2025/26

SUBMISSION FOR THE DIVISION OF REVENUE

30 South Africa 1994 - 2024 YEARS OF FREEDOM

FINANCIAL AND FISCAL COMMISSION

For an Equitable Sharing of National Revenue

SUBMISSION FOR THE 2025/26 DIVISION OF REVENUE

For an Equitable Sharing of National Revenue

We, the Commissioners, hereby submit the Financial and Fiscal Commission's researched recommendations for the 2025/26 Division of Revenue in accordance with the obligations placed upon us by the Constitution of the Republic of South Africa

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ACRONYMS

AAMP	Agriculture and Agro-processing Master Plan
ACFMG	Anti-corruption and Fraud Multi Group on Medico Legal Claims
ADR	Alternative Dispute Resolution
ARC	Agricultural Research Council
ARIA	African Rail Industry Association
ART	Autorité de régulation des transports (Transport Regulatory Authority)
BCC	Banker-Charnes-Cooper
BRICS	Brazil, Russia, India, China, South Africa
CAGR	Compound Annual Growth Rate
CASP	Comprehensive Agricultural Support Programme
CCR	Charnes-Cooper-Rhodes
CJRP	Civil Justice Reform Programme
CJS	Criminal Justice System
CoS	Cost-of-supply
CPI	Consumer Price Index
CRS	Constant Returns to Scale
CSIR	Council for Scientific and Industrial Research
DCoGTA	Department of Cooperative Governance and Traditional Affairs
DEA	Data Envelopment Analysis
DHS	District Hospital System
DPME	Department of Planning, Monitoring and Evaluation
DMU	Decision-making Unit
DoJ&CD	Department of Justice and Constitutional Development
DoT	Department of Transport
DPE	Department of Public Enterprises
DPL	Development Policy Loan
EBIDTA	Earnings Before Interest, Taxes, Depreciation and Amortisation
EDTEA	Department of Economic Development, Tourism and Environmental Affairs
EPP	Electricity Pricing Policy
EPPDE	Expenditure per Patient Day Equivalent
ERTSA	Eskom Retail Tariff Structural Adjustment
FFC	Financial and Fiscal Commission
GDP	Gross Domestic Product
GEDU	Government Expenditure on Education
GFB	General Freight Business
GP	General Practitioner
GPS	Global Positioning System
GWK	Griekwaland Wes Korporatief Limited
HR	Human Resources
ICT	Information and Communication Technology
IGFR	Intergovernmental Fiscal Relations
IRERC	Interim Rail Economic Regulatory Capacity
IT	Information Technology
IRS	Increasing Returns to Scale
JCPS	Justice, Crime Prevention and Security
MDB	Municipal Demarcation Board
MPI	Malmquist Productivity Index
MTEF	Medium-term Expenditure Framework
MTSF	Medium-term Strategic Framework

ACRONYMS CONTINUED

MYPD	Multi-year Price Determination
NDP	National Development Plan
NERSA	National Energy Regulator of South Africa
NHA	National Health Act
NHI	National Health Insurance
NFP	Not-for-profit
NIP	National Infrastructure Plan
NLCC	National Logistics Crisis Committee
NRMP	National Rail Master Plan
OCJ	Office of the Chief Justice
OECD	Organisation for Economic Cooperation and Development
PERSAL	Personnel Administration System (Personnel and Salary System)
PES	Provincial Equitable Share
PHC	Primary Healthcare
PPP	Public-private Partnership
PRASA	Passenger Rail Agency South Africa
PSP	Private Sector Participation
R&D	Research and Development
RAF	Road Accident Fund
RASET	Radical Agrarian Socio-economic Transformation
RCA	Regulatory Clearing Account
RDP	Reconstruction and Development Programme
SACTA	South African Cultivar and Technology Agency
SAJEI	South African Judicial Education Institute
SALRC	South African Law Reform Commission
SAPPO	South African Pork Producers Organisation
SAPS	South African Police Service
SAR	South African Railways
SAT	State Administration of Taxation
SDG	Sustainable Development Goals
SFA	Stochastic Frontier Analysis
SALGA	South African Local Government Association
SALRC	South African Law Reform Commission
SIU	Special Investigating Unit
SMEs	Small and Medium Enterprises
StatsSA	Statistics South Africa
TE	Technical Efficiency
TEC	Transport Economic Council
TER	Transport Economic Regulator
TFP	Total Factor Productivity
TFR	Transnet Freight Rail
TFROC	Transnet Freight Rail Operating Company
UHC	Universal Health Coverage
UMH	Upper-middle and high-income
UMI	Upper-middle-income
UNDP	United Nations Development Programme
VRS	Variable Returns to Scale
WACC	Weighted Average Cost of Capital
WHO	World Health Organisation

FOREWORD

The Submission for the Division of Revenue 2025/26 is tabled by the Financial and Fiscal Commission (FFC) in terms of section 214(1) of the Constitution of the Republic of South Africa, 1996 (as amended), Section 3 of the Financial and Fiscal Commission Act, 1997 (Act No. 99 of 1997), Section 9 of the Intergovernmental Fiscal Relations Act, 1997 (Act No. 97 of 1997) and Section 4(c) of the Money Bills and Related Matters Act, 2009 (Act No. 9 of 2009) (as amended). The FFC is an independent, juristic constitutional institution that reports directly to Parliament and provincial legislatures.

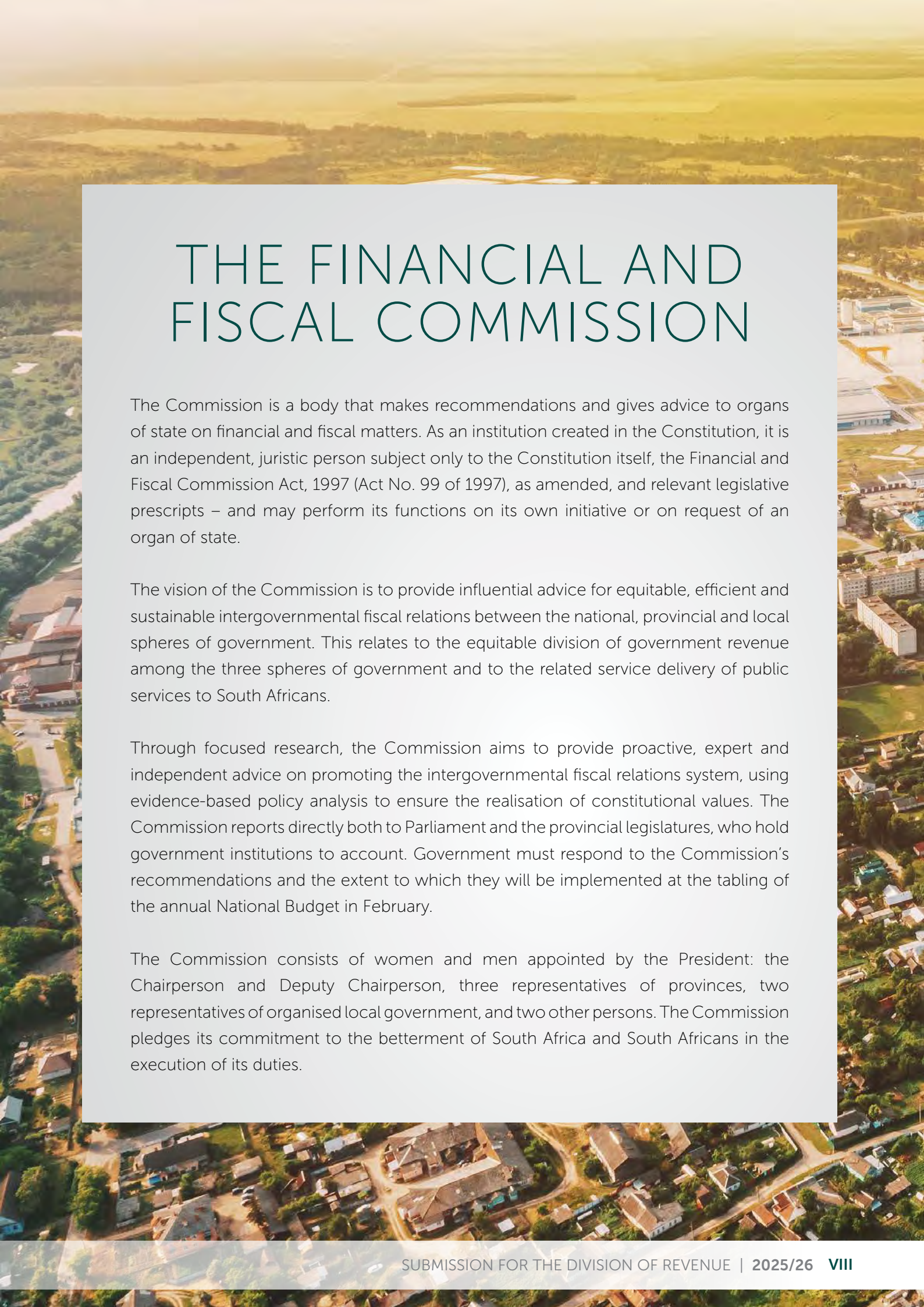
The vision of the Commission is to provide influential advice for equitable, efficient and sustainable intergovernmental fiscal relations between the national, provincial and local spheres of government. This relates to the equitable division of government revenue among the three spheres of government and to the related service delivery of public services to South Africans.

Through focused research, the Commission aims to provide proactive, expert and independent advice on promoting the intergovernmental fiscal relations system, using evidence-based policy analysis to ensure the realisation of constitutional values. The Commission reports directly both to Parliament and the provincial legislatures, who hold government institutions to account. Government must respond to the Commission's recommendations and the extent to which they will be implemented at the tabling of the 2024 Medium-term Budget Policy Statement in October 2024, leading up to the annual budget for the 2025/26 financial year to Parliament and legislatures.

We, the undersigned, hereby submit the Financial and Fiscal Commission's submission with recommendations for the 2025/26 Division of Revenue in accordance with the obligations placed upon us by the Constitution of the Republic of South Africa.

For and on behalf of the Commission

Dr Patience Nombeko Mbava
Chairperson



THE FINANCIAL AND FISCAL COMMISSION

The Commission is a body that makes recommendations and gives advice to organs of state on financial and fiscal matters. As an institution created in the Constitution, it is an independent, juristic person subject only to the Constitution itself, the Financial and Fiscal Commission Act, 1997 (Act No. 99 of 1997), as amended, and relevant legislative prescripts – and may perform its functions on its own initiative or on request of an organ of state.

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The Commission consists of women and men appointed by the President: the Chairperson and Deputy Chairperson, three representatives of provinces, two representatives of organised local government, and two other persons. The Commission pledges its commitment to the betterment of South Africa and South Africans in the execution of its duties.

INTRODUCTION

The iconic quotation from Paul Krugman, Nobel Prize-winning economist, "Productivity isn't the only thing, but in the long run, it's almost everything", reminds us that even though productivity may seem like an abstract concept to many of us, it can have significant implications for all of us. Productivity is an important concept in economics and stems from the notion that the output produced by an organisation or an economy is a function of the inputs employed (Solow, 1957). In particular, productivity measures the efficiency with which a given organisation transforms inputs into outputs. The speed at which the economy grows is chiefly shaped by the efficiency of the workforce, which is shaped by the resources and quantity of labour assigned. Regular healthcare, education and infrastructure investments are essential to achieve higher productivity and growth.

The public sector is an essential component of productivity growth. It can invest in and develop critical skills, innovations and infrastructure at a national, regional and local level. The public sector's services also help businesses grow and, in turn, create jobs, higher wages and improved living standards. Thus, the public sector benefits significantly from productivity improvement. The issue of boosting the public sector's productivity is complex. The type of tasks carried out in the public sector, where there may be competing goals that are not primarily concerned with productivity, can make it difficult to define and measure it. This is particularly the case in the public sector, where it can sometimes be hard to know precisely what services are provided (outputs), the things that are required to produce them (inputs) or how effectiveness and efficiency change over time (Dunleavy, 2017; Lau et al., 2017). Most public services are not sold or bought, and many government services are collective goods that cannot be consumed individually (e.g. policing, defence and environmental protection).

There is no unitary framework to evaluate economic and business activity, and higher productivity results from producing more with a given set of inputs. Despite the straightforward nature of this definition, there is neither a single objective nor a single yardstick of productivity. Instead, it is viewed in terms of the "objectives of productivity management", which include monitoring technical progress, discerning changes in economic efficiency, isolating cost reduction from price change in the context of production, isolating waste and gauging living standards. (Atkinson, 2005).

South Africa appears to be teetering on the brink of an abyss marked by low growth and high unemployment. Pulling back from this calamitous precipice will take nothing short of a miracle. The need for a constructive response constantly grows as the South African economic crisis festers and worsens. Most state institutions are failing dismally at the job they are supposed to do. The definition of services and products is inadequate, and the quality of work is poor. Despite the frequent attention paid to the problem of governance in state institutions, abysmal service delivery and corruption continue, and the performance of these institutions never improves.

The limited efforts to reform the public sector are apparent. Moreover, the COVID-19 devastation has brought the urgency of reforming the state to the forefront. The degradation of state organisations must be halted or reversed. This submission is aimed at developing broad objectives for state reform. It advises feasible and realistic courses of action to promote institutional and administrative effectiveness.

Even before the pandemic, the South African state was clearly in crisis mode. Public administration was eroding, and so was the country's critical infrastructure. The economy was stalling, partly as a consequence of this situation. When COVID-19 first struck, the nationwide goodwill that the pandemic inspired was genuinely remarkable. However, as time went by, that amity vanished almost without a trace. Acquiring personal protective equipment and other items imperative for saving lives was infested with corruption. Businesses, workers, the jobless and the economy received limited support. The support that was given out was late to arrive and poorly distributed.

If South Africa does not begin to tackle its state of crisis, the pandemonium that characterised the response to the pandemic might provide an inkling as to what to expect in the future. The remedies spelt out in this submission overlap and are mutually reinforcing. However, the Commission acknowledges that concerted attention will also need to be paid to other sectors and dimensions of the state.

This submission discusses public sector productivity as a propeller of economic growth under the overarching theme of ***public sector productivity and economic growth***. It focuses on six specific areas: international best practices to enhance public sector performance, rail transport, smallholder farmers, judicial reforms, healthcare delivery and local governance.

The submission consists of six chapters.

Chapter 1 argues the desperate need for a comprehensive overhaul of the South African public sector's performance management system. It emphasises the importance of looking outside South Africa's borders for potential solutions and strategies, and finds that the international perspective has much to offer in addressing these problems. This chapter explores the factors and tactics that have led the public sector to thrive in various nations. It delves into how different countries have successfully tackled public sector administration issues. Consequently, the chapter suggests several policy measures based on international case studies and evaluates South Africa's public service capabilities against those of several high-income and upper-middle-income countries.

Chapter 2 dissects and comprehends the causes that have led to the decline in the productivity of South Africa's railways and how these are linked to intergovernmental fiscal relations (IGFR). The chapter examines avenues for invigorating the sector and re-establishing its economic significance. The state of regulations, the institutions and the rail service delivery model in South Africa are analysed, and the means of how to grow the number of passengers and freight rail are determined in this chapter. In addition, it assesses the existing measures for advancing rail efficiency in South Africa and proposes solutions the country could adopt based on successful international best practices.

The performance of the agricultural sector is critical to economic growth, employment and rural development. While the sector has demonstrated remarkable resilience in the face of challenges like loadshedding and the COVID-19 pandemic, there is an opportunity to further enhance productivity and transformation in the agricultural sector by focusing on the performance of smallholder farmers. In recognition of this, **Chapter 3** evaluates existing support mechanisms for South African smallholder farmers and explores the potential of precision farming techniques to further enhance the efficiency of this cohort of farmers.

Institutions play an important role in promoting economic growth. In this regard, the judicial system is critical. A solid rule of law, backed by an efficient judiciary, is essential in generating a favourable business setting. Business confidence leads to increased economic activity, thus boosting economic growth. Taking this viewpoint into consideration, **Chapter 4** investigates the efficiency of South Africa's judicial system. The chapter centres on enhancing the effectiveness and overall output of South Africa's judicial system by spotlighting critical issues and testing the system's efficiency. Moreover, it deliberates on the configuration and operations of highly efficient legal frameworks and distills lessons for South Africa.

Assessing efficiency in South Africa's healthcare industry is vital to developing the public sector's productivity and enhancing growth. A more efficient healthcare system can significantly uplift economic growth by optimising resource allocation, carefully controlling costs, improving health outcomes, optimising investment capital and nurturing human capability. This assertion is the focus of **Chapter 5**, which examines the allocation of resources and productivity outcomes within the district hospital system (DHS), clarifies the understanding of the determinants of efficiency, and provides insight into how efficiency within the sector can be improved. The chapter additionally measures the degree of medico-legal claims, evaluates their effect on local healthcare funds, and examines initiatives undertaken in response to the expansion of medico-legal claims. Lastly, the chapter assesses and analyses the budget and expenditure performance of the National Health Insurance (NHI).

The efficiency and performance of South Africa's public sector are heavily contingent upon the effectiveness of local government. When local governments are managed effectively, services can be delivered more efficiently, resources can be allocated more strategically and policies can be implemented more effectively, directly improving the public sector's overall productivity. In addition, driving economic growth requires a productive and efficient local government to improve the productivity of the public sector. This requires municipalities to deliver services and infrastructure effectively and efficiently. They must provide a favourable environment for economic activities to flourish. Against this backdrop, **Chapter 6** estimates municipal productive efficiency and the determinants of local government productive efficiency in South Africa.

The Commission makes the following recommendations:

CHAPTER 1: IMPROVING PUBLIC SECTOR PERFORMANCE: AN INTERNATIONAL PERSPECTIVE

1. With regard to investment in infrastructure, National Treasury, through the division of revenue, in collaboration with the Department of Trade, Industry and Competition, the Department of Public Enterprises, and the Department of Public Works and Infrastructure, should devise and consolidate the various grants and earmarked allocations into an infrastructure incentive grant for economic infrastructure development and public-private partnerships.

2. With regard to infrastructure investment planning and monitoring, National Treasury should do the following:
   - Increase investment in transportation, energy and communication networks to improve national infrastructure.
   - Promote technological innovation in infrastructure investment through research and development initiatives to boost long-term economic competitiveness and diversification.
   - Engage in long-term planning for infrastructure investment, including comprehensive cost-benefit analyses and prioritising impactful projects.
   - Establish multi-year infrastructure investment plans to support sustainable economic development.
   - Establish robust monitoring and evaluation mechanisms to assess the impact of increased infrastructure spending on public sector efficiency and economic growth.

3. Regarding effective institutional capabilities and technology, the Department of Public Service and Administration, the Department of Public Works and Infrastructure, and National Treasury should establish one-stop service centres to offer citizens easy access to similar public services in one location. This would streamline processes, reduce bureaucracy and enhance the overall customer experience.

4. With regards to incentives, the Department of Public Service and Administration should do the following:
   - Implement performance-based reward systems to incentivise civil servants to deliver public services within agreed-upon timeframes, including recognition, bonuses or other tangible rewards for civil servants that consistently meet or exceed service delivery targets.
   - Institute a centralised public service examination to screen South African civil service applicants. The examination should be designed to test applicants' knowledge of, among other things, South Africa's history, the Constitution, administrative law, public administration and basic economics.

5. Regarding transparency, the Department of Public Service and Administration should do the following:
   - Establish comprehensive public awareness campaigns to inform citizens about the public services, associated costs and expected service delivery timeframes using various channels such as traditional media, social media, community outreach and educational programmes to improve the accessibility and visibility of information related to public services.

This should be done by ensuring that details of public services, costs and timelines are available in easily understandable formats at government offices, one-stop service centres and online platforms, including clear signage, brochures and user-friendly websites. This should encompass the whole of government and be monitored through the allocation of the division of revenue.
- Establish effective feedback mechanisms that allow citizens to provide input on their experiences with public services, including feedback on service quality, timeliness and overall satisfaction.

6. Regarding integrating technology in public sector administration, the Department of Public Service and Administration should do the following:
   - Expand the range of public services accessible and applicable online, including user-friendly web portals for submitting applications, tracking request statuses and communicating with government agencies.
   - Develop mobile smartphone applications that enable citizens to access public services, receive updates on service requests and engage with government agencies. These should be designed to be intuitive and accessible to a wide range of users.
   - Establish digital document management systems to streamline documentation handling for public services, automate paperwork processing, reduce errors and improve efficiency in citizen-government interactions.
   - Develop integrated service delivery platforms that facilitate seamless interactions between citizens, government agencies and service providers, ensuring transparency and accountability throughout end-to-end service delivery processes.

CHAPTER 2: PRODUCTIVITY OF RAIL TRANSPORT IN SOUTH AFRICA

1. Regarding the National Devolution Strategy, the Commission specifically advises against any deviations from the implementation timeframes and recommends the implementation of a gradual approach to devolution.

2. With regard to infrastructure and technological advancements, the Department of Transport, in collaboration with National Treasury, the South African Police Services, the Passenger Rail Agency South Africa and the private sector, should work to develop and implement data-driven strategies that are aimed at better infrastructure maintenance, modernising train tracking and scheduling systems, and combatting crime.

3. Regarding private participation, the Department of Transport should accelerate the establishment of the Private Sector Participation Framework, given its importance in guiding coordination and collaboration with state-owned enterprises and private sector companies.

CHAPTER 3: A REVIEW OF THE SUPPORT TO SMALLHOLDER FARMERS IN SOUTH AFRICA AND OPPORTUNITIES FOR IMPROVING THEIR PERFORMANCE

1. With regard to promoting the long-term stability of smallholder farmers, the Department of Agriculture, Land Reform and Rural Development should consider consolidating the three agriculture conditional grants (the Comprehensive Agricultural Support Programme, Ilima Letsema and the Land Care Grant) along with other existing pools of funding that have been set aside to help smallholder farmers.

2. Regarding improving food security and supporting the transformation of the agricultural industry, the Department of Agriculture, Land Reform and Rural Development must actively support public food procurement from smallholder farmers. Additionally, consideration should be given to establishing a conditional grant to enable provincial agriculture departments to assist smallholder farmers to cover the initial costs of integrating into sustainable supply chains.

3. Regarding supporting the improved performance of smallholder farmers and hastening the acceleration of transformation in the agricultural industry, government should create a public-private partnership to optimise the implementation of precision agriculture methods among smallholder farmers.

CHAPTER 4: EVALUATING THE EFFICIENCY OF THE SOUTH AFRICAN JUDICIAL SYSTEM

1. Regarding human resource capacity, the Office of the Chief Justice and the Department of Justice and Constitutional Development should undertake an audit to identify the extent of shortages in the number of judges and magistrates. Alongside this, an appropriate quality control framework should be devised to manage the performance of this critical input in the judicial system.

2. To enhance the judiciary's efficiency, the Office of the Chief Justice and the Department of Justice and Constitutional Development must introduce methods to leverage existing technology. At a minimum, this should include standardising the use of electronic systems for registering cases, tracking case progress, record keeping and report writing.

CHAPTER 5: MEASURING EFFICIENCY IN THE PROVISION OF HEALTHCARE

Regarding inefficiency in the district hospital system:

1. The Minister of Health needs to improve the quality of healthcare within the district hospital system by exercising allocative efficiency through reprioritisation. The technical capabilities of district hospitals must furthermore be monitored at the provincial level by the Provincial Legislature's amendments to money bills, pursuant to the National Division of Revenue Bill.

2. The Minister of Health must ensure that accountability mechanisms in district hospitals are strengthened to ensure that funds are allocated optimally. The Minister and provincial departments of health should provide guidelines on how management practices in district hospitals can be improved to enhance transparency, oversight and accountability in the sector. Considerations should be given to the centralised nature of hospital oversight vested in provinces and the constraints on hospital managers to respond to hospitals' operational needs.

3. Enhancing transparency and accountability in hospitals and ultimately improving their performance hinges on the effectiveness of the healthcare system in adopting integrated data-driven processes. The Minister of Health, in collaboration with the Ministry of Finance and provincial Members of the Executive Committee (MECs), should improve monitoring and evaluation procedures through the integration of health data.

Regarding the National Health Insurance:

1. The Commission reiterates its recommendation made in 2015 that National Treasury and line departments should consider indirect conditional grants as a measure of last resort while continuing to build capacity in other lower spheres of government if the belief is that provinces and municipalities lack capacity.
2. National Treasury should review the funding of the National Health Insurance and ensure that all funding allocated under the National Health Insurance Programme is for activities and infrastructure directly related to the programme.

Regarding medico-legal claims:

1. The Minister of Health should prioritise the development of an integrated national information reporting system. Such an information system should include patient and doctor registries with real-time data. The standardisation of reporting fields will enable the creation of a uniform database to strengthen the government's ability to monitor and evaluate.
2. A uniform statistical reporting system should be utilised, which enables the enhanced collection and analysis of data-related medical negligence claims that capture the reasons for the claim, underlying clinical and treatment failures, and settlement values.
3. Provincial departments of health should budget for medico-legal litigation (projected legal costs) and compensation payment in accordance with normal budgeting practices, and budget forecasts should be based on actual expenditure settlement trends.
4. The national Minister of Health should commission an actuarial study into the viability of introducing mandatory professional indemnity cover for all healthcare practitioners, including those in the public sector.

CHAPTER 6: LOCAL GOVERNMENT PRODUCTIVE EFFICIENCY

1. To address capacity constraints, the Minister of Cooperative Governance and Traditional Affairs and the South African Local Government Association should collaborate closely with incapacitated municipalities to create incentive programmes that will attract appropriately qualified and skilled employees to these municipalities.
2. Regarding skill competencies, the Minister of Cooperative Governance and Traditional Affairs should facilitate continuous skills audits within municipalities to ensure that municipalities appoint qualified staff. To appoint appropriately skilled public servants, the Department of Cooperative Governance and Traditional Affairs and the National School of Government should develop a national examination to ascertain that senior municipal officials have the required skills for their appointed jobs.
3. Regarding improving the performance of local municipalities, the Minister of Cooperative Governance and Traditional Affairs, in collaboration with the South African Local Government Association, should enforce and encourage the implementation of the District Development Model within municipalities and further encourage staff exchange programmes among municipalities for roles that have the same dispensation to teach best practices of municipal systems and to implement projects at their home municipality within a required time frame.

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1. IMPROVING PUBLIC SECTOR PERFORMANCE

An international perspective

CHAPTER 1
Improving public sector performance: An international perspective

1.1 INTRODUCTION

The public sector is essential in fostering economic growth and development in today's globalised economy. It accomplishes this by efficiently allocating resources, producing public goods and services, and constructing an environment that encourages private sector activities. In comprehending the impact of the public sector on economic growth, it is vital to understand and measure its performance. While the private sector thrives on competition and continuously learns and adapts, governments are notably slower and more hesitant to change. These differences are rooted in the fundamental disparities between government operations and the private sector, including the lack of a market test, the immobility of production factors and the inability to terminate or abandon unsuccessful ventures in the same fashion that private firms can. The result is a public sector that is burdened with anachronistic systems and inadequate preparations to confront the challenges of the 21st century (Micklethwait and Wooldridge, 2014).

It is crucial to evaluate the efficiency of the public sector since the information obtained will be used for decision making and to formulate strategic plans. Regularly reviewing the performance of public institutions is essential as it can indicate problems worth fixing. In addition, it helps improve policy implementation in a more targeted way. Establishing the country's long-term policy and a clear set of public sector benchmark standards and strategic objectives can help organisations achieve various targets that align with the goals with a high degree of service delivery. Improving the effectiveness of government operations increases public confidence and trust in government institutions. Public sector agencies can gain the faith and trust of the public and stakeholders by dedicating themselves to improvement and accountability. An effective measurement framework eventually enables public sector organisations to improve and innovate on a tight budget.

This chapter provides an in-depth examination of successful public sector changes from an international perspective, while providing uniquely applicable insights for reformation. It establishes a basis for reform reinforcement based on international experience by evaluating public sector transformations, thus challenging policymakers to improve the public sector's effectiveness. The most critical question is whether the correlation exists between public sector performance and economic growth across 23 high-income and upper-middle-income countries.

1.2 RESEARCH METHODOLOGY AND DATA

The methodology encompasses quantitative and qualitative approaches.

1.2.1 Public productivity and economic growth

The panel true effects estimation of the stochastic frontier analysis (SFA) examines the impact of public productivity on economic growth, specifically focusing on 23 upper-middle and high-income (UMH) countries between 1994 and 2022.

1.2.2 Qualitative approach

Four international case studies were used through a qualitative analysis to demonstrate innovative public sector performance improvement interventions. Several criteria determined the selection of the case studies.[1] The first criterion from which cases were selected was their clarity, significance and persistence in solving the problem. By doing this, only interventions that address the substantial challenges of the public sector were considered. The second criterion was that the interventions selected should be innovative. The interventions discussed address the problem using innovative ways to accomplish their goal. Next, the interventions should have a known impact on public sector performance. The fourth criterion was degree of replicability. The case study selection process did not predominantly consider regional representation, although it was considered somewhat. The critical factor was the interventions themselves.

While diverse in many significant details, the international case studies are categorised into four larger public sector performance reform thematic areas. These thematic categories span a range of concerns, including policymaking, the administration of government, the pro-poor orientation of the public sector and the public sector's citizen orientation:

- *Achieving optimal results through centralised government control:* This theme encompasses the initiatives centralised within the major government structures to achieve the best outcomes.
- *Effective civil service management:* These are interventions designed to improve civil service management and, thus, performance. This theme can include, but is not limited to, interventions in areas such as recruitment, training, performance management and career development.
- *Novel approaches to public financial management:* Under this theme, efforts are made to bring forth novel approaches in public financial management in the country to be applied in fiscal management at various levels of government. This covers subjects like budgeting, expenditure control, financial reporting and financial accountability mechanisms.
- *Revolutionising the delivery of services at the grassroots level:* Under this thematic area, the researchers welcomed innovative projects that could improve the delivery of public services by focusing on ensuring wider access, inclusion and citizen-centricity at the grassroots level.

Table 1.1 illustrates the interconnections between the international case studies and the respective themes.

1 The criteria has been designed by the authors and adapted from Beschel et al. (2018).

Table 1.1. Public sector reform themes and international case studies

Theme	Case
Achieving optimal outcomes through centralised governmental control[2]	**Rwanda case study –** Blending the old with the new: Imihigo performance contracts in Rwanda
Effective management of the civil service[3]	**China case study –** Mobilising a workforce of 800 000 tax agents: China's State Administration of Taxation enacts a reform in performance management
Novel approaches to public financial management[4]	**Brazil case study –** Unlocking success: How the Manaus Finance Secretariat revolutionises with results-based management
Revolutionising the delivery of services at the grassoots level[5]	**India case study –** Revolutionising service: Madhya Pradesh's Public Services Guarantee Act unleashes a new era of delivery reform

1.3 FINDINGS

1.3.1 Quantitative results

PUBLIC SECTOR PRODUCTIVITY AND ECONOMIC GROWTH

The Stochastic Frontier Analysis (SFA) model

The control variables are the public sector output index (logoutput), government compensation of employees (Labour), government expenditure on education (GEDU), "K" for capital spending and the variable "year" to account for frontier shifts and technological changes. The estimated SFA is captured in Equation 1.

$$logoutput_{it} = \alpha_i + 0.04K^{***}{}_{it-1n} + 0.02Labour^{***}{}_{it-1} + 0.27GEDU^{***}{}_{it-1} + 0.02Year^{***}{}_{it-1} + v_{it} - u_{it} \quad (1)$$

The SFA model's coefficients suggest that public sector labour and capital positively impact government output. They show that a 1 per cent increase in labour input leads to an estimated 2 per cent increase in output, provided the capital input remains constant. The results also show that a 1 per cent increase in capital brings about a 4 per cent rise in output, with the constant labour input. The variable "year" has explanatory power at the 2 per cent significance level and is positively associated with output.

The result implies that positive technological changes have occurred in the sample period, with output increasing at an annual rate of 2 per cent between 1990 and 2020. They also show that education expenditure by the government contributes 27 per cent significantly to public sector output, with other constant. This substantial contribution can be attributed to government work and output being service-based and less capital-intensive than manufacturing industries.

2 This theme is premised on World Bank (2010).
3 This theme is premised on World Bank (2018).
4 This theme is premised on Cangiano et al. (2013).
5 This theme is premised on OECD (2017).

The results reveal that a healthy life equals productive employees, and health spending data impacts the reduction of inefficiency. A 1 per cent increase in health spending causes a decrease of 3.6 per cent in inefficiency. An increase in the share of public health spending causes a reduction in overall inefficiency in the range of 1.6 per cent to 3.1 per cent in health spending. Providing more resources to public health can enhance the efficacy of the healthcare system by alleviating technical inefficiency. With the increase in government spending on public health, technical inefficiency is found to decrease in response, which suggests that the additional budget is utilised to enhance healthcare services effectively. This reduction in inefficiency improves health outcomes, enhances access to care, shortens waiting times, increases the quality of care and might decrease healthcare costs.

The correlation between government spending on health and technical inefficiency is statistically significant, but does not imply a causal relationship. It indicates that investing in public health enhances healthcare system efficacy, which is positively correlated with health improvement and efficiency. This implies that the additional budget provided is utilised effectively; thus, a positive correlation exists between increased government spending on health and technical inefficiency. The significance of the results and their robustness are consistent with economic theory.

The results in Table 1.2 show that the average technical efficiency score for UMH countries in the public sector is 0.74, indicating a potential 26 per cent increase in output without changing input levels. The range of scores is from 3 per cent to 94 per cent, suggesting room for improvement. As noted in the literature, this inefficiency may stem from ineffective processes, an underutilisation of resources, suboptimal input allocation, incompetent public servants, lack of accountability, poor financial management and corruption.

Table 1.2. Summary statistics on technical efficiency (TE)

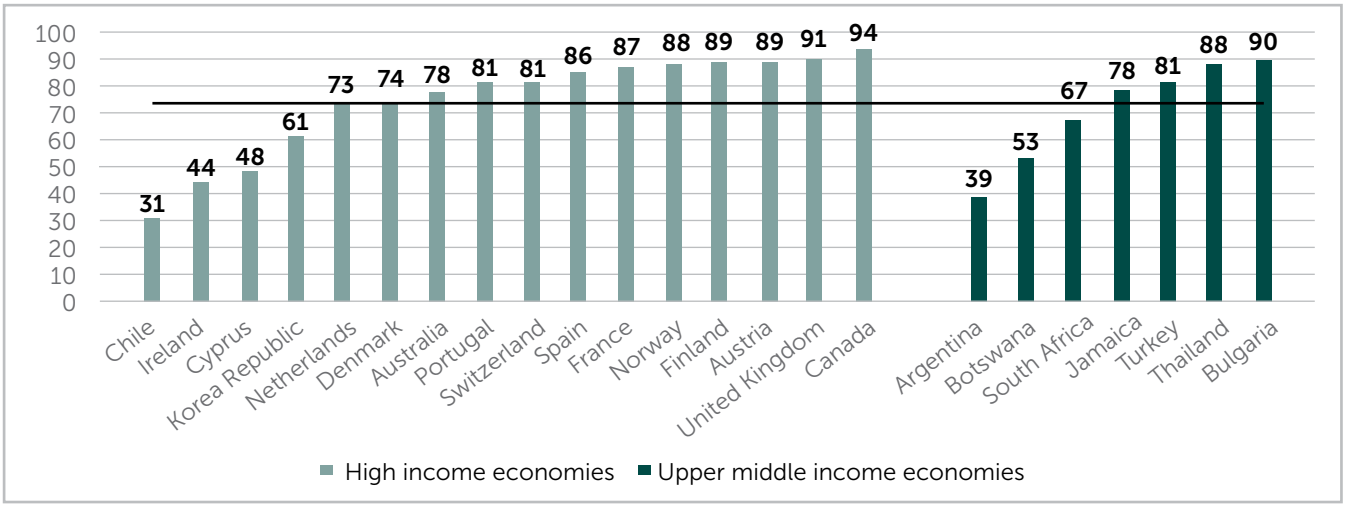
Variable	Observation	Mean	Std. deviation	Minimum	Maximum
Technical efficiency	713	0.743	0.186	0.310	0.943

Improving TE in these countries can boost output without increasing inputs, leading to better resource use, productivity and overall public sector performance. Addressing inefficiencies involves analysing factors that cause low efficiency, and implementing reforms, streamlining processes, enhancing management, investing in technology and improving resource allocation. This can help achieve higher efficiency and maximise output within existing resource limits.

Public sector technical efficiency score

The TE scores are shown in Figure 1.1. The scores range from 0 to 1, with higher scores indicating greater efficiency. The results reveal that only five out of 16 high-income economies have scores below the 74 per cent average.

Figure 1.1. Public sector TE for upper-middle-income and higher-income countries



Source: Commission's calculations

Argentina, Botswana and South Africa stand out as having lower efficiency than other upper-middle-income economies. In the case of South Africa, the low TE can be linked to the following factors:

- High public wage bill
- Low economic growth
- Corruption
- Education and skills deficit
- Wasteful expenditure
- Poor service delivery
- High debt service costs
- The underperformance of state-owned enterprises

The Netherlands and Denmark are the only countries with TE scores equal to the average for all countries. In contrast, most high-income countries have TE scores above 80 per cent, while in the upper-middle-income economies, only three countries achieve a technical efficiency greater than 80 per cent.

Canada has a highly efficient public sector at 94 per cent, and Chile has the least efficient public sector at 31 per cent. South Africa's public sector is 27 per cent less efficient than Canada's and 36 per cent more efficient than Chile's. South Africa's public sector will fall at the 67 per cent efficiency mark.

Countries like Argentina, Botswana and South Africa require reform measures to improve the condition of infrastructure provision. These measures could include reducing monopoly power in infrastructure provision, generally by deregulating infrastructure provision to encourage competition and productivity.

Upper middle-income countries lag behind high-income countries in terms of TE, mainly due to factors like research and development (R&D) investment and a highly skilled labour force. Lower- and middle-scoring countries could look to and learn from higher-scoring ones, such as Canada, to help improve their efficiency scores. Sharing best practices, transparency and capacity building can also assist lower-scoring countries like South Africa and Chile. TE scores can change over time, and institutional reforms can lead to improvement.

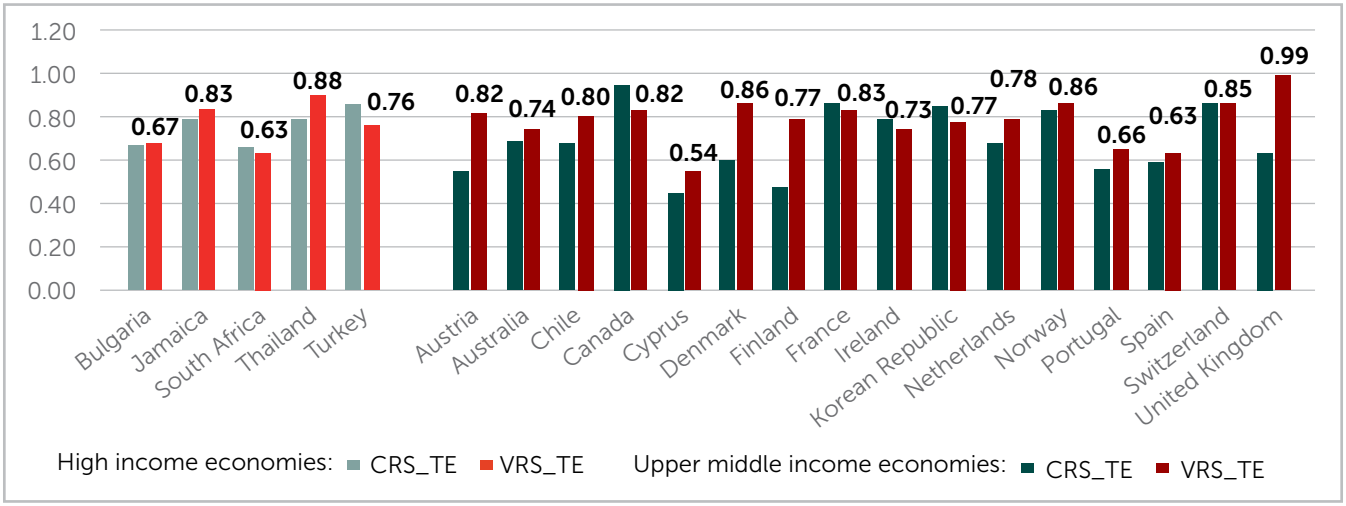
The message is quite apparent: Targeted interventions, such as reforms and good governance, must be undertaken to improve resource allocation, productivity and overall efficiency to achieve a higher level of sustainable economic growth and development.

Data Envelopment Analysis and the Tobit Regression Model

DEA technical efficiency scores

DEA analysed the efficiency of upper-middle and high-income countries using Stata. Cyprus had the lowest score (0.40), while Canada and England had the highest score (0.95 and 0.99), respectively. This suggests that Cyprus operates inefficiently, while Canada and England are more efficient, indicating better resource use. High-income countries generally showed better efficiency scores than upper-middle-income ones, consistent with the SFA model. Figure 1.2 illustrates these scores.

Figure 1.2. Public sector CRS_TE and VRTS_TE for selected countries



Source: Commission's calculations

According to the constant returns to scale (CRS) TE score, countries operate at approximately 70 per cent of their maximum efficiency potential. That means that high- and upper-middle-income countries are about 30 per cent technically inefficient, and all else is constant. The average variable returns to scale (VRS) TE score is 0.77, indicating that the latter score is around 7 percentage points higher than the benchmark. The governments of South Africa and Turkey should implement reforms to improve the productivity of their public sectors through streamlining processes, enhancing transparency, optimising resource allocation and improving the performance chain to combat corruption and maladministration.

Given the above insights, improving the quality of education is important to increase productivity. Investing in education is crucial to equip the workforce with appropriate skills, given the changes in the economy. This could be done by accelerating research and innovation, and aligning education with industry needs. South Africa and Turkey can benefit from optimising the use of inputs and raising economic performance.

The efficiency scores for middle and high-income countries show the highest score of 0.99 under VRS and 0.95 under CRS, while the worst scores were 0.54 and 0.40. The scores show how efficient a country is and how it utilises its resources. The research found that some countries still lack efficient resource usage in their public sectors.

The study found that higher- and upper-middle-income countries operate under increasing returns to scale (IRS). This suggests that increasing public sector inputs leads to more significant public sector service outputs. Therefore, they reveal how a country could take full advantage of the IRS, focus on specialisation, efficient resource allocation and improved coordination in delivering public sector services.

Tobit regression results

Equation 2 below shows the results of the Tobit regression model for determinants of public sector efficiency. The Tobit model shows that population, trade openness, inflation and government spending on education, health, infrastructure and economic growth are associated with better efficiency. Notably, a 1-unit increase in government spending on education is expected to increase public sector efficiency by 0.19 per cent in upper-middle-income and high-income countries, which is consistent with the theoretical expectations and prior studies.

$$\begin{aligned} efficiency_i = {} & 3.113^{***} + 0.0population^{***} + 0.002openness^{***} + 0.046inflation^{***} \\ & + 0.193GEDU^{***} + 0.0health^{***} + 0.04K^{***} - 0.001Corruption \\ & + 0.037outputg^{***} \ldots + \varepsilon_j \end{aligned} \qquad (2)$$

Increasing government expenditure on infrastructure strongly affects public sector efficiency, leading to better economic growth. A notable and statistically significant correlation is observed between a 1 per cent increase in government expenditure on infrastructure and a substantial 4 per cent enhancement in public sector efficiency. Increased infrastructure spending is linked to improved public sector efficiency, emphasising the importance of strategic fiscal allocations for economic growth in upper-middle-income countries.

Surprisingly, higher inflation is connected to better public sector efficiency, possibly due to budgetary adjustments prompted by unexpected inflation. A 1 per cent increase in inflation leads to a 5 per cent improvement in efficiency. This result is attributable to common occurrences in budgetary processes. When inflation surpasses budget projections without implementing a supplemental budget to adjust spending limits, the expenditure-to-gross domestic product (GDP) ratio, which serves as the denominator in efficiency scores, decreases.

Contrary to expectations, the results presented in Table 1.3 show that trade openness does not significantly affect public sector efficiency. It is supposed to improve efficiency by encouraging competition and facilitating the movement of skills and technology, but the effect is almost non-existent. However, the positive correlation with trade openness supports the connection between efficiency and the flow of skills and technology from higher- to lower-income countries.

Table 1.3. Tobit regression

Efficiency	Coef.	St. error	t-value	[95% conf	Interval]
Population	0.000***	0.000	3.34	0.000	0.000
Openness	0.002***	0.001	4.06	0.001	0.003
Inflation	0.046***	0.009	4.97	0.026	0.066
GEDU	0.193***	0.028	6.83	0.253	0.132
Health	0.000***	0.000	4.75	0.000	0.000
K	0.043***	0.007	5.86	0.058	0.027
Corruption	-0.001	0.001	-1.33	-0.003	0.001
Outputg	0.037***	0.006	6.17	0.024	0.050
Constant	3.113***	0.373	8.36	2.314	3.912

*Note: *** represents a significant level at 1%*

Corruption control is expected to be significant because corruption leads to wasteful practices and holds back economic growth. However, based on the findings, corruption control does not have substantial evidence to improve public sector efficiency. On the contrary, it seems to affect it negatively. This implies that corruption control may not be the only factor affecting efficiency. There might be other unaccounted variables, such as a global conflict or the impact of the COVID-19 pandemic.

There is a statistically significant relationship between population growth and public sector efficiency. However, this is a complex relationship, which is perhaps ultimately not well understood. Does population growth create opportunities for economic development, or do high levels of public sector efficiency lead to high inward migration? It is clear that, while population growth is statistically significant, it is probably not very good at predicting public sector efficiency.

Several population growth challenges must be addressed to ensure sustainable public sector efficiency, including efficient governance, strategic planning and effective resource management. With population growth, there will be a growth in demand for public services and infrastructure, which will place increased pressure on resources, forcing the public sector to manage these efficiently. To ensure and maintain this public sector efficiency, careful consideration must be given to the presentation of efficient governance, effective resource allocation, strategic plans and long-term aspects. The issues associated with population growth and its challenges to public sector efficiency should be addressed accordingly to gain some form of competitive advantage and potentially benefit from such growth, while ensuring that public sector deterioration from such growth is mitigated.

1.3.2 Qualitative analysis results

DETERMINING INSTRUMENTAL FACTORS TO PUBLIC SECTOR PERFORMANCE

At the highest level of abstraction, five factors are critical in creating successful public sector performance: political leadership, institutional capacity, incentives, transparency and technology.

It is essential to make the point that political leadership is crucial and features prominently in all international case studies. Implementing innovation can often involve far more than just technocratic rollout. In some of the international case studies, the innovations were so far-reaching that they needed

a fundamental shift in political leadership at the top to set a new organisational management paradigm. This shift then resulted in Ministerial, internal and external collaborations that were required to set out implementing strategies, break down organisational silos, set new managerial accountability regimes or set out leaner and more efficient ministries, departments and agencies (MDAs). Each innovation often required a significant shift in political leadership to implement – often despite outright opposition.

Second, creating lasting change requires building institutional capacity, which is another recurring theme in three quarters of the international case studies, particularly cases aimed at getting results from the apex of government and public financial management. Typically, officials have developed a mix of tools, processes and staff training to help build those institutions to pursue their results appropriately. In the end, sustainable institutions are needed for sustainable reform.

Given the basis for public sector performance improvement, the significance of incentives is apparent both within the framework of the institutional structure and within the civil service cadre. Incentives at the institutional level are seen in areas such as the national public system-wide policies and systems, establishing systems and structures for institutional objectives, and designing programme monitoring systems. Similarly, at the civil service level, incentives can be applied through performance targets and reward systems. Incentives are strongly featured in all international case studies.

Additionally, the importance of transparency in driving improvements in the public sector, which can accrue to internal stakeholders, including elected officials, and external stakeholders, like citizens, cannot be overstated. Apart from its intrinsic value as a right and the general benefits of openness, the case studies underline the critical role of transparency in driving any kind of change in public sector performance. It is through transparency that internal silos can be broken down, and seamless intra-agency information sharing can take place or by publishing and disseminating performance information. Transparency can also be a powerful way of altering incentives within the public sector. Transparency is a dominant feature in half of the case studies.

While not heralded as a universal remedy, technology emerges as a prominent feature in three of the four international case studies, either by showcasing the central role of technology application in driving reform or by assuming a complementary role. Although these cases offer valuable insights into the significance of technology in augmenting public sector performance, it is noteworthy that none of them featured the deployment of cutting-edge technology. Instead, they adeptly leveraged pertinent, at times rudimentary, information technology (IT) tools and expertise to meet their specific functional requisites, eschewing superfluous complexity. Additionally, the application of technology seldom operates in isolation. Rather, it is invariably concomitant with formulating policies and procedures designed to effect behavioural change. Table 1.4 presents the common features emanating from the international cases.

Table 1.4. Shared elements among the cases

	Political leadership	Institutional capacity	Incentives	Transparency	Technology
Rwanda case study	✓		✓	✓	
China case study	✓	✓	✓		✓
Brazil case study	✓	✓	✓		✓
India case study	✓	✓	✓	✓	✓
Total	4	3	4	2	3

Table 1.4 reveals several salient points that warrant analysis. Firstly, the influence of political leadership on the success of reforms is commonly perceived as an exogenous factor independent of the policy process. The emergence of influential reform advocates is often regarded as a critical facilitator for achieving reforms rather than a variable that can be directly influenced through policymaking channels.

Secondly, developing institutional capacity and establishing a cultural shift within organisations are endeavours that typically require a substantial period. Nonetheless, governments can pursue these objectives focusing on long-term aims supported by numerous short- and medium-term measures.

Thirdly, the transformation of incentives, particularly those rooted in the socialisation of civil service, is a process that tends to evolve gradually. Nevertheless, certain reforms, such as the implementation of key performance indicators (KPIs) and the imposition of Ministerial accountability for their attainment, have the potential to impact certain incentives swiftly.

Fourthly, internal, or external transparency reforms are akin to incentive reforms in that they involve underlying structural processes that necessitate time for fruition. Nevertheless, specific technical modifications, such as disseminating performance-related information, can be swiftly enacted and can yield substantial influence.

Finally, the adoption of technology in governance is a relatively quick exercise. While not a "silver bullet" for administrative transformation, customised and sometimes relatively simple technological solutions could enable countries to develop.

Among the many lessons emerging from the analysis, the emphasis is on the uniqueness of the processes and choices required to achieve decentralisation rather than on simple blueprints, which may be the most compelling. Institution building and cultural transformation are similarly long-duration and uncertain processes and must form the objectives of equally long-term commitments. They are processes, moreover, with some unique and powerful internal dynamics and, in some senses, constitute reformers' "once-in-a-lifetime" opportunity to effect big organisational change.

1.4 CONCLUSION

This chapter has summarised information from global experiences, articulated best practices and applied them to the South Africa's context. Therefore, this work seeks to assist South Africa in stimulating economic and productivity growth. This research has shown that the role of government infrastructure and technology is critical for economic growth.

The SFA model detects the positive effect of public sector employment and capital on government output and the positive impact of technological change on public sector productivity. In addition, the research has successfully highlighted the significant difference that increased spending on education can make to public sector efficiency. This sends a powerful message that funds poured into this sector can make a big difference. Furthermore, increased allocations towards public health are associated with higher healthcare productivity and decreased technical inefficiency within the health sector.

The findings demonstrate an interesting overview of the prevailing high TE within the public sectors of high-income and upper-middle-income countries. Only four high-income countries return scores below the average threshold, suggesting that TE levels are relatively solid across this grouping. However, across the upper-middle-income economies, it is clear that the position is less positive than the theory would suggest. Argentina, Botswana and South Africa emerge as lower-level performers in terms of TE.

Furthermore, through DEA, the examination of public sector performance reflects a consistent pattern where high-income countries generally have superior efficiency scores to upper-middle-income countries. This again sharpens the findings from the SFA and Tobit regression that a great deal of government investment in infrastructure contributes positively to public sector efficiency, which is, in turn, instrumental to promoting rapid economic growth.

An analysis of the international case studies drawn on in this report has yielded several key findings. Firstly, the overriding importance of political leadership as an exogenous factor in successfully driving reform. Secondly, the necessity of developing institutional capacity and the putative protracted nature of the exercise points to long-term efforts complemented by a raft of short- and medium-term steps to underpin progress. Thirdly, the transformative evolution of incentives – especially those deeply engrained in the civil service socialisation process – is gradual. A fourth feature, internal or external transparency, focuses on incentive reform. Time is necessary to bring about structural alterations. Finally, introducing technology into government functions is often an initiative that can be undertaken relatively quickly. Although not necessarily a panacea for administrative transformation, the targeted, often low-cost technology interventions that countries can consider may be one way to move them forward on their developmental journeys.

1.5 RECOMMENDATIONS

1. The international experience shows that government investment in infrastructure is essential for economic growth and productivity. Therefore, the Commission recommends that National Treasury, through the division of revenue, in collaboration with the Department of Trade, Industry and Competition, the Department of Public Enterprises, and the Department of Public Works and Infrastructure, devise and consolidate the various grants and earmarked allocations into an infrastructure incentive grant for economic infrastructure development and public-private partnerships (PPPs).

2. The international experience shows that government investment in infrastructure is essential for economic growth and productivity. Therefore, the Commission recommends that National Treasury should:
   - Increase investment in transportation, energy and communication networks to improve national infrastructure.
   - Promote technological innovation through research and development initiatives to boost long-term economic competitiveness and diversification.
   - Engage in long-term planning for infrastructure investment, including comprehensive cost-benefit analyses and the prioritisation of impactful projects.
   - Establish multi-year investment plans to support sustainable economic development.
   - Establish robust monitoring and evaluation mechanisms to assess the impact of increased infrastructure spending on public sector efficiency and economic growth.

3. The international case studies show that professionalisation, effective institutional capabilities and technology are important for improving public sector performance. The Commission, therefore, recommends that the Department of Public Service and Administration, the Department of Public Works and Infrastructure, and National Treasury should:
   - Establish one-stop service centres to offer citizens easy access to similar public services in one location to streamline processes, reduce bureaucracy and enhance the overall customer experience.

4. The international case studies show that incentives are essential for improving public sector performance to enhance the public service performance of civil servants. The Commission, therefore, recommends that the Department of Public Service and Administration should:
   - Implement performance-based reward systems to incentivise civil servants to deliver public services within agreed-upon timeframes, including recognition, bonuses or other tangible rewards for civil servants that consistently meet or exceed service delivery targets.
   - Institute a centralised public service examination to screen South African civil service applicants. The examination should be designed to test applicants' knowledge of, among other things, South Africa's history, Constitution, Administrative Law, public administration and basic economics.
5. The international case studies show that transparency is vital for improving public service performance. The Commission, therefore, recommends that the Department of Public Service and Administration should:
   - Establish comprehensive public awareness campaigns to inform citizens about the public services, associated costs and expected service delivery timeframes using various channels

such as traditional media, social media, community outreach and educational programmes to improve the accessibility and visibility of information related to public services. This should be done by ensuring that details of public services, costs and timelines are available in easily understandable formats at government offices, one-stop service centres and online platforms, including clear signage, brochures and user-friendly websites. This should encompass the whole of government and be monitored through the allocation of the division of revenue.

- Establish effective feedback mechanisms that allow citizens to provide input on their experiences with public services, including feedback on service quality, timeliness and overall satisfaction.

6. The international case studies show that technology is essential for improving public service performance. The Commission, therefore, recommends that the Department of Public Service and Administration should:
    - Expand the range of public services accessible and applicable online, including user-friendly web portals for submitting applications, tracking request statuses, and communicating with government agencies.
    - Develop mobile applications for smartphones that enable citizens to access public services, receive updates on service requests, and engage with government agencies. These should be designed to be intuitive and accessible to a wide range of users.
    - Establish digital document management systems to streamline the handling of documentation for public services, automating paperwork processing, reducing errors and improving efficiency in citizen-government interactions.
    - Develop integrated service delivery platforms that can facilitate seamless interactions between citizens, government agencies and service providers, ensuring transparency and accountability throughout end-to-end service delivery processes.

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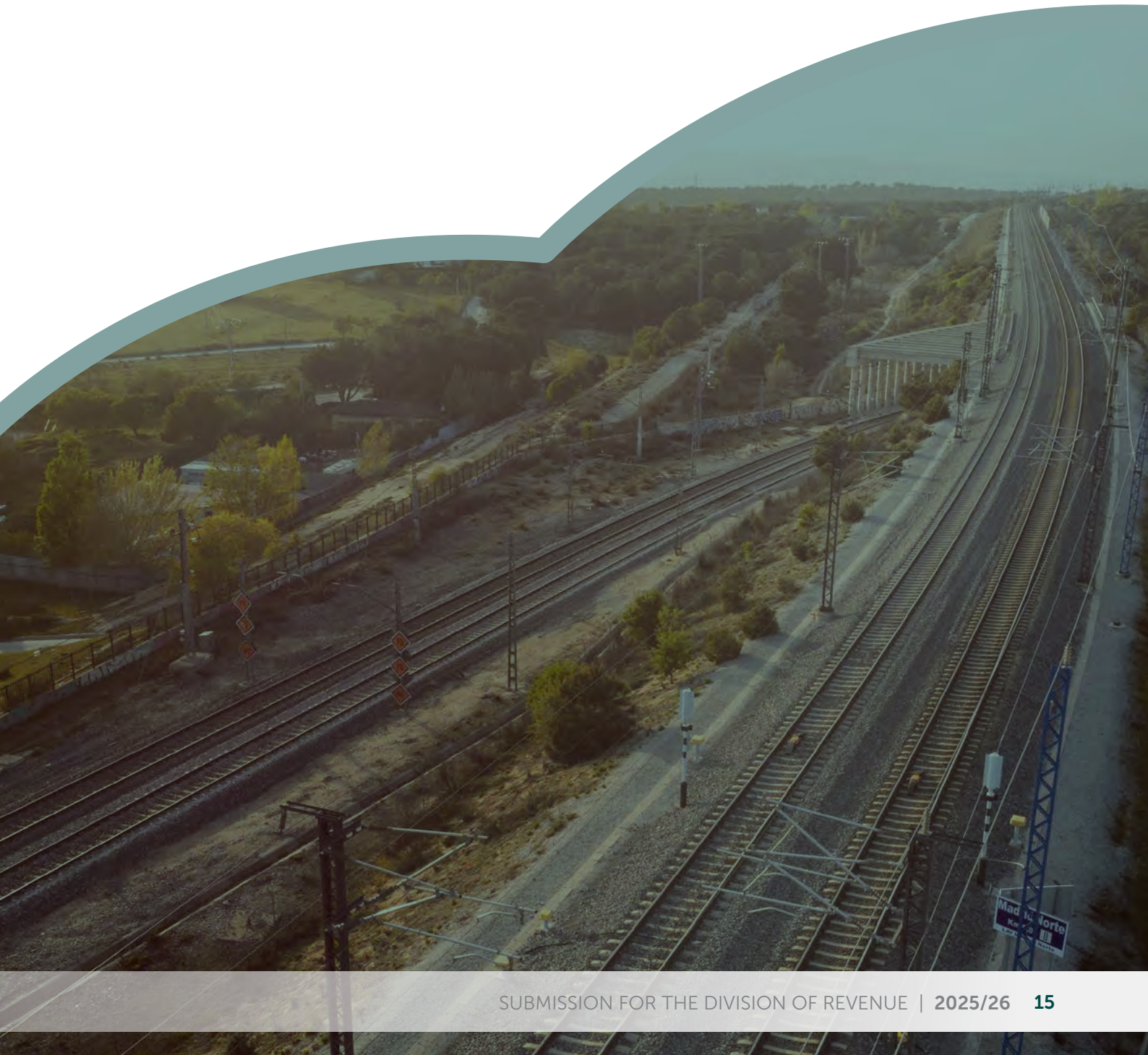
2. RAIL TRANSPORT PRODUCTIVITY

Productivity of rail transport in South Africa



CHAPTER 2
Productivity of rail transport in South Africa

2.1 INTRODUCTION

The rail transport sector in South Africa plays a crucial role in driving economic activity and is responsible for the movement of a significant amount of freight, including minerals, coal and other bulk commodities. Rail transport is also an essential mode of transportation for commuters, particularly in the urban areas of Johannesburg, Cape Town and Durban. Its economic importance is reflected in the fact that the transport sector (including rail) contributes an estimated 6.5 per cent to South Africa's gross domestic product (GDP) (Teuteberg and Aina, 2021).

Compared to its African peers, South Africa's 21 000 route km rail network is more developed and comprises 80 per cent of Africa's total rail network. It is the fourteenth largest rail network in the world (PwC, 2015). The South African rail network comprises two primary units: a freight rail network and a passenger rail network. A developed and well-functioning rail network is key to the economic growth and development prospects of a country as it can provide a cost-effective and efficient means of transporting both goods and people, It can also promote industrialisation and help reduce carbon emissions in the transport industry. In the case of South Africa, the rail network has been one of the primary drivers of the country's economic development by establishing connections between various localities via the provision of reliable and fast passenger and freight transportation (RSA, 2022a).

2.2 PROBLEM STATEMENT

Despite boasting Africa's most extensive rail network, the operational performance and productivity of South Africa's rail transport sector has been on a steep decline for at least the past decade. This has been due to historical mismanagement, policy shortfalls, infrastructure neglect, infrastructure theft and vandalism, corruption, an exodus of skilled personnel and electricity supply constraints.

The negative externalities associated with a failing rail system have been significant. With rail services dwindling, both passengers and freight become increasingly reliant on the use of road transport. That has, in turn, hampered access to affordable public transport, eroded South Africa's trade competitiveness, damaged road infrastructure and stifled productivity by driving up transportation costs for businesses. Furthermore, an ailing and unproductive rail transport system has a negative impact on South Africa's intergovernmental fiscal relations (IGFR). This dysfunction manifests in several ways. Firstly, through reduced revenue for government, it affects resource allocations across all three spheres of government. Secondly, it increases the likelihood of the need for bailouts to keep the state-owned rail companies afloat. Thirdly, a constrained flow of people and goods weakens the overall economy, further impacting IGFR.

There is therefore a strong case to address the challenges facing the sector, and to reform it so as to unlock its full potential to have a positive socio-economic impact on the country. Delays will continue to contribute to substantial damage to the country's road infrastructure, disrupt the country's supply chains, and constrain tax revenues that can be collected from sectors such as mining.

Additionally, government risks shouldering the burden of bailouts, further straining its fiscal health, while the economy remains trapped in a low-growth cycle.

The overarching aim of the research is to unpack and understand the factors that contribute to the decline in productivity of South Africa's rail transport sector and linkages with IGFR. The research will also explore potential solutions to revitalise the sector and unlock its full economic potential.

2.3 RESEARCH APPROACH

The following research approach was used to answer these research questions:

- A review of the regulatory, policy and strategy environment that underpins the provision of rail transport was undertaken to understand the historical regulatory and policy context pertaining to rail transport in South Africa and government's plans to develop and reform the sector. This includes a review of National Rail Policy White, the National Development Plan (NDP) 2030 and other policies of the Department of Transport (DoT).
- A financial and operational review and analysis was undertaken to delve into the funding and spending landscape of the sector, and the outcomes this has had on rail transport productivity. Annual reports (which includes revenue, expenditure and investment data) of the Passenger Rail Agency South Africa (PRASA) were used in this regard. Additionally, National Treasury's Estimates of National Revenue for the DoT were reviewed to assess broader expenditure trends related to Transnet and PRASA, including those associated with government subsidies.
- DEA was employed as a quantitative method. DEA was used to calculate technical efficiency (TE) scores for PRASA and Transnet (using information from their annual reports). This analysis provided a historical measure of their efficiency and its impact on productivity.
- Stakeholder engagements were conducted to supplement the desktop research and gain deeper insights. Semi-structured interviews were held with industry stakeholders and experts to attain these insights.
- A comprehensive literature review was conducted to understand how other countries have reformed their rail sectors and boosted productivity. This review examined published research in academic journals, reports from international organisations like the World Bank, and insights from rail industry associations.

A key limitation of this research is the inherent challenge of capturing all the factors that influence efficiency. While DEA is a valuable tool, it may overlook crucial non-quantifiable elements such as employee morale, leadership quality or technological innovation. These factors can significantly impact a rail transport system's efficiency and overall productivity. The inability of the DEA to capture these factors could result in an incomplete picture.

2.4 CONTEXTUALISING RAIL IN SOUTH AFRICA

2.4.1 Priority attached to rail transport in South Africa

South Africa's NDP 2030 recognises the importance of the rail transport industry and its potential for contributing to socio-economic development. The NDP highlights the need to prioritise investments aimed at expanding rail infrastructure (particularly for the benefit of the extractive resource industry,

as well as to support regional integration and trade), renewing the country's commuter rail fleet, and responding to the need for policy and regulatory reform to address constraints within the rail transport industry (National Planning Commission, 2010).

The National Infrastructure Plan (NIP) 2050 envisages the shifting of long-distance freight from road to rail through appropriate investments in rail, private participation in rail to facilitate a more competitive market structure and the upgrading of cross-border rail to increase trade and investment (RSA, 2022b). The NIP also mentions the protection of rail freight assets (including PRASA's assets) from further decline and waste through vandalism (RSA, 2022b).

The 2021 White Paper on National Transport Policy calls for the repositioning of rail transport as the preferred mode of land transport and backbone with which all other transport modes integrate (Department of Transport, 2022). The policy highlights the importance of urgent investments in track, rolling stock and appropriate technologies in the rail transport sector. The policy also mentions the need to promote the participation of the private sector in investment projects to address funding challenges experienced in the sector (Department of Transport, 2022).

In addition to the above, the South African government released its White Paper on National Rail Policy in 2022, which details a multi-decade vision for the transformation of rail transport so that it can contribute meaningfully to the country's economy. This White Paper is expected to form the basis for a Rail Act and/or amendments to existing transport legislation (Parliamentary Monitoring Group, 2022a). Similar to the White Paper on National Transport Policy, it includes interventions that are focused on new investments into high-performance standard-gauge infrastructure, combined with the modernisation of existing network capacity and the promotion of private sector participation and investment. It also outlines the "importance of devolving public transport functions to the lowest level of government" (i.e. to capable metros) and the development and implementation of a Devolution Strategy for Commuter Rail, which would serve as a guide when it comes to the assessment of the commuter rail function to municipal governments (RSA, 2022a:10).

In addition, the White Paper mentions the objective of establishing an independent Transport Economic Regulator (TER) to help promote non-discriminatory access to the rail infrastructure and facilities, and transparent pricing (RSA, 2022a). The Economic Regulation of Transport Bill (2020) was drafted to establish the TER and the Transport Economic Council (TEC). The TEC will consider and determine the referral of complaints against regulated entities, among others (Parliament of the Republic of South Africa, 2022). Both these entities will be established as organs of state accountable to the Minister of Transport (Parliament of the Republic of South Africa, 2022). The Bill is expected to be passed into law by the second quarter of 2024. Until a permanent TER is established, the White Paper outlines the establishment of the Interim Rail Economic Regulatory Capacity (IRERC), which will be utilised as an interim arrangement for the economic regulation of rail transport in South Africa (RSA, 2022a).

The above highlights that several policy strategies exist that are aimed at reforming and improving the performance of South Africa's rail transport sector. What remains missing is legislation to guide the development of the rail sector going forward.

The National Rail Bill (2021) intends to address this by guiding the development of the sector and providing for the establishment of the National Planning Authority, which will be responsible for the development, monitoring, management, and implementation of the National Rail Master Plan (NRMP). This is with the aim of providing strategic rail planning to ensure the safe, affordable and efficient movement of freight and passengers (RSA, 2022c). There remains no update on where this Bill currently stands and when it could be passed into law.

2.4.2 Key challenges that hamper the productivity of rail transport in South Africa

The rail transport system in South Africa is currently facing a number of challenges, including a capital investment backlog, insufficient funding, outdated and old infrastructure, declining rolling stock, obsolete technologies, the use of manual processes, as well as threat and vandalism as highlighted in the Commission's Submission for the 2024/25 Division of Revenue, as well as in the South African Government's 2022 White Paper on the National Rail Policy (FFC, 2023; RSA, 2022a). The African Rail Industry Association (ARIA) has stated that track infrastructure investment is the most difficult problem to solve in the rail transport sector, and estimates that more than R100 billion needs to be spent to restore track integrity (ARIA, 2023). Transnet has itself confirmed that it needs R50 billion to address rail and port infrastructure maintenance backlogs (Transnet, 2023b). In its 2022 annual report, Transnet revealed that over 1 500 km of cable had been stolen (representing a 1 096 per cent increase in the length of cable stolen over a five-year period), resulting in a net financial impact of R4.1 billion (Transnet, 2022). Cable theft, combined with a lack of locomotives, has had a severe negative impact on Transnet Freight Rail (TFR)'s operational and financial performance. Transnet's operational productivity has also declined as a result of the use of manual processes for train authorisations, which climbed from 50 000 month-on-month in 2018 to over 250 000 in 2022 (RSA, 2023)[1]. In addition, a significant proportion of the country's rail network remains underutilised. According to Transnet, of the total 21 232 km of rail network, roughly 8 899 km falls under the 'B network' classification (Transnet, 2024). This category consists primarily of closed lines, branch lines with minimal freight potential and routes with low usage (Transnet, 2024)

As South Africa's major logistics operator, TFR operations are interconnected with its port operations, which are also currently plagued by inefficiencies. Similar to the freight rail sector, productivity across South Africa's ports has been deteriorating over time due to under-investment in equipment and infrastructure (leading to breakdowns in equipment at ports), a lack of maintenance of said equipment and infrastructure, labour issues, mismanagement and corruption. As a result, there have been severe delays and congestion at the country's ports. According to the South African Association of Freight Forwarders, this has led to some cargo ships waiting as long as 227 hours (9.5 days) to enter the Port of Durban and 215 hours (close to nine days) to enter the Port of Ngqura (BusinessTech, 2023). A November 2023 media report stated that Transnet estimates that the crisis at the Port of Durban has cost the entity at least R160 million in lost revenue since September 2023 (Pillay, 2023).

1 Authorisations refer to the process of formally granting permission for trains to operate on the rail network. These instructions essentially tell a train operator when to stop and when to proceed along a rail track. The purpose of these authorisations is to ensure the safe and efficient flow of train traffic along the rail network.

According to a statement by Transnet's board chairperson, Andile Sanqgu, it could take until the middle of 2025 for the company's port terminals to be operating optimally (Dludla, 2023). The constrained productivity of South Africa's interlinked freight rail and port operations is therefore choking the country's supply chain as TFR's inability to effectivity move cargo causes containers to pile up at ports, while challenges in processing containers at ports means that cargo cannot be onloaded or offloaded onto the rail network on time. These issues therefore feed into each other and create a vicious cycle, with the ripple effects being felt across different industries within the South African economy.

South Africa's passenger rail services have also been crippled by a lack of availability of trains according to results from Statistics South Africa's 2020 National Household Travel Survey (Statistics South Africa, 2022). Passenger rail, more specifically, has also had to deal with the rise of informal settlements along Cape Town's key central line since its closure in 2019 (Washinyira, 2022). This rail encroachment along the central line has resulted in the need to find adequate land for the resettlement of an estimated 5 195 households, who have settled along the line (PRASA. 2023a). PRASA has committed to the relocation of people living on the central line (with assistance from the Department of Human Settlements) through its Central Line Reallocation Programme, which is set to cost R179 billion (Parliamentary Monitoring Group, 2023). While the relocation of these households began in December 2023, the process has been fraught with challenges[2] that will delay finalisation of the process and thus the reopening of the line (Mputing, 2024; Phaliso, 2024).

Decreased security has also been pointed out as a reason for the collapse of passenger rail services as it has led to the vandalisation and theft of infrastructure. This was evidenced in the disruption of the Shosholoza Meyl services from Johannesburg to Cape Town, where the theft of overhead cables meant that passengers had to complete their journeys by bus (Rall, 2024). According to the then Minister of Transport, Fikile Mbalula, the termination of irregular security contracts during the COVID-19 pandemic without any contingency plans left PRASA's railway infrastructure exposed to criminality (Parliamentary Monitoring Group, 2022b). A lack of security was another reason behind the illegal occupation of land on the rail tracks. These elements have had a significant impact on the decline in the company's operational productivity.

Havenga et al. (2021) also highlight the loss of core skills, continuous management changes and restructuring, and political interference as critical issues that hinder the performance improvement of the country's rail sector. The loss of critical skills and the need for skills development is echoed in the White Paper on National Rail Policy (RSA, 2022a).

Improved rail productivity could potentially impact on the trucking business, which has arguably gained from the current rail crisis. That being said, trucking companies only make revenues when their trucks are moving freely and running on time, rather than spending lengthy periods in long queues waiting to be offloaded and reloaded, as is currently the case. Trucks standing still in long queues also exposes them to criminal activities, which, in turn, threatens the finances of the trucking companies.

2 The primary challenge is that the site to which the households have been relocated is not zoned for human habitation, thus requiring PRASA to apply for rezoning.

As such, it is to the benefit of the trucking industry that Transnet's operational challenges are addressed. Addressing Transnet's operational challenges will mean more options for those requiring freight services, thereby creating a better balance between road and rail network usage.

2.4.3 The impact of an unproductive rail system on South Africa's economy

The government of South Africa's White Paper on the National Rail Policy (released in March 2023) revealed that the country's rail system handles less than 20 per cent of general freight movements and 10 per cent of passenger movement (RSA, 2022a). According to National Treasury's 2023 Budget Review, "more than a quarter of long-distance freight traffic has shifted to roads in the past five years as a result of severe deterioration in the freight rail network" (National Treasury, 2023a:16). This has primarily been attributed to historical underinvestment in the network (National Treasury, 2023a).

The economic impact of this decline has been substantial. The Minerals Council of South Africa estimates that Transnet's inefficiencies cost bulk commodity exporters at least R50 billion in lost revenue in 2022, a significant increase from R35 billion in the previous year (Minerals Council South Africa, 2023). According to research done by Stellenbosch University's Department of Logistics, the economic loss of an ineffective Transnet and having to move goods by road amounts to approximately R385 billion a year, or close to 10 per cent of GDP (Biznews, 2022).

On the passenger rail side, the unavailability of commuter rail services has meant that people in the country's metros are spending nearly 50.4 per cent of their total income on alternative public transport (Kingston, 2021). A rail feasibility study conducted by the City of Cape Town's government for the potential transfer of responsibility for rail services from the national government found that an efficient passenger rail service could create more than 50 000 jobs and add R11 billion to the local economy annually (City of Cape Town, 2023).

2.5 ANALYSIS

2.5.1 The financial health of PRASA and Transnet

PRASA'S STATE OF FINANCES

PRASA's fare revenue from customers has fallen from R1.3 billion in 2008/09 to R380.2 million in 2022/23, representing a decline of over 70 per cent[3], as can be seen in Figure 2.1. This figure also shows that, over the same time period, PRASA's operating expenses increased from R5.1 billion to R11.7 billion. Decreasing revenue generation highlights the significant impact that the previously mentioned challenges have had on PRASA's ability to raise its own funds. This has an adverse impact on the IGFR system as it creates increased dependence on national government transfers by the state-owned enterprise (SOE). This, in turn, places a strain on the national budget and influences resource allocations across the spheres of government. This highlights the urgent need to institute reforms and interventions to enable PRASA to generate its own funds at a sufficient scale.

3 Fare revenue comprises ticket sales from train and bus commuters for passenger and long-distance journeys. This overall total was used for the analysis as there not enough consistent data to show how this revenue is broken down between rail and bus operations.

Figure 2.1. PRASA's fare revenue vs operating expenses, 2008/09–2022/23

Source: PRASA annual reports.

To help support the entity, the DoT provides an operational subsidy and a capital subsidy. The operational subsidy is intended to fund PRASA's operations, while the capital subsidy is intended to be used to modernise and refurbish the company's assets. Figure 2.2 shows the operational and capital subsidies allocated to PRASA over the period 2008/09–2022/23. PRASA's operating subsidy has more than doubled, rising from R3 billion in 2008/09 to an allocation of R7.2 billion in 2021/22, representing a compound annual growth rate (CAGR) of 6.4 per cent.

PRASA's capital subsidy rose from R2.4 billion in 2008/09 to R12.6 billion in 2022/23, representing a CAGR of 11.7 per cent. The rise in capital subsidisation over the years can be attributed to PRASA's capital programme, which is focused on renewing outdated infrastructure and assets such as rolling stock, which bodes well for improving passenger rail sector productivity.

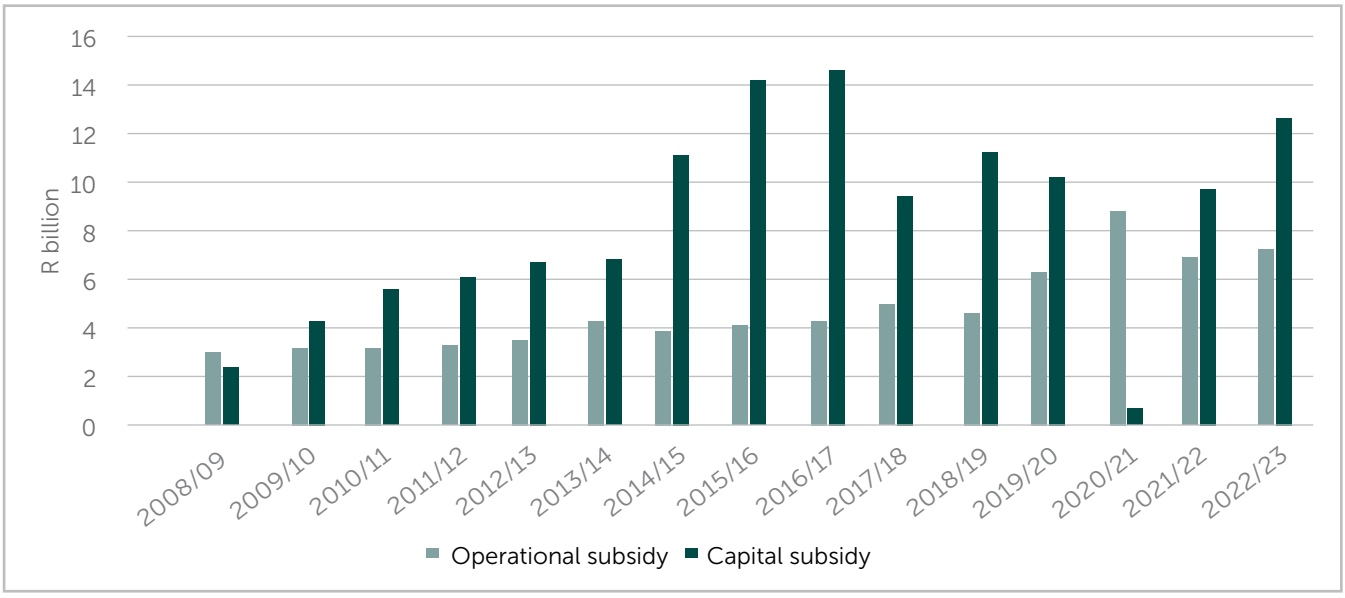
Regarding these two subsidies, it is worrying that, firstly, PRASA noted in its 2019/20 Annual Report that the operator's revenues are "materially reliant on the subsidy from the DoT" (PRASA, 2020:11)[4]. This reliance on government subsidies for survival was also mentioned in PRASA's 2017/18 Annual Report, which highlighted that personnel costs were absorbing most of the operational subsidy it received (PRASA, 2018). This indicates that, without government support, PRASA could fail to be a going concern.

Secondly, PRASA has struggled to spend its capital budget for the better part of a decade. For example, the organisation only spent R7.9 billion of its allocated R14.6 billion total capital expenditure (capex) budget in 2016/17, representing 54 per cent of the budget (PRASA, 2023b). This situation worsened in 2018/19 when PRASA spent less than half its capex budget, spending only R6.0 billion against an allocation of R15.0 billion (PRASA, 2023b).

4 PRASA includes the money that it receives from the government in the form of subsidies in its revenue calculations as per its financial statements.

In the past ten years, only 2022/23 saw PRASA achieve a total capital expenditure of R13.5 billion, exceeding its allocation of R12.6 billion (PRASA, 2023b). PRASA has attributed its capital underspending over the years to a depletion of its project management and engineering capacity (Parliamentary Monitoring Group, 2022c)

Figure 2.2. PRASA operational and capital subsidy and fare revenue, 2008/09–2022/23



Source: National Treasury (2023b); PRASA (2023b)

To help address the deterioration in passenger rail services, the DoT's transfers to PRASA for capital expenditure are expected to increase at an average annual rate of 3.8 per cent, from R12.6 billion in 2022/23 to R14.1 billion in 2025/26 over the Medium-term Expenditure Framework (MTEF) period, as shown in Table 2.1. The impact this transfer will have will depend on PRASA's ability to address capacity constraints that have resulted in underspending of the funds in the past. Table 2.1 also shows that transfers to PRASA for operational (capital) expenditure is set to increase at an average annual rate of 4.3 per cent, from R7.2 billion in 2022/23 to R8.2 billion in 2025/26. PRASA's fare revenue is expected to remain below previous highs over the MTEF period, with Metrorail fare revenue is expected to increase at an average annual rate of 16.9 per cent, from R203.4 million in 2022/23 to R324.5 million in 2025/26, while fare revenues from its Mainline Passenger Service division will fall from R96.9 million in 2022/23 to R35.5 in 2025/26 (as shown in Table 2.1). This reflects the constraints that are expected to continue to hamper passenger rail sector productivity, which require urgent attention.

Table 2.1. PRASA's current and capital expenditure vs revenue

R million	Audited outcome			Adjusted appropriation	Medium-term expenditure estimate			Average growth rate (%)
	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2022/23–2025/26
Current expenditure	6 252.6	8 773.6	6 923.3	7 240.1	7 515.5	7 853.0	8 204.9	4.3%
Capital expenditure	10 209.6	700.9	9 746.2	12 618.5	12 936.3	13 517.3	14 122.8	3.8%
R million	**2019/20**	**2020/21**	**2021/22**	**Revised estimate**	**2023/24**	**2024/25**	**2025/26**	**2022/23–2025/26**
Metrorail: Fare revenue	563.9	66.9	105.5	203.4	270.4	293.8	324.5	16.9
Mainline passenger service: Fare revenue	66.9	2.8	3.0	96.9	32.5	34	35.5	-28.4

Source: National Treasury (2023b).

TRANSNET FREIGHT RAIL'S STATE OF FINANCES

The state of Transnet's overall finances paints a grim picture for the entity. As at the end of 2022/23, the organisation was in debt to the tune of R130 billion, up from R123 billion in 2017/18[5]. Transnet is at heightened risk of defaulting on its debt obligations with its rolling cash interest cover (a measure used to assess a company's ability to meet its ongoing interest payments using its available cash flow) having fallen from 3.4 times for the six months ended 30 September 2013 to 1.9 times over the same period ended 30 September 2023 (Transnet, 2013; Transnet, 2023c).

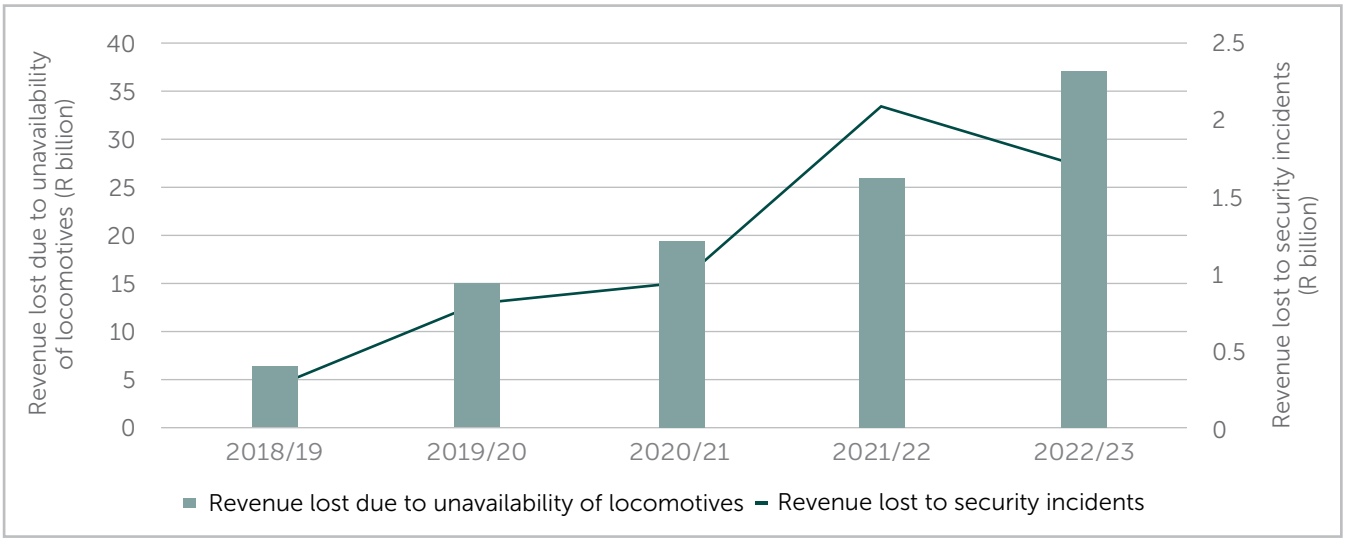
In an effort to assist Transnet with its debt obligations, National Treasury and the DPE announced a R47 billion guarantee facility for the SOE in December 2023 (National Treasury and DPE, 2023). According to the statement by National Treasury and the DPE, Transnet would be able to access an initial R22.8 billion "to address immediate liquidity concerns, such as settling maturing debt" (National Treasury and DPE, 2023:1). According to the press release of National Treasury and the DPE, should Transnet require further drawdown, strict conditions outlined in a Guarantee Framework Agreement would need to be met (National Treasury and DPE, 2023).

It is anticipated that this guarantee will provide Transnet with the financial flexibility it requires as it has the potential to enhance the entity's borrowing capacity and reduce its immediate debt payments, while also embedding a layer of oversight into the organisation to monitor its financial position. The Financial and Fiscal Commission (FFC)'s 2024/25 Annual Submission highlighted how the portfolio of government guarantees to SOEs has grown significantly since the mid-2000s, and is driving an increase in contingent liabilities (FFC, 2023). This latest guarantee adds to fiscal risks that can arise if the guarantees materialise, as it would add to government's already high debt load and negatively impact IGFR by limiting the fiscal space available for transfer to provincial and local government.

5 Transnet's financial year runs from 1 April of the previous year to 31 March in the current year.

Challenges hampering the productivity of Transnet's freight division product are reflected in deteriorating financial performance. For example, Figure 2.3 shows that TFR lost R37.6 billion in potential revenue in 2022/23 as a result of the unavailability of locomotives (Transnet, 2023d). This was up from R6.4 billion in 2018/19. In addition, Figure 2.3 highlights that Transnet recorded revenue losses of R1.7 billion in 2022/23 as a result of security-related incidents (which resulted in the theft and vandalism of infrastructure). This was an increase from the R141 million revenue loss recorded in 2017/18 (Transnet, 2023d).

Figure 2.3. Transnet's revenue losses due to unavailability of locomotives and security incidents, 2018/19–2022/23



Source: Transnet (2023d)

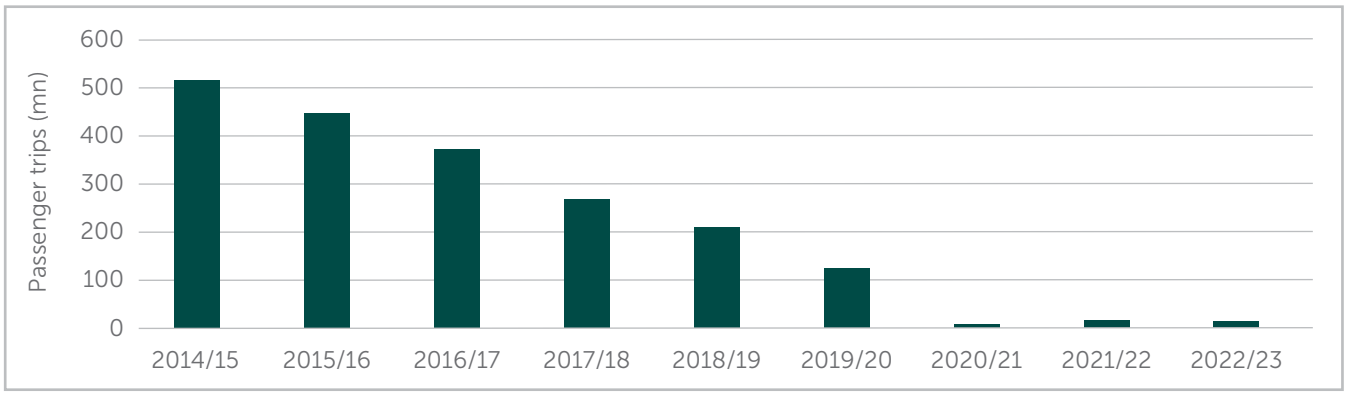
As a result of operational challenges, TFR's earnings before interest, taxes, depreciation and amortisation (EBIDTA) margin has been on a declining trend since 2018/19, falling from 44.8 per cent to 19.3 per cent in 2022/23, in part due to lower revenues (Transnet, 2023a). This margin is useful as a productivity measure as it reveals that TFR's operational efficiency has been dropping. Since TFR is Transnet's largest division, improving its financial performance is key to the entity being able to meet is financial obligations and to mitigate against instances of having to turn to the state for funding.

2.5.2 Operational productivity of PRASA and Transnet

PRASA'S OPERATIONAL PRODUCTIVITY PERFORMANCE

An analysis of PRASA's key performance indicators (KPIs) provides a view of the adverse impact operational issues are having on passenger rail service productivity. The number of Metrorail's paying passenger transported (trips) fell by 97 per cent from 516 million trips to 15.7 million trips between 2014/15 and 2022/23, as shown in Figure 2.4. According to the City of Cape Town, the estimated number of daily commuters using the city's rail network fell from just over 620 000 passengers in 2012 to just over 32 000 in 2022 (City of Cape Town, 2023). While the COVID-19 pandemic had a significant adverse impact on rail operations across the country between 2020 and 2022, there was still a marked downward trend in passenger rail trips before the global health crisis occurred.

Figure 2.4. Number of Metrorail passenger trips, 2014/15–2022/23*

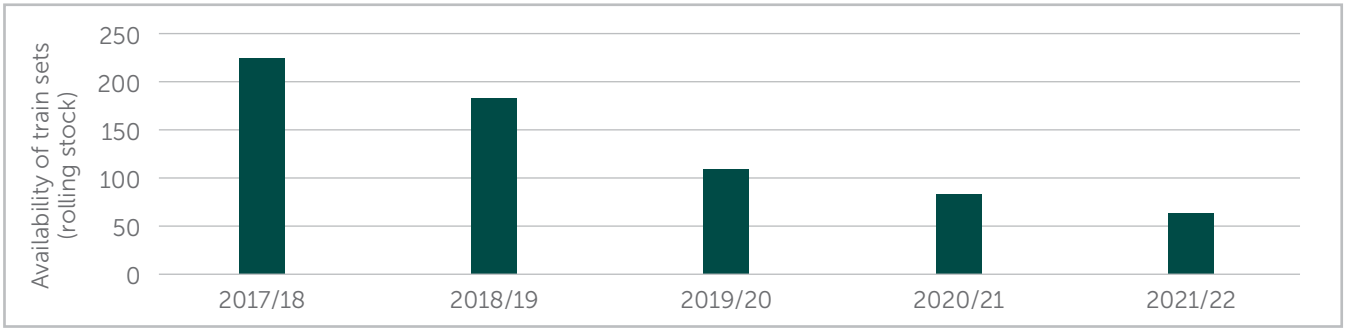


**for financial year ended 31 March.*

Source: PRASA annual reports.

The unavailability and unreliability of rolling stock, which are key enablers to a regular train service, shows that rail has largely ceased to be an important element of South Africa's public transport mix. Figure 2.5 shows that the availability of train sets (rolling stock) in service decreased from 226 in 2017/18 to 63 by the end of 2021/22, well below PRASA's planned target of 193. This decline over the years can be attributed to factors that include cable theft and vandalism, and the failure of procurement and maintenance strategies (PRASA, 2020; PRASA, 2022).

Figure 2.5. Availability of train sets (rolling stock), 2017/18–2021/22

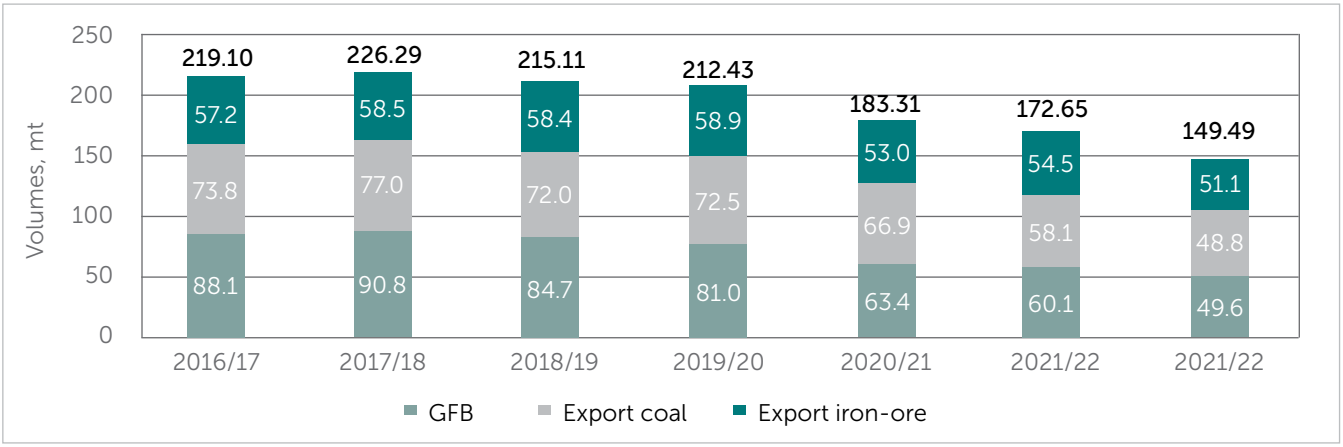


Source: PRASA annual reports.

TFR'S OPERATIONAL PRODUCTIVITY PERFORMANCE

TFR's operational KPI's reveal the productivity challenges facing the company. TFR's total rail volumes declined by 31.8 per cent between 2016/17 and 2022/23, falling from 219.1 million tonnes (mt) to 149.5 mt, as shown in Figure 2.6. This fell short of TFR's target of 202.2 mt for 2022/23. Breaking this down further, Figure 2.6 shows that general freight business (GFB) volumes fell from 88.1 mt to 49.6 mt (a 43.7 per cent decline) between 2016/17 and 2022/23 and export coal volumes fell by 33.9 per cent, from 73.8 mt to 48.8 mt over the same period. Furthermore, export iron ore volumes dropped by 10.7 per cent from 57.2 mt to 51.1 mt between 2016/17 and 2022/23. TFR has cited various operational issues, including network challenges, as reasons for this decline in performance (Transnet, 2023a).

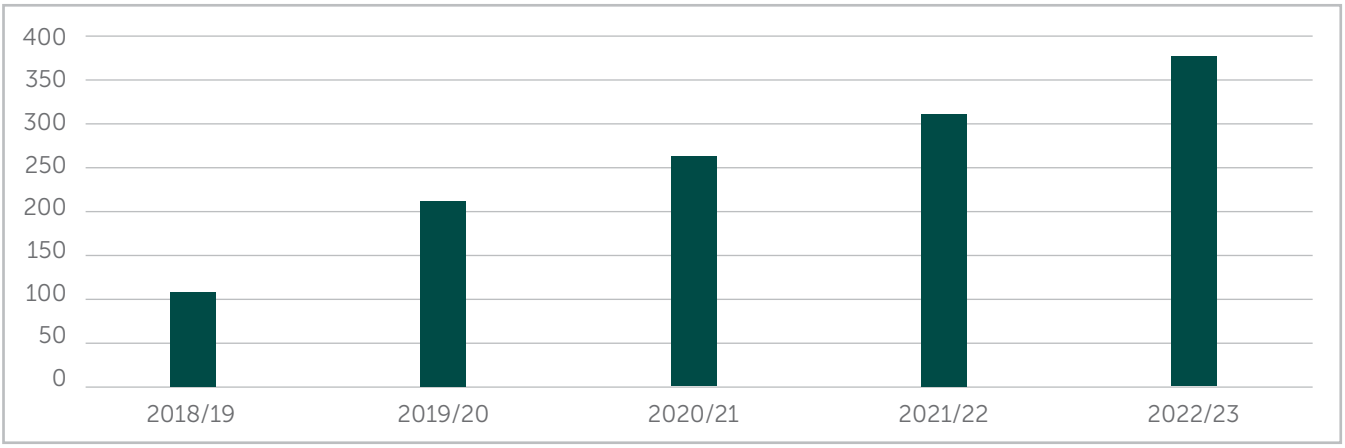
Figure 2.6. TFR rail volumes, 2016/17–2022/23



Source: Transnet Annual Reports.

As previously mentioned, the unavailability of locomotives has been linked to TFR's declining revenue. Figure 2.7 shows that, at the end of 2019/20, TFR had 106 long-standing locomotives (i.e. locomotives that had been out of service for a period exceeding 90 days). This number had risen to 378 by the end of 2022/23. A major reason for this has been challenges in getting critical spare parts that can be used to rehabilitate non-operational Chinese-manufactured locomotives (Transnet, 2023e)

Figure 2.7. Transnet's number of long-standing locomotives, 2018/19–2022/23



Source: Transnet (2023d).

Another indicator that highlights TFR's weak productivity status is the wagon turnaround time (i.e. the time it takes for a railway wagon to complete a round trip in the transportation process) for its GFB. This turnaround tome rose from 10.1 days in 2017 to 15 days in 2023 (above the company's target of 9.9 days for the year). This reveals a decrease in TFR's operational performance due to issues of crime and the maintenance of its wagons.

2.6 RESULTS OF EFFICIENCY ANALYSIS

This section outlines the results from the DEA modelling exercise, which was used to assess the productivity and efficiency performance of PRASA and Transnet. The intention behind this was to analyse how well the SOEs have been using their resources to drive operational productivity.

2.6.1 PRASA

Figure 2.8 shows that PRASA has experienced a drastic decline in efficiency, with its TE score falling from 1.0 in 2014/15 to 0.04 in 2021/22. This is juxtaposed against the fall in the number of Metrorail passenger trips to highlight how this fall in efficiency has impacted on the entity's productivity. The score of 1.0 for 2014/15 suggests that PRASA was operating at maximum efficiency, effectively utilising its inputs (expenditure and subsidies) to generate passenger trips. This score could be attributed to the fact the PRASA spent 100 per cent of its capital subsidy in the financial year, which may have helped support improvements in infrastructure and rolling stock, and thus positively impacted on efficiency and productivity (PRASA, 2015). The TE score of 0.04 indicates that PRASA is utilising only about 4 per cent of its potential maximum efficiency and has experienced a marked downturn in the company's ability to convert inputs into passenger trips efficiently when compared to 2015. This decline can be linked to the previously mentioned operational challenges facing passenger rail services in South Africa, which are impacting on PRASA's ability to efficiently convert inputs into outputs.

Figure 2.8. PRASA's TE score and number of Metrorail passenger trips, 2014/15–2021/22

Source: PRASA annual reports, Commission's calculations.

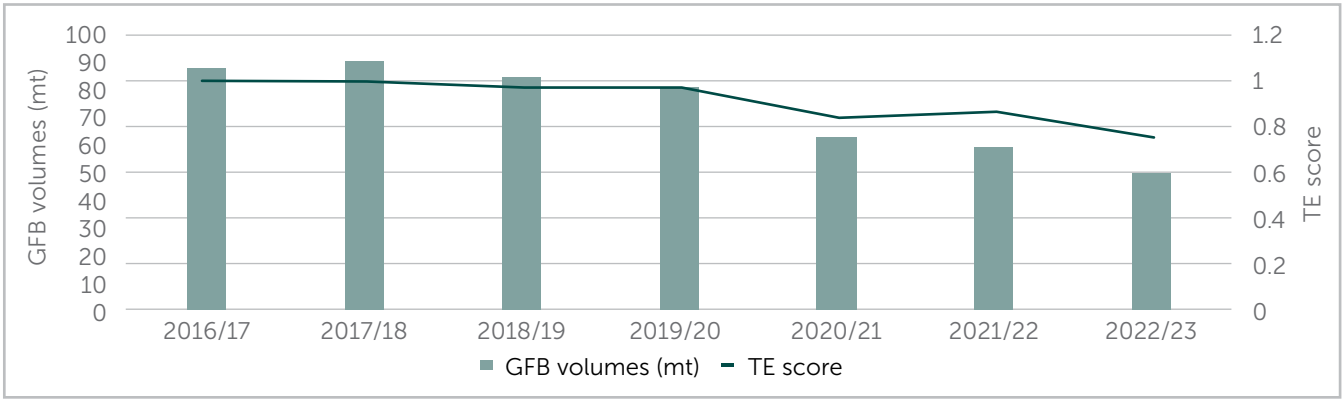
2.6.2 Transnet

Figure 2.9 shows that Transnet's efficiency began showing a notable decline from 2019/20, falling from 0.96 to 0.77 in 2022/23. This implies that Transnet's conversion of its inputs (operational expenditure, employee headcount and capitalised maintenance) into freight volumes moved from a rate of 96 per cent efficiency to a rate of 77 per cent over a four-year period. Figure 2.9 also shows how this drop in efficiency has coincided with a reduction in its GFB volumes.

The fall in efficiency could be due to several factors. One factor is likely to be the way in which Transnet's operational expenditure, which rose from R24.1 billion in 2019/20 to R28.1 billion in 2022/23, is utilised. A significant proportion of this operating expenditure goes towards employee costs (50 per cent in 2022/23), which could indicate room for improvement in terms of how these resources are used to drive productivity. The declining efficiency score, despite the rising investment in capitalised maintenance (which increased from R8.1 billion in 2019/20 to R9.0 billion in 2022/23), suggests inefficiencies in the utilisation of these

resources or potential issues in converting them into desired outputs. This means that maintenance activities that are meant to increase the value or efficiency of the company's assets, in conjunction with other resources, are not having the desired positive impact in helping to increase freight rail volumes.

Figure 2.9. Transnet's technical efficiency score and GFB volumes, 2016/17–2022/23



Source: Commission's calculations, Transnet's annual reports.

2.7 GOVERNMENT INTERVENTIONS TO ADDRESS CHALLENGES IN THE RAIL TRANSPORT SECTOR

Given the state of operations and finances of Transnet and PRASA, this section summarises six key government interventions that are aimed at addressing the challenges faced by the SOEs.

- In 2020, the South African government launched Operation Vulindlela to accelerate the implementation of structural reforms in the country's network industries, including transport. Taking the lead in implementing reforms in the rail transport sector will be Operation Vulindlela's National Logistics Crisis Committee (NLCC), which is chaired by the Presidency and includes the participation of the DPE, DoT, Transnet and the private sector. The NLCC has three core objectives: to improve the operational performance of freight rail and ports; to help restructure Transnet to ensure its future sustainability; and to assist in implementing reforms that support the modernisation of the freight transport system and restore its efficiency and competitiveness (RSA, 2023). The NLCC will also be responsible for overseeing the implementation of the Freight Logistics Roadmap (alongside Transnet), which was finalised and approved by Cabinet in December 2023. The roadmap outlines a pathway towards reforming and improving the performance of the country's rail and port networks. The roadmap prioritises three key areas for intervention to revitalise the country's rail network (South African Government News Agency, 2023):
  - Operational and rolling stock improvements that will see the return of long-standing locomotives to service through agreements with original equipment manufacturers (OEMs) to secure the steady flow of vital spare parts.
  - Improving the security and safety of the rail network through better collaboration with law enforcement agencies
  - Implementing a capital investment programme to support expansion plans and sustain operations.

  The Commission notes that the NLCC presents a promising platform to address critical issues that plague South Africa's freight rail sector and drive tangible change. Its inclusion of key stakeholders has the potential to streamline decision-making processes and foster quick, consensus-driven solutions to the operational and financial challenges facing the freight rail sector.

However, the NLCC's success hinges on achieving effective coordination among the diverse set of stakeholders and ensuring that it remains free from being influenced by political interests, which could adversely impact on its effectiveness.

- In December 2023, Cabinet approved the Draft Rail Private Sector Participation (PSP) Framework. This is a significant development when it comes to the issue of the private sector's role in turning around the performance of the country's rail transport sector. This framework is expected to guide the approach to enabling private sector participation in the railway infrastructure system and was developed by the DoT (South African Government News Agency, 2023). This is a welcomed development as the private sector can bring in the much-needed capital and expertise to accelerate infrastructure maintenance and upgrades, the modernisation of systems and help reduce the burden on public finances.
- The DoT is also working to develop the NRMP, which will guide the approach to rail network planning and the long-term development of the rail sector (RSA, 2023). The NRMP is expected to be completed by the second quarter of 2024 and will be updated at least every five years (RSA, 2023).
- On the operator side, Transnet is currently implementing its own turnaround plan that seeks to improve its operational performance and return the company to profitability by the end of 2024/25 (Transnet, 2023d). The turnaround plan is premised on enhancing the availability and reliability of critical equipment, cost control measures, better planning and execution of maintenance, employee training, procurement optimisation and more efficient capital allocation to bolster volume throughput (Transnet, 2023c). As mentioned earlier in the analysis, at the end of December 2023, government made a R47 billion guarantee facility available to Transnet. The availability of additional funding should help Transnet address some the challenges it faces. The FFC is hopeful that the entity does not become overly reliant on bailouts to turn its performance around.
- In preparation for opening its network to third-party freight operators in the second half of 2024, TFR announced the establishment of an interim Infrastructure Manager in November 2023 (Transnet, 2023f). This is in line with reforms proposed in the White Paper on National Rail Policy to separate the infrastructure and operations aspects of the rail transport sector. According to Transnet, the interim Infrastructure Manager's key commercial objectives will be to maximise network utilisation, increase network density, generate revenue through access fees that will fund network maintenance, rehabilitation and expansion, and increase rail market share in economic growth sectors by facilitating road to rail migration (Transnet, 2023f). The interim Infrastructure Manager will also be responsible for managing, operating and maintaining Transnet's rail network infrastructure. The establishment of the interim Infrastructure Manager is seen as a crucial step towards the establishment of the position of a fully independent Infrastructure Manager, which is expected to be done by September 2024 (National Treasury and The Presidency of the Republic of South Africa, 2023).

Transnet's interim Infrastructure Manager released a draft Network Statement in March 2024 in preparation for the introduction of third-party access to the country's rail network. This document outlines how train operators can access and use the railway infrastructure, including rules, timeframes, procedures, services, pricing and terms (Transnet, 2024). It also details service-level agreements to be entered into between the Infrastructure Manager and train operators (Transnet, 2024). The statement is expected to be finalised in the 2024/25 financial year, ahead of the opening of the rail network to private operators. In addition to the Infrastructure Manager, Transnet's separation will also result in the

establishment of Transnet Freight Rail Operating Company (TFROC), which will compete with private operators for slots on the network (Transnet, 2023g). The FFC notes that this restructuring of Transnet bodes well for improving efficiencies and productivity in freight rail by bringing in competition, which can lead to improved services and infrastructure development.

- South Africa's passenger rail transport is also expected to undergo a significant change with the DoT working to develop a National Devolution Strategy, which will guide the devolution of passenger rail functions from the national to the local level. This strategy document is expected to be completed by the end of 2024, with its development involving a Steering Committee (which was convened by the DoT in 2021), comprising representatives from the Department, from local and provincial government, the South African Local Government Association (SALGA), PRASA and Gautrain Management Agency. The FFC acknowledges the missed 2023 deadline outlined in the National Rail Policy White Paper for the devolution strategy.

2.8 FEEDBACK FROM STAKEHOLDER ENGAGEMENT

As detailed in the research approach section, consultations were held with various stakeholders with expert knowledge and those operating within South Africa's rail transport sector. Below is a qualitative interpretation of the engagements to support the understanding of challenges faced in the rail sector and potential solutions to these challenges.

A notable challenge that surfaced through these engagements was that South Africa's over 20 000 km rail network is too large and that it has never been rationalised. This was evidenced by the fact that South Africa accounted for about 0.4 per cent of global GDP, yet accounts for an estimated 2 per cent of the world's rail network. As such, the country's core rail network should ideally be between 5 000 and 10 000 km for it to have the potential to operate efficiently. Poor historical decision making has contributed to this failure to rationalise the rail network, as it was noted that Transnet proposed a rationalisation of its rail network on the early 1990s, but this proposal was declined. The decision not to invest in the rail network so that it could compete with road following the deregulation of the road transport sector was another key event that was pointed out as having led to a decline in GFB volumes. Stakeholders broadly agreed that, while Transnet seemed to prioritise rolling stock challenges, the overarching consensus identified infrastructure rehabilitation as the primary issue that demanded priority attention. The cost for infrastructure rehabilitation was estimated at R150 billion over a five- to 10-year project period.

Stakeholders were also in agreement that the exodus of skilled individuals as a result of state capture and improper decisions taken by Transnet's management had crippled the company and led to a lack of urgency in addressing challenges faced by the company. From a financial perspective, concern was expressed that National Treasury should ready itself for a R50 billion to R150 billion bailout request from Transnet to help fix its balance sheet. This view was correct, given the guarantee that National Treasury announced towards the end of 2023.

When it comes to passenger rail services, inadequate funding over the years was highlighted as a key challenge. The operational subsidy that PRASA receives from National Treasury was flagged as being insufficient as it was mainly used to cover employees' salaries. The fact the Shosholoza Meyl was

transferred to PRASA unfunded was also viewed as being problematic. On the topic of devolution, it was highlighted that municipalities lack the necessary capacity to effectively plan and operate railways. This limited their ability to ensure the seamless integration of services across municipal boundaries.

Despite the challenges, interviewed stakeholders were of the view that some progress had been made. Operation Vulindlela and the formation of the NLCC were lauded as good steps taken to fix things, especially as the President of South Africa is getting regular feedback about progress being made to address issues facing the rail transport sector. Optimism was also expressed that Development Bank financing could be obtained to help address infrastructure finance-related challenges. It was noted that the private sector stands ready to invest in the rail transport sector, provided that the government can create an enabling environment for private sector participation. In addressing the infrastructure challenge, stakeholders expressed that there is a need to develop and adhere to a sound maintenance strategy going forward.

2.9 LESSONS FOR SOUTH AFRICA FROM COUNTRY CASE STUDIES

Given the South African government's plan to reform and revitalise the country's railway sector as outlined in the White Paper on National Rail Policy and Freight Logistics Roadmap, this section provides an overview of lessons learnt from how other countries have gone about reviving their rail transport sectors and facilitating a modal shift from road to rail as shown. The Commission reflects on the experiences of four countries: China, France, the USA and Japan. Also included was an assessment of South Africa's experience with the Gautrain Rapid Rail Link.

The case studies were helpful in providing examples of avenues that can be used to reform the rail transport sector and address key challenges including attracting investment into network development and improving operational performance. Below are some key learnings that South Africa can take from these international experiences as the country undergoes its own reform process:

- It is good governance practice to separate policy and regulatory functions from commercial functions. Rail transport service providers should focus on the provision of services to customers, while the government should not be directly involved in daily railway management, but can continue to play multiple key roles, such as policymaker, safely standard and infrastructure access regulator, and act as a client for social transport services.
- The separation of an SOE into distinct entities can lead to improved competition, bring in capital, and bolster the performance and efficiency of the rail transport sector.
- An independent railway manager should be put in place to act on railway business decisions, but should remain accountable to shareholders for overall business performance and productivity.
- A joint venture approach provides an alternative to public-private partnerships (PPPs) to help attract external capital into the rail transport sector.
- Developing and implementing a clear and robust legislative framework for PPPs can help attract private sector financing for projects such as high-speed rail.
- PPPs between local government and the private sector can be useful in the delivery of commuter rail services.
- Market-oriented enterprises that are customer-centric can be vital for the rail transport sector to regain its share in the intermodal transport mix.

As mentioned earlier in the analysis, South Africa has already made use of a PPP model to run passenger rail services in the form of the Gautrain Rapid Rail Link. The Gautrain case study shows that South Africa has what it takes to form partnerships that result in a well-functioning railway system that can provide benefits to society. The following lessons can be drawn from the experiences of this project to take forward in looking to revitalise the country's ailing passenger rail system by bringing in private sector participation:

- The need for a robust financial model that is designed to ensure the adequate combination of public and private funds so that the project can be financially viable.
- A comprehensive risk management plan is important to help identify, assess and manage project risks.
- Effective communication and stakeholder management is essential to keep stakeholders informed about the project and to manage their expectations.
- Strong project management skills are required to effectively manage a project's risks and challenges, and to help innovate and find new solutions to problems. One single point of accountability is also needed for dispute resolution.
- Community engagement and buy-in throughout the project's lifecycle are necessary to help to build trust and support for the project, and also ensure that the project is designed to meet the needs of the community.
- Political will and commitment are vital throughout all the phases of the project.

2.10 CONCLUSION

This chapter analysed the deterioration in the productivity of South Africa's rail transport sector as reflected in the operational and financial performance of its freight and passenger rail operators, Transnet and PRASA. The productivity of these two SOEs has been undermined by a plethora of issues including under-investment in infrastructure and its maintenance, rolling stock shortages, cable theft, vandalism, corruption, insufficient specialised skilled personnel and electricity supply challenges. These factors combined steadily the rail transport sector's market share in favour of the road transport sector. This has led to significant damage to road infrastructure, disrupted the country's supply chains and undermined trade, and raised the cost of doing business, all of which has hampered South Africa's economic recovery.

The Commission's analysis, using a variable return to scale output-oriented DEA model, reveals a worrying decline in productivity for both PRASA and Transnet. PRASA's TE score plummeted from 1.0 in 2014/15 to just 0.04 in 2021/22, indicating that it currently utilises only 4 per cent of its potential maximum efficiency to convert inputs into efficient passenger trips. Transnet's efficiency also shows signs of trouble, with a notable drop from 0.96 in 2019/20 to 0.77 in 2022/23. The challenges to productivity and resulting decline are reflected in the poor financial positions of the SOEs, which create the risk of the need for guarantees and bailouts from an already constrained fiscus.

The South African government has sought to turn around the performance of the rail transport sector by providing frameworks for the reform of the sector though the adoption of the White Paper on National Rail Policy and approval of the Freight Logistics Roadmap. The NLCC was formally constituted to oversee the implementation of the Freight Logistics Roadmap, improve the productivity of freight rail

and assist in the restructuring of Transnet to make it more sustainable. Transnet itself is currently busy implementing its own turnaround plan with a view to returning to profitability by the end of 2024/25. The SOE has, however, indicated that the successful implementation of its recovery plan hinges on being able to get financial support from National Treasury. The Commission finds this concerning as it puts further pressure on the country's already strained fiscus. Transnet is also preparing for the introduction of private sector involvement in rail operations, and has established an interim Infrastructure Manager. The Commission welcomes this approach as it would help bring about much-needed investment in the rail sector.

To inform South Africa's rail sector reform, the Commission also undertook a case study analysis. This examined how other countries have gone about transforming their rail transport sectors and facilitating a modal shift from road to rail, and what lessons could be gained for South Africa's own revitalisation. The Commission also reviewed the Gautrain Rapid Rail Link with a view to identifying valuable insights from South Africa's own PPP rail project. The findings revealed that PPPs can be used to inject capital and skills into the rail sector, but success depends on robust safeguards. These include a robust financial plan to ensure the efficient combination of public and private funds, a comprehensive risk management framework, and clear laws and regulations. Strong coordination and clear communication between all stakeholders are also required.

2.11 RECOMMENDATIONS

The Commission makes the following recommendations:

1. The Commission welcomes priority attached to finalising the National Devolution Strategy and strongly advises against further delays in meeting the completion deadline. The Commission further recommends that a phased approach to devolution be implemented.

As highlighted in the Commission's analysis of the financial and operational performance of PRASA, as well as evidence in the decline in technical efficiency, as shown by the DEA scores, there is a need for a more efficient approach to the running of passenger rail services to reduce reliance on government support and ensure improved productivity. As such, the Department of Transport and National Treasury should work to ensure a conductive legislative and regulatory environment and an optional delivery method for the successful devolution of passenger rail services to capable metros. The Commission is of the opinion that a phased approach to devolution would allow for both national and local government to take on shifts in responsibility in an orderly manner, proactively identify and manage challenges, build confidence in the approach and enable continuous improvement of the devolution process. A potential way of implementing this approach is through a rent-to-own model, whereby the municipality gradually assumes control of passenger rail services. As highlighted in the City of Cape Town's feasibility study, successful devolution has the potential to create significant job and economic opportunities. South Africa has already related experience in devolution at a subnational level with the Gautrain, which the Commission recommends as a source of valuable insights for implementation of the devolution strategy.

2. The Department of Transport, in collaboration with National Treasury, Transnet, the South African Police Services, the Passenger Rail Agency of South Africa (PRASA) and the private sector should work to develop and implement data-driven strategies that are aimed at better infrastructure maintenance, modernising train tracking and scheduling systems, and combatting crime.

The research undertaken by the Commission highlighted that infrastructure neglect, the use of manual processes, the high number of longstanding locomotives, and the threat and vandalism of infrastructure are major challenges plaguing the productivity of South Africa's passenger and freight rail services. To address these challenges, the Commission recommends a three-pronged approach. Firstly, a comprehensive technical audit of the national rail network is crucial. Led by the Department of Transport, this audit should delve into factors like communication systems, track conditions and usage, operating costs (including maintenance and repair costs) and environmental considerations. The findings from this audit can be used to identify high-risk infrastructure and rolling stock components that should be prioritised for maintenance. A data-driven approach also allows for the development of a sound and dynamic maintenance strategy for both equipment and infrastructure. Given limited fiscal resources, National Treasury, Transnet and PRASA should engage and collaborate with the private sector to generate the funding required to support the maintenance programme and put robust and transparent contracts in place to help secure the uninterrupted flow of vital spare parts for rolling stock. Secondly, the Department of Public Enterprises should investigate delays in implementing a digital train tracking and scheduling system by Transnet.[6] A collaborative effort between Transnet and National Treasury is recommended to ensure a transparent and thorough procurement process for the reintroduction of a modern digital train management system. Finally, a comprehensive safety and security plan for the rail sector is essential. This plan, developed and implemented through collaboration between the Department of Transport, National Treasury, the South African Police Services, Transnet, PRASA and the private sector, would include a shared development and implementation process led by the Department of Transport and the South African Police Services (including budgeting), with implementation responsibilities assigned to each stakeholder group (Transnet, PRASA and the private sector).

3. The Department of Transport should work speedily to get the Private Sector Participation Framework in place, given its importance in guiding coordination and collaboration with state-owned enterprises and private sector companies.

As highlighted in our case study analysis, joint venture approaches have been utilised across the globe to help attract external capital into the rail transport sector. As such, it is crucial that work be done to quickly put the Public Sector Participation Framework in place. This framework should clearly deal with elements, including the roles and responsibilities of all stakeholders, describe the tendering and procurement process, as well as the funding models, and deal with both risk sharing among stakeholders and economic regulation to remove risks of conflict of interest. The Gautrain Project should be leveraged to glean lessons to create an enabling environment for the private sector in the country's rail operations. The timeline for this framework's implementation should coincide with the opening up of private sector participation in the rail network.

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6 Should the closure of the Department of Public Enterprises materialise, as announced in the State of the Union Address in 2023, this responsibility could be shifted to the Department of Transport.

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3. IMPROVING AGRICULTURAL PERFORMANCE

A review of the support provided to smallholder farmers in South Africa and opportunities for improving their performance

CHAPTER 3:
A review of the support provided to smallholder farmers in South Africa and opportunities for improving performance

3.1 INTRODUCTION

The performance of a country's agricultural sector can have multiple impacts on society through its contribution to economic growth, employment, rural development and food security. The sector's potential to reduce poverty and inequality cannot be underestimated. Christiaensen and Martin (2018) empirically proved the growth benefits emanating from the agricultural sector to be two to three times more effective at reducing poverty relative to non-agricultural growth; and the effects of poverty reduction to be the largest for the poorest segments of society as a result of growth in agriculture. In a country such as South Africa, which is characterised by high levels of poverty and inequality, the potential of the agricultural sector should be harnessed for transformation and growth.

According to StatsSA's Quarter 4 of 2023 GDP Report (StatsSA, 2024a), the agricultural, forestry and fishing industry added a value of R117.6 billion or 2.8 per cent to the total GDP of R4.18 trillion measured in constant 2015 prices (annualised, seasonally adjusted). Despite its limited contribution to GDP, the agricultural sector is a major contributor to South Africa's foreign exchange earnings and employment. In 2023, the sector managed to record a trade surplus of US $6.2 billion – this amidst the domestic challenges relating to load shedding and backlogs at ports (Agbiz, 2024). Furthermore, according to the Quarter 4 of 2023 Quarterly Labour Force Survey (StatsSA, 2024b), in the last quarter of 2023, the sector managed to employ approximately 920 000 workers, comprising 5.5 per cent of the total 16.7 million workers employed in the country. Agricultural employment has proven to be relatively resilient during times of crisis. This was illustrated during the COVID-19 pandemic. Whereas most sectors recorded declines, employment in the agricultural sector grew by 2.7 per cent between 2020 and 2021.

Notwithstanding the sectoral contribution outlined above, research by the FFC in 2021 emphasised the untapped potential of the sector to contribute more strongly to growth and transformation in South Africa. Part of unlocking this potential requires improving the performance of smallholder farmers. Smallholder farmers are usually new entrants into the sector who produce for household consumption and markets with the aim of earning an income. Agriculture-sector policies and general government discourse acknowledge the need to focus strongly on this cohort of farmers, but the pace of transformation broadly within the sector has been limited. This analysis therefore aims to identify reforms to help facilitate transformation and improve the performance of smallholder farmers in South Africa.

3.2 PROBLEM STATEMENT

In its Submission for the 2021/22 Division of Revenue, the FFC noted that roughly 80 per cent (or 96.8 million hectares) of South Africa's total land area is agricultural land. Of this land, 13 million hectares is arable land, suitable for growing crops. However, permanent cropland comprises less than 1 per cent of the total land mass and only 1.66 per cent (or 1.6 million hectares) of land is under irrigation (FFC, 2020). For the FFC, these figures hint at the untapped potential within the agricultural sector and the contribution it could make to economic growth and productivity. The FFC further concluded in its Submission for the 2021/22 Division of Revenue that to unlock the full potential of the agricultural economy and land would require South Africa to address the inherited dual structure of the agricultural sector. This sees white commercial farmers accounting for 90 per cent of the value added to agricultural output and owning 86 per cent of agricultural land and water, whereas small-scale, mainly black farmers, live and farm on the margins and contribute less than 10 per cent of South Africa's total agricultural output (FFC, 2020; Sihlobo and Kirsten, 2021). Smallholder farmers face various other barriers of entry into the agricultural sector, including limited access to credit and financing, poor market access, inadequate infrastructure, poor access to post-settlement support for land reform beneficiaries and limited access to extension officers who provide vital advice to smallholder farmers regarding agricultural sector research and development (R&D) advancements.

To transform the sector, government has undertaken various initiatives, including the introduction of funding via the Comprehensive Agricultural Support Programme (CASP) and other conditional grants that provide support to previously disadvantaged landowners to promote and facilitate farming. To date, however, the performance of smallholder farmers remains limited, bringing into question the appropriateness of the current suite of interventions.

While there is no denying that the existing suite of interventions needs to be reviewed to identify bottlenecks that hamper greater progress, this needs to be done in tandem with the identification of innovative approaches that can unlock the potential of the agricultural sector in South Africa. To this end, the suitability arises of precision farming methods as a potential avenue to improve the productivity of smallholder farmers, in particular. Precision farming is a farm management approach that relies heavily on data and technology to inform decisions and farm operations. By facilitating the more efficient use of water, fertilizer, pesticides and other agricultural inputs, precision farming reduces costs and minimises environmental impact. Whereas the traditional approach to farming is underpinned by the principle of uniformity (the uniform application of fertilizer, insecticides, irrigation, etc.), precision farming prioritises the concept of spatial variability and site-specific farm management.

The specific research questions underpinning the analysis are the following:

- What support does government provide for smallholder farmers in South Africa and how has it impacted the performance of this cohort of farmers?
- To what extent have precision farming methods been used in South Africa?
- Do opportunities for the broad use of precision farming methods exist, especially insofar as smallholder farmers are concerned?

The objectives of the research are twofold:

- Critically review the existing support provided to smallholder farmers in South Africa
- Investigate the opportunities for utilising precision farming methods to improve the performance of smallholder farmers in South Africa

3.3 RESEARCH METHODOLOGY

To fulfil the research objectives outlined above, a mixed-methods approach was adopted. This included policy and financial/budget analysis, combined with stakeholder interviews. With respect to reviewing existing support to smallholder farmers, the relevant policy, legislation and regulations underpinning support to this cohort of farmers were analysed to understand government's goals concerning agriculture broadly and smallholder farmers in particular. To this end, documents were sourced from the website of the Department of Land Reform and Rural Development (DALRRD) or directly from departmental officials.

Budget and spending data that underpin existing interventions were required at two levels. To gauge provincial prioritisation of agriculture relative to other provincial functions, provincial financial data for the 2023 Medium-term Expenditure Framework (MTEF) period was sourced from the National Treasury's website. Secondly, data on the budget, spending and performance of the three agriculture conditional grants was sourced from the 2021/22 consolidated conditional grant performance reports, compiled by the DALRRD.

Stakeholder interviews were essential to understanding the existing suite of interventions, the challenges facing smallholder farmers and views on the potential of precision farming to enhance the performance of smallholder farmers. Table 3.1 outlines the list of organisations in which the interviewees are located, as well as the rationale for requesting an interview with the said organisations.

Table 3.1. List of organisations interviewed

Government departments	Reason for selection
1. National DALRRD	Oversees development of policy and sector performance and implementation of support to farmers
2. Eastern Cape	
3. KwaZulu-Natal	
4. Mpumalanga	
5. Northern Cape	
6. Western Cape	
Agriculture R&D entities	**Reason for selection**
7. AgriSA	Non-profit federation of agricultural organisations
8. Council for Scientific and Industrial Research (CSIR)	Undertakes research and development across identified high impact sectors (including agriculture) with the aim of facilitating improved competitiveness and socio-economic transformation
9. Agricultural Research Council (ARC)	Conducts research with the aim of promoting innovation within the agricultural sector
Industry-specific bodies	**Reason for selection**
10. South African Pork Producers Association (SAPPO)	Umbrella body representing pork producers and the pig industry in general. Was advised to approach SAPPO given that the representation of black farmers is relatively high in this sector and would therefore get a good understanding of challenges facing black and smallholder farmers

Private sector	Reason for selection
11. Griekwaland Wes Korporatief Limited (GWK)	Farmer-owned agribusiness called GWK (Griekwaland Wes Korporatief Limited) that has been implementing precision farming with smallholder farmers

Interviews were conducted virtually using the Microsoft Teams platform. Interview guides containing open-ended questions were emailed to interviewees before the interview to allow time for preparation and thus substantive engagement. Questions focused broadly on the following themes:

- Challenges hampering the performance of smallholder farmers
- Overview of existing interventions, and strengths and weaknesses of interventions
- The extent to which precision farming is implemented generally and more specifically by smallholder farmers
- Views on the advantages or disadvantages of precision farming

To support the identified advantages associated with precision farming for smallholder farmers, data on the performance of smallholder farmers implementing precision farming was required. One of the interviewees, GWK, has been implementing this approach with groups of smallholder farmers. To be eligible for support, farmers must have access to land (ownership is not necessary), electricity and water. GWK provided access to data on yields before (2017) and after (2019) the implementation of precision farming with a group of farmers in Taung in the North West province. While the full dataset identifies each farmer by name and surname, a de-identification process was undertaken to safeguard the personal information of individual farmers.

3.4 CONTEXTUALISING THE AGRICULTURAL SECTOR AND SMALLHOLDER FARMERS IN SOUTH AFRICA

3.4.1 Summarising the evolution and current priority attached to the agriculture sector

Prior to 1994, the South African agricultural sector was characterised by and benefited from wide-ranging government intervention and subsidy support to farmers. Government intervention extended to "...prices of, access to, and use of natural resources, finance, capital, labour, local markets, foreign markets and foreign exchange", while sector-based subsidies in respect of wheat, maize and dairy were aimed at keeping prices low (Vink et al., 2000:22). This approach was underpinned by agricultural policies that promoted unequal treatment of farmers based on race. This included, for example, the Land Bank Act of 2012, the Land Act of 2013 and the Marketing Act of 1968, all of which were key in the provision of financing and access for white farmers (Sihlobo and Qobo, 2021).

Following the transition to democracy, the emphasis within the agricultural sector was on deregulation and the adoption of a more market-led agricultural environment. Importantly, the reform process saw the promulgation of a White Paper on Agriculture in 1995, and a White Paper on Land Policy in 1996, both of which are underpinned by a general developmental process. The agricultural sector has a mandate, adopted by government post-1994, which embraces the principles of inclusiveness and reforming land ownership patterns (Sihlobo and Qobo, 2021).

The NDP, which outlines South Africa's long-term development goals, positions agriculture as a key employment-generating sector and the driving force behind rural development. It notes that the agricultural sector is "...one of the most labour-intensive goods production sectors...with strong direct and indirect economic and employment links to the rural poor" (National Planning Commission, 2011:122).

More recently, in 2019, President Cyril Ramaphosa announced that an Agriculture and Agro-processing Master Plan (AAMP) would be developed and used to guide the expansion and transformation of the sector as part of a broader focus on facilitating growth and development in South Africa prior to and following the COVID-19 pandemic. The AAMP represents an attempt by government to revitalise the agricultural sector through cooperation (a social compact) between government, labour, civil society and industry. The AAMP focuses on undoing the same structural challenges that existed post-apartheid. Its overarching aim can therefore be broadly summarised as transforming the sector away from its current dual nature and ensuring inclusivity. It thus appears that the strategic importance of the agricultural sector from a growth and socio-economic perspective is recognised in various policies and plans of government.

It should be noted that the performance of the agricultural sector is critically important in fulfilling section 27(1)(b) of the Constitution of South Africa, which relates to the right to access sufficient food and that government must take reasonable measures to ensure that this right is progressively realised over time (RSA, 1996). The success of the agricultural sector is thus critical to ensuring food security in South Africa.

3.4.2 Contribution of the agriculture sector to employment, food security and transformation

Table 3.2 outlines the contribution of agriculture to growth in South Africa's GDP. Notable is the resilience of the sector over the period characterised most severely by the COVID-19 pandemic, specifically 2020, which is associated with the Level 5 lockdown period. Agriculture was one of only three sectors (along with the finance, real estate and business services sector, and the general government services sector) that illustrated positive growth in 2020.

Table 3.2. Contribution to GDP growth, 2017–2023

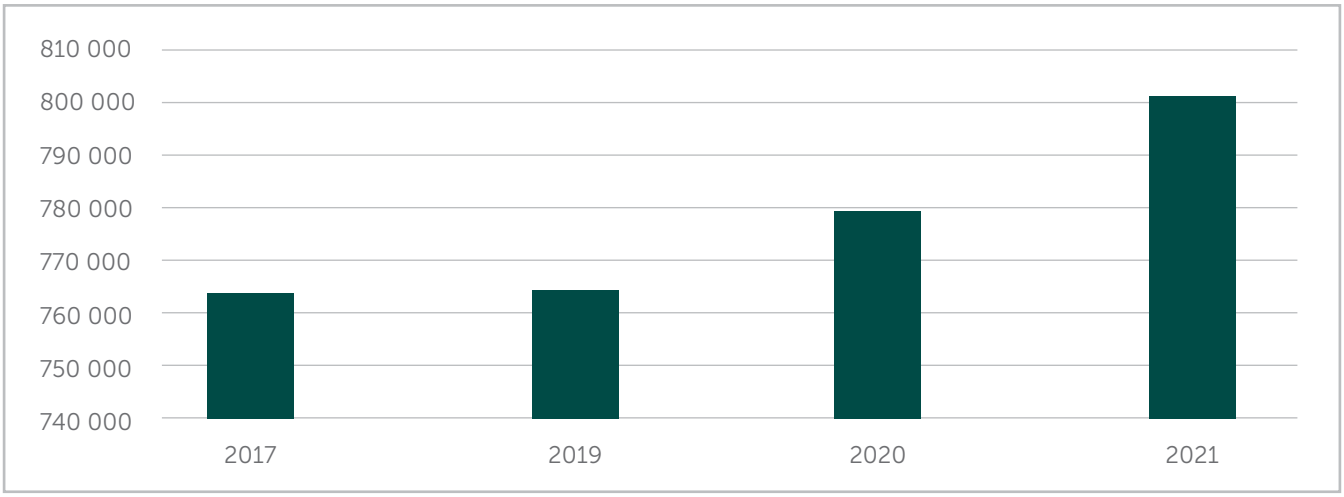
Year	AFF	Min	Man	EGW	Con	TCA	TSC	FRB	GGS	PS
					Percentage points					
2017	0.4	0.1	0	0	-0.2	-0.2	0.1	0.5	0.1	0.2
2018	0	0	0.2	0	0	0.1	0.2	0.7	0.2	0.1
2019	-0.2	0	-0.1	-0.1	-0.1	-0.1	0	0.5	0.1	0.2
2020	0.4	-0.6	-1.4	-0.1	-0.5	-1.5	-1.3	0.2	0.1	-0.3
2021	0.2	0.5	0.8	0	-0.1	0.7	0.4	0.6	0	0.8
2022	0	-0.3	0	-0.1	-0.1	0.4	0.6	0.8	0	0.4
2023	-0.4	0	0.1	-0.1	0	-0.2	0.3	0.4	0	0.3

AFF: Agriculture, forestry and fishing; Min:; Mining; Man: Manufacturing; EGW: Electricity, gas and water; Con: Construction; TCA: Trade, catering and accommodation; TSC: Transport, storage and communication; FRB: Finance, real estate and business services; GGS: General government services; PS: Personal services

Source: Statistics South Africa, 2024a

As illustrated in Figure 3.1, total employment in the agricultural sector grew progressively stronger over the period 2017–2021. The number of people employed in the sector increased from 764 428 people in 2017 to 765 269 in 2019, 780 057 in 2020 and 801 503 in 2021. This translates to a growth of 0.1 per cent between 2017 and 2019, 1.9 per cent between 2019 and 2020 and 2.7 per cent between 2020 and 2021. While employment in most sectors declined, agricultural employment demonstrated particular resilience during the COVID-19 pandemic.

Figure 3.1. Employment in the agriculture and related services industry, 2017–2021



Source: Statistics South Africa, 2019, 2020, 2021.

Salaries and wages in the South African agricultural sector increased from R49.2 billion in 2021 to R53.5 billion in 2022, reflecting growth of R4.3 billion (see Table 3.3). In 2021, the provinces employing the greatest number of people in this sector were the Western Cape (188 269), KwaZulu-Natal (105 437) and Limpopo (100 856). The general trend remained unchanged in 2022.

Table 3.3. Agricultural employment in South Africa, 2021 and 2022

Provinces	Salaries and wages		Percentage change	Total employees		Percentage change
	2021	2022		2021	2022	
	R'000			Number		
Western Cape	12 883 514	14 350 263	11.4	188 269	211 564	12.4
Eastern Cape	4 453 557	4 986 334	12.0	75 363	80 268	6.5
Northern Cape	3 097 340	3 057 381	-1.3	62 494	61 769	-1.2
Free State	4 120 105	4 385 810	6.4	74 649	81 927	9.7
KwaZulu-Natal	6 154 057	6 422 523	4.4	105 437	105 463	0.0
North West	3 710 263	3 850 584	3.8	58 938	53 666	-8.9
Gauteng	4 201 721	5 172 622	23.1	48 027	48 805	1.6
Mpumalanga	4 743 889	5 228 655	10.2	69 712	67 175	-3.6
Limpopo	5 857 371	6 028 810	2.9	100 856	103 881	3.0
Total	**49 221 817**	**53 482 982**	**8.7**	**783 745**	**814 518**	**3.9**

Source: Statistics South Africa, 2023c (November 2023).

In South Africa, the agricultural sector is responsible for producing a significant portion of the food consumed internally in South Africa, thus mitigating the country's reliance on food imports and making the country a net exporter of food and agricultural products (Muller, 2021). This net export status provides the government with an important source of foreign exchange earnings (around $12.8 billion in 2022) (Sihlobo, 2023). In addition, by ensuring a steady food supply, agriculture enhances productivity by providing sustenance for the population. As at 2021, 3.1 million (17.3 per cent) households were involved in agricultural activities. The overall proportion of households engaged in agricultural production is still fairly low and is mainly located in non-metro and rural areas. From a gender perspective, the proportion of female-headed households engaged in agricultural activities is slightly higher than their male counterparts. One out of five female-headed households was engaged in agricultural activities in 2021 (StatsSA, 2023a).

Of the 17.9 million households in South Africa in 2021, 11.6 per cent (2.1 million households) reported experiencing hunger. Of these 2.1 million households, two-thirds were located in urban areas, and almost half a million of them were found in the City of Cape Town (240 970) and the City of Johannesburg (238 610). More than half a million (683 221) households with young children aged five years or younger reported experiencing hunger in 2021. Out of the 3.1 million households involved in agricultural activities, about 12 per cent reported doing it as a main source of food for the household, and about three-quarters reported doing it as an extra source of food for the household (StatsSA, 2023a). These trends are largely the result of challenges such as unemployment, poverty, the energy crisis and the rising cost of living (StatsSA, 2023a).

In terms of transformation in the sector, challenges persist even today insofar as black farmers' contribution to agricultural output in South Africa is concerned. The data in Table 3.4 confirms this. The commodities that employ the largest amount of people are viticulture and citrus, while poultry and cattle have the highest production value of, on average, R48 and R32 billion, respectively, over the period 2015–2019. Generally, the participation of black farmers across the range of commodities reviewed is low. Cattle reflected the highest share of black farmer output at 34 per cent, while the lowest was in respect of potato, wheat and viticulture (grapes), which all show a share of output under 2 per cent over the period 2015–2019.

Table 3.4. Transformation based on black farmer share in output

Commodities	Average: 2019–2015		
	Employment	Production value (R'000)	Black farmer share in output
Maize	29 289	27 038 097	4.7%
Soybean	7 654	5 698 270	3.1%
Wheat	2 912	5 805 830	1.3%
Cotton	3 876	1 967 187	2.4%
Citrus	128 219	15 046 134	12%
Deciduous fruit	79 443	15 660 627	10%
Viticulture	163 441	7 057 260	1.6%
Potato	42 158	6 972 320	1.0%
Tomato	9 764	2 364 149	8.6%
Wool	23 976	3 397 506	11%
Mohair	6 765	554 582	12.8%
Cattle	89 752	31 992 265	34%
Poultry	52 836	47 863 345	4.2%

Source: Sihlobo and Qobo, 2021.

Following on from Table 3.4, tables 3.5 and 3.6 provide an updated, 2022 view of transformation in agricultural production, with 'developing' producers including smallholder farmers. Table 3.5 provides a sense of the number of smallholder producers relative to total producers while Table 3.6 provides details on the number of smallholder farmers contributing to agricultural output. As is evident, developing producers constitute the overwhelming majority of producers, especially in red meat, pork, cotton lint and table eggs.

Table 3.5. Number of agriculture producers, by commodity and type of producer, 2022

Commodity	Number of producers: Commercial	Number of producers: Developing	Total number of producers	Percentage of total producers categorised as developing
Citrus (exported – tons)	1 200	124	1 324	9%
Cotton lint (tons)	310	950	1 260	75%
Dairy products (tons)	984	21	1 005	2%
Deciduous fruit (tons)	1 081	40	1 121	4%
Dried fruit (wet tons)	569	132	701	19%
Fynbos (proteas – stems)	94	5	99	5%
Lucerne (tons)	263	unknown	263	unknown
Lupines (SACTA) (tons)	unknown	unknown	0	unknown
Macadamias (tons)	602	348	950	37%
Olives (tons)	190	2	192	1%
Pecan nuts (tons)	619	80	699	11%
Pomegranates (tons)	59	3	62	5%
Pork (kg per 82 kg carcass)	120	407	527	77%
Potatoes (tons)	513	unknown	513	unknown
Red meat (tons)	18 000	250 000	268 000	93%
Soybeans (SACTA) (tons)	Unknown	unknown	0	unknown
Table eggs (million dozen eggs)	144	198	342	58%
Table grapes (tons)	235	35	270	13%
Wine (tons)	2 557	30	2 587	1%
Winter cereal (SACTA) (tons)	1 730	262	1 992	13%
Total	**29 270**	**252 637**	**281 907**	**90%**

Source: National Agricultural Marketing Council, 2023.

Notwithstanding the number of developing producers contributing to agricultural output, the actual quantities produced by this category of farmers is significantly low (Table 3.6). This is the case even for those commodities where smallholder or developing producers dominate, i.e. red meat, pork, cotton lint and table eggs. This reinforces the notion that transformation in the sector has not been optimal and that more is required to develop and strengthen smallholder farmers to substantively contribute to agricultural production.

Table 3.6. Total production by commodity and type of producer, 2022

Commodity	Commercial farmers	Developing farmers	Total production	Percentage of total production contributed by developing farmers
Citrus (exported – tons)	2 879 911	200 000	3 079 911	6%
Cotton lint (tons)	26 174	1 370	27 544	5%
Dairy products (tons)	3 403 100	2 877	3 405 977	0%
Deciduous fruit (tons)	836 341	84 833	921 174	9%
Dried fruit (wet tons)	69 680	3 000	72 680	4%
Fynbos (proteas – stems)	29 721 796	938 583	30 660 379	3%
Lucerne (tons)	417 318	unknown	417 318	unknown
Lupines (SACTA) (tons)	unknown	unknown	0	unknown
Macadamias (tons)	53 049	536	53 585	1%
Olives (tons)	8 404	173	8 577	2%
Pecan nuts (tons)	18 606	566	19 172	3%
Pomegranates (tons)	5 228	782	6 010	13%
Pork (kg per 82 kg carcass)	250 013 482	40 353 683	290 367 165	14%
Potatoes (tons)	2 600 000	unknown	2 600 000	unknown
Red meat (tons)	767 000	313 000	1 080 000	29%
Soybeans (SACTA) (tons)	unknown	unknown	0	unknown
Table eggs (million dozen eggs)	650 000	57 000	707 000	8%
Table grapes (tons)	283 554	30 147	313 701	10%
Wine (tons)	1 421 922	4 647	1 426 569	0%
Winter cereal (SACTA) (tons)	1 857 433	22 567	1 880 000	1%

Source: National Agricultural Marketing Council, 2023.

The next two sections take their cue from the twin objectives of the paper and present, in the first instance (section 3.5), an analysis of a selection of existing interventions being undertaken by the DALRRD. Then, section 3.6 considers how the implementation of precision farming has contributed to the performance of smallholder farmers.

3.5 AN ANALYSIS OF A SELECTION OF EXISTING INTERVENTIONS

This section presents an analysis of a selection of existing interventions spearheaded by the DALRRD. As outlined in schedule 4A of the Constitution, agriculture is a concurrent function that is shared between the national and provincial spheres of government. The national sphere is responsible for the policy and regulatory environment and oversight of the sector's performance, while service delivery is the domain of the nine provincial agriculture departments. The analysis in this section is divided into financial and non-financial interventions.

3.5.1 Financial interventions

Since 1994, the government has established numerous interventions aimed at assisting new entrants to and vulnerable farming communities in the agriculture sector. This section focuses on the level of prioritisation that provinces afford agriculture. This is followed by an assessment of the three agriculture conditional grants, which are central to smallholder farmer support.

PRIORITISATION OF INTERGOVERNMENTAL FUNDING FOR AGRICULTURE

The dominant sources of intergovernmental funding in the agricultural sector include: the allocations by the nine provinces from the provincial equitable share (PES) allocation to their respective agriculture-related departments; and conditional grant allocations that are disbursed annually from the national department to the nine provinces.

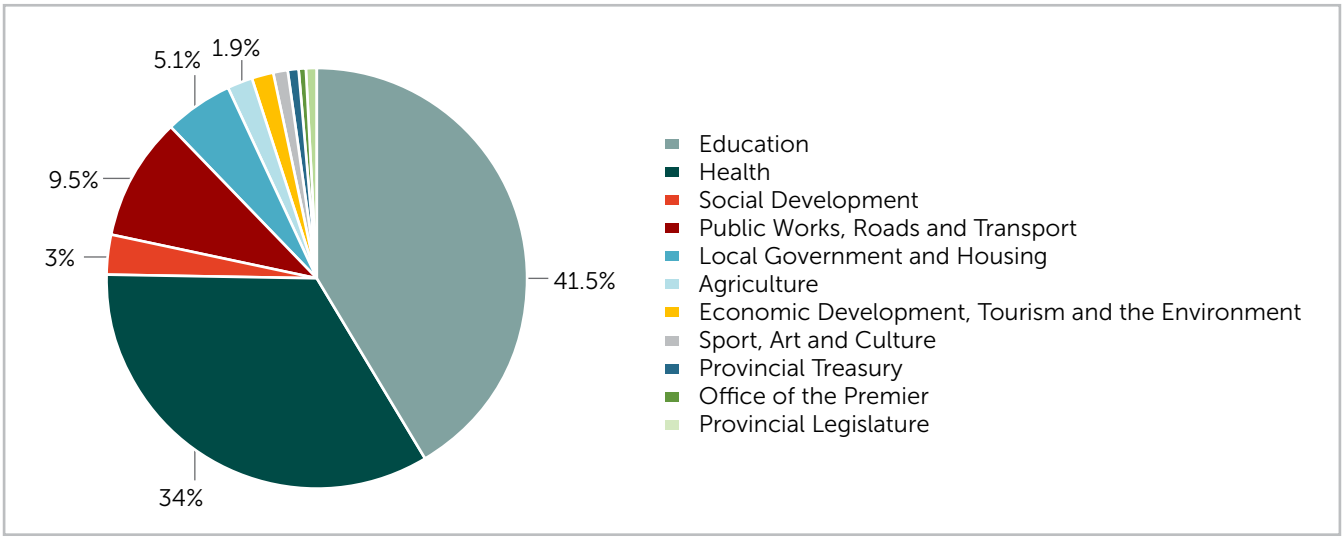
Table 3.7 and Figure 3.2 illustrate the prioritisation of resources by provincial governments across the various departments for which they have responsibility. As is clear, the bulk of provincial resources is dedicated to education and health, which consume 42 per cent and 34 per cent, respectively. From a total provincial resource envelope of R739.2 billion in 2024/25, agriculture was allocated R14.3 billion. This equates to 1.9 per cent of total provincial resources. While Figure 3.2 illustrates the proportion of provincial resources per department for 2024/25, the agricultural sector has consistently received 1.9 per cent of the resource envelope since 2020/21. Year-on-year growth in allocations to provincial agriculture departments has been muted, reflecting an annual average growth rate of 1.7 per cent over the 2019/20–2025/26 period.

Table 3.7. Allocation per provincial department, 2019/20 to 2025/26

Provincial department (R'billion)	2019/20	2020/21	2021/22	2022/23 Adjusted appropriation	2022/23 Revised estimate	2023/24	2024/25	2025/26
	Audited outcome					MTEF		
Education	257.8	265.9	280.8	297.3	298.2	304.0	306.9	319.6
Health	210.9	231.4	236.0	246.0	248.2	242.9	251.6	261.7
Social Development	19.6	20.3	21.3	21.4	21.4	21.6	22.2	23.1
Public Works, Roads and Transport	60.0	56.5	63.4	69.9	69.8	71.6	70.4	72.3
Local Government and Housing	35.1	30.1	32.9	36.4	36.3	38.0	37.7	38.7
Agriculture	13.2	12.2	12.8	13.9	13.9	13.9	14.3	14.8
Economic Development, Tourism and the Environment	12.1	11.6	12.5	13.0	13.0	13.3	13.1	13.3
Sport, Arts and Culture	5.9	4.8	5.8	6.5	6.5	6.6	6.9	7.3
Provincial Treasury	4.0	3.8	3.7	4.1	4.1	4.6	4.7	4.9
Office of the Premier	6.1	5.7	6.0	6.7	6.7	7.5	7.0	7.0
Provincial Legislature	3.8	3.6	3.8	4.4	4.4	4.4	4.5	4.6
Total	**628.4**	**645.9**	**678.9**	**719.6**	**722.6**	**728.2**	**739.3**	**767.3**

Source: National Treasury, 2023.

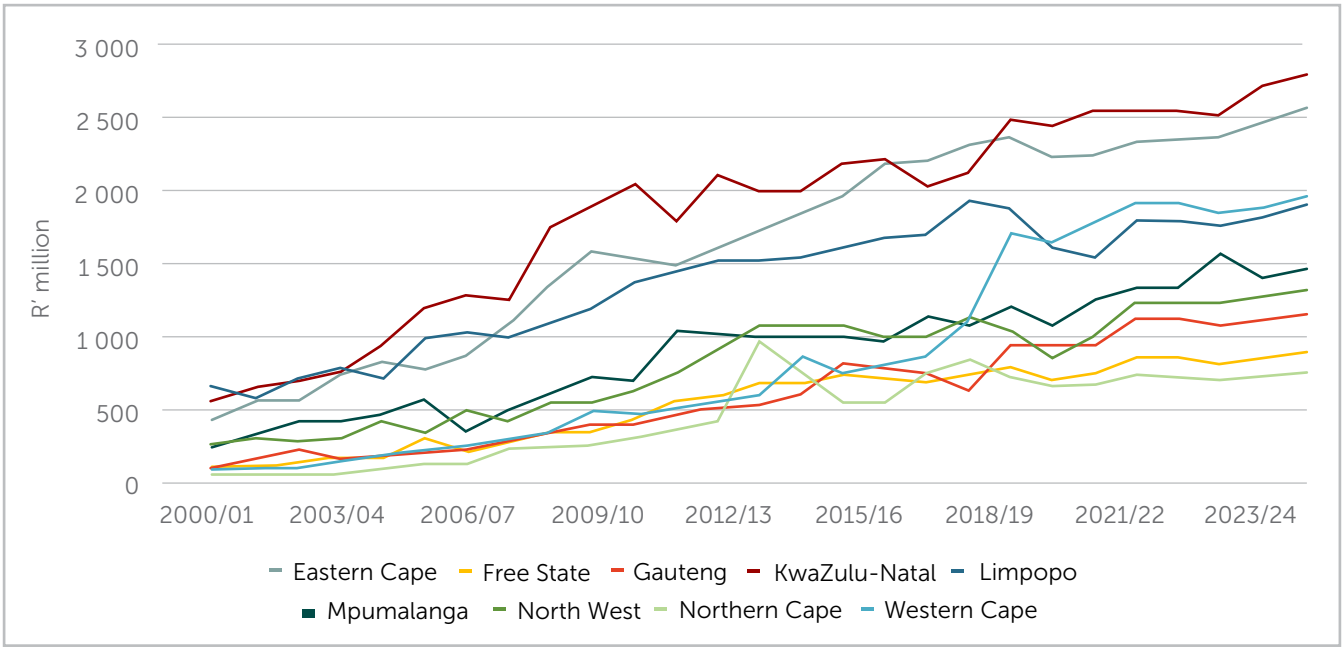
Figure 3.2. Portion of total provincial revenue allocated to agriculture, 2024/25



Source: National Treasury, 2023.

Figure 3.3 illustrates provincial spending on agriculture across the nine provinces. The provinces that have spent the most on average over the period 2000/01–2023/24, are KwaZulu-Natal, Eastern Cape and Limpopo (this corresponds with the location of smallholder farmers, as these provinces have the highest number of smallholder farmers relative to the other provinces) (Zantsi et al., 2019).

Figure 3.3. Total provincial spending on agriculture by province, 2000/01 to 2023/24 (R' million)



Source: National Treasury, 2023.

The next section focuses on agriculture conditional grants, which are a common form of support provided to farmers, especially smallholder farmers.

AGRICULTURE CONDITIONAL GRANTS

Conditional grants are an important funding instrument at the provincial level. There are currently three agriculture-related conditional grants in the system: the Comprehensive Agriculture Support Programme Grant, the Land Care Grant and the Ilima Letsema Grant. The section below describes the allocations to the conditional grants, spending performance as well as a sense of what the allocated funds have bought (the outputs).

Comprehensive Agriculture Support Programme (CASP)

The CASP is the largest agriculture conditional grant. It was first introduced in 2004/05. The CASP is a specific-purpose grant with the aim of expanding the provision of agricultural support services, and promoting and facilitating agricultural development by targeting subsistence, smallholder and commercial black farmers.

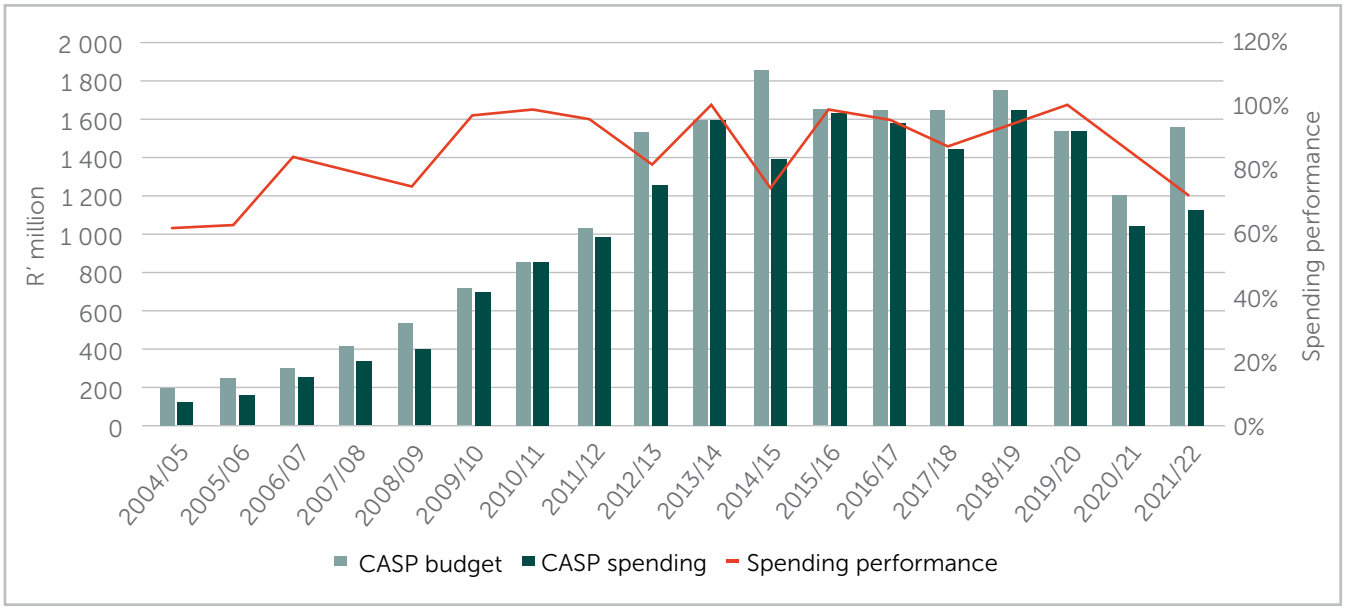
The expected outcomes of the CASP include the following:

- Broadened access to agricultural support for subsistence, smallholder and black commercial farmers
- Improved farming efficiency
- Increased wealth creation, and sustainable employment in rural areas
- Increased access to markets by beneficiaries of the grant
- Improved household and national food security

The criteria used to allocate CASP funding among the provinces is based on factors such as the number of households involved in agriculture, the agricultural land area within the province and previous CASP performance. The bulk of the CASP funding is ringfenced for project support (which includes infrastructure, production inputs and mechanisation support) and the Extension Recovery Plan (which is aimed at strengthening the Agriculture Extension Services Programme and making sure that extension officers have the tools they need to carry out their work).

Since inception until 2021/22, R20.3 billion has been allocated in respect of CASP. Of this allocated budget, R18 billion has been spent. Spending performance over the period has been variable with an average spend of 86 per cent over the 18-year period from 2004/05 to 2021/22 (see Figure 3.4). Of concern is the downward trend in spending that commenced in 2019/20. As at 2021/22, spending was at 72.4 per cent of the allocated amount. This is outside the acceptable range of 5 per cent under/overspending. The reasons driving poor spending should be identified and mitigated through stronger support and oversight.

Figure 3.4. CASP budget, spending and spending performance since inception (2004/05–2021/22)



Source: Department of Agriculture, Land Reform and Rural Development, 2022a.

Table 3.8 presents an overview of the beneficiaries that have received CASP funding over the years. Since 2004, 727 620 farmers have benefitted from CASP funding. Assessing expenditure relative to the number of beneficiaries in 2021/22, the average CASP beneficiary received R99 450. The highest average CASP allocation per beneficiary was in 2019/20, when R143 457 per beneficiary was recorded. It is clear that, while these amounts provide support, they are insufficient when it comes to considerations around the comprehensiveness of funding.

Table 3.8. CASP average spend per beneficiary

Year	CASP spending (R'million)	Number of beneficiaries	Average spending per beneficiary (rands)
2004/05	123	46 500	2 645
2005/06	157	53 200	2 951
2006/07	252	67 400	3 739
2007/08	333	60 300	5 522
2008/09	402	31 039	12 951
2009/10	693	26 266	26 384
2010/11	854	27 972	30 531
2011/12	984	36 504	26 956
2012/13	1 260	59 286	21 253
2013/14	1 600	65 075	24 587
2014/15	1 394	113 257	12 308
2015/16	1 630	42 869	38 023
2016/17	1 572	25 958	60 559
2017/18	1 446	22 906	63 128
2018/19	1 643	16 203	101 401
2019/20	1 537	10 714	143 457
2020/21	1 041	10 831	96 113
2021/22	1 127	11 340	99 450

Source: Department of Agriculture, Land Reform and Rural Development, 2022a.

In terms of the outcomes associated with the funding allocated via CASP, tables 3.9 and 3.10 show that non-financial/service delivery performance is variable with areas of over- and underperformance. With the exception of two CASP outputs, the majority of the outputs specified in Table 3.9 have not been fully completed, with overall performance being concerningly poor.

Table 3.9. Target and actual performance of selected CASP outputs, 2021/22

Selected outputs	Target	Completed	Percentage of target met
Irrigation systems	55	54	98.2%
Boreholes	163	94	57.7%
Stock and irrigation dams	19	2	10.5%
Stock-handling facilities	93	33	35.5%
Dipping tanks	3	6	200.0%
Packhouse facilities	26	9	34.6%
Processing infrastructure	3	1	33.3%
Storage facilities	15	16	106.7%
Piggery structure	10	6	60.0%
Poultry structures	9	7	77.8%
Goat/sheep structures	21	18	85.7%

Source: Department of Agriculture, Land Reform and Rural Development, 2022a.

Table 3.10 outlines the extent to which CASP has assisted farmers with access to markets. Overall, the figures indicate that, for 2021/22, through CASP, just over half of all recipients (52.2 per cent) have been assisted with accessing markets. This equates to 3 344 farmers, with the bulk, amounting to 3 123 farmers, falling in the smallholder farmer category.

Table 3.10. CASP farmers supported and assisted with access to markets, 2021/22

Farmer category	Target	Supported	Percentage of target met	Number of supported farmers accessing markets	Percentage accessing markets
Subsistence farmers	2 901	1 882	64.9%	162	9%
Smallholder farmers	4 633	4 466	96.4%	3 123	70%
Black commercial farmers	194	59	30.4%	59	100%
Total	**7 728**	**6 407**	**82.9%**	**3 344**	**52.2%**

Source: Department of Agriculture, Land Reform and Rural Development, 2022a.

Ilima Letsema Grant

The Ilima Letsema Grant was established in 2008/09 as a specific-purpose grant. The overarching aim of the grant is to assist vulnerable South African farming communities to achieve an increase in agricultural production and invest in infrastructure that unlocks agricultural production within strategically identified commodities or producers and production areas.

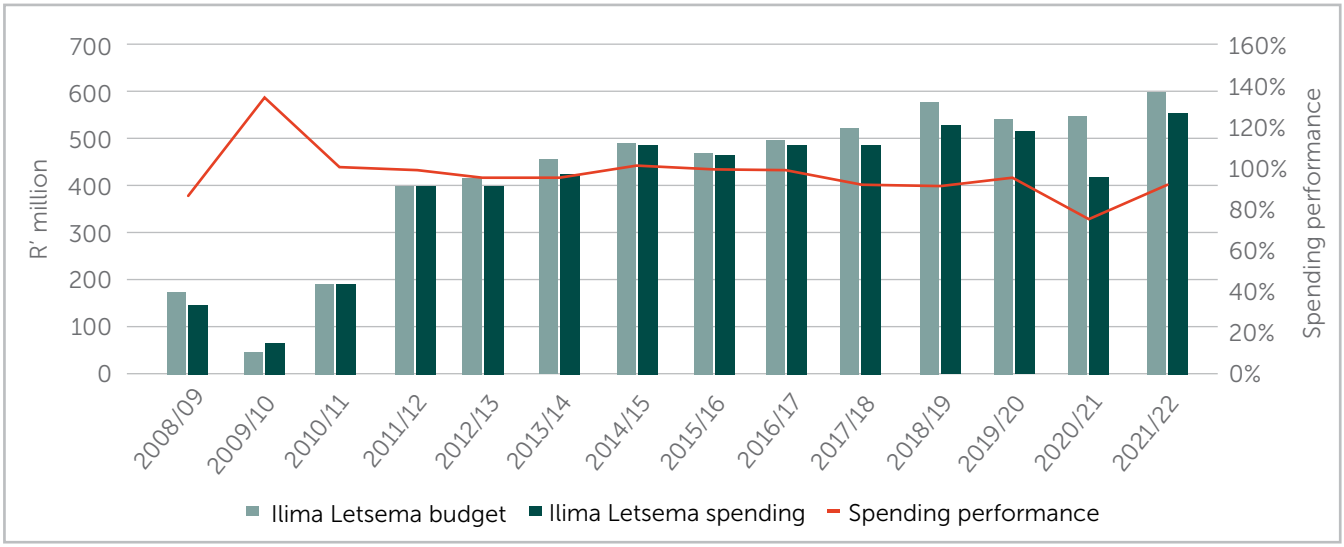
The expected outcomes of the Ilima Letsema grant are as follows:

- Increased agricultural production of field crops such as grains and oil seeds, livestock, horticulture and aquaculture at both household and national level
- Increased quantities (tons) of agricultural commodities produced by smallholder and household farmers
- Improved farm income

- Increased job opportunities
- Reduced poverty and improved food security
- Rehabilitated and expanded irrigation schemes
- Improved access to production inputs

From the establishment of the Ilima Letsema Grant in 2008/09 until 2021/22, R5.9 billion has been made available. Of this amount, R5.5 billion has been spent. Apart from new grant teething problems in the first two years, the spending performance of the Ilima Letsema Grant is sound at an average of 96.5 per cent over the period 2008/09–2021/22, since its inception (see Figure 3.5).

Figure 3.5. Ilima Letsema budget, spending and spending performance (2008/09–2021/22)



Source: Department of Agriculture, Land Reform and Rural Development, 2022b.

An assessment of the average spend per beneficiary since the inception of Ilima Letsema conveys the limited funding allocated via this conditional grant (Table 3.11). Except for the year of inception, the funding has never exceeded R10 000 per beneficiary.

Table 3.11. Ilima Letsema average spend per beneficiary

Year	Ilima Letsema spending (R'million)	Total beneficiaries	Average spend per beneficiary (rands)
2008/09	147.0	411	357 664
2009/10	67.0	12 967	5 167
2010/11	191.0	75 207	2 540
2011/12	396.0	109 197	3 626
2012/13	400.0	162 985	2 454
2013/14	424.0	147 990	2 865
2014/15	484.1	191 396	2 529
2015/16	464.3	173 019	2 683
2016/17	481.4	170 776	2 819
2017/18	487.5	186 243	2 618
2018/19	524.9	98 813	5 312
2019/20	509.8	89 430	5 700
2020/21	414.9	57 899	7 166
2021/22	546.6	80 431	6 796
Total	**5 538.5**	**1 556 764**	**3 558**

Source: Department of Agriculture, Land Reform and Rural Development, 2022b.

In terms of outputs, Ilima Letsema has performed well relative to the targets that have been set. Table 3.12 illustrates that, in terms of the number of farmers supported, actual performance in terms of the number of farmers supported in accessing markets overshot the targets, especially in relation to smallholder farmers (while the target was to assist 5 544 smallholder farmers, 21 110 farmers were assisted).

Table 3.12. Ilima Letsema farmers supported and assisted with access to markets, 2021/22

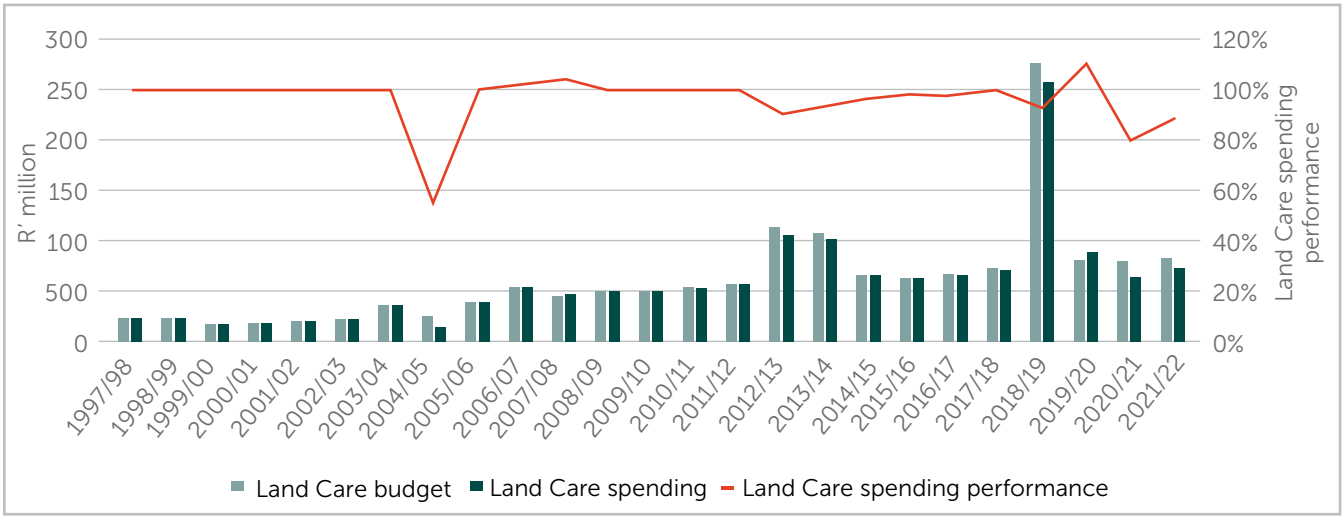
Farmer category	Target	Number supported	Percentage of target met	Number of supported farmers accessing markets	Percentage accessing markets
Subsistence	34 016	48 750	143.3%	8 944	18.3%
Smallholder	5 544	21 110	380.8%	19 009	90.0%
Black commercial	361	304	84.2%	263	86.5%
Total	**39 921**	**70 164**	**175.8%**	**28 216**	**40.2%**

Source: Department of Agriculture, Land Reform and Rural Development, 2022b.

Land Care Grant

Funding for land care dates back to the late 1990s where funding was initially via the Reconstruction and Development Programme (RDP). It was converted to a conditional grant in 1997/98. The aim of the grant is to promote the sustainable use and management of natural agricultural resources. Figure 3.6 provides a sense of the allocations and spending performance of the Land Care Grant between 1997/98 and 2021/22. Over this timeframe, a total of R1.6 billion has been allocated, with R1.5 billion being spent. Whereas a few incidents of low spending of allocated budgets exist over the 1997–2021 timeframe, the overarching trend with respect to spending performance is in excess of 95 per cent.

Figure 3.6. Land Care Grant budget, spending and spending performance since inception, 1997/98-2021/22



Source: Department of Agriculture, Land Reform and Rural Development, 2023a.

Alongside the budget and spending profile, Table 3.13 outlines the service delivery performance of the Land Care Grant for a selection of the grant objectives as at 2021/22. As is evident, except for one key performance area relating to beneficiaries, the Land Care Grant has performed significantly poorly, scoring under 50 per cent across most of its objectives. The implication is that, while the allocated funding has been spent, outcomes related to the spending have not been forthcoming.

Table 3.13. Target and actual performance of selected Land Care Grant outputs, 2021/22

Key performance area	Objective	Target	Actual	Performance
Beneficiaries	Number of land users/people benefitting directly or indirectly	12 480	11 242	90.1%
Soil protection	Hectares of cultivated land rehabilitated and/or protected	5 995	1 465	24.4%
Rangeland management	Hectares of natural rangeland rehabilitated or protected	75 773	24 848	32.8%
Conservation of water resources	Number of water sources developed or protected against over-utilisation	72	23	31.9%
Control of weeds and invader plants	Hectares of land where weeds and invader plants are under control	35 113	12 119	34.5%
Junior Land Care	Number of household and school food gardens established through Junior Land Care	202	44	21.8%
Land care awareness	Number of awareness campaigns conducted	503	78	15.5%
Land care capacity building and partnerships	Number of people with improved capacity and skill levels benefiting from capacity building initiatives	9 800	2 387	24.4%
	Number of formal and sustained partnerships with key stakeholders	224	55	24.6%
Kilometres of fences erected	Kilometres of fence erected in the grazing and arable land	1 186	267	22.5%
Conservation agriculture	Number of information days conducted to promote conservation agriculture	131	20	15.3%
	Number of farmers adopting conservation agriculture system	5 050	2 097	41.5%

Source: Department of Agriculture, Land Reform and Rural Development, 2022c.

Apart from the generally poor non-financial performance of the agricultural sector conditional grants, the Commission notes that there is a lack of focus on the aspect of farmer sustainability within the outputs and key performance indicators related to the conditional grants. In addition to data on the number of farmers supported and the type of support being provided, there is a need to incorporate the aspect of farmer sustainability into the performance measurement system.

This can entail reporting on the following:

- How long a farmer has been receiving government support
- The number of farmers that graduate or regress from one farmer category to another (for example, the number of smallholder farmers that transition to being commercial farmers)
- The number of farmers that drop out of farming altogether. This would provide a sense of the value for money being achieved via the support programmes offered to smallholder farmers

Importantly, with respect to the conditional grants, stakeholders emphasised that, while conditional grants play a critical role in the provision of funding to smallholder farmers, the quantum of the financial support provided, relative to the number of farmers receiving support, means that the funding is insufficient to assist in sustainably setting up a farmer for long-term success. Apart from the intergovernmental funding available via provincial agriculture departments and conditional grants, various, additional pockets of funding are available to individuals specifically for agriculture or, more

broadly, to stimulate entrepreneurial activity and which can then be used for funding farming activities. Figure 3.7 provides a sense of the various funding support options that can be accessed to support agriculture-related activities. Options around consolidating the three agriculture conditional grants, along with these additional pockets of funding support that exist, should be explored, together with the adoption of a multi-year approach that targets fewer farmers, but over a slightly longer period. While this approach would require lowering annual departmental targets (which are not being adequately fulfilled currently), it can lead to improved outcomes and an improved ability of grant recipients to ensure continuity of their operations following the receipt of government support.

Figure 3.7. Funding support options that can be used for agriculture-related activities

Sources: Adeaga (2023), Green Agri (n.d.) and SME South Africa (2022).

3.5.2 Non-financial interventions

This section hones in on the aspect of access to markets.

ASSISTANCE WITH ACCESS TO MARKETS

The role of the DALRRD with respect to assisting farmers with access to markets is informed by the Agricultural Marketing Policy of South Africa. To this end the DALRRD implements various marketing support programmes that are aimed at enabling producers, particularly smallholder producers, to gain access to markets. According to the DALRRD, the following main programmes are currently being implemented to enhance market access for smallholder producers:

- Regarding ***marketing information***, the DALRRD disseminates a wide range of market information to producers and other value chain players through the Marketing Information System (MIS), a web-based system that can be accessed on the internet and through cellular phones. The information

distributed through the system includes daily prices for agricultural products (fresh produce and grains) and weekly prices for meat, as well as standards and grading information and contact information for various markets and market agents. This information is distributed with the aim of assisting producers to understand prevailing market conditions, to inform them about the existing alternative marketing channels and to provide farmers with the contact information for various markets (DALRRD, 2023b).

- The ***Marketing Skills Development Programme*** is being implemented on a continuous basis with the aim of empowering producers with knowledge on how the market operates (mechanics) and to provide them with exposure to different marketing channels. For example, fresh produce producers are capacitated on fresh produce marketing and are given an opportunity to participate in market exposure visits to meet with market management and agents. The ultimate goal is to empower producers with knowledge about markets and to give them an opportunity to meet with market managers and organise deals (on their own) with those markets (DALRRD, 2023b).
- With respect to ***marketing infrastructure***, the DALRRD is currently facilitating a funding programme for small and medium enterprises (SMEs) that fall within the agriculture sector through the Agri-BEE Fund and the CASP. The programme is aimed at establishing a basic agricultural marketing infrastructure to collate fresh produce from several smallholder farmers in a given production area or hub with a view to performing first stage marketing functions such as grading, washing and packaging before forwarding the produce to either wholesale or retail markets. This project will in part further facilitate the development of economic activities in the rural nodes by facilitating the commercialisation of fresh agricultural products within and outside the identified nodes (DALRRD, 2023b).
- In addition, the DALRRD implements the ***SA-GAP Certification Programme***, which is aimed at providing assurance to potential buyers that the food produced by smallholder producers is safe for human consumption. Smallholder producers identified to participate in the programme are taken through pre-audit exercises to identify any non-conformances on their farms. This is followed by training or workshops on good agricultural practices, food safety, the responsible use of pesticides and product safety and quality (as outlined in Regulation 707 of 2005 under the Agricultural Products Standards Act of 1990). These producers are then given the opportunity to rectify any identified non-conformances before the final audit and certification can be concluded (DALRRD, 2023b).
- Finally, the DALRRD administers the ***Preferential Market Access Programme*** through which it issues import and export quotas and permits to traders to enable them to import and export certain agricultural products at reduced rates of duty. This system gives preference to previously disadvantaged companies and/or traders (DALRRD, 2023b).

Improving access to markets is not only important from the perspective of enhancing the performance and success of smallholder farmers, but also in the context of strengthening food security. One of the five critical pillars underpinning South Africa's National Policy on Food and Nutrition Security is "(I) mproved market participation of the emerging agricultural sector through public-private partnerships, including… a government food purchase programme that supports smallholder farmers" (RSA, 2014:31). The Food and Nutrition Security Policy acknowledges that, while the deregulation of the South African agricultural market has yielded benefits, this process has not "…always served to enhance the economic viability of the emerging agricultural sector, and the small-scale farming sector remains characterised by low productivity, lack of access to markets, and insufficient market information, as well as poor

capacity and lack of production and marketing infrastructure. This sector urgently requires assistance in the market to develop, and support in terms of access to finance, to skills, and to markets" (RSA, 2014:13). What is being referred to in this paragraph is the need for government to adopt a targeted approach in assisting smallholder farmers to gain access to markets by opening government markets, also referred to as public food procurement. This refers to a process whereby the agriculture-related needs of government (from schools for school feeding programmes, hospitals, prisons and others), can be fulfilled by smallholder farmers.

Literature confirms the developmental advantages associated with public food procurement, with studies of its application in Latin America, in particular, attesting to this (see, for example, Cervantes-Zapana et al., 2020, and Scheuer, 2022). One of the main challenges relates to the constraints imposed by existing procurement regulations. There are, however, legal mechanisms for mitigating these challenges and reforming public procurement to achieve social, economic and environmental goals. These legal mechanisms include the following:

- ***Reservation:*** With this approach, certain procurement opportunities can be reserved for "…specific categories of suppliers who satisfy certain prescribed criteria linked to the designated policy objective" (Swensson, 2018:13).
- ***Preferencing:*** Within this process, specified suppliers are given a competitive advantage "…within a fully competitive procurement process" (Swensson, 2018:16). Within this process, any supplier may compete. However, they compete against a group of suppliers who will get preferential treatment (for example, smallholder farmers that meet prescribed criteria).
- ***Indirect:*** With the indirect approach, government does not procure directly from the target group (for example, smallholder farmers) that it aims to assist, but from a third party. However, all procurement contracts would require the third party to procure a specified quantity of its inputs from the target group (smallholder farmers).

The challenge for government is to ensure that the adoption of preferential procurement principles is balanced against the maintenance of traditional procurement principles and avoiding "…misuse and abuse" (Swensson, 2018:13).

Following on from the above, in 2017, KwaZulu-Natal launched the Radical Agrarian Socio-economic Transformation (RASET) strategy[1], which aims to unlock government markets to smallholder farmers through public food procurement. Box 1 provides a sense of RASET's vision, mission and overall strategy, which is spearheaded by the KwaZulu-Natal Department of Economic Development, Tourism and Environmental Affairs, and managed by the Ithala, a provincial development finance corporation. According to the 2023, 2022 and 2021 estimates of provincial revenue and expenditure, the KwaZulu-Natal departments of Agriculture and Rural Development, and Economic Development, Tourism and Environmental Affairs, have been specifying budget and spending plans with reference to the RASET strategy.

In particular, the Department of Economic Development, Tourism and Environmental Affairs has allocated funding towards the acquisition of refrigerated trucks, the construction of packhouses across

[1] RASET falls under the broader Operation Vula, which seeks to localise the economy by, initially, exploiting government's buying power to buy from SMMEs and cooperatives.

various districts, including uMkhanyakude, Harry Gwala and iLembe, and the fencing of agro-processing facilities and packhouses – all under the auspices of the RASET strategy.

Box 3.1. KwaZulu-Natal's provincial RASET strategy: Vision, mission and overall strategy

Vision: The vision of RASET is to provide a progressive food supply system for an inclusive economy in the country, beginning in KwaZulu-Natal, by 2030.

Mission: The mission of RASET is to implement a radical agrarian socio-economic transformation system that seeks to build an effective agro-food value chain with the capability of empowering previously disadvantaged black South African primary producers, particularly Africans, in rural and township areas to participate meaningfully in the entire food value chain, thus providing food security and improving the economy for a better life for all in KwaZulu-Natal.

Overall strategy: Focus on government markets through the low-cost mass supply of produce and products from black South African subsistence and smallholder primary producers particularly Africans, in previously disadvantaged rural and township areas.

Source: KwaZulu-Natal Provincial Department of Economic Development, Tourism and Environmental Affairs (EDTEA), 2018.

3.6 A CASE FOR ADOPTING PRECISION FARMING IN SOUTH AFRICA

Davis et al. (1998:1) define precision farming as the merging of new technology and information with the mature agricultural industry. Mizik (2023) broadly defines precision agriculture as a management strategy that gathers, processes and analyses combinations of information to help support management decisions according to estimated variabilities for improved and sustainable agricultural production. Technology utilised by precision agriculture includes software- and hardware-based weather monitoring (which helps prevent losses due to climate disasters). It includes soil monitoring (which helps to keep the soil healthy, resulting in healthy crops being produced). This type of farming also offers pest surveillance, yield monitoring and disease monitoring, all of which decreases the loss of crops as a result of unseen pests. The technology includes opportunities for smarter irrigation and precision spraying, making farming much easier for smallholder farmers (UNDP, 2021).

The utilisation of precision farming comes with various advantages. This includes an increase in income, particularly for smallholder farmers, which is due to farmers not taking a uniform approach in the utilisation of pesticides, fertilizer, etc., which results in lower input costs. Environmental benefits are a key drawcard associated with precision farming. This arises due to a reduced need and usage of chemical inputs such as fertilizers and pesticides, which, in turn, leads to a reduction in chemical runoffs from farms into river bodies. The focus on variability can also lead to a reduction in the need for scarce natural resources.

This section draws on the various stakeholder engagements that were undertaken, and aims to provide a sense of the extent to which precision farming interventions are implemented with respect to smallholder farmers in South Africa.

The incorporation of precision farming methods is characteristic of the operations of commercial farmers, who possess both the resources and skills required to employ this approach. In contrast, the application of precision farming by smallholder farmers is limited. Whereas both government and private sector stakeholders agreed on the value of precision farming, where elements of this approach are being woven into the operations of smallholder farmers, there is a distinct divide in terms of the nature and level of sophistication of methods. Based on the stakeholder engagements, the extent to which government is advocating for and funding a precision or smarter approach to agriculture for the benefit of smallholder farmers relates to the use of applications using a mobile device, usually a cellular phone. Box 3 describes three creative applications (apps) that were launched by the Department of Agriculture, Environmental Affairs, Rural Development and Land Reform in the Northern Cape in October 2023. In terms of the reason for this limited approach, several provincial agriculture officials cited budget constraints as the primary inhibitor.

Box 3.2. Smart farming apps launched in the Northern Cape

YoAgro App
This app helps farmers plant their farming activities in advance. It helps farmers with aspects like crop rotation to avoid planting the same crop on the same land in consecutive seasons.

TAIG/Hello App
The app connects tractor owners to farmers in need of a tractor. It is described as 'uber for tractors'.

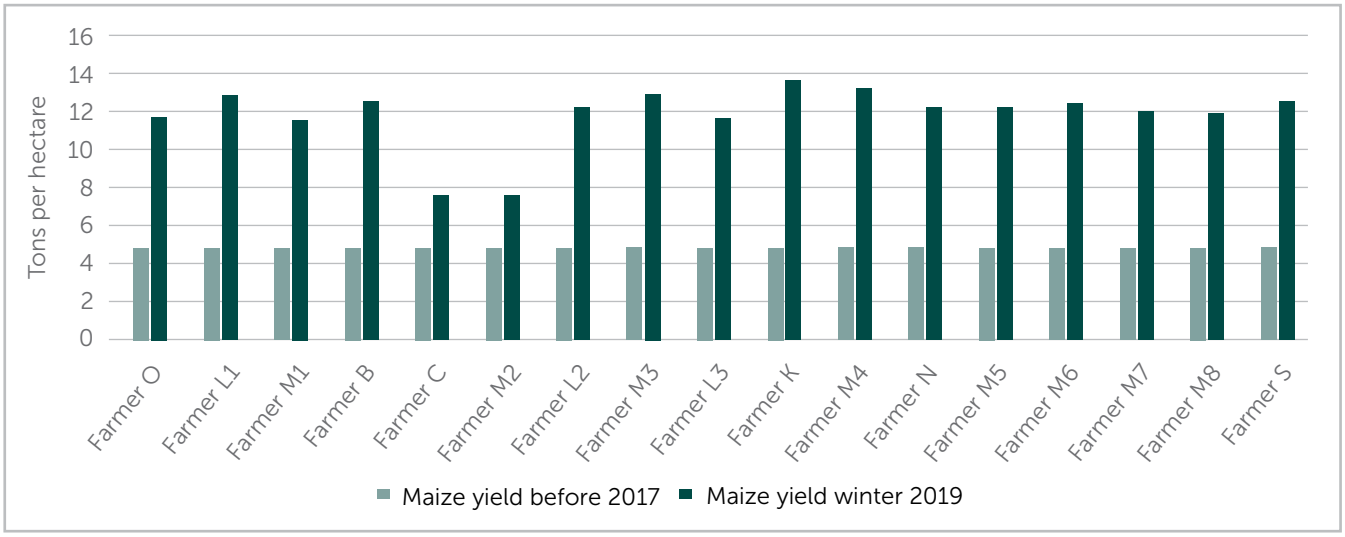
CattleWatch App
Through remote monitoring, this app assists farmers to manage cattle herds more effectively. It helps prevent stock theft through GPS and satellite tracking, thus serving as an early theft warning system. It also provides geofencing so as to prevent stock from straying out of specified areas.

Source: Stakeholder engagement and Northern Cape Province Instagram Page, 2023.

In contrast to government-funded opportunities to implement precision farming, the frequency and level of sophistication of precision farming methods funded by the private sector is at an advanced stage. While the application of precision farming is a common feature of commercial farming practices in South Africa, there are now several cases involving private sector support to black smallholder farmers to facilitate the use of precision farming methods. It should be noted that private sector support does not generally occur in a vacuum and in isolation from public sector involvement. Instead, government plays an important role in helping to unlock access to greater funding, for example from commercial banks or aid agencies. In addition, while private sector funding is, in most cases, also supported by both the public sector and industry through marketing levies, the support is often dictated through policies and mandates that do not include modern technology. Government, through more targeted policies and interventions that fund public-private partnerships (PPPs), has the power to unlock access to greater funding, from multilateral banks, developmental financial institutions and social impact investors (GWK, 2024).

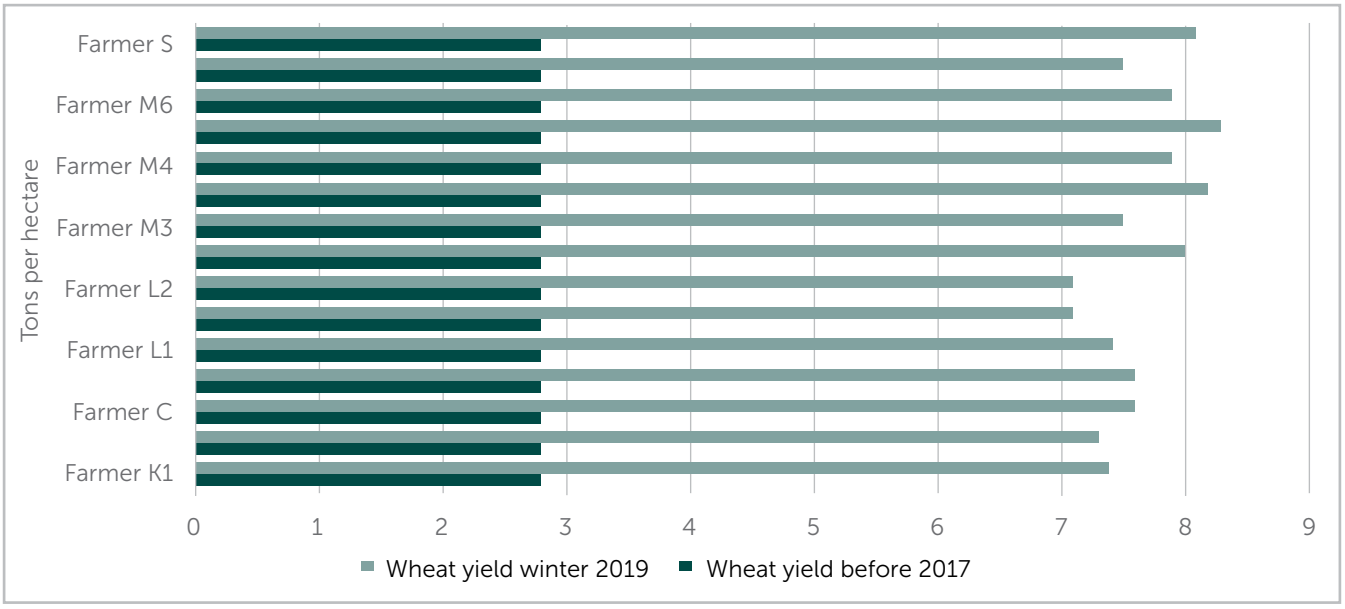
Figures 3.8 and 3.9 illustrate the yields for maize and wheat production before and after the implementation of precision farming for a group of farmers based in Taung, a rural village in the North West province. The group of farmers on which the data is based obtained private sector support to implement precision farming. The support encompasses both financial and non-financial assistance and includes assistance and advice with soil analysis (to determine the composition of nutrients and thus the ability of the soil to facilitate a healthy crop), soil preparation (which includes assistance with ploughing, levelling and manuring) and leaf analysis (to determine the presence of toxicities or imbalances in crops). Equipment such as probes and sensors are also provided to the farmers being supported. The performance data outlined in figures 3.8 and 3.9 confirms the contribution of precision farming to improving the yields and, potentially, the profits of smallholder farmers.

Figure 3.8. Example from Taung project: Maize yield prior to and after the implementation of precision farming (tons per hectare)



Source: Griekwaland Wes Korporatief Limited, 2024.

Figure 3.9. Example from Taung project: Wheat yield prior to and after the implementation of precision farming (tons per hectare)



Source: Griekwaland Wes Korporatief Limited, 2024.

However, precision agriculture in the absence of holistic support will not be sufficient to address smallholder faremers' lack of adaptive capacity, especially within the context of failing socio-economic infrastructure and other challenges, including geopolitical tensions, and an unstable global financial system (GWK, 2024). A key aspect emphasised in the model of the private sector support provided to the group of Taung smallholder farmers is a universal basic income. Thus, in addition to the technical assistance to implement precision farming, a financial support component, specifically the provision of a monthly stipend, is included. The rationale behind this approach is that, while smallholder farmers are often passionate and committed to farming, concerns around meeting the basic needs of their families often results in a large part of their time being committed to part-time jobs to earn an income to be able to feed their families, pay for shelter and fulfil other basic needs. This diverts the attention and energies of the smallholder farmers away from being able to focus on farming. To mitigate this challenge, a monthly stipend is allocated to the farmers as part of the package of support provided, thus allowing them to devote greater time and focus to farming. In addition, the support provided by the private sector is not free. Once the smallholder farmer starts to make a profit, repayment of the money that was invested to secure their success commences. Thus, over and above the merits associated with precision farming, contributing to long-term sustainability requires a holistic approach to support that recognises the practical obstacles that can hamper success.

The adoption of precision farming technologies should be at the forefront of government's arsenal to drive the commercialisation of South Africa's black smallholder farmers, especially if the intention is to increase their agricultural productivity, sustainability and profitability. Publicly funded precision farming programmes, implemented through public-private partnerships, can offer tailored support to smallholder farmers, enabling them to overcome barriers related to cost, knowledge and access. The evidence contained in the performance data illustrates the potential benefits of precision farming initiatives, which can be a powerful tool in achieving transformation by allowing for the inclusion of the smallholder farmer and increasing both their competitiveness and profitability.

3.7 CONCLUSION

The agricultural sector is positioned to play a critical role in fostering socio-economic growth and development in South Africa. As indicated in previous Commission research on agriculture (see FFC, 2020), the sector has yet to realise its full potential for growth and productivity. This remains the case. As acknowledged by government and research, improving the performance of smallholder farmers, provides an avenue for unlocking this potential. This analysis therefore sought to identify reforms to help facilitate transformation and improve the performance of smallholder farmers in South Africa.

As a result, this chapter conducts a two-pronged analysis that focussed firstly on analysing a selection of existing financial and non-financial support interventions provided to smallholder farmers and secondly, assessing the extent to which precision farming can assist in improving the performance of smallholder farmers.

The analysis of the existing interventions indicates that budget prioritisation of agriculture is limited with few resources thinly spread across an ever-increasing number of recipients. While this approach

ensures that many smallholder farmers can access some funding, its contribution to strengthening the long-term sustainability of smallholder farmers in South Africa, is limited. In addition, there are various pools of public funding located within and outside the agriculture sector which are aimed at assisting smallholder farmers. Consolidating all available resources to ensure targeted and more comprehensive funding would be more beneficial to ensuring the sustainable, long-term development of smallholder farmers. In terms of non-financial support, while the DALRRD is doing much to facilitate access to markets for farmers, this analysis highlights the opportunities presented by public procurement from smallholder farmers. This approach would quickly provide a market for smallholder farmers' produce.

Infusing the use of data and technology in the agriculture sector has the potential to improve agricultural performance. To this end, the analysis in this chapter adopted a forward-looking lens by focusing on the opportunities offered by precision farming. The literature scanned confirms the benefits that can be reaped from this approach to farming which, at its core, is about taking a variable approach to farming that minimises waste and improves productivity. Data from a private sector-led intervention with smallholder farmers in the rural town of Taung, attests to the positive impact precision farming can have on farmer yields. Through stakeholder engagement, it is clear that government officials in the agricultural sector agree with the benefits that can be derived from a precision farming approach. However, government's limitation is based on unavailability of resources. In this regard, drawing from what is envisaged in the Agriculture and Agro-processing Master Plan, government should partner with the private sector and invest in a pilot project that focuses on rolling out precision farming with smallholder farmers in South Africa. In this regard, the public sector can learn much from the private sector experience and model of support being implemented. Working in partnership, government and the private sector can facilitate the transformation and sustainability of smallholder farmers in South Africa.

3.8 RECOMMENDATIONS

The Commission makes the following recommendations:

1. The Department of Agriculture, Land Reform and Rural Development should consider consolidating the three agriculture conditional grants (the Comprehensive Agricultural Support Programme, Ilima Letsema and the Land Care Grant), along with other existing pools of funding geared at assisting smallholder farmers, to ensure that the assistance provided can contribute to the long-term sustainability of smallholder farmers.

The provincial budget prioritisation of agriculture is relatively low when compared to resources allocated to education, health and social development. Provincial agriculture departments have consistently received below 2 per cent of provincial funds over the past few years. Similarly, the growth of allocations has remained muted at under 2 per cent in annual average growth terms over the period 2019/20–2025/26. Thus, limited funding is thinly distributed across numerous beneficiaries with the average conditional grant allocation per beneficiary being insufficient to contribute to the long-term sustainability of smallholder farmers. It would therefore be more advantageous for government to consider consolidating available resources aimed at assisting smallholder farmers with the objective of providing a comprehensive package of assistance.

2. As a means of strengthening food security and facilitating transformation in the agricultural sector, public food procurement from smallholder farmers should be actively supported. Consideration should be given to establishing a conditional grant to enable provincial departments of Agriculture to assist smallholder farmers, at least initially, with costs associated with supply integration.

Access to a market presents a common barrier to the long-term sustainability of farmers. To alleviate this challenge, governments can adopt a targeted approach by opening government markets via public food procurement from smallholder farmers. With the proviso that adequate care is taken to balance preferential procurement against the maintenance of traditional procurement principles to avoid misuse, public food procurement can be a viable vehicle to achieve social, economic and environmental goals, and has proven advantageous across several developing countries. In addition, risks regarding smallholder farmers not being able to consistently cope with demand can be mitigated through farmer supply partnerships. However conditional grant funding to enable provinces to assist farmers with the development of infrastructure and acquisition of logistic-related needs associated with becoming part of the formal supply chain process is critical. This includes, for example, the need to construct packhouses and acquire refrigerated trucks for transportation.

3. To strengthen the performance of smallholder farmers and promote greater transformation of the agricultural sector, government should enter a public-private partnership to drive the implementation of precision farming more widely with smallholder farmers.

An assessment of the performance of smallholder farmers that have implemented precision farming highlights the benefits of this approach, such that smallholder farmer yields are comparable to those of commercial farmers. While the initial financial outlay may present a hurdle to smallholder farmers being able to implement this approach, with collaboration between government and the private sector, the challenge of unlocking financing can be easily overcome. A PPP approach will not only minimise the financial pressure on government, particularly in light of the current strained economic environment, but it also provides an opportunity to leverage the expertise of the private sector, where this approach to farming has been implemented over a much longer time. In terms of the design of the partnership, particularly around roles and responsibilities, the Minister of Finance should take the lead, working with the Minister of Agriculture, Land Reform and Rural Development, and the private sector. The role of government should be largely focused on providing a facilitative policy and regulatory environment for the promotion of precision farming.

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4. JUDICIAL SYSTEM IMPROVEMENT

Evaluating the efficiency of the South African judicial system

CHAPTER 4:
Evaluating the efficiency of the South African judicial system

4.1 INTRODUCTION

The growth of an economy does not only depend on economic factors, but also on institutions. The judicial system is one of the institutions that has the greatest impact on economic performance (Lorizio and Gurrieri, 2014). An increasing body of literature indicates that an efficient judicial system directly promotes growth (Ippoliti and Tria, 2020). The Organisation for Economic Cooperation and Development (OECD) (2013) indicates that the judicial system is central in directing economic performance and contributes to the safeguarding of societal values. From a growth perspective, the importance of a well-functioning judiciary lies in its ability to create an environment that is stable, predictable and attractive for investors and firms. To this end, the protection of property rights and strong contract enforcement are key elements that make for a stable, less risky business environment. According to Shepard, "(W)hen better able to predict the risk, enterprises can more effectively plan their affairs, allowing them to expand current initiatives and enter new markets" (Shepard, 2011: 990). Growth in the number of firms can potentially lead to job creation, growth and productivity gains. From a societal values point of view, the functioning of the judiciary is critical, especially in a country like South Africa where the civil and socio-economic rights outlined in the Constitution are justiciable and central to achieving socio-economic transformation and holding the government to account. A country's judicial system thus plays a vital role in ensuring overall justice and facilitating social and economic development. To fulfil this role, the operation of the judicial system must be based on impartiality, effectiveness, timeliness and efficiency (Valencia Santiago and Almanza Ramirez, 2022).

The South African judicial system is not achieving the desired outcomes, despite significant investments (Redpath, 2022). On most measures, the performance and outcomes of the judicial system have deteriorated, and the system has proven prone to efficiency and effectiveness challenges, which include administration hurdles, the absence of relevant technology for the informatisation and modernisation of the courts, and a shortage of judges and magistrates. This has led to increasing costs and delays in case processing times, congestion and backlogs, declines in resolved cases, and a lack of incentives to positively influence judges' productivity. Presently, criminal case backlogs remain high at 49 per cent compared to the desired benchmark of 30 per cent. Moreover, case processing times are long, with approximately more than 11 cases postponed on a day-to-day basis. As reflected in the National Development Plan (NDP), South Africa recognises the significance of an efficient and productive judicial system and, as a result, efforts have been made to address the challenges that plague the South African judicial system. This includes significant policy priority attached to building a well-functioning judicial system and the implementation of various reforms as recommended in the NDP. The purpose of this study is to assess the efficiency of the South African judicial system.

4.2 CONTEXTUALISING THE SOUTH AFRICAN JUDICIAL SYSTEM

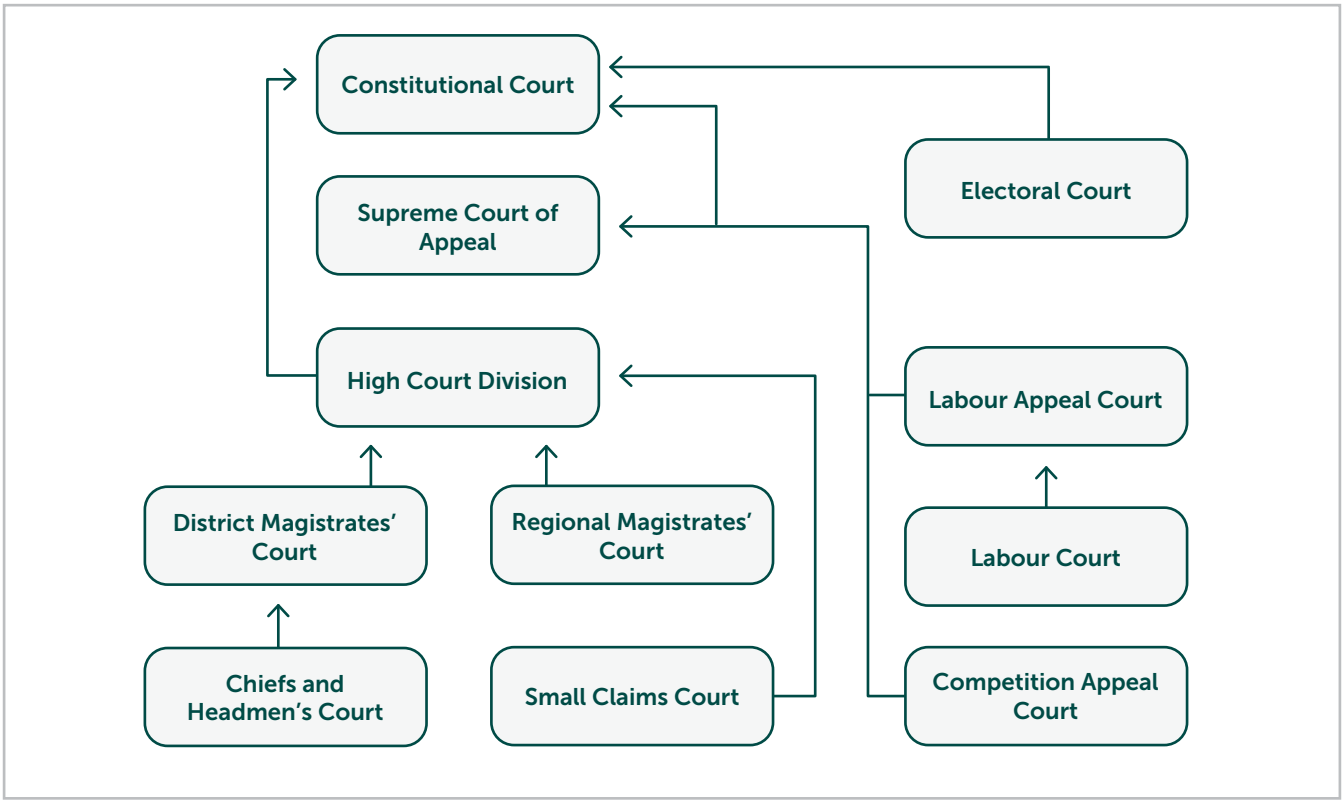
4.2.1 Structure of the judicial system

In South Africa, the judicial system is synonymous with the courts, including the judges, magistrates, clerks and other officials in charge of the daily operations of the court system and the regulations that govern it. According to schedule 4 of the Constitution, the judicial system is a national competency, with section 171 indicating that courts function in terms of national legislation, and their rules and procedures must be provided for in terms of national legislation (RSA, 1996).

From a functional perspective, section 165(6) of the Constitution lists the Chief Justice as the head of the judiciary and allocates responsibility for the establishment and monitoring of norms and standards for the exercise of the judicial functions of all courts to the Chief Justice. Practically, the Office of the Chief Justice (OCJ) oversees the superior courts, including special courts, while the Department of Justice and Constitutional Development (DoJ&CD) oversees all the lower courts.

Section 166 of the Constitution outlines the types of courts within the South African judicial system. These comprise the Constitutional Court, the Supreme Court of Appeal, the High Court, the magistrates' courts and any other court established or recognised in terms of an Act of Parliament, including any court of a status similar to either the High Court or the Magistrates' Court (RSA, 1996). Currently, there is one constitutional court, one supreme court of appeal, 16 high courts, 14 specialised courts and 679 lower courts, comprising all magistrates' courts and small claims courts. The hierarchy underpinning the courts specified in section 166 of the Constitution is illustrated in Figure 4.1.

Figure 4.1. Design and organisation of the South African judicial system



Source: Adapted from the Department of Justice and Constitutional Development and Commission's own compilation.

Different courts have different jurisdictions, which can be broadly categorised into civil and criminal matters. One of the notable distinctions between the two is punishment. In terms of civil matters, the outcomes generally result in monetary damages or orders to do or not do something (known as injunctions), while outcomes from a criminal matter involve both prison sentences and monetary fines (Ahmad, 2022). Table 4.1 presents the different courts along with their respective jurisdictions.

Table 4.1. Jurisdiction of the courts

Court	Jurisdiction
Constitutional Court	• The highest court on all constitutional matters. • Matters are referred to it from the Supreme Court of Appeal or the High Court. • Certain constitutional matters are reserved for the exclusive jurisdiction of this court. • It is seated in Johannesburg and matters are heard by at least eight judges.
Supreme Court of Appeal	• The highest court of appeal in respect of civil and criminal matters, excluding constitutional matters. • It is not a court of first instance; it only hears matters from the High Court. • It is seated in Bloemfontein and matters are heard by five judges.
High Court	• Currently consists of 16 divisions. • A court of first-instance and can be a court of appeal for the Magistrates' Court or High Court. • Attends to civil and criminal matters and matters involving a person's status.
Magistrates' Court	• Consists of district courts and regional courts. There are about 500 district courts. • The district courts have jurisdiction over minor criminal matters and civil matters up to R200 000. • The regional courts have jurisdiction over family matters like divorces, maintenance, custody matters and civil matters between R200 000 and R400 000.
Small Claims Court	• Can only hear claims instituted by natural persons against natural or juristic persons; not the state. • Its jurisdiction limit is currently R15 000.
Special courts	
Labour Court and Labour Appeal Court	• Labour Court has the same status as the High Court. Exclusive jurisdiction in respect of all matters in terms of the Labour Relations Act and any other labour law. • The Labour Appeal Court has the same status as the Supreme Court of Appeal. It is the final court of appeal in respect of judgments and orders made by the Labour Court.
Divorce Court	• There were previously three stand-alone divorce courts, but they now form part of the regional divisions of the Magistrates' Court. • The regional division of the Magistrates' Court hears divorce matters on certain days of the week. • Both the Regional and High Court can deal with divorce matters.
Competition Appeal Court	• It has the status of a High Court. • It reviews or considers an appeal against any decision of the Competition Tribunal (the Tribunal adjudicates restrictive practices, abuses or dominant positions and mergers).
Electoral Court	• It has the status of a High Court. • Reviews any decision of the Electoral Commission relating to an electoral matter and appeals against decisions of the Electoral Commission.
Children's Court	• Every Magistrates' Court is a Children's Court and shall have jurisdiction on any matter arising from the Children's Act. • The High Court is the upper guardian of all children who are below 18 years of age.
Maintenance Court	• Every Magistrates' Court is a Maintenance Court (district level) and shall have jurisdiction on any matter arising from the Maintenance Act.
Equality Court	• Hears matters relating to contraventions of the Promotion of Equality and Prevention of Unfair Discrimination Act. • Every Magistrates' Court and High Court is also an Equality Court.

Court	Jurisdiction
Income Tax Court	• Hears income tax appeals of persons dissatisfied with decisions made by the Commissioner of the South African Revenue Service where the dispute involves an income tax assessment of more than R1 000 000. • Tax disputes involving an assessment of less than R1 000 000 go to the Tax Board.
Land Claims Court	• It has the status of a High Court. • Exclusive jurisdiction determining the right to restitution of any land in accordance with the Restitution of Land Rights Act to determine issues of compensation in respect of the appropriation or acquisition of such land.
Court of Chiefs and Headmen	• It has the status of a Magistrates' Court. • Hears customary issues in respect of customary law by an authorised Chief Headman or Deputy.
Military Court	• The South African National Defence Force is subject to the jurisdiction of the Military Court.
Child Justice Court or Juvenile Court	• Child justice system for children.
Sexual Offences Court	• Children or victims get the necessary respect, care and support in respect of sexual offences.
Commercial Crimes Court	• Hears commercial crime cases.

Sources: RSA (2006) The Judiciary (2022).

4.2.2 Key reforms in the South African judicial system

The transformation of the judicial system forms part of the broader agenda to transform the state and society. It is anticipated that the envisaged system must lay the foundations for the development of a society that is based on human dignity, equality and the fair administration of justice. The transformation of the judicial system seeks to ensure that courts are well placed to play a meaningful role in the pursuit of the broader transformation goals of a democratic society. The process of transformation also seeks to ensure that the judiciary is appropriately positioned to respond to the diverse needs of society, and thus play a meaningful role in the realisation of a better life for all.

The transformation of the South African judiciary has received considerable attention over two decades of judicial review (DPME, 2014). Several legislative changes to advance institutional reform and further enhance access to justice have been undertaken (DoJ&CD, 2012). The first important piece of legislation enacted and amended was the Magistrates' Act, No. 90 of 1993, which aimed to regulate the function of the Magistrates' Commission, as well as the appointment and remuneration of magistrates. The transformation of the judiciary was also given impetus by the enactment of three pieces of legislation that aimed to regulate matters relating to the remuneration, training and misconduct of judicial officers. To improve service delivery and the swift evolution of the judiciary, the South African Judicial Education Institute (SAJEI) was founded by the South African Judicial Education Institute Act of 2008. The SAJEI offers judicial officers' education and training. The Judicial Conduct Committee was established under the Judicial Service Commission Amendment Act to deal with complaints regarding judges. The Amendment Act also established the Judicial Conduct Tribunal to look into and report on claims of incapacity, gross incompetence, or gross misconduct against judges.

Despite several pieces of legislation being enacted to strengthen judicial governance and accountability, the judiciary is still confronted by challenges relating to the implementation of some of the Acts passed to enhance judicial accountability and access to justice. Firstly, the Judicial Service Commission Act, No. 9 of 1994, and the subsequent Judicial Service Commission Amendment Act, No. 20 of 2008, established the Judicial Service Commission to regulate aspects relating to the appointment of and complaints involving judges. Secondly, the Magistrates' Act established the Magistrates' Commission to regulate aspects relating to the appointment of and complaints involving magistrates. Thirdly, the Judge's Remuneration and Conditions of Service Act was established to provide for the remuneration and conditions of service of judges consistent with the constitutional and international principles of the independence of the judiciary. Finally, the Independent Commission for the Remuneration of Public Office Bearers Act established a transparent mechanism for the determination of salaries and allowances of judicial officers to further strengthen judicial independence.

There are also important programmes geared to advance the transformation of the judicial system. These include the Review of the Criminal Justice System (CJS), the Civil Justice Reform Programme and initiatives to advance a single and unified judiciary. The transformation of the criminal justice system is an initiative of the Justice, Crime Prevention and Security (JCPS) Cluster, through which government aims to improve the efficiency of the criminal justice system and intensify the fight against crime and corruption. The blockages identified by the CJS Review led to the implementation of a comprehensive plan of action to renew the criminal justice system through the implementation of a seven-point plan approved by Cabinet. The integrated JCPS Delivery Agreement and the Seven-point Implementation Plan for the Review of the CJS have made significant progress in meeting the targets of the JCPS Cluster.

The judiciary plays a significant role in the fight against crime and corruption. It contributes to the speedy adjudication of cases and meting out sentences that have a deterrent effect. The Civil Justice Reform Programme (CJRP) constitutes one of the DoJ&CD's flagship programmes. It seeks to overhaul the civil justice system to bring it in line with the Constitution. The primary aim of the review is the alignment of the civil justice system with constitutional values, and the simplification and harmonisation of rules to make justice easily and equally accessible to all, particularly the vulnerable and poor members of society. An effective and efficient justice system is indispensable for upholding the rule of law in the country. The existence of adequate measures for the enforcement of civil obligations has the effect of increasing investor confidence, which is essential for the growth and development of our society and state (DoJ&CD, 2012).

Considering counteracting challenges confronting the judiciary, the NDP – through its vision of an efficient and effective criminal justice system–affirmed an efficient and productive judiciary as a key component towards economic development via the administration of justice. The initiated reforms through the NDP established an interest that necessitated a full, integrated and holistic approach, including adopting a single vision and mission, establishing – through legislation or by protocol – a new and realigned single coordinating and management structure, making substantial changes to the present court process, putting priorities into operation that have been identified for the different parts of the system, establishing an integrated and seamless information and technology database or systems, modernising – in an integrated and holistic way – all aspects of systems and equipment, and involving the public in the fight against crime by introducing changes to community policing forums (National Planning Commission, 2013: 388–389).

4.3 PROBLEM STATEMENT

The South African judicial system is confronted by a myriad of challenges, including high case backlogs, delays in case processing and long case completion times. The result is a declining number of resolved cases and increased case backlogs while the number of cases brought to court constantly increases. For example, between 2015/16 and 2022/23, case backlogs for high courts increased by 44 per cent. Furthermore, the rate at which case backlogs are reduced is low. The desired benchmark is 30 per cent relative to the existing rate of 49 per cent. Case processing times are significantly long, with an estimated 11 cases postponed on a day-to-day basis. The highlighted performance issues associated with the South African judicial system warrant an understanding of the efficiency of the system and the identification of prospective reforms that can be undertaken to improve performance.

The specific research objectives of this chapter are as follows:

- Identify the key challenges and empirically assess the efficiency of the South African judicial system
- Conduct a review of the design and operational features of well-performing judicial systems and distil lessons for South Africa
- Evaluate the progress of the South African judicial system in relation to the identified design and operational features of well-performing judicial systems

4.4 METHODOLOGY

The study adopted a two-pronged, quantitative methodological approach. Firstly, secondary data was analysed to gain a sense of the financial and human capital resources allocated in respect of the functioning of the judicial system. In the case of financial resources, expenditure data was analysed for all court types between 2016 and 2023. With respect to human capital resources within the judicial system, data on total staff relative to the number of judges and magistrates was analysed again for 2016 and 2023. The second approach that was employed was the Data Envelopment Analysis (DEA) technique, which was used to measure the efficiency of the courts for 2016 and 2023. The selection of the DEA method is based on a review of studies aimed at assessing the efficiency of a judicial system and which highlight the appropriateness of this technique. DEA was chosen over other techniques such as the stochastic frontier analysis because the former allowed for the identification of efficient and inefficient courts overall within the entire sample of courts and within the same court category. The selection of the years 2016 and 2023 allowed for an evaluation of progress following the implementation of strategic reforms within the judicial system as recommended in the NDP.

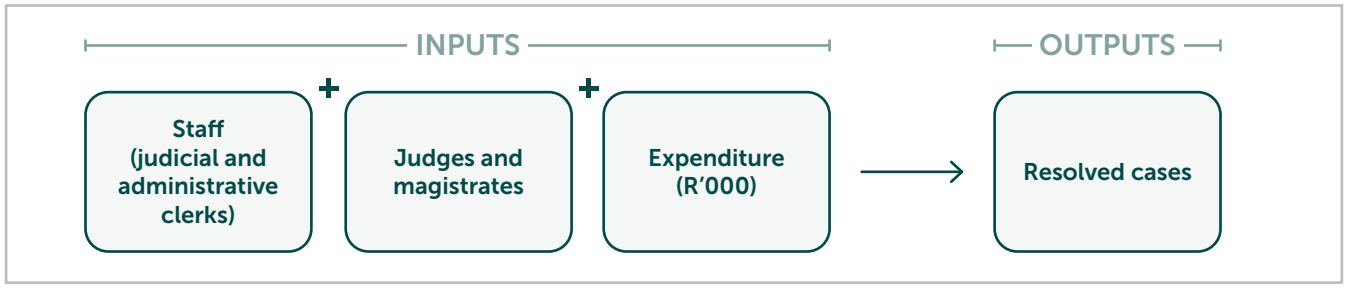
4.4.1 Data and variable specifications

The data used in this study was sourced from the OCJ and the DoJ&CD.[1] The data from the OCJ included data for superior courts comprising one constitutional court, one supreme court of appeal, 14 high court divisions and two specialised courts. On the other hand, the data from the DoJ&CD included 307 magistrates' courts across different provinces. Thus, the data used in the statistical analysis was based on the availability of data provided by the two aforementioned government entities. The precise specification of the variables and the overall model was adopted from a study by Achanchabe and Akaaboune (2021).

1 The descriptive statistics describing the data is included as Appendix A.

Figure 4.2 provides an illustration of the inputs and output used in the model. Number of judges and magistrates, total number of staff (administrative and judicial clerks) and overall expenditure were used as inputs. The emphasis on staff variables in the input specification is due to the labour-intensive nature of the judicial system. One output variable – the number of resolved cases – was used as this is the main output of the courts. It should further be noted that, in terms of superior courts, resolved cases included all types of cases (civil and criminal), whereas in the case of magistrates' courts, only criminal cases were considered. Again, the difference in the type of resolved cases included was based on the availability of data provided by the OCJ and the DoJ&CD.

Figure 4.2. Model framework



Source: Commission's compilation.

4.4.2 Data Envelopment Analysis

DEA is a linear programming methodology used to evaluate the efficiency of multiple decision-making units (DMUs) when the production process consists of multiple inputs and outputs. DEA consists of two basic models. The first is the Charnes-Cooper-Rhodes (CCR) model, which assumes that the units operate under constant returns to scale (CRS). The second is the Banker-Charnes-Cooper (BCC) model (Banker et al., 1984), which assumes a variable return to scale (VRS). For this analysis, the BCC model was applied under the VRS assumption to measure the efficiency of groups of courts in different sub-sectors. According to Achenchabe and Akaaboune (2021), the utilisation of this model is well suited for this analysis as the sub-sectors considered are monopoly systems that are difficult to operate on an optimal scale. In addition, given that the challenges confronting the judicial system are attributed to high case backlogs, pending and outstanding cases, and long case processing times, including periods of postponement, it is reasonable to opt for maximising outputs rather than minimising inputs. An output-oriented approach should therefore be applied. According to Johnes (2004), the technical efficiency of the DMU (k) is measured by the ratio between the weighted sum of the outputs (s) and that of the inputs (m) – as indicated by the following formulation:

$$TE_K = \frac{\sum_{r=1}^{s} u_r y_{rk}}{\sum_{i=1}^{m} v_i x_{ik}}$$

Whereby:

y_{rk} is the quantity of output produced by the DMU (k); x_{ik} is the quantity of input i consumed by the DMU (k); u_r is the weight of the output r; and v_i is the weight of the input i. Moreover, by maximising the ratio TE_K, the linear programming for each DMU can be solved as follows:

$$MAX \frac{\sum_{r=1}^{s} u_r y_{rk}}{\sum_{i=1}^{m} v_i x_{ik}}$$

Subject to constraints,

$$\frac{\sum_{r=1}^{s} u_r y_{rk}}{\sum_{i=1}^{m} v_i x_{ik}} \leq 1. \qquad j = 1, \ldots, n$$

$$u_r, v_i > 0 \qquad \forall r = 1, \ldots, s; i = 1, \ldots, m$$

The primary equation for the output-oriented VRS model utilised in this chapter is as follows; and represents the multiplier form of the problem solved:

$$MIN \sum_{i=1}^{m} v_i x_{ik} - c_k$$

Subject to constraints,

$$\sum_{i=1}^{m} v_i x_{ik} - \sum_{r=1}^{s} u_r y_{rj} - c_k \geq 0$$

$$\sum_{r=1}^{s} u_r y_{rk} = 1$$

$$u_r, v_i > 0. \qquad \forall r = 1, \ldots, s; i = 1, \ldots, m$$

Where: v_i is the weighted coefficient of each input.

4.5 ANALYSIS

4.5.1 Trends analysis of performance of the South African judicial system

This section provides an assessment of the South African judicial system from the perspective of budget utilisation, human resource shortages of critical staff, and performance measured by resolved cases.

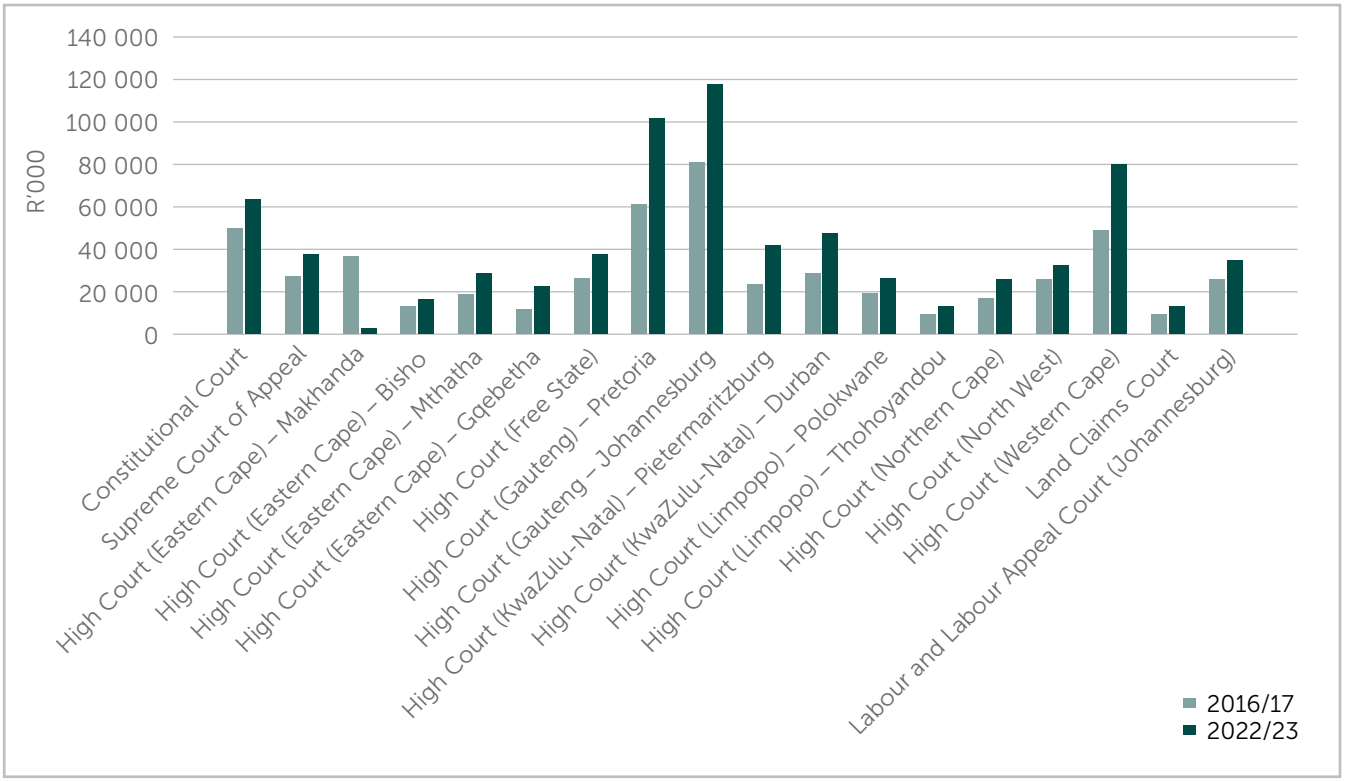
EXPENDITURE

This section provides an in-depth analysis of expenditure trends for superior, specialised and magistrates' courts for 2016/17 and 2022/23. The results for magistrates' courts are aggregated in terms of provinces. This is due to the sheer quantity of the magistrates' courts. Figure 4.3 and Figure 4.4 present spending trends for all court categories. Over the periods assessed, expenditure within the court system gradually increased. During the 2016/17 and 2022/23 reporting periods, the compensation of employees was the largest cost driver within the courts, illustrating the labour-intensive nature of the sector. In the years reviewed, funds were earmarked for new developments as part of the judicial reform recommended in the NDP. The first development was aimed at ensuring that justice proceedings led to a reduction in case backlogs through the dedication of case backlog courts before the end of the 2016/17 reporting period.

Over the assessment period, government's primary focus was on improving the efficiency and effectiveness of the court system, and reducing inefficiencies in court administration by implementing an ICT Master System Plan that aims to modernise court processes and systems. Through the implementation of

norms and standards, this was further anticipated to enhance efficiency and the timeous delivery of judgments. To this end, automating and digitising court systems and processes requires investing in high-speed telecommunications, computers and other technologies, which presents another reason for the increased spending. The expansion of litigation procedures propelled the improvement of specialised courts, hence the significant increase in spending over the period assessed. In the same period, spending in the Constitutional Court increased by 22.3 per cent (amounting to R14.2 million), while the Supreme Court of Appeal spent R37.7 million in 2022/23, accounting for an increase of 29.3 per cent from the initial R27.3 million spent in the 2016/17 period.

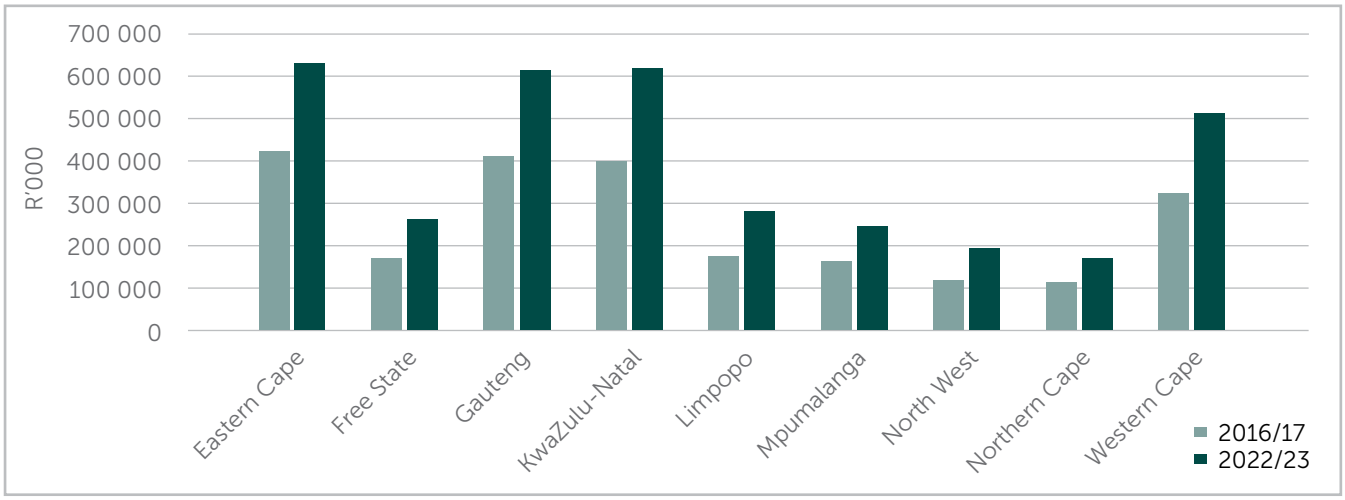
Figure 4.3. Expenditure in superior courts



Source: Commission's compilation based on data from the Office of the Chief Justice and the Department of Justice and Constitutional Development.

For magistrates' courts, spending increased significantly for all provinces in 2022/23, compared to 2016/17 (Figure 4.4). The increased spending was prompted by the implementation of measures to improve efficiency in magistrates' courts. From a provincial lens, the Eastern Cape, Gauteng, KwaZulu-Natal, and the Western Cape magistrates' court divisions spent the highest, with amounts ranging between R517 and R634 million, while the Northern Cape spent the lowest at R175.6 million in 2022/23. Spending in magistrates' courts across all provinces followed the same trend in 2016/17. During these periods, funds were earmarked to support the objective of building safer communities by providing and improving court infrastructure and enhancing access to court services.

Figure 4.4. Expenditure in magistrates' courts by province

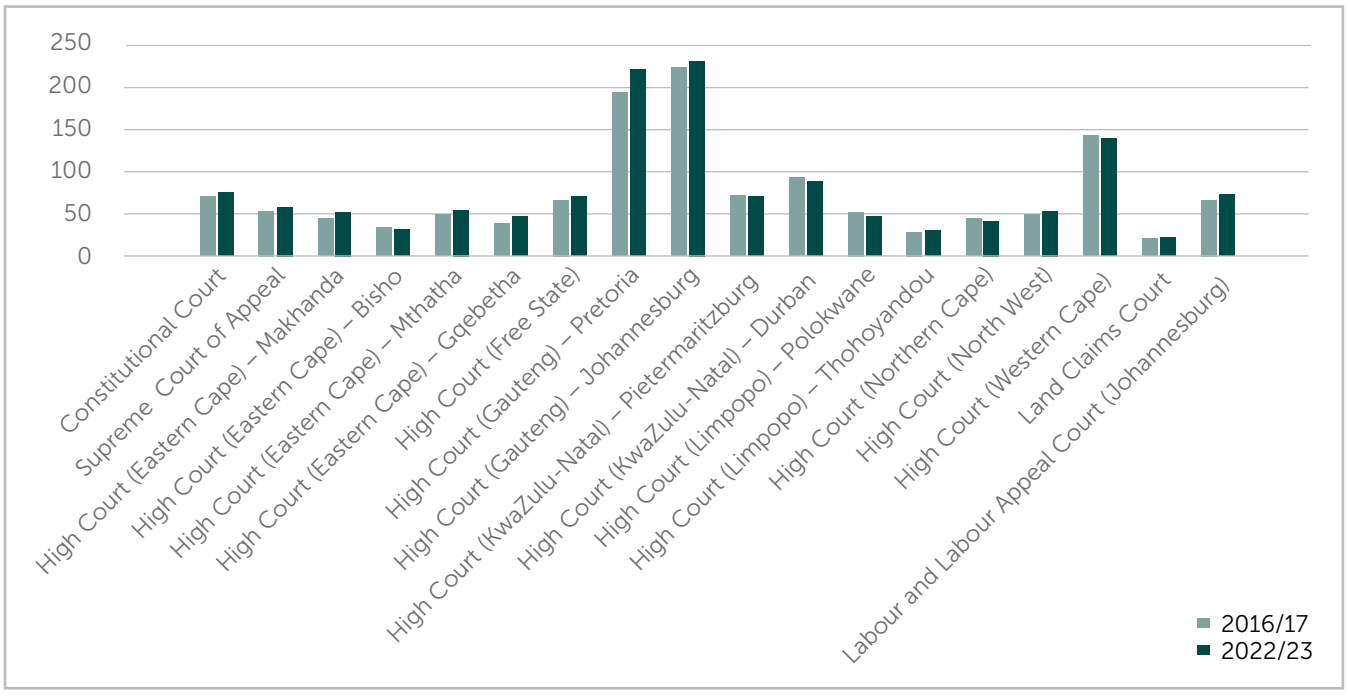


Source: Commission's compilation based on data from the Office of the Chief Justice and the Department of Justice and Constitutional Development.

TOTAL STAFF RELATIVE TO JUDGES AND MAGISTRATES

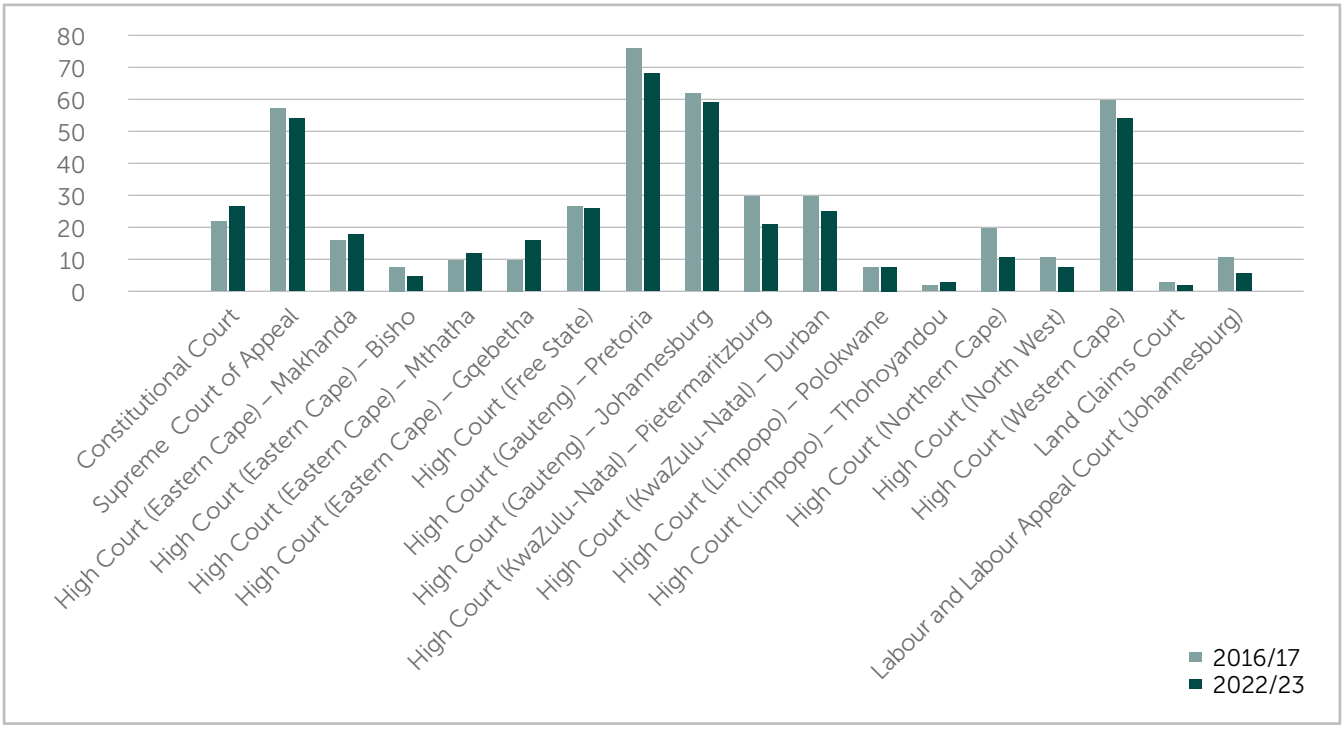
Figure 4.5 illustrates the total number of staff in 2016/17 and 2022/23, while Figure 4.6 hones in on the number of judges in superior courts. Generally, the number of judges and staff members was moderate across all superior courts assessed. However, the Gauteng High Court divisions experienced a significant increase with the total number of staff increasing to 444 in 2022/23, from 411 in 2016/17. Alongside this, the number of judges in the Gauteng High Court divisions recorded a downward change from 138 in 2016/17 to 127 in 2022/23 (Figure 4.6). To address high crime levels, the intention of the judiciary was to increase the number of judges, thus potentially increasing the number of criminal cases resolved, including those resolved through ADR mechanisms.

Figure 4.5. Staff in superior courts



Source: Commission's compilation based on data from the Office of the Chief Justice and the Department of Justice and Constitutional Development.

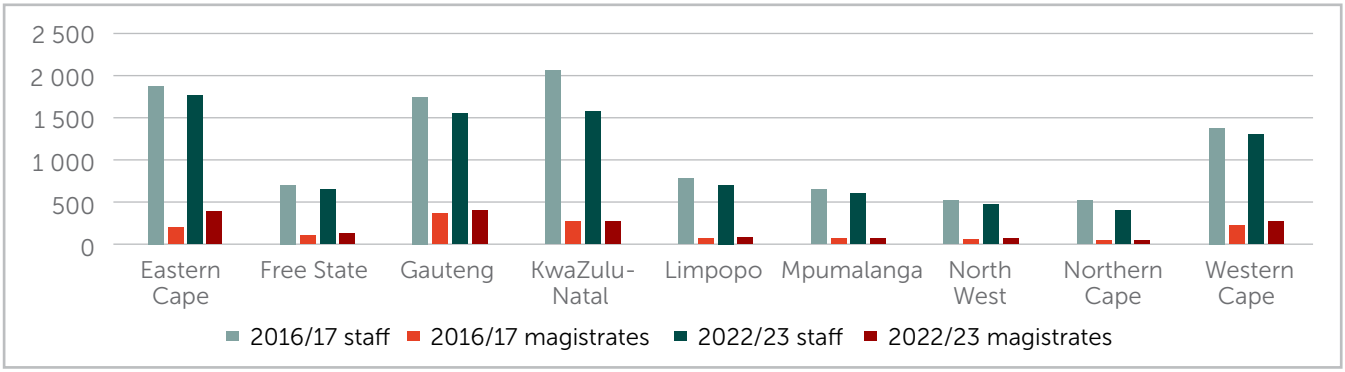
Figure 4.6. Judges in superior courts



Source: Commission's compilation based on data from the Office of the Chief Justice and the Department of Justice and Constitutional Development.

In terms of magistrates' courts, Figure 4.7 shows that, while most provinces showed moderate changes in the total number of staff, the total number of staff was significantly high in the Eastern Cape, Gauteng, KwaZulu-Natal and Western Cape. Of concern is the relatively low number of magistrates across all provinces, with the Free State experiencing a decline of 3 per cent in the number of magistrates from 2016/17 to 2022/23. The challenge of the dire shortage of judges and magistrates across all courts is highlighted in the 2021/22 Annual Judiciary Report. Given the labour-intensive nature of the judiciary, the low number of magistrates is a likely contributor to the increasing number of backlog cases , as the number of backlog cases is about half the number of resolved cases across the different magistrate courts.

Figure 4.7. Magistrates and staff in magistrates' courts by provinces



Source: Commission's compilation based on data from the Office of the Chief Justice and the Department of Justice and Constitutional Development.

Table 4.2 provides an indication of the caseload confronting judges and magistrates. The decline in the number of judges in superior courts is evident, while a slight increase in the number of magistrates is recorded in 2023 relative to 2016. Looking at the number of judges and magistrates relative to the number of resolved cases for 2016 and 2023 in Table 4.2 highlights the high caseload of judges and magistrates in South Africa.

Table 4.2. Average caseload for judges and magistrates, 2016 and 2023

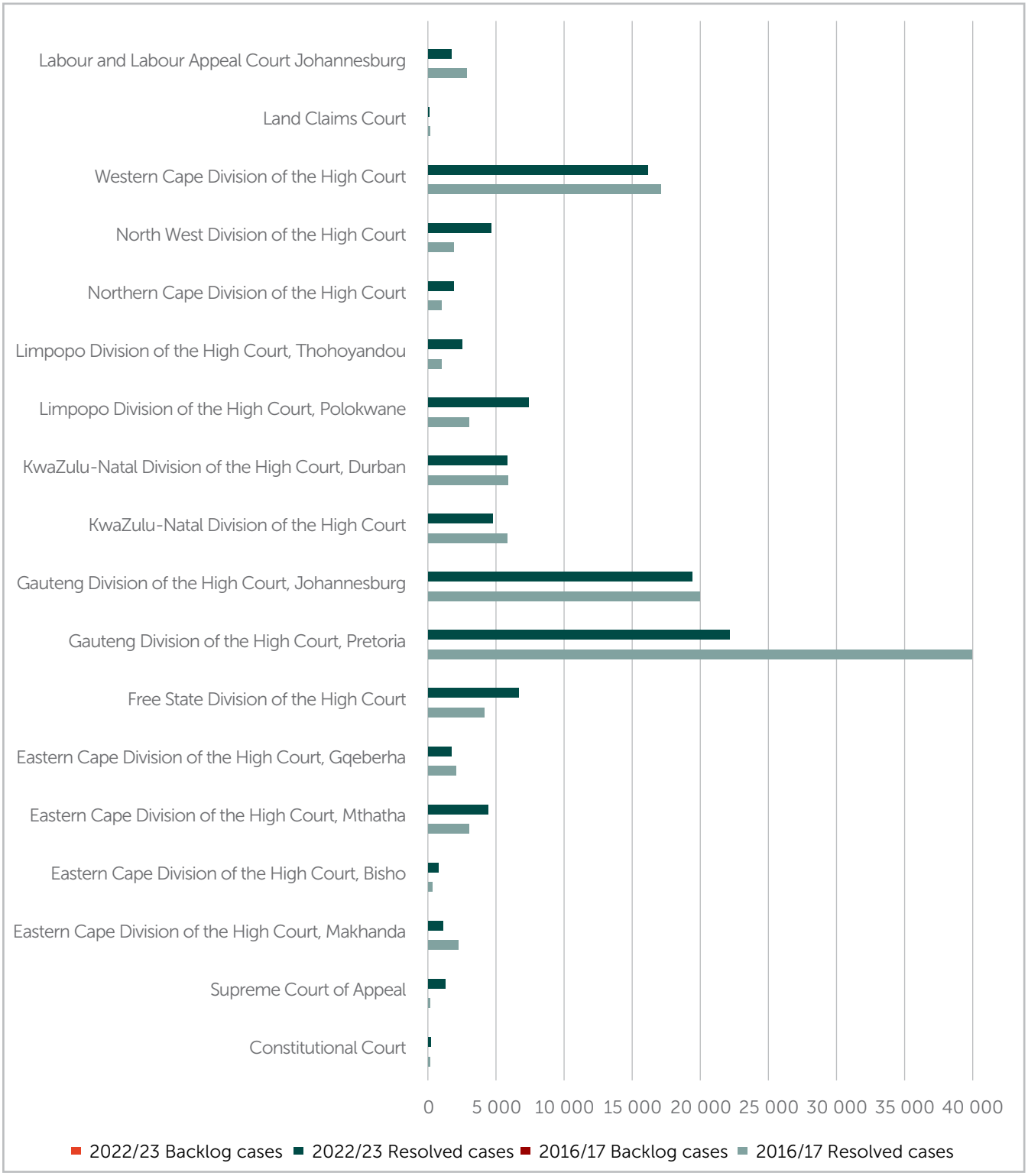
High courts	Number of judges		Resolved cases per judge	
	2016/17	2022/23	2016/17	2022/23
High Court (Eastern Cape) – Makhanda	16	18	146	65
High Court (Eastern Cape) – Bisho	8	5	55	173
High Court (Eastern Cape) – Mthatha	10	12	310	377
High Court (Eastern Cape) – Gqeberha	10	16	222	116
High Court (Free State)	27	26	159	260
High Court (Gauteng) – Pretoria	76	68	528	329
High Court (Gauteng) – Johannesburg	62	59	325	331
High Court (KwaZulu-Natal) – Pieter-maritzburg	30	21	199	234
High Court (KwaZulu-Natal) – Durban	30	25	752	236
High Court (Limpopo) – Polokwane	8	8	389	941
High Court (Limpopo) – Thohoyandou	2	3	572	848
High Court (Northern Cape)	20	11	56	181
High Court (North West)	11	8	183	593
High Court (Western Cape)	60	54	287	301
Magistrates' courts	**Number of magistrates**		**Resolved cases per magistrate**	
	2016/17	**2022/23**	**2016/17**	**2022/23**
Eastern Cape	222	243	158	119
Free State	118	115	216	160
Gauteng	366	398	135	73
KwaZulu-Natal	264	279	211	136
Limpopo	80	97	213	195
Mpumalanga	76	85	283	142
North West	60	77	292	96
Northern Cape	52	58	217	169
Western Cape	223	280	420	205

Source: Commission's compilation based on data from the Office of the Chief Justice and the Department of Justice and Constitutional Development.

RESOLVED CASES AND BACKLOG CASES

In Figure 4.8, the number of resolved cases in both periods was significantly high compared to the backlog cases across superior courts, with fewer than 272 backlog cases in 2016/17 and 423 cases in 2022/23. The Gauteng and Western Cape divisions of the High Court, for example, resolved most of the cases brought to court.

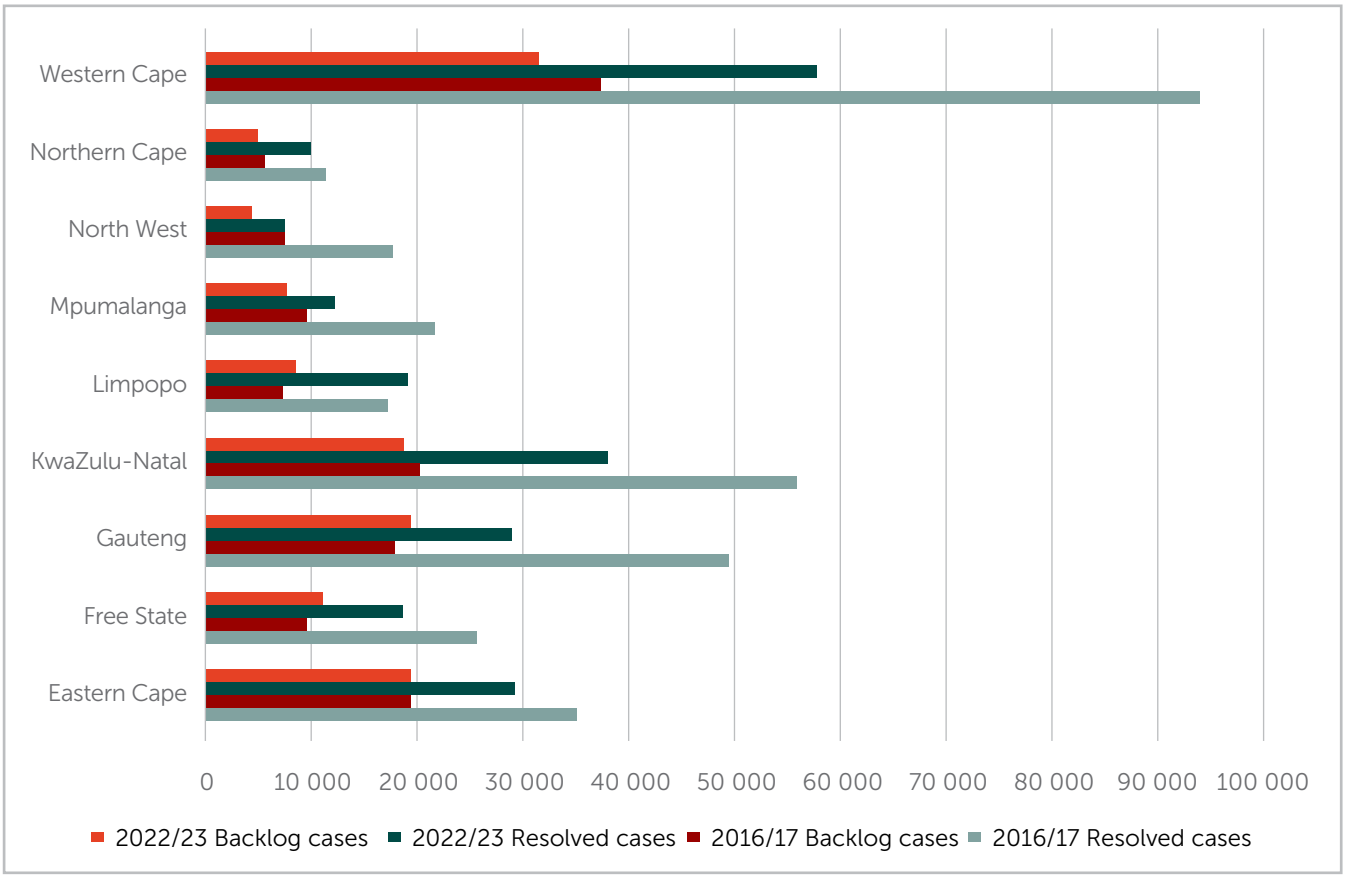
Figure 4.8. Resolved and backlogged cases in superior courts



Source: Commission's compilation based on data from the Office of the Chief Justice and the Department of Justice and Constitutional Development.

In terms of magistrates' courts, Figure 4.9 shows that the number of backlog cases is about half the number of resolved cases during the periods of analysis across all provinces. Although the number of resolved cases was significantly high in 2016/17 and 2022/23, the increase in backlogged cases offsets any positive change recorded. Following literature by Redpath (2020), this further speaks to the current dire state of magistrates' courts characterised by longer case processing times, administrative hurdles and the absence of relevant technology, leading to delays in finalising cases and increased backlogs.

Figure 4.9. Resolved and backlogged cases in magistrates' courts by province

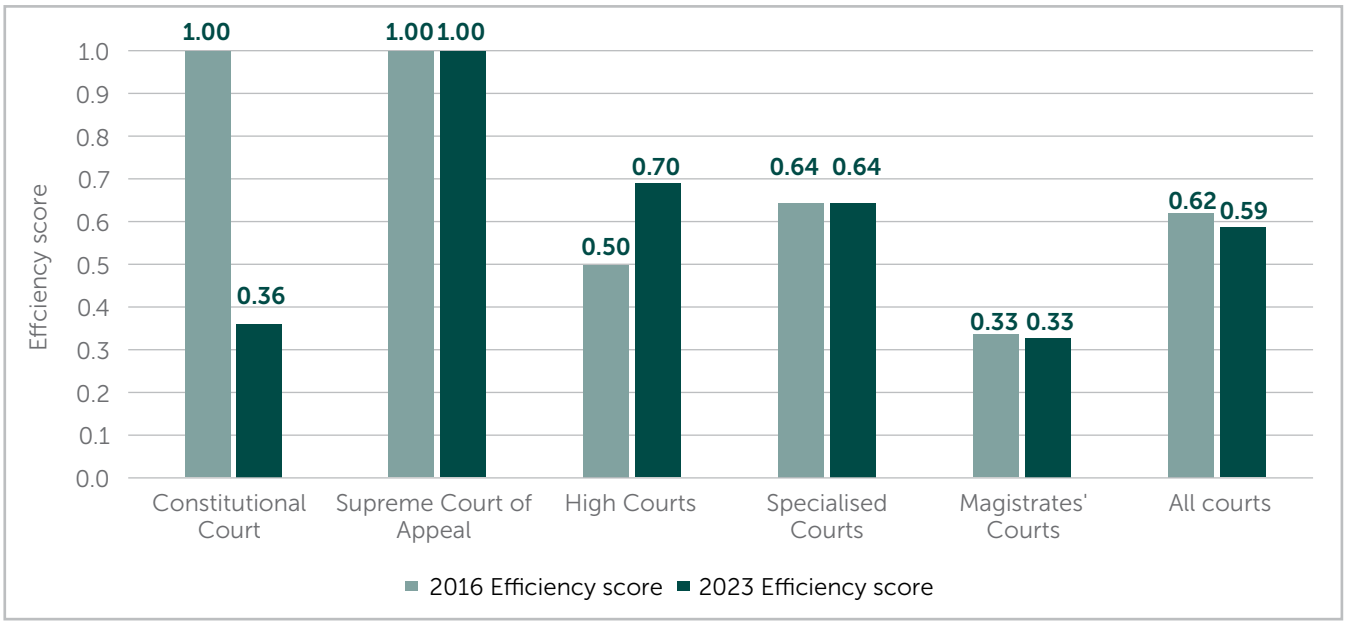


Source: Own compilation based on data from the Office of the Chief Justice and the Department of Justice and Constitutional Development.

4.5.2 Efficiency analysis

Figure 4.10 presents efficiency scores by court category for 2016 and 2023. Overall, the efficiency of the courts declined in 2023 relative to 2016. Across the two years assessed, the Constitutional Court illustrated the largest decline in efficiency, from being relatively efficient with a score of 1.000 in 2016, to having a score of 0.358 in 2023. The Supreme Court of Appeal maintained its relative efficiency in both 2016 and 2023, scoring 1.000 in both years. The high courts managed to improve their efficiency levels, which increased from 0.501 in 2016 to 0.692 in 2023. Specialised courts maintained their performance in 2016 and 2023, scoring 0.644 in both years. Magistrates' courts have the lowest levels of efficiency, and further recorded a decline, from 0.344 in 2016 to 0.326 in 2023. Overall, as of 2023, the Supreme Court of Appeal is the most efficient, while the magistrates' courts are the least efficient. The inefficiencies of the courts raise concerns about the utilisation of current resources and the quality of those resources, especially with respect to judges and magistrates as they are a key component in determining the outcomes of the courts.

Figure 4.10. Efficiency scores by court category



Source: Efficiency scores based on Commission's computation using Stata.

Lower courts, comprising mainly magistrates' courts, represent the highest number of courts in the system. As shown below, magistrates' courts are the most inefficient of all courts. This level of performance is concerning due to the strategic position of magistrates' courts as first-instance courts. This means that the poor efficiency of magistrates' courts can potentially influence the efficiency of superior courts. Table 4.3 presents the efficiency scores for magistrates' courts by provincial division. According to the results, the Eastern Cape Division is the most inefficient, while the Western Cape Division is the most efficient in 2016. In 2023, the Western Cape Division, although it showed a decline in efficiency, remained the most efficient relative to the other divisions. The Eastern Cape Division showed an improvement in its level of efficiency in 2023, with the North West showing a significant deterioration and becoming the most inefficient relative to the other divisions in 2023. Out of 307 magistrates' courts, only Chatsworth, Grabouw and Swellendam operated at their optimal level in the period studied.

Table 4.3: Magistrates' courts efficiency scores by province

Provincial Division	2016 VRS scores	2023 VRS scores
Eastern Cape Division	0.222	0.269
Free State Division	0.276	0.283
Gauteng Division	0.389	0.308
KwaZulu-Natal Division	0.295	0.312
Limpopo Division	0.258	0.352
Mpumalanga Division	0.327	0.249
North West Division	0.344	0.196
Northern Cape Division	0.278	0.307
Western Cape Division	0.626	0.574

Source: Commission's compilation (using Stata).

The level of inefficiency within the magistrates' courts category is concerning given the availability of resources. These inefficiencies are either the result of the inadequate or sub-optimal utilisation of existing resources or deficiencies in the quality of resources. Therefore, the quality of all inputs must be assessed, especially in relation to magistrates and judges.

4.5.4 Lessons from the case study analysis

The case studies reviewed provide examples of reforms that can be adopted to improve the South African judicial system and address key challenges, thereby supporting economic development. Below are some key learnings South Africa can take from these international experiences as the country undergoes its reform process:

- The introduction of high-speed compatible technology via Information and Communication Technology services forms an integral part of the operations in the judiciary and is a catalyst for improving administration efficiency in the courts and reducing the duration of court proceedings. The Portuguese, Norwegian and Kenyan case studies emphasise this aspect.
- Based on the Nigerian experience, the establishment of alternative dispute resolution (ADR), such as specialised courts and multi-door courthouses, presents a good opportunity to improve the administration of justice by reducing delays and case backlogs, while extending access to judicial services to the vulnerable and marginalised in society, and erasing the perception of wealth attached to judicial services by society.
- As shown in the Norwegian case study, the development of an integrated solution that links functions between all divisions of the CJS (e.g. the police, prosecution, courts and correctional services) has the potential to improve security and stability in the transmission of information, thus promoting transparency.

4.6 CONCLUSION

The efficiency of the judicial system is of paramount importance, incentivises development and is central to economic progress. Hence, the literature identifies a positive relationship between the country's judicial system and its economic growth, investment activities, financing availability and firm size. Unfortunately, South Africa has not been able to reap these potential benefits, as the judicial system is characterised by high backlogs and stalled cases, and a general lack of incentives to influence productivity. Although numerous policy initiatives, such as the judicial reforms recommended in the NDP, have been implemented, the performance of the judiciary continues to deteriorate. The results of the efficiency analysis confirm that the South African judicial system has not been operating at an optimal level. Assessing efficiency by court type in 2016 and 2023 shows that, overall, the efficiency of South African courts declined in 2023 relative to 2016. This reduction was largely driven by a significant reduction in the efficiency scores of the Constitutional Court. Magistrates' courts are the least efficient of all court types and recorded a decline in their efficiency scores between 2016 and 2023. The inefficiency of the courts raises concerns about the utilisation of current resources and the quality of those resources, especially with respect to judges and magistrates as they are a key component determining the outcomes of the courts.

Given the labour-intensive nature of the judicial system, the poor performance of magistrates' courts could be explained by either the low quality or an insufficient number of magistrates. It would be useful to understand the factors that have contributed to the relative efficiency of the Supreme Court of Appeal and the high courts.

Literature indicates that judicial system reforms undertaken in Portugal, Nigeria, Norway and Kenya have led to an improvement in the efficiency and productivity of the judicial systems of those countries. Firstly, the introduction of high-speed compatible technology via ICT services has improved administration efficiency in the courts and reduced the duration of court proceedings. Secondly, the establishment of ARD, such as specialised courts and multi-door courthouses, improved the administration of justice, thus reducing delays and cases in backlog, and extended the access of judicial services to the vulnerable and marginalised in society. Finally, the development of an integrated solution that links functions between all divisions of the CJS has the potential to improve security and stability in the transmission of information and lead to transparency. To effect change, the criminal justice system, hand-in-hand with the judiciary, must play a stronger and more coordinated role in implementing measures to improve efficiency and productivity.

4.7 RECOMMENDATIONS

Based on the preceding analysis, the Commission proposes the following recommendations:

1. Given the low level of efficiency across South African courts, the Office of the Chief Justice and Department of Justice and Constitutional Development should undertake an audit to identify the extent of shortages in the number of judges and magistrates. Alongside this, an appropriate quality control framework should be devised to manage the performance of this critical input in the judicial system.

The judicial system is labour intensive, with judges and magistrates playing a leading role in carrying out the mandate of the judiciary. Having an adequate number of highly qualified and high-performing judges and magistrates is thus integral to reducing the efficiency gaps across South African courts.

2. As a means of enhancing the efficiency of the judiciary, the Office of the Chief Justice and the Department of Justice and Constitutional Development must introduce methods to leverage existing technology. At a minimum, this should include standardising the use of electronic systems for registering cases, tracking case progress, record keeping and report writing.

Given the low levels of efficiency across South African courts, which is evident in the high levels of backlog cases and a declining number of resolved cases, there is a need to keep abreast and improve the use of electronic systems to register cases, track case progress and keep records of case details. This can help improve case management, and therefore reduce hurdles in judicial procedures, and contribute to improving overall efficiency within the judicial system. In addition, this will acquaint the judicial staff with knowledge of ICT systems, in preparation for the relatively more advanced integrated solution that will link functions between all divisions of the criminal justice system (e.g. the police, prosecution, courts and correctional service) to eradicate maladministration, and improve security and stability in the transmission of information, thus promoting transparency as stipulated in the NDP.

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APPENDIX A: DESCRIPTIVE STATISTICS OF THE DATA USED IN THIS STUDY

		2016				2023			
		Inputs			Outputs	Inputs			Outputs
		Staff	Judges/ magistrates	R'million	Resolved cases	Staff	Judges/ magistrates	R'million	Resolved cases
Superior courts	Mean	62	40	38 229.0	262	67	41	50 588.5	867
	Std dev	12	25	15 661.0	50	12	19	18 210.1	853
	Min	53	22	27 155.0	226	58	27	37 712.0	263
	Max	70	57	49 303.0	297	75	54	63 465.0	1 470
High courts	Mean	80	26	30 031.8	7 805	84	24	42 295.7	7 212
	Std dev	60	23	20 499.7	11 044	64	21	33 754.3	7 008
	Min	29	2	9 116.0	438	31	3	2 708.0	863
	Max	220	76	80 748.0	40 104	227	68	116 962.0	22 344
Specialised courts	Mean	44	7	17 457.5	1 577	48	4	24 101.0	965
	Std dev	31	6	11 771.2	1 906	35	3	15 321.6	1 160
	Min	22	3	9 134.0	229	23	2	13 267.0	144
	Max	66	11	25 781.0	2 924	73	6	34 935.0	1 785
Magistrates' courts	Mean	33	5	7 558.2	1 174	29	5	11 593.6	717
	Std dev	48	10	10 731.8	2 521	37	10	14 511.9	891
	Min	3	1	905.0	3	3	1	1 220.0	1
	Max	377	119	85 431.0	34 979	278	103	105 551.0	8 434

5. IMPROVING HEALTH SECTOR PERFORMANCE

Measuring efficiency in the provision of healthcare

CHAPTER 5:
Measuring efficiency in the provision of healthcare

5.1 INTRODUCTION

Providing accessible and quality healthcare services is a cornerstone of South Africa's post-apartheid democratic society. South Africa's history of racial segregation affected the provision and delivery of services in various sectors, including the health sector. Section 27 of the Constitution provides that everyone has the right to access healthcare services, including reproductive healthcare services. However, the provision of healthcare in South Africa is characterised by deeply rooted and structural inequalities born out of the country's apartheid legacy (Ranchod et al., 2017). Inequality has resulted in a significant percentage of households and individuals being unable to access quality healthcare services based on the lack of affordability. A public, state-funded sector and a private sector characterise the two-tier health system in South Africa. Systematic differences in healthcare quality and outcomes by race and geography result in a highly inequitable system.

In an attempt to address the legacy of past imbalances, in 1994, the South African government developed a National Health Policy. The Constitution and the National Health Act, No. 61 of 2003 (as amended) (NHA), envisage a single health system for South Africa. The NHA also provides that no one may be refused emergency medical treatment. World Health Organisation (WHO) member states, of which South Africa is one, are committed to aligning their developmental agenda with attaining the United Nations' Sustainable Development Goals (SDGs). SDG 3 addresses the overall aspiration of good health and wellbeing for all ages (WHO, 2022). Universal health coverage (UHC) is considered a key and umbrella target for SDG 3.8. It focuses on ensuring that all people have access to the healthcare they need when they need it, where they need it, without facing financial hardships. In South Africa, the government is implementing the National Health Insurance (NHI) to achieve UHC.

Improving efficiency in the health system and how it operates is vital, especially when one considers the positive externalities associated with quality healthcare (Yip and Hafez, 2015). One of the outcomes of inefficiencies in the health system is the exponential increase in medical negligence claims. This can be seen in the steady increase in both the number of claims against the state and the value of damages awarded. Apart from the increase in claims instituted, the exponential rise in the compensation claimed and awarded is a major cause for concern. The net result of medical legal claims, beyond human suffering, is that medical negligence claims divert much-needed resources from providing healthcare, thereby reducing the productivity of available healthcare funding. The report of the South African Law Reform Commission (SALRC), which examines medico-legal claims, goes further to state that the diversion of resources may impact on service delivery to such an extent that it may endanger the constitutional right of citizens to gain access to healthcare services (SALRC, 2021). The quest to optimise resource allocation in the healthcare system to improve healthcare quality has led to extensive research into the factors influencing efficiency, particularly in hospital systems. With public sector health reform underway, assessing efficiency in the public healthcare system is of great importance.

This research aims to examine the allocation of resources and productivity outcomes within the district hospital system (DHS) and uncover determinants of efficiency to provide insights into how efficiency within the sector can be improved. With regard to medico-legal claims in the public sector, this research quantifies the extent of medico-legal claims, assesses the impact of medico-legal claims on provincial health budgets, unpacks initiatives undertaken to respond to the growth in medico-legal claims and makes recommendations to strengthen responses. This research also critically evaluates and analyses the budget and expenditure performance of the NHI additional grants.

5.2. RESEARCH METHODOLOGY

5.2.1 Efficiency analysis of district hospitals

To measure efficiency in the DHS and to identify the drivers of efficiency, a quantitative approach was employed following a two-step process. Firstly, using the data envelopment analysis-Malmquist Productivity Index (DEA-MPI) approach, the technical efficiency is measured in the district health system in 2019, and changes in efficiency are assessed between 2011 and 2019 to capture productivity gains or losses over time. Secondly, the drivers of inefficiency are explored by employing a Tobit regression model, and the results are discussed. For the DEA-MPI approach, two capital input variables were selected from the data: the number of hospital beds across district facilities (within each district municipality) and expenditure per patient day equivalent (EPPDE) in district hospitals (in 2019/20 real prices). The output variable selected was the number of in-patients (including half-day patients).

For this research, an output-orientated DEA model was selected due to the nature of the health sector, where one would instead maximise outputs (healthcare) with a given level of inputs. This follows the approach of Cheng et al. (2016). In the second stage of the DEA, a Tobit model was specified using the DEA-based efficiency scores as the dependent variable, and regressing it against a number of selected independent variables that attempt to capture factors that influence hospital-level efficiency in the district health sector.

The Tobit model specification is as follows:

$$TE = \beta_0 + \beta_1 alos + \beta_2 beds_{pr} + \beta_3 ratio_{doc} + \beta_4 ratio_{nrs} + \beta_5 cancer_{scrn} + \beta_6 imun_{cov} + \beta_7 provi + \beta_8 grant_{district} + \beta_9 hiv_{prop} + \beta_{10} cem_{phc} + \beta_{11} pop + \beta_{12} san + \beta_{13} educ + \varepsilon_i$$

Simar and Wilson (2007) caution that serial correlation between the DEA estimates' efficiency scores (the dependent variable) creates problems for making reliable inferences in the second stage of the DEA, where the determinants of efficiency are investigated. Following the approach of Simar and Wilson (2007), a bootstrap procedure was included in the analysis to obtain bootstrap estimates that improve inference from the results of the model.

5.2.2 The National Health Insurance (NHI) grants

With respect to the NHI, the study analyses how the programme has been funded since its introduction. This includes evaluating and analysing the shifting of funding between different programmes or grants and the effects of such shifts. The chapter also analyses the growth trend and year-on-year changes in the allocation of NHI grants for provinces from 2012 to 2023, including direct and indirect conditional grants from 2018 to 2023.

5.2.3 Medico-legal claims analysis

The medico-legal claims analysis used a mixed-methods approach. This involved a policy and a financial or budgetary analysis, combined with stakeholder interviews. The following process was used:

- An evaluation was undertaken of provincial expenditure on medico-legal claim payments and contingent liabilities in terms of their growth and share of the health budget for the period 2012/13-2022/23. This assisted in quantifying the extent of medico-legal claims, as well as the extent of the problem from a budgetary perspective.
- With respect to understanding the primary drivers of medico-legal claims, a review was undertaken of existing literature and government-commissioned reports.
- Interviews were conducted and a review undertaken of policy documents. This provided insights into strategies to address the underlying drivers of medico-legal claims against the state.
- A literature review was undertaken of international strategies used to manage medical negligence claims against the state.

Table 5.1. List of organisations interviewed

Government departments	Reason for selection
Auditor-General South Africa	As part of its audit on how government is spending taxpayers' money, it quantifies expenditure on medico-legal claims, makes recommendations to provincial health departments and examines some of the practices at facility level that affect medical negligence claims
Council for Medical Schemes	To understand medico-legal claims from the perspective of the Council for Medical Schemes
National Treasury	To quantify medico-legal claims
National Department of Health	To evaluate strategies at both the national and provincial level to address medico-legal claims
Office of Health Standards Compliance	Among others, it monitors and enforces compliance by health establishments with norms and standards prescribed by the Minister of Health in relation to the national health system
South African Law Reform Commission	It is tasked by the National Minister of Health and the Minister of Justice and Correctional Services to conduct an investigation into medico-legal claims against the state

Source: Commission's compilation

Several provincial departments of health were approached. Only the Western Cape Department of Health responded. Given the lack of response from other provinces, it was decided not to include the information to the interview questionnaire provided by the Western Cape, and to rather rely on annual reports and various other policy documents.

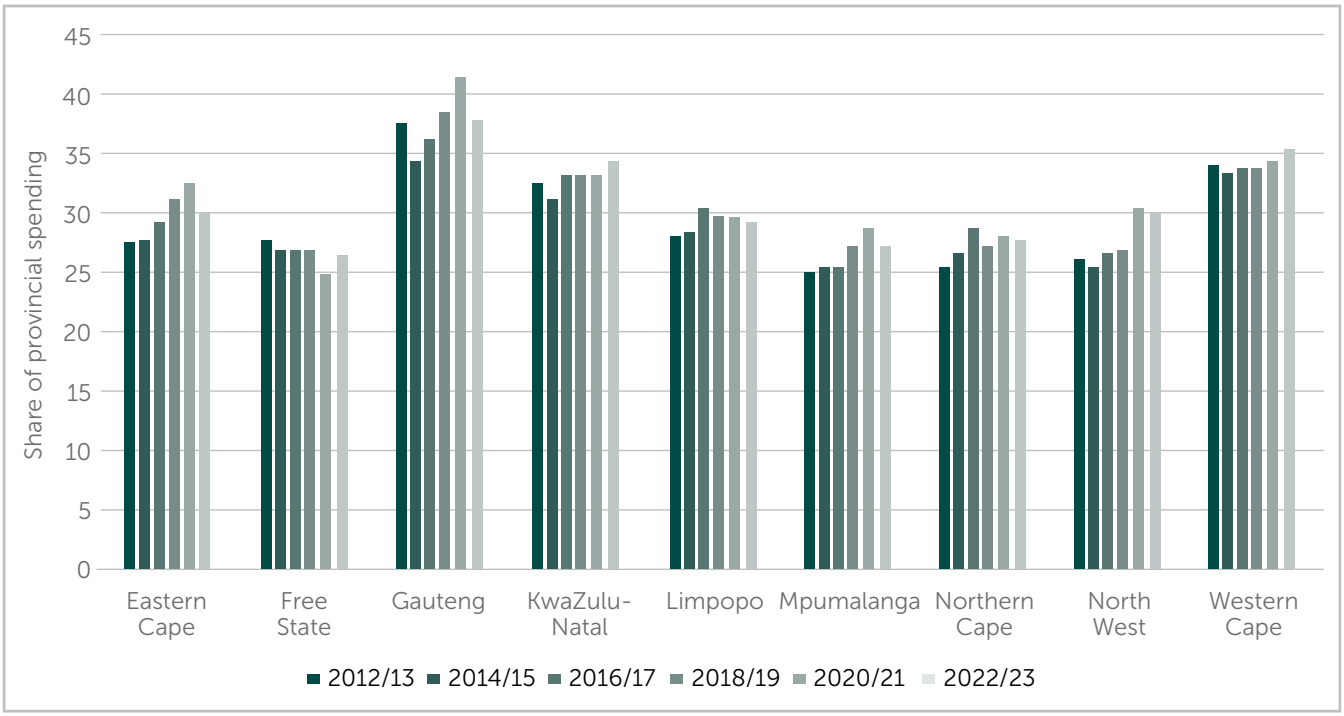
5.3. RESULTS

5.3.1 Provincial health funding

The provision of healthcare is a concurrent function between the national and provincial spheres of government. Funding for healthcare is dependent on intergovernmental transfers, comprised of the provincial equitable share (PES) and conditional grants. The sector is highly dependent on conditional grants, making up approximately 20 per cent of the available funding. Own revenue from hospital patient fees makes up less than 1 per cent of available funding at the provincial level.

For provincial allocation purposes the PES formula for health is weighted at 27 per cent and is meant to reflect historical average spending trends across provinces. The funding received through the PES is unconditional and does not necessarily reflect the quantum that provinces should spend on healthcare. Budget allocations across spending priorities are informed by provinces' own budget and decision-making processes. Over the period 2012/13–2022/23, many provinces (Gauteng, Western Cape, KwaZulu-Natal, Eastern Cape and Limpopo) have been allocating more than 27 per cent of their PES funding to health. This is indicative of the funding pressures being experienced within the health sector, as shown in Figure 5.1.

Figure 5.1. Provincial spending share on health



Source: Financial and Fiscal Commission (2022).

Although provinces are shifting a larger share of their available PES funding to healthcare, these measures appear insufficient when coupled with rising patient numbers and medical inflation, which outstrips annual increases to health budgets. In addition, the increase in preventable non-communicable diseases, such as diabetes, hypertension and obesity, places a further burden on the already overstretched public health system. Another contributory strain on public health resources is the high number of road traffic accidents and the resultant injuries caused. This further burdens the public health system. Concerns raised by Health departments regarding the reimbursement of medical expenses by the Road Accident Fund (RAF) are a significant issue. The slow payment, and in some instances, the inability of Health departments to collect their own revenue, which largely comprises claims made against the RAF, further exacerbates fiscal constraints affecting Health departments.

5.3.2 Efficiency analysis of the district hospital system

Healthcare services in South Africa are structured at three levels: primary healthcare (PHC) clinics and district hospitals, regional hospitals and central hospitals (Holdt and Murphy, 2007). The DHS plays a central role in the nation's healthcare landscape, serving as a critical component of PHC. District

hospitals offer services beyond the scope of primary care (Department of Health, 2010). District hospitals are strategically positioned to deliver a broad spectrum of services, including PHC, in-patient care, ambulatory and emergency health services, and some specialist services, such as paediatric health services, general surgery and maternity services (Department of Health, 2003). District hospitals may also refer patients who need specialised care to tertiary hospitals. In this manner, district hospitals form a crucial bridge between PHC clinics and more specialised healthcare institutions.

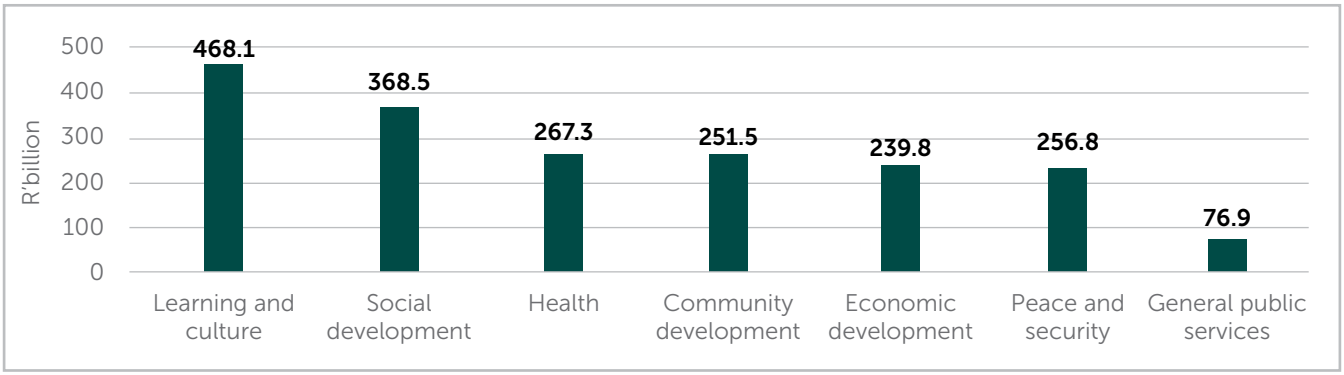
Improving efficiency in the DHS could result in potential savings that could be used to expand health infrastructure and improve the overall quality of care, alleviating some of the pressure on the public health system (Ngobeni et al., 2020). Efficiency in healthcare services is a key component of improving quality-of-living standards and producing a healthy workforce that can drive inclusive economic growth. This section considers South Africa's spending on healthcare and health outcomes at a national level, particularly in comparison to its international peers. Thereafter, it delves deeper into the district healthcare sector and measures the efficiency and determinants of efficiency in the DHS.

HEALTH SPENDING AND HEALTH OUTCOMES IN SOUTH AFRICA AND GLOBALLY

The nexus between efficient healthcare services, positive health outcomes and economic growth has been the subject of extensive investigation in economic literature. Studies have shown that, on average, an increase in public health expenditure can lead to improved health outcomes (Ndaguba and Hlotywa, 2021). Improved health outcomes, in turn, can translate increased human capital development into productivity gains, supporting economic growth. Weil (2013) recognises that healthier individuals can work more effectively, which boosts productivity and economic growth.

The healthcare system in South Africa's public sector is highly nuanced in terms of its funding arrangements due to the concurrent function of healthcare provision between the national and provincial spheres of government. While the national sphere of government is concerned with the broader policy direction and with driving reforms in the sector, spending on healthcare is determined at the provincial level through the allocation of funds received from transfers in the form of the provincial equitable share and conditional grants. Provinces, therefore, play a crucial role in influencing health outcomes and the quality of services provided in the public healthcare sector. Health is one of the most crucial sectors of the public sector, and continued investments in public health remain vital to address backlogs, increase capacity and enhance service delivery.

Figure 5.2. Consolidated spending in South Africa by function, 2023/24



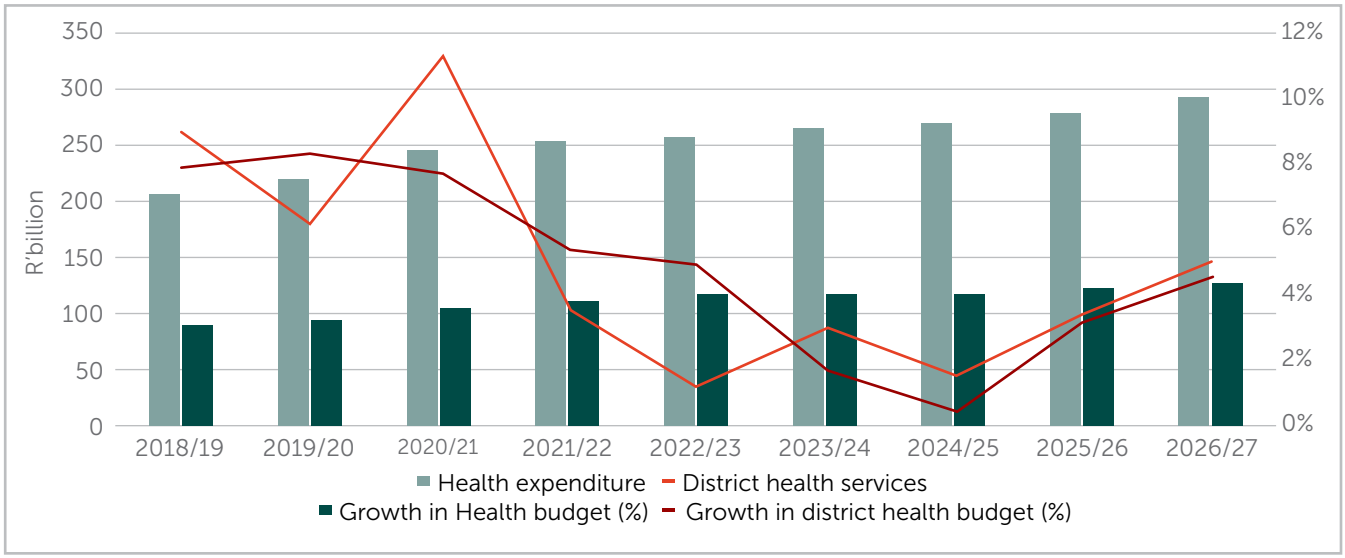
Source: National Treasury database.

Government's public health budget and expenditure reflect its commitment to social wellbeing and economic prosperity. As shown in Figure 5.2, public health spending in South Africa for 2023/24 is R267.3 billion. Consolidated health spending amounts to approximately 12 per cent of government's total consolidated spending budget.

Figure 5.3 shows trends in the public healthcare budget and growth in healthcare spending across the national level, and allocations to the district level. The public sector health budget (overall health expenditure) has increased steadily since 2018. However, although positive, growth in health spending appears to have decreased since 2020/21. Spending growth peaked at 11.3 per cent in 2021. This is explained by the substantial increases in healthcare funding due to combatting the COVID-19 pandemic.

The public healthcare budget has since started to normalise, growing by 1.3 per cent in 2022/23 and 3 per cent in 2023/24. Medium-term estimates for public health spending are projected to increase from 1.7 per cent in 2024/25 to 5 per cent in 2026/27. As Figure 5.3 shows, the district healthcare budget comprises a significant portion of the total healthcare budget. A similar but less volatile trend in the growth of the district healthcare budget can be seen. Spending growth at the district level decreased from 8.3 per cent in 2019 to 0.5 per cent in 2024 and then increases steadily over the MTEF to an estimated 4.6 per cent in 2026.

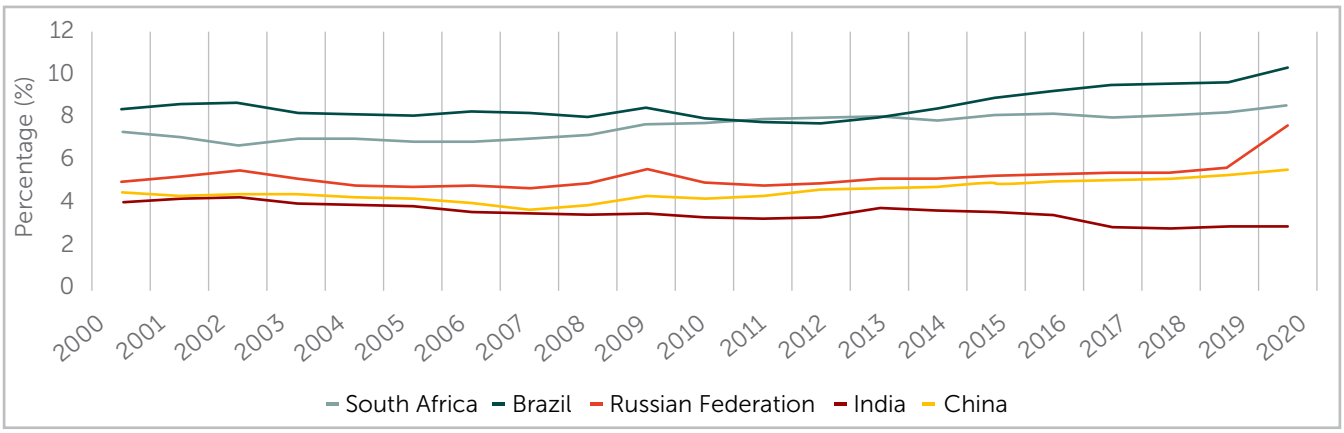
Figure 5.3. Trends in South Africa's public health spending and projected spending growth



Source: National Treasury database.

From a global perspective, Figure 5.4 shows health expenditure as a percentage of gross domestic product (GDP) across Brazil, Russia, India, China, South Africa (BRICS) countries. In South Africa, growth in healthcare expenditure as a proportion of GDP has been moderate over the last two decades. As shown in Figure 5.4, the ratio of health spending to GDP increased from 6.7 per cent to 8 per cent between 2002 and 2012. Since 2012, health spending relative to GDP appears to have stabilised at approximately 7.8 per cent before showing signs of increase from 2018 onwards. Health expenditure in South Africa as a proportion of GDP is among the highest across BRICS economies, outstripped only by Brazil. Russia has seen a spike in health spending in relation to the size of its economy in recent years. In China, growth in health spending as a proportion of GDP appears slow, but stable, over the past decade, while, in India, this ratio has been declining over the long term.

Figure 5.4. Health expenditure as a percentage (%) of GDP for BRICS countries, 2000–2020



Source: World Health Organisation.

However, South Africa's investments in healthcare have not yielded optimal results, particularly when compared to its international peers, which points to the misallocation of resources. Table 5.2 summarises key health indicators for South Africa, Africa, upper-middle-income (UMI) countries and high-income countries. In 2019, public health spending in UMI and African countries was, on average, 3.9 and 1.7 per cent, respectively. In South Africa, this figure was considerably higher at 4.8 per cent. Yet, life expectancy is relatively low in South Africa, especially compared to UMI countries. Although UMI countries tend to spend less on health in relation to GDP than South Africa, life expectancy at birth is much higher – 76 years – compared to 65 years in South Africa. This is despite public health spending per capita in South Africa being higher compared to both African countries and UMI countries. As indicated by the incidence of tuberculosis, South Africa suffers from a heavy disease burden relative to UMI and high-income countries.

Table 5.2. Health indicators for South Africa and its global peers

Indicators	South Africa	Africa	UMI countries	High-income countries
Current health expenditure as a percentage of GDP (2019)	8.2	5.1	6.8	7.9
Government health expenditure as a percentage of GDP (2019)	4.8	1.7	3.9	5.5
Government health expenditure per capita ($)	322	60	304	2 187
Life expectancy at birth (2019)	65	64	76	81
Incidence of tuberculosis (per 100 000 of the population per year) (2020)	562	217	66	9

Source: World Health Organisation.

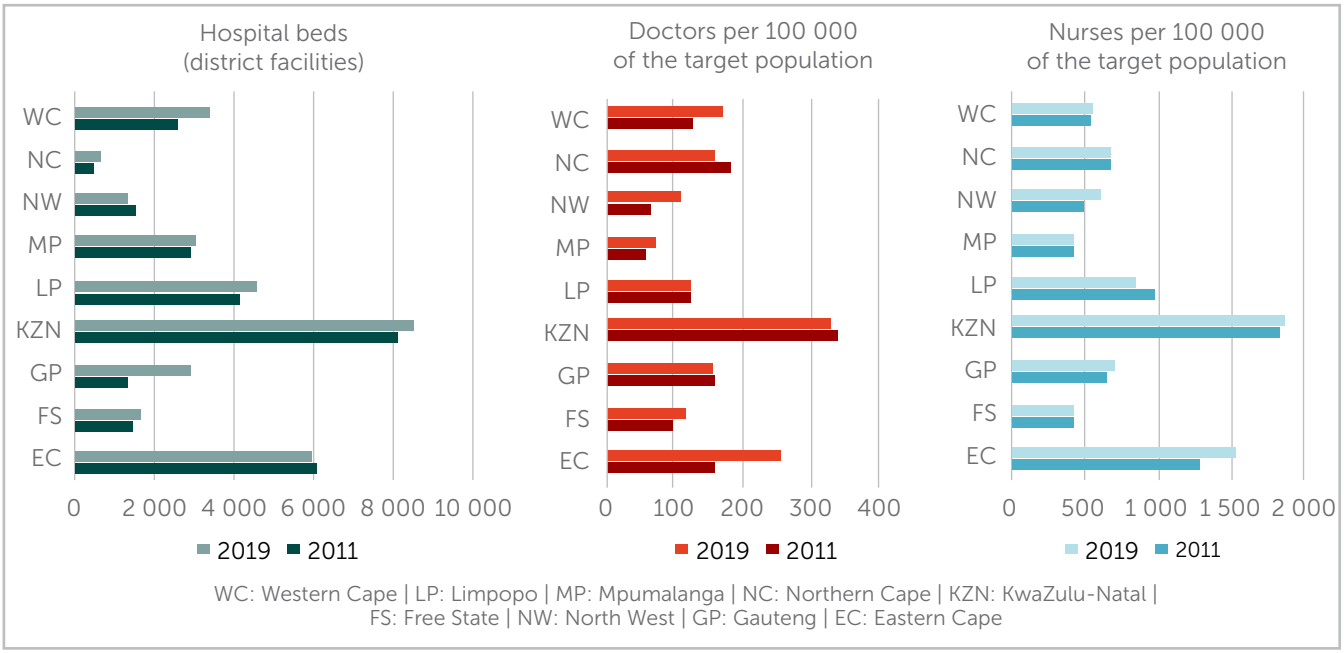
Despite continued government investment in public healthcare, the quality of public healthcare service provision remains sub-optimal. The following section delves into the productivity levels of the district hospital sector in South Africa, in particular, to gain a deeper understanding of the level of efficiency at which district hospitals operate and whether hospitals in this sector have become more or less efficient over time.

INEFFICIENCY IN THE DISTRICT HOSPITAL SECTOR

Many challenges in the DHS undermine its efficiency. The Commission has previously noted that the public health sector is under severe strain amid a heavy disease burden, input cost pressures, increasing demand for services and a shortage of healthcare workers (Financial and Fiscal Commission, 2019). Naledi et al. (2011) further highlight the inequitable distribution of financial and human resources, particularly allocations among provinces and rural-urban areas.

Figure 5.5 shows the number of hospital beds and the number of doctors and nurses per 100 000 of the target population across district hospitals disaggregated by province, comparing 2011 with 2019. The figure also illustrates the general shortage of doctors and nurses in South Africa. In some provinces, the proportion of doctors and nurses has increased relative to the target population, but in others it decreased between 2011 and 2019. The most notable increase in doctors and nurses across this period occurred in the Eastern Cape. The province with the most beds, doctors and nurses in relation to the target population is KwaZulu-Natal, followed by the Eastern Cape. Overall, however, the productive capacity of district hospitals in South Africa in terms of critical human and capital resources such as medical practitioners, nurses and hospital beds is severely constrained.

Figure 5.5. Components of productivity in district hospitals across provinces, 2011 and 2019



Source: District Health Barometer.

The results from the DEA efficiency analysis show that the average technical efficiency (TE) score of all district hospitals across district municipalities is 0.71. This suggests that, on average, in 2019, the district hospital sector was operating inefficiently, and that there is significant scope to improve efficiency within the sector by 29 per cent. Efficiency across the DHS varies tremendously, with some districts scoring 1 (perfectly efficient) and others scoring 0.47, illustrating very high levels of inefficiency. Staff shortages, infrastructure deficits, inadequate leadership and lack of accountability are some of the key challenges faced at the district level (Rispel, 2016).

The best-performing districts in terms of DEA-based TE scores are shown in Table 5.3. The three districts and one metro, representing less than 10 per cent of the district hospital system, achieved a TE score of 1. The results suggest that, in these districts, district hospitals are operating efficiently. The results show that the remaining districts achieved a TE score of less than 1, suggesting that district hospitals in these districts are operating inefficiently, albeit to varying degrees. For instance, Harry Gwala District Municipality in KwaZulu-Natal and Nkangala District Municipality in Mpumalanga achieved TE scores of 0.86 and 0.87, respectively. This result implies that hospitals in these districts have the potential to improve their efficiency by 14 and 13 per cent, respectively.

Table 5.3. Top ten efficiency scores (2019)

Provinces	DMU	beds_df	expp_pde	inpatients	TE
Western Cape	Cape Town Metro[1]	1 914.93	2 766.17	1 871	1
Western Cape	Cape Winelands District Municipality	228.26	2 237.16	189	1
North West	Dr Kenneth Kaunda District Municipality	83.61	3 478.04	57	1
KwaZulu-Natal	Amajuba District Municipality	65.66	5 093.50	42	1
KwaZulu-Natal	iLembe District Municipality	414.26	4 635.55	195	0.99
North West	Dr Ruth Segomotsi Mompati District Municipality	376.16	3 389.17	251	0.90
Eastern Cape	Sarah Baartman District Municipality	602.31	3 073.12	334	0.88
North West	Ngaka Modiri Molema District Municipality	490.69	3 626.15	255	0.87
Mpumalanga	Nkangala District Municipality	438.28	3 377.73	302	0.87
KwaZulu-Natal	Harry Gwala District Municipality	765.31	3 188.40	503	0.86

Source: Commission's calculations.

When one considers the districts that received the lowest TE scores, shown in Table 5.4, the results show that Gert Sibande District Municipality in Mpumalanga, and Chris Hani District Municipality and Joe Gqabi District Municipality in the Eastern Cape are operating at a high degree of inefficiency and could improve efficiency in their district hospital systems by 50, 51 and 52 per cent, respectively. The results further suggest that efficiency in the district hospital sector varies significantly across provinces, illustrating large spatial inequalities across districts and impacting the quality of care provided.

Effective accountability mechanisms are pivotal in ensuring strengthened health systems and improving service provision (Nxumalo et al., 2018). Hospitals at all levels (district, regional or secondary and central or tertiary) report to the head office of their provincial department of Health. The centralised nature of control over hospitals in South Africa has the potential to severely undermine the role of management functions in responding to changing operational requirements (Holdt and Murphy, 2007). According to Bossert and Beauvais (2002), a more decentralised approach to hospital systems, which affords managers greater control over hospital operations, may improve allocative and technical efficiency, the quality of service provision, transparency and accountability.

1 Metropolitan municipalities (metros) were included in the District Health Barometer dataset. Metros could be expected to have higher efficiency scores. However, the focus of the discussion will remain on district municipalities.

Table 5.4. Bottom ten efficiency scores (2019)

Province	DMU	beds_df	expp_pde	inpatients	TE
Free State	Mangaung Metro	497.95	3 010.69	301	0.47
Mpumalanga	Gert Sibande District Municipality	1 002.23	2 882.89	668	0.48
Eastern Cape	Chris Hani District Municipality	1 173.89	3 089.51	566	0.49
Eastern Cape	Joe Gqabi District Municipality	591.944	3 222.05	359	0.50
Eastern Cape	Amathole District Municipality	1 100.95	3 320.62	556	0.52
KwaZulu-Natal	Ugu District Municipality	579.67	2 966.80	385	0.53
KwaZulu-Natal	uMzinyathi District Municipality	1 279.25	3 307.64	677	0.54
Free State	Xhariep District Municipality	131.49	3 748.23	70	0.54
Western Cape	Overberg District Municipality	242.65	3 080.31	191	0.55
Northern Cape	Pixley Ka Seme District Municipality	116.46	3 798.73	80	0.55

Source: Commission's calculations.

It is worth noting that both the worst- and the best-performing municipalities were metros, showing that more urban municipalities are not necessarily more efficient. On the one hand, overcrowding due to high population density could lead to inefficiencies. On the other hand, health infrastructure is also very inefficient when it is not being utilised to its fullest potential (Niekerk and Van der Berg, 2008). For instance, Sun et al. (2023) found that the proportion of hospital beds restrained efficiency gains due to excessive beds and under-utilisation. The low utilisation of healthcare facilities, as shown by low occupancy rates, may be due to inadequately staffed hospitals and the misallocation of resources (Yip and Hafez, 2015).

Tables 5.5 and 5.6 illustrate the top ten and bottom ten districts whose productivity increased and decreased the most, respectively. Among the districts who saw the most notable improvements in efficiency, the Pixley Ka Seme, West Coast and Mopani district municipalities improved in productivity by 29, 21 and 19 per cent, respectively. The results suggest that, despite receiving a low efficiency score in 2019, the Pixley Ka Seme District Municipality in the Northern Cape showed the greatest improvement over the period. This could be explained by the law of decreasing marginal returns, whereby the productivity of a DHS operating from a lower base (with less healthcare resources) will initially increase at a faster rate, after which there are decreasing returns (Sun et al., 2023). On average, the top ten DHSs increased their efficiency by 16.3 per cent between 2011 and 2019.

Table 5.5. Top ten district hospital systems that improved in productivity

Rank	Municipality	TFPCH[2]	Increase in productivity (%)
1	Pixley Ka Seme District Municipality	1.29	29%
2	West Coast District Municipality	1.21	21%
3	Mopani District Municipality	1.19	19%
4	Amajuba District Municipality	1.18	18%
5	Tshwane District Municipality	1.18	18%
6	Dr Ruth Segomotsi Mompati District Municipality	1.16	16%
7	City of Johannesburg Metropolitan Municipality	1.15	15%
8	John Taolo Gaetsewe District Municipality	1.12	12%
9	uMgungundlovu District Municipality	1.09	9%
10	Sedibeng District Municipality	1.06	6%

Source: Commission's calculations.

2 Change in Total Factor Productivity (TFP) result.

However, despite some improvements in efficiency between 2011 and 2019, the results from the MPI analysis suggest that the majority of district hospitals in the DHS declined in productivity between 2011 and 2019. Table 5.6 shows the bottom ten districts whose DHSs deteriorated over this period. On average, the results suggest that productivity in the ten worst-performing DHSs decreased by 27.7 per cent between 2011 and 2019. District health sector productivity in the ZF Mgcawu District Municipality deteriorated the most by 50 per cent, followed by the Chris Hani and Amathole district municipalities, which decreased by 34 and 31 per cent, respectively. Across all districts, productivity in the district hospital sector declined on average by approximately 8 per cent between 2011 and 2019.

Table 5.6. Bottom ten district health systems that display a decline in productivity losses

Rank	Municipality	TFP change	Decline in productivity (%)
10.	Xhariep District Municipality	0.82	18%
9.	Mangaung District Municipality	0.81	19%
8.	iLembe District Municipality	0.79	21%
7.	Joe Gqabi District Municipality	0.77	23%
6.	Namakwa District Municipality	0.77	23%
5.	Frances Baard District Municipality	0.72	28%
4.	Buffalo City District Municipality	0.70	30%
3.	Amathole District Municipality	0.69	31%
2.	Chris Hani District Municipality	0.66	34%
1.	ZF Mgcawu District Municipality	0.50	50%

Source: Commission's calculations.

Numerous factors have been studied to understand their impact on hospital efficiency. The WHO recognises various sources of inefficiencies in health systems, including under-utilised health services, inequity in healthcare coverage and access to medicines, inadequately staffed and uneven distribution of health workers and misallocation of resources (Yip and Hafez, 2015). The efficiency analysis of hospital operations is a multifaceted issue that is influenced by various internal and external factors.

Using regression analysis, the analysis below identifies some of the factors that impact hospital-level efficiency, specifically in the DHS in South Africa. Exploring these determinants and understanding the interplay between factors that affect hospital efficiency is crucial for informing policy decisions.

DETERMINANTS OF INEFFICIENCY IN THE DISTRICT HEALTH SECTOR

In order to improve the efficiency of the healthcare provision of a hospital system, it is crucial to gain a better understanding of the underlying factors that lead to efficiency gains and losses. Using a Tobit regression with a bootstrap procedure, the analysis below identifies some of the factors that impact the efficiency of the DHS in South Africa. The regression results are shown in Table 5.7.

Table 5.7. Tobit regression results with bootstrap coefficients

Efficiency	Model 1	Model 2
	Bootstrap Coef.	Bootstrap Coef.
Average length of stay (days)	-.0820314 *** (.297439)	-.0792388 *** (.0295812)
Hospital beds per resident	-119.1128 ** (70.74839)	-143.246 ** (80.32248)
Doctors per 100 000 of the target population	-.0008719 (.0015788)	-.0008006 (.0015857)
Nurses per 100 000 of the target population	.0014357 ** (.0005975)	.001313 ** (.0006219)
Cervical cancer screenage coverage	.3634758 ** (.2064575)	.3901543 * (.2096048)
Immunisation coverage	.015462 .1559166)	.0121958 (.1551183)
Province	-.0027272 .0073204	-.0034406 (.0073568)
Grant expenditure on district hospitals[3]	5.93e-06 (.0000485)	.000011 (.0000492)
Proportion of district population with HIV	1.592938 ** (.6776146)	1.488654 ** (.690033)
Coverage of core essential medicines at primary healthcare facilities	-.0140722 *** (.0039789)	-.0140779 *** (.003971)
Population	2.07e-08 (2.05e-08)	1.73e-08 (2.07e-08)
Improved sanitation	.1623486 (.140485)	.173542 (.1405658)
Births at district facilities	3.37e-06 (3.56e06)	3.97e-06 (3.69e-06)
Education	-.3008612 (.2579085)	-.3231793 (.2579389)
District hospital size	-	.0184883 (.028514)
Constant	1.730405 (.3296183)	1.712334 (.3288142)
Sigma	.0965679 (.0101525)	.0961369 (0099907)

*** p<0.01 (statistically significant at 1 per cent level)
** p<0.05 (statistically significant at 5 per cent level)
* p<0.1 (statistically significant at 10 per cent level)

Source: Commission's calculations.

The average length of stay is statistically significant and is negatively correlated with efficiency. This result suggests that the longer the average length of stay at a district hospital, the more inefficient it is, which is consistent with the findings in the literature (Orsini et al., 2021; Sun et al., 2023). District hospitals, therefore, need to reduce patients' length of stay to increase their productivity levels.

This finding is consistent with long waiting times associated with the public sector and a shortage of staff to attend to patients. According to Lake et al. (2010), unnecessary waiting times could be mitigated through an optimal patient-to-personnel ratio, which appears to be lacking in South Africa's DHS.

3 Provincial and local government expenditure on district hospitals

On average, the results suggest that an increase in the number of nurses available relative to the uninsured population could lead to efficiency gains in the district health sector. The optimal utilisation of trained nurses could improve the quality of healthcare by compensating, at least to some extent, for the inadequate levels of medical personnel in the public health sector, a finding that is supported by Babalola et al. (2022).

The number of hospital beds per resident is a capital input in the DHS and is found to be negatively correlated with efficiency in the above analysis. This result may not be expected in the context of a health system that is under severe pressure. However, what this finding could imply is that, due to a shortage of staff and essential resources at district hospitals, fewer patients are attended to at a time, resulting in the under-utilisation of hospital beds. This argument is supported in the literature by Sun et al. (2023), who found that the proportion of hospital beds restrained efficiency gains due to excessive beds and their under-utilisation.

The results provide some evidence that greater coverage of core medicines at PHC facilities may result in greater inefficiency within the DHS (i.e. outputs are not being maximised for a given level of inputs). The positive relationship between core essential medicine coverage at PHC facilities and inefficiency could be explained by a mismatch between demand and supply for district hospital services, resulting in the under-utilisation of district facilities and greater inefficiency. This is consistent with the findings of Yip and Hafez (2015). This finding may also point to a misallocation of resources between different levels of healthcare and across district and PHC facilities, in particular.

The more resources allocated to PHC facilities, such as clinics, the fewer resources are available for district hospitals, potentially leading to greater inefficiency within the DHS. Babalola et al. (2022) found a positive relationship between the average spending per patient per day and efficiency scores in the context of public district hospitals in KwaZulu-Natal, suggesting that more funding would ensure the availability of medical essentials and quality healthcare delivery at district hospitals, which could improve efficiency.

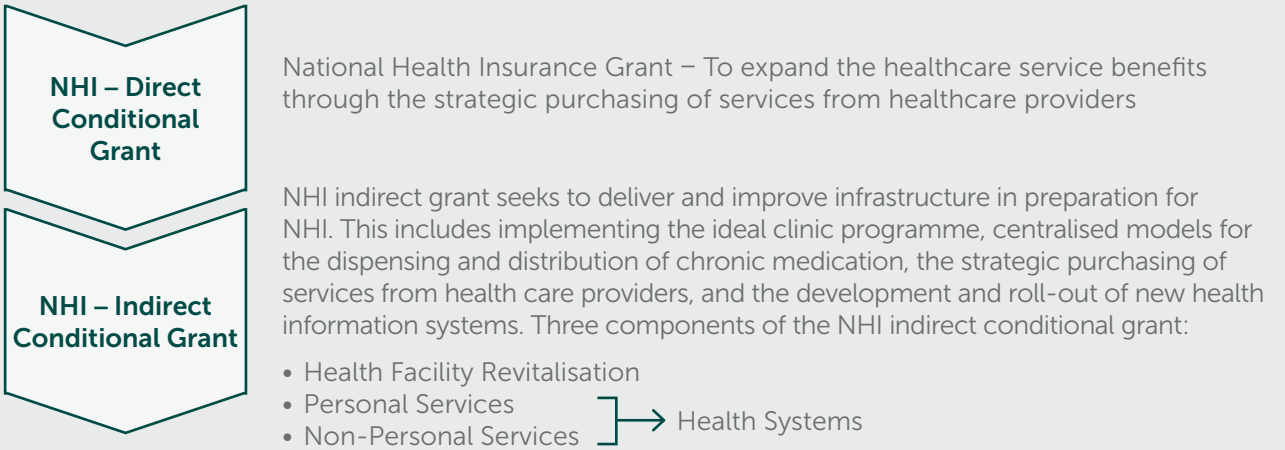
The positive relationship found between cancer screening coverage and technical efficiency supports the notion that public interventions in preventative care by policymakers can have cost-saving effects, not only in health services, but also in the broader economy (Masters et al., 2017). Loeppke (2008) recognises that preventative care is essential for addressing productivity losses in healthcare because health is closely linked to productivity and the economic viability of the population.

The positive and statistically significant relationship between the proportion of the district population living with HIV and efficiency is rather unexpected. This could be explained by the argument by Sun et al. (2023) and Niekerk and Van der Berg (2008) that underutilised inputs lead to productivity losses, because health inputs such as hospital beds are not being utilised to their full potential. In other words, an increase in the proportion of the district population living with HIV increases could lead to increased reliance on district hospitals, which means that outputs (in-patients and out-patients) would be maximised for a given level of inputs (beds and expenditure), mitigating the under-utilisation of inputs, and contributing to efficiency. However, the latter finding highlights some of the limitations of the DEA-based approach, especially in light of a shortage of medical staff and overcrowding (Ngobeni et al., 2020).

Box 5.1. National Health Insurance Grants

South Africa is pursuing universal health coverage by implementing the NHI to deliver UHC to all South Africans. The NHI has been implemented in three phases. Phase 1 (2012/13–2016/17) is funded through the NHI's direct and indirect conditional grants. It included piloting various interventions in preparation for the full implementation of NHI. Phase 2 (2017/18–2021/22) focuses more on the policy and legislative aspects of the NHI. One of the key challenges with respect to this phase is delays in signing the National Health Insurance Bill. Phase 3 (2022/23–2025/26) includes activities to strengthen health systems, as well as initiating the mobilisation of additional resources. These resources include funding (mandatory payment for the NHI) and selecting the contracting of healthcare services from private sector providers. The NHI's conditional grants have both direct and indirect components with subcomponents. Figure 5.6 provides a snapshot of the NHI's conditional grants.

Figure 5.6. National Health Insurance funding



Source: Commission's compilation.

The NHI direct grant seeks to expand healthcare service benefits through the strategic purchasing of services from healthcare providers, while the NHI indirect grant consists of three components, as illustrated in Table 5.8.

Table 5.8. Components of the NHI indirect grant

Component	Purpose
Health facility revitalisation	To improve spending, performance, as well as monitoring and evaluation of infrastructure in preparation for the NHI, enhance the delivery of infrastructure for the NHI, and accelerate the fulfilment of occupational health and safety requirements. A funding window within the grant has provided for the Limpopo Academic Hospital since 2019.
Personal services	To expand access to healthcare service benefits through the strategic purchasing of primary healthcare services from healthcare providers. Priorities include oncology, mental health, contracting the services of a general practitioner (GP), human resources (HR) capacitation and the contracting of health professionals.
Non-personal services	To develop and roll out new health information systems, implement ideal clinic interventions and enable the health sector to systematically address deficiencies in primary healthcare facilities. Priorities include medical stock, patients' information systems, the ideal clinic, and centralised chronic medicine dispensing and distribution.

The indirect grant has three components. The first component, health facility revitalisation, seeks to expand healthcare service benefits through the strategic purchasing of services from healthcare providers. Within this grant, a window was created in 2019 to fund the planning and construction of the Limpopo Academic Hospital to strengthen tertiary healthcare services in the province and train new health professionals. It is key to note that the planning and construction of the Limpopo Academic Hospital are not directly related to the implementation of the NHI programme.

The second component, personal services, is aimed at piloting the establishment of contracting units for primary care, through which public and private healthcare providers will be contracted. Personal services consist of oncology, mental health, GP contracting, HR capacitation and the contracting of health professionals. It is also key to note that the personal services component includes mental health, which is not directly related to the implementation of the NHI.

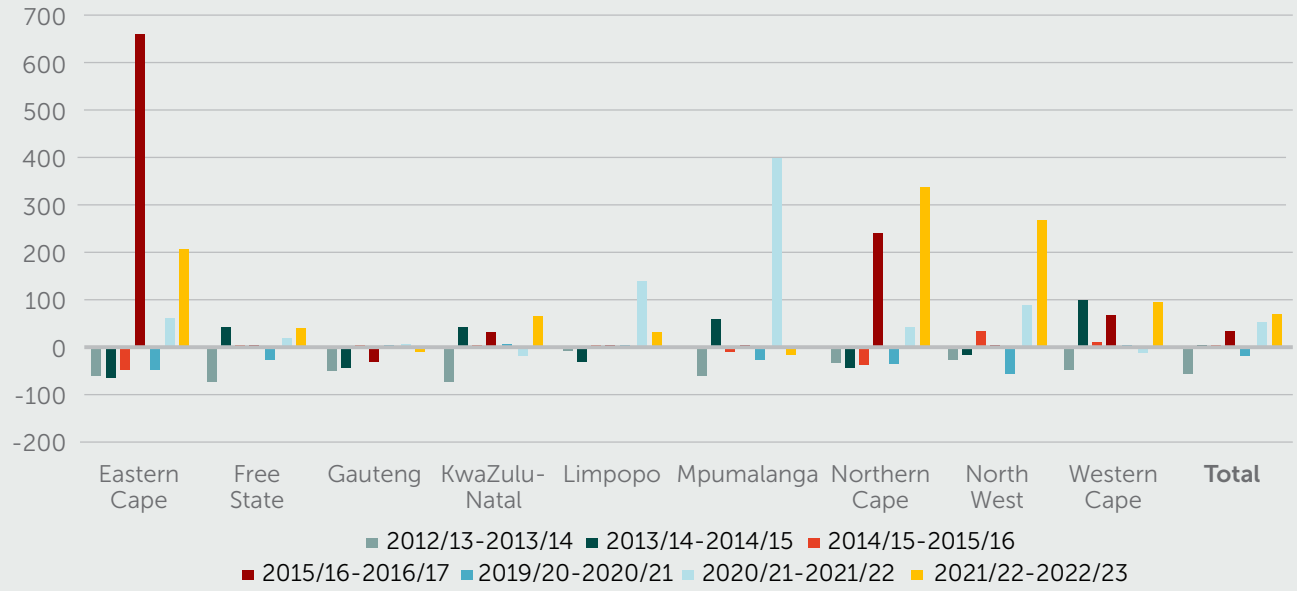
The third component, non-personal services, supports activities aimed at strengthening the health system, including information systems, quality improvement initiatives, and dispensing and distributing chronic medicines. It is responsible for medical stock, patients' information systems and the ideal clinic, among other things.

The personal and non-personal components were merged from 2024/25 and a new health system component was introduced. The new health system component is expected to strengthen health systems, particularly information systems, help address the findings of the Office of Health Standards and Compliance, improve the implementation of the ideal clinic initiative, improve the dispensing of medicines through the central chronic medication dispensing and distribution programme, and provide proof of concept, including the piloting of contracting units, for primary healthcare.

It is important to note that the mental health services and oncology services components were shifted from the Communicable and Non-Communicable Diseases Programme to the NHI Grant in 2022. In 2024, funding for oncology was shifted from the NHI to the National Tertiary Services Grant. The changing and shifting of funding for programmes compromise performance, the tracking of performance and accountability.

Concerning year-on-year percentage change, there was a significant decrease in the allocation in all provinces between 2012/13 and 2013/14, as illustrated in Figure 5.7. Growth started in the Eastern Cape and Northern Cape in 2015/16 and 2016/17, while it started earlier (in 2013/14 and 2014/15) in provinces such as the Free State, KwaZulu-Natal, Mpumalanga and Gauteng. Notable is an inconsistency in the growth rates of the NHI allocations across all provinces. This has the potential to affect planning for provinces, which could also impact delivery, which would affect the smooth implementation of the NHI.

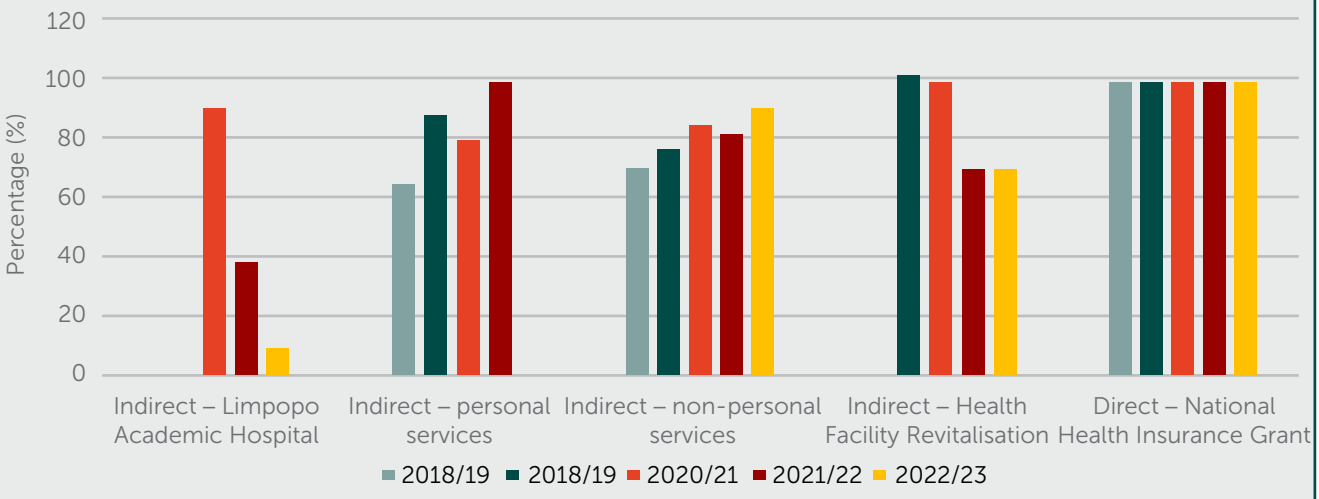
Figure 5.7. Year-on-year change (%) in NHI allocation per province



Source: National Treasury, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021a, 2022

Comparing the performance of the NHI's conditional grants, both direct and indirect, and their sub-components, analysis shows that the direct NHI grants perform far better than the indirect conditional grants. Figure 5.8, for example, illustrates the poor performance of all the indirect components of the NHI's conditional grants, except for personal services, in 2021/22, and health facility revitalisation, in 2019/20 and 2020/21. On the contrary, the NHI direct grant has shown a good performance of 100 per cent in all financial years since 2018/19. This analysis indicates that the indirect conditional grants performed poorly in expenditure compared to the direct grants, which is in line with the FFC's finding in a study that reviewed the performance of the direct and indirect conditional grants in 2015 (FFC, 2015).

Figure 5.8. Comparison of the NHI's conditional direct and indirect grant expenditure performance



Sources: Department of Health, 2019, 2020, 2021, 2022, 2023.

5.3.3 Medico-legal claims

Medico-legal claims refer to a type of claim that ensues because of medical negligence or malpractice by health practitioners (Prinsen, 2003). The SALRC (2021) identifies two criteria to establish whether medical malpractice occurred. First, a healthcare provider must have violated a professional standard of care. Second, an injury must have occurred because of a violation of the professional standard of care. In other words, the patient is required to prove that the provision of medical care fell below accepted standards and resulted in an injury. In addition, the violation of professional standards should legally be recognised as wrongful. The Health Professions Act, No. 56 of 1974, is helpful in this regard through its ability to provide control over the practising of health professions in South Africa. South Africa has a comprehensive framework for the regulation of the healthcare environment. However, there is no specific legislation to regulate the litigation of medico-legal claims.

The healthcare sector can be seen as a system comprising institutions, people and resources that are intended to produce health actions and outcomes. Healthcare environments have become increasingly complex and risky over the years, in part because of the use of progressively more sophisticated technologies and because the population's average life span has increased, leading to an ageing population. This places higher demands on healthcare services. While all aspects of life are subject to risks, this is particularly so in a healthcare setting that aims to protect the health and lives of sick and unhealthy individuals. Risks within the health sector are affected by the external environment, which refers to the socio-economic environment and the epidemiological characteristics of the population, as well as the internal environment, which includes available resources and facilities, internal control systems and even the internal culture at a health institution. Most often, those risk factors are both complex and systemic and are very seldom attributable to the actions of one employee or one technical failure. The public healthcare setting in South Africa is prone to a higher risk environment than the private sector, given the poorer socio-economic characteristics of the population being treated and the shortage of resources.

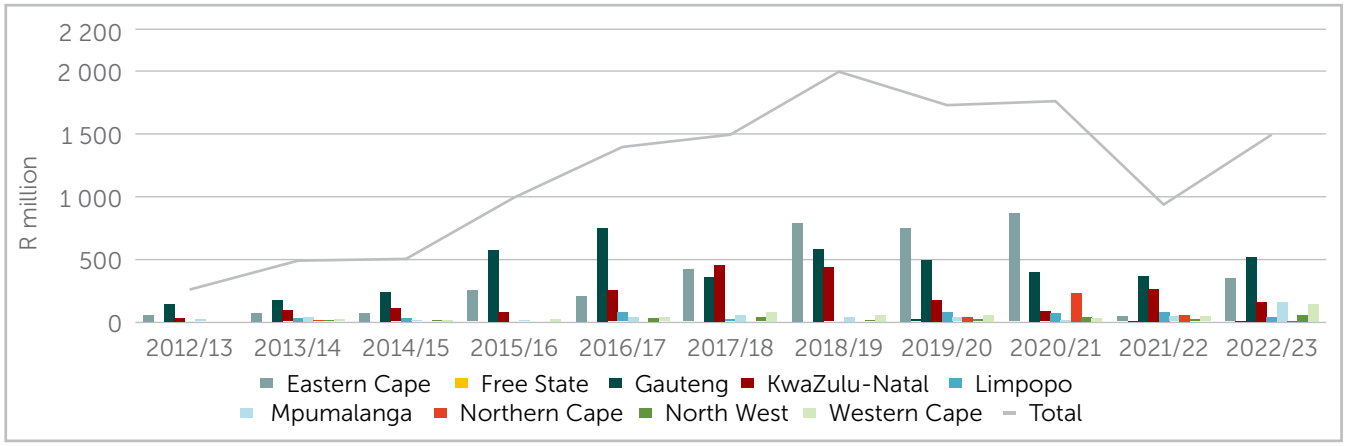
The provision of healthcare is a concurrent function between the national and provincial spheres of government. Funding for healthcare is largely dependent on intergovernmental transfers, comprised of the PES and conditional grants. Provinces are shifting a larger share of their available PES funding to healthcare. However, these measures appear insufficient when coupled with rising patient numbers and medical inflation, which outstrips annual increases to health budgets.

The severe funding pressure of health budgets can be seen by the high level and consistent growth in accruals. Accruals refer to the practice whereby departments incur an expense, even though no cash flow has taken place. Over the 14-year period 2009/10–2022/23, the value of accruals for health has increased from R3.376 billion to R18.163 billion. This is more than a five-fold increase. This represents an average year-on-year growth of 13.8 per cent. Accruals account for an average of 5.9 per cent of the health budget over the same period and have steadily increased from a share of 3.8 per cent in 2009/10 to 7.7 per cent in 2022/23 (National Treasury, 2024b). One of the contributing factors to the rapid growth in accruals is that provincial departments fail to budget appropriately. Medico-legal payments is one driver of the growth in accruals. Consequently, when claims become successful, they are paid from operational budgets using funds earmarked for service delivery, thereby eroding available resources for service delivery and undermining the productivity of healthcare expenditure.

QUANTIFICATION OF MEDICO-LEGAL CLAIMS

Recent years have seen a significant increase in medico-legal claims in the public health sector. Apart from the increase in the number of claims, there has been an exponential rise in compensation claimed and awarded. Comparing 2012/13 to 2022/23 shows how medical claims against the state have increased.

Figure 5.9. Trends in medico-legal claim payments across provinces

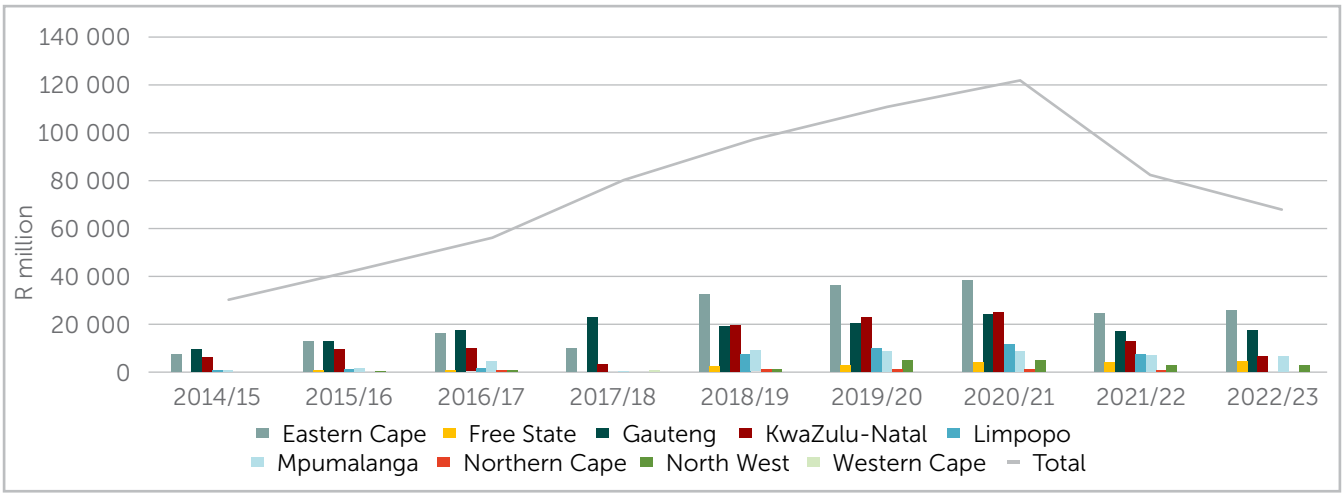


Sources: National Treasury (2021b), Auditor-General South Africa (2023a).

Between 2012/13 and 2022/23, expenditure on medico-legal claims increased substantially from R265 million to R1.5 billion, having peaked at almost R2 billion in 2018/19. The Eastern Cape, Gauteng and KwaZulu-Natal account for more than 70 per cent of expenditure on medico-legal payments over the period 2012/13 to 2022/23. The Eastern Cape and Gauteng have paid out more than R2.5 billion over the last three years. For 2020/21, the Eastern Cape paid out more than R860 million alone. Medico-legal claims accounted for 1 per cent of the total available provincial health budget in 2018/19, with payments accounting for 3.3 per cent of the available Eastern Cape budget in the same year.

Unresolved medico-legal claims are recorded in the financial statements of government departments as contingent liabilities. A contingent liability refers to the possible obligation that arises from past events (alleged breach of contract). The existence of the obligation will only be confirmed by the occurrence or non-occurrence of uncertain future events (outcome of the claim).

Figure 5.10. Trends in contingent liabilities across provinces



Sources: National Treasury (2021b), Auditor-General South Africa (2023a).

Contingent liabilities grew from R28 billion in 2014/15 to R121.8 billion in 2020/21 before declining to R68 billion in 2022/23. Direct comparisons across provinces may be inappropriate as provinces use different approaches to determine and quantify contingent liabilities for medical negligence. Some provincial health departments include all claims as contingent liabilities, as if the state would be required to settle the entire amount claimed, even if the claimed amount is excessive in relation to historical settlement values for that province, or for other provinces, or is unlikely to succeed based on merit. In other instances, provinces consider the probability of the claim against the state being successful and adjust for some claims not requiring payment or being settled at lower levels than which is being claimed.

The implementation of the guidelines providing for the accounting treatment of medico-legal claims is likely to have a significant impact on reducing the contingent liability being reported (Whittaker, 2021). This is indeed the case, as shown in Figure 5.9 for 2021/22 and 2022/23 following the introduction of the revised guidelines, which saw a decline in recognised contingent liabilities from a high of R121.8 billion in 2020/21 to R81.8 billion in 2021/22 and R68 billion in 2022/23 (Auditor-General South Africa, 2023a). However, contingent liabilities still represent a significant proportion of provincial health budgets. Overall, for 2019/20, contingent liabilities represent a significant risk to provincial budgets, being equivalent to more than half of the provincial health expenditure. For 2022/23, contingent labilities declined to 27 per cent of the provincial health budget.

Examining medico-legal claim payments as a share of contingent liabilities indicates the progress made in terms of the exposure of provinces to financial risks in addressing claims against the state. The trends shown in Table 5.9 indicate that, in spite of provincial efforts to increase medico-legal payments, which grew at an annual average rate of 18.5 per cent for the period 2012/13–2022/23, outstripping the growth in contingent liabilities, which grew at an annual average rate of 11.4 per cent for the period 2014/15–2022/23, medical legal payments, as a share of contingent liability, remain below 2.5 per cent, on average, for South Africa. With the exception of the Western Cape and isolated periods for the North West and Northern Cape, no other serious attempts have been made by provinces to reduce their contingent liability exposure risk.

Table 5.9. Medico-legal payments as a share of contingent liability

	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
Eastern Cape	0.91%	1.90%	1.24%	1.75%	2.43%	2.08%	2.24%	0.15%	1.33%
Free State	0.04%	0.18%	0.12%	0.02%	0.13%	0.66%	0.01%	0.19%	0.19%
Gauteng	2.39%	4.26%	4.21%	1.65%	2.99%	2.38%	1.60%	2.11%	2.82%
KwaZulu-Natal	1.54%	0.91%	2.44%	2.78%	2.18%	0.77%	0.37%	2.02%	2.22%
Limpopo	2.93%	0.60%	3.54%	0.55%	0.09%	0.81%	0.61%	0.93%	
Mpumalanga	0.52%	0.64%	0.65%	0.91%	0.42%	0.48%	0.20%	0.51%	2.32%
Northern Cape	2.20%	1.41%	0.07%	0.59%	0.17%	2.50%	13.87%	3.91%	2.05%
North West	39.10%	0.75%	2.30%	1.96%	0.73%	0.35%	0.80%	0.52%	1.85%
Western Cape	9.97%	15.42%	28.26%	96.27%	56.18%	181.39%	13.93%	25.54%	
Total	**1.74%**	**2.28%**	**2.47%**	**1.83%**	**2.01%**	**1.54%**	**1.44%**	**1.13%**	**2.14%**

Source: Commission's calculations based on National Treasury (2021b) and Auditor-General South Africa (2023a).

The total number of claims against provincial departments of health as at 31 March 2022 are shown in Table 5.10. The uninsured population is calculated by taking the total provincial population and subtracting from it the proportion of people who belong to a medical aid or have medical insurance in that province. The uninsured population is used as a proxy for the population using public healthcare facilities at the provincial level. The Eastern Cape experiences the highest number of claims at 74.44 per 100 000 of the uninsured population, significantly above the average of 29.69 per 100 000 for South Africa. The Western Cape and Northern Cape report figures of less than 10 per 100 000 of the uninsured population.

Table 5.10. Number of claims per 100 000 of the uninsured population as at 31 March 2022

Province	Uninsured population	Number of claims as at 31 March 2022	Number of claims per 100 000 as at 31 March 2022
Eastern Cape	5 968 961	4 443	74.44
Free State	2 497 977	410	16.41
Gauteng	12 524 688	3 783	30.20
KwaZulu-Natal	10 257 570	2 915	28.42
Limpopo	5 412 650	1 617	29.87
Mpumalanga	4 239 006	991	23.38
Northern Cape	1 103 262	99	8.97
North West	3 617 554	518	14.32
Western Cape	5 394 682	372	6.90
Total	**51 016 354**	**15 148**	**29.69**

Source: Commission's calculations, Auditor-General South Africa (September 2023a)

For the period 2012/13–2025/26, the total provincial health budget grew at an annual average rate of 6 per cent compared to the growth in payment trends on medico-legal claims, as well as contingent liabilities, which grew at an annual average rate of 18.5 per cent and 11.4 per cent, respectively, indicating that health budgets remain under significant pressure with payments for medical negligence outstripping growth in available funding within the health sector.

CONTRIBUTING FACTORS TO HIGH MEDICO-LEGAL PAYMENTS

Several causes for the increase in medico-legal claim payments have been identified, which fall outside of clinical errors and the quality of healthcare services. These include the following:

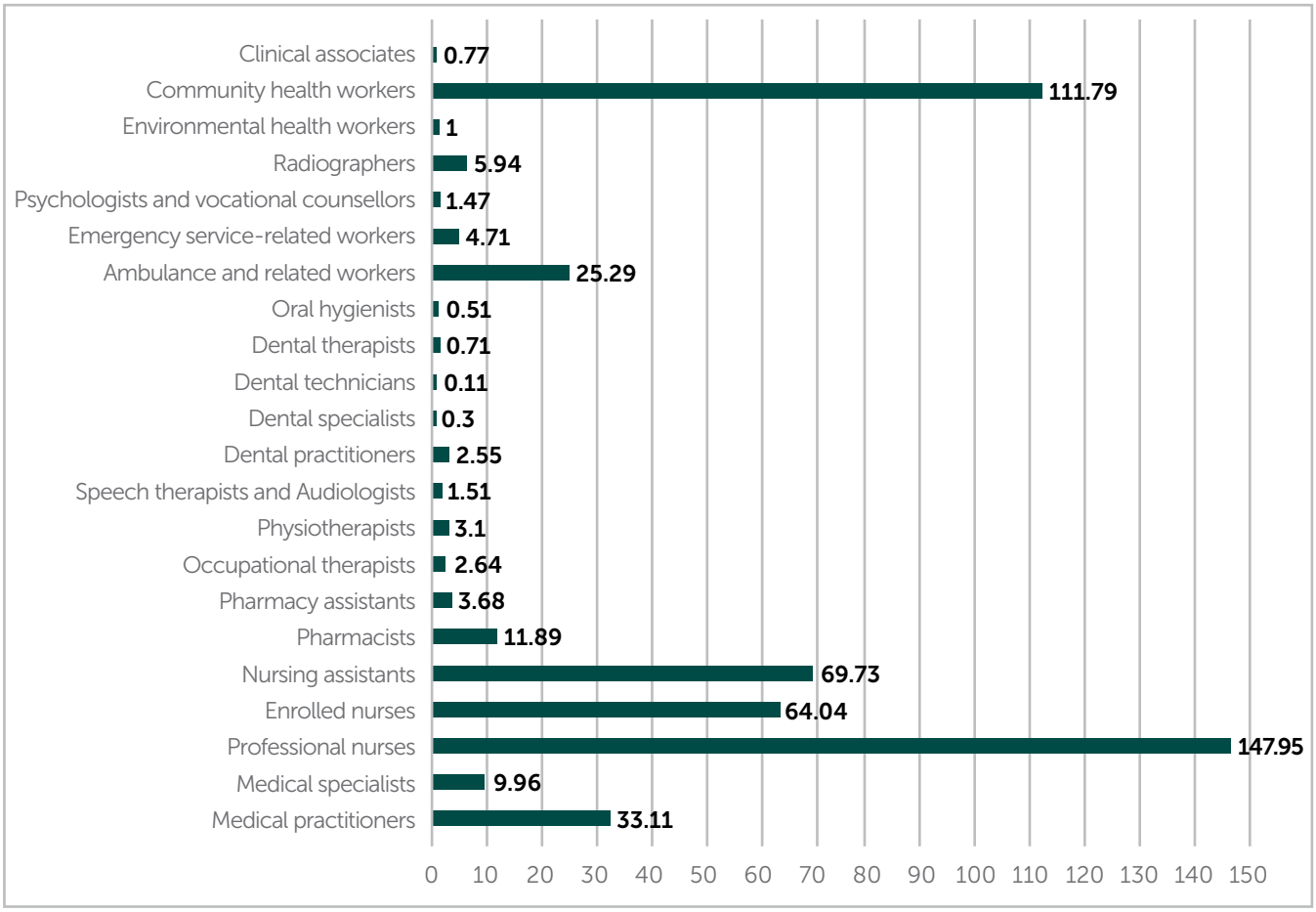
- The legal profession has been identified as a factor contributing to the rise in medical legal claims. There are allegations of unethical conduct by lawyers such as touting, the illegal procurement of information and obtaining patient files illegally (Whittaker, 2021). Prinsen (2023) suggests that the Road Accident Fund Act could have pushed legal practitioners towards new avenues of personal injury law in the form of malpractice litigation.
- The Contingency Fee Act of 1999 may be another contributing factor that creates incentives for lawyers to inflate claims.
- There is an absence of a legislative framework in South Africa that deals specifically with medico-legal claims.
- There is increased patient knowledge and awareness of their rights related to consumer protection, accountability and transparency (Prinsen, 2023).

Two factors related to the delivery of healthcare services that contribute to medico-legal claims are discussed in more detail below.

Personnel

It is estimated that there are nearly 503 health workers for every 100 000 public sector users. For doctors and specialists, this translates into a national density ratio of 33.11 and 9.96 per 100 000, or one doctor for every 3 020 members of the population or specialist for every 10 040 members of the population. Within specialist fields, the shortages are particularly acute among anaesthetists and surgical specialities. For example, in 2019, the ratio of anaesthesiology was 0.64 per 100 000 in the public sector compared with 9.69 in the private sector. The WHO recommends a ratio of one doctor per 1 000 of the population, with the result that South Africa's ratio is three times higher than recommended levels. The national density ratio for nurses, which form the backbone of the health services sector, is 282 per 100 000 of the population for all nursing categories combined. The ratio for professional nurses is 147.95 per 100 000 of the population, which translates into one professional nurse for every 676 members of the population using public healthcare (Department of Health, 2020b).

Figure 5.11. Health worker density per 100 000 of the population using public health services, 2019



Source: Department of Health (2020b).

The shortage of health professionals and the circumstances under which medical health professionals work are important contributing factors to negligence. Health workers employed in the public sector are recorded in the government's Personnel Administration System (PERSAL). In 2019, the public sector employed 243 684 health workers in 22 selected health worker categories. Of these, nurses made up the largest proportion at 56 per cent. Community health workers are the second-largest category, making up 22.2 per cent of all health workers employed in the public sector. Medical practitioners and medical specialists comprise 6.6 per cent and 2 per cent, respectively (Rispel, 2023).

Recordkeeping of patients' medical records

Several legal prescripts exist that regulate the creation, maintenance, storage, confidentiality, access to and disposal of medical records. Section 13 of the National Health Act (Act No. 61 of 2003) requires the creation and maintenance of health records containing prescribed information for every user of health services. Section 14 of the National Health Act deals with the confidentiality of users' information and section 15 provides for the legitimate disclosure of a user's personal information by a health worker or healthcare provider. Section 16 describes the circumstances under which a user's records may be examined, and section 17 imposes a duty on the person in charge of a health establishment to set up control measures to protect users' health records, and lists crimination actions in relation to health records (RSA, 2003). Furthermore, there are regulations providing for norms and standards in the treatment of health records, as well as guidelines for the filing, archiving and disposal of patient records.

The Auditor-General has made the following observations from a sample of site visits that negatively impact on the management of medical records: lack of administrative human resources to manage medical records, lack of training in the management of medical records, improper filing of medical records, inappropriate infrastructure to enable proper storage, failure to adopt technological advances that enable electronic file management, failure to track medical records, etc. These factors contribute to an environment that enables medical records to easily become lost, missing or stolen (Auditor-General South Africa, 2023a). The absence of proper records management systems is an important factor that contributes to medical negligence and furthermore hinders the Department of Health to defend itself effectively against medical malpractice claims.

NATIONAL AND PROVINCIAL GOVERNMENT INTERVENTIONS TO STEM MEDICO-LEGAL CLAIMS

The rapid growth in medico-legal claims has been identified as a risk facing the health sector, resulting in fewer resources for service delivery and undermining productivity in health expenditure. A range of strategies have been developed at both the national and provincial level and are at various stages of implementation. Primary interventions are focused on improving clinical standards, infrastructure, additional human resources, and training and technology to ensure a better and safer patient experience and clinical outcomes. Secondary interventions are focused on the speedy management of complaints and early engagement with harmed individuals. Root cause analysis must be done, and ways devised to prevent the occurrence of similar episodes in future. Tertiary interventions involve the professional and comprehensive management of all medico-legal litigation (SALRC, 2021). One of the key challenges is the absence of specific legislation to regulate the litigation of medico-legal claims, with the result that patients are, in most instances, awarded large once-off settlements. The use of state facilities, where feasible, to offer rehabilitation and other care services, instead of paying large once-off settlements, would enable such expenditure to remain within the public health setting for the improvement of healthcare services for the broad population.

The Medium-term Strategic Framework (MTSF) 2019–2024, Priority 3: Education, skills and health, provides for an intervention related to medico-legal litigation that requires the development of a comprehensive policy and legislative framework to mitigate the risks related to medical litigation by strengthening the management of medico-legal cases in the health system. Furthermore, a target

is set to reduce medico-legal cases on the register by 80 per cent by 2024 from the 2018 baseline. (Department of Planning, Monitoring and Evaluation, 2019).

The national Department of Health has made slow progress towards realising the target to reduce medico-legal claims. In 2018, at the time of setting the target for the reduction in the medico-legal contingent liability, the baseline stood at R70 billion. For an 80 per cent reduction to be realised, the contingent liability would need to be under R18 billion by 2024. Although the total value of medico-legal claims has declined from a high of R120 billion for the 2020/21 financial year, contingent liabilities remain at approximately the same levels as 2018, i.e. R68 billion. The total value of medico-legal claims stands significantly above the target, with one year remaining to achieve the target.

Another key intervention aimed at addressing the risk of increasing medical litigation is the development of a comprehensive policy and legislative framework. To ensure that the legislation is well considered, the Department of Health and the Minister of Justice and Correctional Services requested the SALRC to investigate medico-legal claims against the state.

The process of drafting a Bill to inform a legal framework to manage medico-legal claims in the country will commence as soon as the SALRC has consolidated the inputs on the discussion paper. The Commission's work is at an advanced stage, with recommendations for legislation having been presented to the national and provincial departments of health. However, the target for developing legislation to manage medico-legal claims in South Africa, which was set for 2022/23, was not achieved (Department of Health, 2023).

Delays in settling or defending medico-legal claims are one of the contributing factors to the rise in the number of and increase in the settlement value of medical negligence claims. One of the interventions by the national Department of Health in addressing the rise in the number of and value of claims awarded has been to develop and implement a secure case management system to streamline case management at the provincial level.

The Western Cape has been excluded from this rollout as it is already making use of its own system. To date, a secure case management system has been developed and implemented in five of the eight provinces targeted, with the Eastern Cape, Mpumalanga and Limpopo yet to implement the system. Reasons for provinces delaying the implementation of the secure case management system are the need to address the interoperability between the provincial system and the national case management system, the need to verify data before it can be migrated into the case management system and the request for further engagement before the adoption of the system (Department of Health, 2023). The lack of governance structures over information and communication technology (ICT) projects resulted in inadequate project planning and poor project governance, leading to ICT projects being implemented haphazardly.

Provinces have identified medico-legal claims as a significant risk and financial threat affecting the delivery of health services. A range of interventions has been proposed at the provincial level to curb the incidence of medico-legal claims. The level of detail and responsiveness to the rapid growth in

medico-legal claims varies from province to province, with some provinces having detailed intervention strategies, while others yet having to formulate detailed interventions. Interventions can be broadly grouped into the following areas: clinical interventions, electronic patient record management, staff-related risk management, the establishment of legal task teams, including a consortium of attorneys to deal with cases, mediation, case management teams, the establishment of specialised investigations to uncover fraudulent and duplicate claims, disciplinary measures against staff found responsible for medical negligence, etc.

Details of the interventions of the departments of health of the Eastern Cape, Gauteng, Mpumalanga and Western Cape are provided below.

Eastern Cape

To curb the incidence of medico-legal claims, the Eastern Cape Department of Health has focused its attention on the following intervention areas:

- Implementing electronic patient records management, in particular, the rollout of an electronic medical record system in the most litigated facilities, recording a patient's journey from point of registration to discharge, over the next three years (Anon, 2022). Interventions around patient records include addressing record management challenges through the placement of additional human resources in highly litigated facilities.
- Packaging interventions to prevent cerebral palsy.
- Designating targeted district hospitals to have the full package of services.
- Strengthening capacity for medico-legal defence, including Anti-corruption and Fraud Multi Group on Medico Legal Claims (ACFMG) and Double Dipping (Eastern Cape Department of Health, 2020).
- Rationalising contingent liability records.
- Creating a special medico-legal trust fund to prevent huge lump sum payments or similar mechanisms.
- Revising standard operating procedures and referral matters, and improving emergency medical service capability.
- Filling critical vacancies.
- Training clinicians and nurses on medico-legal risk identification and management, with a focus on how to avoid medical negligence.
- Mobilising the province's medical specialists as an internal resource to provide expert advice, and identifying opportunities to promote safer and better care.

Strengthening legal capacity within the Department through the involvement of the Special Investigating Unit (SIU)'s forensic and prosecuting authorities has yielded positive results. The Department has noted an increase in the number of matters being withdrawn or ruled in favour of the Department and decreasing settlements (Eastern Cape Department of Health, 2020).

The Eastern Cape Department of Health won a landmark victory in the Bhisho High Court at the beginning of 2023. In the judgment, Judge Robert Griffiths "allowed for the common law to be developed to enable the state to offer rehabilitation and other care services for children with cerebral palsy instead of paying the private sector" (Ellis, 2023). This is an important victory for the Department of Health as future medical expenses for treatment in the private sector, where specialised and long-

term healthcare is required, often make up the bulk of most medico-legal claims, especially for birth injuries in state hospitals. The judgment has the potential to create a new precedent whereby "(T)he common law is developed so as to accommodate the public healthcare and undertaking to pay remedies provided for in this order; so that the once-and-for-all rule (where millions are paid out for future medical expenses) and the rule that damages must sound in money are neither the exclusive nor the primary rules for the determination of just and equitable remedy…" (Ellis, 2023).

Gauteng

The Gauteng Department of Health has drafted a litigation strategy aimed at improving the management of and limiting medico-legal claims. Measures taken by the Department include the following:

- Addressing the causes of medical negligence at root-cause level, namely at the Department's clinical facilities.
- Facilitating and maintaining a good working relationship with the State Attorney's offices in Johannesburg and Pretoria.
- Filling vacant posts that arise in the Directorate: Litigation as soon as possible.
- Making use of the e-health system, which ensures the interoperability and validity of data. Such an intervention should assist with overcoming the theft of medical records. The use of automated field prompting should help overcome instances of inadequate or incomplete recordkeeping.
- The appropriate monitoring of labour by skilled birth attendants, as well as the correct and consistent use of the programme for all patients in labour.
- Establishing a partnership with the Nelson Mandela Children's Hospital to treat children born with cerebral palsy and ensure that they receive quality healthcare.
- Instituting an Employee Value Proposition that is aimed at improving staff morale at clinical facilities, and other clinical governance-related interventions to improve safety and care.
- Consequence management in respect of employees found to have been negligent and not following the Patients' Rights Charter and guidelines for the treatment of patients.
- The adoption of mediation practices where possible. Mediation is one of the most successful methods to reduce cases of medical negligence and consequently also reduces the Department's contingent liability. The Department estimates that mediation has saved it millions of rands (Gauteng Department of Health, 2021).

Mpumalanga

The Mpumalanga Department of Health has established a special unit dealing with medico-legal claims. The Department has prioritised the training of health professionals in high-risk targeted areas for litigation, as well as a greater focus on monitoring and the implementation of policies to avoid errors and curb claims.

In addition, the strategy includes the following:

- A litigation management strategy where cases are mediated between parties, thereby shortening the turnaround time on finalising cases, which reduces legal costs.
- The expenditure incurred is journalised against the relevant institutions for management to take disciplinary actions where applicable and improve clinical care.
- Awareness training in all districts on causes of litigation and the financial impact this has on service delivery, and improving accountability from facility management.

- Continuous engagement with stakeholders such as the South African Police Service (SAPS) on reporting the theft of records.
- The appointment of a medical specialist to investigate improving obstetric clinical management and assess the validity of current claims (Klopper, 2021).

Western Cape

The Western Cape has experienced a similar escalation of medical malpractice claims as seen in other provinces, although at a significantly lower quantum. In response to the escalation of medical malpractice claims, the Department has strengthened its professional capacity involving the establishment of a dedicated medico-legal division, headed by a medical team, involving expertise from the Cape Town Office of the State Attorney and a State Law Advisor seconded by the Office of the Premier. Importantly, interventions are headed by a medical team in the Department of Health rather than Legal Services.

Having medical practitioners at the centre of the model allows for the following:

- The professional scrutiny of evidence in all cases before instructions are provided.
- Established professional networks that allow for the easy identification and engagement of appropriate medical experts.
- A 24-hour ethical and medico-legal advisory service, the tone, language and ethos of which are highly acceptable to health workers, as well as managers.
- An effective means of feeding lessons learnt from litigation back into a departmental risk management programme (Western Cape Department of Health, 2019).

In the absence of national legislation to regulate medical malpractice litigation, the Western Cape Department of Health has adopted the following strategies on a case-by-case basis:

- The appointment of joint experts and case managers by consensus in quantum determinations.
- The settlement of low-value or moderate claims by informal negotiation early and without prejudice.
- Pleading for the early establishment of institutional trusts for minors with the inclusion of top-up and clawback clauses, which negate the need for massive upfront payments.
- The tendering of state undertakings in lieu of specific future medical costs, where state facilities are considered equivalent to private services.
- The review of interim payments as a standard practice during the course of negotiations (Western Cape Department of Health, 2019).

MEDICAL MALPRACTICE INDEMNITY COVER

Healthcare professionals in South Africa are not legally required to hold medical malpractice indemnity cover. In 2010, the Department of Health in terms of sections 61(1)(c) of the Health Professions Act, 1974 (Act No. 56 of 1974), promulgated regulations that sought to introduce mandatory professional indemnity cover for healthcare practitioners. The motivation for mandatory cover was to ensure that victims of medical malpractice incidents were not left without compensation. The regulations were, however, repealed in the same year that they were introduced (Knoesen, 2024).

The state provides indemnity for healthcare professionals working in public institutions in terms of section 76(1)(h) of the Public Finance Management Act (1999) and the accompanying Treasury

Regulations issued in terms of this Act. Treasury Regulations 12.2 explains that, in the event that a state employee is alleged to have acted negligently, the state is obliged to indemnify that individual and may not recover any compensation from employees, except in a number of specific instances, for example, with the use of alcohol or drugs, or when the practitioner intentionally exceeded their powers, acted recklessly or intentionally, or failed to comply or ignored standing instructions.

Requiring all public healthcare practitioners to have mandatory malpractice indemnity cover or medical liability insurance would enable the sharing of the risk of medico-legal costs between healthcare practitioners, the provincial departments and insurers. Whittaker (2021) provides the international experience of the public healthcare sector utilising malpractice indemnity. Italy's regionally based national health service, for example, requires health professionals to take out a personal insurance policy covering serious misconduct, and hospitals are obliged to be insured to cover liability in contract and tort. The experiences in Canada give insight into how a system in which private doctors are contracted-in into the public sector could work. Most physicians have their own private practice and Medicare (the publicly funded healthcare system) is billed for their services. Being in private practice, physicians are required to have medical liability insurance. However, provincial government reimburses a large portion of their insurance premiums. Hospitals and healthcare institutions also carry liability insurance (Whittaker, 2021). The sharing of the premium costs between healthcare practitioners and the Department of Health would need to be calculated on an actuarial basis. The benefit of this approach would be that the costs of successful litigation against the provincial Department of Health would be carried by the insurer. The viability of this approach should be explored to identify its advantages and disadvantages.

5.4 CONCLUSION

The efficiency analysis indicates that most of the district hospitals are operating inefficiently and have become more inefficient over time, pointing to a dire need for policy interventions in the DHS. The econometric analysis identified some of the factors that impact hospital-level efficiency in South Africa's DHS. The results show that unnecessary waiting times coincide with efficiency losses. An optimal patient-to-personnel ratio could mitigate long waiting times and reduce inefficiency. However, the data shows that this is lacking in South Africa's district health sector. The findings show that increasing the number of nurses in proportion to the uninsured members of the population could result in efficiency gains. The results further provide evidence of the important interplay between district hospitals and PHC facilities, such as PHC clinics, pointing to a possible misallocation of resources between different levels of healthcare, in particular, across district and PHC facilities. The findings also support the notion that investment in preventative healthcare could improve productivity in the health sector.

With respect to NHI, South Africa has a long history of inequality with respect to the provision of services, including healthcare services and access to healthcare. To address these challenges, South Africa is implementing the NHI, commencing with a number of pilot initiatives. How the NHI is funded is essential for the successful implementation of the programme. The study revealed that direct NHI grants perform better than indirect NHI grants. This finding is in line with the FFC's research study in 2015. The analysis further reveals that some funding allocated under the NHI is not directly related to the implementation of the NHI programme, for example the Limpopo Academic Hospital's health facility revitalisation and the mental health components.

Medico-legal claims have received a significant amount of attention due to their rapid escalation and the consequential impact on provincial health funding. Provincial departments of health appear to be turning the tide against the escalation of medico-legal claims, with numerous interventions being taken at the provincial level. However, the Department's failure to budget for claims undermines proper budget planning, transparency and accountability.

Much of the success in reducing liabilities stems from interventions regarding the accounting treatment of contingent liabilities. Progress has also been made on the legal front with the departments of health strengthening their legal capacity, with some wins being made in recent court cases. However, significant challenges remain in terms of adequate funding, human resource management, medical records management and accountability.

The centralisation of data, the development of norms and standards in improving healthcare practices, training and accountability will assist in identifying possible abuses of medico-legal claims by the legal fraternity. The development of legislation to address medico-legal payments provides an opportunity to inculcate the advantages of different systems that are aimed at addressing the consequences of medico-legal claims. However, until health funding pressures, and the efficient and effective use of health funding are addressed and improved, it is unlikely that significant progress will be made in preventing adverse health events and their human impact.

5.5 RECOMMENDATIONS

The Commission makes the following recommendations:

With respect to inefficiency in the district hospital system, the Commission recommends that:

1. The national Minister of Health needs to improve the quality of healthcare within the district hospital system by exercising allocative efficiency through reprioritisation. The technical efficiency of district hospitals should also be monitored at the provincial level through the Provincial Legislature's discretion of its money bills based on the National Division of Revenue Bill.

The district hospital system is largely inefficient, with only a handful of districts maximising health outputs relative to health inputs. Results from the model suggest that increasing the number of nurses per population could make district hospitals more efficient. While the empirical results on doctors is inconclusive in the model, there is ample evidence that there is a shortage of doctors in South Africa. This prolongs waiting times and limits access to healthcare, making the system more inefficient.

There is sufficient evidence in the literature to suggest that expenditure on healthcare can foster the conditions necessary for economic growth through increased productivity of the labour force and increased labour force participation. Pressure on the public health system, including at the district level, is mounting. There is evidence that district hospitals, in particular, have become more inefficient over time, which not only compromises the quality of care that patients receive, but also implies that resources are wasted. Results also highlight the importance of investing in preventative care as this could improve efficiency in the district health sector.

2. The Minister of Health must ensure that accountability mechanisms in district hospitals are strengthened to ensure that funds are allocated optimally. The Minister and provincial departments of health should provide guidelines on how management practices in district hospitals can be improved to enhance transparency, oversight and accountability in the sector. Considerations should be given to the centralised nature of hospital oversight vested in provinces and the constraints on hospital managers to respond to the operational needs of hospitals.

Inefficiency in the system points to systemic issues and the suboptimal allocation of health resources, leading to efficiency losses over time and a deteriorating quality of healthcare in the district hospital sector. Lessons should be learnt from those districts whose hospital sectors are operating relatively more efficiently. Optimal resource allocation within the district hospital sector can improve efficiency outcomes. However, enhanced resource allocation and efficiency hinge significantly on the effective management and oversight controls of district hospitals. In this regard, improving accountability becomes critical.

The centralised nature of control over hospitals, whereby hospital managers report to provincial departments of health with whom much control over hospitals vests, severely undermines the role of management functions to respond to changing operational requirements. For instance, in some provinces where the power to dismiss employees is vested in head offices, disciplinary processes may be subjected to lengthy delays, which compromises the effectiveness of accountability mechanisms. A more decentralised approach to hospital systems, which affords managers greater control over hospital operations, may improve allocative and technical efficiency, quality of service provision, transparency and accountability.

3. Enhancing transparency and accountability in hospitals and ultimately improving their performance hinges on the effectiveness of the healthcare system in adopting integrated data-driven processes. The Minister of Health, in collaboration with the Ministry of Finance and provincial Members of the Executive Committee (MECs), should improve monitoring and evaluation procedures through the integration of health data.

The efficiency of the healthcare system in South Africa is compromised by poor integration and a lack of centralisation of information in the public sector. The literature recognises the pivotal role played by effective accountability mechanisms in ensuring strengthened health systems and improving service provision. Such mechanisms should integrate with the National Health Insurance's database for doctors and the patients registry in line with policy and legislation. Not only will such interventions improve efficiency in oversight of the hospital system and allow for productivity gains, they can further enable the meaningful evaluation of hospital performance and provide insights into how the system can be improved.

With respect to medico-legal claims, the Commission recommends that:

4. The Minister of Health should prioritise the development of an integrated national information reporting system. Such an information system should include patient and doctor registries with real-time data. The standardisation of reporting fields will enable the creation of a uniform database to strengthen government's ability to monitor and evaluate.

Significant demands are placed on medical staff, and recordkeeping may be compromised as a result. The electronic management of medical records will assist in overcoming several challenges experienced with the management of medical records. Poor medical record management has been identified as one of the key contributing factors to medico-legal payments. Challenges related to medical record management include incomplete medical records, records becoming lost or stolen, a lack of human resources to manage medical records and the non-archival of eligible medical records. Furthermore, the absence of proper records management systems is an important factor that contributes to medical negligence and hinders the Department of Health from defending itself effectively against medical malpractice claims.

2. A uniform statistical reporting system should be utilised, which enables the enhanced collection and analysis of data-related medical negligence claims that capture the reasons for the claim, underlying clinical and treatment failures and settlement values.

The centralised collection and analysis of data will enable the benchmarking of settlement norms, enable the better defence of claims against the state, strengthen assessment of the merits of cases and develop best practices in responding to medico-legal claims.

3. Provincial departments of health should budget for medico-legal litigation (projected legal costs) and compensation payments in accordance with normal budgeting practices and budget forecasts should be based on actual expenditure settlement trends.

Most provincial health departments fail to budget for medico-legal payments. Consequently, when claims become successful, they are paid from operational budgets from funds earmarked for service delivery, thereby further eroding the ability of departments to be financially sustainable. Budgeting for such payments would enhance budget planning and service delivery as departments would be required to factor in these payments as part of their internal budget reprioritisation processes.

4. The Minister of Health should commission an actuarial study into the viability of introducing mandatory professional indemnity cover for all healthcare practitioners, including those in the public sector.

The introduction of National Health Insurance will require the contracting-in of private sector healthcare practitioners into the public sector. This can potentially expose government to greater risk of medical malpractice litigation. The viability of pooling risk across healthcare professionals, including those in the public sector, should be explored to identify advantages and disadvantages.

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6. IMPROVING LOCAL GOVERNMENT PRODUCTIVITY

Local government productive efficiency

CHAPTER 6:
Local government productive efficiency

6.1 INTRODUCTION

The theory of fiscal decentralisation is centred around the assumption that decentralised government systems are better able to match service provision to the constituencies' preferences and, accordingly, can deliver public services more efficiently (Monkam, 2014). According to this view, the transfer of government revenue and expenditure responsibilities from the national government down to the provincial and local spheres of government will foster accountability and higher productivity as the local government is better situated to understand the needs of communities and can provide goods and services according to the needs of the constituents they are serving.

This process of fiscal decentralisation has yet to produce the intended outcome in South Africa. Specifically, local government needs help to keep up with the demand for basic services by reticulating bulk services to the public, thus defaulting on its constitutional mandate.

The local government sector is plagued by a myriad of challenges that have hampered its ability to deliver services to the people. The 2023 Auditor-General's report on the state of municipalities painted a grim picture of the country's municipalities. According to the report, there are indications of a state of decay in local government nationwide. This comes after only 38 of South Africa's 257 municipalities received clean audits.

It is concerning for a sphere of government closest to the people to have most of its institutions in financial distress and another majority being dysfunctional for several reasons. Firstly, citizens depend on municipalities for water, sanitation and waste removal services. Many municipalities need to deliver these basic services. Secondly, the government allocates money to local municipalities through infrastructure grants. When utilised efficiently, this funding will bring about economic growth in the country. However, in the state in which local government finds itself, there has been a trend of underspending on these infrastructure grants. This defeats the vision of infrastructure-led growth in South Africa (FFC, 2023). Against this backdrop, the chapter aims to investigate the productive efficiency of local government in South Africa and its determinants.

6.2 SUMMARY OF LITERATURE REVIEW

Productive and cost-efficiency in public services provide many meaningful benefits to the end-user consumer, such as lower pricing and better services for businesses and households. Thus, the efficient running of public services means reduced cost pressures on consumers, which is relevant in the current situation of increased inflation and a strained fiscal environment in South Africa (Benito et al., 2021). A review of the literature is summarised in Table 6.1.

Table 6.1. Literature review

Author	Year	Country	Overall findings
Aiello and Bonanno	2019	Italy	Country-specific factors have a marked impact on the productive efficiency of local governments. Factors such as gross domestic product (GDP) per capita and levels of corruption affect the productive efficiency of municipalities. The study showed that South Africa is last among a host of upper-middle income countries when it comes to the productive efficiency of local government, mainly due to higher levels of corruption in the sphere.
Blom-Hansen et al.	2014	United States	Depending on several inherent characteristics, population size and density may influence productive efficiency. In many cases, large municipalities tend to be more efficient than smaller municipalities, given their economies of scale, while the converse may be true if the large municipalities have complex, extensive bureaucracies that have high coordination and management costs. Municipalities with dispersed populations tend to have higher cost per capita figures as they do have the cost advantages associated with the agglomeration economies of dense municipalities.
Fritz	2016	Germany	
Allers and Geertsema	2016	The Netherlands	
Blesse and Baskaran	2016	Germany	
D'Iverno et al.	2020	Belgium	In the case of large metropolitan municipalities that border smaller municipalities, there is some bureaucratic entropy and public service spillovers, as well as spatial interdependence, that influence productive efficiency. The combination of the first two tends to result in low productivity for the large municipality, while smaller bordering municipalities tend to have higher productive efficiency.
Balaguer-Coll et al.	2019	Spain	The wealth and income levels of municipalities have an impact on their productive efficiency. High-income residents have a negative impact of the productive efficiency of municipalities due to the nature and quality of the services they tend to receive from municipalities.
Afonso and Venâncio	2020	Spain	Lower unemployment levels within the boundaries of a municipality tend to have a positive impact on the municipality's productive efficiency, while overall increases in government expenditure tend to have a negative impact on municipalities' productive efficiency.
Ashworth et al.	2014	Belgium	Increased fiscal autonomy tends to disincentivise municipalities from becoming productively efficient. Municipalities that can raise their own revenues tend to be less productively efficient.
Doumpos and Cohen	2014	Greece	Political stability results in increased productive efficiency for local government. Parties with absolute and prolonged majorities in municipal councils like to take advantage of the time and stability of their terms to plan for longer periods, resulting in higher productive efficiency for the services provided by municipalities.

Source: Commission's compilation

The literature outlines several factors that may influence local government's cost and productive efficiency. These factors affect the productivity of municipalities in various ways. The review discusses several studies that look at factors that affect the efficiency of municipalities, including geography, population size and density, income levels, unemployment rates, fiscal autonomy and political competition. The factors, particularly at the local government level, have a measurable effect on the productive efficiency levels of municipalities across the many different contexts in which they operate.

6.3 RESEARCH METHODS

The study employs data envelopment analysis (DEA) to compute efficiency scores for a sample of 35 municipalities regarding the TE of their operating expenditure from 2018/19 to 2020/2021. The DEA ranks the selected municipalities relative to the most efficient municipalities within the sample that fall on the production possibility frontier. The chapter also employs the Tobit regression model to ascertain factors that might impact the computed efficiency scores.

6.4 DATA DESCRIPTION

The most recent and comprehensive socio-economic and demographic data in South Africa is reported by the 2016 South African community survey (StatsSA, 2016) and the 2021 non-financial census of municipalities (StatsSA, 2021). Therefore, this chapter will focus on analysing local government's productive efficiency for 2018–2021. Secondly, analysing local government's productive efficiency determinants will be restricted to 2021. This is somehow a limitation of this study as it meant that data relating to municipal capacity would be excluded from the analysis as the data source on which the study relied (the Municipal Demarcation Board's capacity assessment) was last published in 2018 (MDB, 2018). Variables such as the percentage of vacant positions to total posts on the organogram, and the qualifications and experience of section 57 managers were thus excluded from the analysis.

The variables to be analysed are as follows:

Input variable:

- Operating expenditure

Output variables:

- Number of consumer units receiving water and sanitation in a municipal area
- Number of consumer units receiving solid waste services in a municipal area
- Number of consumer units receiving basic electricity in a municipal area

For the second-stage Tobit regression model, the following determinants were analysed:

- Population growth
- Percentage of vacant posts to total posts according to section 57 of the Local Government Municipal Systems Act
- Average education of citizens
- Income levels of citizens
- Fiscal autonomy
- Number of consumer units receiving free basic services in a municipal area

These municipal output variables were sourced from the 2021 non-financial census of municipalities (StatsSA, 2021), while the input variable was sourced from National Treasury's Section 71 report (National Treasury, 2023). Furthermore, data for population growth, the average education of citizens and the income levels of citizens were sourced from S&P Global.

6.5 FINDINGS

6.5.1 Analysis of municipal expenditure

The Constitution mandates municipalities to provide water, sanitation, electricity and waste removal in their areas of jurisdiction. Given this mandate, it is not surprising that these expenditure items dominate municipal expenditures. Table 6.2 shows the respective size of the operating and capital budgets and outcomes for three metropolitan municipalities, 26 local municipalities and 26 district municipalities, aggregated in their respective municipal categories, for the 2022/23 financial year.

Table 6.2. Budgeted and actual expenditure per municipal category

	Operating expenditure				Capital expenditure					
	Adjusted budget	Year-to-date expenditure	Percentage spending	Expenditure shares across categories	Adjusted budget	Year-to-date expenditure	Percentage spending	Expenditure shares across categories	Actual operating expenditure	Actual capital expenditure
Metropolitan municipalities	130 167 486	131 594 656	101%	79%	15 705 562	13 609 367	87%	73%	91%	9%
Secondary cities (B1)	15 686 646	14 723 154	94%	9%	1 940 321	1 354 542	70%	7%	92%	8%
Large towns (B2)	7 917 462	6 749 884	85%	4%	1 143 468	758 779	66%	4%	90%	10%
Small towns (B3)	3 007 017	2 283 330	76%	1%	363 740	228 651	63%	1%	91%	9%
Rural districts (B4)	3 236 316	2 713 142	84%	2%	866 551	686 539	79%	4%	80%	20%
District municipalities	11 119 346	8 969 506	81%	5%	3 378 574	1 953 808	58%	11%	82%	18%
Total	**171 134 273**	**167 033 671**	**98%**	**100%**	**23 398 215**	**18 591 687**	**79%**	**100%**	**90%**	**10%**

*Values in R thousands

Source: Commission's calculations and National Treasury's Local Government database.

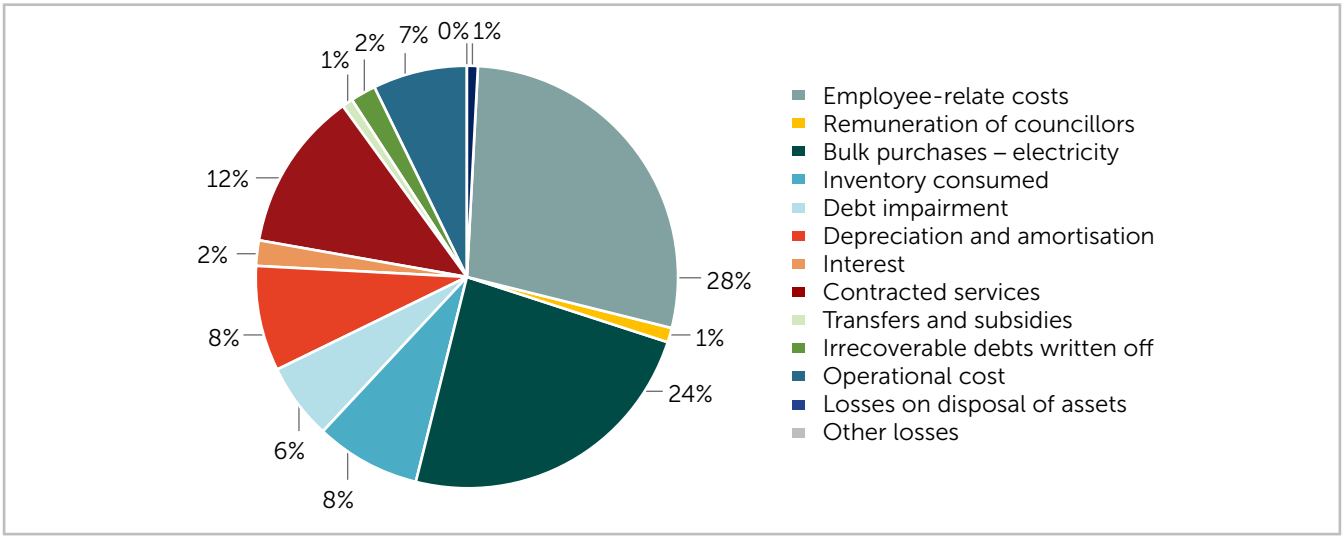
The municipalities spent most of their funds (90 per cent) on operating expenditure in the 2022/23 financial year. The largest expenditure share across the categories occurred in the three metropolitan municipalities (metros), which accounts for 79 per cent of operating expenditure and 73 per cent of capital expenditure. This large spending by the metros illustrates their overpopulated nature and the high demand for services in these areas.

6.5.2 Composition of operating and capital budgets

Operating expenditure consists of costs that are necessary for the delivery of services. Of the adjusted operating expenditure budget of R495.5 billion for the 2022/23 financial year, R444.2 billion or 89.6 per cent was spent by 30 June 2023 (National Treasury, 2023). Figure 6.1 shows the composition of the operating expenditure of all municipalities for 2022/23. The three largest municipal operating budgets are employee-related costs (28 per cent), bulk purchases (24 per cent) and contracted services (12 per cent). Municipalities have adjusted the budget for salaries and wages (including the remuneration of councillors) downwards to R145 billion, a decrease of R1.6 billion compared to the adopted budget of R146.6 for the 2022/23 financial year.

It is important, however, to underscore that Figure 6.1 includes the budgets of municipalities that do not provide all four major services. As such, the related input costs would be higher for municipalities that provide all four services. The transfers and subsidies item depicts transfers from district municipalities to local municipalities that provide services on their behalf in areas that have service delivery arrangements in place (FFC, 2011).

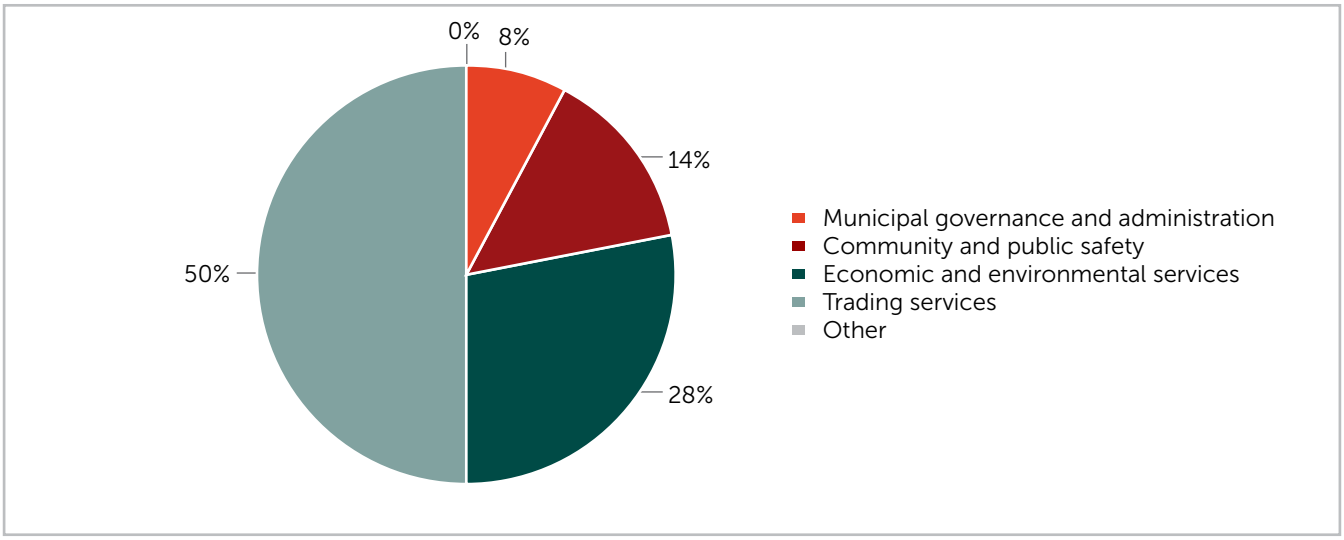
Figure 6.1. Composition of operating expenditure 2022/23 (as a percentage)



Source: National Treasury, 2023.

Figure 6.2 gives a breakdown of municipal capital expenditure in 2022/23. Capital expenditure usually entails longer-term investments in social and economic infrastructure. This is necessary to eradicate service delivery backlogs in a developing country such as South Africa (social infrastructure) and provide additional economic infrastructure to promote local economic development.

Figure 6.2. Composition of capital expenditure 2022/23



Source: National Treasury, 2023.

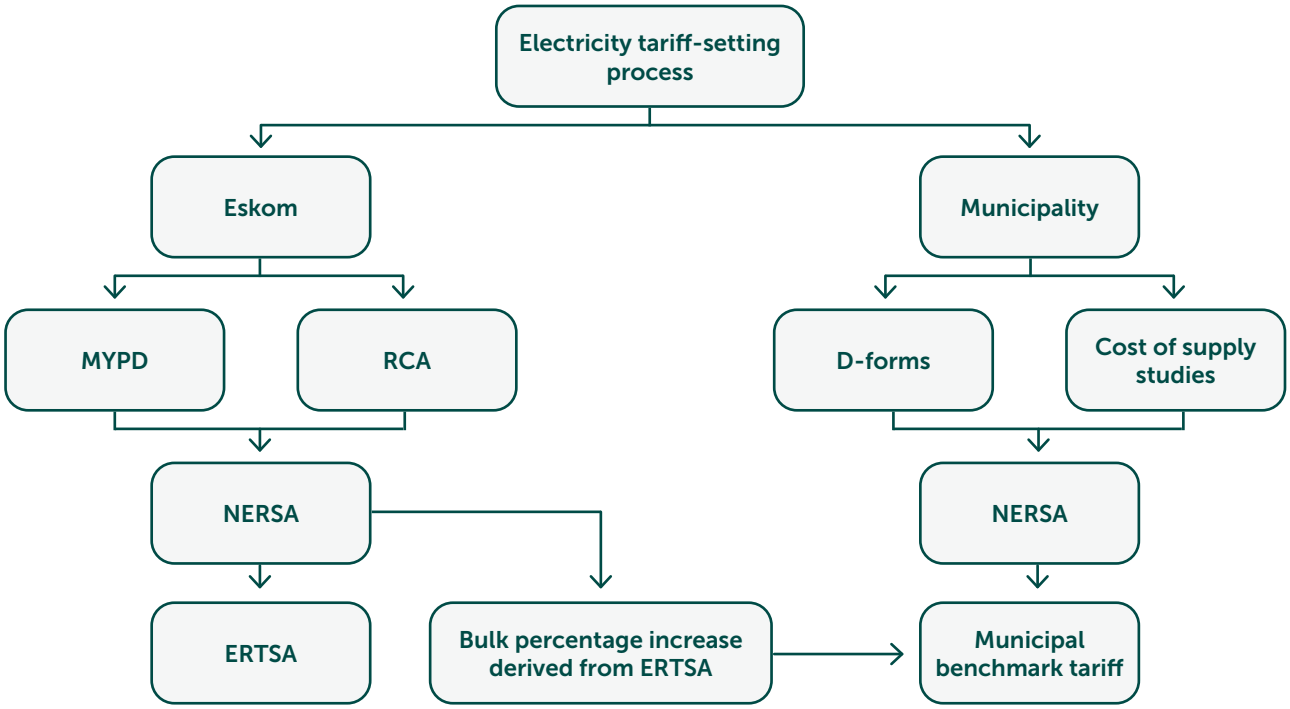
Municipalities appear to be prioritising spending on electricity, water, waste water, and waste management, as depicted by the spending on trading services. Trading services represents 50 per cent of the total capital expenditure in 2022/23. According to National Treasury (2023), the highest spending in this component is on water and waste management. It can be attributable to municipalities working on extending water supply to more households, while addressing water infrastructure backlogs.

Electricity is a vital revenue source for municipalities and a key driver of the economy. Given the central role electricity plays in the region's economic development and as it is a key cost driver in municipal expenditures, Box 6.1 explains the tariff-setting process for this sector. Tariff setting is when the institution proposes the revenue expectations required of a service to cover the full cost of providing that service. This includes the operating and capital expenditures incurred by the municipality to provide the service. The efficiency gains from effective and efficient service delivery can yield improved productivity.

Box 6.1. Electricity tariff-setting process

The National Energy Regulator of South Africa (NERSA) regulates the South African electricity industry and is responsible for municipalities' and Eskom's tariff processes. The NERSA-approved municipal tariff process is known as the municipal benchmark, and the tariff increase for municipal customers is implemented at the start of the municipal year, i.e. 1 July. The Eskom annual tariff increase is known as the Eskom Retail Tariff Structural Adjustment (ERTSA). The price increases apply to all Eskom customers effective from 1 April. Figure 6.3 explains the tariff process of Eskom and the municipal benchmark tariff process dependency on the ERTSA.

Figure 6.3. The electricity tariff-setting process



Source: Commission's own compilation

The left-hand side of Figure 6.3 explains the Eskom tariff-setting process. NERSA follows a two-pronged approach to determining the ERTSA. The first part of the process is calculating the multi-year price determination (MYPD), which is the revenue and cost prediction for the upcoming year. Eskom has three business activities: generation, transmission and distribution.

The MYPD calculation is based on the application of section 15(1) of the Electricity Regulations Act of 2006, which states that the tariffs should recover the full-service cost, including a reasonable return margin. To ensure this section's aim is achieved, NERSA has developed a methodology based on the rate of return and incentives for efficient performance. The tariff methodology developed by the Regulator ensures that each of the three business activities generates sufficient revenue to cover its expenditure requirements.

The second part of the tariff process is calculating the Regulatory Clearing Account (RCA). The RCA is defined as the mechanism for monitoring and tracking certain uncontrollable costs and revenue assumptions made in the MYPD calculations compared to Eskom's actual costs and revenues. The RCA is a process that applies at the end of each financial year. It is a means to reconcile the variances retrospectively. The RCA process is two-fold. Eskom must first identify and compile the RCA balances, which must then be submitted to NERSA. Once NERSA receives the RCA application, the Regulator will review, approve and adjust the tariff accordingly. The addition or overestimation will be added to the MYPD to determine the ERTSA for the upcoming financial year. As with Eskom, municipality tariffs are also set by the Energy Regulator. Municipalities must submit their financial information annually. They must either submit their revenue requirements via the municipal d-forms or complete a cost-of-supply (CoS) study. The Electricity Pricing Policy (EPP) requires municipalities to submit a CoS study once every five years. However, since 2021, NERSA has promoted the annual submission of CoS studies. The information is to determine the total expenses used in the weighted average cost of capital (WACC) formula used to determine the municipal benchmark tariff. Each factor of the WACC contribution is calculated by the annual contribution as a percentage of total expenditure. The weighted increase depends on the Consumer Price Index (CPI), the bulk increase and the municipal wage agreement. The percentage bulk increase depends on the ERTSA. However, it is not the total increase applicable to Eskom customers. Given the three-month difference between the financial year of Eskom and that of the municipalities, the ERTSA is adjusted annually to accommodate the lag. The adjusted bulk increase is the percentage increase for bulk purchases, the largest input factor of the guideline determination process.

6.6 RESULTS

6.6.1 Descriptive statistics

Table 6.3 provides the summary statistics of the measures of municipal inputs and outputs used in the empirical analysis. Overall, the high skewness and kurtosis values shown in Table 6.3 display the substantial variations within and across the categories of municipalities that constitute the focus of this study.

Table 6.3. Descriptive statistics

	Water	Electricity	Sewerage and sanitation	Solid waste management	Operating expenditure
Mean	201 576	173 460	175 154	190 292	7 635.03
Standard error	26 860	22 530	23 008	29 330	1 285
Median	52 225	66 990	43 213	45 000	1 174.14
Mode	246 499	27 467	29 929	116 314	#N/A
Standard deviation	316 678	265 629	271 263	345 792	15 147.51
Kurtosis	2.29	3.98	2.88	3.49	4.50
Skewness	1.96	2.21	2.04	2.22	2.37
Range	1 124 694	1 202 123	1 061 576	1 448 480	69 428.30
Minimum	2 498	7 631	2775	1144	(429.89)
Maximum	1 127 192	1 209 754	1 064 351	1 449 624	68 998.41
Sum	28 019 085	24 110 956	24 346 472	26 450 578	1 061 269.62
Count	139	139	139	139	139.00
Confidence level (95.0%)	53 111	44 549	45 494	57 994	2 540.43

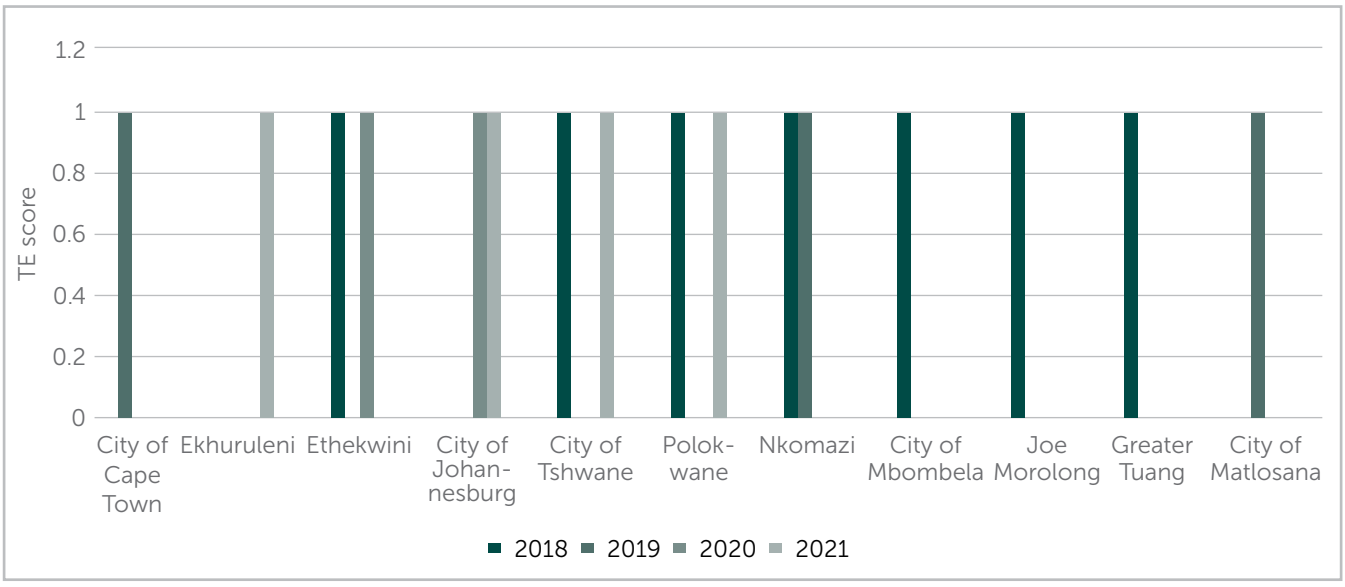
Source: Commission's calculations.

No municipality remained constantly efficient over the review period. The Nkomazi Local Municipality in Mpumalanga remained efficient in the first two years of the review, while the Polokwane Local Municipality in Limpopo and the City of Tshwane Metropolitan Municipality were both efficient in 2019 and 2021. The City of Johannesburg Metropolitan Municipality remained efficient for two consecutive years in 2020 and 2021.

The average efficiency score was 0.69 in 2018 before declining to 0.68 in 2019 and increasing to 0.69 in 2020, peaking at 0.70 in 2021. This implies that, on average, municipalities in the sample can obtain the same output level with at least 30 per cent less inputs.

Figure 6.4 shows the municipalities with 100 per cent efficiency scores over the review period.

Figure 6.4. Efficient municipalities

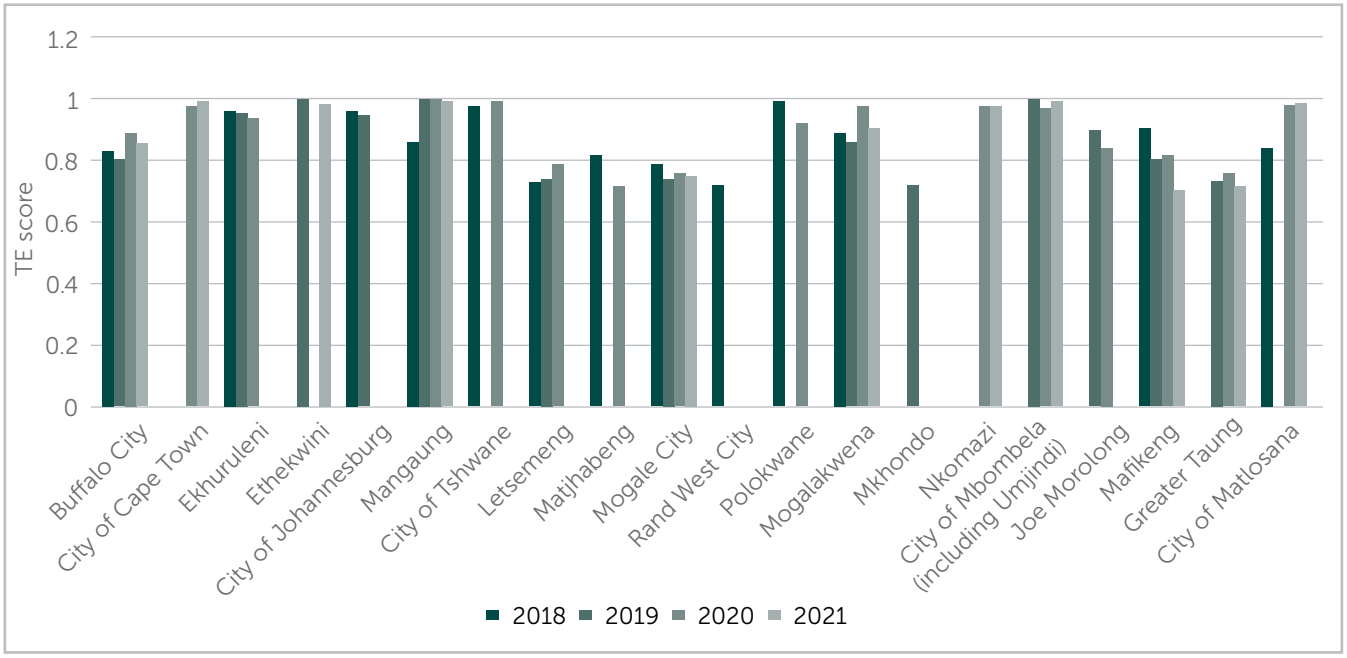


Source: Commission's calculations.

Five municipalities were computed as being efficient in 2018 and 2019: the Ethekwini Metro, City of Mbombela, Nkomazi Local Municipality, Greater Taung Local Municipality, and Joe Morolong Local Municipality. Of the municipalities that were efficient in 2018, only Nkomazi Local Municipality remained efficient the following year. In 2020, only the City of Johannesburg and the Ethekwini metros were computed as being efficient. The City of Johannesburg was also efficient in 2021, along with the Polokwane Local Municipality, the City of Tshwane, and the City of Ekurhuleni.

Figure 6.5 lists municipalities with the highest DEA-variable return to scale (VRS) scores relative to the efficient municipalities.

Figure 6.5. Top 20 efficiency scores 2018–2021

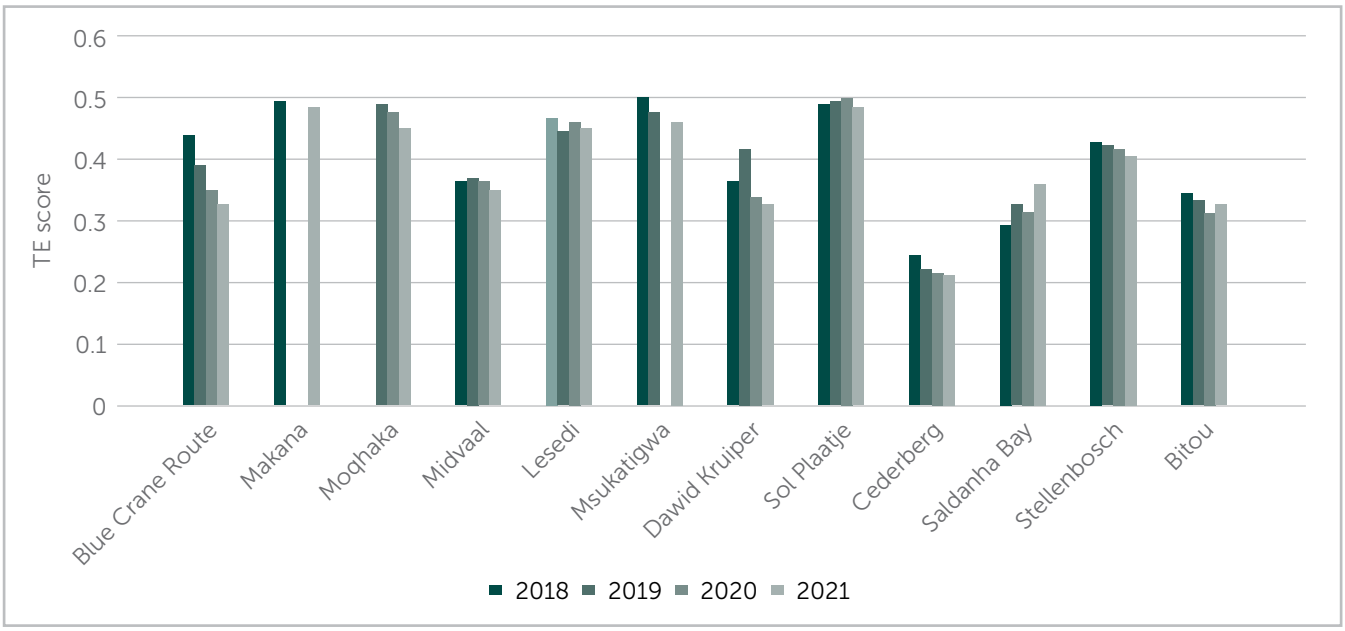


Source: Commission's calculations.

The range of the top 20 efficiency scores differed across the review period. In 2018, the scores ranged from 82.8 to 98.8. The range widened from 73.8 to 99.7 in 2019 before narrowing to 89.1 and 99.4 in 2020. Lastly, the gap between the highest and the lowest scores across the review period was the highest in 2021, ranging between 70.1 and 99.3. Some municipalities were efficient the preceding year, but their productive efficiency declined the following year. For example, Figure 6.4 shows that Joe Morolong Local Municipality used its resources efficiently in 2018, with an efficiency score of 100, only to see its productivity drop to 89.8 in 2019 (Figure 6.5). In other words, the municipality used 10.2 per cent more resources than was required based on community service demand.

The City of Ethekwini was efficient in 2018, only to see its efficiency drop the following year. For example, the municipality's efficiency score was 100 per cent in 2018 (Figure 6.4). However, it dropped to 99.7 in 2019 (see Figure 6.5). Figure 6.6 shows the 12 least efficient municipalities from 2018 to 2021.

Figure 6.6. Least efficient municipalities 2018–2021



Source: Commission's calculations.

The efficiency scores of the municipalities listed in Figure 6.6 are very low and disheartening. The scores suggest that most municipalities could have more efficiently spent over 50 per cent of their resources. Four municipalities that remained inefficient throughout the review period are from the Western Cape: Cederberg, Saldanha Bay, Bitou and Stellenbosch. Cederberg remained the least efficient municipality in the four consecutive years of the review period.

6.7 ANALYSIS OF RESULTS

The input-oriented DEA identifies the municipality that uses the least inputs to produce the most outputs relative to other municipalities in the sample. Therefore, the analysis compares types of municipalities and identifies the most efficient municipality. In identifying good performance, DEA allows similar municipalities to benchmark themselves against better-performing municipalities of a similar nature.

For example, Figure 6.4 shows that, although smaller, more rural municipalities are notorious for bad performance, the Nkomazi and Greater Taung local municipalities efficiently used their resources compared to the Ga-Segonyana Local Municipality, which falls in the same category.

In addition, the results also show that many of the least efficient municipalities are from the Western Cape. This finding is rather odd in that it is a widely accepted perception that Western Cape municipalities are relatively well resourced in the maximisation of their own revenues. Furthermore, Western Cape municipalities have greater fiscal capacity due to their favourable economic and geographic characteristics compared to other parts of the country. Stellenbosch falls within the list of the ten least efficient municipalities. This finding may suggest that Stellenbosch, Saldanha Bay, Cederberg and Bitou might have more financial resources relative to the demand for their services. In other words, the resources at their disposal far exceed the outputs generated, thus resulting in a relatively inefficient utilisation of resources.

Concerning the more efficient municipalities (Figure 6.4), the list is dominated by metropolitan municipalities and secondary cities. These categories of municipalities account for the largest populations. It should, therefore, follow that the demand for services in these regions will be relatively high. As such, the high efficiency scores for these municipalities can be explained by the fact that they may have fewer resources relative to the demand for services from their communities. These reasons could be attributable to lower per-capita expenditure levels.

If the efficiency scores are influenced by the quantity and quality of the provided services, the income, economic and spatial disparities across municipalities will likely influence the results. Metropolitan and secondary cities have more revenue-raising powers, while smaller and more rural municipalities are more dependent on national transfers in the form of grants. As such, municipalities that are overly endowed with resources are likely to utilise their resources inefficiently, while others are resource constrained.

Overall, the analysis points to some weaknesses in the equalisation nature of the intergovernmental transfer system, particularly the local government equitable share formula. The analysis shows that the equalisation nature of the local government equitable share formula has yet to be successful. The local government equitable share and other equalisation grants are meant to address the mismatch between resource distribution and demand for services across municipalities in the country. Yet, some municipalities appear to be more overly endowed than others, which results in the inefficient utilisation of resources, while others need more support. Therefore, the distributive nature of the transfer systems could be improved (FFC, 2011).

6.7.1 Tobit regression analysis

The next step of the analysis was to identify the potential determinants of efficiency. Although the analysis calculated DEA scores for 2018 to 2021, the Tobit regression analysis could only estimate the potential determinants of municipal spending efficiency in 2021 due to the unavailability of frequent municipal data.

POTENTIAL DETERMINANTS OF EFFICIENCY IN LOCAL SERVICE DELIVERY: PRIORI EXPECTATIONS

The literature review of this chapter identified several factors that determine municipalities' spending efficiency. This chapter's potential determinants are limited due to the available quantifiable data. The independent variables explored in this study are grouped into fiscal autonomy, institutional capacity and political factors.

Fiscal autonomy is the ratio of local taxes and service charges to total revenue. According to Monkam (2014), this measure can be used to portray the degree of revenue decentralisation of a municipality. The theory of fiscal decentralisation posits that when subnational governments enjoy a high degree of revenue decentralisation, they can provide services that match the preferences and tastes of consumers. Still, they are also positioned to match the consumers' expenditure and revenue needs. This variable is expected to increase municipalities' spending efficiency.

As has already been alluded to, due to the lack of the latest institutional capacity data from the Municipal Demarcation Board, this study will limit the institutional capacity of municipalities to the percentage of vacant posts to total posts in section 57 of the Local Government Municipal Systems Act (Act No. 32

of 2000) (RSA, 2000), which includes municipal managers, chief financial officers and other managers appointed for a five-year period. These variables are expected to have an adverse impact on municipal efficiency.

Socio-economic factors such as citizens' income and education levels are expected to impact efficiency positively. Income levels and the educational attainment of citizens provide them with the necessary skills and abilities to be active participants in public decision making. Therefore, a highly educated and high-earning citizenry should be able to pressure local government officials to provide quality services. Regarding the education level of citizens, we look at the percentage of the population with no form of schooling, the percentage of the population with Grade 12 and the percentage of the population with some form of post-matric education (higher education). Regarding the income levels of households, we look at the percentage of the population with a gross monthly income that falls within the R18 000–R30 000 range and another percentage of the population with a gross monthly income greater than R30 000. In 2021, the average monthly gross income of individuals in South Africa was R23 828. This amount falls within the R18 000–R30 000 range in the data set used for this analysis.

In 2002, municipalities in South Africa adopted the free basic services policy, which provides a portion of services free to indigent households every month. This forms part of the national social security programme. As part of this policy, the municipality provides free electricity, water, sanitation and waste removal to indigent households. These variables are expected to harm the spending efficiency of municipalities as they put financial pressure on those municipalities that are already struggling.

The political leadership of a municipality plays a vital role in its spending efficiency. However, according to Monkam (2014), the impact of this variable on the spending efficiency of municipalities could be clearer, i.e. the relationship depends on the strength of opposition parties present in the municipality. For example, political tensions between political parties and council members may negatively impact service delivery. In the same vein, a high percentage of council seats held by the majority party may also be counterproductive due to a lack of democratic checks and balances provided by a healthy opposition party. Conversely, a majority party with little to no factionalism and interference in decision making positively impacts service delivery (DCoGTA, 2009).

RESULTS

Table 6.4 analyses the potential determinants of municipal spending efficiency using the Tobit regression model.

Table 6.4. Tobit regression results

DEAVRS	Coef.	St. error	p-value	95% conf.	Interval	Sig
Fiscal autonomy	.038	.204	.853	-.386	.462	
Political leadership	.228	.574	.695	-.965	1.422	
Maj50	-.179	.131	.186	-.452	.093	
Vac57	-.036	.237	.88	-.529	.457	
Free water	0	0	.631	0	0	
Free electricity	0	0	.185	0	0	
Free sanitation	0	0	.779	0	0	
Free waste	0	0	.33	0	0	
Population growth	-8.592	2.649	.004	-14.1	-3.084	***
No school	8.046	3.978	.056	-.228	16.319	*
Grade 12	2.437	1.342	.084	-.353	5.227	*
Higher education	5.505	1.64	.003	2.094	8.916	***
Income (R18 000–R30 000)	22.398	8.042	.011	5.674	39.122	**
Income (>R30 000)	-4.074	1.812	.035	-7.841	-.306	**
Constant	.4	.522	.452	-.685	1.485	

Mean dependent variable	0.666	SD dependent var	0.255	
Pseudo r-squared	2.208	Number of obs	35	
Chi-square	38.977	Prob > chi2	0.000	
Akaike crit. (AIC)	10.672	Bayesian crit. (BIC)	35.557	

*** p<.01, ** p<.05, * p<.1

Source: Commission's calculations.

Where:

- Maj50 is defined as the majority party holding more than 50 per cent of seats.
- Vac57 is vacant section 57 posts as a percentage of total posts.
- Free water refers to the number of consumer units receiving free basic water.
- Free electricity refers to the number of consumer units receiving free basic electricity.
- Free sanitation refers to the number of consumer units receiving free basic sanitation.
- Free waste refers to the number of consumer units receiving free basic refuse removal.
- No school is the percentage of the population with no schooling.
- Grade 12 is the percentage of the population with a secondary education.
- Higher education is the percentage of the population with a higher education.
- Income (R18 000–R30 000) is the percentage of the population with a gross monthly income between R18 000 and R30 000.
- Income >R30 000 is the percentage of the population with a gross income greater than R30 000.

The results reveal that the fiscal autonomy variable has a marginal and insignificant impact on local efficiency. Furthermore, the results also reveal the negative, but insignificant impact of the majority ruling party on municipalities' spending efficiency. While not statistically significant, this result may indicate that a high proportion of the governing party's council seats could, in some cases, be counterproductive because there would be fewer democratic checks and balances than a strong opposition party could offer.

Citizens' education levels appear to positively impact efficiency levels, regardless of the level of education. These results might suggest that citizens, regardless of their level of educational attainment, tend to be active participants in representative democracy and public decision-making processes. The size of the coefficients, however, shows that the participation of citizens with no form of schooling tends to improve efficiency more than the percentage of the population with Grade 12 and tertiary education qualifications. This observation may be because this group accounts for many indigent people who depend on the government for free basic services. As such, their large presence in public decision-making processes might put pressure on municipal officials to provide services expeditiously. This is evident during service delivery protests when municipal officials and communities tend to find a common agreement on how services can be provided after an ongoing demonstration of dissatisfaction by community members.

Similarly, where the income levels of citizens are predicted to have similar effects, the results reveal that the higher the percentage of the population with a gross monthly income greater than R30 000, the lower the efficiency level. This result may suggest that, when unhappy with the quality-of-service provision, this group tends to refrain from paying their user fees to force municipalities to provide good-quality services.

On the other hand, low-income households appear to impact efficiency positively and significantly. This finding corroborates the earlier finding that the percentage of the population with no schooling has a positive and significant impact on the spending efficiency of municipalities, as low-income individuals are most likely to fall within the category of those with no schooling.

Finally, the results reveal that the number of consumer units receiving free basic electricity and free basic sanitation positively and significantly impacts municipal spending efficiency. In contrast, the number of consumer units receiving free basic water and free basic waste removal has negatively impacted municipal efficiency. However, the results are somewhat negligible.

6.8 CONCLUSION

This chapter examined the spending efficiency of 35 municipalities in South Africa. It examined how efficiently municipalities could transform their operational expenditure budgets to meet their communities' demand for services. The efficiency scores remained constant at 68 per cent during the review period, indicating that the sample of selected municipalities could have achieved the same output level with about 32 per cent fewer resources from 2018 to 2021.

The results revealed that gross disparities in resource distribution among South African municipalities still exist. Furthermore, the study revealed that some municipalities are better endowed with resources than others, leading them to utilise these resources inefficiently.

Secondly, the chapter used the Tobit regression analysis to assess the impact of several factors that potentially impact municipalities' spending efficiency. While DEA estimated efficiency scores for 2018 to 2021, the Tobit regression only focused on 2021 due to the unavailability of data for the prior three years. The results revealed that fiscal autonomy has a negligible impact on municipal efficiency and that municipalities use their resources inefficiently when a majority party holds the highest number of council seats in a municipality. Significantly, individuals' education and income levels are important in improving the spending efficiency of municipalities.

6.9 RECOMMENDATIONS

The Commission makes the following recommendations:

1. The Minister of Cooperative Governance and Traditional Affairs and the South African Local Government Association must work closely with incapacitated municipalities to examine capacity constraints and create incentive programmes to attract qualified and competent employees to municipalities.

This recommendation seeks to eradicate capacity constraints within municipalities. Diagnosing the root causes of capacity constraints is the first step toward solving the problems experienced by municipalities. The report of the Municipal Demarcation Board (MDC, 2018) on municipal capacity assessment states that smaller and more rural municipalities need help attracting suitable personnel to their municipalities because professionals feel they need to be more incentivised to work in rural areas. In 2021, National Treasury embarked on a review of municipal capabilities to assess that municipalities were equipped with the required skills and personnel to fulfil the municipalities' constitutional mandate of basic service delivery. The review of municipalities should be an ongoing process, and early-warning mechanisms must be implemented to ensure adherence to compliance and good governance practices. These initiatives can be linked and incorporated into direct and indirect capacity-building grant frameworks.

2. The Minister of Cooperative Governance and Traditional Affairs should facilitate continuous skills audits within municipalities to ensure that municipalities appoint qualified staff. To appoint public servants, the Department of Cooperative Governance and Traditional Affairs and the National School of Government should develop a national examination to ascertain that senior municipal officials have the required skills for their appointed jobs.

Section 54A of the Local Government: Municipal Systems Act, 2000, provides for appointing municipal managers and acting municipal managers. More notably, section 54(2) of the Municipal Systems Act (RSA, 2000) states: "A person appointed as municipal manager in subsection (1) must at least have the skills, expertise, competencies, and qualifications as prescribed". In line with section 54 of the Municipal Systems Act, the national examination will be a further step in ascertaining the capability of potential municipal managers to hold office. The examination will ensure that municipal managers have the minimum knowledge of governance systems and municipal operations needed to run a municipality and will, therefore, be suited to make well-informed decisions that will lead to efficiency and productivity in allocating resources and delivering basic services.

3. The Minister of Cooperative Governance and Traditional Affairs, in collaboration with the South African Local Government Association, should enforce and encourage the implementation of the District Development Model within municipalities and further encourage staff exchange programmes among municipalities for roles that have the same dispensation to teach best practices of municipal systems and to implement projects at their home municipality with a required time frame.

This recommendation intends to foster coordination between municipalities to ensure that individual municipalities can benefit from best practices. The District Development Model emphasises the importance of intergovernmental relations. The need for inter-municipal coordination is also important in the local government sphere. The exchange programmes will allow municipal workers to network and form long-lasting relationships with employees from other municipalities. These relationships can continue well after the period of the exchange programme and can contribute to the ultimate goal of delivering services effectively and efficiently.

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