiscal constraint. Fiscal (budget) adjustment measures are one such response. In extreme cases, provinces resort to detrimental measures such as under servicing to ameliorate the fiscal strain. This option has been a subject of considerable debate during the disastrous deinstitutionalisation of mental health patients in Gauteng province. This study assesses the extent to which IGFR instruments enable provinces to respond to protracted periods of fiscal constraint.

Intense scholarly attention (see for example Kodolov, 2016; Brown 2012; Rattsø, 2004) has been given to understanding the fiscal adjustment mechanism of sub-national governments when confronted with exogenous or endogenous (negative) fiscal shocks, i.e. sharp declines in revenue accompanied by increases in expenditure, generating a financial or delivery deficit. These studies are concerned with the actions taken by sub-national government and higher layers of government to:

- correct or prevent the shocks;
- the incentive and disincentive effects giving rise to the shocks;
- the period it takes for the budget to return to balance after the adjustment; and
- the fiscal variables, and their efficacy, through which the adjustment process is effected (More, 2004).

The nature of fiscal variables available to respond to budgetary shocks depends on the varying institutional or intergovernmental fiscal arrangement of each country. In countries where sub-national governments are fiscally autonomous, these variables may entail a combination of spending cuts (typically on capital) and reprioritisation, tax increases and borrowing. Some adjustment may stem directly or indirectly from the centre through general fiscal consolidation objectives involving cuts or slower rates of growth in national transfers to sub-national governments.

Provinces in South Africa face a unique situation with regard to fiscal adjustment, defined as a successful reduction in the budget deficit following deliberate policy actions (Brown, 2012). Three characteristics of the IGFR account for this distinction. First, provinces have limited revenue raising powers either through taxes or borrowing. Second, they rely almost entirely on national transfers to execute their mandates with marginal expenditure discretion. Thirdly, existing fiscal rules require provinces to maintain a budget balance with strict safeguards for fiscal slippage and provide little room for shifting allocated funds across expenditure mandates and programmes. In fiscal terms, this means that rigidities ingrained in the structure of the IGFR system limit provinces' capacity to adapt to changing economic conditions.

Unavailability of fiscal levers to increase own revenue, the limited discretion to adjust current and capital spending, and the near absent latitude to amend the size and structure of national transfers trigger a number of important policy questions:

- First, what is the nature of the fiscal variables used by provinces to respond to protracted fiscal strain?[11]
- Second, how responsive are the provincial fiscal transfers to actual or anticipated fiscal or delivery crises?
- Third, what is the optimal provincial fiscal framework model required to facilitate smooth adaptation to a deteriorating fiscal situation?

In answering these questions, the study first discusses the legislative and institutional arrangements that affect fiscal adjustment mechanisms at the provincial level. Second, the practical manifestation of these arrangements on budget outcomes is illustrated. Third, an empirical estimation of fiscal shock is provided, and the budgetary channels through which the shock is transmitted using a panel regression is assessed. Lastly, case studies illustrate the fiscal and non-fiscal measures adopted by selected provincial health departments to respond to ongoing budget strain.

1.1 Research problem

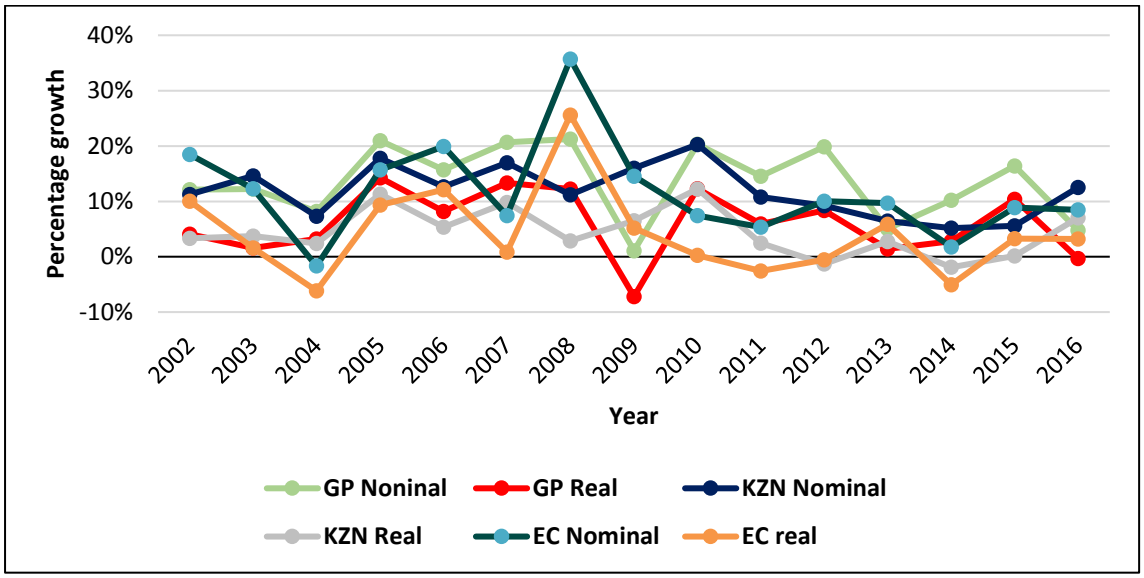
Provincial health budget allocations are slowly declining, due to ongoing national fiscal consolidation, in a context of ongoing shortages in critical medical equipment and consumables, healthcare professionals and the deteriorating[12] levels of healthcare. Figure 15 shows that the rate of growth in provincial allocations have been on a declining trajectory since the 2008 financial crises. The national DoH estimates that the health sector experienced a funding shortfall of R13 billion in 2018 on the basis of expected expenditure growth relative to the actual allocations. The tight fiscal environment places healthcare

[11] This question is particularly pertinent in that responses to budget shocks often manifest in variables other than fiscal ones such as shortage of hospital beds and medical supplies and poor healthcare services

[12] As highlighted by timeous incidents of patients sleeping on the floor, medical stock run-outs, long queues and waiting lists, and legal claims for negligence.

delivery under severe fiscal pressure while provinces seemingly lack the wherewithal to respond to the ongoing strain. Rigid and context-specific intergovernmental fiscal arrangements limit provinces' ability to make the budget adjustments necessary to respond.

Figure 15: Provincial equitable share growth rate – nominal and real



Source: Computed form National Treasury database.

The marginal expenditure discretion, non-existent revenue autonomy and tighter fiscal rules paralyse provincial ability to bring about fiscal adjustment through expenditure, revenue or borrowing variables in line with other decentralised federations. On the borrowing side, legislative provisions and informal intergovernmental compacts prohibit provinces from balancing their budget gaps by increasing debt financing. Legislatively, provinces can borrow for long-term investment but even such discretion is forbidden. Similar restrictions apply on the revenue side with provinces only assigned narrow tax handles from which to raise additional own revenue. The result is that episodes of revenue and expenditure shocks are only addressed through national budget adjustment processes which do not always consider the specific circumstances of provinces. National fiscal adjustments assume that all provinces provide a standard set of services under similar socio-economic and delivery circumstances.

Further, a significant proportion of provincial expenditure is mandatory and therefore very difficult to cut, because of associated service delivery sensitivities. This is the case for national policies in health, education and social development. Cutting the budget of crucial public services such as health and education is not only politically undesirable but also potentially damaging to the set developmental goals. This was illustrated through the tragic case in which mentally ill patients were shifted from hospital care into NGO or home based care in Gauteng province.[13] Further, provinces cannot over spend allocated budgets because of fiscal rules. Similarly, the composition of current and capital transfers and the associated spending is too rigid to accommodate any considerable margin of adjustment because of strict *anti virement*[14] rules. Any adjustments on expenditure normally follow through from national government and are channelled via reductions in enabling transfers or spending limits.

[13] A purported cost saving exercise for de-institutionalising mentally ill patients from hospitals facilities into Non-Governmental Organisations which resulted in the death of over 140 patients.
[14] The process of transferring funds from one expenditure line item to the other.

In many instances, sub-national governments use capital expenditure cuts as the only discretionary fiscal adjustment instrument available to them to preserve provision of social services when confronted with fiscal pressure. However, as is often the case in other decentralised systems, cuts in capital expenditure are not a viable option for provinces in South Africa. Infrastructure is predominantly funded through conditional grants determined from the centre and only transferred to provinces for implementation.

The provincial fiscal framework in respect of the composition and use of transfers is rigid. This translates into unsustainable long-term service delivery because provinces must continue with the built programme even in times of fiscal shock. The absence of flexible provincial fiscal adjustment mechanisms may result in adverse alteration of delivery outputs and priorities, subsequently leading to a perpetual structural deficit and weaker regional growth. This absence can also increase inequalities in local public service access, lower the quality of services, and undermine the capacity of provinces to preserve and deliver important social services.

1.2 Research questions

The study asks three pertinent questions:

1. What are the fiscal adjustment variables used by provinces to adjust their budgets in a constrained fiscal environment, given the existing legislative and institutional rigidities?
2. What are the implications of fiscal adjustment rigidities on provincial budgetary outcomes?
3. What are the budgetary channels through which provincial revenue shocks are transmitted?

Literature review

2.1 Fiscal adjustment and economic turbulence

Improving the sustainability of government fiscal balances remains an important goal of fiscal policy in federal and unitary multilevel governments. In some countries, increased concerns of sub-national budgetary slippages during economic downturns have resulted in calls for tighter controls and better coordination of national and sub-national policies (Spahn, 2012). In many other countries, sub-national governments have been granted the discretion to pursue stability through a range of fiscal adjustment strategies.

Economic turbulence is often accompanied by fiscal shocks, meaning temporary or continuous disruption of government spending priorities that cannot be rectified through normal first order incremental adjustment to existing policy programmes. Thus, the strategic approaches to improving shock induced fiscal instability may need to incorporate second order adjustments (significant changes in policy programmes) and third order adjustments comprising fundamental changes to key policies and budget priorities.

There are three important policy questions for fiscal adjustment.

- What are key determinants of fiscal adjustment?
- What constitutes an appropriate mix of discretionary fiscal policy to effect adjustment or the fiscal flows through which adjustment occurs?
- What constitutes a successful fiscal adjustment?

A large body of literature identifies poor economic performance and large public debt and deficit as the main trigger of fiscal consolidation (Kodolov and Hale, 2016, Kumar *et al*, 2007, Barrios and Martinez, 2012). The resulting fiscal risks (deviations from a sustainable budget outcome) prompt sub-national governments to take self-imposed corrective actions, or the national government imposing numerical rules, especially in cases where the soft budget constraint problem is pervasive. Adjustments may, however, not always arise from cyclical fluctuations. Exceptions may emerge from far-reaching shifts in demographic patterns (growth, migration and ageing), technological changes, disease prevalence, historical episodes of fiscal imprudence, as well as persistent downturns in key industrial activity resulting in significant erosion of the sub-national revenue base.

As a rule of thumb, there are no hard and fast rules on what constitutes an effective mix of fiscal adjustment instruments. Government may use a combination of various adjustment tools depending on the origin and severity of fiscal crises and political considerations. In pursuing a sustainable fiscal balance, government effectively faces three broad policy options. This includes introducing first order adjustments consisting of modest adjustments to existing programmes. First order measures comprise a mix of expenditure and revenue base adjustments. On the expenditure side, these measures involve general or targeted reductions in selected expenditure programmes (particularly infrastructure) while protecting core services by maintaining spending near the inflation rate. Revenue measures comprise general or targeted tax increases to finance the budget gap and in exceptional cases, an increase in debt finance if the fiscal crises encountered are not a result of excessive borrowing. First order measures may be insufficient to address chronic fiscal shocks (Kumar, 2007; Kodolov and Hale 2016), thus resulting in calls for second and third order interventions.

Second and third interventions are focused on fundamental changes or "big fixes" to the expenditure and revenue bases rather than marginal deviations to the existing budget. These fiscal adjustments may involve termination of existing expenditure programmes and adoption of structural reforms (in the areas of personnel, taxation or social security, among other things). They require budget implementers to conduct strategic and expenditure reviews, providing early signalling to the markets and the public on the need to depart from a BaU trajectory. While the big fix adjustments correspondingly occur through the expenditure and revenue based budget components, what matters for these interventions is the magnitude of the effects on the targeted fiscal outcomes (Kodolov and Hale 2016).

Ordinarily, the anticipated outcome from a discretionary fiscal adjustment process is an improvement to the cyclically adjusted primary balance. The standard measure of success focuses on the decline in the debt-to-GDP ratio within a specified period. This is based on the overwhelming view that fiscal adjustments arise from a deteriorating fiscal balance and rising public debt levels. For this reason, if the debt-to-GDP ratio declines by five percentage points three years following the commencement of consolidation, an episode of fiscal adjustment is regarded as successful (Darby, 2005, Kumar 2007 and (Alesina and Ardagna 2013). This formulation is however inapplicable to government spheres with fiscal rigidities as is the case with provinces in South Africa. Fiscally, subordinate subnational governments primarily resort to what Vammale and Hulbert (2013) describe as "veneer fiscal adjustment" instruments to accomplish fiscal sustainability, which essentially reflect a notional budget balance with accumulated service delivery deficit.

Most countries with centralised fiscal systems are increasingly aware of the fiscal difficulties faced by the sub-national governments and the resulting potential adverse effects on the

quality and quantity of services, and often complement sub-national adjustment efforts with transitory discretionary measures. These comprise a myriad of interventions ranging from increasing sub-national grants to stabilise the budget and finance investments, relaxing approval and disbursement procedures, increasing the sub-national tax space, easing balanced budget rules and tightening intergovernmental coordination (Organisation for Economic Co-operation and Development (OECD), 2010). A common view in the literature is that these interventions soften the budget constraint of sub-national governments and may therefore undermine overall consolidation objectives (Bird and Tassonyi 2003).

2.2 Approaches to measuring sub-national fiscal adjustment

Many studies have investigated fiscal adjustment from different angles. Some focus on the budgetary effects, taking into account both the fiscal channels and the dynamic responses in the short and long run (Esterller-More *et al*, 2017 and Alesina and Ardagna, 2013). Others focus on the institutional aspects (Rattso, 1999 and Schaltergger and Feld, 2009) while some discuss the political characteristics (Tellier and Imbeau, 2004). Given the heterogeneity of fiscal systems across different countries, these studies make a distinction between national and sub-national behaviour in relation to fiscal adjustment.

Focusing on the impact of vertical fiscal imbalance in OECD countries, Eyraud and Lusinyan, (2012) indicate that greater fiscal autonomy is beneficial for long-term sub-national fiscal stability: a 10 per cent decline leads to a 1 per cent improvement in budget balance. This finding coincides with Schaltegger and Feld (2009) who present evidence that fiscal centralisation decreases the likelihood of long lasting sub-national fiscal stability. In contrast, OECD (2010) finds that tight fiscal rules explain much of the sub-national fiscal outcomes, although the strength of the relationship between the two is rather weak. Using fiscal impulses, discretionary changes to fiscal policy from one to another, Derby (2005) indicates that the behaviour of sub-national government in OECD countries differ according to whether adjustments are part of general government consolidation or isolated to individual sphere or tier. Locally driven adjustments have been found to concentrate on revenue enhancement and capital spending cuts while increasing the wage bill, rather than areas which lead to sustainable improvement in fiscal balance. This behaviour effectively requires fiscal rules and may lead to disproportional sharing of the adjustment burden to the sub-national government by cutting or freezing transfers. Suffice to point out that Derby (2005) found negligible evidence of this “passing the buck” phenomenon in OECD countries.

Other studies in Mountford and Uhlig (2002) and Alesina and Ardagna, (2013) have looked at the impact of fiscal adjustment on the wider economy. These studies analyse the channels through which economic shocks are transmitted and the responsiveness of adjustment variables in remedying the shocks. Applying vector auto regression (VAR), Mountford and Uhlig (2002) simulated different types of fiscal shocks on the national economy and found that a deficit spending shock weakly stimulated the economy. Allesina and Ardagna make two important findings. First, that spending based fiscal adjustment measures are growth friendly (and lead to lasting reductions in debt-to-GDP ratio). Second, expenditure based adjustments are more closely correlated with a small economic downturn than with tax based adjustment interventions.

Evidence of dynamic fiscal responses to fiscal shocks in fiscally subordinate sub-national government is scant in the literature. The existing body of literature provides evidence of adjustment in mostly decentralised fiscal systems where sub-national government has

autonomy to borrow. As a result, fiscal adjustment is defined from a perspective of lower debt-to-GDP ratio. In a study of fiscal adjustment in Spanish municipalities, Esteller-More *et al* (2017) use a vector error correction model (VECM) to analyse the budget components used by local government in response to exogenous shocks. Their model specification estimates the causal relationship over time between four budget components, including own revenue, grants, non-financial expenditure and debt services. The results indicate that exogenous shocks tend to raise levels in the short-term but converge to the original level in the long-term. Municipalities generally use expenditure variables to respond to the shock, while revenue is only responsive if the shock is idiosyncratic. Grants on the other side are shock neutral.

Tellier and Imbeau (2004) offer evidence of fiscal adjustment from a provincial perspective, albeit focusing on the economic, political and institutional determinants of provincial fiscal balance. They regress budget balance, defined as percentage of total spending, against a vector of economic variables and electoral cycles. The study makes two important findings: first, that a percentage increase in GDP is associated with 0.5 per cent increase in provincial budget balance; second, that electoral cycles matter for provincial deficits; pre-election periods tend to be associated with lower deficits than post-election periods.

The discussion above clearly indicates that the process of fiscal adjustment is by no means linear. There are different analytical permutations one of which includes the sensitivity of shocks and fiscal adjustment to the design of the inter-governmental fiscal system and economic circumstances. The extent to which the fiscal position of sub-national governments responds to fiscal adjustments depends on the degree of borrowing autonomy. Sub-national government adjustment instruments in fiscally centralised governance systems are likely to be less pro-cyclical. This raises an important question about what constitutes fiscal adjustment instruments for provinces in South Africa, given their limited fiscal autonomy.

2.3 Institutional arrangements underpinning provincial fiscal adjustment

Fiscal adjustments do not occur in a void. There is a need for well-functioning architecture of fiscal institutions to put into effect and support adjustment decisions and processes. Key among the required institutions for achieving sustainable fiscal adjustment are the legislative framework, budget and revenue management structures, and inter-governmental relations coordination mechanisms (IMF, 2006).

The South African legislative framework, including the Constitution, Public Finance Management Act (PFMA), Division of Revenue Act and the Appropriations Act, provides for a range of procedural and numerical fiscal rules pertaining to provincial fiscal adjustment. Procedural rules seek to promote transparency and accountability in sub-national budgets through monitoring and reporting of fiscal outcomes. Chapter 13 of the Constitution and section 215 (3) in particular set out the broader adjustment framework with requirements for expenditure, revenue, borrowing and deficit estimates while section 228 lays out options and restrictions for revenue collection. The thrust of the other enabling legislation involves preventing fiscal wastefulness through tighter rigidities. Section 31 of the PFMA empowers provinces to table an adjustment budget that caters for unforeseeable and unavoidable expenditure (subject to available funds), the shift of funds between budget votes, use of savings to defray over-spending and roll-over of unspent funds. This adjustment process is subject to a number of approval processes overseen by the National Treasury.

In terms of numerical fiscal rules, South African legislation is silent in setting explicit debt or deficit limits. However, the International Monetary Fund (IMF) (2006), notes that the presence of independent fiscal authorities can serve as alternatives to numerical rules in de-politicising fiscal decisions. In this regard, budget credibility in South Africa improved markedly because of independent treasuries obviating the need for numerical rules. The only noticeable numerical rule relates to a limited allowance provided in the PFMA for shifting up to 8 per cent of under spent budget programme to defray overspending in another programme in the same budget vote (National Treasury, 2014). Further, the ministry of finance, and by extension provincial finance executives, are legislatively empowered to set expenditure ceilings which can be updated annually.

Similarly, provinces are not bound by explicit balanced budget rules, but instead by the legal impediments curtailing overspending of the allocated budgets. Such spending is deemed "unauthorised" and is not only legally punishable but, unless processes for regularising or defraying are successfully effected, is also treated as a direct charge against a department's future budget allocation.

In broad terms, the institutional framework underpinning provincial fiscal adjustment is not specifically geared towards addressing fiscal vulnerabilities stemming from emerging fiscal pressures, i.e., declining revenues, rising expenditure needs. Instead the overall objective of fiscal responsibility laws is to impose durable fiscal discipline and processes for promoting budget transparency and accountability. The laws attempt to impose varying degrees of constraints on provincial discretionary fiscal policy, but inadvertently reinforce rigidities in provinces to respond to vulnerable fiscal position. By allowing fiscal adjustment mechanisms to stagnate, fiscal responsibility laws undermine long-term budget sustainability especially if the fiscal problems are structural. As an example of this, the infrastructure grant spending limitations could prolong the programme of eradicating backlogs in priority areas resulting in large costs for future replacement or refurbishment.

As already indicated, section 228 of the Constitution restricts provinces from imposing taxes on the key tax handles other than a surcharge on personal income tax. This also requires the concurrency of national government and fiscal space.

A significantly high proportion (up to 90 per cent) of allocated revenue is non-discretionary expenditure (including compensation of employees and entitlement programmes). Conditional or earmarked allocations, which constitute up to 30 per cent of revenue, hamper the ability of provinces to adjust spending to changing priorities (i.e. maintenance instead of new infrastructure, equipment instead of buildings). The budgeting framework does not allow provinces to cut or delay capital spending and the allocated funds must be spent fully as intended without deviations. Annual national government changes to conditional transfers serve as default fiscal adjustment variables for provinces. These budget controls coincide with the ever rising national appetite to take over or centralise provincial health functions in the interests of efficiency. Sections 8 and 9 discuss the implications of a centrally imposed budget adjustment on provincial fiscal performance.

Research methodology

A threefold methodology was selected for the study. The first stage entails a qualitative analysis of provincial fiscal adjustments imposed by national government, i.e. discretionary cuts to provincial transfers. This assessment seeks to identify the annual episodes of cuts and

the rate at which transfers are cut. The rationale for this approach is to avoid the endogeneity problem of fiscal variables on debt-GDP ratio, because a reduction in the latter is not always informed by discretionary policy actions.

Second, a trend evaluation of provincial fiscal performance over a period is undertaken with particular focus on the budget balance and composition of expenditure. The aim of this assessment is to provide insights on the impact of a centralised fiscal framework on provincial budgetary outcomes and more importantly on the trajectory of provincial fiscal balance including how imbalances are corrected. Expenditure composition analysis shows how various spending components have been adjusted over time and the potential sources of fiscal pressure. The potential components of interest are personnel, capital, goods and services and transfers. On the basis of the result from the above, an assessment of each province's budget balance to the respective Gross Regional Product and own revenue is computed.

The third stage entails an empirical estimation of provincial fiscal adjustment instruments and channels using a pooled ordinary least squares (OLS) regression?. The key aim is to find the variables through which provinces respond to a revenue shock and the channels through which such shock is transmitted to budget balance. Given the absence of provincial discretionary fiscal instruments two equations using a panel vector auto regression specified are estimated as follows:

$$Revshock_t = \beta_0 + \sum_{i=1}^{p} \beta_i \ \Delta Pex_{t-i} + \sum_{i=1}^{p} \beta_2 \ \Delta Powrev_{t-i} \ + \sum_{i=1}^{p} \beta_3 \ \Delta PnTrans_{t-i} + \sum_{i=1}^{p} \beta_4 \ \Delta Ppop_{t-i} \sum_{i=1}^{p} \beta_5 \ \Delta PGRP_{t-i} + \sum_{i=1}^{p} \beta_6 \ \Delta Pune_{t-i} \ \mu_{i,t}$$

$$BB_t = \beta_0 + \sum_{i=1}^{p} \beta_1 \ \Delta Pcoex_{t-i} + \sum_{i=1}^{p} \beta_2 \ \Delta Pgserv_{t-i} \ + \sum_{i=1}^{p} \beta_3 \ \Delta Pcaps_{t-i} + \sum_{i=1}^{p} \beta_4 \ \Delta Ptrans_{t-i} \sum_{i=1}^{p} \beta_5 \ \Delta Ppop_{t-i} + \sum_{i=1}^{p} \beta_6 \ \Delta PGRP_{t-i} + \sum_{i=1}^{p} \beta_7 \ \Delta Pune_{t-i} + \mu_{i,t}$$

Table 27: Variable description

Variable	Description		Source
Revshock	Provincial revenue shock $\frac{Rev_t - Rev_{t-1}}{Rev_{t-1}}$	Ratsso, 1999	National Treasury financial database
BB	Budget balance $\frac{Rev_t - Spending_t}{Spending_t}$	Tellier and Imbeau, 2004.	National Treasury financial database
ΔPex	Change in total provincial spending	Estelle more, et al. 2017	National Treasury financial database
$\Delta Powrev$	Change in total provincial own revenue	Estelle more, et al. 2017	National Treasury financial database
$\Delta PnTrans$	Change in total national transfers to provinces (current and capital)	Tellier and Imbeau, 2004; Schaltegger, 2009.	National Treasury financial database
$\Delta Pcoex$	Change in provincial personnel spending	Estelle more, et al. 2017	National Treasury financial database
$\Delta Pgserv$	Change in provincial goods and services spending	Estelle more, et al. 2017	National Treasury financial database
$\Delta Pcaps$	Change in provincial capital spending	Estelle more, et al. 2017	National Treasury financial database
$\Delta Ptrans$	Change in intra provincial transfers		National Treasury financial database
$\Delta Pune$	Change in unemployment	Tellier and Imbeau, 2004;	Statistics South Africa
$\Delta PGRP$	Change in Gross regional product	Tellier and Imbeau, 2004;	Reserve Bank
$\Delta Ppop$	Change in population		Statistics South Africa

Source: FFC

Findings

4.1 Fiscal strain with poor fiscal performance

Table 28 indicates the fiscal performance of the nine provincial health departments using the four key indicators of audit performance assessments. The provincial financial management outcomes in Table 28 show that two of the three provinces (Gauteng and KwaZulu-Natal) under review reflect poor levels of fiscal performance as demonstrated by high levels of accrued, unauthorised, irregular and fruitless expenditure. Although poor audit or financial management outcomes are not necessarily indicative of fiscal strain, part of the budget pressure could potentially arise from wastefulness. The effects of financial mismanagement on fiscal stress became evident in 2011 when health departments in Gauteng and Limpopo provinces were placed under national administration as per section 100 of the Constitution. The circumstances that led to the intervention included disregard for supply chain and asset management processes, late payment of suppliers, weak cash flow management, human resource deficiencies and, most importantly, poor expenditure management and budget controls (FFC, 2012). The ensuing budget pressure reflected large accumulated unauthorised spending and accruals and low cash reserves to meet recurrent obligations. Financial management problems in the Gauteng health department continued to persist years after the end of national intervention, culminating into another intervention in 2017 by the premier of the province. The level of poor fiscal performance depicted in Table 28 makes a weak argument for fiscal strain and the need for fiscal adjustment. High levels of fiscal

mismanagement suggest that budgets that would have otherwise been used to plug the shortfall are misappropriated or misallocated.

Table 28: Provincial financial management outcomes - 2016

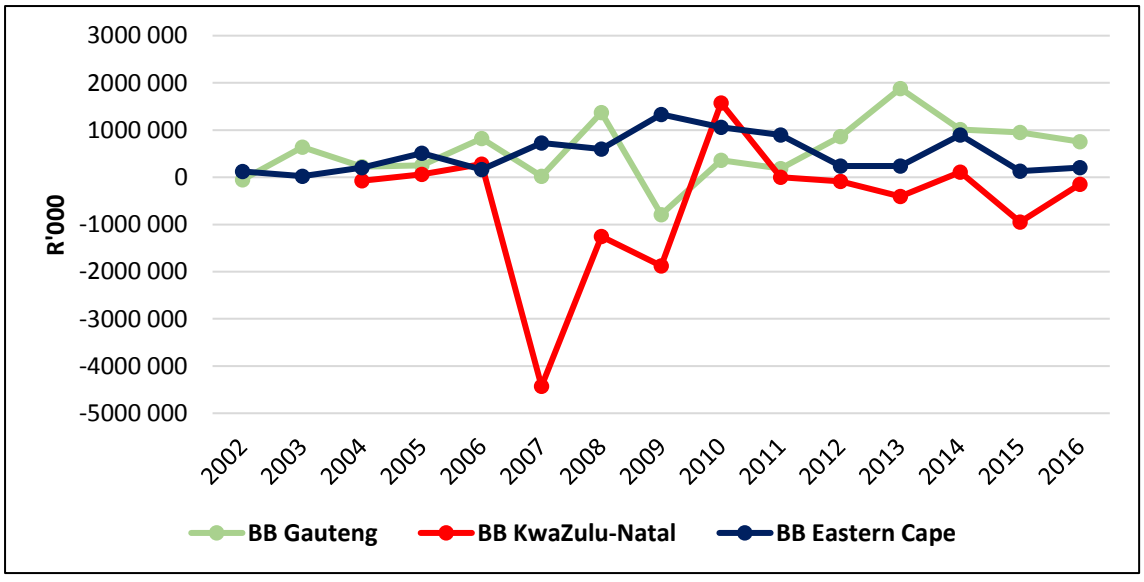
	Accruals	% of total	Unauthorised expenditure	% of total	Irregular expenditure	Fruitless expenditure	% of total
Eastern Cape	1 342 245	13%	91 449	3%	180 680	34 292	4%
Free State	373 799	4%	31 814	1%	316 094	10 339	1%
Gauteng	4 772 791	46%	1 337 304	44%	6 934 443	422 628	52%
KwaZulu-Natal	1 207 297	12%	490 027	16%	4 327 490	8 980	1%
Limpopo	775 563	7%	222 381	7%	1 520 922	162 335	20%
Mpumalanga	405 099	4%	200 706	7%	5 168 480	13 934	2%
Northern Cape	588 738	6%	329 646	11%	5 100 722	46 240	6%
North West	656 993	6%	358 425	12%	5 724 637	110 605	14%
Western Cape	234 412	2%	-	0%	71 351	133	0%
Total	10 356 937		3 061 752		29 344819	809 486	

Source: Compiled from: National Treasury database.

4.2 Manifestation of fiscal strain under rigid institutional structure

As discussed earlier, it difficult to assess fiscal adjustment from a context of a traditional primary balance (or debt to GDP ratio) in South Africa owing to the inherent fiscal rigidities imposed by the design of intergovernmental fiscal arrangements. The next set of figures show the potential implications of the set institutional fiscal framework on provincial fiscal outcomes using budget balance and earmarked spending as variables of interest. Figure 16 shows a trajectory of provincial budget balances from 2002 to 2016. The balance appears to fluctuate moderately above the accepted threshold of zero indicating positive cash balances or underspending at the end of financial years. A near zero budget balance and positive cash balances dispel the possibility for existence of fiscal pressure – at least from a context of budget. KwaZulu-Natal health department is an exception with a 3 per cent average over-spending or negative budget balance which may reflect fiscal strain or poor budget control.

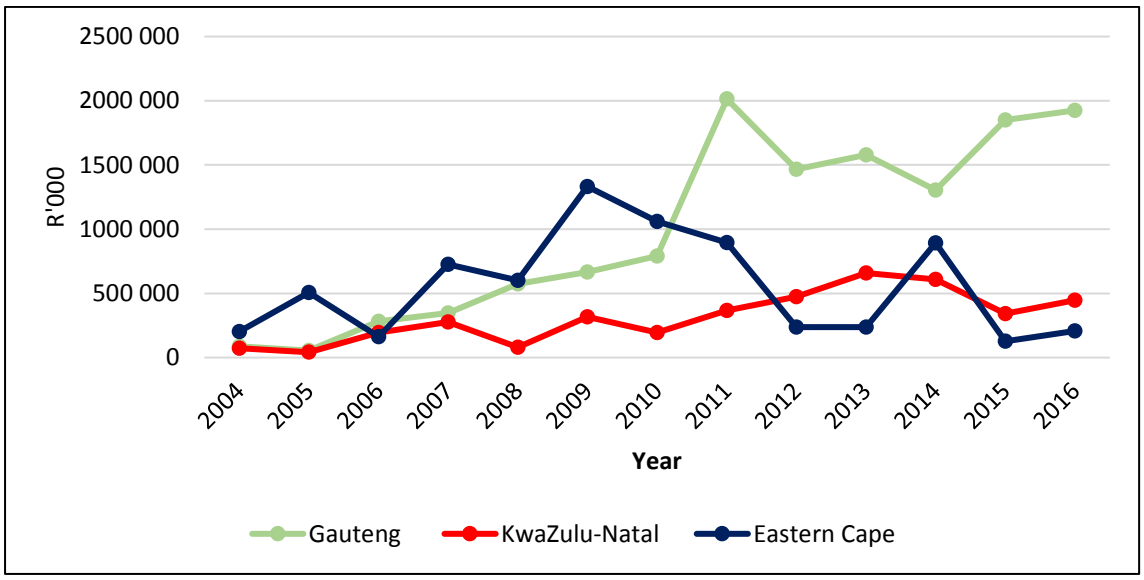
Figure 16. Provincial health budget balance



Source: Computed from National Treasury database.

Despite maintaining positive or minimum acceptable budget balances, provinces use imprudent accounting to conceal the negative budget balances or smooth the ensuing temporary budget pressure. When confronted with pressure to deliver services and shortage of cash, provinces tend to underspend capital budget or approve purchase orders with the hope of settling such expenditure obligations with subsequent years' budget allocations. This results in accumulation of unpaid services which are recorded as accrued expenses rather than over spending. Accruals signify two possibilities for provinces: on the one hand, they may be a practical manifestation of financial mismanagement in that provinces commit their allocations in advance without having backing cash to offset the expenditure within current year allocations; on the other hand, it could be a signal of pressure to address pressing delivery needs for which the allocated budget is insufficient. The national DoH indicates that accruals in the health sector are unavoidable because patients have to be treated when they present themselves at various health facilities, irrespective of budget availability. Health facilities commit to unfunded spending to minimise medical legal claims,[15] which have since become a contingent liability and budget risk in the health sector. As seen from Figure 17 and Table 28, accruals in Gauteng provincial health department have been increasing rapidly reaching 9 per cent of total expenditure in 2011. At the end of 2016/17, accumulated total accruals amounted to R23.4 billion of which R13.8 billion was attributable to the health sector (and R7 billion to the Gauteng provincial health department).

Figure 17: Provincial health expenditure accruals

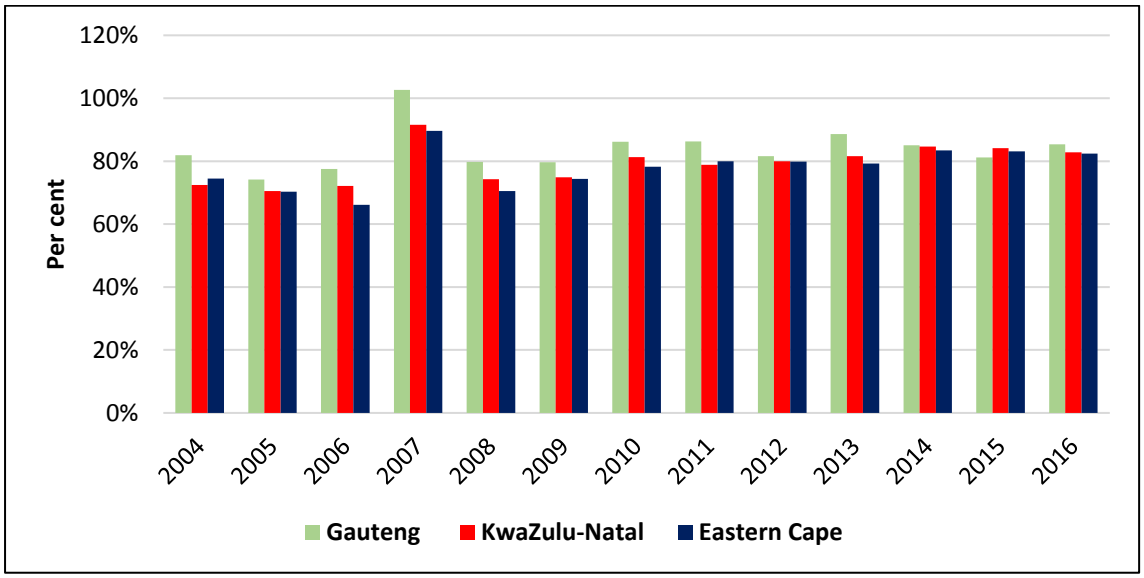


Source: Computed from National Treasury database.

Part of the reason explaining the use of artificial fiscal adjustment variables such as expenditure accruals is that the portion of the budget over which provincial health departments command full autonomy is declining. As seen from Figure 18, earmarked spending compensation of employees (COE) and conditional grants spending constitute at least 80 per cent percent of total provincial health budgets. Limited expenditure discretion, reinforced by legislative requirements for compliance with national spending priorities, reduces the scope for provinces to use the only plausible expenditure side adjustment variables.

[15] Medical legal claims were estimated at R54 billion in 2017

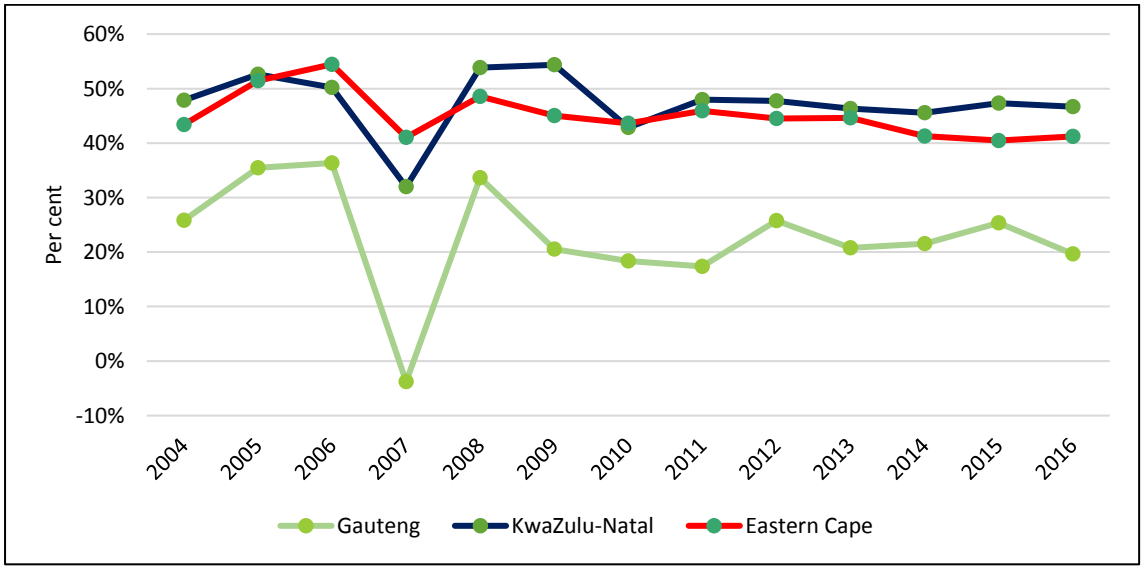
Figure 18: Provincial health earmarked spending (2004 — 2016)



Source: Computed from National Treasury database.

Figure 19 shows the narrow discretion provinces have in using expenditure variables as adjustment instruments. Per capita healthcare spending, which excludes personnel costs, expressed as a fraction of total PES allocation, is declining gradually reflecting the crowding out effect of personnel costs on other critical health care expenditure needs. More importantly for this study, *per capita* spending as depicted in Figure 19 shows little annual variation to infer any meaningful expenditure side adjustment. Gauteng provincial health stands out with the lowest and seemingly notable swings in personnel costs adjusted *per capita* spending. For Gauteng province a lower *per capita* spending reflects a convolution of input cost pressure, high concentration of health facilities and above average population growth. However, fiscal wastefulness cannot be ruled out given the recurring untenable financial situation and the poor financial management outcomes.

Figure 19: Provincial health spending per capita less COE as a share of PES 2004 — 2016



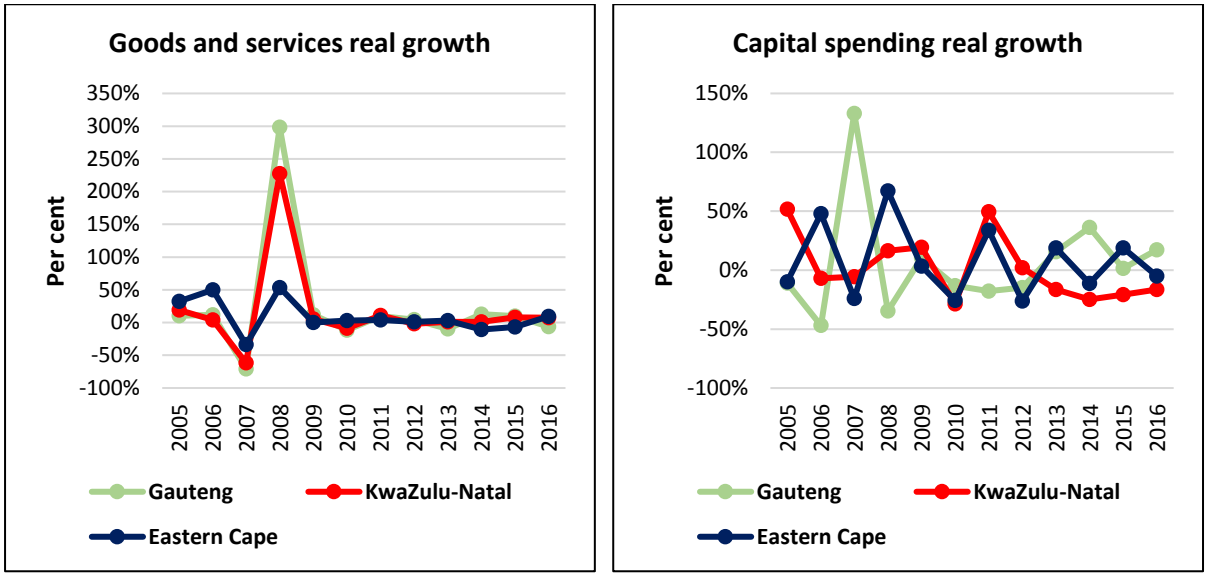
Source: Computed from National Treasury database.

Fiscal adjustments limits on the expenditure side are, however, not entirely rigid.

Figure 20 suggests that provincial health departments can apply discretionary fiscal adjustment over the little discretionary spending in response to their unique fiscal conditions and preferences. The adjustment occurs through annual prioritisation of various expenditure components and alterations of annual growth rates to baseline allocations. As seen from

Figure 20, the adjustment cycles appear to take place on the capital budget, consistent with theory, rather than the goods and services budget. The goods and services budget growth trend is flat in comparison to the capital spending trend which displays an inconsistent growth pattern. It is unclear if the fiscal episodes of downfall in capital spending/allocations coincide with the incidents of fiscal pressure or not. It is plausible that the downswings in capital spending trends are associated with the prevailing phenomenon of under spending on infrastructure.

Figure 20: Goods and services and capital growth pattern (2005 – 2016)



Source: Computed from National Treasury database.

4.3 Nationally channelled budget adjustments

Most of the adjustments which take place on the expenditure side are not discretionary as they are generally channelled through national transfers to provinces. Table 29 illustrates this point depicting a lengthy period of fiscal expansion until the 2014/15 financial year when national fiscal consolidation intensified – shown by the baseline changes to the allocations. Baseline additions and reductions are indirect provincial budget adjustments channelled through national transfers to implement new policies or redirect spending trajectory on existing programs. The national government tends to influence provincial budget adjustment by varying the size of additions to baseline allocations between discretionary transfer PES and conditional grants. Table 23 shows that provinces are shielded by a stronger overall growth in transfers even under protracted national consolidation episodes. (Note the reductions to baseline from 2015/16 in comparison to total additions to the Provincial equitable share and conditional grants.) For the 2018/19 budget the PES, which is inclusive of health allocations, has been reduced by R4.7 billion while health conditional grants are reduced by a total of R1.34 billion. Despite these budget cuts the total health allocation grows at an average rate of 7.3 per cent over the 2018 MTEF period. The extent of the

cushion provided by strong growth in national transfers removes the need for provinces to initiate adjustments. This is not to say budget cuts do not affect service delivery negatively or heighten the fiscal pressure.

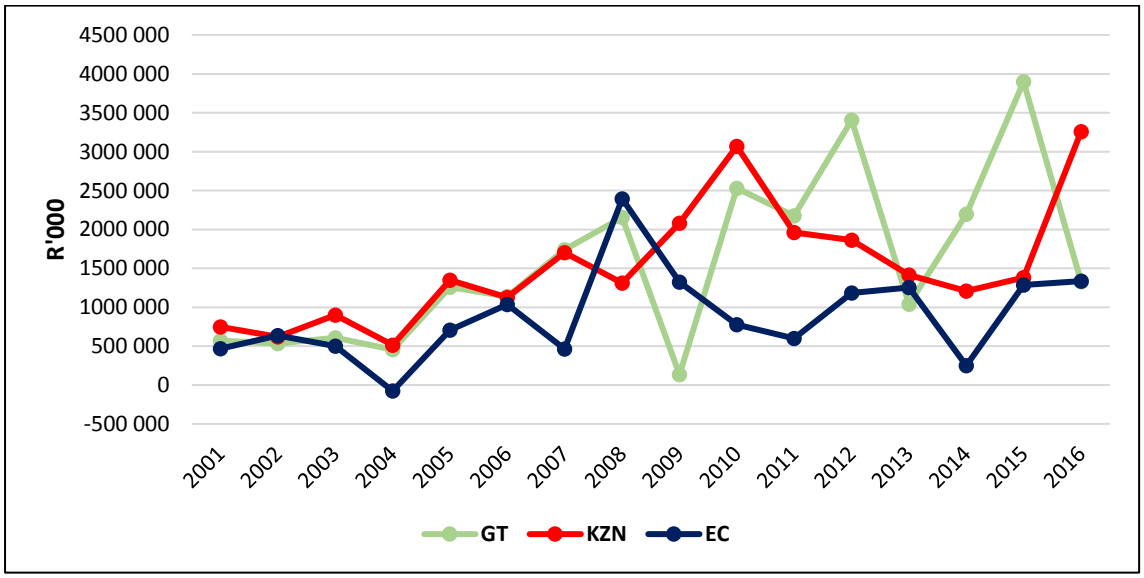
Table 29: Annual additions or cuts to provincial baseline allocations - R'million

Baseline changes to:	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18
PES	13 209	9 507	4 038	3 060	2 738	(4 400)	(1 500)	(500)
Conditional grant							(2 051)	(1 257)
Total additions PES	29 923	27 519	20 564	28 515	24 896	20 205	28 026	30 632
Total additions CG	8 416	7 552	5 994	1 150	5 375	3 530	3 661	7 683

Source: National Treasury, 2010 – 2017.

The large national adjustments or additions to the provincial allocations mask considerable variation in automatic transfer swings emanating from the mechanics of allocation formulae. Figure 21 shows the total baseline allocations to the respective PES allocation of the three provinces under study. There is a consistent growth pattern in additions to baseline at least between 2001 and 2008 across the three provinces. However, the period following the commencement of the global financial crisis depicts declining additions (increasing at a decreasing rate) at least for KwaZulu-Natal and Eastern Cape provinces, while Gauteng shows an increasing trajectory. Interestingly, the individual provincial baseline additions appear to run in consonance with consolidation episodes. The respective share of each provinces' PES allocation increases much higher during periods of consolidation rather than during fiscal expansion. This suggests that national government undertakes counter cyclical adjustment measures on behalf of provinces. This may distort the signals sent to provinces via transfers to undertake discretionary expenditure adjustments.

Figure 21: Total additions to PES baseline by province 2001 – 2016



Source: Computed from National Treasury database.

4.4 Determinants of revenue shock and budget balance: Empirical results

Table 30 and Table 31 depict the results of the empirical analysis to ascertain the budget variables through which provinces channel the fiscal strain. Unlike the above fiscal performance overview, the empirical results are based on data from seven provinces over a six- year period ending 2016. The sample has been extended to address implications of data limitations on the model. Table 30 evaluates the sources of provincial fiscal strain either from a context of total expenditure, own revenue and transfers. Although statistically insignificant, the results suggest that total spending and transfers are positively related to revenue shock, implying that expenditure is increasing at faster rate than revenue. Interestingly both population and unemployment do not seem to impose a huge burden on revenue shock given the negative coefficients. These results, however, cannot be used to draw definitive conclusions as they lack statistical significance.

Table 30: Determinants of revenue shocks

Dependent variable: Revshock	**Random effects**		**Random effects - includes time dummies**		**Random effects - robust**	
	Coef.	Std. err.	Coef.	Std. err.	Coef.	Std. err.
Pex(t-i)	0.1894749	0.2324447	0.1763677	0.2635473	0.1894749	0.3357393
Powrev(t-i)	-0.0566355	0.069938	-0.047523	0.0791816	-0.0566355	0.1005791
PnTrans(t-i)	0.3524745	0.4857744	0.1548486	0.5725295	0.3524745	0.4532234
Ppop(t-i)	-4.656721	3.942635	-4.558155	3.70612	-4.656721	3.731411
PGRP(t-i)	0.0699888	1.162346	-0.1729476	1.238538	0.0699888	0.8898215
Pune(t-i)	-0.251154	0.198356	-0.2506721	0.1879475	-0.251154	0.1887791
Year =2012 (reference year)						
Year =2013			-0.0441008	0.0856272		
Year =2014			0.0296565	0.0909356		
Year =2015			-.1550429*	0.0899917		
Year =2016			0.0080346	0.0879743		
Constant	0.1454068	0.1129275	0.2099125	0.1688248	.1454068**	0.0673127
R2	0.1133		0.3565		0.1133	
Observations	35		35		35	
Prob>F	0.73378		0.207552		0.0000656	
*** p<0.10, ****	p<0.05,	*** p<0.010				

Source: FFC computation.

Table 31 shows the determinants of budget balance. The results indicate that a percentage change in compensation of employees leads to a 5.5 per cent decline in the budget balance. This result is in line with the prevailing perceptions and earlier discussion which suggests that personnel cost is the biggest driver of provincial fiscal strain. Counter intuitively, capital spending has a positive and statistically significant effect on the budget balance. This could mean that provinces are using capital spending as a primary variable to balance the budget. Goods and services spending, as well as provincial transfers, are positively and negatively related to the budget balance respectively, albeit without statistical significance.

Table 31: Determinants of budget balance

Dependent variable: Budget Balance	Random effects		Random Effects-includes time dummies		Random effects-robust	
	Coef.	Std. err.	Coef.	Std. err.	Coef.	Std. err.
Pcoex(t-i)	-5.581536 ***	2.091532	-4.658296 **	2.092784	-5.581536	3.779919
Pserv(t-i)	1.55342	1.844071	0.1942352	1.844213	1.55342	1.914864
Pcaps(t-i)	1.896982 ***	0.5073017	2.165202 ***	0.4846769	1.896982	1.163663
Ptrans(t-i)	-0.0821955	0.5488383	-0.090922	0.5574801	-0.0821955	0.3107581
Ppop(t-i)	21.36955	27.25744	22.04746	25.00528	21.36955	13.1119
PGRP(t-i)	22.78421 ***	6.296561	21.99372 ***	6.40231	22.78421 ***	8.27061
Pune(t-i)	1.154017	1.434475	0.9406001	1.319715	1.154017	0.8274116
Year =2012(reference year)						
Year =2013			0.5838441	0.4732363		
Year =2014			1.3278 ***	0.4618363		
Year =2015			0.3606445	0.4984763		
Year =2016			0.4782488	0.5318198		
Constant	-1.756378 ***	0.6389067	-2.240484 ***	0.78098	-1.756378 ***	0.6057731
R2	0.582		0.7015		0.582	
Observations	35		35		35	
Prob>F	3.63E-06		1.15E-07		.	
* p<0.10, **	p<0.05,	*** p<0.010				

Source: Author's computations.

4.5 Managing fiscal strain through fiscal and non-fiscal measures: Case study results

There are ongoing unresolved debates over whether provinces genuinely experience a fiscal strain or are able to identify the real source of their budgetary pressures and respond accordingly with available fiscal and non-fiscal levers. The national and provincial health departments argue that health finances are under serious strain as a result of rising expenditure needs (including disease burden), cost pressures and the non-responsive national transfer allocations. Health budgets are growing at less than the rate of inflation while health inputs costs are increasing at an annual average rate of 8 per cent and more. For some provinces, such as Gauteng, Limpopo, Mpumalanga and the Free State, the pressure on the budget is exacerbated by internal and external migration. The Gauteng health department is owed a total of R160 million in health bills attributable to foreign nationals. Provinces are of the view that uncosted national policy directives such as 'test and treat' also compound their fiscal strain.

The provincial treasuries hold the view that the required adjustments to address the purported provincial fiscal strain lies with improving expenditure management, or "third order" adjustments, rather than increasing health transfers. According to the National Treasury, the key challenges bedevilling provincial health budgets relate to poor management of human resources, financial systems, procurement and infrastructure. Big tenders are issued for non-essential equipment, medical tests are duplicated, and construction of new infrastructure is characterised by poor workmanship (Table 32).

The health sector has used cross-cutting fiscal and non-fiscal measures, straddling human resources, financial management, procurement and infrastructure, to respond to the ongoing budget strain and budget efficiency concerns from the treasuries (Table 32). Some of the measures are new while others have been in the pipeline and are still to produce the desired outcomes because of implementation delays. For the 2018 budget the national DoH recommended that provinces reduce development of new infrastructure and instead focus on maintenance. This recommendation is, however, not accompanied by supporting changes to the planning process and conditions underpinning implementation of conditional grants. Gauteng province has frozen capital projects to the value of R7 billion rand in 2018. Some provinces continue to build new health facilities placing pressure on future operational budgets. Similarly, the department has issued a guideline for provinces to discontinue the Cuban doctor training programme and rather focus on preparing for the 5 000 or so graduates who will need job placements on their return from Cuba. The guideline is intended to minimise cost pressures on personnel spending and the risk of being unable to absorb new clinical staff. As many of the recommended measure are merely guidelines, the national DoH is unable to guarantee compliance and the desired results.

Table 32: Measures to enhance budget efficiency

Human resources	Financial management	Procurement/supply chain	Infrastructure
Strict management of committed overtime for clinical staff	Establish medico legal units to promote mediation on legal claims	Central health strategic sourcing on selected supplies, with price ceilings	Freezing capital projects
Transfer head office staff to facilities	Improve audit outcomes and reduce accruals	Adoption of transversal contracts	Introduce a two year equipment and facilities maintenance plan
Create lean management structures	Undertake comprehensive health budget review	Electronic gate keeping for laboratory services	Introduce a Home Affairs integrated patient and records management information system
Halt the Cuba doctor training programme	Reduce variation orders	Expansion of the centralised chronic medication dispensing and distribution (CCMDD)	Strengthen project monitoring and evaluation through service delivery district visits
			Standardise infrastructure designs

4.6 Reducing delivery outputs as adjustment of last resort

It is common practice for government departments to alter delivery outputs through budget reprioritisation when confronted with immense budget pressure. There is, however, insufficient evidence to suggest that health delivery outcomes have been scaled down as a result of the purported fiscal strain. To the contrary, recent evidence shows that health outcomes on key indicators such as life expectancy, infant mortality and HIV/AIDS treatment are improving (DoH, 2017). Reducing health delivery outcomes not only constitutes a violation of human rights but also a litigation risk.

There are nevertheless sporadic incidents of cuts in delivery outputs, where such reductions do not appear to affect the outcomes materials. Some of the cases include the staffing of departments with interns, nurses carrying out administrative functions, delaying payments to National Health Laboratory Services (owed R6 billion in 2017) and the suppliers as a strategy to manage cash flow problems. Other tactics involve reducing the intake of nursing bursary recipients, transporting coffins using inappropriate vehicles, delaying maintenance on oncology equipment and food supply stock-outs which led to clinicians buying patients' food from their personal pockets.

Two incidents stand out as cases where budget strain is purported to have caused damaging service delivery reductions. In 2009 and 2013 certain provinces ran out of HIV/AIDS medication resulting in partial and interrupted treatment of patients. The DoH however found that medical stock out was caused by poor inventory control and communication between health facilities, depots and suppliers. The Minister of Health has since declared medical procurement as a non-negotiable budget line item and directed provinces to source supplies through the central procurement system.

In 2016 the Gauteng DoH also attributed the Life Esidimeni tragedy to budget pressure. Over 140 of the 1300 mental health patients died after having been transferred from a contracted private hospital to various unlicensed and unqualified non-governmental organisations (Office of Health Ombudsman, 2016). Patients were transferred from the private hospital to contain costs and align the budget to province wide consolidation requirements. Subsequent reports and inquiries into the tragedy have since proven that the department budget reprioritisation was at fault, as treatment was cheaper at the private hospital (R320 per patient per day) than in public psychiatric hospital (R1 000 per patient per day) to which the majority of the patients were transferred. It appeared that the department intended to pass the burden of the treatment cost onto non-government organisations (NGOs) since they were allocated R112 per patient per day. This debacle is a reflection of recurring management inadequacy within the Gauteng health department rather than of budget strain. As indicated earlier the department has been a subject of several unsuccessful interventions to address fiscal and operational management weaknesses.

4.7 Recentralisation of National Health Insurance (NHI) as a potential remedy to provincial fiscal strain

Notwithstanding the absence of empirical results on provincial dynamic responses to fiscal strain, the discussion in this paper makes no definitive inference to the existence of a "passing the buck" phenomenon, i.e. national government passing the burden of fiscal consolidation to the provincial health departments. The PES allocation as a key health funding instrument continues to grow at a real average rate of 1.3 per cent per annum and in line with allocations to other spheres. According to provinces, this rate of growth in the allocations reinforces

budget strain because it is misaligned to growing demands. In the absence of clear evidence to prove this claim and the rigidities on provincial fiscal adjustment, it is instructive to assess if the proposals for nationalising health funding, through the NHI, can minimise health budget strains or improve the responsiveness thereof.

NHI entails separating funding and delivery of health care where national government controls a pool of health funds to purchase health services from contracted public and private health care providers. Many details about the ultimate institutional delivery model of NHI are still to be finalised. However, it can be safely assumed that provinces will be completely cushioned from external budget pressures, because funding or payments are directly allocated to the units of delivery (clinics and hospitals). The fiscal strain that is currently sitting with provinces will be transferred to the contracted providers. Under the NHI and through the use of a fee for services payment mechanism and standardised health packages, national government will be able to establish the existence of fiscal strain with ease and redirect resources to where health demands are the highest.

At this stage, it remains unclear whether health care delivery will be more efficient when paid for by national government and delivered by contracted providers, or when delivered by provinces through national transfers. Chapter three provides evidence of recentralisation as a key national intervention during periods of fiscal restraint. The chapter argues for a differentiated approach to recentralisation and a focus on addressing underlying causes of fiscal strain or inefficiency instead of blanket recentralisation.

Conclusion and recommendations

This paper examines the responsiveness of intergovernmental fiscal instruments to the ongoing fiscal strain experienced by provincial health departments in South Africa. Healthcare delivery is undergoing serious strain as a result of a mismatch in the resource allocations and growing expenditure needs. The situation is exacerbated by poor fiscal management characterised by spending inefficiencies across the entire healthcare delivery system.

Under normal circumstances, the strained fiscal position in which provincial health departments find themselves would trigger discretionary fiscal adjustments to return to budget balance and maintain service delivery levels. The fiscal adjustment instruments available to provinces are, however, limited. Intergovernmental fiscal arrangement limits the scope for using borrowing and revenue based measures to fill the budget gap stemming from a constrained fiscal environment. Provinces can only use expenditure side adjustment measures albeit with limitations. A sizeable proportion of provincial revenue is made up of earmarked national transfers which hamper the ability of provinces to adjust spending priorities in line with a deteriorating fiscal position.

Assessed from a context of budget balance, this study finds little evidence of an impaired provincial fiscal position that could necessitate fiscal adjustment. This is a result of strict enforcement of budget rules to prevent provinces from overshooting their budget. However, provinces use imprudent fiscal measures such as expenditure accruals to conceal negative budget balance and to plug the fiscal gaps. With the high expenditure adjustment rigidities, provinces tend to rely on capital spending to smoothen the budget pressure, notwithstanding the fact that infrastructure constitutes just under 5 per cent of total health spending.

The overall picture emerging from this chapter is that the major provincial fiscal adjustments tend to cascade from the centre through the cuts or additions made to the transfers. National transfer allocations to provinces have experienced moderate reductions since 2014 as part of budget consolidation. The reduction signals at the centre do not seem have ignited similar reaction at the level of provinces, partly due to the transfer allocation mechanisms and the prevalence of non-discretionary spending. The allocations had to be accompanied by Treasury instructions to freeze staff appointments and budget cuts on selected expenditure line items.

The case studies reveal two conflicting positions over the provincial health sector fiscal strain and the approaches required to correct the pressure. Both the national government and the provinces agree that the health sector is under resourced but differ as regards the source of the pressure and how the various intergovernmental fiscal instruments should respond. Provinces attribute the source of their fiscal strain to inadequate transfers and therefore propose additional budget as a requisite adjustment factor. In the absence of additional revenue, provinces are cutting health delivery outputs, albeit in a limited way, given the risks of litigation. The national government is of the view that revenue adjustment measures should be preceded by efforts to improve management and spending efficiencies (personnel and procurement) in the health department. Many of the management improvement reforms are not forthcoming, and therefore provinces fall into budget difficulties triggered by cycles of mismanagement. In the context of an ongoing constraint fiscal environment, this chapter makes a case for non-fiscal adjustments to drive budget efficiency.

With respect to *provincial fiscal adjustment in time of protracted fiscal constraint* the Commission makes the following recommendations:

1. National and provincial treasuries in collaboration with the national and provincial DoHs should develop a framework or criteria for determining serious financial strain with clear measurable financial and non-financial factors that can be monitored, reported and used to trigger automatic fiscal adjustment that will be overseen by provincial legislature. In this regard,
    - section 6 of the PFMA should be made more explicit by setting out criteria for determining serious financial problems with clear measurable factors of what constitute persistent material breach or inability to fulfil executive obligations (similar to section 136 of the Municipal Finance Management Act).
    - provincial treasuries must monitor and disclose key fiscal health indicators at provincial department level where prolonged deviation, as defined by the PFMA, from expected or healthy fiscal trajectory triggers automatic intervention mandated and overseen by provincial legislature.
    - the provincial DoHs should develop the health information management system with capabilities for reporting and monitoring service delivery blockages at the level of health facilities to help trigger effective interventions and adjustments.

2. The National Treasury and the national DoH, through the respective ministers, should allocate part of the 2019/18 MTEF health infrastructure allocations to gradually offset expenditure accruals which arise from unavoidable demand pressures for which allocated budgets were depleted. Such a provision should be considered for provinces whose accruals have surpassed the national maximum threshold of two per cent of the total budget and subject to provinces committing to a fiscal performance improvement plan,

enforcement of tighter budget and operational controls at health facilities and central procurement for strategic inputs.

3. The Minister of Finance through the National Treasury should ensure that the framework for health infrastructure conditional grants (Health Facility Revitalisation Grant and National Health Insurance (non-personnel component)) accommodate flexibility during periods of protracted fiscal constraint so that provinces can re-orientate their package of available capital allocations towards maintenance, particularly where individual infrastructure grants allocations are insufficient to achieve timely completion of projects.

4. Provincial health departments should consider allocating at least 70 per cent of health infrastructure grants towards operations and maintenance.

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Chapter 4: The Incentive Effects of Intergovernmental Grants: Empirical Evidence from South Africa's Municipalities

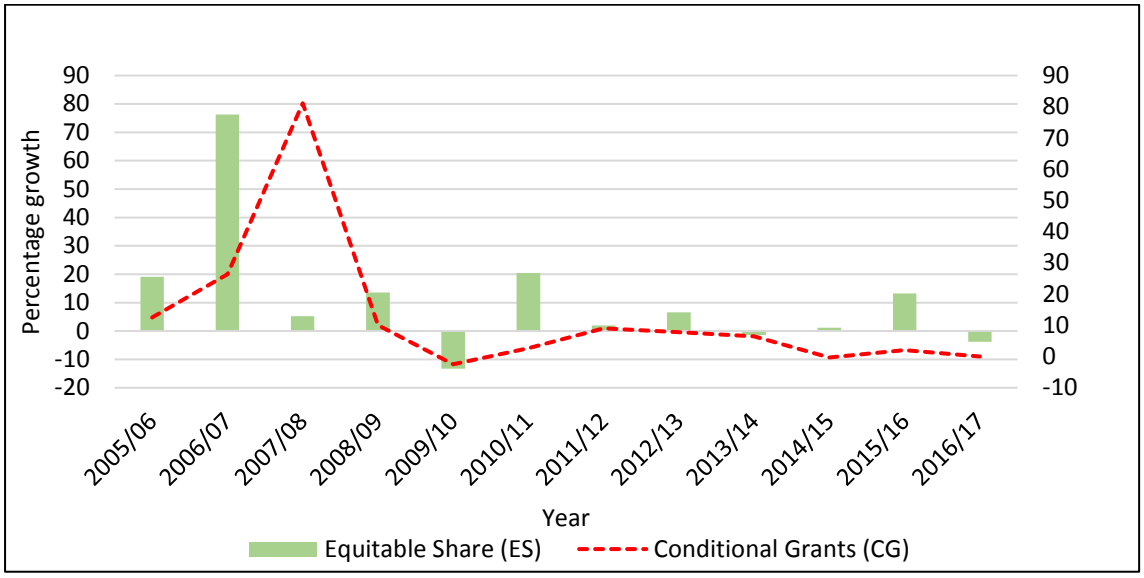
Hammed Amusa

Introduction

This chapter provides empirical evidence on the incentive effects of the two types of transfers to municipalities: the unconditional transfer allocated (shared) according to a formula, and the conditional transfer allocated on an *ad hoc* basis. The question of whether reducing intergovernmental transfers in a fiscally constrained space allows for reduced dependency and innovation in revenue autonomy or worsens service delivery functions and regional disparities is particularly important for South Africa where municipalities are expected to utilise assigned fiscal functions as the main tool to address significant historical inequities in the distribution of, and access to socio-economic infrastructure and resources.

In the aftermath of the 2008 financial crisis, South Africa's economic growth has steadily weakened due to a combination of factors including infrastructure constraints (particularly electricity and logistics), moderate growth in the global economy, and domestic policy uncertainty. In the absence of higher growth and substantial revenue under collection, South Africa has implemented a programme of measured fiscal consolidation aimed at narrowing the budget deficit and stabilising public debt levels through tax policy measures to raise additional revenue, and on the expenditure side, reducing expenditure ceilings through scaling down operating budgets of national departments as well as lowering transfers to public entities and sub-national governments. As a result of fiscal consolidation measures, R14 billion, mainly in direct local government grant allocations, will be cut from national transfers to the local government sphere over the 2017 MTEF (National Treasury, 2018). The reduced quantum of transfers is especially important given their implementation in an environment of sustained decline in the real growth of intergovernmental transfers relative to the pre-2009 period (see Figure 22).

Figure 22: Growth in real intergovernmental transfers to the local government sphere, 2005/06 – 2016/17



Source: National Treasury Budget Review (various years) and FFC calculations.

In a fiscally constrained environment, the introduction of consolidation measures has generated significant debate around the possible long-term effects of lowering both the overall envelope and growth of intergovernmental transfers to the local government sphere. The debate is largely centred on two competing views about the budgetary influence of transfers. The first view argues that equalising transfers that are negatively or weakly positively correlated with local revenue collection provides local governments with poor fiscal incentives to enhance local economic development. Increased reliance on central or intergovernmental transfers compromises local government's autonomy in setting policies in accordance with local preferences, while promoting overreach by central government in local decision-making processes.

Local governments that are dependent on transfers tend to be less accountable to citizens, less efficient in levying taxes and less capable in providing public goods (Moore, 2008, Weingast, 2009, Bird, 2010). In the long run, grant transfers that are inversely related to the tax base or to some measure of local revenue raising capacity will create an incentive for the recipient government to modify its tax and fiscal policies in ways that allow it to receive larger equalisation transfers, or that prevent it from losing them (Brun and El Khdari, 2016). Such distortionary behaviour that reflects grant-driven "crowd-out" or "crowd-in" effects can negatively impact on the efficiency of fiscal decentralisation especially when grant-dependent sub-national units have weak incentives to be fiscally accountable (Rodden *et al*, 2003). Thus, reduced intergovernmental transfers may have the positive effect of inducing officials in poorer municipalities to innovate and adopt effective policies that could enhance fiscal efforts in exploiting available (or assigned) tax bases and attract growth enhancing investments beneficial to the socio–economic well–being of local citizens without a need to rely on centrally designed redistribution programmes (Qian and Weingast, 1997).

The contrary view to the preceding argument highlights the fact that inadequate revenue bases and failure to take into account the full expenditure needs of the mandated functions, particularly in the case of smaller and mainly rural municipalities, has negatively impacted the capacity to deliver adequate levels of critical socio-economic services. South Africa's

municipalities frequently face the twin challenges of allocating relatively small budgets towards the provision of public services to either towns or cities spread over vast areas, or jurisdictions with populations with a relatively high demand for public services. Additionally, beyond the main metropolitan areas and secondary cities, the capacity of mainly rural municipalities is further stretched by the need to provide services to jurisdictions characterised by low population densities and limited revenue raising capacity. Deep-rooted frustrations with the perceived poor state of service delivery in the core functions of municipalities has become an underlying theme of a spate of protests, often violent, across municipalities in many parts of the country.[16] It is thus argued that overcoming such challenges will require that efforts aimed at enhancing the service delivery functions of municipalities ensure that the fiscal constraints on resource vulnerable municipalities do not worsen interregional disparities and undermine the ability of local administrations and institutions to respond to the needs of local citizens timeously and adequately.

The question of whether reducing intergovernmental transfers in a fiscally constrained space allows for reduced dependency and innovation in revenue autonomy or worsens service delivery functions and regional disparities is particularly important for South Africa where municipalities are expected to utilise assigned fiscal functions as the main tool to address significant historical inequities in the distribution of, and access to socio-economic infrastructure and resources. Debates around the funding mechanisms for sub-national spheres, especially municipalities in the local government sphere, have examined the efficiency of intergovernmental grants. For organised local government, the developmental role of municipalities has been hamstrung by inadequate revenue resources. Implicit to these contrasting viewpoints is the question of whether the structure of the grant transfer system, which assures municipalities an equitable share of revenue, has not adversely impacted revenue raising efforts and how such efforts enhance accountability of local authorities to residents on how such resources are expended.

Research methods

2.1 Theoretical framework

To understand the fiscal behaviour of municipalities, empirical studies in the literature rely on the theoretical framework developed by Lewis (2005). The model starts with a utility equation from the internally-consistent budget model proposed by Gramlich (1991). Within this framework, local governments are assumed to act as benevolent dictators seeking to maximise their utility which is defined to consist of three objectives and is specified as:

$$U = U(u_i, u_2, u_3) \tag{1}$$

where:

$$u_1 = Exp - N \tag{1a}$$

[16] A recent SALGA-led multilevel government initiative assessing municipal protests between 2012 and 2014 indicated that service delivery and accessibility was the main motivating factor behind the majority of protests (49.6%), followed by employment opportunities (42.1%) and roads and maintenance of public facilities (39.7%).

$$u_2 = Y - OWN$$

(1b)

$$u_3 = Surp$$

(1c)

In Eqs (1a) – (1c), *Exp* denotes local government spending, *N* is a measure of (exogenous) local needs, *I* represents (exogenous) average personal incomes of residents within the local government, *OWN* is local own-source revenues, and *Surp* is local government operating surplus (or deficit). To derive the model, local government is assumed to pursue fiscal agenda aimed at raising the levels of after tax income of its residents, increasing local public spending relative to the needs of local citizens, and increase its own savings. Achieving these competing objectives is subject to a budget constraint comprising intergovernmental transfers. More formally, the constrained objectives can be expressed as:

$$Max \sum_{t=1}^{3} \beta_t \ln u_t \text{ s.t. } X = RS + G \quad (2)$$

where the utility is a Stone-Geary type function, X is local government revenues derived from two types of intergovernmental transfers – from tax and revenue sharing with higher levels of government (*RS*) and centrally/nationally allocated funds (*G*). Eq (2) can be set as a Lagrangean function, with partial derivatives of the endogenous variables of such a function yielding a system of three equations that define behaviour of local government across three fiscal dimensions – expenditure, taxation and operating/budget surplus (or deficit). These three equations are specified as:

$$Exp_{it} = \beta_1 X_{it} + \beta_2 Y_{it} + \beta_3 N_{it} + \varepsilon_{it}$$

(3a)

$$-OWN_{it} = \beta_4 X_{it} + \beta_5 Y_{it} + \beta_6 N_{it} + \varepsilon_{it}$$

(3b)

$$Surp_{it} = \beta_7 X_{it} + \beta_8 Y_{it} + \beta_9 N_{it} + \varepsilon_{it}$$

(3c)

where the variables are as defined in set of equations in (1) and (2) above, with the subscripts *i* and *t* representing the i^{th} local government and time, respectively. The variable OWN is negatively signed in Eq (3b). This is to ensure that the 'adding up' condition – the sum of the left-hand side variables is equal in value to the budget constraint, is satisfied (Lewis and Smoke, 2017).

Intuitively, the mechanism of local government behaviour as outlined in the budget model in Eqs (3a)-(3c) is the following. With an increase in intergovernmental transfers rise, local governments raise spending, reduce taxes and increase public savings by an amount equivalent to the additional intergovernmental transfers. If average personal income of residents grows, then own source revenue can be expected to increase by some amount with local governments utilising the supplementary funds to augment expenditure and savings. If local needs become greater, then local governments increase spending and pay for that increase by raising taxes or by reducing public savings more than they otherwise would (Lewis, 2005).

Within the system of local government accounts, total local government spending must equal total government revenue. The budget constraint in Eq (2) thus implies that intergovernmental transfers (X) will be correlated with the error terms in the systems of equations specified in Eq (3). In this case, causality may run in both directions – from the left hand variables (EXP, OWN and Surp) to transfers (X) and *vice versa*. In addition, municipality specific effects such as geography and demographics that influence budgets across municipalities may exist, but due to unobservability, are excluded from the set of explanatory variables included in Eqs (3a) – (3c). Failure to consider such effects may bias estimates and render results obtained from ordinary least squares estimations invalid.

2.2 Empirical methodology

To solve the endogeneity problem and overcome the possible correlation of time-invariant municipal characteristics with the explanatory variables, the models of Eqs (3a) – (3c) are estimated using the systems generalised method of moments (sys-GMM) technique. Sys-GMM addresses the endogeneity issue as it is an instrumental variable approach that also has the advantage of being a relevant framework for estimating models with short time dimension (*T*) and a larger unit (*N* i.e. municipality) dimension. In this study, we utilise a panel data set covering the period 2003 to 2015 and including observations for local municipalities, which consists of 213 jurisdictions based on post-2016 local government elections. In equation terms, the basic sys-GMM model is specified as:

$$y_{it} = \beta_1 \mathbf{w}_{it} + \beta_2 \mathbf{x}_{it} + \nu_i + \varepsilon_{it} \qquad (4)$$

where w is a vector of endogenous variables, x is a vector of exogenous variables while the time-invariant country characteristics (fixed effects) are contained in the error term consisting of unobserved country-specific effects, ν_i, and the observation-specific errors, ε_{it}. i and t denote the i^{th} municipality and time-period, respectively.

Given that South Africa's municipalities do not operate surpluses, the application of the sys-GMM is limited to the versions of the model outlined in Eqs (3a) and (3b). For both equations, this study follows the approach of Lewis and Smoke (2015) and estimates models in which intergovernmental transfers are endogenous determinants of municipal own revenues and expenditures. Accordingly, estimation of both Eq (3a) and Eq (3b) distinguishes between unconditional and conditional intergovernmental transfers. In addition, estimation of Eq (3a) uses the two main types of expenditures – capital and operating — as the dependent variables.

The data employed in the empirical analysis covers the period 2003 – 2015 and includes observations for local municipalities, which, consists of 213 jurisdictions, based on post-2016 local government elections. The revenue variables consist of own revenues generated from user charges for "trading services" (i.e. electricity, water, sanitation, and solid waste removal), and the two main categories of intergovernmental transfers – local government equitable share (LES) allocations and conditional grants, respectively. To account for expenditure function of municipalities, total spending by municipalities is disaggregated into its two broad components of capital and operating expenditures. Both revenue and expenditure variables are sourced from the local government database maintained by the National Treasury.

Personal income (*Y*) is proxied by regional output (as measured by municipal gross value added) *per capita*. The equitable share formula used in allocating unconditional transfer funds across resources as well as conditional grants directed at programmes of national

priority is underpinned by the socio-economic conditions of a municipality. Thus, the needs variables specified in the budget model in Eqs (3) – (4) are proxied by a municipality's population size, its share of residents living below the food poverty line, the extent of human capital, and the extent of urbanisation in its jurisdiction. All economic and fiscal variables are measured in *per capita* terms. **Table 33** provides the names and definitions of variables used in the empirical analysis.

Table 33: Variable names and definitions for empirical model

Variables	*Definition*
Dependent variables	
EXPPC	Total government expenditure (Rand *per capita*)
OWNPC	Total municipal own revenues (Rand *per capita*)
Explanatory variables	
CGRANTPC	Total conditional grants (Rand *per capita*)
UGRANTPC	Total unconditional grants (Rand *per capita*)
CAPEXPC	Total capital expenditure (Rand *per capita*)
OPEXPC	Total operating expenditure (Rand *per capita*)
POVRATE	Poverty rate per municipality (%)
URBAN	Share of population resident in an urban area (%)
Other instruments	
YPC	Gross value added *per capita*
POP	Total municipal population

Disparities in population size, income distribution, revenue base, as well as varying degrees in the levels of urbanisation and administrative capacity, mean that the actual distribution of responsibilities and revenue collection differs widely within and across types of local governments. As Bahl and Smoke (2003) note, some municipalities, especially those situated in large urban areas, take responsibility for a significant range of functions and services; on the other hand, smaller local governments, particularly (but not exclusively) in rural areas provide few services independently. The analysis thus proceeds in two stages. First, the sys-GMM version (i.e. Eq (4)) of the basic models is estimated exactly as defined in Eqs (3a) and (3b) for each category of local municipalities (see Table 34 for definition of municipal categories). Second, the analysis of sys-GMM for the respective equations requires a set of feasible instruments that can be used in the estimations. Following Lewis (2005), instruments include second (and higher) lags and lagged differences of endogenous variables in **w** – per capita conditional and unconditional transfers, and first differences and levels of exogenous variables in **x** – per capita income, municipal population size, share of residents below the food poverty line and the measure of human capital.

Table 34: Categorisation and sub-classification of South Africa's municipalities

Class	Characteristics
Category A	All metropolitan municipalities
Category B1	Previously referred to as 'Secondary' cities, now referred to as 'Emerging' Cities: All local municipalities referred to as secondary cities
Category B2	Large towns. All local municipalities with an urban core. These municipalities have large urban dwelling populations, but the size of their populations vary hugely.
Category B3	Small towns. Municipalities without a large town as a core urban settlement. Typically they have relatively small populations, of which a significant proportion is urban and based in one or small towns. Rural areas in this category are characterised by the presence of commercial farms because these local economies are largely agriculture-based. The existence of such important rural areas and agriculture sector explains why they are included in the analysis of rural municipalities.
Category B4	Mostly rural. Municipalities that contain no more than one or two small towns and are characterised by communal land tenure and villages or scattered groups of dwellings and are typically located in former homelands.

Source: CoGTA (2010).

Findings

For municipalities classified as Category A, Table 35 provides the estimation results of the impact of total intergovernmental transfers on local own-source revenues and the two categories of spending – capital and operating expenditures respectively. For each of the three models, the table provides the estimated parameters of the independent variables, the relevant *t*-statistics, and an indication of the statistical significance of the estimated coefficients.

Table 35: Impact of conditional and unconditional transfers on category A own revenues and expenditures

	OWNPC		CAPEXPC		OPEXPC	
	Coeff.	**t-statistic**	**Coeff.**	**t-statistic**	**Coeff.**	**t-statistic**
CGRANTPC	0.564	***4.26	1.58	***3.25	0.57	0.92
UGRANTPC	0.11	0.28	-11.35	***4.30	-4.47	***2.68
YPC	0.24	0.22	11.71	**2.33	3.08	0.80
POVRATE	-0.03	0.02	14.85	***3.18	6.63	**1.94
POP	0.07	0.27	3.31	***3.38	1.29	*1.85
URBAN	-1.27	0.36	17.33	**2.06	1.89	0.27
No. of observations		84		84		84
No. of groups		7		7		7
No. of instruments		10		10		10
Arellano-Bond statistic (Prob > z)		0.997		0.949		0.369
Sargen test statistic (Prob > Chi^2)		0.762		0.000		0.054

*Note: The symbols ***, ** and * denote a coefficient is statistically significant at the 1%, 5% and 10% levels, respectively. All variables are expressed as logarithms.*

The estimated coefficients show the marginal impact of a 1 per cent increase in the explanatory variables on *per capita* own revenue as well as capital and operating expenditures *per capita*. The results show that a 1 per cent increase in conditional grants *per capita* will raise *per capita* own revenue by 0.56 per cent and this effect is statistically significant at the 1 per cent level. While an increase in unconditional grants does cause higher levels of own revenues, its impact is not statistically significant.

The second column of Table 36 shows that an increase in both conditional and unconditional grant allocations to metropolitan municipalities has significant effects on capital spending per resident. However, while a 1 per cent increase in unconditional grants raises capital expenditure by 1.58 per cent, a similar increase in unconditional grants has a negative impact as it reduces *per capita* capital expenditures by 11 per cent. The variables capturing the needs of metropolitan municipalities are all positive and statistically significant. This suggests that rising personal incomes, higher levels of poverty, increased population size and urbanisation tend to spur spending on capital goods. Similar conclusions are reached in the case of operating expenditures. Column 3 shows that a 1 per cent increase in equitable share allocations reduces *per capita* operating expenditure by 4.5 per cent, while a similar percentage increase in poverty rate and population size will cause consumption spending to rise 6.6 per cent and 1.3 per cent respectively.

Table 36: Impact of conditional and unconditional transfers on category B1 own revenues and expenditures

	OWNPC		CAPEXPC		OPEXPC	
	Coeff.	**t-statistic**	**Coeff.**	**t-statistic**	**Coeff.**	**t-statistic**
CGRANTPC	0.208	1.24	0.22	1.60	0.09	0.65
UGRANTPC	1.52	***3.35	0.04	0.09	-1.27	**2.43
YPC	-0.26	0.62	0.96	**2.61	1.29	***3.47
POVRATE	-0.74	1.32	1.32	**2.35	2.27	***4.04
POP	-0.59	***2.63	0.05	0.18	0.35	1.55
URBAN	-0.23	0.68	0.19	0.55	-0.57	1.63
No. of observations		234		84		84
No. of groups		20		20		20
No. of instruments		64		64		64
Arellano-Bond statistic (Prob > z)		0.023		0.915		0.699
Sargen test statistic (Prob > Chi^2)		0.156		0.998		0.059

*Note: The symbols ***, ** and * denote that a coefficient is statistically significant at the 1%, 5% and 10% levels, respectively. All variables are expressed as logarithms.*

Table 36 shows the regression output for Category B1 municipalities. The results indicate that increased *per capita* transfers incentivise higher own revenues and capital expenditure per resident. However, this positive relationship is only statistically significant for the effect of unconditional allocations on own revenue per capita for jurisdictions covering large/secondary cities. Increased *per capita* equitable share allocations by 1 per cent will result in a 1.27 per cent decline in municipal *per capita* spending on operational items. For B1 municipalities, increased *per capita* incomes of residents and higher poverty rates induce higher *per capita* funding of capital and operational expenditures, while a 1 per cent increase in municipal population size lowers own revenues by 0.6 per cent.

Table 37: Impact of conditional and unconditional transfers on category B2 own revenues and expenditures

	OWNPC		CAPEXPC		OPEXPC	
	Coeff.	t-statistic	Coeff.	t-statistic	Coeff.	t-statistic
CGRANTPC	0.003	0.01	-3.60	***6.03	-4.12	***6.56
UGRANTPC	2.61	**3.42	12.18	***10.68	9.24	***6.53
YPC	-0.24	0.54	-5.21	***7.68	-4.23	***6.46
POVRATE	-1.42	**2.91	-5.31	***6.40	-0.37	0.28
POP	-1.25	***3.62	-5.51	***9.90	-3.81	***5.32
URBAN	-1.44	***3.22	-4.71	***7.57	-4.98	***7.69
No. of observations		265		265		265
No. of groups		23		23		23
No. of instruments		10		10		10
Arellano-Bond statistic (Prob > z)		0.061		0.048		0.305
Sargen test statistic (Prob > Chi^2)		0.00		0.00		0.00

*Note: The symbols ***, ** and * denote a coefficient is statistically significant at the 1%, 5% and 10% levels, respectively. All variables are expressed as logarithms*

For the 23 municipalities classified as Category B2, Table 37 shows that unconditional transfers results in statistically significant increases to own revenues, capital expenditure and the financing of municipal operations. A 1 per cent increase in equitable share allocations will raise the *per capita* own revenue and expenditure components of municipal budgets by 2.61 per cent, 12.18 per cent and 9.24 per cent, respectively. On the other hand, rising conditional grant transfers result in reduced expenditures on capital and operating items. Municipal needs relating to the poverty rate, municipal size and urbanisation rate are negative and statistically significant drivers of own revenues and the different components of municipal expenditure.

Table 38: Impact of conditional and unconditional transfers on category B3 own revenues and expenditures

	OWNPC		CAPEXPC		OPEXPC	
	Coeff.	*t-statistic*	*Coeff.*	t-statistic	*Coeff.*	t-statistic
CGRANTPC	-0.04	0.31	0.26	**2.75	0.11	*1.72
UGRANTPC	2.01	**9.55	1.17	***4.27	0.56	**2.80
YPC	0.96	0.54	0.43	**2.22	0.27	1.54
POVRATE	-0.78	***3.70	-0.46	**1.65	0.30	*1.63
POP	0.44	**2.90	0.41	***3.88	0.10	0.81
URBAN	-0.33	**3.01	-0.24	**2.64	0.55	**3.12
No. of observations		1124		265		265
No. of groups		104		104		104
No. of instruments		64		64		64
Arellano-Bond statistic (Prob > z)		0.027		0.359		0.309
Sargen test statistic (Prob > Chi^2)		0.000		0.00		0.00

*Note: The symbols ***, ** and * denote a coefficient is statistically significant at the 1%, 5% and 10% levels, respectively. All variables are expressed as logarithms.*

The results in Table 38 indicate that unconditional transfers have a positive and significant effect on own revenue collection and the levels of expenditure in Category B3 municipalities. Likewise, increases in conditional grants result in higher levels of capital and operational expenditures. The estimated effects on municipal spending appear to be larger for increases to equitable share transfers relative to conditional grants. The results also show that rising *per capita* incomes have a positive and statistically significant effect on capital expenditure. A 1 per cent increase in municipal population size is expected to induce a statistically significant 0.4 per cent increase in both *per capita* own revenue and capital expenditures. Finally, higher levels of food poverty and urbanisation of Category B3 municipalities have a negative impact on own-revenue and capital expenditure. On the other hand, a 1 per cent increase in either variable is expected to crowd in operating expenditure by 0.3 per cent and 0.6 per cent, respectively.

Table 39: Impact of conditional and unconditional transfers on category B4 own revenues and expenditures

	OWNPC		CAPEXPC		OPEXPC	
	Coeff.	**t-statistic**	**Coeff.**	**t-statistic**	**Coeff.**	**t-statistic**
CGRANTPC	-0.13	0.69	-1.68	**2.18	-1.54	**2.03
UGRANTPC	1.70	9.55**	7.91	***5.38	8.10	***5.24
YPC	0.63	2.59**	-1.65	1.11	-1.61	0.96
POVRATE	-0.40	0.75	1.86	0.50	2.01	0.52
POP	0.12	0.76	-3.34	***6.07	-3.35	***5.94
URBAN	-0.10	1.26	0.14	0.33	0.23	0.52
No. of observations		642		265		265
No. of groups		58		58		58
No. of instruments		11		64		64
Arellano-Bond statistic (Prob > z)		0.679		0.671		0.348
Sargen test statistic (Prob > Chi^2)		0.550		0.00		0.00

*Note: The symbols ***, ** and * denote a coefficient is statistically significant at the 1%, 5% and 10% levels, respectively. All variables are expressed as logarithms.*

Table 39 shows the estimation results for Category B4 municipalities. The estimated coefficients show that an increase in equitable share allocations to the most rural of municipalities has a positive impact on own revenues and the different components of municipal expenditure. More substantively, a 1 per cent increase in unconditional transfers is expected to raise own revenues by 1.7 per cent. Unconditional transfers are also crucial to municipal spending, as a 1 per cent increase in this variable is expected to expand municipal capital and operating outlay per resident by 8 per cent. On the other hand, conditional grants tend to lower municipal *per capita* expenditures. More specifically, a 1 per cent increase in *per capita* conditional grant allocations will cause an almost 2 per cent decrease in *per capita* municipal expenses on capital and operational items.

Conclusion and recommendations

The question of whether reducing intergovernmental transfers in a fiscally constrained space allows for reduced dependency and innovation in revenue autonomy or worsens service delivery functions and regional disparities is particularly important for South Africa where

municipalities are expected to utilise assigned fiscal functions as the main tool to address significant historical inequities in the distribution of, and access to socio-economic infrastructure and resources. Using a unique and rich public finance dataset on South Africa's municipalities, this chapter examines the responsiveness of municipal expenditures and revenues to the main intergovernmental transfers. The main findings of the empirical analysis can be summarised as follows:

- For **Category A** municipalities, conditional grant transfers provide incentives for own revenues of metropolitan municipalities and generate increased funding of capital outlays. On the other hand, increased unconditional grants are associated with lower capital and operating expenditures.
- For **Category B1** municipalities, equitable share allocations are positively correlated with own revenues while unconditional grant transfers negatively impact operating expenditure.
- For **Category B2** municipalities, unconditional grants benefit municipal own revenues and expenditure *per capita* but conditional grant allocations induce lower *per capita* outlays on capital and operational goods.
- For **Category B3** municipalities, unconditional grants are beneficial for own revenue and different components of municipal spending, while conditional grants incentivise municipalities to raise *per capita* spending on capital and operational goods and services
- For **Category B4** municipalities, unconditional grants are beneficial for own revenue and different components of municipal spending, while conditional grants tend to lower capital expenditure.

The findings highlight the role of intergovernmental transfers as a critical component of total revenues utilised by municipalities in funding their assigned expenditure functions. These transfers are especially important for mainly rural local governments lacking either the internal capacity or tax base to generate an adequate level of own revenues. Such municipalities are financially weak and unable to attract qualified staff or purchase equipment necessary for implementing technical aspects of budgets and raising capacity to collect taxes and fees. Across all municipal types, local governments rely on financial transfers from the national government to fund their provision of mandated public services, which, in turn, raises the levels of local revenues through promoting voluntary tax compliance.

In terms of expenditure, the corollary of the empirical findings is that they serve as an indicator of the relative extent to which municipal expenditures are dependent on grant types. For Category A municipalities which generate the bulk (over 70 per cent) of total revenue from own sources, the results suggest that such municipalities are more dependent on conditional than on unconditional grants in financing their capital and operating budgets. This suggests that own revenues and conditional grants are drivers of capital and operating expenditure. Category B1 municipalities are less dependent on increasing levels of unconditional transfers as a source of funding operating costs. With increased intergovernmental transfers, the capital and operating budgets of Category B2 municipalities become more dependent on unconditional grants and less dependent on conditional grants. For Category B3 municipalities, higher levels of both conditional and unconditional transfers are associated with increased capital and operating expenditures. Finally, Category B4 municipalities will tend to depend more on rising unconditional transfers as a source of funds directed at capital and operating expenditure.

In an environment of slow economic growth and efforts to consolidate public finances, the reliance on intergovernmental grant transfers in the financing of capital and operating budgets

of municipalities is a welcome development. This is particularly so for Category A, B1 and B2 municipalities that generate a significant share of revenues from own sources. However, for mainly rural municipalities classified as Category B3 and B4, transfers play a key role in their budgets and hence the need to focus efforts on ensuring efficient utilisation of funds and overcoming the capacity challenges that have driven grant underspending within these two categories of municipalities.

In terms of revenue, conditional grants incentivise higher levels of own revenues in Category A municipalities, while for Categories B1-B4 municipalities, higher unconditional grant allocations are positive incentives for own revenue collections.

The Commission recommends that:

1) *The Minister of Finance, through National Treasury, gives municipalities (particularly those in categories B3 and B4) greater flexibility in the use of grants to encourage innovative approaches to resolving local problems.*

Budget 2018 envisages strong allocations in equitable share allocations alongside significant declines in conditional grants. For mainly rural municipalities, such reductions should be balanced against the important stimulus provided by conditional grants for funding capital expenditure. In a fiscally constrained environment in which conditional grant allocations are expected to fall, municipalities should be assisted to use reduced grant amounts efficiently. Such flexibility could be introduced through a phased in conversion of categorical grants into the block grant framework. Alternatively, a similar approach to the newly introduced Integrated Urban Development Grant can be extended to most resource vulnerable rural municipalities. Conversion of categorical grants to block grants will require that national funding of identified priority programmes via municipalities be accompanied by local government maintaining a level of spending effort.

2) A fiscal capacity component be introduced to the equitable share formula to make it more efficient and incentivising. The component should incorporate two aspects:

a. *Recognising the revenue-raising effort of municipalities, and*

b. *Capturing the redistributive element of addressing horizontal imbalances.*

In using the equitable share formula as the main conduit for transfers to local governments, it should be noted that the current structure of the LES accounts for the fiscal capacity of municipalities through a revenue adjustment factor. This is biased in favour of jurisdictions with limited potential to raise revenues. The recommended fiscal component will ensure that the formula adheres to its principle of ensuring equity according to socio-economic circumstances. An effort to raise revenues that is a composite measure of the extent to which municipalities collect from their legislated/mandated local tax/revenue bases should be introduced. This will complement the current local government equitable share formula in which fiscal capacity assessment is based on the potential to collect revenues. The potential is influenced by a jurisdiction's wealth base, available revenue sources, demand for local services and tax limitation measures. To incentivise revenue efforts, the formula will be required to give a higher weighting to the effort indicator. On the other hand, the redistributive aspect of the formula can be achieved via the negative correlation of fiscal capacity (or potential) with the amount of transfers to be received.

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Chapter 5: Assessing Efficiency of Key Provincial Infrastructure Programmes: Education, Health and Public Transport

Ghalieb Dawood

1 Introduction

In its 2016/17 Division of Revenue Submission, the FFC argued that the successful delivery of infrastructure projects is critical for service delivery and economic growth (FFC 2015). Delivery of infrastructure projects, however, is suboptimal, typically characterised by cost overruns, low productivity and poor quality *(*Emuze and Swallwood 2012). Government's ability to leverage infrastructure as a policy instrument to reduce poverty, inequality and unemployment and to generate growth is undermined by ineffective delivery of infrastructure projects. These are often the result of poor planning, weak procurement processes, corruption, and insufficient governance and oversight.

Subdued economic growth and lower than anticipated revenue collection have resulted in a constrained fiscal environment. This has led government to pay increased attention to internal weaknesses, such as inefficiencies, waste and corruption, to improve the spending performance of the fiscus and stabilise public debt. In particular, government has focused on improving the returns on public investments in infrastructure projects as these are typically large and consume a considerable portion of the procurement budget. In addition, the unique characteristics of the infrastructure sector make it vulnerable to waste and inefficiencies (Transparency International 2005). For example, different levels of official approval make oversight difficult, the general uniqueness of projects make the accurate estimation of the true project costs complicated, opportunities exist for delays and overruns, and poor quality of work is easy to conceal.

Since the seminal paper by Aschauer (1989), many researchers have confirmed the positive relationship between infrastructure investment and economic growth, in spite of the varying strength of this relationship. In addition, good infrastructure leads to improved human welfare and is critical for the attainment of some human development goals (Fourie 2007). However, infrastructure expansion on its own is unlikely to achieve economic development objectives. Critically, infrastructure delivery should be efficient and effective to increase the growth dividend and reap human development returns. A recent study has found that the most efficient countries get twice the growth return for their public investment on infrastructure compared to the least efficient countries (IMF 2015). Inefficiencies arising from fiscal impropriety increase income inequality and poverty (Gupta *et al*. 1998) and lower economic growth (Mauro, 1995).

Government infrastructure is largely financed by conditional grants disbursed to provincial and local government. The grants fund important socio-economic infrastructure that is

essential for the provision of basic services to communities and expanding access to health and education. However, provincial infrastructure spending may not always be optimally used. In addition, within an environment of fiscal constraints, government reduction and reprioritisation of spending frequently targets conditional grants related to infrastructure.

Over the 2018 MTEF, cuts to the Education Infrastructure Grant (EIG) were R3.47 billion in 2018/19 and R3.8 billion in 2019/20, while the baseline reductions to the Health Facility Revitalisation Grant (HFRG) were R100 million in 2018/19 and R200 million in 2019/20. The Provincial Roads and Maintenance Grant (PRMG) also faces cuts of R1.2 billion over the next two years. In its submission on the 2018 Division of Revenue Bill, the Commission noted that government trimming of conditional grants have not been made according to any specific blueprint, except that they have been made to bigger value grants. The Commission therefore recommended that a more in-depth investigation of each grant be made prior to it being reduced. Grants are important in addressing inequalities in South Africa and in fulfilling constitutional requirements to provide service delivery.

This chapter addresses crucial questions in respect of infrastructure in the education, health and transport sectors:

- in the prevailing fiscal context, how can provincial governments achieve the same level of infrastructure delivery with less money?
- is it possible that government can maintain existing levels of infrastructure delivery with more efficient use of funds, achieved by reducing waste and eliminating fiscal misappropriation?

The chapter is in line with the recommendations made by the Commission in its submission on the 2018 Division of Revenue Bill. The reduction of backlogs in these sectors in the context of fiscal constraints will depend on the optimal use of resources. Should widespread waste, inefficiency and corruption prevail, government's long-term objectives of addressing poverty and inequality through infrastructure development could be compromised.

The specific objectives of the research are the following:

- assess the efficiency of provincial infrastructure projects funded through education, health and transport conditional grants;
- examine the main causes of inefficiencies in provincial infrastructure projects, with the focus being specifically on the procurement and implementation phases of the infrastructure project cycle; and
- propose fiscal and non-fiscal measures that could minimise the potential for inefficiencies in provincial infrastructure programmes and shut down windows of opportunity for public officials to engage in fiscal misappropriation.

2 Background

2.1 Infrastructure Backlogs at Provincial Level

2.1.1 Road Transport

Road transport is an important part of South Africa's transportation network. Failure to maintain and protect the road network could undermine the social and economic development of the country. According to the Constitution, provincial roads are an exclusive provincial function, whereas municipal roads, parking and traffic are exclusive local government functions. Provincial governments are responsible for the full project cycle related to road

networks, including planning, design, construction and maintenance. These functions are increasingly being implemented through provincial road agencies rather than the responsible provincial departments.

South Africa's total road network is about 750 000 km in length. Of this, only 21 per cent is tarred. Disaggregating the road network by sphere, non-metro municipalities with 15 per cent and provinces with 17 per cent have the largest share of gravel or untarred roads. Provinces and non-metro municipalities also control the bulk, namely 70 per cent, of the total road network in South Africa.

Of the total roads that are paved at provincial level, 26 per cent are in poor and very poor condition (National Department of Transport (NDOT) 2017). This equates to over 12 500 km of roads that need to be refurbished or replaced. Using industry benchmarks, the South African National Roads Agency Limited (SANRAL) estimates that strengthening costs are roughly R8.5 million per kilometre of road (SANRAL 2016). Adopting this benchmark, the total budget required by all nine provinces to address the road refurbishing or replacement backlog would be just over R106 billion. This excludes the general maintenance of provincial tarred and gravel roads, or the upgrading of road from gravel to tar.

Table 40: Paved and gravel roads in South Africa, 2016

Authority	Paved (km)	Gravel (km)	Total (km)	Paved (%)
SANRAL	21 403	-	21 403	100
Provinces – 9	47 348	226 273	273 621	17
Metros – 8	51 682	14 461	66 143	78
Municipalities	37 691	219 223	256 914	15
Total	158 124	459 957	618 081	26
Unproclaimed (estimate)		131 919		
Estimated total	158 124	591 876	750 000	21

Source: National Treasury, 2016.

2.1.2 School infrastructure

Education outcomes do not only depend on school governance, classroom size and teacher qualifications, but also rely critically on appropriate school infrastructure. As at January 2018, South Africa had a total of 23 471 government 'ordinary' chools. Table 41 provides the infrastructure backlogs identified at schools, broken down by province. It is noticeable that a significant proportion of the basic infrastructure backlogs, such as toilet facilities, water, electricity and fencing, pertain to schools is located in the Eastern Cape. While the overall backlogs may seem insignificant, especially in relation to toilet and water facilities, it is important to note that the figures only account for schools with a complete absence of basic infrastructure. Many schools, however, also suffer from inadequate infrastructure. For example, only 18.5 per cent of ordinary schools in the country have access to pit latrines, an unsafe form of sanitation that has led to several deaths of young learners.

In addition to the backlog in essential infrastructure, most schools in the county neither have libraries (77 per cent) nor science laboratories (92 per cent). While some may regard such facilities as non-essential, libraries and laboratories are critical enablers for improving the quality of education, especially in schools located in quintiles 1 to 3.

Backlogs at schools that are not captured by the National Education Infrastructure Management System (NEIMS) include maintenance and rehabilitation. In addition, the building of new schools to cater for growth in the school population, especially in urban provinces such as Gauteng, is also not factored into the data reported by the NEIMS.

Table 41: Ordinary school infrastructure backlogs, 2018

	No. of sites	Without any toilet facilities (%)	No water supply (%)	No electricity supply (%)	No fencing (%)	No security (%)	No sports facilities (%)	No communication (%)	No laboratory (%)	Without libraries (%)
Eastern Cape	5 393	1	0	3	9	1	61	1	93	92
Free State	1 166	0	0	0	4	0	31	1	72	63
Gauteng	2 070	0	0	0	0	0	23	0	67	37
KwaZulu-Natal	5 840	0	0	2	3	0	55	1	89	76
Limpopo	3834	0	0	0	4	0	32	1	135	93
Mpumalanga	1 715	0	0	0	8	0	28	1	88	81
Northern Cape	1 467	0	0	0	2	1	26	0	80	76
North West	541	0	0	0	1	0	31	0	80	69
Western Cape	1 445	0	0	0	0	0	25	0	67	45
	23 471	0	0	1	4	0	42	1	92	77

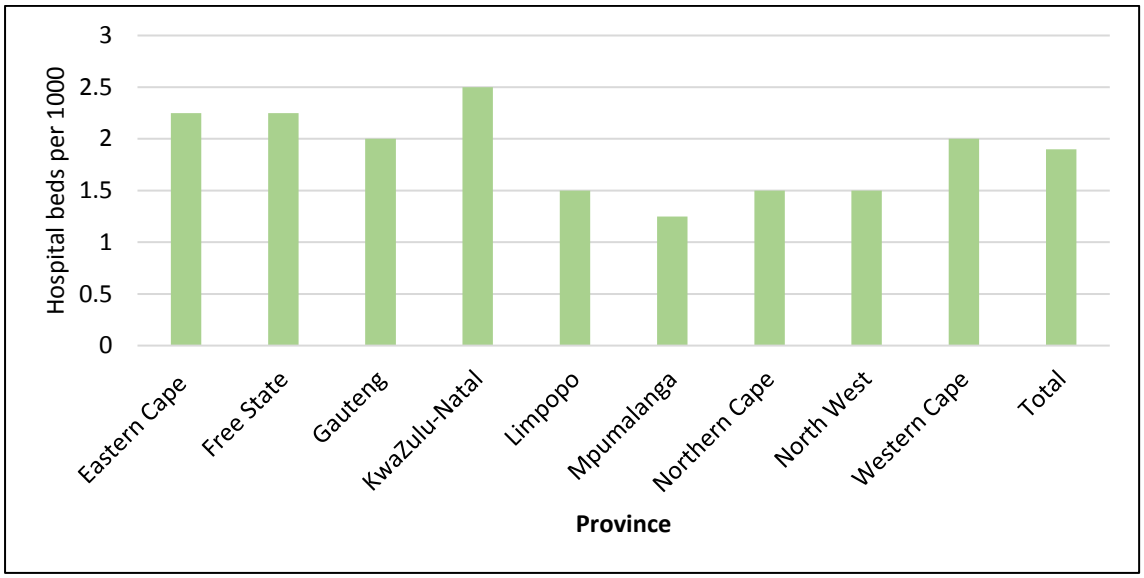
Source: National Education Infrastructure Management System; FFC calculations (2018).

2.1.3 Health infrastructure

Even though there has been a significant increase in health infrastructure, which saw the construction of 1 345 clinics and the upgrading of 263 clinics since the late 1990s, the reality on the ground is that many poor households still live far from a health facility, especially in the rural areas (McIntyre and Ataguba, 2016). The national income dynamics survey (2008) found that 20 per cent of the lowest income quintile lived more than 5 km from the nearest clinic, compared to just five per cent of the richest quintile.

Another key indicator of the level of health-facility access is the number of hospital beds per 1 000 of the population. In South Africa, the average number of hospital beds per 1 000 people is 1.9, compared to the World Health Organisation (WHO) guideline average norm of 2.8. The variation across provinces depicted in Figure 23 demonstrates that the situation is particularly bad in the rural provinces of Limpopo and Mpumalanga.

Figure 23: Hospital beds per 1 000 of population by province, 2014



Source: McIntyre and Ataguba (2016); FFC calculations

The provinces have generally failed to undertake audits of the conditions at health facilities. This is indicated by the lack of available data available in the provinces. However, the Office of Health Standards Compliance does collect a sample of such information. Insufficient or inadequate maintenance and upkeep undermines health service delivery, especially if mechanical and electronic equipment is required to treat patients properly, are faulty. The last health facility audit was done in 2011/12 (McIntyre and Ataguba, 2016).

3 Literature review

3.1 Clarifying the concepts of efficiency and infrastructure

3.1.1 Efficiency

With the overall financial resource envelope shrinking or growing at best at a slower rate since the onset of the global recession in 2009, the aspect of spending efficiency has received increasing attention from economists and policy makers concerned with keeping the costs of government programmes under control and making resources available for other priorities. To measure the efficiency of government spending programmes correctly, the concept of efficiency needs to be understood clearly. The concept has been defined by economists in a variety of ways.

One approach is to define efficiency as the output (benefit) achieved and equate this to the budget allocation. Hence, as a budget increases, economists assume that the output (benefit) increases as well, thus resulting in greater efficiency. However, as Afonso *et al* (2006) point out, an increase in the budget for a specific programme does not always equate to a corresponding increase in benefit. For example, although in Chile the real public expenditure on health tripled over a few years, this did not result in an increase in the quantity or quality of health services. Rather, the increased health budget led to an increase in rents for doctors and nurses.

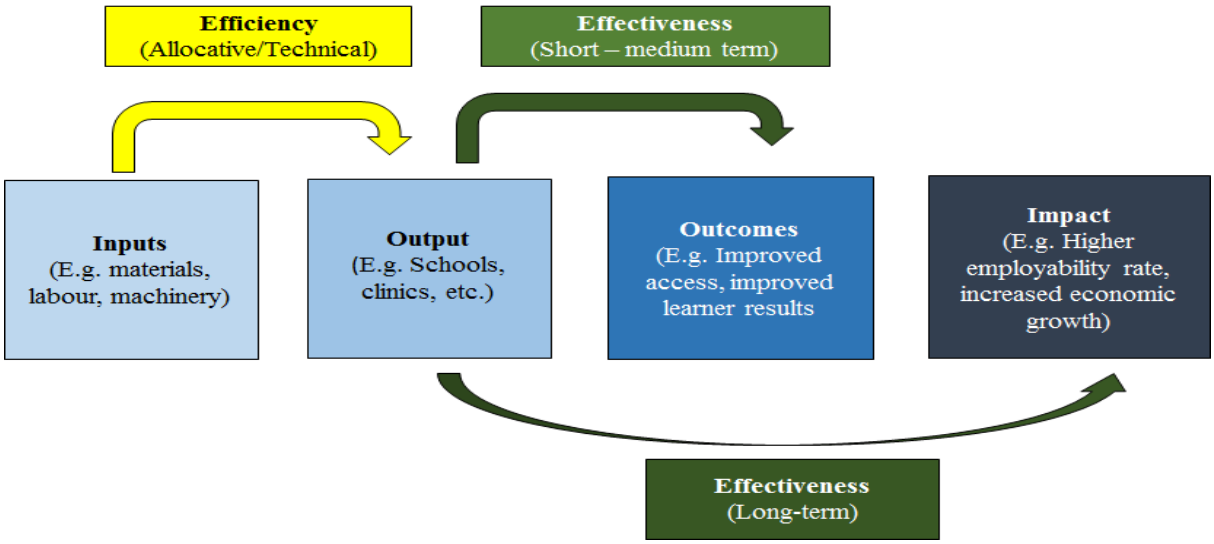
To overcome the erroneous inference implied by the definition above, most researchers adopt a broader view and define efficiency as the relationship between inputs and outputs (Afonso

et al, 2006; St Aubyn, 2009). According to this definition, for a given amount spent on a programme (input) and the greater the output, the greater will be the efficiency. Conversely, greater efficiency is achieved if government reduces the inputs (costs) of a given programme without decreasing outputs and without increasing any other input (Productivity Commission, 2013). Output indicators therefore not only include quantity but also quality measures. If government omits quality measures, as is often the case, an important dimension of efficiency will be missing. Government may decide on building 20 clinics (quantity output measure) with the resources allocated (inputs), but it is equally important to measure the quality of those clinics and to determine if they meet agreed standards (quality output measure).

While the broader definition of efficiency is widely agreed upon, researchers have raised the concern that it leads to an assumption that the output produced equates to public preference. This, however, may not be the case. For example, a government may be allocating more resources than the public would prefer on military expenditure, rather than on health or education.

To overcome this conceptual issue, economists make a distinction between two types of efficiencies – *technical* efficiency and *allocative* efficiency. Technical efficiency equates to the broader definition of efficiency previously referred to as the relationship between inputs and outputs, while allocative or operational efficiency is defined as the mix of goods and services citizens most value, given available resources (Mihaiu *et al*, 2010). This conceptual distinction implies that when measuring efficiency, one must not only consider producing outputs at the lowest cost (technical efficiency), but also the production of the right outputs informed by public interest (allocative efficiency).

Figure 24: Efficiency and effectiveness



Source: FFC, 2018.

However, even though government may allocate resources for the right output (allocative efficiency) and the output may be produced at the lowest cost (technical efficiency), the government's objectives may still not be achieved. Taking the 20 clinics example, government's objectives of improved healthcare or better health access may or may not be achieved. Economists therefore introduced the concept of effectiveness to measure the extent to which the outputs produced achieve the stated policy objectives as defined by programme outcomes (St Aubyn, 2009, Hookano, 2011).

While one school of thought assumes that all outcomes are the same, another makes a distinction between short- to medium-term (outcomes) and long-term outcomes (impact) (Afonso *et al*, 2006, Parsons *et al*, 2013). The short- to medium-term outcomes typically relate to programme objectives (e.g. improved learner results), whereas long-term outcomes (impact) are often higher level outcomes related to a specific sector (e.g. higher rate of employability in the labour market), or macro-economic objectives (e.g. increased economic growth). South Africa has adopted the latter approach as reflected in its standard for infrastructure procurement published by the National Treasury (2016).

To keep the study focused, this investigation will concentrate on measuring the technical efficiency of infrastructure spending. The assessment of allocative efficiency and effectiveness is not considered in this study as such an analysis requires answering a different set of questions to the ones that are of interest to this investigation.

3.1.2 Infrastructure

There are various ways in which infrastructure is defined in the literature. One approach looks at the contribution of infrastructure to the production process. In this instance, researchers define infrastructure as either core or non core. Aschauer (1989) found that core infrastructure, *inter alia.* roads, railways, bridges, electrical lines and water, has a positive impact on productivity, whereas non-core infrastructure, such as schools and hospitals, does not. While conceptually helpful, this definition is problematic as it creates the perception that non-core infrastructure is less significant to the broader economy than core infrastructure. Should policy makers adhere to this view, a bias towards investing more in core infrastructure could materialise.

More recently, researchers have preferred to define infrastructure as being either economic or social in nature. Economic infrastructure is defined as promoting economic activity, while social infrastructure is seen as improving the quality of life through, for example, education and health. Whilst these infrastructure categories can be kept separate, they can also overlap. Sanitation, for example, can be considered as having both economic and health impacts and can thus be regarded as being both economic and social in nature (Fourie, 2006).

Defining infrastructure as having either an economic or social function has gained traction in South African policy circles. Importantly, the challenge of poverty and inequality highlighted in the NDP requires policy makers to give equal weight to both economic and social infrastructure projects. Surprisingly, however, the national infrastructure plan (NIP) (2012) contains only two strategic infrastructure programmes (SIPs) related to social infrastructure, whereas the remaining 16 SIPs focus on economic projects. The academic literature reflects a similar bias as most studies narrow their enquiry into economic infrastructure and its impact on the economy. The impact of social infrastructure on the South African economy has largely been ignored, possibly because of the absence of good quality data.[17]

Infrastructure investment at provincial level spans both economic and social infrastructure, although the construction of schools and clinics (social) constitutes the bulk of investment.

[17] The study by More and Aye (2017) is one of the few exceptions that could be found in the literature.

3.2 The impact of infrastructure delivery and efficiency

The positive contribution of infrastructure to economic growth is well established. Since the seminal paper by Aschauer (1989), many researchers have provided empirical support for this finding, although the strength of the relationship between infrastructure and economic growth varies. For the South African situation, Fedderke *et al* (2006) have demonstrated that the relationship holds in that infrastructure investment both improves productivity and raises the marginal productivity of capital. The renewed interest in infrastructure after many decades of neglect by researchers can be traced to the increased privatisation of utilities, initially in developed countries and then in developing countries (Calderon and Serven, 2004).

While most studies on the impact of infrastructure creation have focused on its contribution to economic growth, the study by Calderon and Serven (2004) was one of the first to demonstrate that public investment in infrastructure also reduces income inequality. Using a dataset encompassing over 100 countries and spanning the period from 1960 to 2000, the authors found that income inequality declined as the stock of infrastructure increased both in quantity and quality.

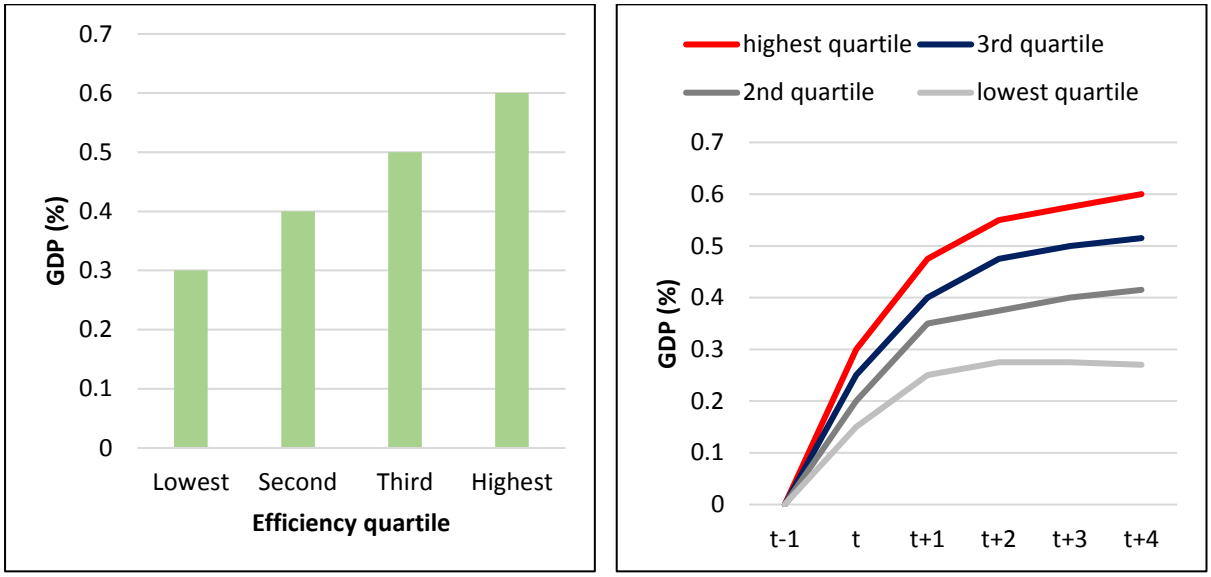
The absence of any investigation into the impact of social infrastructure on economic development is a major gap in many infrastructure studies. By narrowly focusing on economic infrastructure, many studies do not capture important equity objectives and extended growth prospects, especially in a developing country such as South Africa. It may also incentivise policy makers to give greater preference to funding economic infrastructure at the expense of social infrastructure. In a recent study, More and Aye (2017) attempted to plug this gap in the South African context. Using a structural equation modelling approach, the authors found that social infrastructure spending had a positive effect on inequality: as spending on education and health infrastructure increased, inequality declined. But the relationship between social infrastructure and economic growth was found to be mixed: education infrastructure contributed positively to economic growth while health infrastructure contributed negatively, although the result was not significant.

Infrastructure spending will not automatically translate into economic growth or a decline in inequality. Dodonov *et al* (2002) have shown that institutional factors play an important role in translating infrastructure investment into growth, especially in countries undergoing transition. Empirical findings from other studies have also shown that the quality of infrastructure provision should not be ignored in the pursuit of expanding infrastructure stock. Fourie (2007) found that both the quantity and quality of infrastructure have a positive impact on economic growth.

The significant amounts spent on infrastructure with sometimes ineffective outcomes have led researchers to explore the efficiency of public infrastructure spending. A multi country study by the IMF in 2015 found that countries demonstrated average inefficiencies in public investment of 30 per cent. It found furthermore that if this efficiency gap were to be closed, countries were likely to experience much higher growth rates. Figure 25 demonstrates this scenario. A one per cent increase in infrastructure spending would increase the GDP of countries in the lowest efficiency quartile by 0.3 per cent. However, a similar increase in public infrastructure investment in countries in the highest efficiency quartile would increase GDP by 0.6 per cent. The growth effect is largest in the first year across efficiency quartiles but tapers off in years three and four. The fastest rate of GDP decline from years one to four is found in countries in the lowest efficiency quartile. Simulation results of the IMF study suggest that if countries in the lowest efficiency quartile were to increase the efficiency of

their public investment to the extent of matching countries in the highest efficiency quartile, they would be able to double their growth dividend.

Figure 25: Public investment in infrastructure, output and efficiency



Source: Adapted from IMF (2015)

Other researchers have confirmed that when public infrastructure investment is efficient, a stronger relationship exists between economic growth and public investment. Gupta *et al* (2014) established that there is a robust relationship between public capital and economic growth, although the relationship is stronger in developed countries than in developing countries. Another study by Rioja (2003) found that some Latin American countries paid a long run penalty of about 40 per cent of steady-state real GDP *per capita* for having ineffective infrastructure. Scaling up infrastructure when delivery is suboptimal may therefore not be an appropriate policy response. These findings support the theoretical growth model developed by Chakraborty and Dabla-Norris (2009), which shows that the link between economic growth and infrastructure critically depends on the quality and efficiency of public investment projects.

How does the improved efficiency of public investment explain enhanced growth? The IMF (2015) explains that higher quality infrastructure lowers transaction costs for the private sector while raising the marginal productivity of human and physical capital. Fourie (2007) explains that a road in good condition, a reliable electricity supply, or a secure telecommunications network reduces input costs, thereby improving productivity. In addition, by improving efficiency there is more space for cost savings, which can then be used to fund - investments that enhance growth or reduce taxes (IMF, 2015).

Understanding the role of efficiency and its impact on public investment on economic development has largely been ignored in South African literature, possibly because of the absence of adequate macro level data. However, a few benchmark studies have examined the performance of economic infrastructure in South Africa relative to its peer countries. Using World Bank country data for 207 countries and clustering them into four groups by levels of income *per capita*, Bogetic and Fedderke (2005) find significant shortfalls in infrastructure across economic sectors (i.e. in the areas of electricity, water, transport, and information, communications and technology (ICT), particularly in rural areas. For South Africa to catch

up to peer countries, improvements are needed both for increased access to and the quality of economic infrastructure in underserviced areas. Fourie (2007) has also noted that against measures of infrastructure quality, South Africa has performed poorly relative to the world average, and against average and middle income countries. While these comparative studies make important contributions to understanding the relative effectiveness of some infrastructure sectors in South Africa, data limitations and the narrow focus on economic infrastructure preclude a more detailed treatment of the subject, especially as it relates to social infrastructure and disaggregated infrastructure investment decisions that are taken at provincial level.

3.3 Determinants of efficiency in infrastructure delivery

Public investment management arrangements constitute an important factor for explaining differences in the efficiencies of public investment projects. A study conducted by the IMF (2015) found that public investments in countries with stronger public management institutions are more efficient and productive than in countries with weaker institutions. Perceived levels of rent-seeking and corruption are also reduced in the leading countries. The study shows that an improvement in public investment institutions can reduce the efficiency gap by two-thirds, with middle income and low income countries benefitting the most. This empirical finding confirms the theoretical model developed by Chakraborty and Dabla-Norris (2009), which shows that a strengthening of monitoring and bureaucratic oversight is critical to obtaining greater efficiency from public infrastructure investment decisions

Investigative studies into the inefficiencies affecting the infrastructure sector at a micro level have found time and cost overruns to be among the most common factors affecting the poor performance of infrastructure projects (Shehu *et al*, 2014, Meeampol, 2006). The reasons for time and cost overruns range from cash flow problems by contractors and late payments to sub-contractors or suppliers (Shehu *et al*, 2014), to poor supervision and control of infrastructure projects by contractors (Meeampol and Ogunlana, 2014). Other fiscal inefficiencies mentioned in the literature include rigid budgeting processes that focus on the expenditure of budgeted funds rather than on the achievement of efficiencies. This results in rushed and inefficient procurement processes, difficulties with budget execution (leading to a gap between committed and spent funds), and investment decisions failing to take account of future infrastructure maintenance costs (Fay *et al*, 2017). While these fiscal and project related reasons for inefficiencies may seem unrelated to each other, a careful examination shows that many of these factors can in fact be traced back to weak public investment management arrangements, as highlighted by the model of Chakraborty and Dabla-Norris (2009).

Investment efficiencies can be predicted more effectively in some phases of the infrastructure project cycle than in others. Having split the public investment process into four stages, Gupta *et al*, (2014) show why low income countries obtain a larger share of the effect of efficiency adjusted capital stock on economic growth in the implementation phases of projects. In comparison, the appraisal and evaluation phases are the most significant for middle income countries.

Rent-seeking behaviour and corruption are other key factors that explain inefficiencies in the project cycle (Gupta *et al*, 2014). Large projects, in particular, have certain inherent characteristics (e.g. size, complexity, uniqueness, etc.) that make them susceptible to corruption (Hawkins, 2013). Comparing high speed rail megaprojects in Europe and globally,

Locatelli *et al* (2016) found that corruption worsens cost overruns and delays, while also increasing transaction costs and decreasing the benefits delivered. In one of the earliest empirical studies on the impact of corruption, Tanzi and Davoodi (1997) showed a link between corruption and poor quality, which results in an increase in the cost of doing business, shortens the lifespan of the asset and pushes up subsequent maintenance costs. The net impact is a decline in the productivity of capital, which leads to lower economic growth.

Evidence of inefficiencies because of corruption in the South African infrastructure sector is limited. One study conducted by Bowen *et al* (2015) found that corruption occurs most frequently during the tendering and bid evaluation phases. More and Aye (2017) found that spending on health infrastructure in South Africa has a negative effect on economic growth, although the finding was not significant. They argued that because of this, more health infrastructure will not lead to better health services. In their view, corruption could explain why health infrastructure spending does not have a positive impact on economic growth but did not support their argument with credible evidence .

Astonishingly the cost of corruption resulting from bribery in infrastructure projects is estimated to range from five per cent to 20 per cent of total construction costs. Evidence from the European Bank for Reconstruction and Development's world bank business environment and enterprise performance survey (BEEPS), which covered 4 000 companies in 22 transition countries, found that about seven per cent of the construction contract value in these countries goes towards bribery for securing government contracts (Kenny, 2009).

Despite these efforts to measure the impact of corruption and estimate potential costs, there is still much uncertainty about the true extent of corruption in infrastructure projects and the overall impact of this on the economy. The clandestine nature of corruption makes direct measurement very difficult, even though methodological techniques have significantly improved over the past few decades.[18] Studies by Olken (2006), and Reinnikka and Svensson (2006) make a strong case for considering survey data as a better alternative to previous methods, i.e. corruption perception indices. However, as Kenny (2009) has pointed out, while surveys are an improvement, questions may not be specific enough and surveys often do not measure the impact of corruption. Results from surveys may in fact underestimate the level of corruption in infrastructure projects since the protagonists are less likely to reveal the full extent of corrupt activities. The inefficiencies arising from corruption in large infrastructure projects and the economic impact thereof may therefore be much greater than is generally believed.

A theory about the efficiency of corruption ("greasing the wheels") has largely fallen out of favour in recent times as mounting evidence in the past decade points to the negative impact of corruption on economic development ("sanding the wheels"), even though methodological issues persist.

[18] Appendix A contains a comprehensive analysis of the methods employed in measuring corruption in infrastructure projects, as outlined by Kenny (2009).

4 Research methodology

This study employs a multi-pronged approach:

- Budget analyses of key provincial infrastructure programmes in the health, education and transport sectors were conducted to assess the efficiencies of these programmes. Ideally, the DEA technique should be adopted to investigate service delivery efficiencies. To employ this method requires well defined input and output measures. For provincial infrastructure delivery, input data with respect to expenditures are easily accessible but well defined outputs that are comparable across provinces and in a province are not available. This is because provinces do not report on output information at project level in any standardised manner. Despite this drawback, the budget analysis technique adopted, complemented by the qualitative study and questionnaire administered, provide clues to the extent of inefficiencies in provincial infrastructure.
- The questionnaire administered examines the key reasons for inefficiencies in provincial infrastructure programmes. Consistent with the findings by Gupta *et al* (2014), the survey questions concentrate on the selection and implementation phases of the infrastructure project cycle. The sample frame comprises 209 building contractors in eight of South Africa's nine provinces ranging in size and experience.[19] The survey instrument was administered through a web based platform to ensure the complete anonymity of respondents and cost effectiveness. Questions pertaining to the frequency of different types of inefficiencies were included, as well as questions to gauge respondents' perception and direct experience of fiscal misappropriation. The third component of the methodology is interviews. These were conducted with key stakeholders at provincial departments of education. Three case study provinces were selected (Western Cape, Free State and Limpopo). Their procurement and implementation phases are assessed based on the conceptual framework employed by Klitgaard (1995) to evaluate potential incentives for fiscal misappropriation in educational infrastructure projects. Findings from these case studies are complemented by interviews with provincial treasuries, the national Department of Education and the National Treasury.

5 Findings

5.1 Intergovernmental delivery of provincial infrastructure

Provincial governments are mainly responsible for investing in and maintaining infrastructure related to their core mandate as outlined in schedule 4 of the Constitution. These infrastructure programmes typically concern health, education, housing and road maintenance. Smaller infrastructure programmes associated with tourism, sports facilities and agriculture are the responsibility of the provinces as well.

Provinces fund these key infrastructure programmes through conditional grants received from national government. As depicted in Figure 26, national sector departments act as the transferring entities and play a crucial role in ensuring that provincial governments implement their infrastructure programmes in accordance with national norms and standards. This oversight role also extends to providing provincial departments with technical support should this be required. National Treasury issues instruction notes on planning, procurement

[19] The study could not find any building contractors with a website presence from the North West province.

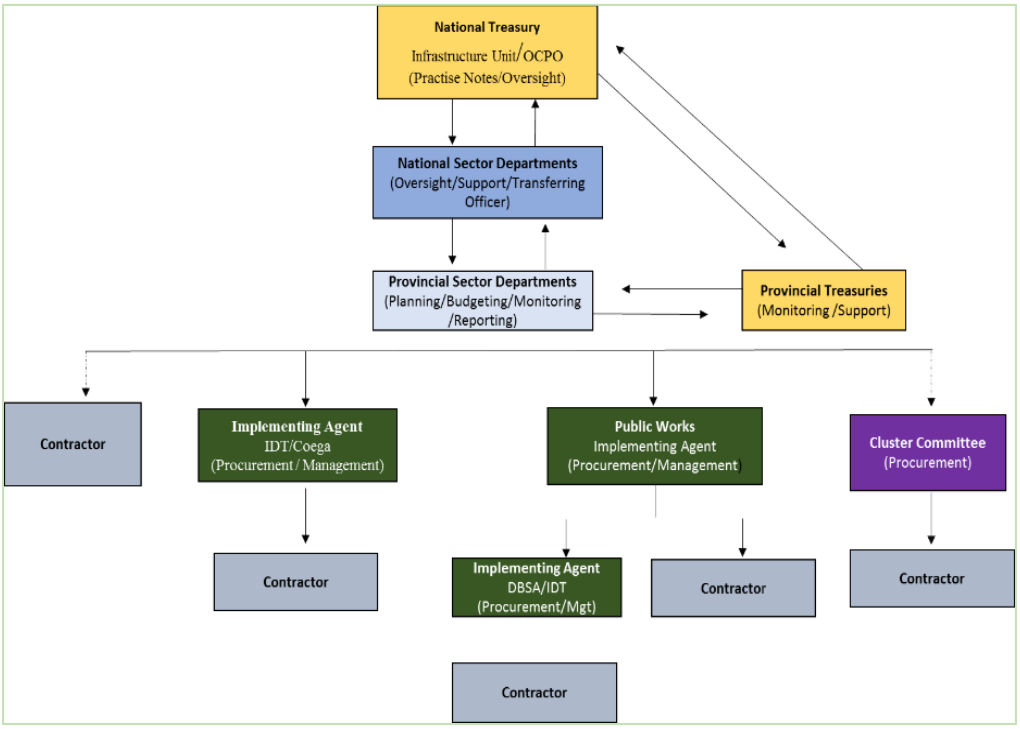
and implementation of infrastructure delivery with the aim of achieving value for money and cost efficiencies. Provincial treasuries assist provincial sector departments to implement these instruction notes and monitor infrastructure delivery in the province.

Infrastructure delivery at provincial level consists of several configurations. In a few instances, sector departments procure service providers and deliver infrastructure projects directly, but in most cases, the provincial Department of Public Works (DPW) is the sole implementing agent (IA) allowed by provincial executive authorities. Given the high volume of infrastructure projects, provincial education, health and roads departments are often hamstrung by delays in project execution by DPWs. The DPWs also outsource projects to IAs such as the Development Bank of South Africa (DBSA) or the Independent Development Trust (IDT), which adds further complexities to the accountability cycle.

In cases where sector departments procure service providers directly, projects are generally small in nature and typically relate to maintenance work or minor upgrades. This arrangement allows sector departments to exercise direct control over contractors and the procurement process has a shorter turnaround time. To reduce the delivery burden on DPW, sector departments in some provinces are permitted to use other IAs. However, this arrangement comes with its own challenges, particularly with respect to government procurement processes that may not be followed. Sector departments may also fail to exercise proper oversight over these IAs. Nevertheless, by having more than one IA, sector departments achieve a faster throughput and are more likely to achieve their delivery goals. In the Free State, all projects under R10 million are procured through a cluster committee consisting of several sector departments. Members of these committees are appointed by the respective heads of department (HODs). The committees appoint contractors who report to sector departments. The cluster committees fast track framework agreements[20] so that small to medium sized infrastructure projects can be initiated in a shorter turnaround time.

[20] A framework agreement is an agreement with suppliers to establish terms governing contracts that may be awarded during the life of the agreement. In other words, it is a general term for agreements that set out terms and conditions for making specific purchases (National Treasury, 2016)

Figure 26: Infrastructure delivery of provincial infrastructure



Source: FFC

In recent years, national government has increasingly taken on the implementation of the infrastructure function on behalf of provinces. This is evident from the rapid increase in indirect grants from 3.9 per cent in 2011/12 to 8.9 per cent in 2016/17. This rise is underpinned by an assumption that the spending performance by national government in delivering infrastructure is better than that of provinces. This assumption is challenged by a study conducted by the FFC in 2015 which found that infrastructure direct grants to provinces outperformed indirect grants (FFC 2015).

5.2 Policy reforms to improve provincial infrastructure delivery efficiency

In order to improve infrastructure delivery, government has implemented ongoing reforms to remove bottlenecks in the system that are slowing down infrastructure delivery at sub-national level and contributing to unspent funds being returned to the fiscus. One such reform rolled out to provinces and local government was the integrated delivery management system (IDMS) introduced by National Treasury in 2012. The IDMS is a comprehensive infrastructure management system that focuses on achieving value for money and improving efficiencies in the planning, budgeting, procurement, delivery and maintenance of infrastructure projects. Whilst the IDMS took infrastructure management to another level, it assumes that provincial sector departments have a certain level of internal capacity and skills, which is not necessarily the case. In addition, infrastructure procurement was still being done through the normal procurement system in which infrastructure projects, irrespective of their volume, were treated as stand-alone items. This implies that if a sector department had to undertake 200 infrastructure projects, each project had to go through a separate tender process resulting in the awarding of 200 contracts, each of which has to be separately managed.

To improve procurement efficiencies, National Treasury released the standard for infrastructure procurement and delivery management (SIPDM) in 2016. This standard separates procurement of infrastructure from the rigid process of procuring ordinary goods and services and allows projects to be packaged in larger volumes, thereby improving efficiencies. The SIPDM also incorporates gateway reviews at each stage of the lifecycle and requires departments to examine issues around value for money, construction design and omissions, particularly prior to sending out the tender document. By enforcing a review at various strategic stages of the project life cycle, sector departments reduce costly errors or omissions that could return in the form of variation orders at escalated cost at some stage as contractors, who are already appointed, have an incentive to overcharge government for any omissions in the project design. The SIPDM also introduces management contractors that oversee more than one infrastructure project in a geographical location, thereby introducing efficiencies in the system.

Despite these innovative reforms, sector departments have been slow in adopting them, seemingly because of a shortage of capable personnel. Problems are therefore still widespread in infrastructure delivery, particularly with respect to procurement and the implementation of infrastructure projects.

5.3 Provincial infrastructure allocations and spending efficiency

Table 42 shows that funding across all three conditional grants will decline in real terms over the period 2017/18 to 2020/21. However, given the tight fiscal framework and the need to reprioritise spending, government has targeted infrastructure grants to reduce funding over the 2018 MTEF period. Government has motivated these cuts in terms of previous underspending patterns and the relative ease with which planned provincial projects can be delayed or rescheduled. Should conditional grant funding for infrastructure increase in the future, funding would probably still be lower than in the absence of these cuts, unless conditional grant funding for infrastructure increase is at a pace that compensates for baseline reductions. This is because the baselines for the infrastructure grants have probably been reduced.

The funding cuts affect most provinces, especially with respect to the HFRG and the Education Infrastructure Grant (EIG). In the case of the former, the variation in cuts across provinces is much larger than the latter. Most provinces will therefore either have to delay projects or find ways to reduce inefficiencies in the system. There is a general concern that the significant backlogs that already exist in provinces will increase, impacting on government's ability to address poverty and inequality. Improvements in efficiencies, if they are realised, will have the advantage of strengthening the relationship between health and education spending, thereby enhancing the impact on economic growth and inequality. This is confirmed by More and Aye (2017) in their study on the impact of education and health expenditure on growth and inequality in South Africa.

Table 42: Annual average real growth of key provincial infrastructure grants

	Provincial roads maintenance		Health facility revitalisation		Education infrastructure	
Provinces	**Annual average real growth**					
	2012/13 – 2016/17 (%)	**2017/18 – 2020/21 (%)**	**2012/13 – 2016/17 (%)**	**2017/18 – 2020/21 (%)**	**2012/13 – 2016/17 (%)**	**2017/18 – 2020/21 (%)**
Eastern Cape	0	-1	-2	-5	-1	-5
Free State	25	3	-19	-3	2	-6
Gauteng	-2	4	9	-1	11	-5
KwaZulu-Natal	7	9	11	-3	4	-6
Limpopo	9	0	-9	2	-7	-1
Mpumalanga	5	-5	-14	1	3	-5
Northern Cape	21	8	-4	-10	4	-6
North West	8	1	-6	-3	8	-6
Western Cape	10	-5	-20	-8	11	-8
Total	3	-3	-9	-1	5	-2

Source: FFC calculations and National Treasury Database; Division of Revenue Bill (2017, 2018)

Government strategy of cutting infrastructure grants in 2018/19 targeted the incentive (unallocated) component of infrastructure grants. However, in 2019/20 cuts amounting to R1.78 billion are also effected against the provincial allocation of the three infrastructure grants (Table 42). The rationale for reducing the baseline allocations to provinces in 2019/20 rather than in 2018/19 is to allow provinces sufficient time to factor these cuts into their infrastructure plans. Nevertheless, reductions to the incentive component of the grants in 2018/19 will still have a significant impact on provincial infrastructure delivery even though they are discretionary in nature. Some provinces would typically use all the incentive funding on maintenance expenditure as there is no funding besides the PRMG that is earmarked solely for maintenance spending. The main reasons for low maintenance budgets are

- absence of life-cycle costing:
- asset registers not regularly updated: and
- backlogs not properly estimated.

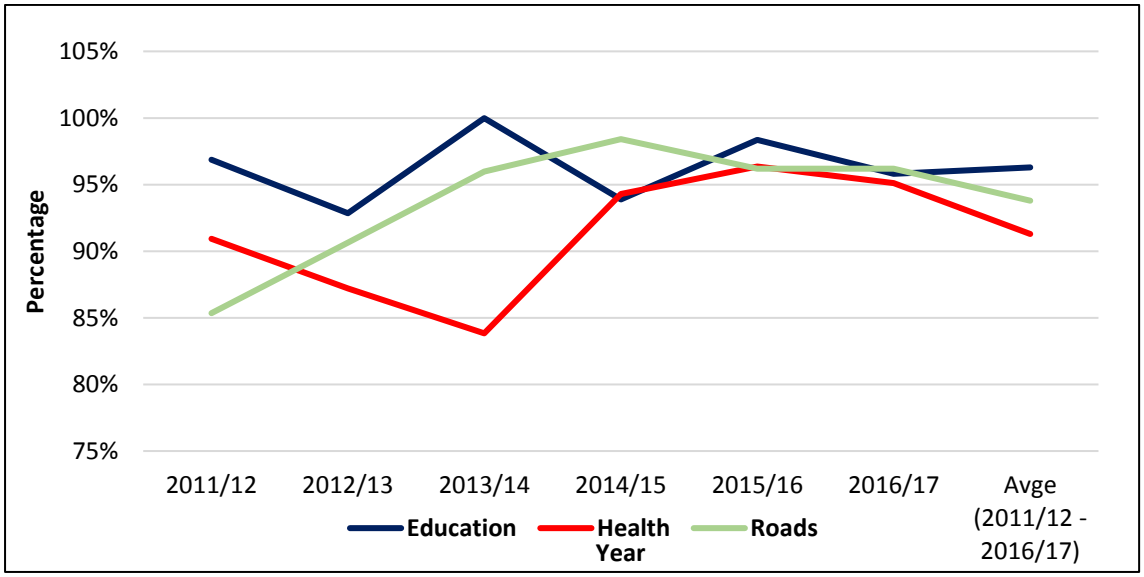
Table 43: Changes to conditional grants in the 2018 National Budget

	2018/19 FY			2019/20 FY		
Additions/ deductions (R'000)	**Provincial allocation**	**Not allocated[21]**	**Total Additions/ deductions**	**Provincial allocation**	**Not allocated**	**Total additions/ deductions**
Education Infrastructure Grant	368 581	-3 840 408	-3 471 827	-899 999	-2 927 048	-3 827 047
Health Facility Revitalisation Grant	514 743	-614 743	-100 000	-179 217	-20 783	-200 000
Provincial Roads Maintenance Grant	502 183	-1 002 183	-500 000	-700 000	-	-700 000
Total	1 385 507	-5 457 334	-4 071 827	-1 779 216	-2 947 831	-4 727 047

Source: FFC calculations, 2017 DORB and 2018 DORB

Figure 27 and Table 43 show the spending performance for the three infrastructure grants. Provinces consistently underspent across all three infrastructure grants, although the extent of underspending declined since 2011/12. This improvement in spending was a result of reductions in allocations rather than greater spending abilities by provinces. Provincial spending on the HFRG is lowest among the three infrastructure grants, with only 91 per cent of the total provincial allocations having been spent on average, over the period of six years. Provinces that have consistently underspent across all three grants are Free State, Limpopo and North West. The evidence suggests that the real challenge is limited capacity to spend the budgets. This is despite the fact that insufficient funds to deal with the historical backlogs in health and education are being allocated.

Figure 27: Spending performance of key infrastructure grants, 2011 — 2016/17



Source: FFC calculations and National Treasury database

[21] The share of the grant that is not allocated is the incentive component that provinces qualify for if they meet certain performance criteria.

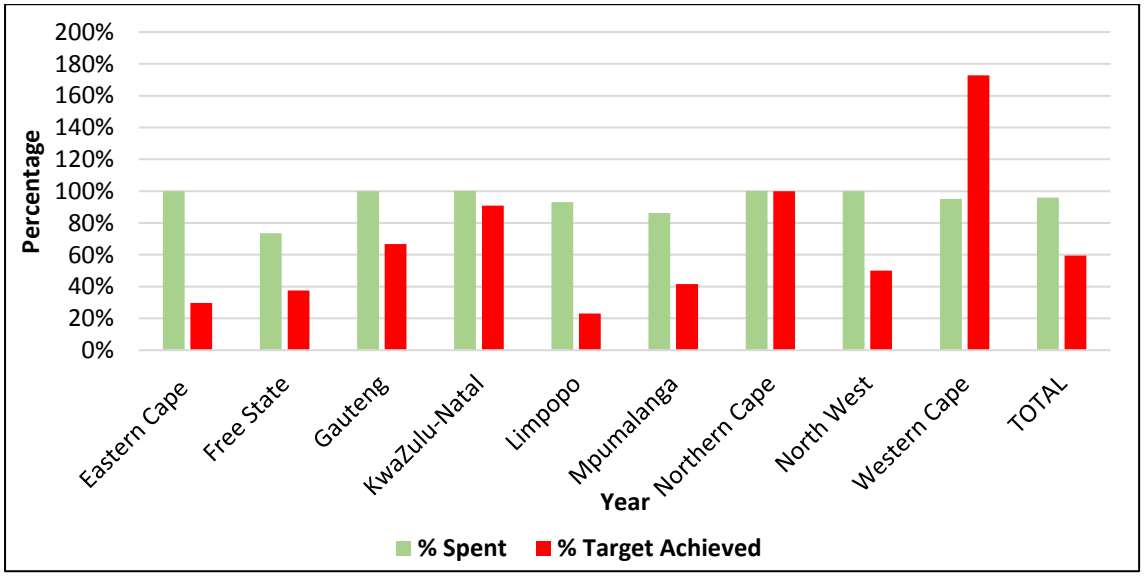
Table 44: Average provincial spending on infrastructure grants as share of budget, 2011/12 — 2016/17

Average spend (%)	Education Infrastructure Grant	Health Facility Revitalisation Grant	Provincial Roads Maintenance Grant
Eastern Cape	95	96	98
Free State	87	86	91
Gauteng	100	84	87
KwaZulu/Natal	100	100	96
Limpopo	95	87	90
Mpumalanga	101	89	100
Northern Cape	96	92	100
North West	94	96	78
Western Cape	97	92	100
All provinces	**96**	**91**	**94**

Source: FFC calculations and National Treasury database

Figure 28 compares the budgets spent against the performance targets achieved for the EIG. Typically, if provinces plan properly, 100 per cent spending on departmental budgets should equate to achieving close to 100 per cent of its output targets. However, wide discrepancies exist between the share of the budgets spent in relation to the output targets achieved. A typical example is the case of the Eastern Cape provincial education department (PED) which spent 100 per cent of its budget in 2016/17 but only achieved 30 per cent of its target with respect to the building of schools. These trends suggest very low value for money for government from the EIG. In addition, provinces may also not be implementing proper costing based on activity, thereby setting unrealistic annual targets.

Figure 28: Proportional provincial spending and service delivery on Education Infrastructure Grant, 2016/17

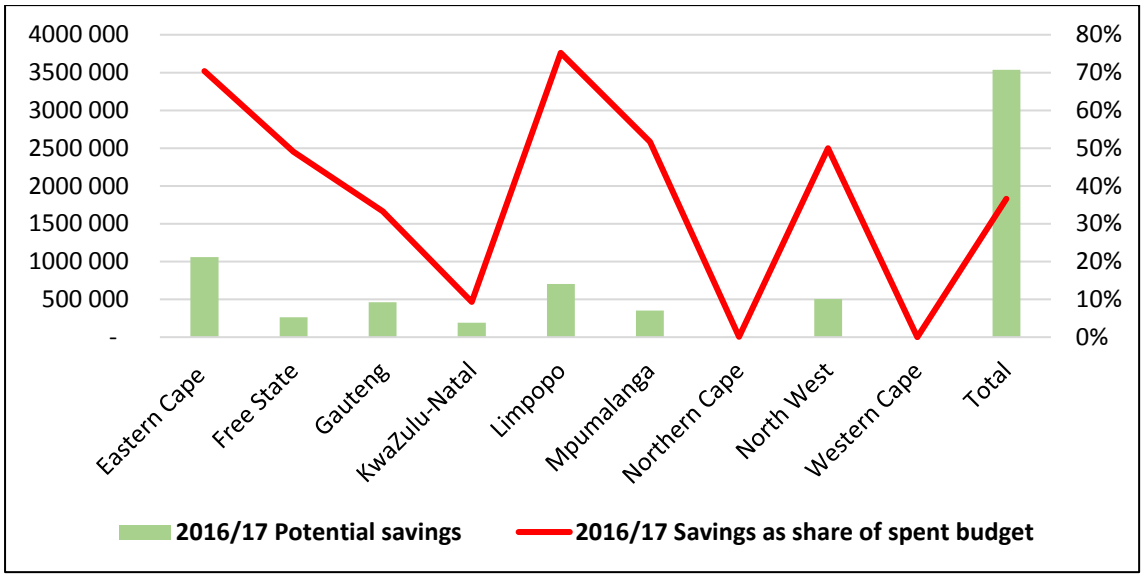


Source: FFC calculations and National Treasury database

If provinces had spent their grants in line with the actual targets achieved, their potential savings would have been R3.6 billion (Figure 27). This calculation assumes a standard cost

across all infrastructure projects, which may not be realistic. Even if there are some inaccuracies with respect to costing assumptions, the quantum of the potential saving points to rampant inefficiencies in the provincial delivery of education infrastructure projects.

Figure 29: Potential provincial savings on education infrastructure grant, 2016/17



Source: FFC calculations and National Treasury database

Provinces are responsible for the outputs of resealing and rehabilitation of roads. Table 45 compares the costs per kilometre for the nine provinces. The figures in Table 45 show significant cost variations between the provinces. The cost per kilometre for resealing and rehabilitation is the highest in the Eastern Cape province. Even if provincial cost variations are at play, the highly inflated costs per kilometre for these two outputs in the Eastern Cape suggest significant inefficiencies.

Given the extent of the cost variation across provinces, however, these figures should be treated with caution. While provinces are reporting cost estimations against arguably the same outputs, the huge fluctuations across provinces may suggest that the outputs in Table 45 are not defined in a consistent manner. Even so, the Eastern Cape would still need to justify the amount being spent on resealing and rehabilitation of roads as its cost estimates exceed any reasonable benchmarks. Data from the in-year monitoring system managed by the National Treasury reveal that variation orders of R1.9 billion in 2016/17 were incurred for road maintenance in the Eastern Cape.

Table 45: Road maintenance grant - performance indicators

	2016/17	
	Resealing	Rehabilitation
Provinces	**Cost per km (R'000)**	**Cost per km (R'000)**
Eastern Cape	40 502	149 452
Free State	1 943	6 459
Gauteng	n/a	n/a
KwaZulu-Natal	n/a	n/a
Limpopo	n/a	n/a
Mpumalanga	258	2 314
Northern Cape	239	8 814
North West	2 966	50876
Western Cape	387	97 500

Source: FFC calculations and national Department of Transport

5.4 Corruption and inefficiencies in infrastructure delivery

A total of 209 infrastructure delivery contractors in eight provinces were sampled. Seventy two responses were received, a response rate of approximately 35 per cent. Respondents are represented from eight provinces, with the highest responses received from the Western Cape (29 per cent), KwaZulu-Natal (25 per cent), and Gauteng (20.8 per cent).

Approximately 89 per cent of the contractor companies are small (5-19 staff) to medium (20–99) sized. In addition, approximately 44 per cent of contractor companies have been in operation for a period of 5-10 years, and 37.5 per cent have operated for more than 10 years. The top manager in 40 per cent of contractor companies has between 6 and 10 years' experience, while the top manager in 33 per cent of companies has acquired 11 to 20 years' experience. The sample data in Table 46 therefore suggests that most contractor companies are well established in the infrastructure sector.

Table 46: Sample characteristics of infrastructure delivery contractors

Contractor size	% respondents	Years in operation	% respondents	Yrs of experience of top manager	% respondents
Micro	5.5	Less than 1 yr	0	Less than 1 yr	1
Small	42	1-4 yrs	18	1-5 yrs	19.5
Medium	47	5-10 yrs	44.5	6-10 yrs	40
Large	4	More than 10 yrs	37.5	11 – 20 yrs	33
Don't know	1.5			More than 20 yrs	1.5

Source: FFC

Out of the total respondents, approximately 90 per cent tendered for government infrastructure projects. Projects tendered for ranged from school infrastructure projects (37.5 per cent), followed by roads (32.8 per cent) and hospitals (26.5 per cent) (Table 47). The average tender values for 39 per cent of contractors were medium sized, ranging from R5 million to R15 million in value whilst the average tender values for 31 per cent of contractors

were large projects with a contract value of more than R15 million. A large proportion of contractors (28 per cent) also tendered for small projects with an average contract value of between R1 million and R5 million. Overall, the majority of respondents (90 per cent) submitted bids for provincial infrastructure projects spread across the three main sectors of education, health and roads. Bids submitted for projects varied in size.

Table 47: Infrastructure projects and contractor size

Projects tendered	% respondents	Average size of tenders	% respondents
Schools	37.5	**Micro (Less than or equal R1m)**	1.5
Clinics	3	**Small (<R1m and less or equal R5m)**	28
Hospitals	26.5	**Medium (<R5m and less or equal R15m)**	39
Roads	32.8	**Large (<R15m)**	31

Source: FFC

One of the biggest inefficiencies in infrastructure projects is time overrun, since the longer projects take to complete, the greater the costs of labour, consulting fees, rental on machinery and equipment, and interest payments.

With respect to the survey findings, 47 per cent of respondents reported that 20-50 per cent of infrastructure projects are affected by time overruns, while 22 per cent of respondents estimated that 50-80 per cent of infrastructure projects experience time overruns (Table 48). Time overruns tend to affect all contractor companies irrespective of their years of operation, although contractor companies in existence for longer, report time overruns for a larger percentage of projects.

Table 48: Proportion of projects affected by time overruns

	Proportion of projects affected by time overruns				
Contractor years of operation	**Less than 20%**	**20-50%**	**50-80%**	**80-100%**	**Total**
1-4	4 33.3%	7 58.3%	1 8.3%	0 0%	12 100%
5-10	7 24.1%	15 51.7%	5 17.2%	2 6.9%	29 100%
More than 10	5 18.5%	10 37%	9 33.3%	3 1.1%	27 100%
Total	16 23.5%	32 47.1%	15 22.1%	5 7.4%	68 100%

Source: FFC

The biggest source of time overrun risk factors is cash flow problems which account for 67 per cent of all cases. A typical example is when a department plans its cash projections poorly and fully expends funds before paying contractors. The department can either negotiate with the contractor to continue working until funds become available or allow contractors to interrupt work. In such cases, contractors may claim standing costs that could be more costly than if the department had borrowed funds to pay them on time. Cash flow problems tend to affect small to medium sized companies more, while large companies (staff greater than 100) appear to be less affected by this problem (Table 49). Other factors that affect cost overruns are delays in government approvals (14.5 per cent), additions to project scope (10 per cent) and third party delays (7 per cent).

Table 49: Critical time overrun risk factors

	The most critical time overrun risk factor					
No. of employees in the contractor organisation	**Delays in Government Approvals**	**Additional work beyond scope of project**	**Cash flow problems**	**Delay in variation orders**	**Third party delays**	**Total**
Less than 5	2	1	1	0	0	4
	50.00%	25.00%	25.00%	0.00%	0.00%	100%
5-19	4	2	21	0	3	30
	13.33%	6.67%	70.00%	0.00%	10.0%	100.00%
20-99	3	2	23	1	2	31
	9.68%	6.45%	74.19%	3.23%	6.45%	100.00%
More than 100	1	2	0	0	0	3
	33.33%	66.67%	0.00%	0.00%	0.00%	100.00
Don't know	0	0	1	0	0	1
	0.00%	0.00%	100.00%	0.00%	0.00%	100.00%
Total	10	7	46	1	5	69
	14.49%	10.14%	66.67%	1.45%	7.25%	100.00%

Source: FFC

When asked whether the tender process is open and transparent, 91 per cent of respondents either disagreed or disagreed strongly. In addition, 57 per cent of respondents either agreed or strongly agreed that corruption is most prevalent during the procurement and tendering phase of the project cycle. The perception that the tender process lacks transparency and that corruption may be present could increase the number of appeals and litigation cases against government. Currently, the department may simply ignore a bidder if an unsuccessful bidder wants to appeal, as the PFMA regulations do not have a clearly defined process to allow a bidder to appeal the outcome of a bid process. One recent exception is KwaZulu/Natal which published a practice note on a bid appeals process and appointed a bid appeals tribunal to handle disputes in order to avoid costly court cases.

When asked what the size of the informal payment or inducement is that contractors have to pay to secure a government contract, only 14.5 per cent of the respondents said there were no such payments (Table 50: Percentage of contract value reportedly paid as a gift or inducement 44). Approximately 76 per cent of respondents reported that payments are made to secure government contracts ranging from less than 3 per cent to more than 12 per cent of the contract value.

Of the payments made to secure a government contract, the largest proportion of respondents (44 per cent) reported that 3-6 per cent of the value of the contract is paid. The responses are fairly evenly spread across the value of the contracts although contractors tendering for smaller projects in the region of R1 million to R5 million in value generally tend to pay a higher percentage of the contract value in relation to projects with a higher contract value, although there are a few notable exceptions.

Table 50: Percentage of contract value reportedly paid as a gift or inducement

	Percentage of contract value paid as a gift or inducement						
Average size of the contract	**No payment**	**Less than 3%**	**3-6%**	**7-12%**	**More than 12%**	**Don't know**	**Total**
Less than or equal to R1 million	1 100%	0 0%	0 0%	0 0%	0 0%	0 0%	1 100%
More than R1 million & less than or equal to R5 million	5 27.8%	4 22.2%	2 11.1%	5 27.8%	1 5.6%	1 5.6%	18 100%
More than R5 million & less than or equal to R15 million	2 8.3%	7 29.2%	12 50%	1 4.2%	2 8.3%	0 0%	24 100%
More than R15 million	1 5%	3 15%	14 70%	2 10%	0 0%	0 0%	20 100%
Total	9 14.3%	14 22.2%	28 44.4%	8 12.7%	3 4.8%	1 1.6%	63 100%

Source: FFC

Respondents were asked what elements of the business environment pose the greatest obstacle in the business environment (Table 51). The largest proportion of respondents (41 per cent) reported government corruption. Other obstacles reported by contractors include lack of access to finance (25.7 per cent) followed by time constraints (18.6 per cent).

Table 51: Elements of business environment posing greatest obstacle

Greatest obstacles	Frequency	Per cent	Cum
Access to finance	18	25.8	25.7
Inadequate skilled workforce	3	4.3	30
Government corruption	29	41.4	71.4
Time constraints	13	18.6	90
Collusion	1	1.4	91.4
Payment on time	6	8.6	100
Total	70	100.00	

Source: FFC

5.5 Infrastructure delivery and incentives for fiscal misappropriation

The findings in this section are based on three case study departments in the provincial education sector (i.e. Western Cape, Free State and Limpopo). Findings emerging from these case studies were supplemented by interviews conducted with provincial treasuries, the National Treasury and the national Department of Basic Education. Studies show that fiscal misappropriation is commonly associated with the planning, budgeting, procurement and implementation stages of the infrastructure life cycle. The focus of this assessment is therefore on these stages. The operations and maintenance stages are not covered in this assessment.

Infrastructure planning in PEDs requires the identification of infrastructure needs. This is done through the geographic information system (GIS) system, needs assessment undertaken, or head office receiving the information from district officials. Prioritised projects and indicative budgets are then published in the department's ten-year user asset management plan (UAMP) and the integrated programme management plan (IPMP), which is a three-year

plan linked to the MTEF. In cases where departments rely solely on the discretion of the district office to determine infrastructure needs and prioritisation, this may create an incentive for suboptimal projects to be selected.

PEDs budget for infrastructure projects in the planning phase. This is because indicative costs of infrastructure projects are included in the UAMP and then repeated during the feasibility stage of the project cycle. The DPWs and other IAs rely heavily on consultants to design and cost infrastructure projects. The remuneration of these consultants is based on a percentage of the total project costs. This can create an incentive for the consultants to increase the project scope and complexity, since their remuneration is directly tied to the value of the project.

With respect to the procurement stage, PEDs provide the implementing agent with a project brief that contains the indicative budget and non-technical information about the infrastructure project. The IA then takes responsibility for the entire procurement process aided by consultants. Given the large volumes of infrastructure projects, sector departments do not have the capacity to sit on all these bid committees. The lack of proper oversight by sector departments, in addition to the absence of independent third party reviews of tenders awarded, means that IAs may be enticed to collude with bidders during the bidding process.

The IA appoints consultants to manage the delivery of infrastructure projects, including the signoff of deliverables and the approval for invoices to be processed. In addition, the IA appoints a principal agent among the consultants who is tasked with overseeing the infrastructure project. A key problem during the implementation stage is the remoteness of some sites. Principal agents typically visit these sites every two to four weeks. Contractors can therefore be tempted to use inferior materials and conceal defects, as there is no permanent oversight at the site. When the principal agent takes decisions with little scrutiny from the IA, he/she may be induced to request a commission from the contractor in exchange for signing off on variation orders. Measures to reduce incentives for fiscal misappropriation will require a change in the way consultants are paid to align their salaries with outputs delivered. The contracts of consultants should incentivise completion of projects on time and within budget. In addition, the DPWs and other IAs should be held jointly responsible by the Auditor-General and provincial legislatures for the spending on infrastructure budgets. Sector departments should also be capacitated with built environment and infrastructure procurement skills to ensure there is better oversight over the procurement and delivery of infrastructure projects. The infrastructure grants framework should include provisions for provincial treasuries to conduct independent third party reviews of tenders awarded. In addition, grant frameworks should require scrutiny of variation orders above a certain acceptable level of the project value. Finally, providing permanent oversight at the work site or more regular oversight can significantly reduce wastage in the system as defects will better monitored and the contractor will less likely to use inferior products.

Table 52: The infrastructure cycle and opportunities for fiscal misappropriation

Infrastructure project phase	Overview	Challenges	Opportunities for fiscal misappropriation	Solutions to opportunities for fiscal misappropriate
Planning	To ascertain infrastructure needs, provinces use GIS (WC) and/or consult district officials (FS, Limp). District offices also play an instrumental role in the prioritisation of projects. Sector departments are required to compile a User Asset Management Plan (10yr plan) and an Integrated Programme Management Plan (IPMP) which is a three-year plan linked to the MTEF	Acquiring land for new schools can take between 5-10 yrs in the WC. In Limpopo, needs are constantly changing and deviating from the UAMP. Despite reforms introduced by the NT, the principle of cost effectiveness is still missing from the infrastructure planning stage.	Suboptimal project selection in cases where district officials are solely responsible for identifying project needs and prioritisation without objective way of verifying information.	Introduce GIS system that maps schools, enrolment numbers, classroom utilisation rates and new housing developments.
Budgeting	Provinces provide cost estimations of projects in their UAMP. Consultants appointed by the IA or cluster committee also compile a bill of quantities before projects go out to tender.	Some projects halted due to infrastructure budget cuts in the 2018 DORB. Constant challenge between maintenance vs new infrastructure as maintenance backlogs substantial. Some provinces like Limpopo have over-committed budgets and have a 3-yr backlog of incomplete projects.	When consultants appointed by the IA are paid a percentage of the contract value, there is an incentive for consultants to increase project scope and complexity, especially if architect consultant is paid a commission by the other consultants for the design.	Change the way consultants are paid to align with outputs delivered. Create correct incentives in consultant contracts such as on time delivery and costs.
Procurement	In most instances, the procurement process for infrastructure projects are undertaken by the IA such as DPW, IDT, DBSA, etc. rather than by the sector department. In the case of FS, cluster committees evaluate and adjudicate projects below R10 million. The sector department is expected to provide the IA with a strategic brief and the IA will appoint consultants to design and manage the project implementation.	The procurement process takes a long time due to the volume of projects being dealt with by DPW and other IAs and the lack of capacity at DPW. Not enough contractors are tendering for infrastructure projects in provinces such as the WC. In many instances, IA are not following proper procurement processes. IAs over-reliant on consultants to do technical work, yet high rate of omissions in project design and sometimes incorrect designs sent out in tender document. Infrastructure procurement skills lacking in sector departments.	Third party reviews of infrastructure tenders awarded are largely absent, creating incentives for IAs to collude with bidders. Rival bidders may be disqualified on non-material grounds to allow preferred bidder to be awarded contract. The separation of the sector department from the procurement process creates the incentive to bloat costs because the IA is not responsible to the AG for reporting on project costs.	Sector departments should be capacitated with infrastructure procurement and built environment skills and sit on bid evaluation committees. The AG and provincial legislatures should hold DPW and other implementing agents jointly accountable for funds spent on infrastructure projects. Provincial treasuries should conduct independent third party assessment of tenders awarded.
Implementation	The IA appoints consultants to manage the infrastructure project. Typically the architect consultant is appointed as the principle agent and is in charge of the overall management of the project. The consultants are also responsible for the signoff of deliverables and issuing instructions for payment. The IA will verify these claims before paying contractor or sending the invoice to the sector department for payment.	Mistakes and poor quality of workmanship often not picked-up because there is no permanent onsite oversight. Incompetent contractors appointed but IA will not cancel contract because the process of appointing new contractor too time consuming. When contracts are terminated, costly and time-consuming process to reappoint new contractor.	When unsuccessful bidders appeal bid outcome, unsuccessful bidders may be incentivised in some way to withdraw appeal in order for the project to move on. Given authority to sign off on the project, the consultant appointed as the project manager may agree to a commission for signing off on variation orders. Lack of onsite supervision incentivises contractors to use inferior materials and conceal defects.	Include a condition in the Infrastructure Grants Framework that requires scrutiny of variation orders above a certain acceptable percentage of project value. Provide more resources for permanent or more regular onsite oversight. Implement consequence management in cases where consultants or contractors are found to breach the law.

Source: FFC calculations

Conclusion and recommendations

The findings of this study confirm that widespread inefficiencies exist in most provinces as far as the delivery of infrastructural projects is concerned, with provincial spending on education infrastructure and road maintenance being the least efficient. Weak procurement processes, poor oversight, the separation of the planning function with the procurement and implementation functions, over-reliance on consultants and lack of adequate capacity within sector departments and DPWs are some of the key reasons for the observed inefficiencies . An attempt to benchmark costs across provinces has indicated that the quality of provincial data is questionable. It is clear that over the six-year period from 2011/12 there has been no improvement in service delivery. Given the lack of well-defined indicators, it is not surprising that government is not in a position to ascertain accurately whether the efficiency of provincial infrastructure delivery has improved materially over the period investigated.

The findings from the survey shows that, in addition to fiscal misappropriation, inefficiencies associated with time overruns on infrastructure projects are widespread. The findings also show incentives for fiscal misappropriation are particularly evident during the procurement and implementation stages. To address these inefficiencies, the study calls for oversight over consultants and contractors to be strengthened. In addition, by holding the implementing agent accountable for funds spent on infrastructure projects will more closely align the incentives of the implementing agent with that of the sector department. The new procurement reforms implemented by the National Treasury are a step in the right direction. However, unless sector departments are capacitated with respect to infrastructure procurement skills and built environment professionals, these new reforms are unlikely to be successful.

With respect to improving the efficiency of provincial infrastructure, the Commission recommends that:

1) *the national sector Departments of Education, Health and Public Transport develop clear performance evaluation frameworks for the provincial infrastructure grants under their control.*

   These should contain well-defined key performance indicators that can be tracked consistently across project cycle stages for all provinces and include cost benchmarks. This evaluation framework should be added to the conditional grants' framework in the Division of Revenue Bill, and should be used as part of the assessment for performance-based infrastructure incentives for which provinces can qualify should they show key performance improvements over time. Such a framework should include key performance indicators based on quality, cost and time, the measurement of these performance indicators, data collection, and roles and responsibilities.

2) *national sector Departments of Education, Health and Public Transport include greater scrutiny of variation orders when the value of these rises above acceptable levels of the project cost.*

   This will reduce the risk of fiscal misappropriation. The criteria for assessing variation orders should be based on the principles of ethical conduct, accountability, value for money and cost effectiveness. In addition, the frameworks for infrastructure grants to provinces should require provincial treasuries to conduct an independent

third party review of tenders awarded by IAs. The Ministers of Public Works, Health, Education and Transport (through their respective national sector departments) should conduct a review of human resource capacity requirements for provincial sector departments and provincial departments of public works. The Commission's research has found that the scarcity of adequate infrastructure procurement skills and built environment professionals is potentially the biggest factor driving inefficiencies in infrastructure delivery at provincial level.

3) *the Minister of Finance, through the National Treasury, set and publish the criteria to be measured in monitoring and evaluating infrastructure grants. The assessment criteria regarding infrastructure cuts should also be published.*

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Appendix 1: Measuring Corruption

Instruments for measuring corruption	Strengths	Weaknesses
Perception indicators • Based on expert evaluation of the extent of corruption, aggregated from numerous sources • Examples: World Bank Institute of Corruption, Transparency International Corruption Perceptions Index	• Available over time for a large number of countries • Scores reasonably stable across time, correlated with objective measures of the quality of institutions • Measures perceptions of decision-makers- regardless of underlying accuracy, perceptions may drive decisions on investment.	• Perceptions may be weakly correlated with reality, may suffer from significant biases. Highly correlated with perceptions of broader governance • General indicators (not sector specific)
Surveys • Based on interview responses of those involved in corrupt transactions • Examples: World Bank Institute Business Environment and Enterprise Performance Survey, Bangalore Citizen Report Cards	• Improved accuracy based on answers from personal experience of corruption • Can provide detailed evidence on levels and types of corrupt payments in different sectors or types of interaction with the government	• Accuracy and potential extent compromised by need for anonymity, unwillingness to discuss illegal transactions, limited individual knowledge • Extent of survey evidence considerably more limited than perceptions data • Measures payments rather than impacts of corruption
Judicial system reports • Based on number and type of convictions for corruption	• Measures actual cases of corruption, provides significant detail	• Unlikely to be suitable for cross-country (or cross-jurisdictional) comparison. Bias will be introduced by institutional environment, competence and integrity of judicial system, and competence of the corrupt
Indirect and outcomes indicators • Objective indicators covering financial flows, sector outcomes • Examples: public expenditure tracking surveys, audits, performance indicators (rollout, price, quality, losses)	• Widely available in some cases • Often covers development outcomes rather than intermediate indicators	• Will capture impact of issues connected with governance and sector environment other than corruption • Can be expensive/project specific (e.g. audits)

Source: Adapted from Kenny (2009)

Appendix 2: Questionnaire

Efficiency of Public Infrastructure Delivery

Confidentiality Statement

This survey questionnaire is completed with the understanding that:

- Organization identity will remain confidential and will not be disclosed without their advanced approval.
- All the responses collected in this survey will be kept private and confidential
- Participation in this survey is strictly voluntary

A. GENERAL COMPANY INFORMATION

Name of the Firm:		Incorporation Date:
Street Address:		
City:	Province:	Postal Code:
Telephone Number:	Mobile Phone Number:	Email:
Contact Person Name:	Designation	

Type of Business ☐ Individual ☐ Partnership ☐ Corporation

Class of Contractor (Check all that apply) ☐ Civil Construction ☐ Highway Design-Builds ☐ General Builder ☐ Trade Contractors ☐ Other (Please specify) ……

Which public infrastructure project is being implemented by your firm? ☐ Schools ☐ Clinics ☐ Hospitals ☐ Roads, ☐ Others (Please specify) ……..

Is your organization registered with Construction Industry Development Board? ☐ Yes ☐ No

Contractor Type: (**Check one** based on your organization's **primary** business.)

☐ Commercial General Contractor ☐ Residential General Contractor ☐ Heavy Highway General Contractor ☐ Municipal/Utility General Contractor ☐ Trades/Subcontractors ☐ Other (Specify type of Contractor) _____

Has your firm ever been formally disqualified from performing work for any contracting entity? ☐ Yes ☐ No

If Yes please explain _____

List three (3) projects your company has completed within the past five (5) years.

For each of the statements below, please circle a number that best represent how much you agree or disagree with regard to implemented public infrastructure project
Where: 1= Strongly disagree, 2=Disagree, 3=Neither Agree nor Disagree (Neutral), 4=Agree, 5=Strongly Agree

A. PROJECT DESIGN, EVALUATION AND MANAGEMENT

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. The project was subjected to cost benefit analysis at inception	1	2	3	4	5
2. The firm planned and scheduled all project activities before commencement	1	2	3	4	5
3. Design and specification documents was adhered to in the implementation of project activities	1	2	3	4	5
4. Risk assessment was conducted during project appraisals	1	2	3	4	5
5. The firm had sufficient managerial and technical personnel to undertake the project tasks	1	2	3	4	5
6. Regular monitoring and evaluation took place throughout implementation of the project	1	2	3	4	5
7. Government officials carried out regular site inspection during project implementation	1	2	3	4	5
8. Government officials carried out post completion review of projects after completion/ handover	1	2	3	4	5
9. The contractor had enough raw materials and equipment for implementing the project	1	2	3	4	5
10. The project was strictly supervised in accordance to laid down specifications	1	2	3	4	5
11. Work rejections or reworks hardly occurred in the course of project implementation	1	2	3	4	5
12. Regular maintenance of completed project is crucial for durability	1	2	3	4	5
13. The project begun and was completed within the stipulated time	1	2	3	4	5
14. Government representatives conduct ex post review and evaluation of projects after completion	1	2	3	4	5

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

B. BUDGET/FINANCIAL MANAGEMENT

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
15. Access to financing options for the project from financial institutions was a major challenge	1	2	3	4	5
16. Cash flow problems contributed to delays in project completion	1	2	3	4	5
17. Late payments to sub-contracted works contributed to project delays	1	2	3	4	5
18. Funds were released in time after project completion	1	2	3	4	5
19. The project cost included contingency reserves to cater for cost overruns?	1	2	3	4	5
20. The project was implemented according to budget plan	1	2	3	4	5
21. Where there was cost-overrun, the team put effort to solve the problem	1	2	3	4	5

C. TRANSPARENCY AND ACCOUNTABILITY

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
22. The tendering and procurement process was open and transparent	1	2	3	4	5
23. The tendering and procurement process was done in a competitive manner	1	2	3	4	5
24. The firm has code of conduct and ethics for employees	1	2	3	4	5
25. It is common to issue bribes in order to win contracts in this sector	1	2	3	4	5
26. The firm has a policy in place to protect and reward whistle blowers	1	2	3	4	5
27. The prequalification criteria for contractors is stringent	1	2	3	4	5
28. There is adequate time for advertisement and submission of tenders	1	2	3	4	5
29. Some contractors provide forged documents during tender bidding	1	2	3	4	5

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
30. Incidence of corruption occurs often in bigger projects as compared to smaller ones	1	2	3	4	5

Chapter 6: Assessing the Effectiveness of Intergovernmental Fiscal Relations Instruments to the Water Challenges

Mike Muller and Nomonde Madubula

1. Introduction

This chapter reviews the effectiveness of current IGFR arrangements in addressing the challenges of achieving water security, which is the overarching goal of national water management. The chapter will consider how fiscal instruments and other measures introduced through the IGFR framework could help to achieve the NDP's goal of ensuring that "all South Africans will have affordable, reliable access to sufficient safe water and hygienic sanitation" (NDP).

An overview of the water sector is followed by a review of the performance of the water services sector specifically. Fiscal constraints will pose a challenge to municipalities which, in many cases, may seek to compensate for poor management of their current infrastructure by making new investments. Challenges are discussed and areas in which the IGFR instruments might assist are considered.

1.1 Definition of water security

Water security is a widely used goal for water management. This is defined as "the availability of an acceptable quantity and quality of water for health, livelihoods, ecosystems and production, coupled with an acceptable level of water-related risks to people, environments and economies" (Grey and Sadoff, 2007).

This definition suggests that societies will determine acceptable standards of water quantity, quality and availability to meet their needs, and that this may change over time. Water security has been adopted in the NDP as well as the draft national water and sanitation master plan (NWSMP) of the Department of Water and Sanitation (DWS) (DWS 2018).

The benchmark of water security is reinforced by the SDGs to which South Africa has committed (see discussion in chapter 1). These aim to "ensure availability and sustainable management of water and sanitation for all". The first two targets that address water services specify that both water supply and sanitation shall be safely managed. This means that the effective functioning and use of water services and not simply infrastructure availability will be assessed.

1.2 Context and state of water services

1.2.1 The water sector: resources and services

Water resource management and the provision of water services are two related but distinct activities. Resource management deals with water in rivers, lakes, and underground. It is concerned with protecting it, making it available to users, and regulating its use. The provision of water services is just one of many uses of water. Resource management includes taking the water from the resource, treating it to make it safe, distributing it through pipe networks to communities of users and then collecting wastewater in sewers before treating it and returning it to the environment.

In most countries, including South Africa, the management of the natural resource and the provision of water services are dealt with by different organisations. Water resources are managed on a variety of levels, from internationally shared rivers to local sources. This is usually coordinated by national governments in complex systems of "network governance" (Woodhouse and Muller, 2017) which seek to balance social, economic and environmental interests amongst different water users. South African legislation provides for the establishment of catchment management agencies (CMAs) to allow decentralised monitoring, planning, allocation, and management of water resources. Water service provision is a different and much narrower activity, typically undertaken by individual municipalities or regional utilities.

1.2.2 Institutional, legislative and regulatory framework

In South Africa, the national DWS manages the water resource while municipalities manage the provision of water services. In addition, the DWS, together with National Treasury (NT) and the Department of Cooperative Governance and Traditional Affairs (CoGTA), maintains regulatory oversight of municipal service provision. Subsidiary institutions include water boards, which provide regional bulk water services and the Trans-Caledon Tunnel Authority (TCTA), which implements large economic water resource projects off-budget.

1.2.3 Constitution

The legal framework for the provision of water services and the management of water resources derives from the 1996 Constitution. Section 27 of the Bill of Rights provides for "the right to have access to …. sufficient food and water" and for the state "to achieve the progressive realisation of each of these rights". It also provides for "the right to an environment that is not harmful to their health and well-being" as well as to environmental protection to "secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development" (Section 24).

The institutional framework for water services provision is covered by the sections dealing with the objects, duties, powers, functions and organisation of local government (see sections 152, 153 and 156 of the Constitution). The regulatory and oversight responsibilities of national and provincial governments are spelt out in section 155 (7).

1.2.4 Legislation and regulations

The distinction between service provision, a local government competence, and natural resource management, a national competence, is reflected in the sector's legislation. The Water Services Act, 1997 (Act No. 108 of 1997) (WSA), which governs water supply and sanitation services, was passed by Parliament as a s.76 Bill, requiring the assent of the National Council of Provinces (NCOP) as well as the National Assembly. The National Water Act, 1998 (Act No. 36 of 1998) (NWA), which governs the management and use of water resources, was passed by the National Assembly as a section75 national, bill. In addition to these sector-specific laws, the provision of water services is governed by generic municipal legislation promulgated by CoGTA and the National Treasury.

The WSA gives the minister the power to set compulsory norms and standards for the provision of services (section 9), for tariffs to be charged for those services (section 10), with the concurrence of the Minister of Finance, and to make grants and loans and regulations concerning the financial feasibility of services. The NWA requires the minister to establish a national water resource strategy (NWRS) (section 5) setting out water resource investment priorities and prescribing a pricing strategy (section 56) and determining how water resource tariffs will be calculated and which users will pay what share of the costs.

Compulsory national standards give effect to the constitutional right to water. They also guide the calculation of the Local Government Equitable Share (LES) and the design of IGFR instruments. If individual municipalities provide higher levels of service, this must be done at their own cost, (according to 2014 DWS policy principles) until "the development of norms, standards and potential financial mechanism for providing these higher levels". Revisions proposed in 2017 to the 2001 norms and standards to reflect subsequent experience (DWS 2014. "National Water Policy Review (NWPR): Approved Water Policy Positions") did not spell out the requirements for statutory regulations.

Norms and standards for water services tariffs provide the regulatory mechanism through which affordability and equity can be addressed. They also ensure the physical and financial sustainability of services more generally, as spelt out in the WSA (section 10.3). These standards are the foundation for the free basic water policy, which seeks to ensure that minimum basic and affordable services can be provided to all residents of a municipal area.

Finally, the 2007 pricing strategy for raw water use sets charges for bulk water used to provide water services, similar to Eskom's price for bulk electricity. However, unlike electricity, the price of raw water varies dramatically across regions, from 21c/kl to R18.80/kl. Water service providers have an obligation to understand and influence decisions that determine these tariffs. However, they often agree to projects to make additional water available without understanding their financial implications. Even when public (budgetary) funding is used for "social" projects, local governments and their non-indigent service users are still expected to pay for their operation and maintenance (O&M) and depreciation. These costs can be substantial. Where DWS pursues projects without a formal commitment to pay, it is creating the risk – and often the likelihood – of a default by the municipality concerned. This has important implications for the design and implementation of IGFR instruments.

2. Findings

2.1 The state of water services in South Africa

Despite the comprehensive policy and institutional framework, there is well-founded concern about the state of water services in South Africa. Even where water supply infrastructure is in place, the reliability of supplies is declining, and the safety of water can no longer be assured in many municipalities. Sanitation provision is often unsatisfactory, even where it nominally meets basic minimum standards, and wastewater treatment failures result in serious water pollution.

Many of these problems are due to poor municipal management. But the reliability of bulk water supplies is also failing or at risk, even in major metropolitan municipalities. In many small towns and rural areas, water supplies are unreliable, with communities often going weeks without water. Even when water is provided, it often fails to meet health standards. High levels of "non-revenue water"[22] reduce incentives for efficient use. Water supply failures also cause water-borne sanitation systems to fail.

It has become more difficult to track service performance since DWS stopped publishing annual reports on drinking water quality, wastewater treatment and water losses, although it is obliged to do so by the WSA. However, data from other sources provides a reasonably accurate perspective.

2.1.1 Access

Access to water services has two elements:

- Is the service available to the household concerned?
- Can the household afford it?

Current figures suggest that 96 per cent of South African households have access to water supply infrastructure that provides a supply that meets basic minimum standards. The majority of these - 81.2 per cent - have access to piped water in the house or to the stand. In the metro municipalities, the figure rises to 88.8 per cent. Only in the more rural provinces of Limpopo, North West, Eastern Cape and KwaZulu-Natal do more than 20 per cent of households get water from public taps and water tankers.

Sanitation provision has seen a steady increase in the proportion of households with access to improved sanitation facilities. Statistics South Africa reported (2015 and 2016) that 63 per cent of households had a flush toilet while a further 16.6 per cent had an improved toilet (VIP) that met basic minimum standards, leaving just over 20 per cent of the population with sanitation below minimum standards. Again, more than 30 per cent of households in

[22] Non-revenue water is water that has been produced and is "lost" before it reaches the customer. Losses can be real losses (through leaks, sometimes also referred to as physical losses) or apparent losses (for example through theft or metering inaccuracies).

rural parts of Limpopo, North West, KwaZulu-Natal and Mpumalanga have inadequate sanitation.

Table 53: Provincial sanitation backlogs, 2017

Province	Total households	No. of households below RDP level	% households below RDP level
Eastern Cape	1 807 050	416 391	23.0
Free State	969 199	190 802	19.7
Gauteng	5 153 011	469 836	9.12
KwaZulu/Natal	2 963 154	1 018 736	34.4
Limpopo	1 652 306	793 557	48.0
Mpumalanga	1 283 056	494 165	38.5
North West	1 288 454	431 003	33.5
Northern Cape	362 527	68 168	18.8
Western Cape	1 992 998	84 143	4.22
Total	17 471 755	3 966 801	22.7

Source: DWA 2018.

2.1.2 Affordability

Affordability of water is less easy to assess than physical access. Government's policy of providing free basic water supplies, introduced in 2001, meant that affordability should not be a barrier to access. The section 10 tariff regulations allowed several alternative approaches for municipalities in deciding how to achieve this mandatory goal (DWA, 2002). It did not prescribe them, however:

- a stepped tariff in which a first step of 6 000 litres of water per household per month was free. This was convenient for large urban municipalities with sufficiently high consumption users to cross subsidise the free allocation. Although the subsidy went beyond the target group, this approach was simple and promoted social solidarity and conservation.
- providing free water from certain sources, principally public standpipes, was also simple and fair if it was true that households able to afford a household connection could also afford to pay for water.
- providing free water only to households registered as indigent was attractive for smaller urban municipalities with limited capacity for cross-subsidisation but where it was easier to identify households that qualified for support. However, indigent systems may exclude eligible households due to administrative failures, official abuse, and stigma (Muller 2008).

From 2005 to 2015, water payment declined from 61.9 per cent to 43.9 per cent (Statistics South Africa 2015). The largest annual drop - from 67.3 per cent in 2008 to 49.4 per cent - occurred in 2009. Even in metro areas, payment rates fell to just 54.3 per cent in 2015.

Since 59 per cent of South African households fall below the income threshold used in the LES calculation formula (GoSA 2018), free basic water supplies appear to be appropriately targeted and affordability should not constrain access. However, a significant number of households not paying for water have a higher than basic level of service and should

therefore be contributing to the costs of their services. This payment profile thus contributes to the financial challenges facing municipal service providers.

The trend during the current period of fiscal strain is for municipalities to provide free basic water to indigent households only. This serves to reduce the benefits flowing to non-poor households. But there are also demands for increased free basic allocations which have added to costs and aggravated fiscal pressures. In the absence of better data, it is not possible to estimate how many poor people have been excluded or how many households are not paying for the higher services levels that they use.

2.1.3 Reliability

In 2017, 95 per cent of households had access to water supply infrastructure, while only 85 per cent had access to functional infrastructure and only 65 per cent to reliably functioning infrastructure (DWS 2017). Unreliable services do not meet the basic minimum standards prescribed in regulations.

The standard for reliability is that "no consumer is without a supply for more than seven full days in any year". Many communities go without public water supply for weeks and months at a time, particularly in hot weather when consumption rises. The challenge is particularly acute in rural areas. In 21 districts with a C2 category, with a population of around 17 million people, 64 per cent have infrastructure that meets basic minimum standards but only 36 per cent had a reliable supply in 2017.

While reliability problems are often attributed to aging infrastructure and under-investment, they are more often due to poor management, as illustrated by the reported high levels of failure of new projects funded by the Municipal Infrastructure Grant (MIG). These failures are due to poor maintenance or to the absence of control over water use, leading to high use in some areas, while users in other areas are deprived.

2.1.4 Safety

Water supply in South Africa's larger cities is of good quality and safe to drink but this is not the case in smaller towns and rural areas. DWS reports that 5.3 million households (35 per cent) do not have access to safe drinking water (DWS 2017). Systematic evaluations of water safety have not been published since the 2014 Blue Drop report was released. This report noted "a distinct sudden lapse in drinking water service provision" (DWS 2015). In 2014, even some smaller cities, notably Mangaung, Buffalo City and Nelson Mandela Bay Metro, fell outside the top 40 municipalities and below the "good" rating.

The safety and reliability of sanitation is less easy to determine than that of water supply. Safety depends on utilisation as well as physical infrastructure. The hygienic safety of shared household sanitation facilities in dense urban informal settlements is a problem that must be addressed through urban development rather than sanitation specific investments.

2.1.5 Financial viability

The Constitution and legislation require that local government services provision should be financially sustainable, considering user payments, grants and other revenue. This goal has seldom been achieved and there is growing concern about the financial viability of water services. Assessing this is difficult since few municipalities comply with the WSA requirement to maintain ring-fenced accounts for their water services.

The total debt owed by municipalities to the water boards as at 30 September 2017 was R6.5 billion. Approximately 80 per cent of that was more than 120 days outstanding (not realistically collectable) while municipalities also owed R10.7 billion to DWS (Parliamentary Monitoring Group, 2017). A proposal for a mechanism to offset these debts is that equitable share allocations be withheld (Parliamentary Monitoring Group, 2017).

The overall debt of municipalities was R43 billion, of which water board debt was R6.8 billion, bulk electricity (R16 billion) and other trade creditors (R11.9 billion). Major urban areas such as Matjhabeng (Welkom), Mangaung, Mafikeng and Mbombela all owed over R100 million each. According to the National Treasury, "Municipal debt continues to grow, exacerbated by the culture of non-payment". Total debt owed to municipalities (National Treasury, June 2017) was R128.4 billion, which is greater than their total grant allocation of R111 billion. Of this, R83 billion was owed by households with commercial debt standing at R27 billion and debt due by other organs of state at R7.4 billion (Parliamentary Monitoring Group, 2018). But the debts also reflect cost pressures from bulk services providers. The South African Cities Network notes that "…. increases in bulk tariffs for electricity and water, which are controlled by national government, are driving most of the recent increase in municipal bills" (South African Cities Network, 2016).

The DWS is also experiencing a financial crisis with the Auditor-General and the chairman of the Standing Committee on Public Accounts declaring the department to be effectively bankrupt. This is relevant to the current review because DWS operations affect the viability of water services through wasteful and unnecessary expenditure as well as supply failures.

2.2 Financial framework for the provision of water services

2.2.1 Policy

Many of the costs of water management, including water services, are covered by the users of the resource and services. Municipalities are expected to fund the costs of providing water services using their own revenues, loans and transfers from national government. However, some actions to achieve goals are funded publicly, while municipalities are instructed to give priority to providing basic services. The framework for fiscal transfers, based on the Constitution, is provided in the annual Division of Revenue Act, which outlines the available grants and procedures for managing them.

2.2.2 Instruments

The specific IGFR instruments include:

- The LES, which supports municipalities in, among others, their water services provision. This is designed to comply with the specific constitutional directive that the calculation of local government's share of revenue must ensure that "municipalities are able to provide basic services and perform the functions allocated to them" (section 214).

In addition, the current intergovernmental financial system provides for several water-related conditional grants which are detailed in the annual Division of Revenue Acts (e.g. GoSA 2018). These include:

- the Municipal Infrastructure Grant (MIG) whose goal is to "subsidise the capital costs of providing basic services to poor households". A more specific purpose of the MIG is primarily to provide specific capital finance for eradicating basic municipal infrastructure backlogs for poor households, microenterprises and social institutions servicing poor communities.
- the Regional Bulk Infrastructure Grant (RBIG) whose goal is to "facilitate achievement of targets for access to bulk water and sanitation through successful execution and implementation of bulk projects of regional significance". The specific purpose of the RBIG is:
  - to develop new, refurbish, upgrade and replace ageing water and sanitation infrastructure of regional significance that connects water resources to infrastructure serving extensive areas across municipal boundaries or large regional bulk infrastructure serving numerous communities over a large area within a municipality, and
  - to implement bulk infrastructure with a potential of addressing water conservation and water demand management (WC/WDM) projects or facilitate and contribute to the implementation of local WC/WDM projects that will directly impact on bulk infrastructure requirements.
- the Water Services Infrastructure Grant (WSIG) whose goal is "to assist water services authorities to reduce water and sanitation backlogs"[23] . The specific purpose of the WSIG includes a wide range of activities, from planning and implementation of projects to reducing backlogs, providing interim, intermediate infrastructure, supporting water conservation and demand management projects, bucket eradication in formal residential areas, and drought relief projects.

CoGTA is the transferring department for the LES and MIG, while DWS transfers the other grants. In addition, the NWA also allows the Minister of DWS to give financial assistance for specific purposes. This provision has been used primarily to support resource-poor farmers as well as for small grants to promote rainwater harvesting for household use.

[23] "The Water Services Infrastructure Grant has been created through the merger of the municipal water infrastructure grant, the water services operating subsidy grant, and the rural household infrastructure grant. This grant aims to accelerate the delivery of clean water and sanitation facilities to communities that do not have access to basic water services." (GoSA – DoRA 2016)

The quanta and trends in these grants between 2015/16 and 2020/21 (indirect conditional grant) are set out in the table below. They show

- nominal year-on-year increases but real declines;
- a trend for a greater proportion of funds to be allocated directly to municipalities rather than for allocations in kind projects implemented by the national DWS: and
- that the LES allocation calculated for O&M is a relatively high proportion (8%) of estimated basic needs related capital investment.

However, without detailed studies of specific municipalities, the extent to which funds for both investment and O&M are applied to the purpose for which they are allocated cannot be evaluated.

Table 54: Principal water related grants, 2015/16 — 2020/21

	Source	DORA-15	DORA-16	DORA-17	DORB-2018		
	Period	R'000 2015/16	R'000 2016/17	R'000 2017/18	R'000 2018/19	R'000 2019/20	R'000 2020/21
MIG		14 955 762	14 914 028	15 981 252	15 287 685	15 733 731	16 599 086
	water comp	4 486 729	4 474 208	4 794 376	4 586 306	4 720 119	4 979 726
RBIG *[24]		0	1 850 000	1 865 000	1 957 000	2 066 360	2 180 005
	forward est		5 323 602	4 854 782			
RBIG-ptB **		4 858 000	3 478 829	2 773 559	2 880 922	3 037 295	3 204 346
	forward est		3 479 000	2 806 279			
WSIG-ptA ***		1 853 114	2 844 982	3 329 464	3 481 056	3 669 319	3 870 972
	forward est		1 511 545	3 729 864			
WSIG-ptB ***		1 834 456	311 545	587 122	608 175	642 233	677 556
	forward est			587 122			
Total water-related		**13 032 299**	**12 959 564**	**13 349 521**	**13 513 459**	**14 135 326**	**14 912 605**
y/yr change %			-1%	3%	1%	5%	5%
						Prov	**Prov**
LG equitable share					62 731 845	68 973 465	75 683 326
Water items					26 030 000	28619903	31 404 097.5
% of LGES					41%	41%	41%
LGES as % of annual capital grants					193%	202%	211%
*LGES as % of 'basic needs' capital installed *****					7%	8%	8%
					350 000 000	364 135 326	379 047 931
Direct		6 339 843	9 169 190	9 988 840	10 024 362	10 455 798	11 030 703
Percentage of total		**49%**	**71%**	**75%**	**74%**	**74%**	**74%**
In-kind		6 692 456	3 790 374	3 360 681	3 489 097	3 679 528	3 881 902
Percentage of total		**51%**	**29%**	**25%**	**26%**	**26%**	**26%**

Source: FFC calculations based on National Treasury Data.

A number of other conditional grants make a small contribution to both water resources related activities in environment and agriculture as well as to the provision of water services at municipal level.[25]

[24] * Specific purpose allocations to municipalities
** PtB = allocations in kind
*** Incorporated RHIG and ops subsidy in 2016
**** Muni capital installed for basic and R7 billion each per 50 districts

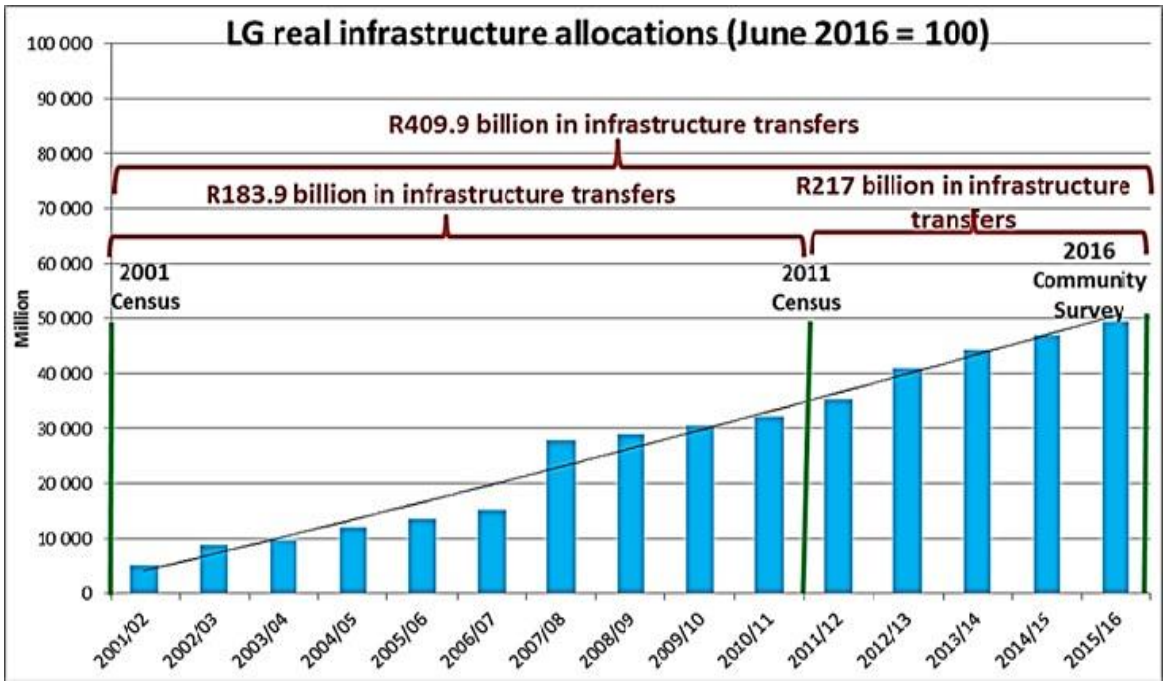
[25] Public works grants, such as the EPWP integrated grant for provinces which incentivises provincial departments to use labour-intensive methods in infrastructure, environmental and other projects. R1.3 billion is allocated over the 2018/2020 MTEF period. R246.9 million is allocated to a related programme, the land care programme grant for poverty relief and

2.2.3 Outcomes

The equitable share allocation and conditional grants have enabled poorer municipalities to address their water services goals to develop and operate the infrastructure required to provide basic minimum water services. Fiscal transfers through this system have underpinned the progress that has been made in expanding services to date.

However, this progress is now slowing. DWS and the South African Local Government Association acknowledge that the proportion of households with safe and reliable water supplies is declining. Meanwhile, the National Treasury reports (Parliamentary Monitoring Group, 2017) that progress in reducing physical service backlogs is slowing even as allocations for infrastructure increase. Overall, in terms of water security and the SDG's safe and reliable service goals, current spending is associated with decline, not progress

Figure 30: Real infrastructure allocations



Source: Parliamentary Monitoring Group, 2017a.

infrastructure development, which aims to improve productivity and the sustainable use of natural resources. Specific environmental grants serve similar purposes. The environmental protection and infrastructure programme identifies, plans and implements projects under the EPWP through the use of labour intensive methods and empowers small, medium and micro enterprises (SMMEs) during project implementation processes. This includes the working for water programme which receives approximately R1 billion a year. In addition, the natural resource management programme addresses water resource management, biological diversity and the functioning of natural systems promotes livelihood opportunities for the people employed.

Table 55: Number and percentage change in HH with access to services

	2001-2011	2011-2011	2011-2016	2011-2016
Electricity	4 427 127	57%	3 085 170	25%
Water	4 218 878	52%	1 769 242	14%
Refuse	4 248 215	68%	1 526 018	15%
Sanitation	3 187 490	45%	3 236 805	31%

Source: Parliamentary Monitoring Group, 2017a.

This suggests in turn that the current IGFR instruments for water services may no longer be fit for purpose. The most pressing problem is now the functionality failures which are driving the overall decline in access to safe and reliable services.

While most of these findings focus on water supply, many also apply to sanitation. Sanitation provision addresses a complex set of issues related to the acceptability, technical, and financial feasibility of household sanitation solutions in different types of community. In many cases, these require a policy response that reflects the specific challenges posed by different types of human settlements and the changing structure of households. Since sanitation is household based, communities with smaller households require more sanitation facilities. However, the availability of water for water-borne sanitation facilities is a further complicating factor for both sub-sectors.

3. Discussion

This review suggests that there is a wide range of issues to be addressed if the overall goal of water security and the more focused objective of ensuring that all South Africans have access to at least a basic minimum service is to be achieved. The challenge is to make a structured analysis of the situation, and then to consider what useful IGFR interventions could be made.

The primary challenge for both water supply and sanitation services is the financial (and physical) sustainability of services. The failure to properly operate and maintain the infrastructure on which services depend is a matter for serious concern. So too is the evidence that, for a variety of reasons, much of the expenditure incurred is not cost effective. The NDP states that in order for the country to achieve sustainable and inclusive growth by 2030, government need to invest in good economic infrastructure to meet the country's medium- and long-term priorities. It further states that current investment on infrastructure is inadequate and maintenance programmes are lagging which resulted in increased costs and subsidies that constrain economic growth. For the W& S, investment on infrastructure focus has been more on providing for new infrastructure, rehabilitation and upgrading of existing infrastructure as well as improved management of water infrastructure. Table 56 compares the proportion of W&S infrastructure with other public sector infrastructure. Results indicate that W& S infrastructure expenditure comes in third place at just merely 13% in 2016/17 compared to transport logistics and energy at 45 per cent and 17 per cent respectively. This is attributable to poor planning by the departments

which result in delays in the completion of the projects on time. Internationally, in order to finance the required infrastructure, maintenance and services on water and sanitation, middle income countries should spend about at 0.54 per cent to 2.60 per cent of GDP; South Africa spends about 0.8 per cent of GDP on this aspect.

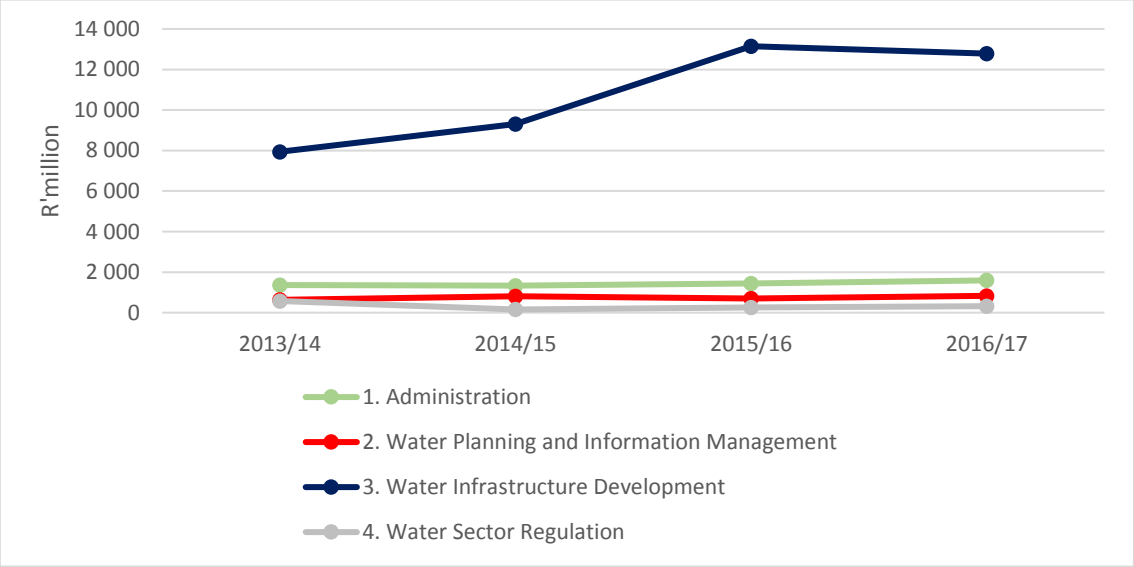
Table 56: Proportion of water and sanitation compared to other public transport sectors

	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17
Energy	29.0%	32.2%	34.5%	31.9%	26.5%	22.8%	17.7%
Water and sanitation	8.1%	9.2%	10.4%	12.8%	13.4%	12.8%	13.4%
Transport and logistics	38.1%	33.7%	31.9%	31.1%	36.5%	41.7%	44.5%
Other economic services	6.7%	5.5%	4.1%	5.1%	5.6%	4.9%	4.4%
Health	3.7%	3.7%	4.5%	3.9%	3.9%	3.9%	4.0%
Education	3.4%	3.7%	4.5%	4.8%	4.9%	4.7%	4.9%
Other social services	7.1%	7.5%	4.9%	5.5%	4.6%	4.5%	5.6%
Justice and protection services	2.1%	1.3%	2.0%	1.9%	1.8%	1.7%	2.3%
Central government services	1.6%	3.1%	3.2%	2.9%	2.9%	2.9%	3.3%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Source: National Treasury Database, FFC Calculations.

In analysing the budget and expenditure, the department of W&S is categorised according to the programmes as stated in Figure 31, administration, water planning and information management, water infrastructure development and the water sector regulation. In the year 2016/17 the department budget stood at R15.5 billion. Of the programmes, water and infrastructure development, which in the main are infrastructure grants, consume the largest chunk of the budget at R12.8 billion which translates to about 83 per cent of the total budget. This is a decrease from 2015/16, when the budget was R13.2 billion. Some of the attributable factors are due to the water infrastructure project delays.

Figure 31: Budget and expenditure on water and sanitation programme



Source: National Treasury Database, FFC calculations.

The conditional grant system was developed at a time when the priority was the expansion of coverage by water services, up to at least a basic minimum standard. The focus was thus

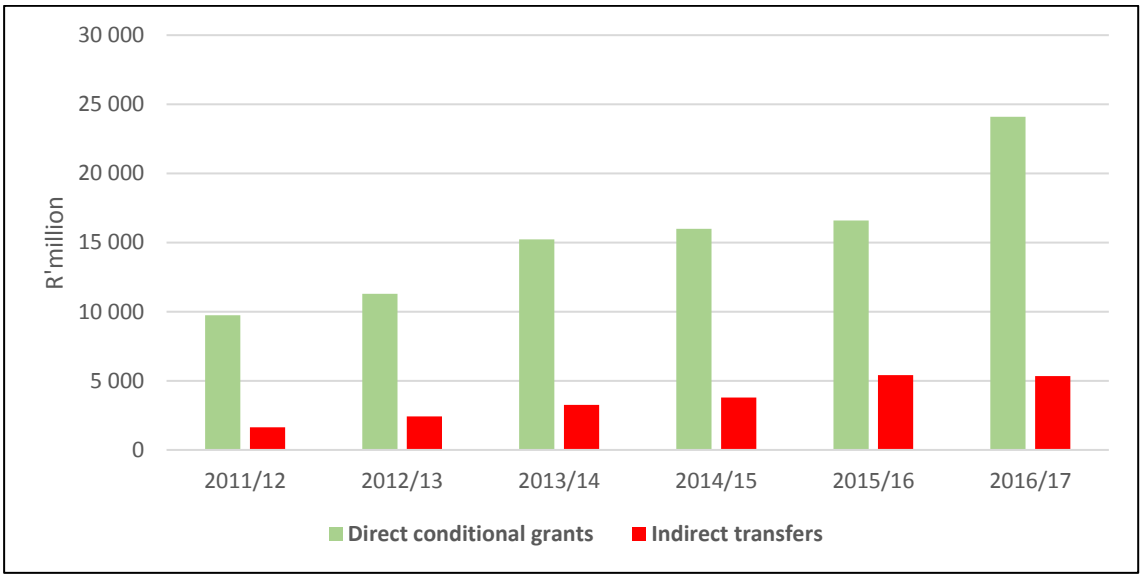
on providing grants to municipalities for the necessary capital projects, notably in communities where there were no formal services.

With the expansion of coverage, the focus has now moved to functionality and sustainability of the services with some municipalities seeking to increase service standards. This has functional, institutional and financial dimensions. In this context, issues that have arisen include:

- standards to which grant-funded projects have been built (often higher than basic)
- coordination between bulk supply projects (funded under RBIG) and local reticulation projects (funded by the MIG and WSIG)
- adequacy of provisions for O&M, including refurbishment (in LES calculations), and
- whether appropriate amounts have been allocated from the LES for intended purposes.

Since 2016/17 the various grants described earlier, (except the MIG) have been merged due to among other things, poor performance, into to a single grant called Municipal Water Infrastructure grant (MWIG). While their main purpose is clear, these grants have many objectives embedded within the main purpose, which at the end could result in inefficiencies currently being experienced by the system. For instance, both the RBI and MWI have to support the eradication of the bucket eradication programme that ended in the year 2016. These grants have both the direct and the indirect component except for MIG. In 2016/17, expenditure on direct components have been on the increase at about R24 billion while on indirect it stood at just over R5 billion (Figure 32). On average, performance of the direct grant has been fairly good compared to the indirect components. In its previous submissions, the Commission has recommended the need for continued building of capacity of provinces and municipalities with the use of indirect grant as the last resort. The 2017 Organisation Undoing Tax (OUTA) report alludes to the inefficiencies by the infrastructure grants i.e. the RBI grant. There are also issue of non-compliance with supply chain management managed by the departments, with non-compliance being significantly higher when implementing agents were used. There are also deviations from conditional grants on the RBIG in that only the social component of projects should be funded from this grant. In practice, mega projects are funded from RBIG, for example bulk water supply to Polokwane, while the city of Limpopo through its water user fees should fund the economic component of the project.

Figure 32: Expenditure on water infrastructure grants



Source: National Treasury Database, FFC calculations.

To conclude, the performance of the IGFR for water must be addressed at several levels:

- technical, considering both the determination of the structure and the quantum of the grants concerned and questions such as whether it is possible to have a general set of grants that are applicable to the diversity of contexts in which water services are provided:
- institutional, considering the capacities of municipalities to plan, implement and operate water services on a sustainable basis:
- financial, considering the impact of specific issues on the financial status of municipal water services:
- strategic, considering the intent and resulting design of the grant and the administrative system supporting it:
- compliance, considering whether the system provides incentives and checks to ensure that projects are implemented in accordance with the rules and guided by their intent:
- grant evaluations are not undertaken as required by Division of Revenue Act:
- expenditure and non-financial information is not monitored in accordance with the framework for the grant: and
- policies and procedures to guide RBIG and WSIG are not sufficiently implemented. (National Treasury 2018).

Conclusion and recommendations

The current climate of fiscal constraint obliges government to act strategically to achieve its policy goals in relation to water services and its broader commitment to achieving the SDGs. In particular, it must prioritise its investment and operational funding support to local government to ensure maximum impact and the sustainability of the services that are provided.

To this end, conditional grant funding should only be made available where it can be demonstrated that projects will be physically and financially sustainable. This will require greater attention to and oversight of the governance, financial management, staffing and operational arrangements at municipal level. In its previous submission, the Commission has recommended the need for continued building of capacity of provinces and municipalities with the use of indirect grants as the last resort. In the main, municipalities that should be supplying the infrastructure services lack technical capacity which results in infrastructure service delivery targets not being met. In terms of public infrastructure expenditure of the country on W& S it is at a mere13%, an indication that the service is lagging behind on its investment and maintenance of the services, which is mainly attributable to project delays in the sector. That is, revenue in the water services should cover operating and financial costs including infrastructure. For that to be realised a comprehensive and sustainable strategy in financing is required, given the challenges faces by the sector.

1) The Commission recommends that:
    a) A review of basic norms and standards for water services and the associated Local Government Equitable Share (LES) be undertaken by the Department of Water and Sanitation (DWS).
    b) Clearer statements of grant objectives to achieve defined basic service levels or sustainability of services are established by the DWS.
    c) Municipalities indicate what norms and standards they intend to provide and how their capital and operational costs are to be funded. This should be done through water services development plans.
    d) Stronger conditions be attached to financial transfers to ensure compliance and that funds allocated are properly spent for the purposes indicated. Grant funding should be withheld from municipalities that do not have the necessary measures to monitor and control water consumption, or which do not meet criteria or have valid abstraction licences. Similar procedures must be applied for water-borne sanitation projects.
    e) The IGFR system shifts to incentivising sustainable operations and maintenance and introduces a dimension of outcome-based support for higher levels of service.

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