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Local government in South Africa – Efficiencies revisited

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by

Lorraine Nyatanga

NYTLOR001

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Supervisor: Dr, Mundia Kabinga

Declaration

I, Lorraine Nyatanga, hereby declare that the work on which this thesis is based is my original work (except where acknowledgements indicate otherwise) and that neither the whole work nor any part of it has been, is being, or is to be submitted for another degree in this or any other university. I authorise the University to reproduce for the purpose of research either the whole or any portion of the contents in any manner whatsoever.

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Disclaimer

Parts of this dissertation were previously submitted on turn it in (student papers)(Nyatanga, 2021) during the course of preparing and completing this dissertation.

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ABSTRACT

Poor service delivery is the continuous song sung by monitoring bodies such as the Auditor Generals and service delivery riots have increased over the years. Efficiency refers to the fact that there should be no waste in the use of resources and that there is rationality in their use. In turn, local government tier in national government is a level of governance that develops as a response of fiscal decentralization implicating a transfer of power and responsibility for public affairs from central government to lower levels, such as regional or local governments. The problem at hand emanates from the limited understanding of the efficiency levels of local municipalities in the RSA and the lack of knowledge regarding the impact of grant support and institutional capacity on their efficiency despite the importance of local municipalities in delivering services.. The covid-19 pandemic being an unforeseen circumstance also provided inherent pressure on the struggling economy and ailing government reforms. The focus of this study was to assess the efficiency of local municipalities in South Africa and to find the determinants of efficiency gaps among local municipalities in Republic of South Africa (RSA). Research questions identified sought to clarify how many local municipalities are operating efficiently in South Africa, the effect of grant support on the efficiency of municipalities in RSA and the impact of institutional capacity on local municipality efficiency score in RSA. Using secondary data, the study used the non-parametric Two-Stage Data Envelopment Analysis (DEA) method to measure efficiency of 232 local municipalities in the Republic of South Africa. The study further employed a Tobit regression model to explain what determines the efficiency scores. The study findings show that total population has a negative relationship with efficiency scores. Financial flexibility, financial independence, and grants all have a positive impact on the efficiency of local municipalities in South Africa. Institutional capacity is insignificant in establishing municipal efficiency However, both financial decentralisation and number of households with access to free water have no effect on the efficiency.

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CHAPTER ONE
INTRODUCTION AND BACKGROUND

1.1 Introduction[1]

Public goods and services provided by local governments are mandated to meet various expectations and needs of citizens and these are in form of infrastructure, waste management, water supply and health services (Dick-Sagoe, 2020). In recent years local governments especially in developing countries have been facing challenges in service provision and literature has attributed these obstacles to increasing human population, lack of funding as well as technological changes due to the advent of the 4th industrial revolution (Williams *et al.,* 2011). In order to support local municipalities to provide goods and services efficiently, there is therefore a need for a clear understanding of both the efficiency levels and the factors that determine the efficiency scores hence the focus of this study.

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Since the creation and partial inheritance of the three tier multi- government system to outline the South-African democracy, there has been vagaries affecting the complete circle of development. The multi government system, established through the constitution, consists of a national government, provincial government and local government. The national government and provincial government have applied various reforms to stimulate development to improve the lives of citizens at the local level with a continued decrease in developmental economies of scale. The increase in population, migration to urban areas has grown faster than the governments' ability to provide for the citizens thus putting pressure on the available financial and physical resources such as infrastructure. At the same time equity gap continues to grow due to the self-first notion that has crippled governance and ethical structures and created uncontrollable corruption, collusion in state owned entities and structures.

Discussing efficient municipalities in SA, Monkam, (2014) notes that in municipality categories were poor efficiencies were noted, from the researchers' work, it was concluded that jurisdictions with better average income and education showed better service delivery

[1] the first three chapters draw extensively on student proposal and chapter drafts that had previously been submitted as part of the UCT MCOM in Development Finance research process

efficiencies when compared to jurisdictions with lower levels of income and education of a similar size. The citizens that received services were billed and the efficiency scores were based on the municipalities abilities to bill for services rendered. Of the 231 municipalities data used in the analysis, B1 municipalities recorded 47.36% efficiency, B2 municipalities achieved 33.33%, B3 municipality achieved 10.12%, and B4 municipalities achieved 18.75%. The failure to bill for services rendered, affects the revenue streams for the municipality to provide better services, poor public participation and education leading to decline in the average efficiency for all the municipalities.

The efficiencies identified in *"Efficiency measurement of basic service delivery at South African district and local municipalities"* by Van der Westhizen and Dollery (2009) and *"Measuring efficiency and effectiveness in Local Government in South Africa"* by Mafunisa, (2004), led to the engineering of government strategic and operational reforms to provide support to weaker and dysfunctional municipalities. The pre- requisite factors to establish successful municipalities such as public participation, staffing capabilities, sound financial management, political stability, transparency and good governance, for the delivery of the back to basics (core mandate service delivery) constitutional mandate were not being fulfilled. Municipalities underperformed owing to disequilibria in the financing frameworks of the local government sector and misalignments in the governance and institutional structures (Monkam, 2014). The local government continues to be characterised by a number of persistent challenges, relating to, inter alia, poor financial management; low and declining 'own revenue' in the majority of municipalities; and inefficient delivery of infrastructure, as well as poor maintenance of existing infrastructure (Financial and Fiscal Commission, 2019). These factors present measurement challenges in determining municipal efficiency in SA as qualitative and quantitative aspects are not measured and disclosed in all 278 municipalities.

Governance reforms and frameworks in South Africa have been initiated through established research from the World Bank Country Policy and Institutional Assessment (WB CPIA) since 2007, and over the years institutions (MIF 2019, pp. 17–35)
measuring governance transparency and democracy reforms across Africa such as the Mo Ibrahim Foundation and V-DEM Institute have contributed significantly to the current governance, transparency, rule of law, social impact and sustainability indicators which have been used to provide basis of measure of country efficiency and resource allocation (Monkam, 2014). Over the years, many programmes and interventions (legal, policy, financing, etc.) have

been undertaken to correct misaligned strategic and operational service delivery objectives to output, but they have largely failed. This study seeks to quantify if local government service delivery mandate has become more efficient considering the implementation of monitoring and evaluation frameworks post 2010 till present day. Levy(2014), has provided steps in implementing successful governance reforms after analysing political typology aligning it to a dominant (authoritative) or competitive (democratic) political settlement and formulating governance framework that promotes rule of law and limit bureaucracies. This process will enable us to then analyse institutions such as local municipalities and metros and understand why they work the way they do, taking into cognisance what has been the impact of M&E policies that have been implemented by national bodies such as COGTA and what improvements can be made. Overall, this process will substantiate or refute operational efficiency strategies and resource allocation efficiencies in local government institutions.

Ever since the theory of fiscal federalism referred to efficiency in local governments, the topic has been gaining importance among both scholars and public sector managers. According to this theory, sub-central governments, as is the case of local administrations, can achieve greater economic efficiency in the allocation of public resources. From an economic perspective, efficiency implies that there be no waste in the use of resources; that is, efficiency requires a rational use of resources. Furthermore, local government is a level of governance that develops as a consequence of fiscal decentralization implicating a transfer of power and responsibility for public affairs from central government to lower levels, such as regional or local governments (Oates, 1985, 1993). Thus, the term local efficiency refers to the efficiency achieved by local governments in the provision and/or production of public services. In the field of public services, different types of efficiency can be determined.

Koopmans (1951) and Debreu (1951) were the first to introduce the concept of technical efficiency that requires a comparison between the number of inputs and outputs. In this case, efficiency means maximizing the production obtained from a given number of productive factors output oriented or, conversely, minimizing the productive factors consumed to obtain a given output input oriented. On the other hand, allocative efficiency requires information on input prices. The combination of technical and allocative efficiency results in economic efficiency and its dimensions: cost efficiency and revenue efficiency or profit efficiency. Interest in the study of local government efficiency and its determinants has intensified in recent years. Specifically, the past economic and financial crisis has driven the need for improvements

in efficiency and reduction of costs in the provision of public services at all levels of public administration, including local and regional governments. Consequently, measuring efficiency is essential for evaluating the results of local public policies. However, efficiency estimates, which do not take into account the variables that condition it, have only a limited value. Therefore, it is equally important, from the perspective of policy-makers, to identify which are the main determinants of local efficiency to be able to articulate measures that can affect them either directly or indirectly.

Technical efficiency or the efficiency scores are determined by population, number of households, formally dwelling households, households with access to sanitation, water, refuse, vacant posts, management as well as operating expenditure.

1.2 Problem Statement

Local municipalities in the RSA are crucial for delivering essential services and promoting socio-economic development within their respective jurisdictions. Enhancing their efficiency levels is essential to ensure effective governance, sustainable development, and improved quality of life for citizens. The problem at hand emanates from the limited understanding of the efficiency levels of local municipalities in the RSA and the lack of knowledge regarding the impact of grant support and institutional capacity on their efficiency. Despite the importance of local municipalities in delivering services, there is a lack of monitoring and evaluation in local government institutions in RSA (Levy, 2014). The gap in literature identified was the lack of solid determinants of efficiency in SA, prior determinants analysed using data from 2008 and government's delay in structuring of monitoring and evaluation tools to aid decision making processes. This knowledge gap hinders the ability to identify strengths and weaknesses in municipal operations and develop targeted strategies for improvement. Consequently, there is a need to conduct a detailed analysis of the efficiency levels of local municipalities in the RSA. Moreover, insufficient knowledge regarding the effect of grant support on the efficiency of municipalities in the RSA. Grants play a significant role in providing financial assistance to municipalities and supporting their operations. However, it is unclear how grant support influences the efficiency of municipalities in terms of service delivery, resource allocation, and performance. Understanding this relationship is crucial for policymakers and stakeholders involved in the allocation and utilization of grants to optimize their impact and ensure efficient use of resources. Furthermore, there is literature dearth in regarding institutional capacity affects the efficiency of local municipalities in the RSA. Understanding this relationship is vital for identifying areas where institutional capacity can be strengthened to enhance overall

municipal efficiency. Addressing these problems is essential for understanding the efficiency levels of local municipalities thus providing insights into their performance and identify areas for improvement. This knowledge can inform policy decisions and resource allocation strategies to enhance service delivery and promote sustainable development.

1.3 Research objectives

The specific objectives of the study are:

1. To analyse the efficiency levels of local municipalities in the RSA.
2. To examine the effect of grant support on the efficiency of municipalities in RSA.
3. To assess the impact of institutional capacity on local municipality efficiency score in RSA.

1.4 Research questions

In line with the articulated research objectives, the research seeks to answer the following questions:

1. How many local municipalities are operating efficiently in South Africa?
2. What is the effect of grant support on the efficiency of municipalities in RSA?
3. What is the impact of institutional capacity on local municipality efficiency score in RSA?

1.5 Aim of the Study

The aim of this study is to assess the efficiency of local municipalities in South Africa and to find the determinants of efficiency gaps among local municipalities in Republic of South Africa (RSA). Efficiency can be understood in terms of jurisdictions providing a maximum amount of output for a given level of inputs and it is one of the potential means to evaluate public policies. Various approaches, however, co-exist to measure the efficiency of organizations (including local governments). Given that these rely on different underlying assumptions, it is important to assess whether, and to what extent, the approach taken affects the outcome of efficiency studies. This study aims to assess the efficiency of local municipalities in South Africa and to find the determinants of efficiency gaps among local municipalities in Republic of South Africa (RSA).

Efficiency measures are associated with private firms through measuring of production output, organisational capabilities (staff retainment, skills transfer, etc) internal controls, number of

complaints and many other factors to determine efficiency through a score card or an efficiency indicator (Cabeza-García and Gómez-Ansón, 2011). Such indictors formulate a basis to understand factors that affect output maximisation. In establishment of infrastructure such as water lines, mining shafts, the precision the task is executed, the timeline maintained without delays, maintaining cost effective measures to remain in budget yet maintaining quality and the number of accidents affecting safety concerns on project site determine the level of efficiency in private firms. Cabeza-García & Gómez-Ansón, (2011) discuss empirical literature on efficiency in private firms post privatisation of state-owned firms in Italy from 1985 to 2011. Factors that outlined greatest efficiency in firms were noted to be concentration of ownership, it effects on performance (profits) and the firms risk appetite.

With an objective of profit maximisation and return on investment for private firms, the higher the concentration of ownership and corporate governance management, the more the efficient the firms post privatisation. A similar analysis of efficiency determinants as those studied in Italy can be instituted for public firms such as local municipalities in SA in a bid to determine their level of efficiency. Similar questions can be posed for the SA local government sector, though LG entities core mandate is provision of public goods and not profitability. Should LG entities be privatised or not? How much ownership is government willing to cede to the private sector in a bid to enhance efficiency? Are the municipalities even efficient before state considers privatisation of some of the entities and local bodies?. Study will extend the literature on determinants of efficiency with significant impact on understanding why some local municipalities are more efficient in providing service delivery compared to others focusing operational financial and institutional capabilities.

1.6 Justification of the study

Traditional public administration techniques fostered on extraction of raw resources, manufacturing and export must move along the value chain to encourage new public administration, new institutional perspectives and sustainable fiscal decentralisation. This showed the evolution of the developmental state from new public management to modernised public management theories in the 4th industrial revolution focusing on technology and organisational capabilities Pandeya & Shrestha (2016). The demographics and history of RSA have been used to create government structures that are in existence in the 21st century. However, traditional public management is evolving and various dimensions of the current

frame of operations needs to consider ways of creating efficiencies to boost economic growth. Lessons from developmental states such as the Asian tigers discussed in the literature review provide empirical results that pre-existing conditions of a developmental state can be utilised to harness productive efficiencies to stimulate growth in all spheres of government.

Contributing literature on local government efficiency in developing countries is still limited. Few studies have attempted to examine the performance of local government efficiency Monkam, (2014). To the knowledge of the researcher, research on local government efficiency for developing countries is very scant as compared to developed countries. Despite attempts by the national treasury of SA to provide reforms that ensure equal distribution of revenues through the division of revenue act (equitable share), reforms by COGTA to support institutional capacity, introduction funds such as the skilled development levy (SDL) and infrastructure grants to support operations, local governments in developing countries such as South Africa continue to face efficiency challenges as they have different contextual and institutional setups than those in first world countries.

When compared to developed nations, due to the governance structure of SA LG and LG institutional capabilities, a gap in literature was identified and presented this study with a opportunity to provide empirical evidence that have very crucial insights into the factors that drive efficiency of local municipalities. Additionally, theoretical views of what factors catapult operations have been noted from the literature review, however numerical measures through modelling of available government data measuring input vs output and performance will require assessment through research of current data. Thus, the study is imperative as it will provide new dimensions of assessment of government efficiencies and provide probable evidence for the SA government to gradually re- engineer current structures in a bid to provide sustainable output.

1.7 Scope of the study

The research takes into cognisance that there are numerous issues that need to be tackled that relate to local government. The issues emanate from legislative structure set-up, communion relationship with national government and other government agencies and dependant variables that create or detract efficiencies. The dependant variables are the core concerns of this research after identification of the independent variables encompassed in the preliminary discussion of the literature review. The study will build on existing research on local government efficiencies and challenges and combine the impact of national government strategic and operational

reforms on service delivery in various jurisdictions. To this end, operational efficiency or the efficiency scores are determined by the aspects of local governments such as population, number of households, households living in formal dwellings, households with access to sanitation, water, refuse, vacant posts to determine institutional capacity/organisational capabilities and, operating expenditure to determine reliance on grant support for financial viability.

The objectives, operational efficiency, financial viability and institutional capacity have been tested in this study as these play a pivotal role in the day- to-day running of local municipalities in achieving their core mandate, which is service delivery. Corporate governance and ownership objective has not been tested in this paper due to limited data on political ownership and effect on decision making data affecting the operations of the local government entities. A thin line exists between service delivery and political interference. The paper intended to maintain objectivity through a quantitative analysis of efficient and non-efficient local entities. The paper thus extends literature to aid policy and reform makers on stances to take to enhance the service delivery mandate of local municipalities.

1.8 Organisation of the rest of the study

Chapter one covered the introduction, background of the study, as well as the research problem, objectives, questions hypothesis and scope of the work. Chapter two follows, capturing the literature review, outlining related theories and the findings by previous studies on the subject matter. Chapter three presents the methodology of the study, data collection, sampling and data analysis methods used. Additionally, it presents the empirical model as well as the theoretical models which are the basis of the estimated models. Chapter four presented and discussed the findings from the data analysis and lastly chapter five focuses on the conclusions, recommendations of the study and insights to current and future research studies.

CHAPTER TWO
LITERATURE REVIEW

2.1 Introduction

The literature review focusses on studies that were conducted on local government efficiencies, which factors seem to weigh in significantly on the quality of the final output to citizens in the form of service delivery (electricity, water, refuse removal, infrastructure, housing, roads). The analysis emerged from conceptual perspectives and developmental theories that have shaped local administration in across the globe and in South Africa. The review concludes with weaving empirical results from quantitative techniques used in deciphering the conclusions and recommendations for future studies as these build into the tactics and structure of the current study.

2.2 Theoretical literature review

2.2.1 The Systems theory

Easton, (1953), a respected political science researcher, being a proponent of the systems theory, examined politics from a systems perspective. According to the theory, governance issues of a society are made up of those recognizable and connected institutions and procedures (which we typically conceive of as government institutions and political processes) that generate authoritative decisions. Mansoor & Williams (2018) assert that in order to understand how a system of public service delivery should be conceptualized, we must first understand how the system functions in terms of the tasks it completes and the interrelationships or flows of finances, accountability, or resources among sub-systems. Therefore, the process that specifies not only the links between elements but also the manner in which the service moves through the system is the key to a successful municipal service delivery system. Systems that are effective, adaptable, and integrated are the result of well-designed processes that are focused on goals and desired outcomes.

According to the systems theory, it is helpful to map the dynamics that underlie municipalities, how the interaction between system components impacts how they function, and the nature of actions that can lead to improved results when the systems approach is used to municipal problems that are typically complicated. The system lens helps observers understand how systems are set up and function. This necessitates a grasp of the connections and spaces that

exist between the parts, as well as their interactions. Additionally, it allows for contemplation on potential courses of action based on this understanding (such as design and design thinking) and the development of solutions that may be tried before being implemented within the questioned systems.

The systems theory views the municipality as a Decision-Making Unit (DMU) which is responsible for generating authoritative decisions. Accordingly, estimation of the efficiency of DMUs can be done using techniques such as non-parametric techniques which include the Data Envelopment Analysis (DEA) and the Free Disposal Hull (FDH). Specifically, the DEA has the ability to incorporate multiple outputs and inputs and estimate the production frontier non-parametrically with inputs and outputs only (not prices) making it a better method of analysing efficiency of public service providers and thus the choice of this study.

2.2.2 **Developmental state**

A developmental state is a key concept in the establishment of government structures. The theory from a capitalist nation is defined as an efficient bureaucracy, small, inexpensive, professional with efficient open markets, central planning, rational beings focussed on mobilisation of individuals towards enhancing economic development without much focus on politics and policy. The state must also have authority to intervene, through influence of direction and pace of economic development, in the event of failure of perfect markets to allocate resources (Meyns & Musamba 2010). The state must be governed by the politically elite, with influence to achieve economic objectives, must have the capacity to drive change, must be professional, the role of civil society will must be weak, there must be a level of repression and non-consideration of human rights, and the legitimacy of the political elite to govern must be tightly linked to the state's ability to perform.

The developmental state is characterised by state ownership of resources, inefficiencies in public service, corruption and assumes that individuals are irrational according to the Weberian theories from the 1980's (Williams, 2014). South – East Asia counties managed to utilise this ill world view structure of political management to create the Asian Tigers between the 1990 to 2000. South Korea, Taiwan, Singapore, Hong-Kong were small countries with significant bureaucratic processes and autocratic political stances that managed to utilise their competitive and comparative advantages to stimulate economic growth. Policies of nationalism cultivated

from the culture and discipline of the Asians enabled the mobilisation of resources for centralised projects which made the countries lucrative for FDI.

The countries became industrialised through Transnational Corporations as they were perfect hosts for economic progress Satgar, (2014). This was through reasonably well-developed level of infrastructures such as roads, railways and ports as well as well-educated population with existing skills. Moreover, cultural traditions that appreciate education and achievement and good geographical location - especially for Singapore as it is situated between the Indian and Pacific Ocean, which made it perfect for trading, imports and exports. Government support, for example, offering low-interest rates in bank loans is also a contributing feature and fewer rigid laws and regulations on labour, taxation and pollution than in home countries of TNCs, allowing more profitable operations.

The success of latter features above was made possible through state intervention and colonial culture embedded by the predatory colonial master, Japan to South Korea, Taiwan, Singapore and Hong Kong INEF, (2010). Japan had strict financial incentives and command structures controlled by Chinese business groups (whether zaibatsu or chaebol; Zaibatsu refers to a large industrial or financial combination, often owned by a few families, in Japan. Chaebol refers to South Korean family-owned conglomerates). The latter encouraged structure in operations and modelled strategic and operational culture for developmentalism success. The idea that coherent state intervention into workings of the market might have something to do with Japanese growth has a long, scholarly pedigree. Success of Asia evolved to a substantive-rational state bureaucracy from free trade, comparative advantage and political power developmental theories Hsu, (2012). The same synopsis should not be refuted as possible solutions for emerging economy countries such as South Africa were capitalist theories seemingly have gaps to stimulate growth and economic development emanating from the apartheid era (Satgar, 2014). A hybridisation approach can be undertaken, while maintaining a democracy, resources can be centralised for industrialisation infrastructure to be constructed to create an enabling environment for SA to attract FDI

A democracy, however, can be seen as a necessity but may not be sufficient for the creation of a sustainable developmental state as was the case for Ireland. The politics shifted numerous times despite the economy undertaking a technology driven base shifting away from the traditional manufacturing sectors. The Irish economy collapsed in 2010 despite the state and

EU investing in information technology and human capital efficiency. In economies such as USA, India and UK, manufacturing sector's employment declined in 1990s as they realised social returns to the expansion of human capabilities which were substantially higher than private returns, thus, private investors cannot be relied on. The logic of development contradicts the logic of capital and compelled the states to act in order to promote the expansion of human capabilities. Lessons of the developed nations should be considered by SA as she works on progressing her nation towards development and sustainability. A balance between key economic drivers and such as infrastructure development, natural resource extraction human capital efficiency, technological knowhow and population density must be struck. No efficiency factor should develop faster than the other, as this might lead to economic collapse.

Satgar (2014) critics South Africa as lacking political will and has made faults in the journey of becoming a sustainable developmental state. SA is noted to have failed to create conditions for development according to the Weberian economics. SA instead has seen itself to be a declaratory developmental state post-apartheid with evident cracks outlining dysfunctional politics, policies, social unrest. The latter have led to massive capital outflows through black empowerment policies as a facade of neo-liberalisation that are focussed on transitional black capitalists instead of national development projects, forgetting "going green" policies and retardancy to traditional economies that are export led focussing on mining, retail, communication and transport. SA is increasingly showing signs of a predatory state in which political elites use state resources to amass personal wealth. Understanding the latter will enable us to frame solutions for SA through this research on how efficiencies for local government can be improved taking lessons from other developmental states such as addressing challenges relating to unemployment, inequality and politics Tshishonga (2011).

In conclusion, the theoretical argument suggest that the adoption of developmental state principles can enhance technical efficiency by promoting strategic planning, effective governance, and targeted interventions. Empirical evidence from national-level studies supports the positive impact of developmental state principles on economic development. Further research is needed to explore the specific relationship between developmental state theory and municipality technical efficiency, considering the unique characteristics and challenges faced by local governments. Such research can provide valuable insights for policymakers and practitioners seeking to enhance technical efficiency and promote local development in municipalities.

2.2.3 **New public management**

The NPM evolved from the traditional public administration theories that were focused on correcting market failures emanating from industrialisation post the World War I and II. Table 1 outlines key theoretical hinges for public administration from the 1900s to present day, comparing differences between the traditional public management, NPM and the emerging new public service (NPS). The traditional theories and NPM are now evolving into emerging public administration theories focusing on public service through participation of communities, assuming rationality of leaders, ethical motives, governance, elimination of self-interest and promotion of public value, public values and public spheres. This is noted in countries such as the USA with sound voter mechanisms (hearing the publics voice) and have managed to utilise NPM tools for efficiency promotion such as information technology, media and marketing frameworks (Bryson & Crosby, 2014). The South African NPM model is evolving with voters clamouring more for their voices to be heard regarding governance issues such as corruption and self-interest to be eradicated to ensure improved service delivery through public values. The framing of the NPM evolution in the developmental state will require a review of lessons from older African states and emerging markets in terms of interactions of local and national government to enable the success of emerging NPM.

The SA government has progressed from a capitalist bureaucratic developmental state into a decentralised government and currently now faced with market failures that have emanated from a ballooned government and mismanagement of the fiscus. This has led the state to consider federalism and the NPM perspectives, which are concerned primarily with remedying market failures and how to deliver public goods efficiently and equitably. Public sector is argued to have a crowding out effect on private sector and NPM allows public sector to create an enabling environment for private sector participation to encourage innovation and experimentation. Such practices as tender management, public preference are elements of NPM provide enhanced efficiencies in resource allocation.

The theoretical arguments of NPM on municipality technical efficiency rest on the introduction of competition and performance measurement. NPM creates incentives for municipalities to improve their efficiency and effectiveness in service delivery. This market-oriented approach encourages municipalities to identify and adopt best practices, leading to better resource allocation and utilization. Moreover, the decentralization of decision-making and greater autonomy granted to municipalities under NPM can enhance technical efficiency. Local governments are better positioned to understand local needs and tailor services accordingly.

This decentralized decision-making authority allows for more efficient resource allocation and responsive service delivery.

Table 1: conceptual perspectives on public administration and local governance.

Dimension	Traditional Public Administration	New Public Management	Emerging Approach to Public Administration
Broad Environmental and Intellectual Context			
Material and ideological conditions	Industrialization, urbanization, rise of modern corporation, specialization, faith in science, belief in progress, concern over major market failures, experience with the Great Depression and World War II, high trust in government.	Concern with government failures, distrust of big government, belief in the efficacy and efficiency of markets and rationality and devolution.	Concern with market, government, nonprofit and civic failures; concern with so-called wicked problems; deepening inequality; hollowed or thinned state; "downsized" citizenship; networked and collaborative governance; advanced information and communication technologies.
Primary theoretical and epistemological foundations	Political theory, scientific management, naive social science, pragmatism.	Economic theory, sophisticated positivist social science.	Democratic theory, public and nonprofit management theory, plus diverse approaches to knowing.
Prevailing view of rationality and model of human behaviour	Synoptic rationality, "administrative man".	Technical and economic rationality, "economic man," self-interested decision makers.	Formal rationality, multiple tests of rationality (political, administrative, economic, legal, ethical), belief in public spiritedness beyond narrow self-interest, "reasonable person" open to influence through dialogue and deliberation.
The Public Sphere or Realm			
Definition of the common good, public value, the public interest	Determined by elected officials or technical experts.	Determined by elected officials or by aggregating individual	What is public is seen as going far beyond government, although government has a

		preferences supported by evidence of consumer choice.	special role as a guarantor of public values; common good determined by broadly inclusive dialogue and deliberation informed by evidence and democratic and constitutional values.
Role of politics	Elect governors, who determine policy objectives.	Elect governors, who determine policy objectives; empowered managers; administrative politics around the use of specific tools.	"Public work," including determining policy objectives via dialogue and deliberation; democracy as "a way of life".
Role of citizenship	Voter, client, constituent.	Customer.	Citizens seen as problem-solvers and co-creators actively. engaged in creating what is valued by the public and is good for the public.
Government and Public Administration			
Role of government agencies	Rowing, seen as designing and implementing policies and programs in response to politically defined objectives.	Steering, seen as determining objectives and catalysing service delivery through tool choice and reliance if possible on markets, businesses, and nonprofit organizations.	Government acts as convener, catalyst, collaborator; sometimes steering, sometimes, rowing, sometimes partnering, sometimes staying out of the way.
Key objectives	Politically provided goals; implementation managed by public servants; monitoring done through bureaucratic and elected officials' oversight.	Politically provided goals; managers manage inputs and outputs in a way that ensures economy and responsiveness to consumers.	Create public value in such a way that what the public most cares about is addressed effectively and what is good for the public is put in place.

Key values	Efficiency.	Efficiency and effectiveness.	Efficiency, effectiveness, and the full range of democratic and constitutional values.
Mechanisms for achieving policy objectives	Administer programs through centralized, hierarchically organized public agencies or self-regulating professions.	Create mechanisms and incentive structures to achieve policy objectives especially through use of markets.	Selection from a menu of alternative delivery mechanisms based on pragmatic criteria; this often means helping build cross-sector collaborations and engaging citizens to achieve agreed objectives.
Role of public manager	Ensures that rules and appropriate procedures are followed; responsive to elected officials, constituents, and clients; limited discretion allowed to administrative officials.	Helps define and meet agreed upon performance objectives; responsive to elected officials and customers; wide discretion allowed.	Plays an active role in helping create and guide networks of deliberation and delivery and help maintain and enhance the overall effectiveness, accountability, and capacity of the system; responsive to elected officials, citizens, and an array of other stakeholders; discretion is needed but is constrained by law, democratic and constitutional values, and a broad approach to accountability.
Approach to accountability	Hierarchical, in which administrators are accountable to democratically elected officials.	Market driven, in which aggregated self-interests result in out- comes desired by broad groups of citizens seen as customers.	Multifaceted, as public servants must attend to law, com- munity values, political norms, professional standards, and citizen interests.

Contribution to the democratic process	Delivers politically determined objectives and accountability; competition between elected leaders provides over- arching accountability; public sector has a monopoly on public service ethos.	Delivers politically determined objectives; managers determine the means; scepticism regarding public service ethos; favors customer service.	Delivers dialogue and catalyses and responds to active citizenship in pursuit of what the public values and what is good for the public; no one sector has a monopoly on public service ethos; maintaining relationships based on shared public values is essential.

Source: Adapted principally from Denhardt and Denhardt (2011), with further adaptations from Stoker (2006); Kelly, Mulgan, and Muers (2002); and Boyte (2011).

Assiamah & Adams, (2019), investigate theories relating to NPM in the South African context focussing on leadership and formulate hypothesis streaming forms of leadership between the deadbeat leader, transdisciplinary leader and the helicopter leader. These were framed along the "bureaucracy" of traditional public administration and "managerial flexibility" of NPM, respectively.

> ""Deadbeat" leadership is used to illustrate a completely "hands-off" leadership approach where leaders allow their subordinates a total unguarded space to make own decisions on how organizational objectives set up by leaders would be achieved.
>
> "Helicopter" leadership approach is when the leader closely monitors and controls the activities of subordinates or employees without recourse to the views of the latter. Leaders "micromanage" the subordinates in a typical surveillance approach where the latter do not have breathing space for ingenuity.
>
> The "transdisciplinary leader is the one that strives to remove the boundaries between the organization (management and key decision makers), its departments (line supervisors and staff), and outside world (external environment and stakeholders) to really serve the latter well or address their problems. A hallmark of transdisciplinary leader is integration, resilience, deep learning, and the quest for organizational sustainability underscored by philosophy of making decision "with" stakeholders and tailor-made "for" them."

The author concludes after analysing the shortcomings of the deadbeat leader and the helicopter leader in creating public service value that the transdisciplinary leader provides a composite approach of leadership in public administration in South Africa.

Efficiency is a measure of output vs inputs. The SA output has been measured through basic ratios that are utilised to assess individual municipalities performance against each other and enable a form of uniform reporting to take place. The section 71 reporting guidelines in SA will provide a basis point for our research. However, a swing in the traditional methods of measuring efficiency and performance will enable us to provide balanced assessment of SA local government by investigating some difficult indicators that have been proven to enhance performance but are perverse. One of the reasons for the set-up of local government was to initiate "decentralization", involving the transfer of responsibilities from central to local

government with the objective of improving efficiency and accountability in public sector management, as well as the responsiveness of state agencies to local needs. It has been argued, for example, that the legal and political design of local government in Africa can actually weaken the cultivation of a democratic culture at the local level, and that it can hamper the ability of local authorities to take initiatives in the field of service provision Ribot, (2002).

There are 257 municipalities in South Africa, comprising eight metropolitans, 44 district and 213 local municipalities. Municipalities govern on a four-year term basis and run local affairs subject to national and provincial legislation. They are focused on growing local economies and providing infrastructure and services. The main clusters (mandate) for local government include infrastructure development, enhancement of economic sectors, employment, governance, administration, human settlement social protection and community development. These municipalities daily duties are overseen by the Provincial and National government based on the three-tier government system. The local authorities' oversight is governed by a council body elected over a period of 5 years. The municipalities are placed in the categories described in the table below:

Table 2: Categorisation of local municipalities in South Africa.

Category	Description
A	Metropolitan municipalities: large urban complexes with populations over one million and accounting for 56% of all municipal expenditure in the country.
B1	Local municipalities with large budgets and containing secondary cities
B2	Local municipalities with large town as a core
B3	Local municipalities with small towns with relatively small population and a significant proportion of urban population but with no large town as a core
B4	Local municipalities that are mainly rural with communal tenure and with at most one or two small towns in the area
C1	District municipalities that are not water service authorities
C2	District municipalities that are water service authorities

Source: Adapted from CoGTA (2009).

The categories are utilised for performance reviews and resource allocation by national treasury and other monitoring bodies such as COGTA and Stats SA.

Some of the efficiency indicators that have been tabled by COGTA post 2020 to be implemented by municipalities have been published through MFMA Circular 88. A summary of these is shown below:

Outcome	Indicator	Output indicator
Energy and electricity		
EE1. Improved access to electricity	Percentage of households with access to electricity	EE1.11 Number of dwellings provided with connections to the mains electricity supply by the municipality
EE2. Improved affordability of electricity	EE2.1 Percentage of households with electricity connections receiving Free Basic Electricity	EE2.11 Percentage of total residential electricity provision allocated as Free Basic Electricity (FBE)
EE3. Improved reliability of electricity service	EE3.1 System Average Interruption Duration Index	EE3.11 Percentage of unplanned outages that are restored to supply within industry standard timeframes
	EE3.1 System Average Interruption Duration Index	EE3.21 Percentage of planned maintenance performed
EE4. Improved energy sustainability	EE 4.4 Percentage total electricity losses	EE4.12 Installed capacity of approved embedded generators on the municipal distribution network
ENV3. Increased access to refuse removal	ENV3.1 Percentage of households with basic refuse removal services or better	ENV 3.11 Households receiving basic refuse removal services
Financial management		
Numerous ratios as per MFMA circular 71.		
Per capita operating expenditure	total operating expenditure/total population	individual benefit to households based on costs spent by municipality in monitary form
Governance (Managers)		
GG1. Improved municipal capability ***(Managers)***	GG 1.2 Top Management Stability	GG 1.21 Staff vacancies
	GG 1.2 Top Management Stability	GG1.22 Percentage of vacant posts filled within 3 months
GG2. Improved municipal responsiveness	GG 2.1 Percentage of ward committees that are functional (meet four times a year, are quorate, and have an action plan)	GG 2.11 Percentage of ward committees with 6 or more ward committee members (excluding the ward councillor)

	GG 2.1 Percentage of ward committees that are functional (meet four times a year, are quorate, and have an action plan)	GG 2.12 Percentage of wards that have held at least one councillor-convened community meeting
	GG 2.2 Attendance rate of municipal council meetings by recognised traditional and Khoi-San leaders	
	GG2.3 Protest incidents reported per 10 000 population	GG2.31 Percentage of official complaints responded to through the municipal complaint management system
GG3. Improved municipal administration	GG 3.1 Audit Opinion	GG 3.11 Number of repeat audit findings
	GG 3.1 Audit Opinion	GG 3.12 Percentage of councillors who have declared their financial interests
GG4. Improved council functionality	GG 4.1 Percentage of councillors attending council meetings	GG 4.11 Number of agenda items deferred to the next council meeting
GG5. Zero tolerance of fraud and corruption	GG 5.1 Number of alleged fraud and corruption cases reported per 100 000 population	GG 5.11 Number of active suspensions longer than three months
		GG 5.12 Quarterly salary bill of suspended officials
	GG 5.2 Number of dismissals for fraud and corruption per 100 000 population	
Housing and community facilities		
HS1. Improved access to adequate housing	HS1.1 Percentage of households living in adequate housing	HS1.11 Number of subsidised housing units constructed using various Human Settlements Programmes
	HS1.1 Percentage of households living in adequate housing	HS1.12 Number of serviced sites
	HS1.1 Percentage of households living in adequate housing	HS1.13 Hectares of land acquired for human settlements in Priority Housing Development Areas
	HS1.3 Percentage of informal settlements upgraded to Phase 3	HS1.31 Number of informal settlements assessed (enumerated and classified)

HS3. Increased access to and utilisation of social and community facilities	HS3.5 Percentage utilisation rate of community halls	
	HS3.6 Average number of library visits per library	
	HS3.7 Percentage of municipal cemetery plots available	
Local economic development		
LED2. Improved levels of economic activity in municipal economic spaces	LED 2.1 Rates revenue as a percentage of the total revenue of the municipality	LED2.11 Percentage of budgeted rates revenue collected
		LED 2.12 Percentage of the municipality's operating budget spent on indigent relief for free basic services
Transport and roads		
TR 6. Improved quality of municipal road network	TR 6.2 Number of potholes reported per 10kms of municipal road network	TR 6.21 Percentage of reported pothole complaints resolved within standard municipal response time
Water and sanitation		
WS1. Improved access to sanitation	WS1.1 Percentage of households with access to basic sanitation	WS1.11 Number of households with sewer connections meeting minimum standards
WS2. Improved access to water	WS2.1 Percentage of households with access to basic water supply	WS2.11 Number of households with water connections meeting minimum standards
WS3. Improved quality of water and sanitation services	WS3.1 Frequency of sewer blockages per 100 KMs of pipeline	WS3.11 Percentage of callouts responded to within 24 hours (sanitation/wastewater)
WS5. Improved water sustainability	WS5.2 Total water losses	WS5.21 Infrastructure leakage index
	WS5.3 Total per capita consumption of water	WS5.31 Percentage of total water connections metered

Source: Extracted from MFMA Circular 88, (2020).

The indicators above can be utilised to formulate an efficiency indicator for South Africa and enhance data to substantiate the developmental theories applied in the country.

From the preceding review of the three theories namely the Systems theory, the New Public Management Approach and the Developmental State Theory, municipalities or local

governments are regarded as independent DMUs that make authoritative decisions in the day-to-day business operations. These local municipalities combine a set of inputs and process them to come out with outputs which are in turn services to their clients. It is against these theories that when measuring efficiency of the municipalities we look at the rate at which the inputs are converted into outputs. Thus, the two -stage DEA model can best do this. Moreover, since the study also analyses the determinants of the efficiency gaps on the observed municipalities, the Tobit model applies well since the efficiency scores are censored.

2.3 Empirical literature review

Afonso & Fernandes (2007) assessed the relative efficiency of local municipalities using Data Envelopment Analysis and parametric analysis for Portuguese municipalities. They evaluated public expenditure efficiency of Portuguese municipal governments using Data Envelopment Analysis to compute input and output efficiency scores for the 278 Portuguese municipalities located in the mainland. The analysis was performed by clustering municipalities into the five NUTS-2 regions defined for statistical purposes. The study further computed a Local Government Output Indicator (LGOI) as a single measure of municipal performance, for 2001, and used this composite indicator as an output measure for the DEA computations. Such composite indicator includes sub-indicators of municipal services provision in the following areas: social services, education, cultural services, sanitation, territory organisation and road infrastructures. The results of the DEA calculations show that average regional input efficiency scores range from 0.237 in the Centro region to 0.654 in the Alentejo region. On the other hand, average regional output efficiency scores were between 0.353 in the Centro region and 0.681 in the Algarve region. On a municipal level, the evidence is naturally quite unequal, which implies that there is significant room for improvement in terms of possible theoretical efficiency gains. Regarding the five regions the number of municipalities that define the efficiency frontier is between three and four.

Furthermore, Boetti L, Piacenza M, (2010) assessed spending efficiency of local governments and to investigate the effects of tax decentralization in Italy focusing on the role played by incumbent politicians' accountability. The analysis relied on a sample of Italian municipalities and exploits both parametric (SFA) and nonparametric (DEA) techniques to study spending inefficiency and its main determinants. Consistently with modern fiscal federalism theories, their results show that more fiscally autonomous municipalities exhibit less inefficient behaviours. They also find that the shorter is the distance from new elections, the higher is

excess spending, thus giving further support to the traditional "electoral budget cycle" argument. Other political features of governing coalition, such as age and gender of the mayor, do not seem to exert any significant impact on inefficiency levels.

Ferreira & Marques (2014) confirm that there are several parametric and non- parametric methodologies to compute the efficiencies of a set of municipalities. Among the non-parametric techniques DEA and Free- Disposal Hull (FDH) have been widely applied to various sectors. Parametric approaches include corrected ordinary least squares (COLS) and SFA that can adopt different cost or production functions. These inputs and outputs selected by Ferreira & Marques (2014) are contingent on the competences of the local governments of each country. Despite some few exceptions, significant consideration is placed on the minimization approach. This makes sense since, in principle, local governments want to curb costs for a certain level of service (or reduce inputs for a certain level of outputs that is fixed or imposed). It is thus worth noting that for this research certain variables will be tested hinging on their inclusion or non-inclusion effect on output.

Shah (2006) outlines that the decentralisation of purposes is achieved through implementation mechanisms such as voting by ballot. This collective decision making may not ensure maximization of the electorate's welfare, because citizens and their governmental agents can have different goals, therefore optimal provision of public services is not ensured by voting alone but depends also on rational voting behaviour. The voting processes enable government structures to be established; local governments to be aware of their people's needs, enable consultative decision making to the people for whom the services are intended, thus encouraging fiscal responsibility and efficiency, especially if financing of services is also decentralized and promoting interjurisdictional competition and innovation. A decentralized system ensures a level and combination of public services consistent with voters 'preferences while providing incentives for the efficient provision of such services. Some degree of central control or compensatory grants may be warranted in the provision of services when spatial externalities, economies of scale, and administrative and compliance costs are taken into consideration. This will occur if there are overlapping jurisdictions. This can be noted in the case of SA where district municipalities account for the activities were municipal boundaries overlap and uniforms services have to be provided. This is often in the form of infrastructure and essential services such as roads, rail, education, health services, water and housing.

Using a generalized method of moment (GMM) simultaneous equations models to measure whether fiscal decentralisation enhances economic growth and efficiencies for China and India, Jin & Rider (2020) identify that decentralisation does not provide short-term growth for both economies. However further analysis of the data between 1985 and 2005, using simultaneous equations (growth equation and equalisation equation) and smoothed variables, provided evidence that fiscal decentralisation provided economic growth for India and not for China. SA fiscal decentralisation policies embedded similarities with China and India were public services such as primary education, healthcare, public safety, waste management, are provided by sub-national governments (Siddle & Koelble 2020). Expenditure is cushioned by inter-governmental grants due to limited tax bases and self-financing mechanisms at local levels thus enabling horizontal equalisation for subnational governments (rural and urban). This process of fiscal decentralisation can cause fiscal distortion and create a dependency syndrome and fuel a level of complacency in local governments in SA. Local municipalities fail to find innovative ways to enhance self-financing mechanisms, debt collection etc and burden the fiscals as the grant allocation ratio continues to provide more to rural municipalities at the expense of category B and metro municipalities where allocations could be increased for infrastructure to stimulate industries where there is the tax base to provide the revenues. Thus, we see a regressive performance of large municipalities and metros (Makwetu 2020). It can be argued that this is not the major reason why local municipalities in category B and metros are failing. The fiscal decentralisation policies are also affected by variables such as politics and governance. Further studies can be conducted to provide empirical evidence on SA's fiscal decentralisation policies and their impact on economic growth.

SA should note from research conducted on 23 OECD countries; OECD (2014) noted that a higher level of fiscal decentralization is associated with a more unequal distribution of income among households within a country. The use of different indices highlights the importance of the nature of the decentralization process, emphasizing the role of the tax side. Moreover, the effects are stronger if real autonomy over the decentralized taxes is granted to sub-central governments. There is also weak evidence of qualitatively similar effects when expenditures over which sub-central governments can exert real powers are taken into account (Sacchi & Salotti 2014). The evidence obtained through the use of general regression model with five-year average household income calculated using the Gini index, variables affecting development, tax decentralisation and government expenditure. Other results that emanated from the model indicate that there is a U-shaped relationship between income equality and

economic development. The evidence from this research reaffirms decentralisation traditional theories from neo-classical economists Sacchi & Salotti (2014) that fiscal decentralisation increases income inequality.

The devolution processes to tax at sub-national level (state tax) and reduce national level tax (federal tax) has an impact on the narrowing or widening of the inequality gap. The tax framework could also seem heavy on individuals to bear two forms of taxes in a developing country. Income redistribution strategies undertaken by the different states might also widen inequality gap. The economic demographics take cognisance that a significant percentage of SA nationals are in informal sectors of trade and do not pay tax. In 2019, 31% of the population was expected to submit tax assessments (SARS & NT 2019). Only 23% of the population submitted tax returns and these were assessed. Thus, decentralisation objective could have conflict with the inequality reduction objective at national level considering SA demographics., According to STATS SA (2019), Gauteng, Western cape Kwa-Zulu Natal and Northern provinces are the wealthier provinces by GDP contribution to the nation and their local governments would thrive at the expense of other provinces if the devolution process would enable the provinces to operate as single states.

Portugal determinants of efficiency are assessed utilising a DEA approach with a simple linear programming model measuring inputs vs output for similar sized and output driven municipalities. Outliers were ranked to eliminate distortion and final results were mapped against the efficient frontier with efficient municipalities showing a DEA score great than or equal to one. However, the shortcomings of this model were noted as information utilised was extracted from municipal annual reports and had to be tailored to numerically provide efficiency indicators (inputs: number of staff, capital expenditure, other operational expenditure; and outputs: household population, extension of municipal roads, urban waste collected drinking water supplier, infrastructures). Some municipalities may benefit from inconsistent rankings due to high weights of certain outputs particularly for specialized municipalities (municipalities providing services like housing, water, education, health, electricity) (Ferreira et al. 2016).

Local government entities in SA operate on capital and operating expenditure budgets which are prepared annually and are linked to a 5-year strategic plan. The operational budgets have been noted to have limited deficits annually for metros and category B municipalities, with elements of financial struggle being noted in category C and D municipalities. However, the

greatest concerns noted from prior research identify weaknesses in the implementation of the capital budget. Heymans, (2006), noted that although budgeted allocations for capital for have grown from R 11.7 billion in 2002/03 to more than R 25 billion in 2005/06, the growth may not represent an accurate picture of the actual levels of local development spending. Issues relating to double counting in the reporting of inter-government transfers, lack of capital project management expertise led to inaccurate budgeting for multi-year projects, poor cashflow plans leading to delayed infrastructure development despite increase in availability of financial resources. The resource outlay does not translate to actual infrastructure development due to unexplained leakages. Budget expenditure has been utilised as a measure of efficiency in the Portugal measure of local government institutions. This measure can be applied to SA. SA considers expenditure ratios for repairs and maintenance, employee costs against revenue, irregular expenditure, unauthorised expenditure, debt impairment, deficit vs revenue amongst many other financial ratios. These ratios will be considered in the measure of efficiency of LG institutions in this study as a measure to reduce the risk of unfunded budgets in the institutions. The ratios are utilised in the controls to test the funding matrix of each institution. The funding matrix tests that the budget is balanced, assets, liabilities, income and expenditure have been accounted for and forecast cashflows have been considered.

In Canada, unlike the federal and provincial governments, municipalities cannot borrow for operating purposes; they can borrow only for capital expenditures (McMillan 2006). Canada stance is similar SA local movement borrowing guidelines (MFMA, Chapter 46 (2003). Such industrial countries are seen to spend more on social expenditure such as health care and education (operating expenditure) as compared to developing countries that still need to develop infrastructure (capital expenditure). 12.5 percent of Canadian municipal expenditures are directed to social services and 35% of the capital transfers are towards transport infrastructure. SA capital transfers are towards water reticulation, electrification and housing projects.

Industrialised countries have also taken a stance to reduce inter-governmental transfers such as conditional and unconditional grants, creating a forced environment for local governments to rely on own revenues. They have also provided for a municipal entity to manage borrowings for capital expenditure by providing debt pooling and provincial guarantees to (along with the supervision that existed anyway) lower the cost and difficulty of borrowing, especially for small municipalities (Dachis & Robson, 2011). This improved outcomes (governance responsibility

and accountability) for Canada between 1995 and 2008 with however a widely expressed opinion that Canada has an infrastructure deficit; that is, municipalities have not kept up with capital requirements and have capital in need of repair and replacement.

From a global perspective government expenditure has been on the increase and the deficits have been widening. The cause has been noted in theories pointing to the size of the government, historical connotations, external shocks and the median voter theory. External shocks such as changes in oil prices, interest rates for external debt, changes in policies through median voters' ability to change institutional operations have been noted as factors affecting the depth of state deficits in SA between 1960 and 2008 (Alm & Embaye, 2010). Wagner's law which argues that government spending increases more than proportionately with income; that is, the income elasticity of demand for government services is positive and greater than unity. Other factors considered are the openness of the economy measured by the relative price index of exports to imports. In the case of SA, the index is high and shows an open economy. Exogenous factors are deemed to create long-run effects on the relationship between government revenues and expenditures together with endogenous factors such as the demographics (median voter income, culture). The latter provide evidence of what causes budget deficits over the years. Our research can extend further the data to view where local government entities are in their contribution to the national deficit from 2010 to 2019 and how endogenous and exogenous factors are substantiating Wagner's law.

Empirical evidence concludes that the coefficient estimates of the variables in the cointegrating vector are all significant at 5% level, and the coefficients on war and oil shock are significant in the government spending per capita equation (Alm & Embaye, 2010). In the error correction model (ECM), the effect of the war dummy variable suggests that the level of government spending per capita is permanently higher starting in 1975 compared with its level before the shock. This can be taken as some support for the Peacock and Wiseman hypothesis that (external) shocks can have permanent effects on government spending per capita by displacing expenditures to a new, sustained and higher level. The same conclusion applies for the oil shock dummy variable but not the same for the apartheid policy changes variables. Income per capita, tax share and demographics are deemed as less important variables in the short- run though their co-integration provides stability in the long run for the management of government deficit.

The wider the deficit, the higher the cumulative effect of the deficit, are indicators of financial management failure in local government entities. This is just not in the SA context, but even across the globe, the profit or loss indicator, amongst other financial indicators such as liquidity ratios, asset performance and replacement ratios, is a significant definition of financial efficiency. To curb rise in expenditures, and manage LG contribution to the national deficit, the treasury of SA has introduced a municipal standard classification of accounts (mSCOA) program to eradicate inconsistencies in budgeting to provide uniformity in reporting and enable improved analysis of national budget data to enable efficient and accurate decision making. The program fosters discipline in spending behaviour of government departments through instituting a zero-based budgeting method that is driven by the outcome being linked to the expense activities. The mSCOA chart was implemented for all municipalities as of 1 July 2017 and it is mandatory for all government entities to be budgeting and transacting on the standard chart. Despite implementation, training and handholding, capacities continue to lack, capital and operating budget expenditure management remains a challenge for most local municipalities.

Other solutions to funding the deficit for local governments consider possibilities to enable local government entities to borrow in accordance with MFMA guidelines in a bid to enhance resources for capital projects. Financing through development banks and other financial institutions could provide solutions to narrowing the revenue expenditure gap at local level and in turn, the effects will spill to national level. The introduction of the mSCOA project and local government borrowing are important to the current research to enable the study to explore if these mechanisms have improved the narrowed the deficit gap post 2010. Our research will extend existing literature on providing responses of the impact of endogenous factor on reducing the deficit for SA.

Governments in Southern Africa have utilised public sector reform programs to address capacity staffing issues in public departments. Tanzania reports that human resource reforms in public service have improves service provision through training of staff, acquisition of new skill and change in organisational culture Pallangyo & Rees (2010). However, the reforms have failed to retain staff and transfer skill to lower levels in local government. Our research combines literature emanating from human research development (HRD), organisational development (OD) and institutional development (ID) to find solutions to reduced contracted service costs, boost staff motivation and enhance service delivery. HRD focusses on providing

the technical expertise through staffing, OD is concerned with implementing and managing operating systems in the organisations, work processes, salient performance management tools and ID is hinged on the economic and political interaction with state institutions.

Through interviews of 47 local government employees, findings in Tanzania during 2008-2009 identify that there are human resourcing staffing shortages in government organisations in terms of required numbers, competencies and skills, and educational qualifications. The majority of the interviewees confirmed that, in practical terms, redundancy and recruitment-related activities were the main human resource capacity building practices. The practices failed to attract and retain qualified and competent staff. Graduates only took work in LG as a last resort (Pallangyo & Rees ,2010). However, in SA, LG entities are observed to have redundant skills through an aging staff, numerous vacant positions at lower and senior levels despite and an unchanging organisational culture. The graduates are willing to take jobs in LG, however are not being given the opportunity due to fear of change by the aging staff and inadequate investment in ICTs. An analysis of human resources at LG level would substantiate the necessity and use of consultants and experts extensively in government entities over the years in SA.

Worch et al. (2013) discuss extensively organisational capabilities as a significant factor in the management of state infrastructure. Organisational capabilities were defined as "the performance of firms, especially in situations where tasks are highly complex or market environments are changing rapidly. Organizational capabilities develop over time and depend, among others, on the competences, skills and experiences of the employees of a firm. These capabilities are hinged on the firms/organisations ability to adapt to changes emanating from the 4th industrial revolution. The capabilities gap has widened from 2005 to present day. Despite the SA educational sector churning graduates into the SA infrastructure sector, industries in public and private sectors of the economy continue to deteriorate. Government reforms implemented continue to wipe efficiencies for state-owned enterprises such as Eskom and these have created a huge energy deficit in SA at the close of 2022. The same deficit is noted in all public ran entities such as local municipalities, which are the core focus of this study. The organisational capabilities will be analysed in the paper to ascertain their impact on objective 1 and 3 (operational efficiency and institutional capacity).

In another study in the USA, using descriptive statistics model, it is noted through National compensation survey to collect data (work hours, hourly pay rate, level of education, years of experience) from government employees and private sector employees that 3-10% of state employees are paid more than private sector employees. The raw hourly wage gap between employees of state and local government and private sector employees exceeded 30% variance. Another qualitative aspect of state compensation to note is that non-wage benefits form an important part of public sector compensation packages. Government workers are much more likely to be offered health insurance and retirement plans, and are more likely to enrol in be offered health insurance and retirement plans, and are more likely to enrol in such plans if offered. In addition, public sector plan structures tend to offer more comprehensive coverage Gittleman & Pierce, (2011). The formal business sector in SA spends 14% of its budget on its employees, while the South African government spent 41% of total expenditure on employee-related costs in 2015/16, according to Stats SA. A salient question remains which sector is most cost effective and efficient in output, necessitating a further study in this area for SA.

Government departments outsourcing work from experts/consultants improves efficiencies on infrastructure projects, management/planning of resources and enhances final outcome of given projects. The provisions of PPP enable both locals and foreign investors to participate in stimulating effective demand. United Arab Emirates (UAE) is well known for utilising foreign experts to install productive assets that enhance tourism demand and local demand which in turn increases the GDP per capita for Emiratis. The country has a population of 9.8m according to the WB as of 2020 and an expatriate community of 8.07m which is a significant driver of the work ethics and culture driving the Emirati economy. The UAE utilised wealth from oil and gas reserves to invest in education, health and infrastructure. Investment reserves were then utilised to diversify the economy from being commodity driven to services driven through tourism and financial services. In 2020, the WB estimated that, UAE real GDP per capita would-be , R774 651.95 the GINI coefficient being at 32 (closer to zero denoting perfect equality) and the HDI to be very high at 0.86 (one denoting perfect development). One is left with the thought if this UAE model would work in SA government departments with the objective of improving output. The political goal of reduction in unemployment can still be achieved through the private sector without ballooning civil servant employee costs at the expense of efficiency.

SA needs to investigate if local and national government structures can rally for productive efficiency through a trade-off between human resource development and utilisation of technical experts or consultants. The key is which resource provides output at optimal levels. Transferring resources to private sector might provide service delivery efficiencies. A case to consider is refuse collection. The amount paid for in-house refuse collection at a local municipality is higher than outsourcing a refuse collection company from the private sector. Local municipal employees opt to not collect refuse during their normal 8-hour shift and choose to collect on weekends or holidays or after hours in a bid to obtain overtime paid based on labour protective laws by labour unions. At the same time, these employees are also paid their normal wages /salaries for basically idling and not being efficient. Further studies are required to substantiate the efficiencies in such cases and refute the constant debate of rising costs on contracted services for local government. Cost benefit analysis are required and measure to curb costs such as overtime at the expense of service delivery taking into consideration the motivation of government employees and training to be equipped for the work. We take note of the difficulties associated with motivating a government employee, who was employed through patronage from prior studies. This study will analyse this notion to substantiate if efficiencies can exist through the utilisation of the private sector consultants and cut local government inefficiencies.

SA provides a division revenue discussed in earlier sections of this literature review. The DOI allows for various operational and conditional grants to be distributed to LG institutions annually for single and multi-year projects being undertaken. These grants are managed to cover budgeted expenditure and are a significant lifeline for rural municipalities that have a limited revenue base. The most common grants are equitable share and Municipal Infrastructure grant. Equitable share is used for operational costs and MIG for infrastructure related projects. The argument for the latter has been that MIG funds should be utilised to establish new pieces of infrastructure and to be utilised for refurbishment and maintenance of existing infrastructure. NT is advocating for new capital projects to grow the infrastructure base to accommodate growing population needs for the enhancement of service delivery.

Management of grants can be utilised as a measure of efficiency in LG institutions. Considerations of new completed capital infrastructure from grants distributed under MIG would point to growth patterns for the municipality achieving its objectives of improved service delivery. Rollover application of conditional grants can be utilised as a measure of efficiency to be included in the grant management indicator. Rollovers are depicted as a sign of

inefficiency in project implementation Majali, (2019). Rollovers also limit the ability of LG institutions to receive more grant funding in future due to the trend of returning funds to NT or requesting for roll-overs for the same projects.

South African government is a three- tier constitutional democracy with a national, provincial, local governments and an independent judiciary. The structure is enabled for directional and pace set economic development, however inherited from colonial era, continues to evolve to enable the ruling political party to achieve its objectives. This gave rise to 9 provinces with 257 local government entities comprising of 8 metropolitan cities, 44 district municipalities and 205 municipalities. Municipalities are categorised "A to D" based on the Municipal Structures Act of 1998. In 2013, 21 municipalities were consolidated to break political blockages and initiate a strategy to enhance service delivery efficiencies in less desirable rural municipalities. Siddle & Koelble (2020) notes that the failure in local municipalities is not uniform, as there are areas of the country being served relatively well by local government, whereas others are not, particularly the rural and poorer regions of the nation.

The local government framework in South Africa is characterised by historical demarcations that created jurisdictions for racial supremacy and advocated for mass inequalities between citizens based on their locality. White owned local jurisdiction was so that they would not have to undertake the burden to service less privileged black, Indian and coloured communities. A transitional legislation formed by the 1994 government coined the evolution local government and the dissolution of racially based municipalities which lead to the new decentralised municipalities post local elections in 2000. The decentralisation process followed a relaxed process of work for white municipalities and a coerced decentralisation for the other races which eventually produced a desirable devolution process that led to the creation of the 9 provinces based on geographical and cultural characteristics. The constitution was utilised in 1998 to formulate a strategic operational framework for LG outlining the objectives and integrated plans for local government. Through the White paper, municipalities were encouraged to foster policies and interaction with citizens, through voters, councillors' management, in a bid to build a decentralised democracy concerned about the well-being of its communities van der Westhizen & Dollery, (2009).

Specific criticisms levelled at the 1998 framework adopted by the legislative members included the failure of the framework to deal systematically with a range of complex issues, such as the

perception that, at the time, 66% of municipalities were financially distressed and 33% were not financially viable, with no hope of generating income to cover their service commitments. A further criticism was that although a critical component of the crisis in local government was the lack of administrative, managerial and financial capacity in many local authorities to enable them to function as viable entities, this 'stark reality' was scarcely alluded to in the White Paper, which failed to recognise that South Africa is 'a less developed country' that faces a serious shortage of high-quality technocrats Siddle & Koelble, (2013). Since 1998, it is 22 years post the implementation of the initial decentralisation framework. The process of decentralisation managed to achieve democracy, legitimacy, competition and limited developmentalism Presently in 2020, local government institutional capacity, public participation, transparency, reducing corruption and providing efficiency in service continue to be pressing issues post NPM for the developing nation. The latter continue to provide a basis to seek additional literature and solutions to the LG framework in SA.

Development can be tailored using historical connotations to stimulate the responses of future institutions to economic uncertainty. The procrastination of current comfort for future generational benefit empirically creates sustainable economies and improved livelihoods. This is noted in vast differences in WB indicators for countries that implemented economic theories to manage socialist and capitalist needs. Developmentalism fuelled by investments in infrastructure, industrial output, technological advances and growth in manufacturing has provided long term solutions to enable economies to evolve from raw materials/manufacturing export led/net importer economies to establishment of financial services and investment hubs. Sub-Sahara Africa continues to drive economic growth with commodity revenues yet developed and emerging economies such as China, UK, UAE, Russia, France, USA, Brazil economic models have adapted to global trends where liquidity through investments emanating from a savings culture provide a catapult for improved human development through enhanced policy making, knowledge and better managed institutions.

Better managed institutions can be measured through a municipal transparency index to measure public confidence, governance, transparency, and accountability. Currently, there is little evidence to outline levels of transparency and participation relating to local government entity operations while SA has been noted by the IMF to have made significant progress in providing transparency and participation in its national budgetary process. The same level of level of transparency and participation should be provided in other spheres of local government

and national government with standardised indicators as measurement. There is a research gap between empirical evidence at a macro level compared to a micro level of government spheres. The is no research in SA that shows that transparency and governance efficiencies have been measured a local or provincial level owing to the limited information on the standardisation of monitoring and evaluation tools. This research will explore the measurement of transparency overall for the 257 municipalities and how the index is a measure of efficiency.

van der Westhizen & Dollery (2009) notes that measuring relative efficiency in SA LG should be regarded with caution since the data sets are questionable if limited to fewer municipalities. Our research will seek to utilise data from all 257 municipalities based on availability. Failure to This suggests that the financial and technical support for local government provided by the National Treasury to local government, which includes policy advice and the placement of international advisors in municipalities, should be more carefully targeted between the different provinces, and biased towards the worst-performing provinces.

The B2B case studies also note that, the National Development Plan makes the point that it is important to develop ways of making the current system work, rather than introducing sweeping changes to the structure of government. This requires more research to be conducted to establish what is and what is not working, and why, in order to be able to develop appropriate solutions and interventions by PDG Wendy Ovens Associates (2017). The review of current capital and operating budget trends in South Africa will need to be analysed and compared to industrialised countries present day performance. Resource allocation using the division of revenue formular need to be considered for consistency and fairness in resource provisions to provinces, local municipalities and strategic infrastructure entities. Governance monitoring and evaluation tools need to be considered and their impact on the DOI formular, this may cause a shift in allocation. This research seeks to note shifts of efficiency in the DOI formular in the allocation of resources for government going forward. Strategies of own revenue and use of long-term borrowings impact on local government output and mandate must be considered between the 2010-2019. This will be able to add to existing literature of financing the deficit for SA post 2010.

Moreover, Brettenny and Sharp (2016) articulated that in recent years the local governments in South Africa have faced numerous public protests with regard to service delivery and particularly the provision of basic services such as water and sanitation. In response, South Africa has introduced benchmarking systems (Blue Drop, Green Drop) to improve the quality

of potable water and sanitation services. Although these systems have seen some success, the efficiency with which these water services are provided is yet to be assessed. Their study used data envelopment analysis (DEA) to evaluate the efficiency with which several South African water service authorities (WSAs) provide water services to the public in both urban and rural areas. They found that South Africa is performing adequately in terms of relative technical efficiencies. The performances yielded an average technical efficiency of 0.636 for urban municipalities and 0.526 for rural municipalities.

Significant lessons and evidence identified from both developing and developed countries by the World Bank (WB) local government review encourage further synopsis of which municipal functions show improved or declining service delivery once strategic and operational support has been provided. Function's analysis enables decision makers to target where the problem is. Using strategic planning structures set-up through the budgeting model mSCOA, SA LG functions can be analysed to note which functions require bail out plans.

Little evidence and models have been identified from the literature review regarding the measurement of enhancing human resource capacities vs the utilisation of experts in the LG space. Further analysis of this would be beneficial to determine the cost benefit analysis of engaging the private sector consultants that have work ethic and discipline to enhance service delivery efficiencies compared to increasing the civil service employee's basket with unmotivated, unqualified, aging personnel that lack appreciation and importance of public service post NPM administration.

2.4 Summary of literature reviewed

From both theoretical and empirical literature analysed in this chapter, one cannot come up with a universal set of factors that determine efficiency in local municipalities in developing countries. Canada has formulated an efficiency index that provides for various indicators outside quantitative measure to include qualitative measures such as carbon emissions, water quality and many other. Portugal has gone the extra extent to even include rule of law, number of service delivery strikes as indicators or efficiency for their local state entities. Qualitative data, has since not been effectively or accurately measured in the SA context, in some cases the data is non-existent for local entities that are not metros. Thus, the efficiency indicators will not provide an accurate synopsis of quality of life of receipts of service delivery and also provide a holistic measure of municipal efficiency in executing its mandate.

Literature reviewed has also provided measurement issues in the process of obtaining data to measure efficiencies in state entities. Efficiency indicators are perceived and described differently across the globe and measures become difficult to standardise. SA has provided a monitoring and evaluation committee since 2004 (Engela & Ajim, 2010) and indicators standardised have only come to effect in 2020 (MFMA Circular 88) and are still at a pilot stage as implementers are testing. Government reforms for monitoring and evaluation in well established countries such as Canada have evolved and continue to evolve to measure some of the most complex outputs affecting government efficiencies such as emission levels, etc.
The hypotheses noted in studies reviewed provided a plat form to understand efficiency indicators and outputs that are key to technical and operational efficiency in state owned entities. Indicators such as financial flexibility, human resource skills, grant funding, have been found to be significant in studies by Monkam (2014) and Maboshe & Kabinga (2018). Population and service delivery provision for housing and other basic service care on the effect of maternal health care have been found to be insignificant. Similar inputs and outputs will be tested in the current study to confirm or disprove hypotheses in determining the efficiency of local government entities in SA.

Empirical literature gave mixed results meaning that there is no single choice of theory that exactly tallies to reality and support for every conceivable normative position. With only a few empirical studies on the factors that determine efficiency in local municipalities in South Africa, this study is conducted to empirically assess the level of efficiency in South African local municipalities and to determine the factors that affect efficiency gaps and to provide research-based policy recommendations to the various stakeholders in the RSA. Despite the contradictions in literature regarding the performance of local governments, this study borrows much of its scope from authorities such as Monkam (2014) who adopted the Tobit model and DEA in analysing the determinants of efficiency in local government management provide evidence to substantiate **research question 1 – how many municipalities are efficient**. Related empirical literature assisted the researcher on the choice of the explanatory variables the literature also provided with a pool of estimation techniques from which the study chooses and modify own empirical model to **support research question 2 and 3 - What is the effect of grant support and institutional capacity on local municipality efficiency score in RSA**. The methodology section in the next chapter outlined the detailed features of the methodology employed by the researcher.

CHAPTER THREE
METHODOLOGY

3.1 Introduction

This chapter is guided by the literature discussed in Chapter Two and it mainly focuses on the methodology that the study used in achieving the objectives as well as answering the research questions. As a result, this chapter describes the study's sample population, research design, and methodology. The theoretical model, empirical model, definition and justification of the variables and data sources used in this study, as well as the diagnostic tests conducted. This chapter also presents the methodological limitations together with the ethical considerations governing this study.

3.2 Research philosophy

Research philosophy for quantitative research involves the utilization of systematic and empirical investigations based on measurable and quantifiable data. It is rooted in the positivist paradigm that emphasizes objectivity, generalizability, and the belief in an external reality existing independently of human interpretation. The researcher followed this philosophy aiming to objectively observe and measure the phenomena, using statistical techniques to analyse and interpret numerical data. Through adhering to this research philosophy, the researcher aims to provide reliable, objective, and generalizable knowledge that contributes to the advancement of scientific understanding.

3.2 Research approach and design

The study analysed the efficiency performance of South African municipalities as well as exploring the potential determinants of efficiency gaps in service delivery. According to Erkie, (2018) efficiency is the ratio between the quantities of inputs and outputs and a Decision-Making Unit (DMU) is technically efficient when it can produce maximum output per given set of inputs. When measuring the productive efficiency of DMUs (municipalities in this case), there is need for a set of identical outputs and inputs used by these municipalities. Performance will be measured in efficiency scores which vary between zero and one with the best performing municipality having an efficiency score of one.

Previous empirical studies on economic efficiency have applied either parametric or non-parametric frontier methods (Roman and Gotiu, 2017). Parametric technique constitutes three unique approaches namely the Deterministic Frontier Analysis (DFA), Stochastic Frontier Analysis (SFA) and the Thick Frontier Approach (TFA). These are constructed on econometric

basis in the form of a Cobb-Douglas production function[2]. On the other hand, non-parametric techniques which include the Data Envelopment Analysis (DEA) and the Free Disposal Hull (FDH) employ linear programming in measuring the relative efficiency of DMUs by identifying the optimal mix of inputs per given output and vice versa. Therefore, the study has a choice to use either the parametric (DFA, SFA, TFA) or non-parametric (DEA, FDH) techniques as analytical methodologies of measuring efficiency of local municipalities in South Africa.

3.3 Theoretical model and justification

3.3.1 The Basic Data Envelopment Analysis

The DEA method is a non-parametric technique for estimation of the production frontier given a set of observed inputs and outputs for a group of DMUs. The estimated frontier includes efficiently operating DMUs that will be operating on the frontier, and it will "envelope" other DMUs that operates inefficiently below the frontier. In this study, local municipalities in South Africa are the DMUs and each municipality produces output *Y* using *K* inputs. The formal output-oriented DEA model for each municipality is an optimisation problem and it is specified as:

$$Max_{\Phi i \lambda j} \Phi_i$$

$$\sum_{j=1}^{n} \lambda j Y j - \Phi i Y i - s = 0 \quad (1)$$

$$\sum_{j=1}^{n} \lambda j x K j - x K j i + eK = 0 \quad (2)$$

$$\sum \lambda j = 1 \quad (3)$$

Where, $j = 1$, n is the number of municipalities while e and s are inputs and outputs respectively (both being ≥ 0). λ represents the weights on inputs and outputs and it gives rise to variable returns to scale. The technical efficiency of each municipality is based on the municipality's actual production relative to the estimated potential production (production level at the frontier).

$$TE = Y / \sum_{j=1}^{n} \lambda j Y j = \frac{Y}{\Phi Y} = \frac{1}{\Phi} \quad (4)$$

From equation 4, TE is the technical efficiency with $0 \leq TE \leq 1$, the efficient municipality will have a of $TE = 1$ then the municipality will be operating at the most efficient scale and a *TE* less than 1 will be due to either overproduction or underproduction.

3.3.2 Two-Stage DEA Analysis

[2] A Cobb-Douglas production function models the relationship between production output and production inputs in a log-linear form.

After estimating the level of efficiency for local municipalities in South Africa, this study explored the factors that determines the computed efficiency scores. Since the study explored the determinants of efficiency scores, this implies that the dependent variable is constrained between 0 and 1. According to Maboshe and Kabinga (2018), using Ordinary Least Squares (OLS) to obtain estimates of the determinants of efficiency might result in biased estimates due to the censoring of the DEA efficiency scores. The DEA methodology was first applied in the 1950s by Michael Farrell, and later popularized by Abraham Charnes, William W. Cooper, and Eduardo Rhodes in the 1970s. Since the DEA efficiency score is a censored outcome, the Tobit model is the best model to use for correcting the inherit bias in OLS. The Tobit model may be described for a given facility (Maboshe and Kabinga, 2018).

The Tobit model may be traced back to James Tobin's work in 1958, when he modified the likelihood function to indicate differential sampling probability for latent variables that fall above or below the chosen threshold (Kelejian and Piras, 2017). The Tobit model can be generally specified as below.

$$y_i^* = x_i'\beta + \varepsilon_i, \qquad (5)$$

$$y_i = \begin{cases} y_i^* \; if \; y_i^* > 0 \\ 0 \; otherwise \end{cases}$$

where, y_i^* is an unobserved latent variable and y_i is the DEA efficiency score. Parameter x_i' represents a vector of observation-specific characteristics that influence efficiency scores, thus, the vector of explanatory variables. $\varepsilon_i \sim N(0, \sigma^2)$ implying that the error term is normally distributed with a constant variance. y^* is the latent variable that can only be observed for values that are between 0 and 1. x' is the vector of explanatory variables. The actual y that is observed is defined by the following equations:

$$y_i = 0 \qquad \text{if } y_i^* \leq 0, \qquad (6)$$

$$y_i = 1 \qquad \text{if } y_i^* \geq 1, \qquad (7)$$

$$y_i = y_i^* \qquad \text{if } 0 \leq y_i^* \geq 1 \qquad (8)$$

From equations 6, 7 and 8, the Tobit model shows that the dependent variable is censored from both below at 0 and from above at 1 meaning that the dependent variable will only take values between 0 and 1.

According to Maboshe and Kabinga (2018), various scholars have expressed that since the DEA estimator provides relative scores, estimates that are closer to 1 are almost certainly correlated with those of the other observations. Furthermore, there is a possibility of association between the environmental factors and input/output variables. As a result, complex serial correlation will exist that would render standard regression inference invalid and need for a two-stage regression based on bootstrap methods. However, growing evidence suggests that standard binary dependent variable econometric approaches such as probit, logit or the truncated Tobit models have sufficient estimation properties to produce unbiased estimates (Maboshe and Kabinga, 2018). In this study, the Tobit model will be utilised to estimate the second-stage DEA model and thus, assessing dependent variables to provide evidence of sensitivity to conclude on **objectives 2 and 3.** The dependence on grant support and institutional capacity as determinants of efficiency will be analysed based on the dependant variables discussed further below.

3.4 Empirical Model Specification

There is quite a number of studies that have explored the determinants of efficiency for public service provision and this study borrows much from Maboshe and Kabinga (2019) and Monkam, (2014) who adopted the Tobit model in analysing the determinants of efficiency in local government management. This study however augments the models by adding control variables. The model can then be specified as:

$$TE = f(TotPop, FinFlex, FinInd, InstiCap, Grant, ExpDec, HhWat) \quad (9)$$

$$TE = \beta_0 + \beta_1 TotPop + \beta_2 FinFles + \beta_3 FinInd + \beta_4 instiCap + \beta_5 Grant + \beta_6 ExpDec + \beta_7 HhWat + \varepsilon_i \quad (10)$$

Where, TE is the estimated Efficiency score for each municipality given the vector of financial sustainability, skills, and resource competence variables.

β_0 is the constant or intercept,

$TotPop$ is the total population of each municipality,

$FinFlex$ is the financial flexibility of each municipality,

$FinInd$ measures the financial independence of local municipalities,

$InstiCap$ is the institutional capacity of each municipality,

$HhWat$ is the number of households with access to piped water per municipality,

$ExpDec$ is the expenditure decentralisation per municipality,

ε_i is an error term.

Drawing from both the theoretical models and empirical literature reviewed in the previous chapter, technical efficiency or the efficiency scores are determined by population, number of households, formally dwelling households, households with access to sanitation, water, refuse, vacant posts, management as well as operating expenditure. The variables in the model above can be summarised as follows:

- The population determines the communities that need to be reached and have basic service provision.
- The municipality's financial flexibility and financial independence is determined by the municipality ability to derive its own revenue, reduce reliance on grants and maintain profitability annually. The municipalities must have positive cashflows and always have cash reserves.
- Institutional capacity refers to the municipality ability to have adequate staff and skills based on the approved organogram. Positions on the organogram must be filled and focus is on managerial and technical staff.
- Expenditure decentralisation refers to the ability of each department in the municipality to manage various projects and spending based on the annual council approved budget. All spending must be accounted for per department before it is accounted for each municipality at NT level as pe the mSCOA guidelines.

Variations on each model differ based on the objective to be evaluated. The DEA model focusses on efficiency dependant on the independent variables and use of the error term. Dummy variables are also utilised in the model. However, on the Tobit model, a censored approach is used to determine efficiency determinants based on the TE and the control variables.

Drawing from both the theoretical models and empirical literature reviewed in the previous chapter, technical efficiency or the efficiency scores are determined by population, number of households, formally dwelling households, households with access to sanitation, water, refuse, vacant posts, management as well as operating expenditure. These will provide evidence and ranking of municipalities efficiency, thus achieving **objective 1** – how many municipalities are operating efficiently and at what levels.

3.5 Dependent variable

3.5.1 Efficiency scores *(TE)*

The dependent variable is the Efficiency scores which represents the technical efficiency for each municipality. Since the efficiency scores range from 0 (the least efficient) to 1 (the most efficient), this implies the study used a censored dependent variable, taking the lower bound of zero and an upper limit of one. The rationale for taking *TE* as the dependent variable is that it captures economic efficiency very well by estimating each jurisdiction's maximum amount of output per given set of inputs.

3.6 Independent Variables

3.6.1 Total population *(TotPop)*

The total population is defined as a continuous variable and as the total number of people living in each municipality. This variable intends to establish the relationship or causal effect of total population on technical efficiency of municipalities in South Africa. Population size has implications on both the demand and supply of services by local municipalities. On one hand a municipality's population is the revenue base for the municipality's expenditure requirements. On the other hand, population growth increases the demand for goods and services therefore exerting pressure on the municipality budget. The study expects to find a negative relationship between total population and technical efficiency. The argument is that as population grows, demand for services also increases while inputs and resources for such services does not necessarily increase at the same rate. Thus, efficiency is expected to fall as population increases.

3.6.2 Financial Flexibility *(FinFlex)*

This variable measures the ability of a municipality to raise its financial resources effectively and timely. According to Arif (2021), financial flexibility allows entities to respond to any changes in operating environment in terms of market, technology and structure. He further defines financial flexibility as sufficient cash balances and entities that hold sufficient financial resources have more capability of funding new projects because they do not rely on external funding. Although there are a number of ways to measure financial flexibility, this study adapts Ritonga (2014)'s measure of financial flexibility which is based on revenue capacity versus entity obligations. This the financial flexibility index is defined as:

$$Financial\ flexibilty = \frac{Total\ revenue - Employee\ expenditure}{total\ liabilities} \qquad (11)$$

From the above index, the higher the value of financial flexibility, the more flexible the municipalities are to fund investment projects and pay their liabilities.

3.6.3 **Grants *(Grant)***

Grants from both the central government and development partners are meant to cover budgeted expenditure and are a significant lifeline for municipalities that have a limited revenue base. The most common grants are equitable share and Municipal Infrastructure grant. These grants are used for operational costs and for infrastructure related projects. The argument for the grant acquisition is that they help in the establishment of new pieces of infrastructure and to be utilised for refurbishment and maintenance of existing infrastructure. Management of grants can be utilised as a measure of efficiency in LG institutions. Considerations of new completed capital infrastructure from grants distributed under MIG would point to growth patterns for the municipality achieving its objectives of improved service delivery. Rollover application of conditional grants can be utilised as a measure of efficiency to be included in the grant management indicator. Rollovers are depicted as a sign of inefficiency in project implementation (Majali, 2019). Rollovers also limit the ability of LG institutions to receive more grant funding in future due to the trend of returning funds to NT or requesting for roll-overs for the same projects. The variable grant is expected to have a positive relationship with efficiency scores.

3.6.4 **Financial Independence *(FinInd)***

According to Kortaba and Kolomycew (2014), financial independence is one of the major determinants of local government efficiency. Municipalities that are financially independent have the capacity of managing their financial resources freely without relying on external parties. Depending on own revenue reduces municipality dependence on central government or donors in fulfilling their expenditure requirements. In this study, this variable is defined as an index as shown below:

$$Financial\ Independence = \frac{Total\ own\ revenue}{total\ expenditure} \qquad (12)$$

This implies that the higher the index, the more independent is the local municipality. The priori expectation is that financial independence improves efficiency.

3.6.5 **Institutional Capacity (InstiCap)**

Institutional capacity of a municipality relates to the power relations between principal and agent or in other terms between workers and management. Institutional capacity in this study is measured as the number of managers divided by the total number of managers required. This can be illustrated by the equation below.

$$Institutional\ Capacity = \frac{Number\ of\ managers}{Number\ of\ managers + Number\ of\ vacancies} \qquad (13)$$

Institutional capacity ensures accountability which in turn delineates the obligations of workers to account for processes, outputs as well as outcomes to the management who will evaluate and give feedback and judgement on the job done. Thus as a priori expectation, institutional capacity is expected to be positively associated to efficiency of municipalities.

3.7 Control variables

This study applies two control variables that may affect the efficiency of local municipalities in South Africa. The first control variable is Expenditure Decentralisation ($ExpDec$) which measures whether a municipality provides the four basic services (electricity, sanitation, sewerage, and water) or not. This variable is measured as a dummy variable in this study taking the value of 0 if a municipality does not provide the four basic needs and a value of 1 if it provides all the four basic services.

The second control variable relates to the number of households receiving free water ($HhWat$) from the municipality. The rationale for including this control variable is that as the number of households receiving free water increases, financial pressure is added on the municipality and efficiency if expected to be reduced.

3.8 Data Sources

The research used historical data collected from local municipalities in RSA in a bid to measure efficiency. The logic behind using secondary data is that it is original,

authentic, and relevant to the research study as a result the degree of accuracy is very high. Although the study could have applied a more recent data set, which is the 2021/2022 data set, this data set has been affected by Coronavirus Disease of 2019 (COVID-19). The advent of the advent of the COVID-19 pandemic brought social and economic crisis and the implications have not spared productivity and efficiency of local governments, exacerbated existing efficiency gaps as well as deepened the already vulnerable situation of municipalities with limited resources in South Africa. Priority was being directed to the health sector and by measuring the efficiency of total municipality using the 2021/2022 data set would bring out biased results as more municipalities data was not available from the data portal. The surge in the energy crisis would also enhance the economic shock on efficiencies for municipalities. To this end, data for the period 2019/2020 was collected directly from the STATSA website. The study used a total of 232 municipalities were selected for the analysis out of the 278 local

municipalities (8 metros, 44 districts, 226 local municipalities) in SA. Municipalities without data were excluded from the sample.

Despite the fact that parametric methods of efficiency analysis are simple to use, they are nested with many disadvantages. Parametric methods require that the production technology must be specified, and this may be restrictive in most cases. Additionally, the functional form requirement by parametric methods usually causes problems in specification and estimation. Furthermore, these methods are preferably used in large samples and do not allow for reliable inferences in small samples. In contrast, non-parametric methods can analyse efficiency per given multiple inputs and outputs without imposing a priori parametric restrictions on the underlying production technology. Specifically, the DEA has the ability to incorporate multiple outputs and inputs and estimate the production frontier non-parametrically with inputs and outputs only (not prices) making it a better method of analysing efficiency of public service providers and thus the choice of this study.

Data from Stats SA was used to provide measure for TE variables utilised in the DEA model to achieve objective 1 outcome. The data provided, household data, population per municipality, houses with access to water and institutional capacity through the identification fo vacant posts. Data from National treasury provided information for variables indicating financial independence, financial flexibility, grant utilisation and expenditure decentralisation. These together with TE provide ability to achieve objective 2 and 3.

3.9 Data Analysis

The focus of this study is to assess the efficiency of local municipalities in South Africa and to find the determinants of efficiency gaps among local municipalities in the Republic of South Africa. Using secondary data, the study used the non-parametric Data Envelopment Analysis method to measure efficiency of 232 local municipalities in the Republic of South Africa. The study employed a Tobit regression model to explain what determines the efficiency scores. In regression analysis, diagnostics are essential for the evaluation of the specified model as well as the assumptions made on data and the model. Diagnostic tests investigate the possibility of undue influence on the regression analysis by any independent variable. In this study, the following tests were carried: To find if there is linear dependence among explanatory variables, multicollinearity tests were run, and a correlation matrix was estimated. In regression, if any two independent variables are correlated, the problem of multicollinearity exists which may lead to biased results therefore, one variable must be dropped. the correlation matrix shows the

correlation coefficients which range from -1 (perfect negative correlation) to 1 (perfect positive collinearity), a value of zero means that there is no correlation. The rule of thumb is that any two variables will be correlated if the correlation coefficient is either less than -0.8 or greater than 0.8. The Pearson test for goodness of fit detects any omitted variables as well as incorrect specification of the model. Using the Pearson test, if non-linear combinations of the selected variables have any power in explaining the dependent variable, then the model is mis specified. when the model can be improved by augmentation through including powers of the independent variables, the original model is mis specified.

During preliminary data analysis and results to achieve objective 1, initial variables selected provided "white noise" due to multicollinearity in data for operating expenditure and grants revenue. Grants received have a direct relationship with operating expenditure. If grants increase operating expenditure will also increase. Therefore, the variables were then adjusted to measure financial flexibility and financial independence instead of analysing grant and expenditure separating. Considerations were made on cash reserves and surpluses and deficits annually to achieve outcome as part of the initial selection of independent variables to formulate TE.

In regression analysis, diagnostics are essential for the evaluation of the specified model as well as the assumptions made on data and the model. Diagnostic tests investigate the possibility of undue influence on the regression analysis by any independent variable. In this study, the following tests were carried: To find if there is linear dependence among explanatory variables, multicollinearity tests was run, and a correlation matrix was estimated. In regression, if any two independent variables are correlated, the problem of multicollinearity exists which may lead to biased results therefore, one variable must be dropped. the correlation matrix shows the correlation coefficients which range from -1 (perfect negative correlation) to 1 (perfect positive collinearity), a value of zero means that there is no correlation. The rule of thumb is that any two variables will be correlated if the correlation coefficient is either less than -0.8 or greater than 0.8. The Pearson test for goodness of fit detects any omitted variables as well as incorrect specification of the model. Using the Pearson test, if non-linear combinations of the selected variables have any power in explaining the dependent variable, then the model is mis specified. when the model can be improved by augmentation through including powers of the independent variables, the original model is mis specified.

3.10 Research Criteria

The study utilised quantitative research utilising the DEA and one stage Tobit model analysis to determine significant variables that impact levels of efficiency in the 232 local government entities selected. Municipalities that do not provide water service basic provision were excluded from the analysis due to the importance of the service provision, the TE would be compromised.

3.11 Methodological Limitations

Although the study conducted a thorough analysis, a possible limitation was that it is entirely focused only on quantitative analysis using secondary data. Thus, the inclusion of primary data collection methods like key informant interviews and Focus Group Discussions (FGDs) as well as adding a qualitative component would enhance the analysis.

The study did not include a qualitative component to corroborate preliminary results from the models instituted in the research. Discussing with municipal managers, or daily operational managers, would provide relevant information on why some municipalities are inefficient despite being provided with all financial flexibility and independence. Underlying components with limited data expect through interviews such as corruption could have been factored in the model. However, due to the nature of government operations, this information is difficult to collect due to the risks posed to life, despite anonymity being present during data collection process. Staff are unwilling to provide such information.

In addition, the study employed a one stage Tobit model which would have been enhanced by the 2 stage Tobit model. Tobit 1 allows for only one coefficient to be used while Tobit 2 provides ability to read unobserved data when assumption of "normality of data is violated. Data that may have outliers, considerations of stage 2 Tobit model would be required. In the case of this study, the data did not have any outliers.

3.12 Ethical Considerations

Research ethics primarily focuses on the interaction between the researcher and the people they study (Creswell, 2009). The history and development of international research ethics guidance is strongly reflective to the abuses and mistakes that were prevalent in the course of biomedical research for instance the use of people as guinea pigs in randomized control trials (Naderifar et al., 2017). Therefore, whenever research is conducted, the wellbeing of the participants must be of top priority and the research question is of secondary importance. This implies that if presented with a choice between doing harm to a research participant and doing harm to the research, the researcher will always choose to sacrifice the research. Fortunately, choices of

that magnitude seldom need to be made, but the principle must not be dismissed as irrelevant otherwise we would find ourselves making decisions making decisions that eventually bring us to a situation where our research threatens or disrupt the lives of the people and societies we research on (Newbold, 1995).

3.12.1 Permission

The researcher obtained written permission from authorities to conduct this research. This was to ensure that the research is a legal exercise.

3.13.2 Confidentiality and Privacy

Confidentiality is the handling of data and information concerning the research respondents in a confidential manner. In this research, the participants were assured that their identities, names and all the information they provided would be dealt with in the strictest confidence and all the information gathered were solely used for academic research purposes only and not shared with third parties. The confidentiality aspect includes the principle of trust of which the researcher assured the respondents that their trust would not be exploited for personal gain or benefit through deceiving or betraying them in the research process or its published outcomes.

3.12Conclusion

This chapter presents the methodology employed in the collection and analysis of the data used. This includes the presentation of the research design, sample selection and model specification as well as the definition and justification of the variables. Also embedded in this chapter is the presentation of diagnostics tests that were carried before analysing data. To this end the DEA model that the study employed in measuring municipality efficiency was explained and also the Tobit model which was used in to ascertain the determinants of efficiency scores was presented.

CHAPTER FOUR
DISCUSSION OF FINDINGS

4.0 Introduction

Guided by the methodological procedure outlined in chapter three, this chapter estimated, presented, and interpreted the research findings. Specifically, this chapter therefore focuses on answering the research questions as well as achieving the research objectives that were formulated in chapter one. Presentation of descriptive statistics of the selected municipalities will be done first, followed by an analysis of technical efficiency of the local municipalities in South Africa using the DEA method. The Tobit model was also estimated on the efficiency scores, and it determines the factors that affect efficiency of municipalities in South Africa.

4.1 Descriptive statistics

This section focuses on the summary of statistics of the cross-sectional dimensions of both the inputs and outputs of the local municipalities under consideration. This provides a basic feature of the data employed, which together with the DEA and Tobit models to follow form a quantitative analysis. Thus, the summary of statistics that is presented on Table 4.1 below aids in appreciating the variations in data.

Table 4:1 Descriptive Statistics of municipal inputs and outputs for the period 2019/20

Variable	Obs	Mean	Std. Dev.	Min	Max
Total Population	232	341077.75	588969.03	8895	4949347
Total Households	232	99642.44	195016	2862	1853371
Households Formal Dwelling	232	262269.85	480827.06	8672.625	4023819.1
Households with proper Sanitation	232	168094.64	458002.98	424.432	4385121.4
Households with Water	232	122484.04	354076.45	742.756	3071847.3
Households with Refuse collection services	232	153741.32	369879.6	0	3516404
Households with Electricity	232	303155.16	547082.2	7898.76	4498956.4

Managers	232	46.431	212.025	0	3076
Per Capita Operating Expenditure	232	3991.87	3123.98	141.61	14008.44

The descriptive statistics show 232 observations implying that this study analysed the efficiency of 232 local municipalities in South Africa. From the observed municipalities, the average population was 341,078 with the least population recorded standing at 8,895 and the highest being 4,949,347. The total households averaged to 99,642 with a minimum and maximum of 2,862 and 1,853,371 respectively. Of the four services by local municipalities, more households have electricity as compared to access to proper sanitation, piped water and refuse collection. Households with electricity averaged to 303,155. On the other hand, access to piped water by households recorded an average of 122,484. Managers on average were 46 per municipality however some municipalities have no manager at all with some recording a staggering 3076 thus, showing a big disparity. Per capita operating expenditure was R 3 991.87 with a minimum of R 141.61 and a maximum of R14,008.44.

The results outline that early government reforms instituted post-apartheid between 1994 and 2004 provided key infrastructure to improve service delivery and provide basics to 95% of the households in SA. Governance aspects relating to managers availability in municipal structures point out to the failure of entities to attract appropriate skills and knowledge to manage already existing structures in local government. The absence of functional management and governance structures has led to reduced pace of growth in efficiency indicators. The growth momentum between 2008 and 2019 has declined. Rural electrification was priority and hence high average of households have electricity compared to running water. The spatiality of communities has also affected the expedition of water, sanitation and reticulation projects for the local entities. The cost associated with these projects, technical knowhow, also lacks, thus delays and non-completion of the projects, not forgetting corruption, nepotism, overgrowth of state structures leading to increased non-productive spending (Founder & John, 2014). Synergies between local entities, private sector, not for profit entities are required to achieve the service delivery objective for sustainable water and sanitation infrastructure by 2030.

4.1 Efficiency of local municipalities in South Africa and determinants of efficiency gaps

In answering the first objective of analysing the efficiency of local municipalities, the study used the DEA approach, and the results are shown of Table 4.2 below:

Table 4.2: VRS input-oriented DEA efficiency for all local municipalities for 2019/20

Number of municipalities	Efficient municipalities (VRS_TE) = 1	% Of efficient municipalities	Average efficiency scores, VRS
232	!Kheis LM Beaufort West LM Bergrivier LM Bushbuckridge LM Dannhauser LM Dihlabeng LM eDumbe LM Elundini LM Emalahleni LM (MP) Gert Sibande DM Hessequa LM Impendle LM John Taolo Gaetsewe DM Kamiesberg LM Kareeberg LM Kgatelopele LM Kgetlengrivier LM Lepelle-Nkumpi LM Lesedi LM Mafikeng LM Maphumulo LM Mogalakwena LM Moqhaka LM Msukaligwa LM Ngwathe LM O.R.Tambo DM Overberg DM Rand West LM Sekhukhune DM	15.09	0.38

	Stellenbosch LM Swellendam LM Thembelihle LM Ubuhlebezwe LM West Rand DM Xhariep DM		

The input-oriented DEA calculates the efficiency scores of individual local municipalities relative to the "best practice" individual municipalities frontiers for the period 2019/20. The findings indicated that 15.09% of the municipalities in South Africa are operating efficiently and the rest which constituted 84.91 were operating inefficiently. The efficiency indicators used in the DEA model focussed on service delivery of basic pivots which entail, households access to water, sanitation, housing electricity and basic infrastructure. The average efficiency score for the 232 municipalities was found to be 0.38 and this must be a cause of concern since this is a very low efficiency level. Theoretically, municipalities in the RSA may achieve better in terms of efficiency. In other words, these municipalities may produce the same level of output using fewer inputs, they can improve their efficiency level without necessarily increase their operating expenditures.

Metropolitan municipalities typically earn the greatest average technical efficiency scores when comparing the several municipal categories in Annexure A's technical efficiency ratings. Through the categories of municipality, the average technical efficiency rapidly declines, with B1 municipalities attaining an average of 0.87 and B2 municipalities achieving an average of 0.56. This suggests that as a municipality's size and facilities get smaller, its technical operations get less efficient over time (in an urban setting). Regarding the municipalities' overall efficiency, it can be observed from the chart above that only 35 municipalities receive a full overall efficiency grade. This shows that these municipalities are effective on both a technical and operational scale.

The results shows that the scale inefficiency appears to be lower for larger metropolitan municipalities and higher for smaller local municipalities. This is evidenced by the average scale efficiency for Category A municipalities being 0.377, while the averages for the B1 and B2 municipalities were 0.731 and 0.935, respectively. This indicates that while the technical efficiency of the large metropolitan municipalities is high, the corresponding scale efficiency

is very low. The average scale efficiency for Category B1 and B2 municipalities is 0.731 and 0.935, respectively. This shows that as municipal size decreases, in an urban setting, the corresponding scale efficiency will increase. It is thus important for larger municipalities to focus on improving the scale of their operations, while smaller urban municipalities need to focus on improving productivity.

Table 4.3 DEA efficiency scores by category of municipality for 2019/20

Local Municipality category	**Number of municipalities**	**Efficient municipalities (VRS_TE) = 1**	**% of efficient municipalities**	**Average efficiency scores, VRS**
A	**7**	Buffalo City MM	14.29	0.71
B1	16	Rand West LM Stellenbosch LM Emalahleni LM (MP)	17.65%	0.53
B2	25	Mafikeng LM Mogalakwena LM Moqhaka LM Msukaligwa LM Dihlabeng LM	18.52%	0.73
B3	84	!Kheis LM Beaufort West LM Bergrivier LM eDumbe LM Hessequa LM Kamiesberg LM Kareeberg LM Kgatelopele LM Kgetlengrivier LM Lesedi LM Ngwathe LM Swellendam LM Thembelihle LM	13.83	0.67
B4	58	Bushbuckridge LM Dannhauser LM	10.94	0.67

		Elundini LM Impendle LM Lepelle-Nkumpi LM Maphumulo LM Ubuhlebezwe LM		
C1	21	Gert Sibande DM John Taolo Overberg DM West Rand DM Xhariep DM	21.74	0.80
C2	20	O.R.Tambo DM Sekhukhune DM	9.52	0.66

From the analysis of the average efficiency scores within each municipal category, C1 municipalities scored the highest efficiency score on average closely followed by B2 (0.73) and A (0.71) category municipalities. A common feature among the three categories is that they have relatively less municipalities as compared to B3 and B4 category which have as many as 84 municipalities. For both B3 and B4, although the average efficiency scores are above 0.5, they are still low and way below 1 which is the ideal score. To put it in another way, both B3 and B4 local governments with more municipalities could potentially increase their efficiency performance to a great level without necessarily raising operating costs as compared to local governments with large town as a core (A, B2 and C1).

District municipalities (category C) showed higher efficiencies possibly due to that their operations are not as complex as their services relate to grant distribution, housing development and provision of water services as they support local municipalities withing the districts jurisdiction. Metros (category A) also pose higher efficiencies due to availability of resources, financial independence and flexibility. Despite complex operational structures, their efficiency scores tend to be higher and shadow the continuous service delivery problems that are of a qualitative nature and not quantity issues measured in this research.

4.4 Determinants of efficiency gaps among local municipalities in South Africa

Table 4.4: Tobit regression results

Tobit regression				Number of obs = **232**	
				LR chi2 (**6**) = **129.97**	
				Prob > chi2 = **0.0000**	
Log likelihood = **-12.981879**				Pseudo R2 = **0.6335**	
TE	Coef.	Std. Err	t	$P > \|t\|$	[95% Conf. Interval]
Total Population	-1.558381**	.7836496	-1.99	0.047	-3.094306 -.0224558
Financial flexibility	.3881158**	.1946634	1.99	0.046	.0065826 .7696491
Financial Independence	1.838323***	.6954447	2.64	0.008	.4752767 3.20137
Institutional Capacity	.3420114***	.1309497	2.61	0.009	.0853547 .598668
Expenditure Decentralisation	.0027328	.6701464	1.87	0.362	-.0001366 .0056021
Households with water	1.677953	.7214657	2.33	0.120	.2639063 3.092
Grant	.0043575*	.0022837	1.91	0.056	-.0088335 .0001184
_cons	-14.97078***	4.845752	-3.09	0.002	-24.46828 -5.473278
var					

****Significant at 1% level of significance, **Significant at 5% level of significance. Significant at 10% level of significance.*

The log likelihood tests the log likelihood of the fitted model and is used to test whether all the predictor's regression coefficients in the model used are simultaneously zero. From the table above, the model converged, and iterations stopped where the Log likelihood was equal to -12.981879. our Log likelihood is closer to zero hence the model appropriate for the study. The likelihood ratio (LR chi2) tests that at least one of the regressors' coefficients is not equivalent to 0. The estimated model has a chi-square statistic of 129.97 with seven degrees of freedom (number in parenthesis). This is the McFadden's R-squared, and it measures the goodness of fit of the model which was 0.6335. the statistic is high enough to suggest that the model was correctly specified.

The coefficient the variable *TotPop* is statistically significant at 0.05 level. This result shows negative relationship between population size and municipality efficiency. This relationship implies that municipalities with large populations are less efficient as compared to those with relatively fewer people. The negative coefficient shows that a 1 unit increase in the population will reduce efficiency by 1.56 percentage points. This is not surprising since the increase in population will put pressure on demand for services from the municipality.

The inefficiencies noted in metro municipalities are affected by treatment of determinants of efficiency. The total population in the metros continues to grow at faster rates compared to infrastructure. Therefore, services can no longer be provided on an equal platform. The metros will concentrate on ensuring smooth running services for paying residents in suburbs and middle working-class residential areas. The low-income earning areas have persisting and inherited problems from apartheid continue to struggle. Problems such as illegal power connections, interrupted water supply, non-collection of refuse, uprooting of shanty towns in unplanned areas creating sanitation issues leading to health threating cases. City of Johannesburg and City of Cape town though developed and have financial flexibility, financial independence continue to struggle with spatial development issues. The infrastructure projects are not being developed as fast as the population is growth.

The variable *FinFlex* was found to positively affect efficiency of local municipalities in South Africa. The variable was statistically significant at 5% level of significance and a unit increase in the financial flexibility index will increase efficiency by 0.38. The study found that municipalities who are financially flexible tend to be efficient. The B2 municipalities where significant efficiency is noted is due to financial flexibility. The residents continue to pay for service delivery despite decline in operations due to political intervention/ manipulation. Resources are mismanaged and the financial autonomy has been marred by corruption. Councillors and management want a piece of the pie at the expense of residents. Therefore, institutional capacity also has a part to contribute regarding this matter. The governance monitoring, the ethos of managers and directors and hidden agendas of politicians create an efficiency decline in resources and in turn a ripple effect on service delivery. Cases in question are municipalities in the North-West Province and in Kwa-Zulu Natal and Mpumalanga.

The variable *FinInd* as a determinant of technical efficiency has a positive impact and its coefficient is significant at 0.01 level. The coefficient shows that a unit increase in financial independence increases the efficiency score by 1.84 percent. This concurs with studies conducted in India that the decentralisation and financial autonomy to local governments provided short tern economic growth (Jin & Rider, 2020). According to the fiscal federalism theory, financial independence allows local municipalities not to only provide goods and services that suits the tastes and preferences of their people, but also allows them to match expenditures and revenue needs (also known as the corresponding principle). This link would equalise the cost per unit of output and benefit per unit of output hence efficiency will be achieved.

The variable *InstiCap* was found to be statistically significant at 1% level of significance. A unit increase in the capacity of municipalities will result in a 0.34 increase in efficiency. The results are in line with the priori expectation which expected institutional capacity to be positively related to efficiency. This implies that municipalities who are adequately capacitated with human resources are more efficient than their incapacitated counterparts, management and technical personnel decides how financial resources are spend and enforces accountability across the board hence efficiency is enhanced. Possible explanation is that metros tend to function better as they attract appropriate skills for relevant positions due to their economic positioning. B3 and B4 municipalities continue to struggle to fill in vacant positions due to poor infrastructure and working conditions. Their inability to compete with A, B1 and B2 municipalities creates a deficit in capacity and skill. It thus becomes difficult to implement projects without engineers, project managers, finance managers. Progress is delayed and progressive gains previously made regarding service delivery are now being eroded due to the skills drain in SA.

The study found that the number of households receiving the four basic services in South African local municipalities have no impact on the efficiency level of the local municipalities. Although a positive relationship was found, the coefficient of institutional capacity was not statistically significant therefore its effect is negligible. Similarly, the number of households receiving free water (*HHwat)* was found to have no impact on efficiency regardless of having a positive relationship. Households are now past the need for basic services. The qualitative aspect of service is what is now required. Households are more concerned about the management of local municipalities focusing on the governance issues, allocation and

utilisation of resources. Affecting these in the model declines level of efficiency and contribute to the impact of households' public participation in policy making and resource allocation. The component of public participation measures the impact of households on operational and technical efficiency. This has been expanded on using the Tobit model to determine the significant components determining municipal efficiency. The utilisation of these efficiency indicators is pivotal to understand the impact of the level of population in the jurisdiction, not just a household.

The analysis further finds that grants have a contemporary and positive impact on efficiency of local municipalities in the Republic of South Africa. The coefficient of the variable Grant is statistically significant at 10% level of significance with a value of 0.0044. in other words, a unit increase in the amount of grants will improve the efficiency by a 0.0044 percentage unit. This is what was expected by the researcher before the estimation, grants were expected to positively impact efficiency. This implies intuitively that grants from either the government or development partners are very essential in enhancing efficiency among local municipalities as they form an important source of revenue for both capital investment and day to day expenses. The findings are in line with previous research which suggest a positive relationship between both conditional and unconditional grant and transfers and revenue collection and efficiency in African countries. Grants provide 60% of the revenue for B3, B4 municipalities and 100% for district municipalities. Through the DOR act, annual distribution of monies from the fiscus are done equitably and also through other infrastructure grants to improve the livelihoods of the less fortunate in areas that are less developed. The reliance on grants has created a dependency syndrome and revenue enhancement in rural communities has been neglected. Debtor balances grow and almost 80% of billed services are impaired. Collection rates are below 60% and the acceptable norm in 95% as per MFMA Circular 71 guidelines. Without grants funding from the NT, efficiency levels can be significantly lower than reported in the study.

4.5 Summary of the key findings

The chapter presented the study findings on the articulated objectives and research questions using both STATA 15 and Microsoft Excel. The correlation tests and the Pearson tests were carried out to assure that the Tobit regression assumptions were met before running the model. The DEA model for determining efficiency scores was estimated using Excel Solver and efficiency scores were determined and presented. The chapter further employed the Tobit model to find the determinants of efficiency gaps among local municipalities in South Africa and the

findings were presented. This study found that only total population have a negative relationship with efficiency scores. Financial flexibility, financial independence, institutional capacity and grants all have a positive impact on the efficiency of local municipalities in South Africa. The fact that both grants and institutional capacity were found to be negatively affecting efficiency is not surprising since the researcher had expected a positive association as a priori expectation. However, both financial decentralisation and number of households with access to free water have no effect on the efficiency. With only 15% municipalities being efficient, operational support from the national government is a pre-requisite to ensure service delivery in the developmental state of South Africa. Basic service delivery relating to water and sanitation infrastructure is lagging behind and reasons why the delay in implementation of these services can be explored further in future studies. A similar outcome was found by Singh et al. (2011) in their evaluation of urban water utilities in North India. Spatial development reforms must be considered as impediments to enhanced efficiency in LG. The population continues to grow in sprouting unplanned settlements affecting government plans for development of smart or cleaner cities by 2030.

Another part of the research question points to what factors are lacking in local government structures to satisfy the objective to improve efficiencies and reduce reliance on the national government. Results of the study show that there continues to be significant distress in financial viability for majority of municipalities in South Africa. Municipalities lack financial independence and flexibility. The municipalities currently show low revenue bases and efforts towards revenue enhancement are not complementing government efforts from the division of revenue. The debtors balance continues to grow, so do the creditors in the last 5 years till 2019. This shows that the municipalities are spending beyond their means and are not collecting enough to cover daily operations. Rural municipalities cannot even operate without equitable share and infrastructure grants. The dependance on National treasury is far from ending (Kroukamp, 2015).

Staffing capabilities continue to lack in the municipalities on SA. The employed staff and senior managers to do not have the ability to perform technical related mandates such as project management, infrastructure management and progressive financial management. The study refutes the null hypothesis and notes that the absence of adequate management and management skills affects service delivery as noted by the significance level of 1% for institutional capacity as a determinant of efficiency. Though statistically insignificant, according to the Tobit

regression model run in this study, 86% municipalities do not have institutional capabilities as they need more managers or vacant positions to be filled to enable operational efficiency. These results consummate the notion reported by the AG of the continuous reporting of poor monitoring and implementation of internal controls by the Auditor general show that the senior managers that have been tasked of the mandate to provide services do not have the abilities to execute their mandate. Staff continue to be appointed more on political affiliation compared to their ability to provide efficiency. The organogram continues to balloon with misaligned positions and no cost/benefit analysis to support continuous recruitment in government.

Considerations of all efficiency factors, organizational capabilities, financial viability, and levels of service delivery (operational efficiency) in the provision of basic service delivery have been taken and the study concludes that 15% of the municipalities are efficient in providing the basic services. However, some of the municipalities are operating in categories higher than the ideal must also be considered. This means that municipal efficiencies for identified municipalities need to be revisited. Policy makers in municipal structures, need to revisit the categorization matrix for local government entities identified to reclassify the municipalities to levels where their performance levels are comparable to other entities. The process will also institute levels of operational and strategic support required for the municipalities to execute their mandate and eliminate inequality. Provincial equity also needs to be explored further as disparities are noted in service delivery efficiency on a provincial level where the Western Cape seems to be fairing significantly better that all the other provinces in the country with Northwest and KZN significantly lagging behind.

4.6 Conclusion

This study sought to identify various inputs in local government in South Africa in the journey to enhance operational efficiencies and institutional capabilities in the achievement of key performance areas outlined in chapter 4. The objectives of the study explored the initiatives that the national government has implemented to improve service delivery post 1999 and the study concludes that the Municipal infrastructure grant (MIG), instituted in 2003, has provided significant strategic support in the achievement of almost 95% electrification of the country. The free basic services program that was initiated in 2004 and was set to grow over 10 years, supported by a structured division of revenue, and shows possible strain and potentially becoming unsustainable in future years if national income and local income base do not grow to sustain the unemployed and elderly. The FBS were set to bridge the gap of inequality that

had grown between 1999 and 2004. In terms of dwelling capacity, most local communities have improved housing through the Reconstruction development program (RDP) were approximately 1.75m cheap housing was provided by the state between 1994 and 2004 (Powell, 2012). The statistics provided in this study to bridge the gap from previous studies, show that nationally, housing provisions have improved from 42% in 2000 to 77% in 2019. This means that 77% of SA, has decent housing. This however is an improvement of 35% in nineteen years, while the 42% was achieve in six years (1994-2000). The efficiency levels on operations and capabilities have slowed down over the years post 2000.The latter synopsis provides substantive evidence to support results showing an increase in efficiency levels from 17% in 2008 to 38% in 2020 for local municipalities in SA.

From the study, we conclude that financial flexibility and reliance on grants are significant for improved efficiencies by local municipalities. The absence of these factors would pose a threat to the establishment and execution of the local entities mandate to provide basic services. Skills and staffing capabilities have been noted to be insignificant in the establishment of efficiencies in municipalities.

CHAPTER FIVE
CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter presents a summary and conclusion of the study's findings. The chapter also provides policy implications and recommendations derived from the findings. Limitations of the study and areas for further research are also discussed in this chapter.

5.2 Discussions

The study sought to identify municipalities that are efficient and the determinants of efficiency that are significant. To achieve objective 1, the input-oriented DEA calculated the efficiency scores of individual local municipalities relative to the "best practice" individual municipalities frontiers for the period 2019/20. The findings indicated that 15.09% of the municipalities in South Africa are operating efficiently and the rest which constituted 84.91% were operating inefficiently. Average scores of 0,38 efficiency per municipality were noted. Monkam, (2014) in a similar study noted 7.64% efficiency and average of 17% efficiency for the 231 municipalities tested. The study that occurred with data from 2008 (Monkam, 2014), when compared to this paper shows that as of 2020, efficiency levels have improved. The cause being attributable to improved availability of data for municipalities and restructuring exercises to consolidated smaller municipalities with better performing municipalities in 2015. The government reforms conducted improved outcomes though efficiency determinants significance deteriorated.

This study found that total population have a negative relationship with efficiency scores. Financial flexibility, financial independence and grants all have a significant impact on the efficiency of local municipalities in South Africa. This is in sync with Maboshe and Kabinga (2018) who found population density as one of the main determinants of efficiency in Zambia. Institutional capacity does not have significant impact on efficiency levels, though governance, skills and human resource capacities are drivers of efficiency through execution of support roles. However, both financial decentralisation and number of households with access to free water have no effect on the efficiency. However, Monkam (2014) notes that vacant posts have no significance on efficiency, in our case 1% significance was assigned. Financial decentralisation has significant impact on efficiency levels. Households with water, sewer, electricity and refuse enhanced efficiency levels of municipalities studied. The research

conducted in 2014 also took into consideration qualifications of managers and their political affiliations and notes this as significant in enhancing efficiencies through increased institutional capabilities. However Worch et al., (2013) provide a convincing case with Eskom to highlight that capabilities gaps created by socio – political state reforms have created a black hole in the SA economy that is proving difficult to fill as efficiencies across most government entities continue to deteriorate.

Despite state grant support, increased tax burdens of private firms and employees, the inefficiency saga in state owned enterprises is also embedded in local government entities as those studied in this paper and the determinants of efficiency are similar. Internal organisational arrangements such as delegation of authority, creation of structure, coordination are key components to enhance efficiency in local government. Though not measured in this paper, the institutional climate is also a significant factor. Managers must be seen to be fair and impartial, providing enthusiasm and positive moral to departmental personnel to enhance efficiencies in local municipalities.

Other considerations to efficiency inputs outline that if a holistic approach was applied to inputs and an index was formulated, the average efficiency score of 0.38% would be lower. This is because qualitative aspects of the service delivery pivots used in the study were not assessed. The table in chapter 3, page 26, summarises inputs that are of significance to enhance the quality of results of future studies to determine accurate efficiency of local government entities. The inclusion of these indicators due to their negativity, certainly would impact the efficiency report for each municipality.

5.3 Policy recommendations

The following recommendations outline how municipalities can improve efficiencies on service delivery, financial viability and good governance based on the findings of the study:

- Provide for infrastructure maintenance and implementation in budget processes to enhance service delivery;
- Attract employees with skills and technical knowhow to manage financial resources, implement and monitor controls. This process will eliminate the increasing vacant posts and enhance organizational capabilities Worch et al., (2013). Ideal working

environment must prevail through separation of management from politics. Efficiency can be increased by 0.34 if institutional capacity/capabilities is achieved

- Revision of municipal categories needs to be considered by national treasury. Some form of downgrading or upgrading to enhance efficiencies for municipalities identified after further investigating individual challenges the municipalities are facing. Some district municipalities could take over municipal functions and consolidate position in a bid to minimise costs and maximize output.
- Due to the organizational culture and atmosphere, weak to non-existent financial controls and accountability continue to characterize the local institutions and the late AG Makwetu, (2020) "…… not much to go around, yet not the right hands at the till" denoting that the resources in local government are becoming less to be channeled towards service delivery, while the institutions lack capabilities to institute controls and accountability due to the prevalent organizational culture. The focus area of capabilities and corruption reduction are one to be monitored closely for future studies in local government efficiency.
- Monitoring and evaluation indicators promulgated through MFMA Circular 88 be effected and data be made publicly available. The data be used to formulate an efficiency indicator for local municipalities to allow a barometer to be set to enable accurate interventions too be made by National treasury.
- Public investment reserves.

With regard to the increase in the level of investments in emerging economies, three reforms to improve development efficiencies have been noted. These will enhance efficiencies on local municipalities to achieve financial independence and flexibility The post Keynesian economists considers:

(i) government intervention in the investment sphere through public investment (investment reserves), in order to guarantee the planned volume and structure (plan for a level of investment to accelerate the expansion of productive capacity).

(ii) the government should encourage solutions to overcoming institutional barriers to the fast growth of agriculture (growth that would be necessary to enable an adequate increase in the supply of essential consumer goods, which would be necessary with an increase in the level of investment), and

All these measures would be of fundamental importance to enable the necessary acceleration of productive capacity in order to allow the fast growth of national income. These would be better executed if they were organized on a long-term basis, than in an attempt of an abrupt expansion of production capacity Joao et.al, (2020)

In a bid to enhance financial viability, the SA economy is traditionally rooted in the extraction of minerals, retail, manufacturing, tourism and communications with mining accounting for 8% contribution to GDP of the economy in 2017. The mining provides a significant tax base for fiscal revenues and the macro-economic shifts in the industry tend to cause fiscal shocks. In the wake of sustainability, the set-up of wealth funds to be utilised in the investment of infrastructure development is imperative for SA. Various municipalities that are within the mineral rich basins of SA do not directly benefit from fiscal revenues derived from mining activities and resource endowed jurisdictions. The process of current extraction of resources overtime, resource depletion will occur. What activities are available in resource rich jurisdictions to sustain them after the mining activities cease. Long term investment considerations need to be tabled for those local municipalities as they have the ability to increase efficiency by 0.38 when financial independence and flexibility are achieved.

The SA National government should consider how large a stabilisation fund should be in an environment of uncertain revenues to create a sustainable economy and continued public service post resource depletion. Empirical evidence points to the fact that natural resource revenues provide an opportunity to accelerate economic development in capital-scarce economies that face financial and fiscal constraints as is the case of Angola Berg, Portillo, & Yang, (2013). The authors use a stochastic economic model to obtain macro-economic responses to changes in oil and ore prices and the impact on economic output. The results are used to inform the review policy frameworks on how to save, invest and quantify the size of the buffer. These revenues, however, pose significant challenges to policymakers as they are exhaustible and volatile. As we continue with our research, will explore efficiencies of municipalities with resource-based economies (mining sector based) and what options are available for enhanced output and sustainability for municipalities with volatile financial resources.

The models used in this research continue to provide concise results when compared to other studies that utilised similar models. DEA and Tobit model provide a wholistic analysis of

efficiency and its determinants for public and private firms. Cabeza-García & Gómez-Ansón, (2011) analysed determinants of efficiencies in Italy's former state owned enterprises post privatisation and utilised a regression analysis with independent variables, dependant variables, dummy variables and control variables. Results posed accuracy and provided additions to existing literature and future studies, aiding decision makers in the public to privatisation implementation process.

5.4 Avenues for future studies

Future studies should consider delving into the qualitative aspect of the staff capabilities and cost benefit analysis. The managers that municipalities are employing, are they equipped to complete their tasks and objectives to provide tangible efficiency? The topic on transparency and accountability needs to be quantitatively addressed through the testing of a possible transparency index model for local government entities. Can SA have a transparency index to be implemented by local government entities? Other indicators and compliance categories of the M&E program for COGTA are yet to be finalised and implemented. Additional research and support should be provided to local entities to enable them to understand the indicators and collect the data from entities in their jurisdictions to ensure consolidation and usage by national statistical organizations. The data is available, just not in a consolidated state as the indicators had not been standardized for operationalization.

Local government efficiencies in the provision of water and sanitation continue to lag behind compared to other service provisions and infrastructure. These efficiencies are solely dependent on the structures available to establish infrastructure. Considerations should be given to current national government efforts to complete the goals of water and sanitation provisions.

5.5 Conclusion

This study concludes that institutional capacity does not significantly impact municipal efficiency. However, the support role in execution of state goals and objectives requires huma intervention through skilled human resources. Therefore, Institutional capabilities need to be analysed further taking into considerations of qualifications of personnel and any skills transfer obtained their impact on efficiencies in local municipalities. Output measures for institutional capacity need to be broadened outside vacant positions, to consider indicators listed in MFMA Circular 88. Complementary efforts by consultants must also be considered as a determinant of efficiency in local government entities Soublière & Charlotte, (2015).

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Annexure A: Efficiency scores for South African municipalities

Name of Municipality	Demarcation code	Province	Category	TE	TotPop	Finflex	FinInd	Insticap	ExpDec	HH_Water	Grants	Total Op revenue	Managers	Operating expe	Employee costs	Vacant post
Mangaung MM	MAN	Bloemfontein	A	0,19	787803	2,38	0,02	321,33	0	101 444		116 358 774	241	7 393 014 461	48 817 307	3
City of Cape Town MM	CPT	Capetown	A	0,67	4005016	2,81	0,01	640,00	0	970 216	146 786 586	396 100 219	320	55 926 719 867	141 038 047	1
Ethekwini MM	ETH	Durban	A	0,92	3702231	3,26	0,00	1 134,00	1	684 466		144 458 265	756	41 955 353 591	44 249 961	2
Buffalo City MM	BUF	East London	A	1,00	834997	5,12	0,10	446,00	1	127 245		727 897 662	223	7 125 405 279	142 155 467	1
City of Johannesburg MM	JHB	Johannesburg	A	0,95	4949347	2,52	0,01	4 614,00	1	1 117 583	15 966 905	260 272 902	3 076	48 437 910 752	103 322 021	2
Nelson Mandela Bay MM	NMA	Port Elizabeth	A	0,66	1263051	3,38	0,07	92,00	0	284 866		718 337 889	69	10 170 602 688	212 494 391	3
City of Tshwane MM	TSH	Pretoria	A	0,62	3275152	3,00	0,05	1 306,00	1	706 001		1 563 975 074	653	32 394 972 709	520 575 669	1
Amahlathi LM	EC124	Eastern Cape	B	0,19	101826	2,72	6,66	26,67	0	3 195	7 299 791	1 979 810 297	20	297 121 580	728 885 188	3
Blue Crane Route LM	EC102	Eastern Cape	B	0,76	36063	2,64	4,31	-	1	3 684	88	1 069 767 089	-	248 463 678	404 466 203	2
Dr Beyers Naude LM	EC101	Eastern Cape	B	0,67	82197	2,40	0,44	25,33	0	10 893	5 178 050	190 430 265	19	435 814 124	79 223 339	3
Elundini LM	EC141	Eastern Cape	B	1,00	144929	2,20	0,24	29,33	1	3 974	4 000 000	68 640 681	22	289 242 933	31 148 136	3
Emalahleni LM (EC)	EC136	Eastern Cape	B	1,00	124532	2,95	1,61	18,67	1	1 242		342 959 558	14	213 249 851	116 384 927	3
Engcobo LM	EC137	Eastern Cape	B	0,85	162014	3,38	1,13	6,00	0	1 558		236 611 453	4	209 140 898	69 919 809	2
Enoch Mgijima LM	EC139	Eastern Cape	B	0,76	267011	3,21	1,17	44,00	0	25 107		880 107 686	22	751 109 178	274 158 399	1
Great Kei LM	EC123	Eastern Cape	B	0,24	31692	2,10	2,16	18,75	1	711	4 183 877	235 771 551	15	109 092 447	112 042 420	4
Intsika Yethu LM	EC135	Eastern Cape	B	0,96	152159	4,13	5,47	8,00	1	860	59 646 881	1 191 354 254	4	217 678 244	288 467 359	1
Inxuba Yethemba LM	EC131	Eastern Cape	B	0,15	70493	5,09	1,48	18,00	1	11 170	150 000	472 150 594	9	318 916 779	92 708 399	1
King Sabata Dalindyebo LM	EC157	Eastern Cape	B	0,69	488349	4,51	0,28	38,67	1	18 311		342 062 842	29	1 207 385 218	75 861 431	3
Kouga LM	EC108	Eastern Cape	B	0,69	112941	4,19	0,38	36,00	0	20 402	1 548 006	311 956 533	18	820 968 801	74 444 005	1
Kou-Kamma LM	EC109	Eastern Cape	B	0,51	43688	3,79	5,43	19,50	1	9 023	46 149	797 957 005	13	146 948 220	210 287 696	2
Makana LM	EC104	Eastern Cape	B	0,91	82060	4,71	0,72	53,33	1	10 238		391 709 254	40	544 502 074	83 158 982	3
Matatiele LM	EC441	Eastern Cape	B	0,19	219447	4,04	0,63	28,50	0	3 298		257 305 941	19	410 226 256	63 729 345	2
Mbhashe LM	EC121	Eastern Cape	B	0,86	277250	3,29	6,33	20,00	1	1 938		1 869 603 645	15	295 437 686	567 840 894	3
Mbizana LM	EC443	Eastern Cape	B	0,88	319948	2,79	0,27	32,00	0	368		87 931 678	16	321 974 730	31 508 872	1
Mhlontlo LM	EC156	Eastern Cape	B	0,12	189176	4,74	1,78	24,00	1	414		565 296 649	12	317 202 567	119 305 916	1
Mnquma LM	EC122	Eastern Cape	B	0,20	246813	2,98	0,32	40,71	0	9 696	20 600 177	266 049 800	38	839 953 914	89 218 872	14
Ndlambe LM	EC105	Eastern Cape	B	0,38	63180	3,68	1,45	18,67	0	6 891		578 773 056	14	399 196 580	157 300 857	3
Ngqushwa LM	EC126	Eastern Cape	B	0,94	63694	3,43	1,95	26,25	0	1 235		297 021 397	21	151 931 869	86 494 263	4
Ntabankulu LM	EC444	Eastern Cape	B	0,95	128848	3,88	2,84	21,25	0	288		603 748 610	17	212 708 154	155 504 342	4
Nyandeni LM	EC155	Eastern Cape	B	0,81	309702	5,08	1,65	21,25	0	247	2 483 114	507 790 478	17	308 457 650	100 024 803	4
Port St Johns LM	EC154	Eastern Cape	B	0,42	166779	4,94	1,37	21,56	1	611	1 241 021	263 274 893	16	192 560 155	53 259 099	3
Raymond Mhlaba LM	EC129	Eastern Cape	B	0,78	159515	8,34	1,65	34,00	0	9 640	80 126 609	760 983 498	17	461 027 162	91 238 944	1
Sakhisizwe LM	EC138	Eastern Cape	B	0,86	63846	4,20	28,92	6,25	1	2 183	44 373 351	3 326 463 386	5	115 011 385	791 839 741	4
Senqu LM	EC142	Eastern Cape	B	0,95	140720	4,96	0,67	24,08	0	2 883	57 088	156 003 225	18	231 834 735	31 444 137	3
Sundays River Valley LM	EC106	Eastern Cape	B	0,79	59793	3,86	0,44	33,75	1	5 321		90 572 435	27	207 909 289	23 461 902	4
Umzimvubu LM	EC442	Eastern Cape	B	0,54	199620	5,82	0,52	42,00	0	1 700	2 182 297	194 983 378	21	373 700 886	33 507 086	1
Walter Sisulu LM	EC145	Eastern Cape	B	0,68	87263	2,82	1,06	41,33	0	11 403	5 322 700	348 200 290	31	327 579 175	123 486 307	3
Dihlabeng LM	FS192	Free state	B	1,00	104044	1,85	0,33	66,00	0	19 774		332 567 215	33	1 014 204 457	180 147 265	1
Letsemeng LM	FS161	Free state	B	0,94	40044	3,59	0,72	26,00	1	6 341		191 364 976	13	264 159 792	53 259 459	1
Mantsopa LM	FS196	Free state	B	0,69	53525	2,78	0,61	23,75	1	4 763	90 360	214 180 374	19	352 952 501	77 125 889	4
Matjhabeng LM	FS184	Free state	B	0,45	429113	3,81	0,06	111,00	0	79 504	6 908 109	216 476 334	74	3 593 202 787	56 870 338	2
Metsimaholo LM	FS204	Free state	B	0,96	163564	3,80	0,16	46,80	0	38 601		185 422 597	39	1 141 980 795	48 838 147	5
Mohokare LM	FS163	Free state	B	0,99	35840	4,13	0,93	45,00	0	2 837	562 087	232 410 402	30	250 600 668	56 218 771	2
Moqhaka LM	FS201	Free state	B	1,00	154732	4,24	0,17	48,00	1	24 978		153 619 890	24	898 768 942	36 216 324	1
Nala LM	FS185	Free state	B	0,24	78515	3,89	0,42	15,00	0	7 001		205 099 444	10	490 903 923	52 690 534	2
Ngwathe LM	FS203	Free state	B	1,00	118907	3,24	0,23	46,50	0	12 478		210 169 484	31	923 661 117	64 854 463	2
Nketoana LM	FS193	Free state	B	0,90	64893	3,16	0,85	34,00	1	3 933		368 976 300	17	436 196 109	116 802 915	1
Phumelela LM	FS195	Free state	B	0,61	50054	4,46	3,04	10,00	0	4 099	3 473 151	668 983 902	8	219 957 313	150 154 346	4
Setsoto LM	FS191	Free state	B	0,36	117362	4,96	0,09	36,00	1	5 661		113 849 973	18	1 230 857 573	22 948 729	1
Tswelopele LM	FS183	Free state	B	0,70	47373	4,98	2,82	12,00	0	1 713		524 744 339	8	185 766 188	105 308 913	2

Name of Municipality	Demarcation code	Province	Category	TE	TotPop	Finflex	FinInd	Insticap	ExpDec	HH_Water	Grants	Total Op revenue	Managers	Operating expe	Employee costs	Vacant posts
Lesedi LM	GT423	Gauteng	B	1,00	112472	2,95	0,39	36,00	1	21 887	4 815 363	307 411 087	18	796 030 776	104 289 098	1
Merafong City LM	GT484	Gauteng	B	0,91	188843	4,72	0,09	32,50	1	49 577		139 909 250	26	1 574 119 739	29 651 600	4
Midvaal LM	GT422	Gauteng	B	0,85	111612	2,18	0,18	112,50	1	23 589		205 376 314	75	1 117 663 377	94 353 074	2
Mogale City LM	GT481	Gauteng	B	0,57	383864	2,32	0,05	37,13	0	76 372	2 085 838	159 688 268	33	2 904 345 339	68 847 527	8
Rand West LM	GT485	Gauteng	B	1,00	265887	3,75	1,70	93,00	0	57 386	18 905 377	3 315 932 808	62	1 948 236 535	883 415 752	2
Abaqulusi LM	KZN263	Kwazulu Natal	B	0,75	243795	4,67	74,84	46,00	0	12 614	171 505 156	44 399 450 584	23	593 256 394	9 510 375 889	1
Alfred Duma LM	KZN238	Kwazulu Natal	B	0,52	356274	2,05	0,38	80,00	1	27 048	2 233 895	360 403 749	60	951 473 316	176 125 850	3
Dannhauser LM	KZN254	Kwazulu Natal	B	1,00	105341	3,31	5,26	-	0	2 793	3 030 658	978 913 370	-	186 133 882	296 158 842	11
Dr Nkosasana Dlamini Zuma LM	KZN436	Kwazulu Natal	B	0,60	118480	4,52	4,83	22,00	0	2 843		754 040 117	11	156 235 685	166 871 164	1
eDumbe LM	KZN261	Kwazulu Natal	B	1,00	89614	1,69	2,31	16,80	1	2 072	8 744 340	303 255 763	14	131 390 150	179 212 307	5
Emadlangeni LM	KZN253	Kwazulu Natal	B	0,66	38869	1,96	1,01	10,50	1	1 667	830 046	81 307 910	7	80 718 359	41 413 208	2
Endumeni LM	KZN241	Kwazulu Natal	B	0,68	76239	5,31	1,35	40,50	0	10 440	3 286 036	427 235 207	27	315 872 407	80 415 410	2
Greater Kokstad LM	KZN433	Kwazulu Natal	B	0,36	76753	2,53	0,56	56,00	0	6 587	5 091 261	190 773 484	28	340 575 785	75 435 799	1
Impendle LM	KZN224	Kwazulu Natal	B	1,00	29526	3,01	8,25	-	0	238	2 745 320	400 311 169	-	48 551 538	132 960 972	2
Inkosi Langalibalele LM	KZN237	Kwazulu Natal	B	0,48	215182	3,56	0,41	40,50	1	7 278		271 422 349	27	655 671 546	76 186 862	2
Jozini LM	KZN272	Kwazulu Natal	B	0,54	198215	5,18	167,10	34,50	0	2 229	1 623 085 473	36 700 493 316	23	219 627 348	7 082 867 278	2
KwaDukuza LM	KZN292	Kwazulu Natal	B	0,98	276719	3,87	0,49	40,00	1	26 016		714 236 032	20	1 468 051 972	184 581 313	1
Mandeni LM	KZN291	Kwazulu Natal	B	0,87	147808	3,13	0,41	33,00	0	7 354		110 363 668	22	268 198 708	35 269 736	2
Maphumulo LM	KZN294	Kwazulu Natal	B	1,00	89969	3,03	4,13	28,00	0	246		548 112 398	14	132 580 751	180 985 004	1
Mfolozi LM	KZN281	Kwazulu Natal	B	0,89	144363	3,64	1,68	21,33	0	2 102	316 376	267 335 702	16	159 132 237	73 459 812	3
Mkhambathini LM	KZN226	Kwazulu Natal	B	0,03	57075	2,58	4,15	5,83	1	1 422	1 562 570	346 861 587	5	83 533 915	134 294 034	6
Mpofana LM	KZN223	Kwazulu Natal	B	0,36	37391	5,72	0,99	32,00	0	5 857		198 564 118	16	200 873 609	34 737 859	1
Msinga LM	KZN244	Kwazulu Natal	B	0,62	184494	3,70	0,78	25,33	1	652	440 690	142 653 513	19	184 051 227	38 588 668	3
Msunduzi LM	KZN225	Kwazulu Natal	B	0,55	679039	2,93	1,18	42,00	1	75 256		182 186 411	28	153 971 256	62 083 872	2
Mtubatuba LM	KZN275	Kwazulu Natal	B	0,59	202176	2,83	1,04	12,00	0	4 806	238 500	257 219 164	6	247 540 968	90 975 241	1
Ndwedwe LM	KZN293	Kwazulu Natal	B	0,27	143117	4,03	1,45	13,50	0	1 389		257 566 198	9	177 319 293	63 891 979	2
Newcastle LM	KZN252	Kwazulu Natal	B	0,27	389117	3,58	0,43	63,00	1	39 211		913 124 953	42	2 144 988 244	255 156 547	2
Nkandla LM	KZN286	Kwazulu Natal	B	0,45	114284	4,61	24,92	19,50	1	1 092	8 420 000	3 975 959 995	13	159 544 603	863 097 241	2
Nongoma LM	KZN265	Kwazulu Natal	B	0,52	211892	3,44	2,35	24,00	0	510		449 531 793	16	191 406 930	130 726 348	2
Nqutu LM	KZN242	Kwazulu Natal	B	0,43	171325	1 246 901 470,00	7,15	40,00	1	1 403	-	1 246 901 470	30	174 283 551	1	3
Okhahlamba LM	KZN235	Kwazulu Natal	B	0,83	135132	4,26	3,17	32,00	0	1 741	7 347 511	606 571 704	16	191 352 413	142 429 230	1
Ray Nkonyeni LM	KZN216	Kwazulu Natal	B	0,50	348533	5,01	0,38	58,75	0	27 032		385 411 039	47	1 011 593 040	76 992 660	4
Richmond LM	KZN227	Kwazulu Natal	B	0,41	71322	3,60	4,92	14,00	0	3 321		574 989 313	7	116 887 559	159 789 467	1
Ubuhlebezwe LM	KZN434	Kwazulu Natal	B	1,00	118346	3,92	3,01	15,60	0	1 884	2 065 828	423 470 977	13	140 826 392	107 972 190	5
Ulundi LM	KZN266	Kwazulu Natal	B	0,76	205762	4,60	4,91	56,85	0	6 053	374 480	1 884 264 655	43	384 081 142	409 277 628	3
Umdoni LM	KZN212	Kwazulu Natal	B	0,46	144551	8,04	14,65	27,00	1	8 327	2 820 000	4 890 892 002	18	333 917 793	608 339 998	2
Umhlabuyalingana LM	KZN271	Kwazulu Natal	B	0,94	172077	5,65	4,40	-	1	634		920 747 650	-	209 193 337	163 012 928	3
uMhlathuze LM	KZN282	Kwazulu Natal	B	0,93	410465	2,19	0,05	52,50	1	47 516		161 942 190	42	3 146 731 597	73 815 498	4
uMlalazi LM	KZN284	Kwazulu Natal	B	0,54	223140	3,05	2,17	22,41	0	7 137		973 162 942	17	449 378 278	318 806 246	3
uMngeni LM	KZN222	Kwazulu Natal	B	0,76	109867	3,16	1,41	31,25	0	23 335	736 738	561 376 008	25	396 748 919	177 792 930	4
uMshwathi LM	KZN221	Kwazulu Natal	B	0,61	111645	4,22	2,33	27,00	1	3 199		335 823 374	18	144 385 324	79 530 386	2
UMuziwabantu LM	KZN214	Kwazulu Natal	B	0,72	108576	2,88	1,11	34,00	1	1 376		182 182 245	17	163 696 404	63 249 725	1
Umvoti LM	KZN245	Kwazulu Natal	B	0,70	122423	5,09	0,99	16,50	0	4 402	31 611 598	303 215 516	11	307 779 910	59 514 213	2
Umzimkhulu LM	KZN435	Kwazulu Natal	B	0,29	197286	6,87	1,42	-	1	2 853		343 152 057	-	240 904 958	49 924 050	1
Umzumbe LM	KZN213	Kwazulu Natal	B	0,97	151676	7,99	3,11	27,00	1	450		502 947 967	18	161 865 308	62 954 577	2
UPhongolo LM	KZN262	Kwazulu Natal	B	0,51	141247	5,02	6,54	25,00	1	4 792		1 725 913 067	20	263 951 018	343 995 652	4

Name of Municipality	Demarcation code	Province	Category	TE	TotPop	Finflex	FinInd	Insticap	ExpDec	HH_Water	Grants	Total Op revenue	Managers	Operating expe	Employee costs	Vacant posts
Ba-Phalaborwa LM	LIM334	Limpopo	B	0,96	168397	3,85	4,01	64,00	1	15 025	92 458 970	2 232 811 484	32	556 689 868	580 575 934	1
Bela-Bela LM	LIM366	Limpopo	B	0,78	76296	1,85	0,34	60,00	0	5 936	9 955 469	134 048 823	30	394 635 969	72 545 898	1
Blouberg LM	LM351	Limpopo	B	0,93	172601	3,49	0,75	25,33	1	612	2 188 000	209 489 663	19	278 694 018	60 002 590	3
Elias Motsoaledi LM	LIM472	Limpopo	B	0,56	268256	2,09	0,13	43,50	1	4 512	3 143 006	63 839 473	29	477 116 675	30 519 303	2
Greater Giyani LM	LIM331	Limpopo	B	0,72	256127	2,80	0,56	29,33	0	7 259	10 945 603	209 725 717	22	377 327 600	74 870 998	3
Greater Letaba LM	LIM332	Limpopo	B	0,60	218030	3,42	0,33	24,00	0	3 286		106 685 137	16	320 194 221	31 206 355	2
Greater Tzaneen LM	LIM333	Limpopo	B	0,72	416146	3,69	0,26	48,00	0	14 610	2 428 156	310 932 180	32	1 206 626 996	84 292 148	2
Lepelle-Nkumpi LM	LIM355	Limpopo	B	1,00	235380	3,47	6,04	36,00	0	8 521		1 864 401 434	18	308 728 935	537 515 232	1
Lephalale LM	LIM362	Limpopo	B	0,44	140240	4,37	108,13	42,00	0	10 794	180 269 427	55 310 388 404	28	511 497 991	12 667 743 602	2
Makhado LM	LIM344	Limpopo	B	0,54	416728	3,49	0,18	57,00	0	8 495		162 999 491	38	918 477 626	46 763 362	2
Makhuduthamaga LM	LIM473	Limpopo	B	0,35	284435	2,06	0,13	30,67	0	2 206		59 283 434	23	458 216 638	28 791 983	3
Maruleng LM	LIM335	Limpopo	B	0,90	99946	2,96	1,75	17,50	0	3 133		331 473 676	14	189 047 095	111 809 502	4
Mogalakwena LM	LIM367	Limpopo	B	1,00	325291	4,38	0,22	28,00	0	11 988	1 176 680	246 267 500	24	1 128 910 574	56 185 064	6
Molemole LM	LIM353	Limpopo	B	0,91	125327	4,71	15,61	7,50	0	1 911	15 781 690	3 033 345 136	5	194 312 242	643 360 369	2
Polokwane LM	LIM354	Limpopo	B	0,43	797124	4,60	0,19	96,00	1	62 888		705 779 150	48	3 748 721 820	153 330 853	1
Thabazimbi LM	LIM361	Limpopo	B	0,66	96232	2,00	0,18	54,00	0	13 476		66 248 457	36	378 098 981	33 101 261	2
Thulamela LM	LIM343	Limpopo	B	0,48	497237	3,06	0,34	33,75	1	11 859		204 777 157	27	607 588 211	66 912 895	4
Bushbuckridge LM	MP325	Mpumalanga	B	0,61	546125	3,62	0,27	60,00	0	10 122		330 993 865	30	1 213 975 864	91 341 365	1
Dipaleseng LM	MP306	Mpumalanga	B	0,94	45232	9,48	2,57	12,00	0	4 240	17 317 986	719 808 834	9	279 697 299	75 951 973	3
Dr Pixley Ka Isaka Seme LM	MP304	Mpumalanga	B	0,53	85395	4,40	3,58	36,00	1	5 343	4 121	1 118 208 108	18	311 913 431	253 949 064	1
Emakhazeni LM	MP314	Mpumalanga	B	0,78	48149	2,50	0,37	32,00	0	6 834	7 305 733	133 374 457	16	359 511 099	53 434 668	1
Emalahleni LM (MP)	MP312	Mpumalanga	B	0,71	455228	3,68	0,09	14,00	0	84 235	838 760	292 703 548	7	3 371 257 497	79 483 963	1
Govan Mbeki LM	MP307	Mpumalanga	B	0,48	340091	2,78	0,09	66,00	0	48 785		243 618 920	33	2 725 788 199	87 510 997	1
Lekwa LM	MP305	Mpumalanga	B	0,27	123409	5,49	3,65	39,00	0	16 240	2 771 239	3 402 868 868	26	932 575 974	620 354 033	2
Mkhondo LM	MP303	Mpumalanga	B	0,45	189036	3,44	0,30	28,50	0	8 070	2 872 501	228 768 930	19	767 352 954	66 559 952	2
Msukaligwa LM	MP302	Mpumalanga	B	1,00	164608	3,60	0,45	42,67	1	25 545		420 073 809	32	935 260 689	116 742 681	3
Nkomazi LM	MP324	Mpumalanga	B	0,35	410907	3,10	0,62	42,67	0	5 822	398 192	557 621 222	32	899 856 917	179 786 563	3
Steve Tshwete LM	MP313	Mpumalanga	B	0,42	278749	5,18	0,06	70,67	0	48 212		88 619 877	53	1 565 739 177	17 099 415	3
Thaba Chweu LM	MP321	Mpumalanga	B	0,24	101895	2,77	0,40	49,50	0	11 218	15 100 902	267 526 141	33	670 798 926	96 615 054	2
Thembisile LM	MP315	Mpumalanga	B	0,23	333331	3,53	2,73	44,00	1	6 867	3 940 283	2 030 888 686	22	744 502 851	575 146 126	1
Victor Khanye LM	MP311	Mpumalanga	B	0,92	84151	3,65	0,47	37,50	1	13 203	1 066 144	380 413 436	25	810 460 207	104 281 701	2
City of Matlosana LM	NW403	North West	B	0,47	417282	5,65	0,52	67,50	1	66 180	353 859	1 712 034 826	45	3 263 288 962	302 872 296	2
Ditsobotla LM	NW384	North West	B	0,53	181865	1,90	0,79	25,00	0	17 221	2 355 601	419 233 441	20	530 307 357	220 799 701	4
Greater Taung LM	NW394	North West	B	0,48	167827	2,46	2,45	44,00	0	2 124	175 000	695 585 060	22	283 477 415	283 281 045	1
Kagisano/Molopo LM	NW397	North West	B	0,38	102703	3,56	184,19	12,00	0	961	461 311 353	37 491 140 816	8	203 545 258	10 544 494 105	2
Kgetlengrivier LM	NW374	North West	B	1,00	59652	3,93	2,64	22,50	0	5 166	241 014	586 531 207	15	222 319 312	149 413 041	2
Lekwa-Teemane LM	NW396	North West	B	0,96	56025	5,98	3,62	30,00	1	4 932		1 473 962 868	20	407 566 398	246 672 864	2
Madibeng LM	NW372	North West	B	0,86	536110	3,00	0,06	58,67	1	30 938	2 351 082	185 634 947	44	3 009 388 120	61 806 442	3
Mafikeng LM	NW383	North West	B	1,00	314394	2,83	0,97	52,00	1	23 870	5 096 324	1 076 722 069	39	1 105 328 744	380 241 601	3
Mamusa LM	NW393	North West	B	0,68	64000	5,85	26,66	15,00	1	2 058	15 819 789	5 413 907 081	12	203 053 695	925 045 552	4
Maquassi Hills LM	NW404	North West	B	0,32	82012	3,10	1,96	28,50	0	6 886		910 138 798	19	464 206 202	293 443 341	2
Moretele LM	NW371	North West	B	0,67	191306	3,53	0,31	66,00	0	836		168 835 336	33	541 430 574	47 794 501	1
Moses Kotane LM	NW375	North West	B	0,72	243648	3,45	0,27	45,00	1	7 259	1 340 017	292 890 839	36	1 074 804 359	84 931 191	4
Naledi LM	NW392	North West	B	0,72	68803	3,69	0,90	46,67	0	8 111		421 636 243	35	469 851 984	114 413 497	3
Ramotshere Moiloa LM	NW385	North West	B	0,07	157690	5,14	1,50	49,50	1	8 076		467 123 884	33	312 368 598	90 864 815	2
Ratlou LM	NW381	North West	B	0,85	106108	3,54	10,35	58,00	0	204	1 927 847	1 592 484 513	29	153 908 806	449 460 174	1
Rustenburg LM	NW373	North West	B	0,98	626522	4,38	0,31	109,96	1	74 834	18 177 708	1 630 651 379	82	5 318 677 993	372 607 229	3
Tswaing LM	NW382	North West	B	0,12	129052	5,11	1,07	25,18	1	3 212	13 143 038	293 404 491	19	273 413 238	57 463 443	3

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!Kheis LM	NC084	Northern Cape	B	1,00	16556	4,13	114,61	21,00	1	930	47 193 237	7 147 217 489	14	62 360 452	1 728 684 292	2
Dawid Kruiper LM	NC087	Northern Cape	B	0,72	107161	1,58	0,20	56,00	0	14 467		141 825 583	28	725 452 163	89 878 056	1
Dikgatlong LM	NC092	Northern Cape	B	0,56	48473	3,68	6,15	28,00	1	3 543	15 000 000	1 221 064 187	14	198 514 991	332 238 908	1
Emthanjeni LM	NC073	Northern Cape	B	0,39	45404	3,25	1,62	15,00	0	6 379	416 875	539 329 760	12	332 954 480	165 707 276	4
Gamagara LM	NC453	Northern Cape	B	0,75	53656	2,79	0,27	28,57	0	9 151		121 875 209	25	443 926 475	43 681 960	7
Ga-Segonyana LM	NC452	Northern Cape	B	0,99	104408	1,84	0,39	25,50	1	3 594		194 653 076	17	502 353 773	105 958 958	2
Hantam LM	NC065	Northern Cape	B	0,36	21540	3,45	2,87	2,00	1	4 529	550 000	299 860 708	1	104 404 660	86 819 592	1
Joe Morolong LM	NC451	Northern Cape	B	0,18	84201	3,88	2,43	22,50	1	11 481	702 066	415 794 641	15	171 007 903	107 255 019	2
Kamiesberg LM	NC064	Northern Cape	B	1,00	9605	5,41	2,11	10,00	1	1 331		187 202 866	5	88 568 033	34 630 292	1
Kareeberg LM	NC064	Northern Cape	B	1,00	12772	3,91	3,14	10,00	0	1 725		196 138 583	5	62 510 851	50 164 425	1
Karoo Hoogland LM	NC066	Northern Cape	B	0,72	13009	3,26	36,52	4,50	0	3 474		2 366 314 647	3	64 788 986	726 307 686	2
Kgatelopele LM	NC086	Northern Cape	B	1,00	20691	2,51	2,69	4,50	0	6 045		368 722 556	3	136 983 973	147 062 697	2
Khâi-Ma LM	NC067	Northern Cape	B	0,86	12333	2,91	11,56	3,00	1	2 664		805 108 990	2	69 634 583	276 470 161	2
Magareng LM	NC093	Northern Cape	B	0,23	24059	2,83	1,03	17,33	0	1 526		189 317 147	13	183 869 118	66 780 001	3
Nama Khoi LM	NC062	Northern Cape	B	0,42	46512	3,95	1,12	-	0	11 608		384 796 565	-	343 146 259	97 374 680	3
Richtersveld LM	NC061	Northern Cape	B	0,59	12487	3,31	13,45	4,03	0	2 935	1 054 758	1 140 728 223	3	84 839 580	344 444 272	3
Siyancuma LM	NC078	Northern Cape	B	0,62	35941	3,35	0,38	24,00	0	4 229		66 096 152	12	175 267 941	19 726 032	1
Siyathemba LM	NC077	Northern Cape	B	0,59	23075	4,09	0,83	8,00	0	2 798		106 322 369	4	128 589 524	26 016 454	1
Sol Plaatjie LM	NC091	Northern Cape	B	0,52	255041	3,26	0,08	164,00	1	43 307		140 246 912	82	1 860 986 972	42 980 843	1
Thembelihle LM	NC076	Northern Cape	B	1,00	16230	2,62	8,44	8,75	1	1 890	1 135 268	826 712 357	7	97 898 242	315 881 505	4
Tsantsabane LM	NC085	Northern Cape	B	0,95	39345	4,98	0,47	10,00	0	5 272		138 896 619	5	295 375 294	27 899 746	1
Ubuntu LM	NC071	Northern Cape	B	0,89	19471	3,50	84,15	1,33	1	2 812	87 498 341	11 359 779 660	1	134 994 100	3 247 808 196	3
Umsobomvu LM	NC072	Northern Cape	B	0,80	30883	2,43	2,52	6,58	0	4 050		372 803 454	5	147 867 274	153 614 567	3
Beaufort West LM	WC053	Western cape	B	1,00	51080	1,65	0,23	9,00	1	11 634		68 965 758	6	302 726 237	41 687 132	2
Bergrivier LM	WC013	Western cape	B	1,00	67474	2,38	0,40	13,33	0	16 268		129 633 520	10	321 654 270	54 499 680	3
Bitou LM	WC047	Western cape	B	0,79	59157	2,73	0,48	74,00	1	12 995	11 423 783	398 608 614	37	828 697 453	145 843 660	1
Breede Valley LM	WC025	Western cape	B	0,90	176578	3,57	1,07	82,00	1	33 679		1 049 531 069	41	977 598 828	294 065 379	1
Cape Agulhas LM	WC033	Western cape	B	0,88	36000	5,34	2,97	32,00	0	9 566	1 442 818	931 896 319	16	313 737 765	174 591 123	1
Cederberg LM	WC012	Western cape	B	0,52	52949	4,67	3,18	36,00	1	11 352		1 028 609 456	18	323 288 372	220 237 209	1
Drakenstein LM	WC023	Western cape	B	0,67	280195	3,87	0,66	88,50	0	60 575	3 699 050	1 447 227 732	59	2 191 077 752	373 664 049	2
George LM	WC044	Western cape	B	0,27	208237	2,45	0,08	105,00	1	44 846		165 997 320	70	2 127 747 330	67 663 129	2
Hessequa LM	WC042	Western cape	B	1,00	54237	2,88	0,73	34,50	1	14 748		339 846 958	23	463 542 449	118 190 624	2
Kannaland LM	WC041	Western cape	B	0,64	24168	5,62	1,64	24,00	1	5 510		242 030 443	12	147 298 336	43 069 084	1
Knysna LM	WC048	Western cape	B	0,86	73835	3,71	0,24	37,50	0	19 537		213 010 688	25	904 729 609	57 454 296	2
Laingsburg LM	WC051	Western cape	B	0,81	8895	4,80	13,15	12,00	0	1 617	296 533	1 170 679 180	6	89 049 231	243 723 829	1
Langeberg LM	WC026	Western cape	B	0,45	105483	5,40	1,90	54,00	1	23 686	593 237	1 200 549 505	27	633 432 615	222 213 074	1
Matzikama LM	WC011	Western cape	B	0,53	71005	3,02	1,00	13,20	0	16 719	2 038 765	328 855 069	11	329 385 827	109 007 958	5
Mossel Bay LM	WC043	Western cape	B	0,95	94135	4,80	1,73	40,00	0	26 175	6 813 926	1 716 718 324	30	990 518 245	357 891 451	3
Oudtshoorn LM	WC045	Western cape	B	0,52	97509	4,11	11,39	81,00	0	19 577	6 659 800	7 129 373 118	54	626 072 466	1 733 999 870	2
Overstrand LM	WC032	Western cape	B	0,43	93407	4,23	0,62	106,00	1	27 717		743 829 645	53	1 200 560 861	175 978 310	1
Prince Albert LM	WC052	Western cape	B	0,91	14272	4,00	28,97	1,50	1	2 966	34 416 662	1 947 344 414	1	67 217 139	486 360 507	2
Saldanha Bay LM	WC014	Western cape	B	0,81	111173	2,57	0,06	105,00	1	26 591		67 752 244	84	1 044 404 665	26 411 907	4
Stellenbosch LM	WC024	Western cape	B	1,00	173197	3,55	0,16	82,80	1	34 867		245 258 641	69	1 487 577 719	69 079 555	5
Swartland LM	WC015	Western cape	B	0,99	133762	3,86	0,18	34,50	0	32 877		121 394 283	23	687 191 940	31 430 170	2
Swellendam LM	WC034	Western cape	B	1,00	40211	3,68	0,69	32,00	1	10 078		179 602 468	16	259 104 442	48 772 602	1
Theewaterskloof LM	WC031	Western cape	B	0,64	117167	3,79	0,25	61,50	1	24 839		120 675 911	41	488 278 671	31 870 575	2
Witzenberg LM	WC022	Western cape	B	0,88	130548	3,70	3,66	28,75	0	29 572	22 656 357	2 147 284 493	23	586 334 319	580 430 013	4

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Alfred Nzo DM	DC44	Districts	C	0,71	867864	3,42	0,19	52,00	1	5 683	18 975 767	112 318 111	39	578 039 699	32 819 827	3
Amajuba DM	DC25	Districts	C	0,37	531327	5,16	5,67	68,00	0	43 736		1 321 393 223	51	233 196 441	255 980 093	3
Amathole DM	DC12	Districts	C	0,83	880790	3,64	0,42	330,00	0	26 293	8 900 000	697 719 226	165	1 676 528 846	191 759 813	1
Bojanala DM	DC37	Districts	C	0,89	1657148	4,18	2,29	50,00	1	119 173	6 415 719	1 012 087 420	25	442 767 715	242 235 172	1
Cape Winelands DM	DC2	Districts	C	0,49	866001	4,13	1,96	67,50	0	182 355		719 844 911	45	366 542 571	174 478 041	2
Capricorn DM	DC35	Districts	C	0,54	1330436	4,74	1,20	40,80	1	73 769	19 355 000	905 839 016	34	755 396 782	191 234 526	5
Central Karoo DM	DC5	Districts	C	0,81	74247	2,15	2,16	14,00	0	16 221	360 000	217 324 686	7	100 797 937	101 195 223	1
Chris Hani DM	DC13	Districts	C	0,79	840055	3,37	0,43	69,00	0	43 327	187 189 696	522 108 474	46	1 213 746 121	154 723 384	2
Dr Kenneth Kaunda DM	DC40	Districts	C	0,43	742821	1,77	2,16	46,00	0	110 409	9 461 526	371 473 496	23	171 736 061	209 761 559	1
Dr Ruth Segomotsi Mompati DM	DC39	Districts	C	0,64	459357	1,82	0,24	33,00	0	18 176	198 948	103 002 500	22	423 695 501	56 654 287	2
Ehlanzeni DM	DC32	Districts	C	0,94	1754931	2,34	0,43	74,00	1	79 360		106 727 860	37	248 509 952	45 661 436	1
Fezile Dabi DM	DC20	Districts	C	0,44	494777	3,63	1,89	41,33	0	83 255		337 759 941	31	178 885 328	93 145 577	3
Frances Baard DM	DC9	Districts	C	0,85	387741	2,17	3,51	21,00	1	54 852		381 564 713	14	108 708 961	175 723 296	2
Gert Sibande DM	DC30	Districts	C	1,00	1135409	3,14	1,08	46,67	0	114 499	7 953 046	469 438 384	35	435 354 397	149 322 711	3
Harry Gwala DM	DC43	Districts	C	0,20	510865	3,68	0,45	41,33	0	14 102	30 000	244 591 984	31	548 848 791	66 407 190	3
iLembe DM	DC29	Districts	C	0,45	657512	3,63	0,31	58,00	1	35 070		258 549 781	29	840 140 556	71 155 764	1
Joe Gqabi DM	DC14	Districts	C	0,89	372912	5,17	0,58	38,00	0	18 261		348 027 335	19	599 902 171	67 308 245	1
John Taolo Gaetsewe DM	DC45	Districts	C	1,00	242264	5,69	2,26	21,00	0	13 884		217 170 839	14	95 916 568	38 182 351	2
Lejweleputswa DM	DC18	Districts	C	0,46	646920	5,72	6,89	31,50	1	94 791		833 529 777	21	121 048 894	145 681 295	2
Mopani DM	DC33	Districts	C	0,48	1159185	3,48	0,35	64,00	1	43 319	5 285 959	459 743 662	32	1 322 860 305	132 135 195	1
Namakwa DM	DC6	Districts	C	0,96	115488	4,47	16,48	10,50	0	26 557	50 297 362	1 138 762 775	7	69 114 024	254 758 808	2
Ngaka Modiri Molema DM	DC38	Districts	C	0,33	889108	9,08	0,65	48,00	0	52 646		511 878 400	36	790 783 236	56 392 641	3
Nkangala DM	DC31	Districts	C	0,96	1445624	4,46	0,90	30,67	1	152 875		365 288 786	23	407 417 488	81 892 086	3
O.R.Tambo DM	DC15	Districts	C	1,00	1457384	5,71	0,25	14,67	1	20 101	4 803 044	423 377 818	11	1 682 333 616	74 160 851	3
Overberg DM	DC3	Districts	C	1,00	286786	3,93	2,97	15,00	0	72 182		631 388 210	12	212 739 968	160 620 871	4
Pixley ka Seme DM	DC7	Districts	C	0,58	195595	4,07	5,40	6,75	1	2 309		348 774 515	5	64 637 666	85 772 467	3
Sedibeng DM	DC42	Districts	C	0,97	957528	4,15	0,67	105,00	1	231 249		283 486 506	70	420 107 494	68 279 550	2
Sekhukhune DM	DC47	Districts	C	1,00	1169762	3,89	0,07	68,00	0	13 364	19 697	81 755 077	34	1 123 100 327	21 027 246	1
Thabo Mofutsanyane DM	DC19	Districts	C	0,83	779330	2,47	1,48	22,60	0	62 983		180 186 322	17	121 663 783	72 890 576	3
Ugu DM	DC21	Districts	C	0,55	753336	6,30	0,47	46,50	0	37 131		579 061 673	31	1 241 486 721	91 944 509	2
UMgungundlovu DM	DC22	Districts	C	0,31	1095865	3,71	0,25	88,00	1	112 521		212 885 012	44	839 773 489	57 392 051	1
Umkhanyakude DM	DC27	Districts	C	0,82	689090	3,28	0,34	42,00	0	10 436		227 905 293	21	664 849 427	69 420 461	1
Umzinyathi DM	DC24	Districts	C	0,75	554882	5,47	4,75	46,00	1	16 863		2 963 334 279	23	623 954 812	542 002 305	1
Uthukela DM	DC23	Districts	C	0,80	706588	3,87	44,89	20,00	0	36 079	46 743 212	35 186 241 596	16	783 747 971	9 088 080 174	4
Vhembe DM	DC34	Districts	C	0,89	1393949	3,40	0,30	45,89	0	28 294	1 249 219	410 712 435	35	1 354 084 838	120 763 765	3
Waterberg DM	DC36	Districts	C	0,58	745758	3,86	7,12	34,00	1	51 599	3 479 976	1 125 471 237	17	158 020 736	291 329 149	1
West Coast DM	DC1	Districts	C	0,96	436403	4,98	2,34	52,00	0	103 760	2 565 193	802 920 002	26	343 179 287	161 135 933	1
West Rand DM	DC48	Districts	C	1,00	838594	4,42	2,27	25,50	0	183 442	10 018 643	612 076 551	17	269 333 585	138 510 459	2
Xhariep DM	DC16	Districts	C	1,00	125884	3,50	26,00	22,50	0	15 534	8 990 039	1 612 139 343	18	62 014 858	461 114 130	4
ZF Mgcawu DM	DC8	Districts	C	0,61	252692	4,87	16,10	66,00	1	33 785	16 316 998	1 105 530 900	33	68 687 724	226 850 644	1
Zululand DM	DC26	Districts	C	0,84	892310	4,05	1,20	31,50	0	26 063	1 765 020	755 729 444	21	627 821 922	186 765 085	2