Measuring fiscal sustainability and its determinants in South African municipalities

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Declaration

By submitting this dissertation electronically, I declare that the entirety of the work contained therein is my own, original work, that I am the sole author thereof (save to the extent explicitly otherwise stated), that reproduction and publication thereof by Stellenbosch University will not infringe any third party rights and that I have not previously in its entirety or in part submitted it for obtaining any qualification.

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Dedication

To my late Mother,

A woman who taught me that hard work always pays off. She gave me life, and nurtured and cared for me. The love she gave me will forever live within me. She believed in me even when I did not believe in myself.

Last but not least, this is a special dedication to God Almighty. Father, I have witnessed your goodness, faithfulness, grace and mercy throughout my journey. Thank you for providing me with everything I needed: the wisdom, knowledge, understanding, strength and inspiration. Thank you for enabling me to complete this work.

Personal contextualisation and motivation

Growing up in a rural municipality and a former homeland area of Mbizana under the Alfred Nzo district presented one with many challenges. As a family living in a rural former homeland municipality, we live on traditional land outside the small town of Mbizana, with many households spread over broad areas and a surging topography. The 2001 Census showed that Mbizana local municipality had 45,784 households. Of these, 43,158 households were without adequate access to water and 38,518 lacked adequate sanitation, while 45,066 were without adequate refuse removal. Progress has been made in reducing the 34,539 electricity backlogs in our municipality. My family was part of these statistics.

All these services were a pipe dream when I grew up. It was not until 2010 that my village had electricity. Now in 2021, the roads are still in bad condition, sewage collection and disposal are still lacking, there are no parks or sports fields, and most importantly there is still no water. We rely on JoJo tanks; people who cannot afford to buy a tank unfortunately have to contend with sharing the wells with pigs. Like many other rural former homeland municipalities, Mbizana was neighboured by similar municipalities facing challenges of their own. There was seldom any scope to solve the problems that one faced by moving to a neighbouring municipality.

As a resident of the City of Johannesburg, I consider myself to be fortunate in having food on the table, running water, electricity, roads in good condition, and parks where my family can play. The municipality provides regular sanitation and refuse removal services. However, I worry that the shrinking economy may mean that traditional revenue sources are not enough

to cover the ever-increasing community needs. This scenario threatens the sustainability of municipal services.

In 2016 I was appointed as a deputy director in the intergovernmental relations division of the National Treasury responsible for municipal budget process. I became responsible for local government content in the annual Division of Revenue Bill. This responsibility included updating the equitable share formula to reflect population growth; the formula is used to determine the operational allocation to the 257 municipalities in South Africa. This role exposed me to municipal issues beyond my previous personal experience, and I perceived the broader challenges in the local government sphere. I thus needed to learn more about municipal challenges. I believed that understanding the challenges facing these municipalities was vital to crafting appropriate policy responses. I had to engage in extensive research, which involved data analysis, reading and attending meetings. The focus was on making appropriate adjustments to the functional and fiscal arrangements in the local government sphere. Hence, embarking on a PhD was a valuable opportunity to address this challenge.

Abstract

This dissertation assesses the sustainability of supplying goods and services offered by South African municipalities; the analysis also examines their ability to pay off long-term debts and to meet the current obligation. The composition of spending and how to improve efficiency are also studied. This study adopted a quantitative research approach. A combination of descriptive and correlational research and the data envelopment analysis (DEA) model was used. The documents and data analysed were published by the National Treasury; the Reserve Bank of South Africa; Statistics South Africa; the Auditor-General South Africa; and the municipal annual reports.

The findings indicated that several municipalities were administratively intense. Over time, costs for the administrative component of municipal functions surpassed the service delivery spending. In addition, the research study finds that employee costs were the fastest growing item in municipal budgets and became the biggest budgetary pressure facing municipalities. Furthermore, inefficiency has largely nullified the impact of funding to local government, which was intended to improve service delivery. These trends must be reversed to attain economies of scale. Municipalities must change the composition of their expenditure and prioritise their service delivery. Municipal organisational structures should be fit-for-purpose, and functional duplications should be reduced.

This dissertation is divided into four distinct but complementary papers. Each paper constitutes a chapter. There are also two general chapters, and the entire dissertation thus consists of six chapters.

Paper I (Chapter 2) adopts a modification of the definitions of "sustainability" as formulated by Blanchard, Chouraqui, Hagemann and Sartor (1990) and by Hagist & Vatter (2009). The concepts of Auerbach, Gokhale and Kotlikoff (1991) are also included. The paper proposes a new model for measuring the fiscal sustainability of municipalities. This model accounts for demographic changes, performance of local economies and financial management at the municipal level. This paper assesses the sustainability of the supply of goods and services offered by South African municipalities. It examines their solvency (ability to pay off long-term debts), liquidity (ability to meet current obligations), and the composition of spending.

The economic circumstances surrounding each municipality are also examined. The resultant indicators provide valuable data about the state of municipal finances. They can be used to assess the action needed to be followed at present to ensure the long-term fiscal sustainability of municipalities. For practical purposes, the proposed model is then applied to seven South

African metropolitan municipalities. The last part of the paper proposes various approaches to close the fiscal gap.

Paper II (Chapter 3) examines the scale effects and the determinants of administrative intensity within South African municipalities. Regression analysis, a form of predictive modelling technique, was performed. The results revealed that the spending by functions in municipalities is administratively orientated, with insufficient economies of scale. Regarding the determinants of administrative intensity, capital transfers and growth in the population were shown to be the most influential factors in determining the administrative costs of municipalities. Moreover, the findings indicated that the more own-source revenues a municipality has, the better it manages its finances.

The results from the second model indicated that several municipalities were administratively intense. These findings are consistent with the further analysis in the third model, which show that, over time, the administrative component of municipal functions have surpassed service delivery spending. This trend must be reversed to attain economies of scale.

Paper III (Chapter 4) examines the influence of personnel management regarding municipal finances. The sources were budget documents published annually by the municipalities, data from Statistics South Africa and annual financial statements audited by the South African Auditor-General. The analysis found that there is fundamental systemic incoherence within the present constellation of the composition of municipal spending. The most substantial budgetary pressure facing South African municipalities is the rising share of personnel expenditure. This expenditure has increased markedly over the last 12 years, without proportional increases in productivity or in the number of people employed at municipalities. The study found that these increases are considerably higher than in other spheres of government. They have a negative bearing on local government's ability to manage and fast-track service delivery.

This excessive spending on personnel has impacted smaller municipalities the most. Such expenditure diverts resources away from service delivery requirements, which also causes tension with the policy objectives of local government. This situation has created substantial cost pressure on municipal budgets. In some municipalities, particularly rural ones, this cost pressure eclipsed other service delivery expenditure to the extent that it undermined the coverage and quality of services offered. There is, therefore, a need for local government to limit increases in employee costs.

Paper IV (Chapter 5) examines the efficiency with which district municipalities that provide water and sanitation services deliver on those services. It analyses the expenditures and outputs attributable to these functions, using the DEA technique as applied to cross-sectional

data for 2015–2016. The sample included 19 high service responsibility municipalities with water and sanitation functions. Among the 19 municipalities, 12 were found to be inefficient and spent a high proportion of their operational expenditure on municipal administration.

Furthermore, using an instrumental variable approach, this study examined the determinants of variation in water and sanitation service efficiency. These drivers were identified as fiscal autonomy, value of assets and number of households within each municipal jurisdiction. The challenge is that municipalities already spend significantly more than they should on administration costs maintaining large administrative components, crowding out service delivery and investment expenditures. This scenario makes these municipalities fiscally unsustainable over time, as the asset base is highly dependent on grants and their asset management practices are below the required levels. If high service responsibility municipalities are to be efficient and sustainable, local government should do the following: create cost-savings measure, divert resources to frontline services and promote improved governance for the long-term sustainability of public finances.

Key words:

Opsomming

Hierdie proefskrif beoordeel die volhoubaarheid van die verskaffing van goedere en dienste wat deur Suid-Afrikaanse munisipaliteite aangebied word; die ontleding ondersoek ook hul vermoë om langtermyn skuld te delg en om die huidige verpligting na te kom. Die samestelling van besteding en hoe om doeltreffendheid te verbeter word ook bestudeer. Hierdie studie het 'n kwantitatiewe navorsingsbenadering gevolg. 'n Kombinasie van beskrywende en korrelasienavorsing en die data-omhullingsanalise (DEA) model is gebruik. Die dokumente en data wat ontleed is, sluit die munisipale jaarverslae in asook die dokumente wat deur die Nasionale Tesourie, Statistiek Suid-Afrika, en die Ouditeur-Generaal Suid-Afrika gepubliseer is.

Die bevindinge het aangedui dat verskeie munisipaliteite administratief intens was. Met verloop van tyd het koste vir die administratiewe komponent van munisipale funksies die diensleweringsbesteding oortref. Die navorsingstudie het ook bevind dat werknemerskoste die vinnigste groeiende item in die munisipale begroting was en die grootste begrotingsdruk geword het wat munisipaliteite in die gesig staar. Verder het ondoeltreffendheid grootliks veroorsaak dat befondsing vir plaaslike regering, wat bedoel was om dienslewering te verbeter, tot niet gemaak het. Hierdie tendense moet omgekeer word om skaalvoordele te bereik. Munisipaliteite moet die samestelling van hul uitgawes verander en hul dienslewering prioritiseer. Munisipale organisatoriese strukture moet geskik wees vir die doel en funksionele duplisering moet verminder word.

Hierdie proefskrif is verdeel in vier afsonderlike maar aanvullende referate. Elke referaat vorm 'n hoofstuk. Daar is ook twee algemene hoofstukke, en die hele proefskrif bestaan dus uit ses hoofstukke.

Referaat I (Hoofstuk 2) neem 'n wysiging aan van die definisies van "volhoubaarheid" soos deur Blanchard, Chouraqui, Hagemann and Sartor (1990) and by Hagist & Vatter (2009) geformuleer. Die konsepte van Auerbach, Gokhale and Kotlikoff (1991) is ook ingesluit. Die referaat stel 'n nuwe model voor om die fiskale volhoubaarheid van munisipaliteite te meet. Hierdie model is verantwoordelik vir demografiese veranderinge, prestasie van plaaslike ekonomieë en finansiële bestuur op munisipale vlak. Hierdie referaat beoordeel die volhoubaarheid van die verskaffing van goedere en dienste wat deur Suid-Afrikaanse munisipaliteite aangebied word. Dit ondersoek hul solvensie (vermoë om langtermyn skuld af te betaal), likiditeit (vermoë om huidige verpligtinge na te kom), en die samestelling van besteding.

Die ekonomiese omstandighede van elke munisipaliteit word ook ondersoek. Die gevolglike aanwysers verskaf waardevolle data oor die stand van munisipale finansies. Dit kan gebruik

word om die aksie te bepaal wat tans gevolg moet word om die langtermyn fiskale volhoubaarheid van munisipaliteite te verseker. Vir praktiese doeleindes word die voorgestelde model dan op sewe Suid-Afrikaanse metropolitaanse munisipaliteite toegepas. Die laaste deel van die referaat stel verskeie benaderings voor om die fiskale gaping te sluit.

Referaat II (Hoofstuk 3) ondersoek die skaaleffekte en die determinante van administratiewe intensiteit in Suid-Afrikaanse munisipaliteite. Regressie-analise, 'n vorm van voorspellende modelleringstegniek, is uitgevoer. Die resultate het aangedui dat die besteding deur funksies in munisipaliteite administratief georiënteerd is, met onvoldoende skaalvoordele. Wat die determinante van administratiewe intensiteit betref, blyk dit dat kapitaaloordragte en groei in die bevolking die mees invloedryke faktore is in die bepaling van administratiewe koste van munisipaliteite. Die bevindinge het boonop aangedui dat hoe meer eie inkomste 'n munisipaliteit het, hoe beter bestuur hulle hul finansies.

Die resultate van die tweede model het aangedui dat verkeie munisipaliteite administratief intens is. Hierdie bevindinge stem ooreen met die verdere ontleding in die derde model, wat toon dat die administratiewe komponent van munisipale funksies met verloop van tyd diensleweringbesteding oortref het. Hierdie tendens moet omgekeer word om skaalvoordele te bereik.

Referaat III (Hoofstuk 4) ondersoek die invloed van personeelbestuur ten opsigte van munisipale finansies. Die bronne was begrotingsdokumente wat jaarliks deur die munisipaliteite gepubliseer word, data van Statistieke Suid-Afrika en finansiële jaarstate wat deur die Suid-Afrikaanse Ouditeur-Generaal geoudit is. Die ontleding het bevind dat daar fundamentele sistemiese onsamehangendhied binne die huidige konstellasie van die samestelling van munisipale besteding is. Die grootste begrotingsdruk wat Suid-Afrikaanse munisipaliteite in die gesig staar, is die stygende deel van personeelbesteding. Hierdie uitgawes het oor die afgelope 12 jaar merkbaar toegeneem, sonder proporsionele verhogings in produktiwiteit of in die aantal mense wat by munisipaliteite werksaam is. Die studie het bevind dat hierdie verhogings aansienlik hoër is as in ander regeringsafdelings. Dit het 'n negatiewe invloed op plaaslike regering se vermoë om dienslewering te bestuur en vinniger te laat verloop.

Hierdie buitensporige besteding aan personeel het kleiner munisipaliteite die meeste geraak. Sulke uitgawes lei hulpbronne weg van diensleweringsvereistes, wat ook spanning veroorsaak met die beleidsdoelwitte van plaaslike regering. Hierdie situasie het aansienlike kostedruk op munisipale begrotings geplaas. In sekere munisipaliteite, veral landelikes, het hierdie kostedruk ander diensleweringsuitgawes verduister in die mate dat dit die dekking en

kwaliteit van dienste wat aangebied word, ondermyn. Daar is dus 'n behoefte vir plaaslike regering om verhogings in werknemerskoste te beperk.

Referaat IV (Hoofstuk 5) ondersoek die doeltreffendheid waarmee distriksmunisipaliteite wat water- en sanitasiedienste verskaf, daardie dienste lewer. Dit ontleed die uitgawes en uitsette wat aan hierdie funksies toeskryfbaar is, deur gebruik te maak van die DEA tegniek soos toegepas op deursneedata vir 2015-2016. Die steekproef het 19 hoëdiensverantwoordelikheidsmunisipaliteite met water- en sanitasiefunksies ingesluit. Daar is bevind dat 12 van die 19 munisipaliteite ondoeltreffend is en 'n groot deel van hul bedryfsuitgawes aan munisipale administrasie bestee het.

Verder, met behulp van 'n instrumentele veranderlike benadering, het hierdie studie die determinante van variasie in water- en sanitasiediensdoeltreffendheid ondersoek. Hierdie drywers is geïdentifiseer as fiskale outonomie, waarde van bates en aantal huishoudings binne elke munisipale jurisdiksie. Die uitdaging is dat munisipaliteite reeds aansienlik meer bestee as wat hulle moet aan administrasiekoste om groot administratiewe komponente in stand te hou, wat dienslewering en beleggingsuitgawes verdring. Dit veroorsaak dat munisipaliteite mettertyd fiskaal onvolhoubaar word, aangesien die batebasis hoogs afhanklik is van toelaas en hul batebestuurspraktyke onder die vereiste vlakke is. As munisipaliteite met hoë diensverantwoordelikheid doeltreffend en volhoubaar moet wees, moet plaaslike regering die volgende doen: skep kostebesparingsmaatreëls, herlei hulpbronne na voorlyndienste en bevorder verbeterde bestuur vir die langtermyn volhoubaarheid van openbare finansies.

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Le thisisi (dissertation) ivavanya uzinzo ekuboneleleni ngeempahla kunye neenkonzo ezinikezelwa ngoomasipala boMzantsi Afrika; Uhlalutyo luvavanya ukukwazi kwabo ukuhlawula amatyala exesha elide kunye nokuhlangabezana noxanduva lwangoku. Ukwakhiwa kwenkcitho kunye nendlela yokuphucula ukusebenza nayo iyafundwa. Olu phononongo lwamkele indlela yophando oluninzi. Indibaniselwano yophando oluchazayo kunye nolungelelwaniso kunye nobuchule bohlaziyo lwe data envelopment analysis (DEA). Amaxwebhu kunye nohlalutyo lophando olupapashwa nguNondyebo weSizwe; iBhanki EnguVimba yoMzantsi Afrika; EzoBalo-Luntu eMzantsi Afrika; uMphicothi-zincwadi Jikelele woMzantsi Afrika; neengxelo zonyaka zikamasipala.

Iziphumo zabonisa ukuba oomasipala abaninzi babenobuzaza kwezolawulo. Ixesha elingaphezulu, iindleko zecandelo lolawulo kwimisebenzi kamasipala zigqithile kwinkcitho yokuhanjiswa kweenkonzo. Inkcitho yabasebenzi yayiyeyona nto ikhula ngokukhawuleza kuhlahlo-lwabiwo mali loomasipala kwaye yaba lolona xinzelelo olukhulu kuhlahlo-lwabiwo mali olujamelene noomasipala. Ngaphezu koko, nokungasebenzi iye kakhulu ize impembelelo-mali kurhulumente wengingqi, apho eyenzelwe ukuphucula ukunikezelwa kweenkonzo. Ezi ntsingiselo kufuneka zibuyiselwe umva ukuze kufikelelwe kuqoqosho lwesikali. Oomasipala kufuneka batshintshe ukwenziwa kwenkcitho yabo kwaye babeke phambili ukunikezelwa kweenkonzo. Amaqumrhu kamasipala kufanelekile ukuba alungele injongo, kwaye ukuphindaphindwa kokusebenza kufanele kuncitshiswe.

Le dissertation yahlulwe yangamaphepha amane ahlukeneyo kodwa ancedisanayo. Iphepha ngalinye lenza isahluko. Kukho izahluko ezibini ngokubanzi, kwaye iyonke le dissertation ineziqendu ezithandathu.

Iphepha lokuqala (Isahluko sesibini) Olu phononongo lwamkela ukuguqulwa kweenkcazo "zokuzinza" njengoko kwenziwe nguBlanchard, uChouraqui, uHagemann noSartor (1990) noHagist noVatter (2009). Iikhonsepthi zeAuerbach, Gokhale kunye neKotlikoff (1991) nazo zibandakanyiwe. Eli phepha liphakamisa indlela entsha yokulinganisa uzinzo kwezemali koomasipala. Le modeli ibangela utshintsho kubemi, ukusebenza koqoqosho lwasekhaya kunye nolawulo lwezemali kwinqanaba likamasipala. Esi sahluko sivavanya uzinzo lonikezelo lweempahla kunye neenkonzo ezinikezelwa ngoomasipala boMzantsi Afrika. Ivavanya ukusombuluka kwabo (ukubanakho ukuhlawula amatyala exesha elide), ukuhlawula amatyala (ukukwazi ukuhlangabezana nezibophelelo zangoku), kunye nokwakhiwa kwenkcitho.

Iimeko zoqoqosho ezingqonge umasipala ngamnye ziyavavanywa. Izikhombisi ezibonakala zibonelela ngedatha ebalulekileyo malunga nemeko yezemali kamasipala. Zingasetyenziselwa ukuvavanya amanyathelo afunekayo ekufuneka elandelwe okwangoku

ukuqinisekisa uzinzo lwezezimali lwexesha elide koomasipala. Ukulungiselela iinjongo ezibonakalayo, imodeli ecetywayo iyasetyenziswa koomasipala abasixhenxe boMzantsi Afrika. Inxalenye yokugqibela yesahluko iphakamisa iindlela ngeendlela zokuvala umsantsa wezemali.

Iphepha lesibini (Isahluko sesithathu) livavanya iziphumo zesikali kunye nokuchongwa kokuqina kolawulo koomasipala boMzantsi Afrika. Uhlalutyo loxinzelelo, uhlobo lwendlela yokwenza imodeli yokuqikelela, lwenziwa. Iziphumo ziveze ukuba inkcitho kwimisebenzi yoomasipala ijolise kulawulo, kungonelanga kuqoqosho. Ngokumalunga nokumiselwa kolawulo olunzulu, ukugqithiselwa kwemali eyinkunzi kunye nokukhula kwabemi kubonisiwe njengezona zinto zinempembelelo ekumiseni iindleko zolawulo zoomasipala. Ngaphaya koko, iziphumo zabonisa ukuba okungakumbi kwimithombo eyengeniso kamasipala, kokukhona eyilawula ngcono imali yakhe.

Iziphumo ezivela kwimodeli yesibini zibonise ukuba oomasipala abaninzi babenolawulo olunzulu. Ezi ziphumo ziyahambelana nohlalutyo oluqhubekayo kwimodeli yesithathu, ebonisa ukuba, ekuhambeni kwexesha, icandelo lolawulo lwemisebenzi kamasipala ligqithile kwinkcitho yokuhanjiswa kweenkonzo. Lo mkhwa kufuneka ubuyiselwe umva ufikelele kuqoqosho lwesikali.

Iphepha lesithathu (Isahluko sesine) livavanya ifuthe lolawulo lwabasebenzi malunga nemali kamasipala. Oovimba bolwazi yayingamaxwebhu ohlahlo-lwabiwo mali apapashwa minyaka le ngoomasipala, iinkcukacha ezivela kubalo-manani loMzantsi Afrika kunye neengxelo zemali zonyaka eziphicothwe nguMphicothi zincwadi Jikelele woMzantsi Afrika. Uhlalutyo lufumanise ukuba kukho ukungqinelana okungundoqo kwinkqubo ngaphakathi kwenkqubela phambili yangoku yobume benkcitho kamasipala. Olona xinzelelo kuhlahlo-lwabiwo mali lujamelene noomasipala boMzantsi Afrika sisabelo esikhulayo senkcitho yabasebenzi Le nkcitho inyuke ngokuphawulekayo kule minyaka ili-12 idlulileyo, ngaphandle kokunyuka ngokulinganayo kwimveliso okanye kwinani labantu abaqeshwe koomasipala. Uphononongo lufumanise ukuba oku kunyuka kuphezulu kakhulu kunakwamanye amanqanaba karhulumente. Zinefuthe elibi kubuchule boomasipala bokulawula nokukhawulezisa ukuhanjiswa kweenkonzo.

Inkcitho egqithileyo kubasebenzi ibachaphazele kakhulu oomasipala abancinci. Inkcitho enjalo ke iphambukisa oovimba kude neemfuno zokuhanjiswa kweenkonzo, ekwabangela ukungavisisani neenjongo zomgaqo-nkqubo zikamasipala. Le meko idale uxinzelelo lweendleko kuhlahlo-lwabiwo mali lukamasipala. Abanye oomasipala, ngakumbi abasemaphandleni, le ndleko igqithe enye inkcitho yokuhanjiswa kweenkonzo kangangokuba iye yasingela phantsi ukufikelelwa kunye nomgangatho weenkonzo ezinikezelwayo. Kukho,

ke, kukho imfuneko yokuba urhulumente wengingqi anciphise ukunyuka kwembuyekezo yabasebenzi.

Iphepha lesine (Isahluko sesihlanu) livavanya ukusebenza kakuhle koomasipala bezithili ababonelela ngeenkonzo zamanzi nococeko. Lilhlalutya inkcitho kunye neziphumo ezibangelwe yile misebenzi, kusetyenziswa ubuchule bohlaziyo lwe DEA njengoko isetyenzisiwe kwi cross-sectional data ka-2015-2016. Isampulu ibandakanya oomasipala abanoxanduva lokujongana neenkonzo eziphakamileyo ezili-19 ngamanzi nangezococeko. Phakathi koomasipala abali-19, abali-12 bafunyaniswe bengasebenzi kakuhle kwaye bachitha inkcitho ephezulu yenkcitho yabo kulawulo lukamasipala.

Ngaphaya koko, kusetyenziswa i instrumental variable approach, olu phononongo luvavanye ukumisela okwahlukileyo kokusebenza kwamanzi kunye nococeko. Aba baqhubi bachongwa njengokuzimela kwezemali, ixabiso leeasethi kunye nenani lamakhaya kulawulo lukamasipala ngamnye. Umceli mngeni kukuba oomasipala sele bechitha imali eninzi kakhulu kunendlela abamele ngayo kwiindleko zolawulo ukugcina izinto ezinkulu zolawulo, zithintela ukunikezelwa kweenkonzo nenkcitho yotyalo-mali. Le meko yenza ukuba aba masipala bangazinzisi ngokwasezimalini ngokuhamba kwexesha, njengoko isiseko seasethi sixhomekeke kakhulu kwizibonelelo kwaye iindlela zabo zolawulo lweeaseti zingaphantsi kwenqanaba elifunekayo. Ukuba oomasipala abanoxanduva oluphezulu lwenkonzo ukuze babe nokuqhuba kakuhle nokuzinzileyo, urhulumente wengingqi kufuneka enze oku kulandelayo: ukudala umlinganiso wokonga iindleko, ukuhambisa izixhobo kwiinkonzo zangaphambili kunye nokukhuthaza ukuphuculwa kolawulo lokuzinza kwexesha elide kwezemali zikarhulumente.

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AFS	Annual Financial Statements
AGSA	Auditor-General of South Africa
CG	Conditional grant
EC	Employee costs
CRS	Constant returns to scale
CSO	Civil Society Organisations
DBSA	Development Bank of Southern Africa
DEA	Data Envelopment Analysis
DMUs	Decision-making units
DoRA	Division of Revenue Act
FFC	Financial Fiscal Commission
GDP	Gross Domestic Product
GVA	Gross Value-Added
ICT	Information and communications technology
IDP	Integrated Development Plan
IFRA	Intergovernmental Fiscal Relations Act
LGES	Local government equitable share
LM	Local municipality
M&E	Monitoring and Evaluation
MFMA	Municipal Finance Management Act
MFPFA	The Municipal Fiscal Powers and Functions Act
MSA	Local Government Municipal Systems Act
MTBPS	Medium Term Budget Policy Statement
MTEC	Medium Term Expenditure Committee
MTEF	Medium Term Expenditure Framework
MTREF	Medium Term Revenue and Expenditure Framework
MTSF	Medium Term Strategic Framework
NDP	National Development Plan
NERSA	National Energy Regulator of South Africa
NPM	New Public Management
NT	National Treasury
OECD	Organisation for Economic Co-Operation and Development
PFMA	Public Finance Management Act
PPP	Public–Private Partnership
RSA	Republic of South Africa
RSC	Regional Services Council
SALGA	South African Local Government Association
SARB	South African Reserve Bank
SDBIP	Service Delivery and Budget Implementation Plan
Stats SA	Statistics South Africa
TRs	Treasury Regulations
UIF	Unemployment insurance fund
VFM	Value for Money
VRS	Variable returns to scale
WB	World Bank

Key Definitions

Accumulated surplus / (deficit)

"Retained earnings or accumulated deficit being the cumulative effect of differences between revenue and expenditure as per statement of financial performance" (National Treasury, 2017: 136).

Administrative intensity

Administrative intensity is defined as the ratio of expenditure on non-technical departments to the expenditure on technical departments (Melman, 1951). Technical and non-technical personnel can be used as proxies.

Benchmarking

Benchmarking is defined as a method identifying the most effective practices from other peer municipalities, learning from them and implementing these practices (Luque-Martinez and Muñoz 2005).

Conditional grants

These are funds allocated to local government that are regulated by the annual Division of Revenue Act, which requires that each programme conform to a standard set of financial management and reporting rules.

Effectiveness

Effectiveness is defined as a measure of the extent to which management attains its objectives or the extent to which the objective has been achieved (Samset, 2003).

Efficiency

Efficiency in local government is customarily defined as maximising the output from a set of inputs. Efficiency is usually expressed as the ratio of costs (for labour and other inputs) to output or outcome (Grizzle & Pettijohn, 2002; Melkers & Willoughby, 2005; Monkam, 2014; Drew, Dollery& Kortt, 2016).

Employee cost

"This item includes all payments to employees except social contributions, defined

below. Employee-Related Cost distinguish between senior managers and other staff as Section 124(1)(c) of the MFMA required disclosures of the details of remuneration for all senior managers and the Standard of GRAP on Related Party Disclosure requires disclosure of key management personnel" (National Treasury, 2013: 30; National Treasury, 2017: 136).

Fiscal sustainability

Fiscal sustainability is often defined as the ability of a municipality to meet its current obligations over time, without having to introduce substantial adjustments to its revenue and expenditure (Blanchard, Chouraqui, Hagemann, and Sartor, 1990; Cabaleiro, Buch, and Vaamonde, 2012).

Local municipality

A municipality that shares municipal executive and legislative authority in its area with a district municipality within whose area it falls, and which is described in Section 155(1) of the Constitution as a category B municipality (RSA Constitution, 1996; Local Government Municipal Structures Act, 117 of 1998).

Own revenues

Own revenues refer to revenues other than funds transferred from national and provincial governments. The primary own revenues for South African municipalities are "property rates; service charges and administration fees; surcharges, other taxes, levies and duties"; and other own revenues (National Treasury, 2011: 39).

The local government equitable share

Sections 214 of the Constitution stipulate that municipalities are entitled to a fair share of the revenue collected at the national level to enable them to provide basic services and perform the functions assigned to them. They may also receive other allocations from the national government, either conditionally or unconditionally (RSA Constitution, 1996; Siddle, 2011; National Treasury, 2011). In addition, "Local government's equitable share of nationally raised revenue to enable municipalities to provide a basic level of services to low-income households in their areas of jurisdiction at an affordable cost" (National Treasury, 2013; 24). The "equitable share transfer is intended to balance the unequal distribution of fiscal capacity between spheres of government and across municipalities" (National Treasury, 2011: 43).

The local government equitable share formula

According to National Treasury (2011), the local government equitable share formula is a formula that redistributes funds from the national fiscus to help fund municipalities. It is intended to balance the unequal distribution of fiscal capacity across municipalities. **The local government fiscal framework**

The "local government fiscal framework refers to all of the sources" of revenue municipalities have at their disposal to meet their expenditure obligations, namely own revenues, grants from other spheres, and external borrowing (National Treasury, 2021: 113).

Powers and function

"Section 156 (1) of the Constitution determines that the "municipality has executive authority in respect of, and has the right to administer a) the local government matters listed in Part B of Schedule 4 and Part B of Schedule 5 and any other matter assigned to it by national or provincial legislation and b) any other matter assigned to it by national or provincial legislation" (National Treasury, 2013: 20).

Unconditional transfers

National Treasury (2011) defines unconditional transfers as those made to municipalities without specific conditions to qualify for them. South African municipalities have the local government equitable share, the Regional Services Council (RSC) levies replacement grant, and metropolitan municipalities share the general fuel levy.

Chapter 1: Introduction

1.1. Background and rationale

In South Africa, local government plays an important role in providing essential services for developing the local economy. This role is also crucial for improving the living conditions of local communities, impoverished communities. The Constitution requires government to take reasonable measures, within its available resources, to ensure that all South Africans have access to basic services.

Local government is responsible for the powers and functions stipulated in Part B of Schedules 4 and 5 of the Constitution. These include water and sanitation, electricity and electricity reticulation, refuse removal, municipal health services, stormwater management and municipal transport and roads (Republic of South Africa Constitution, 1996). Local government is also responsible for numerous general facilities, such as parks, taxi ranks, sport and recreation facilities, cemeteries and economic infrastructure. Infrastructure here covers municipal roads, street lighting, traffic control, and by-law monitoring and enforcement. Therefore, municipalities are required to prioritise the delivery of at least a basic level of services to people who currently have limited access to such services. Municipalities must ensure that the provision of additional services to residents and businesses is sustainable, which means the community must be able to afford those services.

In meeting its service delivery demands, the financial management system in local government is regarded by some observers as relatively obscure. The rules and regulations are highly specialised and appear to be carefully guarded by municipal accountants who are intent on shielding such matters from public scrutiny. At the national level, the lack of empirical analysis of the fiscal capacity of municipalities has undermined key debates. Relevant topics are the extent of financial distress among municipalities and the efficiency of services provision. However, this view is changing as financial management is increasingly seen as an issue of strategic importance. Indeed, improved strategic financial management may hold the key to transforming municipalities. This could affect not only the resources that are provided but would also build local ownership of development choices through transparent and participatory approaches to municipal financial management.

Predictable public actions and credible policies that do not compromise fiscal sustainability are critical for creating confidence in the future prospects of local government. This call for a long-term perspective on public finances is also crucial for informed debate about the fiscal choices. A long-term view must consider measures to be put in place to address the fiscal gap. These include decisions about meeting current and future needs, responding to

unforeseen economic setbacks, and ensuring the progressive realisation of social objectives sustainably.

The importance of sustainability is entrenched in the Constitution. Section 152 (1) of the Constitution asserts that local government should provide a democratic and accountable government for local communities; ensure the provision of services to communities in a sustainable manner, and strive within its financial and administrative capacity to achieve the set out objectives. Section 153 of the Constitution states that a municipality must structure and manage its administrative, budgeting, and planning processes to prioritise the community's basic needs and promote the country's social and economic development. It must obtain an accurate understanding of impediments in the system and remodel functionality in order for municipalities to serve all communities in an effective, efficient, sustainable and progressive manner. It must attract investments that could create job opportunities and sustain population growth.

South Africa maintains one of the most extensive social services programmes in the developing world. The fiscal obligations arising from the policy of free basic services stipulate that all households must have access to 6,000 L of clean water per month for formal connections or 25 L of drinking water per person per day within 200 meters of the dwelling, with a reliability of at least 98% and a minimum flow rate of 10 litres per minute. As far as electricity is concerned, each household should have access to 50 kWh of electricity per month, which is the amount of energy needed for one month of basic lighting, a small black and white television set, a small radio, simple ironing and boiling water in an electric kettle (Sahasranaman, 2012). Under the Free Basic Services Policy, sanitation and waste removal services of a certain minimum quality and quantity are to be provided by municipalities to poor households, free of cost. The funding for minimum basic services is a part of the unconditional local government equitable share (LGES) grant to municipalities.

1.2. Context

The Constitution outlines the structure of government into three distinct and seperate spheres of government. No authority can dictate how a local council should spend its money, whether from its own-source revenues or from equitable shares. If the expenditure is legal under the Constitution and other legislation, it must be accepted. Therefore, placing conditions on operational transfers is not permissible in law. The best weapons against waste and corruption are transparency and an active citizenry.

Municipalities are held to a high standard on transparency, having to publish a great amount of details on their plans in their Budget Documents and Service Delivery Budget Implementation Plans. They then have to report on their financial performance monthly and

quarterly to National Treasury as required by law (National Treasury, 2021). National Treasury publishes these reports on their website, thereby making them publicly available. However, while municipalities have to produce a great deal of information, the accountability that this should produce is often undermined by the poor quality of the information produced. Audit reports find very few municipalities properly account for all of their spending. Accountability to other spheres of government often appears to be stronger than accountability to residents; service delivery protests are one indication that residents feel they are better served by raising their concerns outside of the formal consultation processes provided.

There are currently 257 municipalities in South Africa, all of which are used in the study. They consist of the following classifications:

Category A: eight large urban complexes with more than 1 million residents together account for more than 50% of all municipal spending.

B1: 18 municipalities with large households comprising secondary cities.

B2: 25 local municipalities with a large city at their core.

B3: 98 municipalities with small towns with relatively small populations; there is a significant urban population but no large town as a core.

B4: 61 municipalities that are predominantly rural with at most one or two small towns in their area.

C1: 23 district municipalities that are not responsible for water supply (low-capacity district municipalities).

C2: 21 district municipalities responsible for water supply (high-capacity district municipalities).

In terms of the South African Constitution, local government has the executive authority and right to administer the reticulation of water and electricity. However, national and provincial governments have the legislative and executive authority to oversee the effective performance of municipalities in terms of their functions.

The South African national framework for municipal taxation powers is determined by Section 229 of the Constitution (National Treasury, 2011). That section "empowers municipalities to impose a property tax and surcharge on fees for municipal services, subject to national regulation" (National Treasury, 2011). Moreover, the management of the local government fiscal framework is regulated by five main pieces of legislation and a subsidiary set of regulations.

The first Act is the Municipal Finance Management Act, 2003 (Republic of South Africa, Act 56 of 2003) (MFMA), which regulates the financial practices of local governments, including

procurement, human resource management, and auditing of financial statements. The second Act is the Municipal Systems Act, 2000 (Republic of South Africa, Act 32 of 2000) (MSA), which regulates planning, the appointment of staff, governance, credit control policies, and billing systems in municipalities. The third Act is the Municipal Fiscal Powers and Functions Act, 2007 (Republic of South Africa, Act 12 of 2007) (MFPFA). Together with the MSA, this Act implements Section 229 of the South African Constitution. The fourth Act is the Municipal Property Rates Act, 2004 (Republic of South Africa, Act 6 of 2004) (MPRA). This Act provides for the uniform application of rates, exemptions and rebates.

The fifth relevant Act is the annual Division of Revenue Act (DoRA). This Act allocates funds to the three spheres of government through a vertical division of revenue. It also allocates local government's equitable share, Regional Services Council (RSC) levy replacement grant and fuel levies, and conditional grants to local governments through the national budget process. Furthermore, it regulates how transfers are made and how local governments must report on transfers. The Act has at times been used as a mechanism to enforce fundamental policy changes, such as redistributing substantial resources from the urban economy to fund services in rural areas. These changes included improving the quality of conditional grant administration at all levels of government, improving timely financial reporting on transfers, continuing grant consolidation, and shifting responsibilities to local government.

The above Acts create a comprehensive framework for local government administration. The MSA, the Local Government Municipal Structures Act, 1998 (Republic of South Africa, Act 117 of 1998) (Structures Act) and the Property Rates Act fall under the jurisdiction of the Minister responsible for local government. The MFMA, the MFPFA and the DoRA fall under the purview of the Minister of Finance. The Electricity Regulation and Water Supply Acts fall under the Ministers responsible for Public Enterprises and Water and Sanitation respectively. The Ministers (departments) mentioned above are responsible for drafting and proposing amendments, while the National Assembly is responsible for amending the laws.

Within this comprehensive framework, there is no explicit overlap, but there are many interrelationships. For example, the MSA governs credit control policies and issues related to billing systems in municipalities. In contrast, the MFMA governs how revenues collected under these policies and through billing systems should be reported. Together, these laws "aim to make municipalities more accountable, financially sustainable and capable of delivering essential services to their community" (National Treasury, 2011).

As a result of these enabling legislations, municipalities have access to a range of revenue sources. On aggregate, budgeted revenue for the 2018/19 financial year was R438.8 billion (the National Treasury local government database). Most notable among these sources are

taxes, such as property rates, tariffs for trading services and intergovernmental transfers. Property rates accounted for R62.3 billion or 14%, tariffs for trading services such as water and electricity accounted for R187.9 billion or 43%, and intergovernmental transfers accounted for 29% (the National Treasury local government database). These figures mask considerable variation between municipalities, particularly in the level of dependence on intergovernmental transfers.

Also important is the annual DoRA. This Act redistributes resources from the urban economy to fund services in rural areas, as shown in figure 1.1 below.

Figure 1. 1: Redistribution of resources through the division of revenue
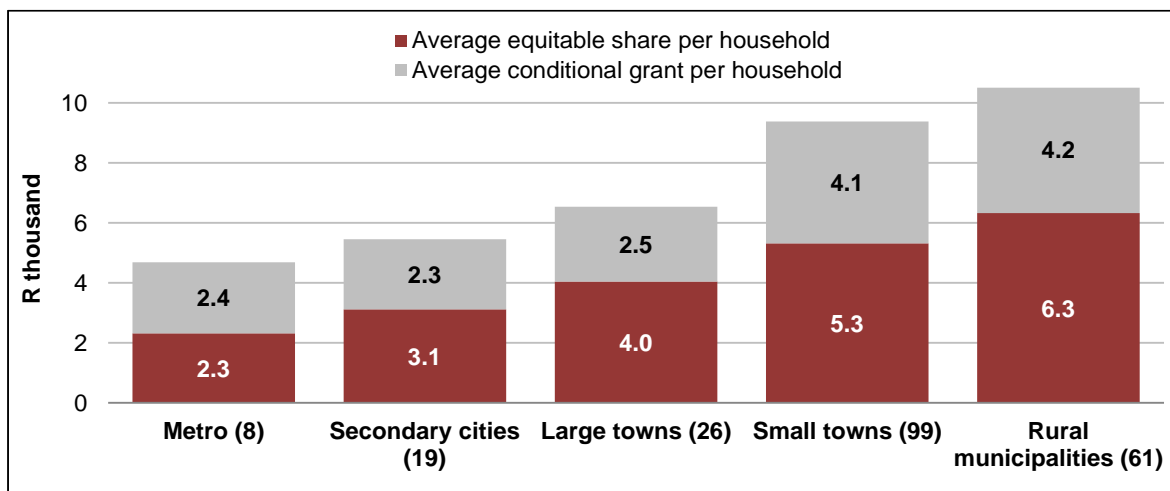
Source: National Treasury

There is wide variation amongst municipalities in terms of size and capacity. On one end are the eight metropolitan municipalities; they had a combined population of 20.5 million people (7.2 million households, of which 3.4 million were poor). This was more than a third of the total population in the country, which was 51.8 million people (or 25.6 million households). The average population of a metro was 2.6 million, ranging from 775,000 (in Mangaung) to 4.4 million (in City of Johannesburg). Although service delivery is high, changing demographics – as reflected in the 2011 census results – show that metropolitan and large urban municipalities have growing poor populations. This is mainly the result of migration. Of the 7.2 million households in metropolitan areas, 48% or 3.4 million were poor.

The total operating revenues budgeted by metros for 2017/18 amounted to R199.8 billion, or 60.4% of the combined budget of municipalities. They mainly consisted of electricity (R68.6 billion), property rates (R41.4 billion), water and sanitation (R31.2 billion), refuse removal (R6.5 billion) and other fees and charges (R18.1 billion). Although the LGES makes up a small percentage of the operating budgets of metros, given the sheer size of metropolitan budgets, 17% of these budgets were derived from the LGES in 2017/18 (the National Treasury local government database). Metros spent over R2,395 per household per month. This aggregate

included spending on non-residential consumers, which was substantial, particularly with respect to the purchase of bulk water and electricity. The biggest operating expenditure item was salaries, which averaged 24.7% of the total operating expenses of these municipalities.

On the other end of the spectrum are rural municipalities. Households in rural municipalities remain the most underserved. Up to 55.4% of water backlogs occur in rural areas, with approximately 39.7% of sanitation backlogs in these areas, and 44.8% electricity backlogs. Rural municipalities account for about 26% of the country's total population but only 3.2% of total economic activity (as measured by gross value-added, GVA). They are home to 20% of all households, 74% of which are poor or very poor (Statistics South Africa's 2019 General Household Survey). These households are characterised by dependency on social grants, with only 8% of people holding formal employment. The major challenge for municipalities in these areas is to provide infrastructure in a manner that addresses capacity deficiencies and stimulates economic activities to address the poverty that prevails. However, it seems necessary to accept that despite efforts to instil stability, some of these municipalities are unlikely to become fiscally sustainable institutions in their own right.

1.3. Theoretical background

Concept of fiscal sustainability

Afonso & Rault (2007) cited Keynes (1923) when writing about the problem of public debt in France in the early 1920s, pointing out that the French government needed to develop sustainable fiscal policies to meet its budgetary constraints. He stated that sustainability does not exist when liabilities far exceed revenues (Afonso and Rault, 2007).

Ouda (2021) defines fiscal sustainability as the ability of a municipality to meet its current obligations over time without having to make significant adjustments to its revenues and expenditures (Blanchard, Chouraqui, Hagemann & Sartor, 1990; Cabaleiro, Buch & Vaamonde, 2012; Drew, Dollery & Kortt, 2016). Several other authors have emphasised the embeddedness of individual experiences (differences in economic advantage or disadvantage) in shaping local economic viability (Woodhouse, 2006).

Blanchard et al. (1990) found that municipal budgets are sustainable if current rules for the provision of goods and services can be maintained. The level of municipal equity relative to municipal potential output must also be maintained. If the constraints in municipal budgets are respected, the future primary budget surplus can pay off the public debt, and fiscal sustainability would be ensured (Ko, 2020). In essence, adherence to the targeted debt level is evidence of fiscal sustainability (ibid., p.3). Coombs & Dollery (2004: 21) cite Chalk & Hemming (2000), who argue that "fiscal sustainability should follow the rule of non-increasing debt. That is, the present value of future primary surpluses must exceed the present value of

primary deficits by an amount sufficient to cover the difference between the initial debt level and the present value of the final debt level".

Ko (2020) points out that fiscal sustainability is often measured in two ways. One is through statistical tests, and the other is through indicators. In terms of statistical tests, he notes that "this method uses a unit root test to examine whether the government's intertemporal budget constraints are likely to be met" (ibid., p. 4). In a variation of this approach, Coombs & Dollery (2004: 21) cite Wells (1995:273), who argues that "in a growing economy, fiscal policy is sustainable as long as the growth rate of gross domestic product (GDP) - or GVA - exceeds the interest rate on the debt or the primary budget surplus is positive".

Municipal debt should therefore be viewed critically. If public (municipal) debt is excessive, the risk premium also becomes much higher than usual, which can lead to bankruptcy (Ko, 2020; Ostry, Berg, Charalambos & Tsangarides, 2015). Long-term persistent budget deficits are unsustainable without concurrent tax increases or large spending cuts Coombs & Dollery (2004). Moreover, Ostry et al. (2015) and Ko (2020) warn that long-term persistent budget deficits are likely to slow local economic growth, so policy changes are essential to end these problems. In addition, excessive municipal debt can hurt local economic growth. They also caution that it is necessary to keep debt below a certain level to promote sustainable local growth and reduce the risk of the government defaulting on its financial obligations (Ostry et al., 2015; Ko, 2020).

The problem of setting an appropriate level of debt is not easy, especially at the local government level (Ko, 2020). It must be borne in mind that municipalities vary widely in their ability to manage their finances (ibid.). In South African municipalities, this is related to the category and size of the municipality. The most prosperous municipalities are those in category A, i.e. large cities that are relatively well placed to maintain high debt levels.

1.4. Problem statement

Sustainable service delivery cannot occur without regard to cost. Creating fiscally sustainable municipalities hinges on good financial management and planning. The concept of fiscal management shows that the two sides of the budget, revenue and expenditure, play an equally important role in the sustainability of a municipality. This concept is the focus of this study. The focus is to determine and analyse the performance of local government revenue and expenditure in line with the functional powers of local government and their roles in service delivery.

The first point of analysis in terms of the research objectives   shows an imbalance between the revenue sources available, and the expenditure functions allocated to local government. Second, given the revenue constraints, services must be delivered at an affordable level and

allow municipalities to recover the costs of providing services. Thirdly, White Paper at Local Government (1998) recognises that economic resources are scarce and should be used to best effect to maximise benefits to local communities (Chetty, 2015).

Although the literature on South Africa is limited, policymakers in other parts of the world have considered the optimal organisational size for local governments (Ting, Dollery & Villano, 2014). Balaguer-Coll, Prior & Tortosa-Ausina (2007) found that the proportion of own-source revenue improves cost inefficiency. Ting, Dollery & Villano (2014) agree with Kalseth & Rattso (1995), (1998) and Lewis (2006) on the importance of revenue in determining the administrative intensity of a municipality. In general, large municipalities are assumed to provide a relatively large number of services and therefore incur high administrative costs per capita (Andrews & Boyne, 2009; Ting, Dollery & Villano, 2014). The use of percentage of expenditure can mitigate this problem (Ting, Dollery & Villano, 2014).

In chapter 2, a model for fiscal sustainability, expanding from the model first introduced by Hagist & Vatter (2009) is first presented. This adapted model uses a series of measurements to examine whether municipal decisions lead to effective resource allocation. It provides policymakers with the necessary checks and balances necessary to understand the problems facing local government.

Municipal efficiency in raising funds, public spending, and resource allocation can ultimately help indigent households access basic services. In addition, the structure and composition of local government spending should shed light on whether this spending is properly allocated among competing priorities. The split between consumption and investment and whether wages continue to rise well above the rate of inflation are critical factors in the long-term sustainability of municipal finances. Other critical factors include whether resources can be devoted to frontline services and promoting improved governance.

The impact of the composition of spending on economic outcomes is another important consideration. A comparative analysis of the structure of local government spending in relation to social and economic outcomes is a critical issue. However, this analysis is difficult without a credible model of long-term financial sustainability. Such a model would need to take into account a number of economic variables that are important in shaping long-term fiscal policy decisions. These include, first, the evolution of the tax base and, second, the relationships between a municipality's growth and size and its tax burden and redistribution of resources.

1.5. Dissertation statement

To improve the fiscal sustainability of municipalities, new methods and indicators are required to assess and understand the factors that affect the sustainability of a municipality.

1.6. Aim and objectives

The aim of this dissertation is to contribute to the development of knowledge, methods and evidence for measuring the fiscal sustainability of municipalities and the factors that influence sustainability. The following objectives are set:

a) To develop a set of municipal fiscal sustainability indicators, with an application to a selected group of municipalities in South Africa (Chapter 2).

b) To explore the patterns and characteristics of the composition of municipal expenditure in terms of administrative intensity. To examine the determinants of administrative intensity and its impact on fiscal sustainability (Chapter 3).

c) To explore the patterns and characteristics of the composition of municipal expenditure in terms of personnel management. To provide a thorough assessment of the fiscal risks associated with municipal personnel management at local government level (Chapter 4).

d) To establish the efficiency with which district municipalities that perform water and sanitation functions deliver on these services. To identify the determinants of variation in the efficiency of water and sanitation services (Chapter 5).

1.7. Key research questions

The research questions were formulated as follows:

- Can municipalities sustainably meet their expenditure commitments from their available resources in the long-term?
- Is the composition of municipal expenditure geared towards fiscal sustainability?
- Are municipalities managing their personnel and personnel remuneration affairs efficiently and in a fiscally sustainable manner?
- How efficiently have district municipalities that perform water and sanitation functions discharged their service delivery responsibilities?

1.8. Organisation of the study

To fulfil the research aims and objectives, this dissertation presents four distinct but complementary papers. Each paper constitutes a chapter. There are also two general chapters, and the entire dissertation thus consists of six chapters. Chapter 1 lays out the broad research field and provides a general introduction, objectives and the approach of the research undertaken in this dissertation. Chapters 2 to 5 are written as a series of articles to address the identified research questions (see section 1.7). Although an effort has been made to minimise the repetition of literature review between the articles, some overlap does occur. It pertains to the rationale, methodological description and certain results of the study. Finally,

Chapter 6 provides an overall synthesis and reflection of the main outcomes and challenges as well as a critique of the study.

The motivation, objective question and approach for each of the four articles are discussed in detail below in subsections 1.8.1 – 1.8.4.

1.8.1   Paper 1 (Chapter 2)

Title: A model for assessing fiscal sustainability, with an application to a selected number of municipalities in South Africa

Motivation: The fiscal challenges and policy implications facing local government, and local government's relevant struggles are well documented. What is less known is the impact these issues have on the fiscal sustainability of local government. Establishing municipal fiscal sustainability is essential for the achievement of desired service delivery outcomes and architecture of the local government framework. However, municipal fiscal sustainability and ability to raise finances are heavily influenced by the extent of economic activity in a municipality. The shrinking economy often means that traditional revenue sources are not enough to cover the ever-increasing community needs. Often, traditional revenue sources – such as property taxes, user charges and donations – cannot keep up with the fiscal pressure created by slow economic growth. In South Africa, economic growth has been slow, and job losses have resulted in selling properties and people reverting to informal dwellings. However, they still expect municipalities to provide them with basic services. This scenario decreases the municipality's fiscal capacity, resulting in municipalities becoming increasingly dependent on national government transfers, which are also affected by the economic situation.

Objective: To develop a set of municipal sustainability indicators, with application to selected municipalities in South Africa. Conventional frameworks to examine the sustainability of organisations are limited to solvency and liquidity ratios. While these remain important and relevant, they are unable to provide a long-term assessment of a municipal fiscal position. They provide information about the current state of affairs based on past outcomes. This narrow focus is unable to provide an early warning signal to municipalities about their long-term fiscal trajectory. The long-term fiscal picture of a municipality would assist in making informed decisions today that would be beneficial in the future.

Question: Are municipalities going to be able to sustainably meet their expenditure commitments from their available resources in the long-term?

Approach: This paper proposes a long-term fiscal sustainability model. The model draws on the sustainability definitions, concepts and models formulated by Blanchard et al. (1990); Auerbachs, Kotlikoffs & Gokhales (1991) and Hagist & Vatter (2009). This model accounts for

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demographic changes, the performance of local economies and the financial management at each municipality. The application uses seven of the eight metros. This paper examines a time horizon of 23 years for the analysis and employs the four indicators generated from the framework.

1.8.2   Paper II (Chapter 3)

Title: Administrative intensity in local government and its impact on the fiscal sustainability of municipalities

Motivation: The Constitution recognises that municipalities have limited capacity. Section 153 provides that a municipality must structure and manage its administrative, budgetary and planning processes "to prioritise the community's basic needs and promote the social and economic development of that community" (RSA Constitution, 1996: 74). Furthermore, municipalities cannot avoid fiscal risk and should therefore seek to control and manage their exposure to risk. There are always alternatives to the financial commitments chosen, and municipalities must manage their risks to maximise the return on their resources. Maintaining large administrative departments increases the risk of operational and allocative inefficiencies, which affects municipalities' financial sustainability. Limited revenue sources and the impact of South Africa's sovereign credit rating being downgraded to "junk" status by global rating agencies have increased the need to improve efficiency.

Objective: The objectives of this paper are 1) to explore the patterns and characteristics of the composition of municipal expenditure; 2) to examine the administrative intensity of municipal budgets; 3) to understand the determinants of administrative intensity in all South African municipalities; and 4) to assess the impact of such intensity on fiscal sustainability.

Questions: Is the composition of municipal expenditure geared towards fiscal sustainability?

Approach: This paper uses budget documents published annually by the municipalities and audited by the South African Auditor-General. To examine the scale effects and determinants of administrative intensity, administrative intensity per se (the dependent variable) is proxied by administration cost as a percentage of total expenditure ("administrative cost"). The result is used as an efficiency indicator. For the determinants of administrative intensity, this study employs three estimating methods: (1) ordinary least square (OLS); (2) fixed effect (FE); and (3) random effect (RE) analysis. Various model specifications to estimate the administrative intensity are used.

1.8.3   Paper III (Chapter 4)

Title: Assessment of the fiscal risks associated with municipal personnel management at local government level

Motivation: The introduction of the MSA addressed several personnel-related issues in municipalities. These matters include regulating the duties, remuneration, benefits and other terms and conditions of employment for municipal managers and of managers and acting managers directly accountable to municipal managers. Policymakers at the national level have perceived personnel management practices without concern for broader fiscal implications (National Treasury, 2020). They have argued that the pattern of expenditure of any municipality reveals where its priorities lie. Their concern is that current practices in personnel management risk creating incentives that unintentionally encourage incompetence or under-performance because they foster an inward and short-term focus that is detrimental to the long-term objectives of a sustainable local government. However, the issue of local government employees' remuneration has received minimal formal research attention in South Africa even though evidence suggests that this area has become an issue in municipal fiscal sustainability. This point lends credence National Treasury's claims that wage agreements in the local government sphere have become one of the most disruptive budget events in the Medium Term Revenue and Expenditure Framework (MTREF) (National Treasury, 2011). However, both national and provincial governments have not done much about this issue because the local government sphere by design is significantly more autonomous, given its fiscal powers and relative fiscal autonomy.

This paper aims to provide policymakers and local government practitioners with empirical data to support the call for measures to manage municipal remuneration practices.

Objective:

- To explore the patterns and characteristics of the composition of municipal expenditure in terms of its personnel management.
- To provide a thorough assessment of the fiscal risks associated with municipal personnel management at the local government level.

Question: Are municipalities managing their personnel and personnel remuneration affairs efficiently and in a fiscally sustainable manner?

Approach: In this paper, trends in compensation and operational expenditure are examined in both nominal and real terms. Estimates and revised estimates are traced to gain insight into the estimation procedures. The proportion of expenditure that goes towards paying salaries and allowances is computed by identifying these items of expenditure from the total pool of operational expenditures. The total pool includes councillor remuneration. These costs are built into the salary pool for each municipality; like other salaries and allowances, they represent a statutory obligation to each municipality. The annual average growth rate of total

revenue or expenditure was computed using standard formulas. In addition, other qualitative criteria – such as the quality of presentation of the budget documents – were examined.

The raw data sources used for this paper included the annual and time-series data on local government spending, personnel data, Statistics South Africa (Stats SA), non-financial censuses of municipalities, the Labour Force Survey Historical Revision and the government's Vulindlela portal data. These data can be accessed through Statistics South Africa, the South African Reserve Bank (SARB) and the National Treasury.

1.8.4 Paper IV (Chapter 5)

Title: Measuring efficiency in district municipalities' water and sanitation functions in South Africa

Motivation: The need for good fiscal risk management processes goes beyond matters of exposure to issues such as operational and allocative efficiency. Hence, there is a need to understand the efficiency with which municipalities discharge their functions. Improving efficiencies contributes to fiscal sustainability.

Objective: The objectives of this paper are threefold. The first aim is to establish the efficiency with which district municipalities that perform water and sanitation functions deliver on these services. The second objective is to identify the determinants of water and sanitation services efficiency variations. The last objective is to examine the long-term fiscal sustainability of district municipalities that have water and sanitation functions; to do so, their ability to induce cost-saving measures to improve efficiency is examined.

Question: How efficient have district municipalities been in discharging their service delivery responsibilities in light of the belief that they have more capacity than the local municipalities within their jurisdiction?

Approach: The first part of the paper examines the efficiency with which district municipalities discharge their water and sanitation function. The efficiency is measured using the actual expenditures and outputs attributable to these functions in the data envelopment analysis (DEA) model. This is a linear mathematical programming approach to frontier estimation, used to measure the relative performance of institutions where multiple inputs and outputs are available. In the second part of this chapter, the author conducted a regression analysis to explore the relationships between the independent variable (variable returns to scale (VRS) scores) and the nondiscretionary contextual factors. The nondiscretionary contextual factors are fiscal autonomy, the value of assets and the number of households within each municipal jurisdiction as independent variables impacting the measured efficiency.

The raw data sources for this paper included the annual and time-series data of local government spending, personnel data, Stats SA, non-financial census of municipalities, Labour Force Survey Historical Revision and government's Vulindlela portal data. These data can be accessed through Statistics South Africa, the SARB and the National Treasury.

1.8.5 Summary of the four research papers

Following the detail provided on each article above, table 1.1 below provides a summary of the four research articles.

Table 1. 1: Summary of four research papers

Paper and Title	Question	Objective	Motivation
Paper 1: A model to assess fiscal sustainability in South African municipalities	Are municipalities able to sustainably meet their expenditure commitments from the available resources?	To develop a set of municipal sustainability indicators, with an application to metropolitan municipalities in South Africa.	Ensuring the sustainability of the local government fiscal framework is critical for continued service provision. Therefore, there is a need to establish a framework for assessing municipal fiscal sustainability. To address the lack of a comprehensive approach to assessing municipal fiscal sustainability. Continuing this situation will have undesirable consequences for long-term fiscal management.
Paper II: The administrative intensity in local government and its impact on the fiscal sustainability of municipalities.	Is the composition of municipal expenditure geared towards fiscal sustainability or are municipalities, gradually showing signs of collapse instigated by large maintaining administrative departments?	To explore the patterns and the characteristics of the composition of municipal expenditure in terms of its administrative intensity, examine the determinants of administrative intensity in all South African municipalities and its impact on fiscal sustainability	To examine the scale effects and the determinants of administrative intensity in all South African municipalities for the period 2011/12 to 2017/18. Maintaining large administrative departments increases exposure to operational and allocative inefficiency, which worsens municipal fiscal sustainability. Limited revenue sources and the impact of South Africa's sovereign credit rating downgraded to "junk" status by the rating agencies have increased the need to improve efficiencies.
Paper III: Assessment of the fiscal risks associated with municipal personnel management at local government level.	Are municipalities managing their personnel and personnel remuneration affairs efficiently and in a fiscal sustainable manner?	To explore the patterns and the characteristics of the composition of municipal expenditure in terms its personnel management and to provide a thorough assessment of the fiscal risks associated with municipal personnel management at local government level	The objects of the local government to ensure the provision of services to communities in a sustainable manner and to promote social and economic development. Anecdotal evidence shows salaries are prioritised at the expense of service provision. To provide policymakers with empirical data to support calls for measures to manage municipal remuneration practices.
Paper IV: Measuring Efficiency in District Municipalities'	How efficient have district municipalities with the water and sanitation functions been in discharging	To establish the efficiency with which district municipalities with water and sanitation functions	The need for good fiscal risk management processes also goes beyond matters of exposure to issues such as operational and allocative efficiency. There is, therefore, a need to

Paper and Title	Question	Objective	Motivation
Water and Sanitation Functions in South Africa	their service delivery responsibilities in light of the belief that they have more capacity than the local municipalities within their jurisdiction?	deliver on these services, and identify the determinants of water and sanitation services efficiency variations	understand the efficiency with which municipalities discharge their functions as improving efficiencies contributes to fiscal sustainability.

1.9.   Research Not Presented in the Dissertation

In a separate paper, some analyses were conducted during the course of this research that were ultimately excluded from this final submission. The reasons for the exclusion are discussed here.

This the paper that was excluded in the research examined whether fiscal decentralisation can improve resource allocation and utilisation. However, the contrary theoretical views of Bardhan & Mookherjee (2000), Dabla-Norris (2006), Ghani (2014), and Pillay (2016) all suggest that it is equally possible that fiscal decentralisation merely transfers power from national to local elites and that improved access of local elites to public resources increases opportunities for corruption.

Measuring the financial condition of a municipality differs vastly from one author to another. For example, rating agencies each have their own metrics. The MFMA and Local Government Budget Analysis units of the National Treasury also have their own different metrics. This study utilised a set of measures that illustrated financial condition along with a variety of dimensions. The operating ratio, cash coverage ratio and the assets and liabilities ratio were the chosen dependent variables. To test the impact of the independent variables own-source revenues, direct expenditures and long-term debt issued on the dependant variables, linear multivariate regression analysis was used. The model controls for Goss Value Added (GVA) per capita to capture economic activity.

Regression analysis is a form of predictive modelling. The results showed that the decentralisation of own-source revenue resulted in a more robust financial condition for local municipalities. These findings held true across all dependent variables (operational, cash and assets and liability ratios). The correlations supported the conclusion that the more own-source revenue a municipality enjoys, the better it manages its finances. This finding makes intuitive sense. It is in line with the school of thought that South Africa must endeavour to ensure that, to the extent possible, municipalities with a generous tax or revenue base should be self-financing. Those without – or with a limited – local tax or revenue base should be self-financing to the extent possible. However, their potential is limited, and if it were not for the local government equitable share, they would not be able to provide services to local communities meaningfully.

The decentralisation of the power and responsibility for borrowing showed statistically significant results regarding a positive impact on improved financial conditions for municipalities. This finding pertained to all the dependent variables.

However, this analysis was abandoned because much recent scholarship on fiscal decentralisation is particularly nuanced. Many researchers are now asking, "Under what circumstances does decentralisation produce better outcomes?" It seems that for decentralisation to work, there needs to be a functional local political dynamic. It would include engaged citizens, decent media coverage and perhaps a vibrant civil society at the local level.

1.10. Limitations of the study

There were several limitations to this research. The following is a summary of the limitations encountered.

1.11. Limitations of approach

The benchmarking exercise as an approach has its limitations. In this research, the main limitation was that the cost of administration departments is based entirely on existing practices and staff complements in municipalities. This was compounded by a lack of norms and standards for administrative costs. Moreover, this study has shown that municipalities already spend substantially more than they should on administration. Hence, any inefficiencies found within the current groups of municipalities would lead to an overstatement the costs of running an ideal municipality. Ideally, the benchmarking exercise should have been complemented by estimating what it should cost to run an efficient municipality under the unique conditions faced by each municipality. That approach is referred to as zero-based costing.

The fiscal sustainability model introduced in this study was applied to 7 of the 8 metropolitan municipalities that consistently reported on all the variables necessary for this model. Metropolitan municipalities were chosen because they represent a small, manageable number of municipalities that are comparable. Other approaches could have been used to choose a group of municipalities to apply the model to, including applying the model to all municipalities that report consistently. This option was not possible due to the vast data to be analysed. However, it is likely that many of the municipalities that are currently struggling would be in a worse off situation than the seven that were examined.

1.12. Limitations of scope

A key limitation of the data used in measuring the efficiency with which high-capacity district municipalities delivery on the water and sanitation functions is that it is cross-sectional and thus only enables a snapshot view of the effect. Ideally, the analysis would be carried out on

a panel dataset covering a longer period to better establish the effect of administrative intensity. However, the effect of inconsistent reporting by district municipalities, delays in obtaining audited financial data, and the use of an instrument that distorted the results when too many variables were included made it difficult to use the ideal approach. Because of the inconsistency in reporting, Dr Ruth Segomotsi Mompati District Municipality and uMgungundlovu District Municipality were excluded from the analysis.

Another limitation introduced by using different data sources was a variation in quality regarding the estimations by municipalities. The data from the non-financial census of municipalities is largely self-reported and thus relies on the administrative capacity and competencies of the municipalities. Where these are low, poor data management and updating leads to poor estimations.

Another key limitation of the data used in Paper IV (Chapter 5) was that they only covered one financial year. Again, only a snapshot view of the effect was possible. Ideally, the analysis should be carried out on a panel dataset to examine the efficiency of the districts.

Another limitation was introduced by using different data sources. This resulted in variation in the quality of derived estimations performed by the municipalities. The data from the non-financial census of municipalities is largely self-reported and thus partly relies on the administrative capacity and competencies of the municipalities. Where these are low, poor data management and updating leads to poor estimations.

1.13. Limitations of methods

The DEA model has its limitations. The first is that the efficiency scores the model generates are relative to the institutions that have been input into the model. Therefore, while there were 6 municipalities that were found to be efficient, these were efficient in relation to the other municipalities in the selected group. The research has been clear on this point to avoid implying that the 6 efficient municipalities can be used as benchmarks for other groups of municipalities.

The second limitation of the DEA model is that efficiency scores depend on the combination of inputs and outputs selected. As a result, the score is sensitive to the selection of inputs and outputs, and an incorrect combination may easily distort the results the model produces. To control for this limitation, literature was used to inform both the inputs and the outputs to be used in the model. Municipal operational expenditures have been used as municipal inputs in most empirical studies (i.e. resources used to provide local services). The literature tends to use various municipal services as a measure of municipal output. Therefore, the use of generally accepted inputs and outputs address this limitation.

1.14. Conclusions

This dissertation aims to contribute towards building a better understanding of the municipal spending patterns and inefficiencies. In addition, it proposes a model to measure the sustainability of municipal finances. This kind of knowledge is important for informing management and policy options that meet the key challenge of providing improved services to local government households. The main challenge is to ensure an adequate supply of essential services while keeping healthy finances. These skills would contribute towards an efficient and effective local government.

The efficiency and effectiveness in revenue generation are important; it is also important how the revenue is used. It should be spent in accordance with the budget to deliver goods and services and to cover operational costs, such as the employee costs, maintenance and refurbishment of assets. Inefficiencies become evident when funds meant to deliver the services are used to maintain large municipal administrative components and pay high salaries and benefits. These inefficiencies are evident as municipal wage increases. Indeed, such increases – rather than increased employment and headcounts – are the main driver of government spending.

Chapter 2: A model to assess fiscal sustainability in South African municipalities

Chapter overview

Chapter 2 addresses the first research question: Can municipalities meet their expenditure commitments sustainably from their available resources in the long-term? Data analysis showed that the rate at which municipalities spent did not consider the available resources, which had not grown as fast as the expenditure commitments. This chapter establishes a new approach for national government to assess the long-term sustainability of municipalities. The model draws on the sustainability definitions, concepts and models formulated by Blanchard, Chouraqui, Hagemann & Sartor (1990), Auerbachs, Kotlikoffs & Gokhales (1991) and Hagist & Vatter (2009). The model can assist municipalities to change their financial decisions in order to be fiscally sustainable in the future. It provides options for closing the fiscal gap, including changing the investment decision or reducing the debt burden. Other measures include improving the efficiency with which funds are collected and spent as well as introducing spending cuts and new taxes.

Abstract

The fiscal challenges and policy implications facing local government and their struggles are well documented. What is less known is the impact of these challenges on the sustainability of local government. A modification of the definition of sustainability by Blanchard et al. (1990); Auerbachs, Kotlikoffs & Gokhales (1991) and Hagist & Vatter (2009) is adopted. The concepts of Auerbach, Gokhale and Kotlikoff (1991) are also included. The paper proposes a new model for measuring the fiscal sustainability of municipalities. This model accounts for demographic changes, performance of local economies and financial management at the municipal level. This chapter assesses the sustainability of the supply of goods and services offered by South African municipalities. It examines their solvency (ability to pay off long-term debts), liquidity (ability to meet current obligations), and the composition of spending. The economic circumstances surrounding each municipality are also examined. The resultant indicators provide valuable data about the state of municipal finances. They can be used to assess the action needed to be followed at present to ensure the long-term fiscal sustainability of municipalities. For practical purposes, the proposed model is then applied to seven South African metropolitan municipalities. The last part of the chapter proposes various approaches to close the fiscal gap.

Keywords: *municipal sustainability, framework, deficit, revenue, expenditure*

2.1   Introduction

Establishing municipal sustainability is essential for the achievement of desired service delivery outcomes and architecture of the local government fiscal framework. However, a municipality's sustainability and ability to raise finances are heavily influenced by the extent of its economic activity. A shrinking economy often means that traditional revenue sources are not enough to cover the ever-increasing community needs. Traditional revenue sources – such as property taxes, user charges and donations – cannot meet the fiscal pressure created by the recent slow economic growth in South Africa. Citizens have had job losses and have sold properties or reverted to informal dwellings, while still expecting municipalities to provide them with a basic needs. This scenario decreases the municipality's fiscal capacity, resulting in municipalities becoming increasingly dependent on national government transfers. However, these transfers are similarly affected by the economic situation. The question arises of how municipalities can continue to provide services to a growing population while maintaining a healthy financial position. How can municipalities plan for the future, faced with this reality?

Conventional frameworks such as Circular No. 71 of the Municipal Finance Management Act, 2003 (Republic of South Africa, Act 56 of 2003) (MFMA), which address the sustainability of organisations, are limited to solvency and liquidity ratios. While these ratios remain important and relevant, they cannot provide a long-term assessment of an institution. They provide information about the current state of affairs based on the past outcomes. This narrow focus is unable to provide an early warning signal of the long-term trajectory of institutions. A municipality's long-term fiscal trajectory can inform policymakers and local government practitioners in making decisions for the present that would be beneficial in the future. Such information enables a different response to improve the sustainability of South African municipalities.

With this background in mind, the objective of this chapter is to develop a set of municipal sustainability indicators, with application to selected municipalities in South Africa

The paper is divided into six main parts. Section 2 sets out the methods employed in the study, Section 3 briefly reviews the literature on local government sustainability and Section 4 provides the proposed long-term sustainability model. Section 5 draws on selected indicators from the framework to provide an application of the model, using the data from seven sampled municipalities. Section 6 discusses the results and their implications and explores a few remedial actions. The paper ends with brief concluding comments and the policy implications, presented in Section 7.

2.2   Research methods

To measure the sustainability of municipalities, this paper employs the following empirical approach. A time horizon of 23 years is considered in the analysis. All values indicate real values; the researcher does not model any price changes. Data were collected through analysing existing municipal governance and audit reports and local government and global insight databases. Hence, the data source for all budgetary inputs in this study is the official municipal statements of accounts. This information is submitted by municipalities to the National Treasury and the Auditor-General, as required by Chapters 7, 8, 9 and 12 of the Municipal Financial Management Act and Chapters 7 and 9 of the Municipal Systems Act, 32 of 2000 (MSA).

Additional statistical data such as the Gross Value Added, interest rate on debt, interest rate on investment were collected from official sources as well as Statistics South Africa and the National Treasury. Hence, the data can be assumed to be reliable. The demographic data of South African municipalities is publicly available. All micro profiles that were used for the budget projections are shown in the Appendix.

Fiscal year 2017/18 was the ending year in this study. The reason is that annual financial reports are typically released rather tardily due to the audit process. As a result, the reports for 2018/19 were not available during late 2019, when the study data were collected. Linear forecasting modelling techniques were used to project long-term outcomes.

2.3   Literature review

It is widely acknowledged that sustainable local government is built on the doctrines of liquidity, affluence, good credit ratings, and fiscal capacity for both capital and operational expenditure (Brand, 2016). Therefore, sound and prudent public finance management are pivotal to sustainable service provision at the local government level.

Hagist and Vatter (2009) argue that a municipality is fiscally sustainable if its budget allows it to maintain its current level of services without making adjustments to taxes or other sources of revenue, and if the ratio of a municipality's assets to its production potential remains the same over time.similarly, Ouda (2021) defines fiscal sustainability as the ability of a municipality to meet its current obligations over time without having to make significant adjustments to its revenues and expenditures (Blanchard, Chouraqui, Hagemann & Sartor, 1990; Cabaleiro, Buch & Vaamonde, 2012; Drew, Dollery & Kortt, 2016). By highlighting the importance of demographic changes and population mobility Hagist and Vatter (2009) provide a more comprehensive definition, noting that it is inappropriate to focus exclusively on fiscal gaps or debt without considering the debtor's future economic strength.It can therefore be

argued that municipal fiscal sustainability does not depend on a single factor but rather on many factors, each essential for continued service provision.

Bolivar, Galera & Munoz (2014) echoed Drew & Dollery (2014). The latter authors pointed out that the assessment of fiscal sustainability of municipalities can no longer be measured by financial data alone, as this would exclude socio-economic factors from the core concept (Cabaleiro, Buch & Vaamonde, 2012). Socio-economic factors are equally important in assessing fiscal sustainability (Kloha, Weissert & Kleine, 2005; Wang, Dennis & Tu, 2007; Cabaleiro, Buch & Vaamonde, 2012). Several other authors have emphasised the embeddedness of individual experiences, particularly differences in economic advantages and disadvantages, in shaping local economic sustainability (Meyer & Lobao, 2003; Philo, Parr & Burns, 2003; Gerrard, Kulig, & Nowatski, 2004; Woodhouse, 2006). Hagist & Vatter, (2009).When municipal populations decline, whether due to low fertility rates or migration, one should consider how this will affect long-term financial sustainability

Apart from the social and economic factors that affect the financial sustainability of municipalities, municipalities with poor financial performance are unable to provide quality municipal services to residents. This leads to numerous problems for households, which cannot receive the services they need. National and provincial governments would need to intervene. Therefore, policymakers at the local level are interested in the indicators that signal the prospect of financial challenges of a municipality (Cohen, Doumpos, Neofytou & Zopounidis, 2012). The implications for the political, social and economic situation could be significant (Carmeli, 2003; Cohen et al., 2012).

Reddy, Singh & Moodley (2003:64) quote Maclean (2012) as saying, "Poor financial management and lack of controls and accountability systems have a negative impact on service delivery to communities." In relation to financial management, Kanyane (2011) noted that without sound financial management systems, local government would be forced to cease operations (Maclean, 2012).

Pakkies (2016: 9) cites Pauw, Woods, Van der Linde, Fourie, & Visser (2002) who emphasise that "the goal of financial management in the public sector is to ensure that resources provided by the public are spent wisely on the public." Gomes, Alfinito, Henrique & Albuquerque (2013) opined that to achieve good financial performance, local government must manage its debt, infrastructure and assets appropriately to achieve long-term fiscal sustainability. Oplotnik & Brezovnik (2004) suggested a "golden rule" which prohibits municipalities from incurring deficits to cover their current costs.

The inadequacy of municipal revenue sources relative to the allocation of expenditure creates a fiscal gap. The fiscal equalisation grants to municipalities are the typical mechanisms used

to close this gap (Ajam, 1998; Brand, 2005). Shah & Boadway (1994) stated that fiscal equalisation grants reduce disparities within local government and can enhance the efficiency of the intergovernmental fiscal transfer system. However, municipalities differ in their ability to generate their own revenue. National Treasury (2011) reports that poverty levels vary widely and are high in rural municipalities where the majority of needy households remain unserved. In practice, while the national government should provide financial support to all municipalities, this support should primarily ensure that all citizens have access to basic services (Chetty, 2015). This view has been advocated by Oates (1972), Wilson (1999) and Wildasin (2004). These authors also stated that grant allocation should be based on equity and efficiency criteria and support municipalities that have weak financial capacity to provide acceptable levels of public services.

However, Ahmad & Searlean (2005) were sceptical of excessive reliance on the financing of local government spending through conditional transfers. They believed that conditional transfers might circumscribe decision-making in the local government sphere. Similarly, Hofman, Kaiser & Suharnoko (2006) argued that the best model for fiscal equalisation grants continues to be a critical discussion across the globe. They further stated that fiscal equalisation grants should be aimed at incentivising the mobilisation of municipal revenues, in line with the objectives of fiscal equalisation. However, Zhuravskaya (2000) wrote about an egregious instance in Russia in which these components negated extra revenue efforts by municipalities. Under such circumstances, government fiscal equalisation transfers create a high dependency on intergovernmental support.

Furthermore, Aldrich & Kusmin (1997) stated that low labour force participation hampers rural municipalities more than their urban counterparts. Periods of sustained low labour force participation may result in people emigrating away from rural municipalities, which perpetuates dependency on fiscal equalisation transfers. In addition, Hagist and Vatter (2009) argue that changes in the age structure and migration might affect business location decisions and, consequently, create an impact on municipal revenue. A long-term perspective may be the key to reshaping municipal finance in light of profound demographic changes and coping with future shortages.

There have been instances of municipalities experiencing fiscal difficulties due to reductions in fiscal equalisation grants (Kloha et al., 2005). Ismail, Bayat, & Meyer (1997) argued that municipal funds must promote economic wellbeing in an effective, efficient and economical manner. Government fiscal equalisation transfers should then be targeted towards municipalities that have relatively low per capita incomes.

The absence of a credible model to measure the sustainability of municipalities has led many scholars to use financial sustainability ratios. These ratios "cover the central themes of liquidity, debt serviceability and operating performance, which are common to almost all approaches of sustainability measures" (Drew, Dollery & Kortt, 2016). Alter, McLaughlin & Melniker (1984); Blanchard et al. (1990); Chase & Phillips (2004); Drew & Dollery (2014) have discussed the choice among specific ratios. Other scholars have opted to use indexes to measure specific aspects of financial condition (Gómez, Hernández & Bastida, 2006). Still other authors have employed a unique indexed indicator to measure the overall financial condition of municipalities (Morgan & England, 1983; Brown, 1993, 1996; Mercer & Gilbert, 1996; Kleine, Kloha & Weissert, 2003; Kloha et al., 2005; Wang et al. 2007; Zafra et al. 2006; Cohen et al. 2012).

Gomes et al. (2013) identified two factors associated with superior financial performance in local government in Brazil. These were mayoral qualifications and experience (referred to as "mayoral quality") and the size of the municipality. Mayoral quality was positively associated with good financial performance by municipalities, especially with regard to educational background or qualifications. It is important for the current study to note that mayoral responsibilities in Brazil differ from those in South Africa. In Brazil, according to Gomes et al. (2013), mayors are rather heavily involved in operational issues such financial management. By contrast, in South Africa, mayors are political appointees who lead the executive council, and qualifications are not a prerequisite. Financial management is left to the chief financial officer (CFO) and the general management is overseen by the municipal manager (MM) in the municipality (Cloete & Thornhill, 2005). Therefore, the capacity, qualifications and experience of CFOs and MMs are more relevant in the South African context. As Gomes et al. (2013) stated, local government managers must be well prepared to fulfil their responsibilities while in charge of the municipality's duties.

2.4 Long-term fiscal sustainability model

For most countries, adjusting municipal budgets and fiscal policies to changing demographics and internationally transparent environments has been a top priority since the late 1990s Hagist and Vatter (2009). The majority of studies that use these measurement concepts have not focused on municipalities (ibid.). In South African, national and provincial treasuries introduced financial sustainability norms and ratios. As mentioned, they cover the central themes of liquidity, debt serviceability and operating performance, which are common across most approaches to sustainability measures. National government has been using norms and ratios to inform discussion about local government's state of affairs. While they highlight the immediate problems municipalities are faced with, such as the inability to pay creditors within 60 days, they are not as useful for long-term planning.

The Constitution recognises that municipalities have limited capacity. Section 153 provides that a municipality must structure and manage its administrative, budgetary and planning processes "to prioritise the basic needs of the community and promote the social and economic development of that community" (RSA Constitution, 1996: 74). To this effect, the MSA states that "municipalities must strive to ensure that municipal services are provided to the local community in a financially and environmentally sustainable manner" (MSA, 2000). Furthermore, municipalities cannot avoid fiscal risk and should therefore seek to control and manage their exposure to risk. There are always alternatives to the financial commitments chosen, and municipalities must manage their risks to maximise the return on their resources.

In the current study, the municipal budget was considered sustainable if it met the sustainability criteria set by Blanchard et al. (1990), Auerbachs et al (1991) and Hagist & Vatter (2009). These authors stated that municipal budgets are sustainable if the current set of rules for the provision of goods and services can be maintained; the level of municipal equity, relative to municipal production potential, must also be maintained. This model is based primarily on the municipal balance sheet, income statement and demographics.

Total assets for period t are denoted by the conventional definition: $E_t = A_t - L_t$. In this equation, municipal equity (E_t) is the difference between municipal assets (A_t) and explicit municipal liabilities (L_t) at a given point in time. All three variables are reflected in a municipality's "balance sheet". Et shows the municipality's assets and the extent to which lenders and creditors have financed its assets relative to the extent to which the municipality has financed its own assets. The greater the difference in favour of At, the wealthier the municipality.

In this simple equation, the municipality's wealth becomes a critical variable because it indicates whether the long-term sustainability trajectory is favourable. Thus, period t municipal equity decreases by the credit Dt when < Dt is 0. Conversely, it increases when Dt is >0. This effect can be expressed in the following formula:

$$E_t = E_{t-1} - D_t \tag{1}$$

Equation 1 shows that the deficits and surpluses of one period affect municipal equity for the next municipal fiscal year. Therefore, to obtain the municipal equity for the current year, the current deficit is subtracted from the prior year's municipal equity. Since deficits and surpluses are the result of several factors, the same municipal equity can be expressed as follows:

$$E_t = A_t - L_t \, (S_t - R_t + rBL_{t-1}(rk-d) \, A_{t-1} \tag{2}$$

In this equation, St represents all expenditures for public goods and services provision, and Rt represents all revenues received by a municipality - whether through property taxes, fees,

or transfers from national and provincial governments. The term rB denotes the average (real) interest rate on borrowings from financial development institutions; rk represents the (real) interest rate on investments made by the municipality; and d is the average depreciation rate of the municipal asset portfolio.

When considering the maintenance of municipal equity as a prerequisite for socially sustainable policies, one can focus on two variables. A change in equity can result from different trends in total liabilities on the one hand and total assets on the other. To model changes in L_t and A_t, the analyst can assume that a certain part of a possible surplus, $\alpha t(R_t-S_t)$, is invested; another part, $\beta t(R_t-S_t)$, is used to repay debt (Hagist & Vatter; 2009). From this, the equations of motion for At and Lt can be derived:

$$A_t = A_t \; -1(1+rk-d) + \alpha t(R_t - S_t) \tag{3a}$$

$$L_t = L_t \; -1(1+rB) - \beta_t \, (R_t - S_t) \tag{3b}$$

The terms αt and βt are not independent, because it is not possible to invest something without financing the investment. After calculating d, the analyst can then solve αt and βt by substituting them into the appropriate formulas. If a municipality is over-indebted, this is indicated by a high value of β, which means that the same proportion of its surplus must be used to pay off the high debt service costs. If the α-share is higher, the focus should be on investing that share to earn interest. Assuming R_t exceeds S_t, β_t must decrease proportionally as the value of αt increases, and vice versa. Therefore, in future calculations of E_t, the value of β_t will be replaced by $1 - \alpha_t$ (since $\alpha_t + \beta_t = 1$).

The extent of municipal sustainability can be measured in several ways, but each indicator has its weaknesses (Hagist & Vatter; 2009). Looking only at fiscal gaps without considering the economic context, such as a weak economy and tax base, is insufficient. Examining municipal debt without considering the strength of the municipal balance sheet is also insufficient, as there may be unused borrowing potential.

This section formulates four indicators that collectively cover most of the requirements for a sustainability assessment. These indicators provide that some fiscal years may generate surpluses in terms of fiscal sustainability, leading to an increase in E_t. In other budget years, municipalities may run deficits, resulting in a sustainability gap as E_t decreases. Given the centrality of surpluses and deficits in increasing and decreasing the municipal equity, respectively, their impact overtime has a bearing on municipal fiscal sustainability. Prolonged deficits increase the fiscal gap, which has a negative impact on municipal fiscal sustainability. To calculate these yearly deficits or surpluses, this study solves for δ_t in the following equation:

$$\delta_t = s_t - r_t + a_t \, (n_t + g - rk + d/1 + n_t + g) \; -b \, (n_t + g - rB/1 + n_t + g) \tag{4}$$

In Equation 4, n_t denotes the growth rate of the potential labour force including migrant workers, and g denotes the growth rate of P for all t (Hagist & Vatter; 2009). The term P_t represents average output per year and per worker. The terms s_t, r_t, l_t and at denote the values per worker for S_t, R_t, L_t and A_t respectively.

The evolution of equations (3a) and (3b) is of interest given the expected demographic trends of a municipality (Hagist & Vatter; 2009). Gross Value-Added (GVA) as a measure of output has been quantified at the local level in South Africa. Therefore, it is possible to test the validity of the previous formula by converting these values into relative numbers. The following simple production function can express the GVA of a municipality:

$$Y_t = N_t P_t \qquad (5)$$

Y_t is the municipal economy's potential output in period t and N_t is the number of potential workers in a municipality (Hagist & Vatter; 2009). Moreover, E_t can be expressed relatively by subtracting l_t from a_t:

$$E_t/P_t N_t = e_t = a_t - l_t$$

This essential expression of municipal wealth relative to the productive potential of the municipality provides an accurate description of the fiscal sustainability of municipalities. Multiplying the deficit (or surplus) of period t (equation 4) by the potential output (equation 5) yields equation 6. If equation 6 yields a positive amount, the result reflects the amount of additional output that the municipality can use in period t without affecting its orthodox productive capacity. If the result is negative, it is the potential output gap.

$$\Delta_t = N_t P_t \delta_t \qquad (6)$$

Taking T as the time horizon and subtracting the absolute individual deficits (or surpluses) of all periods, one obtains the first indicator. This first indicator corresponds to the widely used fiscal gap of the Organisation for Economic Co-operation and Development (OECD) method and the concept of generational accounting:

$$FG0 = \Delta_t/(1+rB)_t \qquad (7)$$

In equation 7, FG0 indicates an additional amount needed at the present time to ensure that current relative levels of municipal spending and constant municipal equity per employee (e_t) are maintained through T. When the present value of annual deficits or surpluses is positive, FG0 becomes negative. This negative value indicates an absolute sustainability surplus. It indicates the funds that are theoretically available without jeopardising the sustainable functioning of municipal finances in the long run.

Equation 8 illustrates the additional amount of money needed today to maintain the current relative level of public spending and a constant et until period T.

$$FG0 = \Sigma S_t - R_t/(1+rB)^t + \Sigma At \, (n_t+g-rk+d)/(1+n_t+g)(1+rB)^t - \Sigma L_t \, (n_t+g-rB)/(1+n_t+g)(1+rB)^t$$

(8)

To ensure that et does not decline over time, thus meeting the sustainability criteria established by Blanchard et al. (1990), the level of public expenditure and the generation of revenue must be aligned. This alignment ensures that the accumulated composite primary deficits compensate for the fiscal gap that results from the interest rate-related differences in the evolution of investment and borrowing. The principle of this approach is that investment is encouraged where it offers good returns, i.e., a higher interest rate. Similarly, borrowing is discouraged where the interest rate on borrowing is high. A municipality should generate surpluses from its primary budgets (r_t-s_t) to keep the ratio of equity to the productive potential of the municipality constant over time, irrespective of debt burden, interest on capital and grants. Consequently, a sustainable municipal budget concept requires a return on equity (re) at a level that approximates g-n_t. The latter term is equal to the growth rate of labour productivity minus the growth rate of the potential labour force. Investment and new debt are inversely related. This relationship is to be expected from a theoretical and practical point of view. This inverse relationship fits well with the investment decision denoted by α and β.

The gap between the real interest on capital and the interest on debt provides a first insight into possible adjustment strategies and ways to efficiently cope with a lack of sustainability. These adjustment strategies can be built into the formula that informs allocation decisions. These formulas play a special role in the fiscal framework by balancing the horizontal fiscal gap between allocated expenditures and local revenues. In South Africa, transfers play an important role in redistribution by ensuring that poorly resourced municipalities in particular have access to a minimum economic base.

To interpret the funding gap, it is helpful to break FG0 into its three main components: Primary Gap, Investment Gap, and repayment gap. Each equation (8a, 8b, and 8c) illustrates one origin of the potential financing gap. In equation 8a, the researcher calculates the primary gap as the difference between revenues and expenditures, or the lack of consolidation of primary budgets.

$$PG = \Sigma S_t - R_t/(1+rB)^t \quad\quad\quad\quad (8a)$$

Between the 2007/08 and 2017/18 financial years, the gap between revenue and expenditure across the studied municipalities amounted to R101 billion (Annexures A and B). Such large gaps between revenue and expenditure point to a defective planning system and probable

inefficiencies in both spending and collections. Moreover, between 2007/08 and 2017/18, actual collection increased by 13.2%, whereas actual expenditure increased by 14%. This discrepancy over the study period worsened the primary gap. The resulting need is to increase revenue to a level where it covers the projected expenditure or to reduce expenditure to a level that is affordable (Pakkies, 2016). A combination of the two approaches might be needed to ensure that fiscal sustainability is maintained.

It is important to note that St does not include spending on new investments, but accrued liabilities. However, new investments can lead to additional costs. First, capital expenditures lead to future depreciation, and second, financing costs may be incurred. The difference between the borrowing rate and the real rate of return on public capital, rB-rk+d, can be viewed as the annual cost of broadening the municipal capital base through borrowing by one monetary unit (Hagist & Vatter; 2009). Although depreciation widens the fiscal gap, an inadequate provision for depreciation hinders a municipality's ability to reinvest in its assets-whether through refurbishment or new assets. Moreover, a depreciation provision does not offset weak or inadequate maintenance, an expenditure item.

$$IG = \Sigma A_t \, (n_t + g - rk + d)/(1 + n_t + g)(1 + rB)^t \qquad \qquad (8b)$$

Equation 8b denotes the level of capital investment required. The statistically significant positive relationship between capital expenditure and GVA indicates the critical role of the economic infrastructure in growing the economic base of the municipality sensibly. Economic resources must be used to achieve the intrageneration and intergeneration of equity. The challenge is that the current level of infrastructure investment is too dependent on national government conditional grants, which generally fund social rather than economic components of infrastructure. To correct this dependency on a shrinking source, borrowing is an important funding source for municipalities to finance their economic infrastructure.

$$RG = \Sigma L_t \, (n_t + g - rB)/(1 + n_t + g)(1 + rB)^t \qquad \qquad (8c)$$

The third of the three components is the repayment gap; hence, equation 8c denotes the level of indebtedness. This repayment gap comes from a unique observation wherein the original expenditure estimates, and actual expenditure outcomes were much higher than the original revenue estimates and actual revenue outcomes. This scenario effectively meant that debt accumulation was built into the system (Pakkies, 2016). Freire & Petersen (2004) found that within an appropriate institutional framework and financial controls, many countries have given municipalities the power to borrow in infrastructure financing. This approach improves their leveraging of own resources. Zagler & Dürnecker (2003) cautioned that although municipalities can borrow, they must remain solvent, liquid and credible. Solvency means they

can pay off debts at some future time; liquid means they can meet current outgoings; and credible means they retain the confidence of investors regarding their solvency and liquidity.

In South Africa, a provision in the MFMA gives municipalities the authority to raise funding through borrowing in order to finance the gap between budgeted capital funds and the cost of capital projects (Pauw et al., 2002). Pakkies (2016) further indicates that this type of "financial management poses a serious threat to the stability of municipal finances, as evidenced by the extensive literature showing that the accumulation of debt is unsustainable". For example, Zagler & Duernnecker (2003) stated that fiscal policy must be sustainable to avoid becoming a source of macroeconomic instability (Pakkies, 2016). Tanzi (2008) found that deficits or debt have a negative impact on growth (Pakkies, 2016). Similarly, Checherita-Westphal & Rother (2012) found that high debt is likely to have a negative impact on growth (Pakkies, 2016).

Table 2. 1: Revenue minus expenditure for all South African municipalities

Year	Original Budget	Adjusted Budget	Audited Outcome
2007/08	(1 488 810)	(10 829 978)	3 377 164
2008/09	494 011	812 600	(5 293 249)
2009/10	(257 994)	(3 657 672)	(5 483 460)
2010/11	(530 856)	(2 108 719)	(4 931 522)
2011/12	(657 651)	1 874 887	(6 524 020)
2012/13	28 235	(1 083 265)	(7 942 921)
2013/14	293 847	(3 128 268)	(12 374 658)
2014/15	(410 928)	(3 819 489)	(14 752 926)
2015/16	(1 745 066)	(4 436 137)	(14 785 567)
2016/17	(1 107 897)	(4 949 972)	(17 582 245)
2017/18	(3 332 333)	(6 893 272)	(14 686 240)
Total	**(8 715 442)**	**(38 219 285)**	**(100 979 645)**

Source: adapted from the local government database

Scrutiny of municipal estimates and resultant expenditure indicates that inattentiveness to the budgetary base is the approach taken by municipalities. Municipalities take the budgetary base more or less for granted as the starting point in their budget formulation. Table 2.1 reflects that over the past 10 years, the expenditure incurred by municipalities consistently outperformed the actual revenue collected by the municipality. Hence, the rate at which municipalities conduct their business has undone the benefits of the accumulated reserves of the past. Municipalities cannot sustainably survive by accumulating deficits. Between 2007/08 and 2017/18, the total operating municipal revenue was R2.4 trillion, with expenditure at R2.5 trillion. Hence, R101 billion in deficits was accumulated during that decade (Table 2.1).

The challenge is that higher levels of borrowing will increase the proportion of municipal expenditure on servicing the interest on the debt. This point, along with the debt, increases the exposure of the municipality to risks. It could also increase the cost of borrowing and crowd out private sector investments in infrastructure.

Managing municipal debt

This study suggests that to improve financial performance, the local government must manage its debt at an adequate level. There are four methods that municipalities can use to decrease their level of indebtedness over time. The first – and preferred – debt management method is referred to as the "unit of production" approach. It uses asset growth as a proxy for productivity and is denoted by the equation below:

$$(L_t – L_T)/ \Sigma (Ag) (Ag_t) \tag{9}$$

where LT is the target debt at time horizon T, Ag is asset growth year-on-year (YoY), and Agt is asset growth YoY at t. Equation 9 allows for the municipality to manage its debt if the debt reaches levels that are considered unsustainable. The target ratio for the debt differs across municipalities. It should be set at a level considered sustainable by the rating agencies, to control for any potential downgrade to the municipal credit rating. If managed well, borrowing by financially sound municipalities gives credence to the option of tapping into future revenues immediately.

The second method that can be used to manage the costs of debt over time is a linear reduction. This reduction factor applies to debt ratio, and the percentage can be taken either from assets or liabilities or a combination. It denotes the level of reduction that is constant and distributed equally over the years to achieve the targeted ratio of debt for a specific period. This approach avoids recalculations. The downside to this method is that it takes longer than other models to reach the targeted debt ratio.

The third method is that of a double-declining balance. This accelerated depreciation method depreciates assets twice as quickly as straight-line depreciation, which uses the same amount of depreciation each year over an asset's useful life.

The fourth method is the sum of years method. The depreciation rate percentage for each year is calculated as the number of years in remaining asset life for the same year, divided by the sum of remaining asset life every year throughout the asset's life.

Building on Equations (7) and (8), Equation 10 factors in the future size of the municipal economy. This is done by dividing the amount of money needed to ensure the current relative level of public spending and a constant et until T (FG) by the corresponding output potential. Equation 10 shall be called LP0.

$$LP0 = FG0 / N_t P_t \tag{10}$$

Furthermore, the accumulation of future debt (LP0) set with today's production capacities can be adjusted to account for economic and population growth over time. This is because the

population is a cost driver, and therefore the financial potential through paying for services will increase or decrease in future.

To elevate the rationality of Equation (10), one must relate the nominal fiscal gap to the discounted future production potentials; this is achieved by introducing Equation 11. This equation denotes an additional tax paid by the working population, which would steadily increase by g to ensure fiscal municipal sustainability. However, given the limitations that local government may have on taxes, an equivalent of this may be levied in the property tax.

$$\text{Taxg} = FG0 \, / \, N_t \, P_t \, (1+rB)^{-t} \tag{11}$$

Section 229 of the Constitution empowers municipalities to impose rates on property and surcharges on fees for services provided by or on behalf of the municipality; and if authorised by national legislation, other taxes, levies and duties appropriate to local government or to the category of local government into which that municipality falls. However, no municipality may impose an income tax, value-added tax, general sales tax or customs duty.

In terms of the current revenues available to local government, most notable among these are taxes, such as property rates. Property rates accounted for 17.6% of total collected revenues in 2017/18 as collectable by metropolitan and local municipalities. Other revenue comes from tariffs for trading services, such as water and electricity, which accounted for 48.2% of total revenues. Intergovernmental transfers accounted for 24% of total revenues. Other revenue sources include license fees, fines, housing rentals, donations and various small charges – some of which are lucrative for municipalities; other revenue sources collectively accounted for 10.2% of total revenues.

A policy and legislative environment has been established for local revenue assignment through various Acts at the national level to elucidate revenue optimisation options. These include the Municipal Fiscal Powers and Functions Act, 2007 (Republic of South Africa, Act 12 of 2007) (MFPFA), the Local Government Municipal Structures Act 117 of 1998 (Structures Act), the Municipal Property Rates Act, 2004 (Republic of South Africa, Act 6 of 2004) (MPRA) and MFMA. The full extent of application by municipalities, including through the development of local policies and by-laws, is unclear. However, revenue from electricity and water tends to be controlled externally and limited by National Energy Regulator of South Africa (NERSA) and the Department of Water and Sanitation, respectively. Moreover, environmental prescripts limit the revenue from these sources.

For non-metropolitan municipalities, the less-than-optimal own revenue sources are a structural problem. These municipalities often lack the powers and functions to perform crucial revenue-generating functions. First, these municipalities – especially rural ones – do not have powers to perform the water and sanitation functions as they were allocated to district

municipalities. Second, electricity reticulation in these municipalities is performed by Eskom, even though the Constitution states that this is a municipal function. Therefore, the locals do not collect any revenues from these services.

The devolution of taxing powers raises various concerns regarding the management of macroeconomic policy. As presented in its macroeconomic strategy, a key constraint has been the intention of government to maintain tax revenue at 25% of GDP. This implies that any taxes assigned to municipalities would have to be coupled with an offsetting reduction in national government tax revenue, as the imposition of new taxes would violate the 25% rule. The reduction of national taxes to accommodate local government taxes would ultimately reduce the equitable share of national revenue accruing to municipalities. This scenario would also affect the distribution of resources between municipalities.

Before a new tax can be imposed, some efficiency improvements are necessary to increase the pool of available revenues. The first is to increase revenue collection. Annexure C shows that outstanding municipal debt has increased. As at the end of the 2017/18 financial year, municipalities were owed R156.3 billion, of which 53% was owed to the metros. This is potentially the revenue that municipalities must realise before adding new sources of revenue.

To address the efficiency issues from the revenue side, national and provincial government should exercise their monitoring role over local government; doing so would enable municipalities to prioritise revenue management to avoid cash flow challenges. The municipalities, however, must exercise change management. They must demonstrate the willingness to correct the root cause of revenue management inefficiencies. This step would require the political arm of the municipality to defer to the administrative arm to exercise credit control action in an effort to recover monies owed to the municipality. Historic inaction by municipalities means that they are now owed large amounts, and in turn they struggle to pay their creditors (Annexure D). This point is evident in the case of monies owed to Eskom and water boards. Accouding to the Section 71 report publish by the National Treasury for the municipal financial year ending on 30 June 2021, the total amount owed by municipalities to Eskom and the water boards is R38 billion and R17 billion.respectively (National Treasury, 2021). Customers are responsible to pay for the services they consume. The culture of non-payment among households and businesses must be halted, which will require political commitment and pronouncement.

Finally, expressing the potential fiscal gap in terms of municipal spending indicates a spending reduction in period t, sc_t necessary for sustainability:

$sr_t = \Delta t\ /\ S_t$

As mentioned in the literature review, Pauw et al. (2002) stated that the goal of financial management in the public sector is to ensure that the public's resources are spent well. However, a more nuanced and holistic equation refers to "sraverage". This term denotes the average percentage reduction in municipal expenditure that is needed to attain fiscal sustainability.

$$\text{Sraverage} = FG0 \,/\, \Sigma \, S_t \,/\, (1+rB)^t \qquad\qquad (12)$$

Before a municipality can reduce its expenditure, it should identify its expenditure inefficiencies. To begin this process, municipalities can question how they utilise their funding. In considering the audit reports, it is evident that employee costs often exceed National Treasury's proposed norms (Annexure E). There is widespread misappropriation of funding, and with no consequence for financial mismanagement, it is unlikely that this irresponsible behaviour will improve. Annexure F shows the increasing misappropriation of funds. While irregular expenditure indicates lack of controls, especially in supply chain management, fruitless and wasteful expenditure – at R17.7 billion over 7 years – represented money that was essentially thrown away. Another inefficiency that needs to be eliminated is administrative intensity, where a municipality spends exorbitant amounts on maintaining its administrative unit. Further issues are a high number of employees, very high salaries, the decision to outsource the services or enter into a partnership with another public organisation or a private organisation.

Figure 2.1 below shows a diagram that illustrates the financial model for long-term financial sustainability.

Figure 2. 1: Long-term fiscal sustainability model
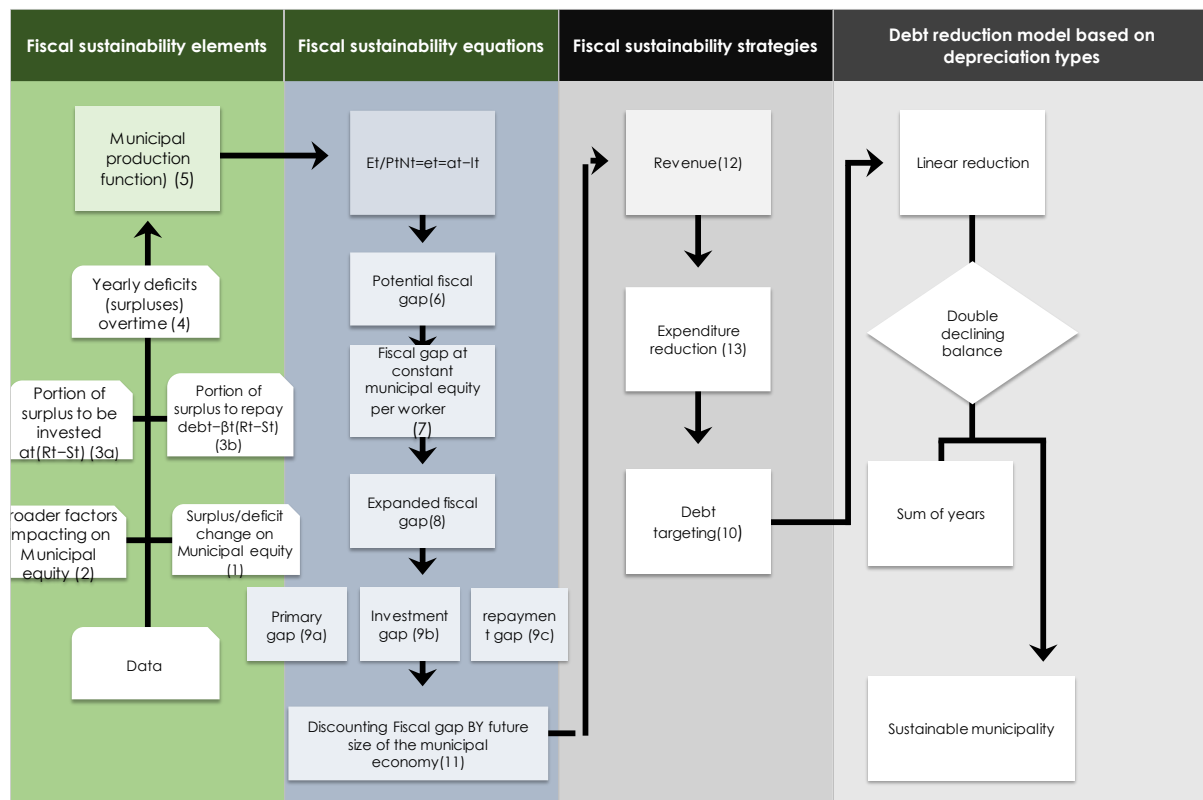
Source: author's own diagram

So far in this section, the metrics for long-term financial sustainability have been established. These financial metrics need to be applied to real municipalities to measure their level of fiscal sustainability. Some statistical modelling work is required to forecast the variables necessary for the long-term financial metrics; neither the municipalities nor Statistics South Africa performs such calculations at present.

A linear trend forecasting method was used to impose a line of best fit to time-series historical data for the 2006/07 to 2017/18 financial years, for all variables. The forecast was created for 23 years and predicted the future values of all variables until the 2039/2040 financial year. The researcher imputed the age profiles of the average income of metros based on the information about the difference in per capita GVA amongst the municipalities.

The procedure for projecting the aggregates of taxes, transfers and municipal spending for the metros used linear forecasting techniques. The same scope of municipal activities was assumed, except for the gap in the absolute level amongst the metros. In some instances, a weighted regression coefficient was used. Multiple regression analysis can predict an outcome variable based on several predictor variables (Field, 2009).

Now that the fiscal sustainability model has been created, the section below portrays the empirical application of the model for real South African municipalities. There are currently

257 municipalities in South Africa, differing in size and demographics. The model can be applied to any municipality; for demonstrative purposes, it is applied to a selected group of municipalities, namely the metros. These municipalities were selected because they are comparable regarding their sizes and demographics. In addition, they report more consistently than do other municipalities, which facilitates a standardised comparison.

2.5   Results

A sample of seven of the eight metropolitan municipalities was used. These are Buffalo City, City of Cape Town, City of Johannesburg, City of Tshwane, eThekwini, Mangaung and Nelson Mandela Bay. The City of Ekurhuleni Metropolitan Municipality was excluded because of the unavailability of information critical for calculating the repayment gap.

The model was applied under two scenarios. The first and basic scenario assumed a growth in labour productivity (g) of 1.5%, whereas the second scenario took into account an adjustment to 1%. In both scenarios, the model presented required adequate provision to be made for depreciation of assets to allow for reinvestment.

For a period (t), it was assumed that labour productivity grew at the same rate across all the metros sampled. Given the path of labour productivity, the researcher imputed the age profile of labour income under the assumption that the profiles were the same as in previous years, except for the gap in the absolute level of labour income. These assumptions were applied across the sampled metros. They were also applied to other variables, such as unemployment. During the forecasting period, the unemployment rate was assumed to be maintained at current levels; the impact of a slow downturn was projected to be counterbalanced by the development initiatives to stimulate growth.

The model was designed so that equations 1 to 6 provided the "building blocks" of the fiscal sustainability model. Equations 7 to 12 introduced the four indicators of fiscal sustainability using the two scenarios below.

2.6   Basic scenario

Indicator 1

The first indicator pertains to the fiscal gap of each municipality. As evident from Table 2.2, Buffalo City Metropolitan Municipality and the City of Tshwane Metropolitan Municipality had the largest fiscal gaps, at R136.9 billion and R255.1 billion, respectively. These figures represent the additional budget allocations needed today to ensure that the current relative level of municipal spending and a constant municipal equity per worker (et) are maintained until the 2039/40 financial year. The indicators also show that the Cities of Johannesburg, Cape Town and eThekwini should be able to maintain their current expenditure levels, while

maintaining constant municipal equity per worker, for the whole 23 years – without requiring additional funding. They would have fiscal surpluses of R7.5 billion, R1.5 billion and R420.3 million, respectively. For the Cities of Johannesburg, Cape Town and eThekwini, these resources are theoretically available without risking the sustainable functioning of municipal finance over the long-term.

Table 2. 2: Summary of the fiscal sustainability indicators: basic scenario

Indicators	Indicator description	Buffalo City	City of Tshwane	City of Johannesburg	City of Cape Town	Mangaung municipality	Nelson Mandela Bay	City of eThekwini
Indicator 1	Fiscal gap	136 887 854 439	255 129 879 916	-7 479 762 140	-1 450 285 513	1 575 940 207	1 760 031 328	-420 342 621
Indicator 1a	Primary budget gap	3 776 548 908	3 011 494 635	-307 908 806	-3 626 354 371	700 315 399	-712 112 065	674 617 361
Indicator 1b	Investment gap	92 912 003 657	-177 502 136 342	-2 644 864 510	3 479 683 370	1 603 556 764	3 027 508 296	527 420 983
Indicator 1c	Repayment gap	40 199 301 875	429 620 521 624	-4 526 988 824	-1 303 614 512	-727 931 956	-555 364 903	-1 622 380 965
Indicator 2	Fiscal gap discounted by the future size of the economy	5 685	1 812	434	389	5 286	3 130	1 020
Indicator 3	Additional tax revenue required per year	5 685	1 812	434	389	5 286	3 130	1 020
Indicator 4	Additional spending cuts required per year	3,7%	1,0%	0,3%	0,2%	3,1%	2,3%	0,6%

Source: adapted from the local government database

If the fiscal gap is split into its three components, only a small portion for Buffalo City and the City of Tshwane can be attributed to future operational deficits (the primary budget gap). The amounts were R3.7 billion and R3 billion, respectively. In contrast, for Buffalo City, R92.9 billion of the fiscal gap accrued from theoretically required investments (the investment gap). The balance of the fiscal gap in Buffalo City was R40.2 billion, which arose through the high volume of repayment duties (the repayment gap). These figures show that the bulk of Buffalo City's fiscal gap was related to high depreciation rates and low capital interest. By contrast, the City of Tshwane's main contributor to the fiscal gap was debt repayment, at R429.6 billion.

Indicator 2

Relating the nominal fiscal gap to the discounted future production potentials yields a measure of factors in the future size of the municipal economy. Buffalo City and Mangaung were ranked lowest due to their small economies. The Cities of Johannesburg, Cape Town and eThekwini occupied the first, second and third places in terms of the smallest fiscal gaps.

Indicator 3

To close the fiscal gap, Buffalo City and the City of Tshwane need to introduce a new tax measure that would allow them to collect additional revenues. These two cities would need to collect R5,685 and R1,812 annually, respectively, from each member of the working population. Given the low property ownership rates and high unemployment rates of both cities, such tax measures would be high for a select few households. Hence, it is important that there is efficiency in handling the current revenue streams.

Indicator 4

Some municipalities might not have a tax revenue base and thus would not be in a position to introduce new tax measures. In such cases, expenditure reduction is another avenue for municipalities to ensure the sustainable provision of their services, without compromising the municipal equity per capita. It can be achieved by applying spending cuts. Given the fiscal gap from Indicator 2, in Buffalo City and the City of Tshwane, this would result in spending cuts of 3.7% and 1% of their respective budgets.

2.7   Alternative scenario

A moderate growth in output per worker of 1% would alleviate the need to increase the tax base. Assuming this scenario, the fiscal gap would remain critical, at R91.8 billion for Buffalo City and R180.1 billion for the City of Tshwane. More robust relief would result from decoupling the equity condition from the evolution of the municipal tax base. To offset these demographic burdens, Buffalo City would have to cut the present value of all future spending by 3.9% or introduce yearly tax measures of R5,359 per person aged 15 to 64. The City of Tshwane would need to cut its present value of all future spending by 0.9% or introduce yearly tax measures of R1,707 for each person aged 15–64 to be sustainable. Table 2.3 illustrates this scenario.

Table 2. 3: Alternative scenario

Indicators	Indicator description	Buffalo City	City of Tshwane	City of Johannesburg	City of Cape Town	Mangaung municipality	Nelson Mandela Bay	City of eThekwini
Indicator 1	Fiscal gap	91 837 169 173	180 090 744 058	-8 350 037 931	-1 883 423 140	1 401 680 575	1 617 483 176	-888 022 660
Indicator 1a	Primary budget gap	3 776 548 908	3 011 494 635	-307 908 806	-3 626 354 371	700 315 399	-712 112 065	674 617 361
Indicator 1b	Investment gap	39 204 065 226	-349 303 445 009	-3 192 076 227	3 163 274 555	1 476 608 363	2 924 211 971	193 272 668
Indicator 1c	Repayment gap	48 856 555 040	526 382 694 432	-4 850 052 897	-1 420 343 324	-775 243 187	-594 616 729	-1 755 912 689
Indicator 2	Fiscal gap discounted by the future size of the economy	5 359	1 707	378	327	5 225	3 106	962
Indicator 3	Additional tax revenue required per year	5 359	1 707	378	327	5 225	3 106	962
Indicator 4	Additional spending cuts require per year	3,5%	0,9%	0,2%	0,2%	3,0%	2,3%	0,5%

Source: author's own calculation

According to the municipal tax base, Mangaung would need an additional capital stock of R1.4 billion to ensure an increase in the quality of public goods and services and public equity. Alternatively, the City can introduce tax measures of R5,225 for each member of the working population. Another available option for the City is a yearly average spending cut of more than 3%. By comparison, in Nelson Mandela Bay, the investment gap of R2.9 billion is rather small due to the relatively high rate of real capital interest (rk−d) in 2019/20.

2.8   Discussion

The above analysis of fiscal sustainability in municipalities, using four indicators, highlighted the main elements contributing to the fiscal gap in municipalities. In the sample of metros,

Buffalo City initially had a surplus, but as evident from Table 2.1, it ended with the second largest fiscal gap. Mangaung and Nelson Mandela Bay also faced large investment gaps due to low capital returns and high depreciation of assets (rk-d). However, Cities of Johannesburg, Cape Town and eThekwini have received high returns (rk-d) on their assets during recent years. Suppose these returns are stable and depreciation remains manageable due to the large portion of land within the municipal portfolio. In that case, these three metros will continue to display relatively low investment gaps.

Reactions to the unemployment rate influence the primary gap. High unemployment rates in the labour market within a municipal jurisdiction drive up the primary surplus. To test for the dependence of the primary surplus on economic growth, a (quadratic) GVA term was added to the equation. The result showed that this term was significant, and the primary surplus of municipalities – ceteris paribus – increased by 31.2% with a high GVA. As expected, higher interest rates go hand-in-hand with an increased primary surplus. Higher interest payments for local debt with flexible interest rates and the precautionary fiscal policies against excessive expenditure are the reasons. Despite the size of the primary gap, future estimates project that it will become even larger in the future. Interest payments are also likely to rise, as is unemployment. These points all suggest that future municipal policy reactions need to be substantially altered to reverse the looming crises.

Selling assets to repay debt is a viable option to lessen the future burden. However, this may have an impact on the investment gap of a municipality. For instance, an overly indebted municipality such as the City of Tshwane would benefit greatly from selling its non-strategic assets to pay off the debt. Doing so would reduce both the repayment gap and the fiscal gap. However, if the same principle is applied to Buffalo City, the investment gap would decrease at the expense of an increase in the repayment gap. In fact, for Buffalo City, the same actions that would decrease the fiscal gap for the City of Tshwane would increase its fiscal gap. The decision whether to sell assets to stabilise debt thus depends on the adequacy of investments already made. In City of Tshwane and Buffalo City, the former made more than the minimum investment, whereas the latter simply retained a gap to close in that area.

Indicators for additional tax revenue measures and expenditure reduction (to ensure sustainability) have highlighted revenue and expenditure efficiencies that would lessen the need for tax revenue or expenditure reductions. On the revenue side, there is potential for a strong alignment between municipalities' revenue interests and the service delivery interests of residents. Revenue from tax could strengthen this revenue–service link if revenue is used appropriately to meet the needs of the community.

At the municipal level, service provision remains the cornerstone of revenue generation. It is thus crucial to identify the beneficiaries of such services and to apply the beneficial principle. The beneficial principle is useful for utility services in which the amount of consumption is directly influenced or controlled by the end user; examples are water, gas and electricity supply. In practical terms, this means that users who consume communal services should contribute to the economic cost of the provision of those services directly, according to their individual consumption (Hollis & Plokker, 1995).

From a legislative perspective, the MSA covers a wide range of matters that have a bearing on municipal revenues and expenditures. Particularly relevant in this context are the sections dealing with service tariffs, credit control and debt collection.

2.9   Improving revenue collection

The level of consumer debt suggests that the beneficial principle is not well applied. According to National Treasury (2018), the outstanding municipal debt in the fourth quarter of the 2016/17 financial year was R128 billion. This figure exceeded the total amount allocated to local government through direct and indirect allocations from the national fiscus, which amounted to R111 billion in that year. Of the R128 billion owed to municipalities, R64.9 billion was owed to the metropolitan municipalities at 30 June 2017. The biggest contributors to this debt were the City of Johannesburg, at R17.1 billion (26.3%); Ekurhuleni Metro, at R13.3 billion (20.5%); and City of Tshwane, at R9.5 billion (14.6%).

The inability of most municipalities to collect the bulk of revenues that are due to them has been a perennial concern for policy makers seeking to stabilise municipal finances. This problem has been ascribed to many underlying issues. These include incidents of unverifiable government property ownership, the inability of poor consumers to pay for services, inadequate internal controls in functional areas that are integral to support revenue generation and revenue collection, and the poor quality of billing data – and thereby the correctness of invoices issued to customers for payment.

2.10   Cost-reflective tariffs

Another avenue to improve efficiency in municipal finances is through setting cost-reflective tariffs. Taxes, tariff structures and rates are a municipal competence. Brand (2016) suggested that a growing demand for improved maintenance of infrastructure and the development of new infrastructure require significant additional funding. The current funding model for local government does not respond adequately to this demand (Brand, 2016).

A shrinking economy like South Africa's often means that traditional revenue sources are not enough to cover the steadily increasing needs of the community. Traditional revenue sources

(such as property taxes, user charges and income taxes) often cannot provide fiscal pressure created by the global economic slowdown, particularly Coronavirus Disease 2019 (COVID-19). These needs are likely to decrease municipalities' fiscal capacity, resulting in municipalities becoming even more dependent on national government transfers. In addition, the transfers have been shrinking over time. This dependence on fiscal transfers will lead to an increase in the number of municipalities in distress.

Brand (2016) made a compelling argument that local government in South Africa needs to embrace innovation and explore innovative approaches to funding. In addition, the effective and efficient use of existing funding must be ensured.

Section 74(1) of the MSA requires that a municipal council adopt and implement a tariff policy regarding levying fees for municipal services. Section 74(2) prescribes a set of framework principles that tariff policies must comply with. Sections 95 to 104 of the Act set out a framework for credit control and debt collection. Section 97 requires that a municipal council must adopt, maintain and implement a credit control and debt collection policy.

The Electricity Regulation Act, 2006 (Republic of South Africa, Act 4 of 2006) (ERA) and the Water Services Act,1997 (Republic of South Africa, Act 108 of 1997) (WSA) are addition relevant legislation regarding municipal tariffs, surcharges and taxes. ERA empowers NERSA to issue electricity distribution licenses to municipal distributors. Of specific importance is Section 21(5)(c) of MSA. It provides that a municipality may terminate the supply of electricity to a customer if the customer contravenes the payment conditions of the licensee. The WSA empowers the Minister of Water and Sanitation – with the agreement of the Minister of Finance – to issue regulations setting norms and standards in respect of tariffs for water services. These norms and standards are broadly aligned to the tariff principles in the MSA. No specific regulations regarding water tariffs have been issued. This means municipalities are responsible for setting their own water tariffs within the abovementioned tariff frameworks.

It is also crucial to identify the beneficiaries of services and to apply the beneficial principle. Generally, as a source of revenue, electricity and water sales have an impact on the sustainability of municipalities. Future increases will affect the affordability of services, given the prevalent culture of non-payment and ineffective punitive measures.

2.11   Improved efficiency in procurement

Economic infrastructure can be financed from various sources, including the municipality using its own fund-raising capacity and national government grants. Nonetheless, innovative ideas are needed, and municipalities should consider concessionary loans and a combination of debt and equity from the private sector. A decision about the source of finance should be

based on the lowest cost of finance, subject to timely availability of the funds and acceptability of the finance conditions.

Municipalities are in a strong position to secure private resources and technical skills. Municipalities operate in the area of economic infrastructure, which is attractive for the private sector. The private sector can be used to design, build, maintain and operate the processes. This can also help with managing the cash flow by improving the efficiency on the revenue collection side.

Improved efficiency would assist municipalities to close the gap between their revenue and expenditure. As already illustrated, the current practices relating to financial planning and management are not resilient and therefore cannot yield long-term sustainability. It is thus necessary to explore alternatives for measuring long-term financial sustainability that can inform decisions regarding variables in planning. Doing so would enhance long-term financial sustainability.

2.12   Non-revenue electricity and water

Notwithstanding the structural change in the composition of municipal revenue, the challenge of inefficiency in revenue management is crippling municipal finances. This challenge is compounded by the impact of water and electricity produced but lost to leaks and theft on revenues. Some losses are real losses in the form of leaks, whereas others are apparent losses (theft). Currently, the internationally accepted level of an accounted water loss is 15%. In South Africa, based on the 2018/19 audit report, this rate is more than 30% on average. The audit reports show that 36% of municipalities that are responsible for water services and related infrastructure disclosed water losses, which amounted to R7 billion (Auditor-General, 2020).

2.13   An efficient service delivery model

Municipalities may need to reflect on their service delivery model to see where savings can be made. There is a need to distinguish between exercising authority versus being a service provider. This process will require them to evaluate the advantages and disadvantages of various models.

It is essential to ensure quality decision-making and obtain accurate data and evidence and use suitable modelling approaches. Providing a sound, rational basis to decision makers is paramount. This is especially necessary at present, when municipal finances are under great strain. To realise efficiencies in how a municipality delivers on its mandate, Sections 77 and 78 of the local government Systems Act stipulate that if an existing municipal service is to be upgraded, extended or improved, the municipality must embark on a process to decide the

mechanism to provide the service. Various options are available to a municipality to do this. The most important decision is whether the municipality will build internal capacity to provide the service. For example, internal capacity must be built for all core services of a municipality. This consideration also requires due regard for the costs involved. Hence, a municipality might have to test the market.

Direct Procurement

In the ordinary course of business, procurement by a municipality is guided by the MFMA framework. The MFMA requires that each municipality design and implement a supply chain management policy. Section 33 of the MFMA is applicable if a municipality seeks to enter into a contractual agreement with long-term financial implications. Long-term here means more than three years.

Section 78 makes an assessment mandatory; the assessment criteria are set out in Section 78. The list of requirements includes a thorough assessment to meet the needs of poor people, provide value for money and keep the project affordable. The impact on municipal liability, revenue and expenditure, and the Integrated Development Plan (IDP) goals form part of the assessment. Engagement with the affected community and with unions is also prescribed. If a contractor merely builds the infrastructure and does not operate it, the full Section 78 process might not be required. The advantage of the normal procurement process is that municipalities have well-established processes in place.

Public–Private Partnership

In South Africa, the MFMA, the MSA and Treasury Regulations form the core legislation guiding municipalities when undertaking public–private partnerships (PPPs). The use of PPPs is informed by Treasury Regulation 16 (TR 16). This regulation requires all institutions undertaking PPPs to obtain approval from the Treasury (TA) in four phases of the PPP process. These approval processes include TA I (approval of feasibility study); TA IIA (approval of market procurement documents); TA IIB (determination of value for money by comparing bids received with each other and with approval of feasibility study); and TAIII (negotiation with preferred bidder and approval of financial closure).

The Black Economic Empowerment regulations are also applicable. Treasury guidelines define a PPP as "a contract between government institution and a private entity" (National Treasury, 2004).

National Treasury has devised a step-by-step PPP manual guide to provide clarity on the processes and procedures regulating PPPs. The MFMA focuses on procurement and the

treasury guidelines break down the PPP project cycle into phases, with tangible steps that must be followed.

The main principles in implementing PPPs in South Africa, as outlined by the PPP manual are: affordability, value for money and risk transfer. Therefore, a municipality may only enter into a public-private partnership agreement if it can demonstrate that the agreement will provide value for money, is affordable and will transfer the appropriate technical, operational and financial risk to the private party. Before such an agreement is concluded the municipality must conduct a thorough feasibility study of the proposal and make consult the local community.

When they are managed well, PPPs provide an effective avenue for government to save on costs. The private entity assumes a large part of what would have been municipal risk, in terms of either financial, technical or operational processes. Depending on the PPP model adopted, a private entity usually carries all the initial risk associated with the construction and development of a facility. If the construction period runs over schedule, the private entity carries the burden and financial risk. During the operations phase, the private entity must produce the end product. If there are any technical issues or labour disputes, these are also areas of responsibility for the private entity.

These risks are balanced by the profit that the private entity seeks to make. These profits can either be in the form of payment from the government or user fees. This shared risk– reward aspect of PPP is one of the salient principles of such partnerships. A PPP should be mutually beneficial. Over the long-term, the private sector should recoup its cost, and government should benefit from skills transfer and a reliable product.

To enhance efficiency and thus effect long-term savings, private sector participation in service delivery is essential. Government – in all spheres – needs to create enabling frameworks for such private investment. It can do so by providing coherent and consistent policies, regulations and plans; enhancing security and stability; and encouraging effective cost recovery. The PPP Unit at National Treasury improves the PPP deal flows within municipalities by streamlining the PPP approval process (South African Local Government Association (SALGA), 2018). Such projects "employ the Financial Management Grant to build capacity within large cities, with specialised skills in PPP development, procurement, negotiating and monitoring" (SALGA, 2018: 51).

PPPs should be viewed as a departure from the traditional role of municipalities. Previously, municipalities carried both the capital and operational costs and the day-to-day management of a project. In a traditional structure, municipalities bear all the responsibility, from the inception to the completion of a project and beyond to the daily operations. Private sector

expertise may be a resource, but the relationship between the public and private sectors concludes when the project is complete or when the consultation period ends. With a PPP, the relationship continues into the operations and management phase of a project.

Establishment of Joint Ventures between Government Entities

A joint venture (JV) is a strategic cooperation in which two or more entities agree to work together on a common project. A JV differs from a company in that there is no formal registration as a company; more importantly, two or more entities partner for a specific purpose. A partnership is often confused with a JV. The key difference is that with a JV, two entities collaborate on a specific project, whereas in a partnership, they run a business or project together for an unlimited period of time.

In South Africa, JVs are regulated by the Companies Act No. 71 of 2008, and they may be either incorporated or unincorporated. An incorporated JV is created through the process of incorporation of a company as regulated by the Companies Act. Once the company is incorporated, the entities in the JV become shareholders of the new entity. An unincorporated JV is regulated by contract law. Here, a contract provides the basis for governing the relationship between the parties and a legal entity is not created; the parties are subject to the terms of the contract that has been signed.

The main advantage of a JV is that the risks and expenses are shared. Another advantage is that a JV creates a platform for skills, expertise and technical knowledge to be shared. It also enhances capacity. In the case of an incorporated JV, each entity retains its independent legal personality. A JV could be formed to procure and manage a plant of any size or scale.

The disadvantage is that there can be an imbalance in expertise, assets or investment. In addition, "different cultures and management styles can result in poor integration and cooperation" (Setiawan, 2020). When two government entities form a JV, the evident advantage is that it would draw on the constitutional principle of cooperative government. The JV would also promote the idea that two arms of government are working together for the public good.

Requirements for Establishing a Water Board

The Water Services Act, 1997 has an entire chapter dedicated to water boards. A Minister may establish or disestablish a water board upon consultation with the province and other water service authorities. The primary activity of a water board is to provide water services to other water services institutions within its service area. A water board consists of a Chair and other members appointed by the Minister, and the water board reports directly to the Minister.

A water board is a body corporate and must submit its audited financial statements to the Minister and to both Provincial and National Parliament.

According to the Act, the water board may also undertake secondary activities. These include supplying untreated water to end users who do not use it for household purposes; providing catchment management services; and providing management services, including water conservation functions.

The disadvantage of a water board is that the municipality is merely a consumer and has little say about the makeup or functioning of the board (which is directed by the National Minister). The legislation vests the authority to create and dissolve a waterboard with the National Minister. The board reports to the National Minister, who sets the agenda for water planning. As is the case with a JV, the risk is that the board can be turned into a political space by political parties, which could negatively affect the plans and service delivery.

Requirement for Establishing a Municipal Entity

In 2017, News24 (2017) reported on the City of Cape Town's plans to establish a municipal entity to operate Cape Town Stadium: "The municipal entity will have an independent board of directors tasked with appointing a specialised management company." A service delivery agreement is concluded between the municipality and the municipality entity, setting out financial and non-financial performance indicators. A municipal entity can be established to procure and manage a facility of any size or scale. The City of Johannesburg Metropolitan Municipality has established a number of municipal corporations that are operated as separate entities but are wholly owned by the City. These include City Power, Pikitup, Johannesburg Water, Johannesburg Development Agency and Johannesburg Roads Agency.

The entity is an "organ of state" and must comply with the legislative framework which ensures accountability and transparency. Section 84 of the MFMA must be complied with, as must sections of the Companies Act and the MSA provisions. Similar to the other consultative processes described above, the MFMA requires that an assessment be undertaken, and that wide consultation should occur. This entails soliciting views from the public as well as organised labour and the provincial treasuries and National Treasury. A report must then be submitted to Council for a decision.

Section 78 of the MSA must also be considered (Bekink, 2006). This section of the Act sets out the procedure that municipalities must follow when considering the provision of a municipal service in different scenarios. This includes "when an existing municipal service is to be significantly upgraded, extended or improved" (Bekink, 2006:405). An assessment is required as a preliminary step to initiating a Section 78 process".

The advantage of the municipal entity is that it has a separate commercial identity. In the event of changes to the political or policy landscape, the entity would be secure. Decisions tend to be made relatively quickly. The major disadvantage is that the entity is costly, and a new bureaucratic layer is created. There is a duplication of roles vis-a-vis the accounting officer and the CFO. The establishment of a board also creates another level of cost. Board members are deemed to be employees of the State. Although commercially distinct from the municipality, the municipal entity must still comply with the MFMA, and the procurement rules set out in the MFMA.

A municipal entity is prohibited from entering into a PPP without the municipality. A municipal entity is rather restricted regarding the manner in which it can operate, which makes the need for such an entity unclear. Many of the operating functions are already contained within a municipality. Although the municipal entity is a distinct legal personality, there is still space for political influence. The various procurement models are summarised in Table 2.4.

Table 2. 4: Summary of procurement models available to municipalities

Procurement Method	Basic Principles	Advantages	Disadvantages
Direct Procurement	Fair, transparent, open competitive process	Municipalities have established practice	All the risks (financial, technical and labour-related) are borne by the municipality
Public–Private Partnership	A long-term partnership between a private sector actor and a government entity Is only applicable to large-scale projects	Risk is shared between parties	A complex regulatory framework
Joint Ventures between government entities	Two entities of government partner for the purposes of delivering a specific project	Shared risk and responsibility	Partners may have conflicting management approaches, and may not contribute equally to the venture
Establishment of a Municipal entity	Provides services, which may include supplying the service to end users who do not use the water for household purposes; providing catchment management services	The entity board would take on the risk of a project and sell water on to the municipality	The entity board is established at the behest of the sector Minister, and reports to the Minister The municipality has no say in board appointments
Outsourcing the service	Municipality would provide the minimal level of service and auction out the other level of service to private providers Providing catchment management services	The municipality provides the service outlined by the Constitution Less burden to meet the demand	The municipality would need to retrench excess employees and will lose the revenue from trading services because of additional service provided

Source: author's own table

2.14 Conclusion

The objectives of this paper were threefold. First, the study established a model to assess long-term sustainability by developing four indicators of fiscal sustainability. The second objective was to use the developed indicators to assess a set of municipalities to measure

their long-term fiscal sustainability. Given that no other long-term estimates existed, forecasting techniques were used to project long-term estimates for all variables. The third objective was to identify possible remedial actions for municipal budgets to improve their long-term fiscal sustainability. This included dealing with inefficiency both in raising revenue and in reducing expenditure.

The findings from the analysis indicate that municipalities are faced with a dilemma. On the one hand, they lack sufficient revenue to cover their expenditures, and thus incur a long-term primary deficit gap. On the other hand, they optimise their borrowing scope by creating an enabling environment and developing strategies to make them attractive to creditors. This allows them to borrow at relatively low prices.

It becomes imperative to have a municipal credit market that can efficiently accommodate this magnitude of borrowing. On the supply side of the credit market, the need exists for a more competitive market. More financial institutions need to lend to municipalities and there needs to be greater market competition between loans and municipal bonds. On the borrower side of the market, risk-reducing measures are needed that can make a broad range of municipalities creditworthy for the market. Such measures might include arrangements for pledging specific revenue streams as security for borrowing used to finance enhanced residential services. Given the magnitude of debt finance, any reductions in the real rate of interest in the municipal sector – due to greater efficiencies in the credit market – would have a significant payoff through reduced municipal expenditure.

This paper discussed various options for closing the fiscal gap. It explored how to reduce the debt burden by selling assets to pay off portions of the debt; other measures have already been introduced and include spending cuts and introducing new taxes. Regarding new tax measures, there is an opportunity to more closely align local government revenue interests with residents' service delivery interests by linking revenues and services (National Treasury, 2011). Tax revenues could strengthen this linkage if revenues are used appropriately to meet community needs.

On the expenditure side, national government – and especially National Treasury – must substantially increase its oversight of local government finances. Furthermore, government should consider reforms to strengthen the regulatory environment. In addition, increasing the pool of available funds may require doing things better from both the revenue and the expenditure sides. The key issues are how municipalities can fully exploit the revenue potential on the one hand, and on the other hand, how they can use their resources efficiently and effectively. This prudent financial management of scarce resources would add value for

money. Municipalities can also expand their resource base beyond the transfers they receive and can make more effective use of their revenues.

2.15   References: Chapter 2

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2.16 Chapter 2 List of Annexures

Annexure A: Revenue estimates and actual figures

Year	Original Budget	Adjusted Budget	Audited Outcome
2007/08	85 584 634	78 145 574	84 793 810
2008/09	110 343 535	115 697 294	129 338 833
2009/10	149 216 905	149 630 239	153 318 867
2010/11	175 079 149	176 369 669	174 181 198
2011/12	196 908 496	200 406 649	201 550 508
2012/13	222 020 641	226 170 147	219 010 619
2013/14	242 027 449	243 598 125	240 335 015
2014/15	264 507 733	267 687 296	260 570 590
2015/16	293 994 780	297 460 787	284 630 629
2016/17	324 478 325	326 083 481	313 112 130
2017/18	342 545 548	340 395 640	330 980 115

Annexure B: Expenditure estimates and actuals

Year	Original Budget	Adjusted Budget	Audited Outcome
2007/08	87 073 444	88 975 552	81 416 646
2008/09	109 849 524	114 884 694	134 632 083
2009/10	149 474 899	153 287 911	158 802 327
2010/11	175 610 005	178 478 388	179 112 720
2011/12	197 566 148	198 531 762	208 074 528
2012/13	221 992 406	227 253 411	226 953 540
2013/14	241 733 603	246 726 393	252 709 674
2014/15	264 918 661	271 506 784	275 323 515
2015/16	295 739 846	301 896 924	299 416 196
2016/17	325 586 221	331 033 452	330 694 376
2017/18	345 877 881	347 288 912	345 666 355

Annexure C: Debt owed to municipalities by customers

R'000	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	Compound annual growth rate
Metros (8)	46 089 114	57 658 868	64 504 867	64 572 766	54 402 138	68 242 067	82 831 231	10%
Secondary cities (19)	16 435 290	20 347 351	19 771 785	19 363 608	13 773 457	13 163 245	29 987 412	11%
Other LM (186)	13 904 055	13 171 234	14 777 795	21 461 831	20 682 129	23 467 310	36 010 357	17%
District municipalities (44)	2 837 314	3 219 910	3 709 979	4 581 043	5 314 105	3 277 075	7 458 554	17%
Total	**79 265 773**	**94 397 362**	**102 764 426**	**109 979 248**	**94 171 829**	**108 149 697**	**156 287 554**	**12%**

Annexure D: Debt owed by municipalities to creditors

R'000	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	Compound annual

							growth rate
Metros (8)	10 266 872	19 106 912	19 123 086	27 155 302	30 570 733	40 961 869	42 287 067	27%
Secondary cities (19)	2 732 000	4 265 000	5 143 000	7 821 920	11 711 673	16 504 607	17 067 538	36%
other LM(186)	2 594 000	7 327 000	9 153 000	11 584 011	13 995 530	21 255 743	22 459 723	43%
District municipalities (44)	1 111 000	2 383 000	2 991 000	3 764 747	4 657 226	5 766 902	4 946 139	28%
Total	**16 703 872**	**33 081 912**	**36 410 086**	**50 325 980**	**60 935 163**	**84 489 121**	**86 760 468**	32%

Annexure E: Employee costs as a percentage of total operational budget

Municipal_Code	Municipality	Category	Percentage
DC37	Bojanala Platinum	C1	49%
DC2	Cape Winelands DM	C1	45%
DC5	Central Karoo	C1	49%
DC40	Dr Kenneth Kaunda	C1	38%
DC32	Ehlanzeni	C1	47%
DC20	Fezile Dabi	C1	51%
DC9	Frances Baard	C1	46%
DC4	Garden Route	C1	46%
DC30	Gert Sibande	C1	32%
DC45	John Taolo Gaetsewe	C1	60%
DC18	Lejweleputswa	C1	61%
DC6	Namakwa	C1	46%
DC31	Nkangala	C1	24%
DC3	Overberg	C1	55%
DC7	Pixley Ka Seme (NC)	C1	62%
DC10	Sarah Baartman	C1	34%
DC42	Sedibeng	C1	61%
DC19	Thabo Mofutsanyana	C1	49%
DC36	Waterberg	C1	54%
DC1	West Coast	C1	44%
DC48	West Rand	C1	58%
DC16	Xhariep	C1	61%
DC8	Z F Mgcawu	C1	66%
DC44	Alfred Nzo	C2	32%

DC25	Amajuba	C2	33%
DC12	Amathole	C2	39%
DC35	Capricorn	C2	36%
DC13	Chris Hani	C2	20%
DC39	Dr Ruth Segomotsi Mompati	C2	25%
DC43	Harry Gwala	C2	28%
DC29	iLembe	C2	29%
DC14	Joe Gqabi	C2	32%
DC28	King Cetshwayo	C2	23%
DC33	Mopani	C2	30%
DC38	Ngaka Modiri Molema	C2	36%
DC15	O R Tambo	C2	27%
DC47	Sekhukhune	C2	31%
DC21	Ugu	C2	34%
DC22	uMgungundlovu	C2	30%
DC27	Umkhanyakude	C2	29%
DC24	Umzinyathi	C2	19%
DC23	Uthukela	C2	29%
DC34	Vhembe	C2	46%
DC26	Zululand	C2	28%
KZN238	Alfred Duma	Large Towns	31%
WC025	Breede Valley	Large Towns	27%
NC087	Dawid Kruiper	Large Towns	44%
FS192	Dihlabeng	Large Towns	29%
MP314	Emakhazeni	Large Towns	31%
EC139	Enoch Mgijima	Large Towns	37%
KZN433	Greater Kokstad	Large Towns	34%
EC157	King Sabata Dalindyebo	Large Towns	33%
WC048	Knysna	Large Towns	26%
KZN292	KwaDukuza	Large Towns	25%
NW383	Mafikeng	Large Towns	38%
EC104	Makana	Large Towns	35%
GT484	Merafong City	Large Towns	25%

FS204	Metsimaholo	Large Towns	27%
GT422	Midvaal	Large Towns	23%
LIM367	Mogalakwena	Large Towns	27%
FS201	Moqhaka	Large Towns	27%
WC043	Mossel Bay	Large Towns	28%
MP302	Msukaligwa	Large Towns	25%
WC045	Oudtshoorn	Large Towns	37%
WC032	Overstrand	Large Towns	31%
GT485	Rand West City	Large Towns	29%
KZN216	Ray Nkonyeni	Large Towns	42%
WC014	Saldanha Bay	Large Towns	33%
KZN212	Umdoni	Large Towns	40%
KZN222	uMngeni	Large Towns	28%
BUF	Buffalo City	Metros	27%
CPT	Cape Town	Metros	22%
EKU	City of Ekurhuleni	Metros	23%
JHB	City of Johannesburg	Metros	23%
TSH	City of Tshwane	Metros	28%
ETH	eThekwini	Metros	28%
MAN	Mangaung	Metros	24%
NMA	Nelson Mandela Bay	Metros	29%
MP301	Albert Luthuli	Mostly Rural	33%
LIM351	Blouberg	Mostly Rural	40%
MP325	Bushbuckridge	Mostly Rural	36%
LIM345	Collins Chabane	Mostly Rural	42%
KZN254	Dannhauser	Mostly Rural	27%
MP316	Dr J.S. Moroka	Mostly Rural	31%
LIM472	Elias Motsoaledi	Mostly Rural	35%
EC141	Elundini	Mostly Rural	37%
EC136	Emalahleni (EC)	Mostly Rural	34%
EC137	Engcobo	Mostly Rural	32%
LIM471	Ephraim Mogale	Mostly Rural	41%
LIM331	Greater Giyani	Mostly Rural	48%

LIM332	Greater Letaba	Mostly Rural	42%
NW394	Greater Taung	Mostly Rural	44%
LIM333	Greater Tzaneen	Mostly Rural	25%
KZN224	Impendle	Mostly Rural	38%
EC135	Intsika Yethu	Mostly Rural	48%
NC451	Joe Morolong	Mostly Rural	29%
KZN272	Jozini	Mostly Rural	36%
NW397	Kagisano-Molopo	Mostly Rural	28%
LIM355	Lepelle-Nkumpi	Mostly Rural	39%
LIM344	Makhado	Mostly Rural	35%
LIM473	Makhuduthamaga	Mostly Rural	24%
KZN291	Mandeni	Mostly Rural	36%
KZN294	Maphumulo	Mostly Rural	35%
LIM335	Maruleng	Mostly Rural	39%
EC121	Mbhashe	Mostly Rural	36%
EC443	Mbizana	Mostly Rural	34%
KZN281	Mfolozi	Mostly Rural	36%
EC156	Mhlontlo	Mostly Rural	38%
EC122	Mnquma	Mostly Rural	49%
LIM353	Molemole	Mostly Rural	48%
NW371	Moretele	Mostly Rural	23%
NW375	Moses Kotane	Mostly Rural	30%
KZN244	Msinga	Mostly Rural	26%
KZN293	Ndwedwe	Mostly Rural	38%
EC126	Ngqushwa	Mostly Rural	43%
EC153	Ngquza Hills	Mostly Rural	53%
KZN286	Nkandla	Mostly Rural	32%
MP324	Nkomazi	Mostly Rural	41%
KZN265	Nongoma	Mostly Rural	51%
KZN242	Nquthu	Mostly Rural	36%
EC444	Ntabankulu	Mostly Rural	41%
EC155	Nyandeni	Mostly Rural	48%
KZN235	Okhahlamba	Mostly Rural	41%

EC154	Port St Johns	Mostly Rural	42%
NW381	Ratlou	Mostly Rural	45%
KZN227	Richmond	Mostly Rural	43%
EC142	Senqu	Mostly Rural	40%
MP315	Thembisile Hani	Mostly Rural	20%
LIM343	Thulamela	Mostly Rural	38%
LIM476	Tubatse Fetakgomo	Mostly Rural	29%
KZN434	Ubuhlebezwe	Mostly Rural	46%
KZN266	Ulundi	Mostly Rural	30%
KZN271	Umhlabuyalingana	Mostly Rural	35%
KZN284	uMlalazi	Mostly Rural	33%
KZN435	Umzimkhulu	Mostly Rural	38%
EC442	Umzimvubu	Mostly Rural	32%
KZN213	Umzumbe	Mostly Rural	40%
KZN262	uPhongolo	Mostly Rural	37%
NW403	City of Matlosana	Secondary Cities	22%
MP326	City of Mbombela	Secondary Cities	24%
WC023	Drakenstein	Secondary Cities	26%
MP312	Emalahleni (MP)	Secondary Cities	24%
GT421	Emfuleni	Secondary Cities	18%
WC044	George	Secondary Cities	24%
MP307	Govan Mbeki	Secondary Cities	21%
NW405	J B Marks	Secondary Cities	25%
NW372	Madibeng	Secondary Cities	18%
FS184	Matjhabeng	Secondary Cities	26%
GT481	Mogale City	Secondary Cities	24%
KZN225	Msunduzi	Secondary Cities	22%
KZN252	Newcastle	Secondary Cities	23%
LIM354	Polokwane	Secondary Cities	22%
NW373	Rustenburg	Secondary Cities	16%
NC091	Sol Plaatje	Secondary Cities	35%
WC024	Stellenbosch	Secondary Cities	28%
MP313	Steve Tshwete	Secondary Cities	28%

KZN282	uMhlathuze	Secondary Cities	23%
NC082	!Kai! Garib	Small Towns	34%
NC084	!Kheis	Small Towns	37%
KZN263	Abaqulusi	Small Towns	27%
EC124	Amahlathi	Small Towns	40%
LIM334	Ba-Phalaborwa	Small Towns	28%
WC053	Beaufort West	Small Towns	30%
LIM366	Bela Bela	Small Towns	30%
WC013	Bergrivier	Small Towns	39%
WC047	Bitou	Small Towns	33%
EC102	Blue Crane Route	Small Towns	33%
WC033	Cape Agulhas	Small Towns	38%
WC012	Cederberg	Small Towns	35%
NC092	Dikgatlong	Small Towns	29%
MP306	Dipaleseng	Small Towns	25%
NW384	Ditsobotla	Small Towns	37%
EC101	Dr Beyers Naude	Small Towns	32%
KZN436	Dr Nkosazana Dlamini Zuma	Small Towns	41%
KZN261	eDumbe	Small Towns	37%
KZN253	Emadlangeni	Small Towns	37%
NC073	Emthanjeni	Small Towns	27%
KZN241	Endumeni	Small Towns	34%
NC453	Gamagara	Small Towns	21%
NC452	Ga-Segonyana	Small Towns	27%
EC123	Great Kei	Small Towns	35%
NC065	Hantam	Small Towns	39%
WC042	Hessequa	Small Towns	34%
KZN276	Hlabisa Big Five	Small Towns	53%
KZN237	Inkosi Langalibalele	Small Towns	29%
EC131	Inxuba Yethemba	Small Towns	32%
NC064	Kamiesberg	Small Towns	32%
WC041	Kannaland	Small Towns	32%
NC074	Kareeberg	Small Towns	34%

NC066	Karoo Hoogland	Small Towns	39%
NC086	Kgatelopele	Small Towns	26%
NW374	Kgetlengrivier	Small Towns	25%
NC067	Khai-Ma	Small Towns	29%
FS162	Kopanong	Small Towns	33%
EC108	Kouga	Small Towns	36%
EC109	Kou-Kamma	Small Towns	31%
WC051	Laingsburg	Small Towns	23%
WC026	Langeberg	Small Towns	29%
MP305	Lekwa	Small Towns	20%
NW396	Lekwa-Teemane	Small Towns	21%
LIM362	Lephalale	Small Towns	32%
GT423	Lesedi	Small Towns	22%
FS161	Letsemeng	Small Towns	28%
FS205	Mafube	Small Towns	26%
NC093	Magareng	Small Towns	28%
FS194	Maluti-a-Phofung	Small Towns	19%
NW393	Mamusa	Small Towns	32%
FS196	Mantsopa	Small Towns	27%
NW404	Maquassi Hills	Small Towns	19%
FS181	Masilonyana	Small Towns	24%
EC441	Matatiele	Small Towns	35%
WC011	Matzikama	Small Towns	37%
KZN226	Mkhambathini	Small Towns	46%
MP303	Mkhondo	Small Towns	27%
LIM368	Modimolle-Mookgopong	Small Towns	31%
FS163	Mohokare	Small Towns	32%
KZN223	Mpofana	Small Towns	25%
KZN285	Mthonjaneni	Small Towns	30%
KZN275	Mtubatuba	Small Towns	39%
LIM341	Musina	Small Towns	38%
FS185	Nala	Small Towns	32%
NW392	Naledi (NW)	Small Towns	33%

NC062	Nama Khoi	Small Towns	30%
EC105	Ndlambe	Small Towns	36%
FS203	Ngwathe	Small Towns	26%
FS193	Nketoana	Small Towns	24%
NC094	Phokwane	Small Towns	19%
FS195	Phumelela	Small Towns	31%
MP304	Pixley Ka Seme (MP)	Small Towns	27%
WC052	Prince Albert	Small Towns	29%
NW385	Ramotshere Moiloa	Small Towns	45%
EC129	Raymond Mhlaba	Small Towns	36%
NC075	Renosterberg	Small Towns	25%
NC061	Richtersveld	Small Towns	34%
EC138	Sakhisizwe	Small Towns	41%
FS191	Setsoto	Small Towns	27%
NC078	Siyancuma	Small Towns	34%
NC077	Siyathemba	Small Towns	38%
EC106	Sundays River Valley	Small Towns	30%
WC015	Swartland	Small Towns	30%
WC034	Swellendam	Small Towns	33%
MP321	Thaba Chweu	Small Towns	25%
LIM361	Thabazimbi	Small Towns	32%
WC031	Theewaterskloof	Small Towns	34%
NC076	Thembelihle	Small Towns	30%
FS182	Tokologo	Small Towns	25%
NC085	Tsantsabane	Small Towns	30%
NW382	Tswaing	Small Towns	35%
FS183	Tswelopele	Small Towns	35%
NC071	Ubuntu	Small Towns	28%
NC072	Umsobomvu	Small Towns	29%
KZN214	uMuziwabantu	Small Towns	38%
KZN245	Umvoti	Small Towns	34%
MP311	Victor Khanye	Small Towns	29%
EC145	Walter Sisulu	Small Towns	32%

WC022	Witzenberg	Small Towns	29%

Annexure F: Unauthorised, Irregular and Fruitless and Wasteful Expenditure

R 000	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18
Unauthorised Expenditure	48 622 373	15 929 524	15 869 452	14 896 913	14 957 068	13 405 232	8 880 000
Irregular Expenditure	192 358 864	11 666 933	6 630 863	14 018 031	16 606 295	11 653 927	16 630 000
Fruitless and Wasteful Expenditure	1 419 676	5 121 374	6 630 863	1 334 970	1 115 672	1 075 855	1 030 000
Total	**242 400 914**	**32 717 831**	**29 131 178**	**30 249 914**	**32 679 035**	**26 135 014**	**26 540 000**

Source: Annual Report AGSA, 2012 - 2018

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Chapter 3: Administrative intensity in local government and its impact on the sustainability of municipalities

Chapter overview

This chapter addresses the second research question, namely: Is the composition of municipal expenditure geared towards fiscal sustainability? For the purposes of this study, administrative intensity is defined as the ratio of expenditure on non-technical departments to the expenditure on technical departments (Melman, 1951). Technical and non-technical personnel can be used as proxies. Fiscal sustainability is defined as the ability of a municipality to meet its current obligations over time without having to introduce substantial adjustments to their revenues and expenditures.

The current study found that municipal organisational structures are administratively "intense". This phrase refers to large budgets that are used to maintain the administrative departments of municipalities, at the expense of service delivery. the use of lateral benchmarking of municipalities of similar size and type showed no correlation between large administrative departments and sound financial and governance performance. The regression results indicated that capital transfers and population size were the most influential factors in determining the administrative cost at a municipal level. Moreover, the findings indicated an inverse relationship between administrative intensity and municipally generated revenue. This means that the more a municipality is able to generate its own, the better it was at managing its finances.

Overall, the conclusion drawn in this chapter is that the administrative intensity of a municipality plays a role in that municipality's long-term sustainability. Maintaining a large administrative department can limit a municipality's ability to respond to the service delivery needs of the growing population within its jurisdiction.

Abstract

The first part of this paper examines the scale effects and the determinants of administrative intensity within South African municipalities. Regression analysis, a form of predictive modelling technique, was performed. The results revealed that the spending by functions in municipalities is administratively orientated, with insufficient economies of scale. Regarding the determinants of administrative intensity, capital transfers and growth in the population were shown to be the most influential factors in determining the administrative costs of municipalities. Moreover, the findings indicated that the more own-source revenues a municipality has, the better it manages its finances.

The results from the benchmarking excircise indicated that several municipalities were administratively intense. These findings are consistent with the further analysis on municipal expenditure by function, which show that, over time, the administrative component of municipal functions have surpassed service delivery spending. This trend must be reversed to attain economies of scale.

Keywords: administrative costs, administrative intensity, economies of scale, operational transfers, benchmarking, employee costs

3.1   Introduction

Various reforms have been introduced to the local government fiscal system in South Africa. However, several municipalities are still struggling to meet their developmental and service delivery responsibilities (National Treasury, 2021). The challenge partly entails a poor understanding of what an administrative arm of a municipality should cost to meet its legal mandate. This makes it challenging to identify the potential of a municipality to reduce unnecessary administrative overheads and services and instead invest in service delivery-related functions. In the absence of such information, municipalities frequently claim to be underfunded. By contrast, the national government insists they could do more with the resources they already possess.

Eastern Europe and the former Soviet Union have a long tradition of calculating normative costs. Their premise is that it is indeed possible to understand what it costs to run an efficient municipality. South Africa, too, has set norms and ratios. However, anecdotal evidence suggests that in cases where these norms have been imposed, they have caused dysfunction and distortion. Moreover, there is great variation in local circumstances, such as population, demographics, physical size, topography, settlement patterns, services, property, plants and equipment. Such variations render norms and standards unhelpful.

With this background in mind, the objectives of this chapter are threefold. The objectives of this paper are 1) to explore the patterns and characteristics of the composition of municipal expenditure; 2) to examine the administrative intensity of municipal budgets; 3) to understand the determinants of administrative intensity in all South African municipalities; and 4) to assess the impact of such intensity on fiscal sustainability.. The study period is the years of 2011–2012 to 2017–2018. Administrative intensity was thus conceptualised as the dependent variable. Administrative intensity has been defined as the ratio of expenditure on non-technical departments to total expenditure. It can also be expressed as the expenditure on non-technical departments as a percentage of total expenditure. The remuneration of non-core personnel as a percentage of total personnel remuneration can also be used as a proxy for administrative intensity. "Total expenditure" refers to all expenditure incurred by the municipality recorded in the annual audited financial statements; it includes salaries and allowances, other administrative expenses, municipal trading services expenditure, operation and maintenance of service provision, and developmental expenditure.

In this part of the paper, multiple regression analysis was performed to test the scale effects of municipal outputs. These municipal outputs are population, own revenue and capital transfers from national government. The administrative intensity is independent variable of this study. Data for three of the four variables were drawn from audited financial and non-financial statements published by the Auditor-General South Africa, Statistics South Africa, and the National Treasury. Hence, the data are assumed to be reliable. All monetary values are measured in rand and deflated to 2010/11 = 100.

The paper is divided into six sections. Section 2 briefly reviews the literature on local government expenditure. Section 3 describes the model employed to analyse the scale effects and determinants of administrative intensity in municipalities discharging their functions. Section 4 provides a benchmarking exercise, which is based on real world best practices. Section 5 analyses the change in composition of functional expenditure over time and discusses the composition of municipal expenditures. The paper ends with brief concluding comments and the policy implications, which are presented in Section 6.

3.2   Literature review

Good expenditure management is critical to financial performance and sustainable service delivery in local government. The literature on this subject is limited in South Africa. However, elsewhere in the world, policymakers are concerned about the optimal organisational size for public administration in local government (Ting, Dollery & Villano, 2014). Scholars suggest that the size of an organisation should enable scarce resources to be allocated to the most

cost-effective local government programmes. Scarce resources should not be used to maintain large and inefficient organisational structures (Allen & Tommasi, 2001).

This principle is referred to as "allocative efficiency". It is premised on the New Public Management (NPM) paradigm (Pakkies, 2016). The aim is to generate value for money, by improving – amongst other things – the efficiency with which public services are provided (Paterson, 1988; Aucoin, 1990; Starks, 1991; Osborne & Gaebler, 1992; Hood, 1995; Behn, 1995). However, the critics of NPM such as Dunleavy, Margetts, Bastow & Tinkler (2006) argue that NPM in the public sector has led to problems of inefficiency and ineffectiveness due to the multiplicity of government administrative components. Ting, Dollery & Villano (2014) reported, as did Lewis (2006), that administrative economies of scale occur, with administrative costs increasing as output increases. There are substantial costs, or "diseconomies", associated with large administrative components.

Pevcin (2013) stated that large local governments are associated with relatively low costs, in other words, an economy of scale. The same view was held by Andrews & Boyne (2009), who found that administrative costs were relatively low in large local authorities. By contrast, Haneda et al. (2012) analysed changes in municipal administrative efficiency and found that creating a large local authority through mergers did not always enhance the efficiency in the post-merger period.

Ting, Dollery & Villano (2014:5) cite that "Noell (1974), Freeman & Hannan (1975), Clarke (1982), Kalseth & Rattso (1995), and Andrews & Boyne (2009) have all found economies of scale in the relationship between administrative intensity and outputs of local government administrators". Fry & Holzer (2011) provided an impartial review of scholarly studies as well as the experiences of local officials. They estimated that economies of scale characterised nearly 20% of local government expenditures.

Similarly, Dollery & Byrnes (2007) observed that "economies of scope" can be obtained by metropolitan municipalities. This scenario includes the financial benefits of delivery of service by a single institution rather than multiple institutions; the latter situation often occurs in small municipalities. The Council of Europe (2001); Steiner (2003); Dollery & Byrnes (2007); and Dollery, Byrnes & Crase (2008) argued that metropolitan municipalities can deliver better services because of the extensive financial resources and specialisation available to large administrations than in smaller municipalities.

Scholars have examined this notion by measuring expenditure per capita, which is relatively high in large municipalities. However, this methodology can be questioned, because cost inefficiencies could drive the per capita expenditure, leading to a diseconomy of scale. In addition, Boyne (1995) criticised the notion of perceived economies of scale in metropolitan

municipalities. Boyne argued that diseconomies of scale may emerge through the complexity, long processes, and bureaucracy of metropolitan municipalities. Kopanyi, Daher & Wetzel (2004) noted that challenges facing metropolitan municipalities include lack of spatial integration reforms, inadequate infrastructure and inequalities in service delivery. They argue that these challenges hinder service delivery. As a result, they argued for better coordination and integration. Indeed, South African metropolitan municipalities can benefit from coordinating and integrating service delivery, development and cost sharing to achieve value for money. International experience has shown that economies of scale have been achieved in affluent metropolitan areas for certain service functions. In Paris, London and Shanghai, for example, city councils serve areas with twice as many inhabitants as city centres (Kopanyi, Daher & Wetzel, eds., 2004).

Administrative intensity has been defined as the ratio of expenditure on non-technical departments to the expenditure on technical departments (Melman, 1951). Kalseth & Rattso (1995, 1998) found that excessive administrative spending in local government diverted funds away from service delivery areas. The challenge was mainly on the personnel side, where "administrative personnel remuneration is usually a fixed and predictable cost" Ting, Dollery & Villano (2014:5). In such cases, "fixed costs" refers to the costs of inputs, which remain constant despite changes in the output level (Taylor & Frost, 2009). However, Oplotnik & Brezovnik (2004) proposed that if municipalities were to largely rely on self-generated revenues, that would improve their efficiency.

Own revenue and total per capita budget are important in determining a municipality's administrative intensity (Kalseth & Rattso, 1995, 1998; Lewis, 2006). In general, large local municipalities are expected to provide many services and therefore have relatively high administrative costs per capita (Ting, Dollery & Villano, 2014). To ameliorate this measurement problem, administrative costs can be expressed as a percentage of expenditure. Furthermore, Balaguer-Coll, Prior & Tortosa-Ausina (2007) stated that a high share of own revenues increases cost inefficiency.

Regarding the impact of capital or infrastructure grants on municipal administrative intensity, Šťastná & Gregor (2015) found that capital expenditure decreased the cost inefficiency. However, Freeman (1979) and Ting, Dollery & Villano (2014) strongly suggest that municipalities tend to incur significant administrative costs in meeting the requirements imposed by national and provincial governments to ensure a stable flow of conditional grants. Therefore, the relationship between administrative costs and capital grants is expected to be positive.

Benchmarking is defined as a method identifying the most effective practices from other peer municipalities, learning from them, and implementing them (Luque-Martinez & Muñoz, 2005).

3.3   Methods

This study examined 257 municipalities. These consisted of eight category A municipalities, otherwise known as "metropolitan municipalities (metros)"; 18 secondary cities (B1); 25 large town (B2) municipalities; 98 small town (B3) municipalities; 61 rural municipalities (B4); 23 district municipalities without major functions (C1); and 21 district municipalities with major functions(C2).For the purposes of this study, C1s will be referred to as low-capacity district municipalities and C2s as high-capacity district municipalities.

3.3.1   Local Public Expenditure: Contending Needs

This part of the study shows that trends in operational expenditures by function and item have been examined in nominal and real terms. Estimates and revised estimates are also traced to gain an insight into estimation procedures. The annual average growth rate of total revenue or expenditure has been computed using standard formulas using budget documents published annually by the municipalities and audited by the Auditor-General of South Africa. The period of financial data studied was the 11 years between 2006/07 and 2016/17. Apart from these, other qualitative criteria such as the quality of presentation of the budget documents are used. This part of the study uses the compound annual growth rate (CAGR), instead of the traditional average growth rate. The CAGR is a far more accurate method of measuring the total return on an investment than the average rate of return method. Growth rates calculated using this method are a composite percentage that indicates what the growth rate would have been during the period if it had been smoothed and remained the same for the entire duration of the chosen period.

3.3.2   Statistical analysis

The administrative costs varied between 10% and 99%, with the average being 48%. Rural municipalities and low-capacity district municipalities tended to record high administrative costs, as these LMs devoted a substantial budget to maintain their municipal services to perform standard Council administrative functions. Constrained financial circumstances reduce the total expenditure and increase the administrative costs; this issue was salient in rural municipalities.

Own revenues, population and capital transfers were used as proxy variables for municipal outputs. "Own revenue" refers to income earned from various services rendered by a municipality to the public. "Capital transfers" refer to infrastructure funds contributed by national and provincial government to address the backlogs in building or refurbishing the

social and economic infrastructure needed to realise growth potential. "Population" refers to the size of the community within a municipal jurisdiction (Ting, Dollery & Villano, 2014). Citizens within a municipal jurisdiction are the primary direct users of municipal services. Hence, although population is not a perfect proxy for "output, it is a crucial indicator in determining local economic development – which in turn influences administrative functions" (ibid., p. 7).

Statistical analyses were performed with Statistica version 12 (Statsoft) software. A 5% significance level ($p < 0.05$) was set to determine significant differences. Three estimating methods are described in this chapter: 1) ordinary least square (OLS); 2) fixed effect (FE); and 3) random effect (RE). Various model specifications were employed to estimate the administrative intensity. The first test showed that pooled OLS inappropriate as all effects were equal to zero. This finding was consistent with theory, which states that pooled OLS should be employed when a different sample is selected for each period of the panel data (Wooldridge, 2010). Hence, the null hypothesis (Ho: s^2 m=0) was rejected, implying that the OLS estimators were biased.

The choice was thus between FE or RE tests, because the sample was the same and varied over different periods. The Hausman test was used to determine which effects to use in the model. The best model for the panel data was identified as a fixed one-way model.

3.4   Benchmarking

This study's benchmarking analysis is premised on the notion that it is possible to understand what it costs to run an efficient municipality. It takes into account that there is great variation in municipal circumstances in terms of population, demography, size, topography, settlement patterns, services, property, plants, and equipment. Municipal administration costs also vary markedly within a country, and local salaries and living conditions lead to diverse wage levels. Local infrastructure and topographic differences lead to different costs of operation. Demographic differences mean that an ageing population needs different services compared to a younger population. Organisational structures may vary based on aspects such as settlement patterns. Some places can succeed with only a few municipal offices, whereas others need to be accessible to a widely dispersed population.

Municipalities also have different priorities. Some may prioritise water service; others may prioritise good roads to transport products to market; still others may desire a stadium, even if national government thinks this ambition is misguided. It seems quixotic at best, and micromanagement at worst, to presume that management norms can be determined for a country as big and varied as South Africa. Hence, benchmarking is useful. Benchmarking means examining the actual costs incurred by real municipalities and then using the best

performers as benchmarks. However, the benchmarking exercise as an approach has its limitations. In this research, the main limitation was that the cost of administration departments is based entirely on existing practices and staff complements in municipalities. This was compounded by a lack of norms and standards for administrative costs. Moreover, this study has shown that municipalities already spend substantially more than they should on administration. Hence, any inefficiencies found within the current groups of municipalities would lead to an overstatement the costs of running an ideal municipality. Ideally, the benchmarking exercise should have been complemented by estimating what it should cost to run an efficient municipality under the unique conditions faced by each municipality. That approach is referred to as zero-based costing.

In this part of the study, several well-governed municipalities in terms of compliance to relevant legislation, financial management capacity, ability to roll out projects, and capacity constraints as performance measures based on the 2019 municipal governance index (Annexure A) in each group are selected as ideal municipalities. It juxtaposes them with the worst performers in the respective municipal groups in terms of administrative costs per capita.

3.5   Results and discussion

3.5.1   Local Public Expenditure: Contending Needs

Expenditure according to function

The South African local government has been known to spend substantial amounts on social services; thus function constituted the largest expenditure in the national budget between 2002/03 and 2017/18 (Table 3.2). Although this is the case, governance and administration spending increased vastly over the same period. In 2002/03, as a share of total expenditure, spending on governance and administration constituted 17% (R6.7 billion), as did expenditure on community development and safety. Spending on trading services – namely, electricity, water, sanitation and refuse removal – constituted 55% (R22 billion). The proportion of municipal expenditure by function has changed considerably over the years. In 2017/18, as a share of total expenditure, governance and administration constituted 28% (R95.5 billion), while expenditure on community development and safety accounted for just 13% (R42.6 billion). Spending on trading services also decreased, and in 2017/18 it accounted for 48% (R162.3 billion) of the total expenditure.

Table 3. 1: Expenditure by function between financial years 2002/2002 and 2017/2018

Years	Admin and Governance	Economic services	Communication and Safety	Trading Services	Total municipal expenditure
2002/03	6 736 895	4 261 737	6 837 068	22 012 037	39 847 737
2003/04	3 079 915	1 194 002	2 709 171	6 768 720	13 751 808
2004/05	6 778 033	2 142 594	6 318 626	19 946 101	35 185 354
2005/06	13 524 854	6 094 670	10 559 278	29 563 704	59 742 506

Years	Admin and Governance	Economic services	Communication and Safety	Trading Services	Total municipal expenditure
2006/07	13 663 768	4 957 803	8 568 831	24 737 840	51 928 242
2007/08	33 389 659	6 839 170	13 121 582	32 884 086	86 234 497
2008/09	43 299 909	12 783 806	21 656 086	62 415 162	140 154 963
2009/10	49 321 442	16 759 173	24 883 787	75 646 576	166 610 978
2010/11	54 112 984	17 389 967	26 631 771	89 558 962	187 693 684
2011/12	58 544 614	20 841 720	29 468 454	108 065 110	216 919 898
2012/13	58 610 799	22 911 453	33 691 744	121 885 559	237 099 555
2013/14	63 974 948	26 977 286	39 343 916	132 286 745	262 582 895
2014/15	76 445 161	31 578 199	38 639 165	144 079 344	290 741 869
2015/16	81 059 751	34 612 596	40 292 490	157 887 135	313 851 972
2016/17	91 519 370	37 808 294	40 454 181	170 296 003	340 077 848
2017/18	95 521 783	38 227 197	42 615 365	162 300 846	338 665 191
Average annual growth	**19%**	**16%**	**13%**	**14%**	**15%**

Source: adapted from the local government database

In essence, over the last 16 years, local government expenditure has increased by an average annual growth rate of 15%. The above analysis indicates that this strong growth was driven primarily by expenditure on governance and administration, with an average annual growth rate of 19% over the period. The next highest increase was for the economic and environmental function, which had an average annual growth rate of 16%. Community development and safety as well as trading service functions grew at an average annual rate of 13% and 14%, respectively.

Therefore, it would appear that at a functional level, empirical evidence indicates that spending on governance and administration has eclipsed spending on trading services. This point is noteworthy because there was a period of rationalising municipalities through amalgamation, with the number of municipalities decreasing from 843 in 2000 to 257 in 2017. This should have decreased the spending on governance and administration functions. The actual trend is concerning for policymakers. Spending on governance and administration has continued to increase. In addition, the analysis indicates that many of the municipalities with high administrative costs were no better off than they had been; some were under intervention due to failed financial management and governance issues. This was during a period in which national debt, as a percentage of Gross domestic product (GDP), had increased by 14.5% from 38.6% in 2011/12 to 53.1% in 2017/18.

Metropolitan municipalities contributed the largest expenditure on governance and administration, at 89% (R6 billion) of total governance and administration in 2002/03. This grew by a 13% average annual growth rate to R36.4 billion in 2017/18, which accounted for 36% of the total spending on governance and administration in that financial year.

Similarly, rural municipalities showed strong growth, from 1% (R40.3 million) of the total consolidated governance and administration expenditure in 2002/03 to 13% (R12 billion) in 2017/18, representing an average annual growth rate 46%. This expenditure constituted 20%

of all functional spending by rural municipalities in 2002/03; the figure had increased to 61% in 2017/18. Therefore, among rural municipalities, spending on governance and administration surpassed spending on other functions. This fact seems unfortunate given that households in rural municipalities have particularly poor access to municipal services.

Expenditure on specific items

Of the consolidated municipal total expenditure of R39.8 billion in 2002/2003 (Table 3.2), the employee costs were the largest expenditure item, at R11.2 billion (28% of the total). This item grew at an average annual rate of 16% to R99.9 billion (27%) in 2017/18. However, this expenditure item cannot be examined in isolation, and municipalities have sometimes outsourced services to contractors and consultants. For the same reason, the growth of contracted services from 5% in 2002/03 to 9% in 2017/18 is noteworthy.

When one disaggregates compensation of municipal employee expenditure by municipal groups, one finds that metropolitan municipalities accounted for 91% of all personnel expenditure in 2002/03. The proportion grew by an average annual growth rate of 11% to R49.6 billion in 2017/18, accounting for 60% of all expenditure related to compensating municipal employees.

The low-capacity district municipalities spent the largest proportion of their operating expenditure on personnel. This figure was 35% (R12.3 million) in 2002/03 and grew at an average annual rate of 43% to R2.5 billion in 2017/18, when the employee costs accounted for 51% of total operating expenditures.

Years	CoE as % of operational expenditure	Bulk purchases as % of operational expenditure	Unclassified exp as % operational expenditure	Contracted services as % operational expenditure	Debt Impairment as % % operational expenditure
2002/03	28%	23%	25%	5%	4%
2003/04	29%	17%	24%	3%	5%
2004/05	24%	24%	18%	6%	6%
2005/06	24%	22%	21%	5%	6%
2006/07	26%	22%	20%	5%	5%
2007/08	27%	22%	26%	4%	4%
2008/09	27%	17%	23%	4%	6%
2009/10	27%	22%	20%	5%	6%
2010/11	27%	25%	14%	6%	6%
2011/12	27%	27%	14%	6%	5%
2012/13	26%	28%	14%	6%	6%
2013/14	26%	27%	13%	6%	6%
2014/15	25%	26%	13%	7%	7%
2015/16	26%	27%	13%	7%	6%
2016/17	26%	27%	11%	7%	7%
2017/18	27%	25%	10%	9%	6%

Source: adapted from the local government database

The second largest expenditure item in 2002/03 was unclassified expenditure or expenditure on "other" items. Based on table 3.3, the "other expenditure" item declined as a proportion of total operating expenditure from 25% in 2002/03 to 10% in 2017/18. The general improvement in budget and expenditure transparency is the result of various reforms introduced by the National Treasury, including the Medium Term Revenue and Expenditure Framework (MTREF) and the Municipal Standard Chart of Accounts. However, much remains to be achieved to facilitate better implementation of these reforms in rural municipalities.

The third biggest spending item was purchases of bulk services, particularly for bulk water and electricity supplied that municipalities then sold to consumers. Bulk services accounted for R9.1 billion (23%) of the consolidated total expenditure for municipalities in 2002/03. Between 2002/03 and 2017/18, this item grew at an annualised average rate of 16% to R85.7 billion (25%) in 2017/18. The analysis of municipal groupings showed that metropolitan municipalities accounted for 89% of all bulk purchases in 2002/03; this figure grew by an average annual rate of 14% and was R57.2 billion in 2017/18. Rural municipalities spent the lowest proportion of operating expenditure on bulk services. Their spending on this item was 31% (R63.4 million) in 2002/03, which grew at an average annual rate of 23% to R1.4 billion in 2017/18, at which point their bulk service expenditure accounted for only 7% of total operating expenditures.

The empirical evidence suggests that spending on governance and administration and employee costs eclipsed the spending on bulk services at an aggregate level. This should concern policymakers, as spending on governance and administration and on employee costs have continued to increase. For rural municipalities, the situation appears dire. For this group, at the itemised level, only 7% was used to deliver services and 20% remained unaccounted for. The bulk of expenditure was mainly for employee costs. Therefore, in rural municipalities, spending on personnel renumeration surpassed the spending on bulk purchases. This situation was exacerbated by a 36% average annual growth rate in the employee costs between 2002/03 and 2017/18.

3.5.2   Statistical analysis

For the dependent variable, the monetary value of administrative cost was more accurate than the number of administrative personnel, because administrative personnel are heterogeneous in terms of quality and workload.

Table 3.3 below shows the results of panel data regression for determinants of administrative intensity.

Table 3. 2: Results of panel data regression for determinants of administrative intensity

	Std Coeff	Estimate	Std. Error	t value	Pr(>|t|)
log Own Revenue	-0.548	-0.173251	0.06437	-2.691	<0.01
log Capital transfers	0.07	0.029913	0.028575	1.047	0.3
log Population	0.459	0.199727	0.156355	1.277	0.2

Source: author's own

Findings from the model in this study indicated an inverse relationship between administrative intensity and municipally generated revenues. This correlation implies that the more own-source revenues a municipality possesses, the more effectively it manages its finances. This argument makes intuitive sense. The implication is that South Africa must endeavour to ensure that municipalities are provided with sufficient revenue-raising powers.

Literature suggests that substantial investment in both social and economic infrastructure is needed to unlock the growth potential of all municipalities in South Africa (Perkins, Fedderkeand Luiz, 2005; Development Bank of Southern Africa, 1998; Budget Speech, 2017) Almost all of the country's municipalities receive government funding for social infrastructure, in the form of conditional grants to local government. Between 2011/12 and 2016/17, R216.4 billion was allocated to municipalities through infrastructure grants to build and refurbish their capital assets. These grants aim to provide all South Africans with basic services by funding the capital cost of necessary infrastructure to serve poor communities and eradicate backlogs. These conditional government contributions are subject to oversight and monitoring by the national government.

Any potential changes to the fiscal and regulatory systems are generally accompanied by additional technical support to strengthen the capacity of municipalities, which often struggle to attract skilled personnel. In South Africa, metropolitan municipalities require technical support to equip them to deal with the unique challenges of spatial transformation, densification, urban transit, and immigration. The National Treasury thus provides a City Support Programme to assist them. Other municipalities have limited capacity and find it hard to attract and retain skilled personnel, especially engineers. Hence, it makes sense that increasing capital grants would result in increased administrative costs as there may be additional burden in relation to reporting requirements and compliance. These municipalities need to be capacitated to respond to the fiscal challenges of financing the built environment, and they require effective resources to support public infrastructure investments.

The results indicate that populous municipalities are likely to spend much of their revenue on increasing their administrative components in terms of the population variable. This point should concern policymakers, as it indicates that populous municipalities are unlikely to prioritise service delivery. That would mean many of their residents remain unserved.

Various policy implications can be derived from these results. First, rural municipalities generally spend most of their budgets on administrative functions, averaging 65% of their budgets between the 2011/12 and 2017/18 financial years (see Figure 3.1 and Annexure B). Figure 3.1 also shows that rural municipalities are situated in the former homelands and annexure B shows that these municipalities are predominately found within district municipalities with the water and sanitation functions. In addition, the same municipalities remain most underserved. Up to 55.4% of water backlogs exist in rural municipalities, with approximately 39.7% of sanitation backlogs being in these areas; 44.8% of electricity backlogs are rural (Statistics South Africa, 2017). District municipalities with the water and sanitation functions on average spent 46% of their budgets on administrative functions during the same period.

Figure 3. 1: Location of the municipalities and their administrative intensity in South Africa
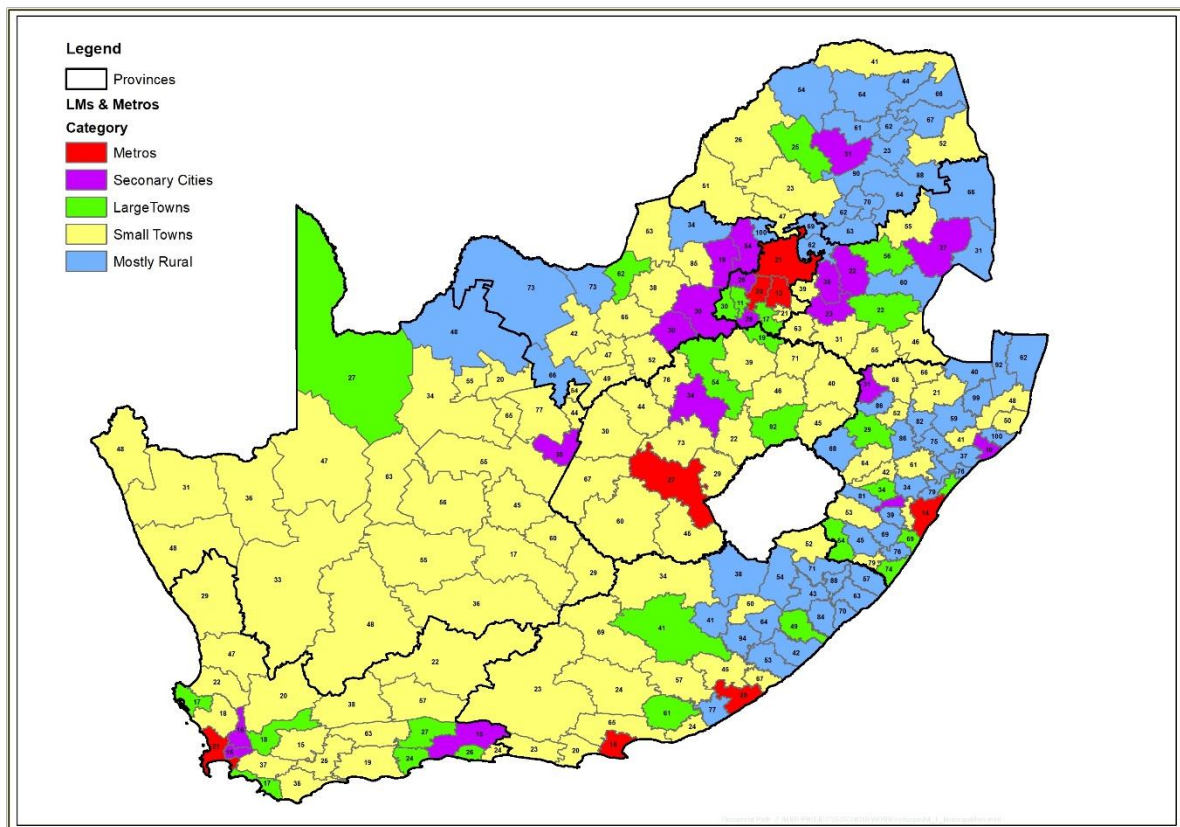
Source: author's own map

Furthermore, small town municipalities on average spent 45% of their budgets on administrative functions between the 2011/12 and 2017/18 financial years and are predominately found in areas classified as farm lands and spend 45%. In addition, annexure B also shows that district municipalities without the water and sanitation functions are likely to be found along the small town municipalities, but spend significantly more than small town municipalities on administrative functions as they spend 56% on average.

The state subsidy, in the form of equitable shares, is designed to be directly aimed at improving the lives of the poor. It is evident that the subsidy has not achieved the intended impact of providing essential services to poor households to integrate them into the mainstream economy. This point, too, should concern policymakers, because the South African fiscal decentralisation reform seems to have been relatively effective and beneficial in metropolitan municipalities. Many poor households in these areas enjoy more services than they did in 1994. There should be consequences for such inefficiencies. The lack of consequence management is preventing municipalities from creating buoyant revenue streams to ensure service provision and fiscal sustainability.

The next section examines the actual administrative costs incurred by real South African municipalities. The best performers are discussed as benchmarks.

3.6   Benchmarking the administrative functions

Building institutional capacity is a complex process. It is subject to the interplay of many factors, which are effectively impossible to quantify in a credible or reliable way, especially in government sectors. Measures of organisational efficiency and effectiveness in the private sector are less complicated. In the public sector, measures of efficiency run the risk of creating perverse incentives, as they create an inward and short-term focus that is detrimental to the government's long-term objectives.

In 2019, South Africa lacked any indicators of administrative capacity to reliably indicate the effectiveness of municipalities. In this chapter, the per capita expenditure on administration costs is examined as an indicator of efficiency.

Figure 3.2 below shows the administrative expenditure per capita by municipal with each of the 257 municipality denoted by a colour of a group within which it falls.

Figure 3. 2: Administrative expenditure per capita
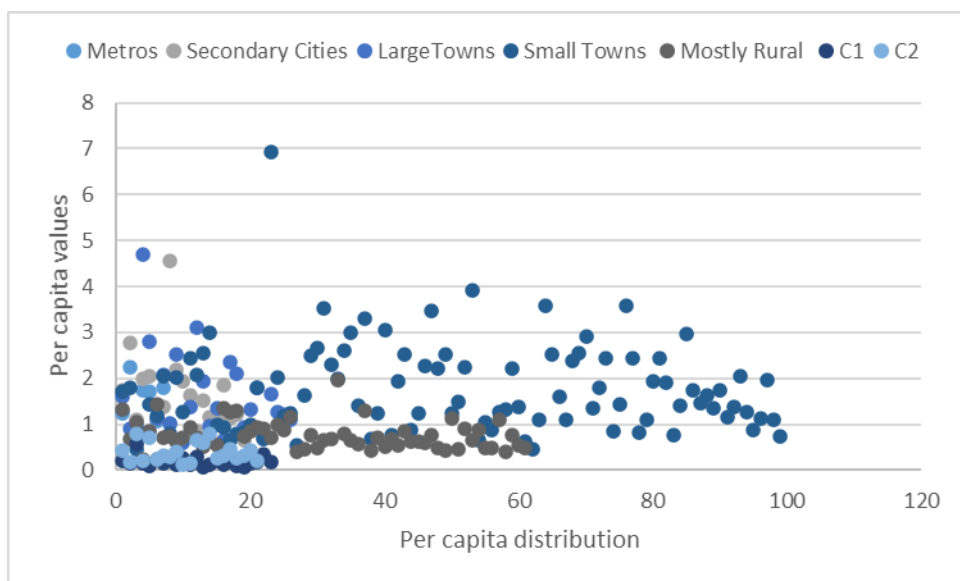
Source: adapted from the local government database

Particularly for this section, the bracketed figures refer to where each of the 257 municipalities rank in terms of the 2019 municipal governance index. Regarding the metropolitan municipalities, the City of Cape Town (30) spent R2,233 per capita, which was the highest per capita expenditure for administration costs; this municipality also displayed good governance. "Good governance" can be described as efficiently implementing national policies in a way that matches local preferences.

Mangaung (203) was at the opposite extreme. This municipality spent the second most on administration per capita, at R1,793. However, Mangaung's administrative costs accounted for 27% of the total operation expenditure, which was the highest amount spent by any metro. Moreover, over a period of seven years, this metropolitan municipality was in financial distress the most often – namely three times between 2011/12 and 2017/18. This point clearly indicates diseconomies of scale regarding how much this municipality spends on its administration function.

At the minimum, strong administrative and financial management as well as policy interpretation capacities are required. These do not emerge in response to fiscal and financial incentives that may be embedded in the assignment of revenues and expenditure functions. They are created purposively, through continuity, commitment, and strong and capable leadership. This is perhaps the most important lesson that can be learned from South African municipalities.

With regard to the secondary cities, the municipalities of uMhlathuze (9), Drakenstein (51) and George (44) performed well in terms of good governance. The highest spender regarding administration cost was George, which spent R1,114 per capita. This was a modest figure compared to that of Emfuleni (152) and JB Marks (230) municipalities, which spent,

respectively, more than R2,000 and R4,533 per capita on administration costs. Therefore, when administration cost as a percentage of total expenditure is used as an indicator of efficiency, some municipalities were inefficient, with excessive spending on administrative costs. Moreover, both Emfuleni and JB Marks municipalities were under interventions in terms of Section 139 of the Constitution. The areas of their problems were logged as financial administration, service delivery, and governance.

In the group of large town municipalities, Mossel Bay (7) represented good governance. It spent R2,113 per capita. By contrast, municipalities that were struggling with governance matters – such as Dihlabeng (33) and Makana (157) municipalities – spent, respectively, R4,685 and R3,116 in administration costs per capita. These figures indicate their inefficiency in terms of excessive spending on administrative costs. The DEA model confirmed decreasing returns to scale for both the Dihlabeng and Makana municipalities.

In the small town municipalities, Witzenberg and Swellendam municipalities, which were ranked 3rd and 10th on the municipal governance index, spent the least on administrative costs per capita. Witzenberg spent R736 and Swellendam spent R1,412. However, there were several inefficient municipalities in this group regarding poor governance and financial management. For example, Kannaland (212), Mafube (247), and Maluti-a-Phofung (221) spent, respectively, R3,515, R3,481 and R3,515 per capita on administrative costs. They were under intervention in terms of Section 139 (5) of the Constitution (matters related to financial administration) and Section 139 of the Constitution (financial administration and service delivery-related matters).

This analysis indicates there is no correlation between high spending on the administrative component and good governance, service delivery, and financial management. On the contrary, evidence suggests that well-run municipalities, which were the leaders in governance, financial management, and service delivery matters, spent the least on their governance and administrative departments.

The analysis above indicates the disjuncture within organisational structures that are not aligned to the functional structures. An example is Umkhanyakude District Municipality (165), which had a weighted score of 72.8% and is classified as a high service responsibility municipality. It has a staffing structure of 399 posts, of which 335 are currently filled. As a water services authority, approximately 53% of the staff are located in the technical services department. A contrasting example is the West Rand District Municipality (228) with a weighted score of 60.3%. This district municipality has no major service delivery functions, but it has the largest structure, with 539 approved positions.

The imbalance described here requires a reconsideration of classifying municipal organisational structures according to municipal size. That is, a large size does not always mean better governance outcomes.

3.7   Conclusion

The first part of this paper examined the scale effects and determinants of administrative intensity in South African municipalities between 2011/12 and 2017/18. The analyses showed that population size, own revenue, and capital transfers were the most influential factors in determining the administrative intensity at the municipal level. The finding that population size is a significant driver of administrative intensity contrary to the theory by Andrews and Boyne (2009). Those authors found that population size was inversely associated with administrative intensity.

The current findings are naturally relevant to the South African context. Municipalities are meant to serve the needs of the population within their jurisdictions, which implies that the population should play a role in determining the administrative function of a municipality. However, the statistically significant negative correlation between administrative intensity and own revenue suggests that municipalities are unlikely to use the funds they raise to augment their administrative departments.

The coefficients for capital transfer also suggest that increases in conditional grants are likely to marginally increase a municipality's administrative intensity. This point is consistent with literature. Other scholars have shown that conditional grants pose an additional burden in relation to reporting requirements and compliance.

The second part of the paper provided a benchmark exercise regarding the administrative costs. The most efficient municipalities were examined in terms of their governance and financial management. The findings showed that there is room for savings within municipal groups given the considerable variation in administrative costs in areas with similar demographic features.

The third part of the paper evaluated whether administrative functions have eclipsed service delivery programmes. The findings indicate that over time, governance and administration experienced the fastest average annual growth between 2002/03 and 2017/18, at 19%. Expenditure on trading services grew by an average annual rate of 14% during the same period. The figures indicate that spending on governance and administration has eclipsed spending on trading services at the functional level.

Moreover, the third part of the paper indicated that at the itemised level, between 2002/03 and 2017/18 the growth was primarily driven by rising expenditure on personnel. This point could

compromise the pursuit of the redistribution objectives of the fiscal system. The trends evident at both the functional and item levels represent a need for a policy change. Local government should refocus its expenditure towards service delivery functions after a prolonged period of inefficient spending; this point is particularly true for rural municipalities.

3.8 Recommendations

Findings from this study disconfirm the current thinking about an ideal organisational size for municipalities to be sustainable. That is, a large size does not always mean better governance outcomes The study examined the implications of municipal staffing practices that are not guided by prototypical organisational structures or norms and standards.

It would be helpful to conduct a costing analysis to determine how much it would cost to run an efficient municipality. A recommendation based on the current work is thus that the Department of Cooperative Governance and Traditional Affairs as well as the National Treasury should conduct research to determine the costs of running an efficient municipality. The established municipal groups could be used to develop a prototype for each type of group. The wide variation in municipal circumstances means that the combination of a model on municipality prototypes and benchmarking exercises would be the best approach.

If, for example, there were six well-governed municipalities in the Eastern Cape, the benchmarking exercise could examine what it costs each of them to deliver certain services. The administrative expenses are of interest here. The services could be water; electricity; cost per kilometre to maintain a paved road or a gravel road; cost of council salaries and emoluments; and cost per capita of population. Such benchmarking exercises, as well as activity-based costings, both constitute best practices in international research.

Lastly, it is recommended that national government should limit the provision of conditional grants as conditional grants pose an additional administrative burden on the recipient municipalities. Thereafter, citizens would need to be empowered to hold their local councils accountable for a lack of service provision and deviation from the standards required in the MFMA and the MSA.

3.9 References: Chapter 3

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3.10   Chapter 3: List of Annexures

Annexure A: 2019 municipal governance index

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Municipalities		Compliance		Financial management capacity			Ability to roll out projects		Capacity constraints			
Swartland (WC)	1	100	100	100	84,7	89,8	100	100	97	100	100	100
Midvaal (Gt)	2	100	100	100	86,7	92,1	100	100	89	100	100	100
Witzenberg (WC)	3	100	100	100	87,1	92,8	99	100	90	100	100	100
Bergrivier (WC)	4	100	100	100	76,6	96,9	96	100	100	100	100	100
Bitou (WC)	5	100	100	95	91,7	95,7	100	100	87	100	100	100
Theewaterskloof (WC)	6	100	100	100	78,1	89	100	100	94	100	100	100
Mossel Bay (WC)	7	100	100	100	83,2	95,7	98	100	90	100	100	100
West Coast District (WC)	8	100	100	100	90	99,3	93	100	94	100	100	100
uMhlathuze (KZN)	9	100	100	100	94,2	97,5	94	100	89	100	100	100
Swellendam (WC)	10	100	100	100	79,8	84,8	100	100	93	100	100	100
Saldanha Bay (WC)	11	100	100	100	80	88,2	100	100	93	100	83,3	100
iLembe District (KZN)	12	100	100	95	88	93,2	97	100	80	100	100	100
Breede Valley (WC)	13	100	100	100	83,8	87,7	100	100	83	100	83,3	100
Overstrand (WC)	14	100	100	100	96	98,6	85	100	82	100	100	100
UMgungundlovu District (KZN)	15	100	100	95	89,3	99,4	93	100	66	100	100	100

Steve Tshwete (Mp)	16	100	100	95	88,3	90,9	100	100	92	100	50	100
Zululand District (KZN)	17	100	100	95	84,7	90,1	100	100	94	100	50	100
Umhlabuyalingana (KZN)	18	70	100	100	90,8	89,2	100	100	100	100	100	100
Cape Agulhas (WC)	19	70	100	100	87,2	95,6	99	100	98	100	100	100
uMshwathi (KZN)	20	70	100	95	96,1	97,7	100	100	89	100	100	100
Ehlanzeni District (Mp)	21	70	100	100	84,1	88,7	100	100	96	100	100	100
Stellenbosch (WC)	22	100	100	100	78,7	93,3	93	100	91	100	50	100
Cederberg (WC)	23	100	100	100	89,8	64,9	77	100	95	100	100	100
UMuziwabantu (KZN)	24	70	100	100	76,4	99,9	95	100	98	100	100	100
Joe Gqabi District (EC)	25	100	100	95	67,5	75,8	97	100	75	100	83,3	100
Langeberg (WC)	26	100	100	100	84	91	81	100	79	100	83,3	100
Ethekwini Metropolitan (KZN)	27	100	100	95	87,7	96,1	73	100	85	100	100	100
Umzumbe (KZN)	28	70	100	100	67,6	83,8	100	100	94	100	100	100
Matzikama (WC)	29	100	100	100	81,9	90,5	83	100	96	100	50	100
City of Cape Town Metropolitan (WC)	30	100	100	95	85,1	93,3	79	100	90	100	66,7	100
City of Tshwane Metropolitan (Gt)	31	100	100	95	91,4	95,9	94	100	100	50	50	100
Newcastle (KZN)	32	100	100	95	97,2	97,6	81	100	98	83,3	50	100
Dihlabeng (FS)	33	100	100	95	72,6	95	100	100	100	50	50	100
Cape Winelands District (WC)	34	70	100	100	87,7	93,1	100	100	90	100	66,7	100
Nkomazi (Mp)	35	100	100	95	80,9	87,5	99	100	100	50	50	100
Capricorn District (Lm)	36	100	100	95	74	92,1	100	100	99	50	50	100
King Cetshwayo District (KZN)	37	100	100	50	82,8	75,3	100	100	88	100	100	100
Rand West City (Gt)	38	100	100	95	89,7	89,5	100	100	100	50	33,3	100
Overberg District (WC)	39	70	100	100	89,4	36	100	100	99	100	100	100
Thembisile (Mp)	40	100	100	95	47,6	97,5	100	100	94	66,7	50	100
Okhahlamba (KZN)	41	50	100	100	98,8	92,8	100	100	85	100	100	100
Buffalo City Metropolitan (EC)	42	100	100	95	93,3	90,1	100	100	89	50	33,3	100
Ubuhlebezwe (KZN)	43	70	100	95	77,7	84,8	100	100	97	100	66,7	100

George (WC)	44	100	100	100	83,8	87,5	69	100	94	100	66,7	100
Albert Luthuli (Mp)	45	100	100	95	73	98,2	94	100	95	100	0	100
Kouga (EC)	46	100	100	95	91,4	88,9	100	100	100	33,3	33,3	100
Endumeni (KZN)	47	70	100	95	86	94,9	100	100	93	100	50	100
Umsobomvu (NC)	48	100	100	95	85,4	90,8	77	100	88	100	50	100
Setsoto (FS)	49	100	100	95	93,5	94,4	99	100	68	50	50	100
Senqu (EC)	50	70	100	100	69,9	88,7	84	100	97	100	100	100
Drakenstein (WC)	51	100	100	100	82,8	90,9	66	100	65	100	100	100
Sol Plaatjie (NC)	52	100	100	95	85,7	96,4	91	100	85	50	50	100
Lesedi (Gt)	53	100	100	95	82	92,2	85	100	88	83,3	33,3	100
Mfolozi (KZN)	54	70	100	95	72,5	90,8	100	100	95	100	50	100
Ekurhuleni Metropolitan (Gt)	55	100	100	95	94	94,4	65	100	84	100	66,7	100
Mthonjaneni (KZN)	56	70	100	95	89,2	91,7	93	100	98	100	50	100
Nkangala District (Mp)	57	50	100	100	88,6	89,3	95	100	89	100	100	100
Bushbuckridge (Mp)	58	100	100	95	77,5	97,1	100	100	75	50	33,3	100
Richmond (KZN)	59	70	100	95	63,2	88,2	100	100	99	100	50	100
Moqhaka (FS)	60	100	100	95	87,5	85,1	100	100	63	50	50	100
Lephalale (Lm)	61	100	100	95	86,6	57	98	100	87	50	50	100
Nkandla (KZN)	62	70	100	95	64,6	99,8	100	100	87	100	50	100
Blue Crane Route (EC)	63	100	100	95	93	98,6	100	100	99	16,7	16,7	100
City of Johannesburg Metropolitan (Gt)	64	100	100	95	91,6	94,8	81	100	93	83,3	16,7	100
Govan Mbeki (Mp)	65	100	100	95	80,4	93	88	100	83	50	50	100
Nongoma (KZN)	66	70	100	95	98,1	91,4	99	100	93	66,7	50	100
Hessequa (WC)	67	100	100	100	73,4	88,4	55	100	91	100	83,3	100
Umvoti (KZN)	68	70	100	95	81,8	94,2	100	100	84	100	33,3	100
Amahlathi (EC)	69	70	100	95	99,9	93,9	99	100	99	50	50	100
Impendle (KZN)	70	70	100	95	80,3	92	90	100	94	100	50	100
Ulundi (KZN)	71	70	100	95	73,1	88,2	91	100	86	100	66,7	100
Ugu District (KZN)	72	100	100	50	75,3	94,7	100	100	99	100	16,7	100

Matjhabeng (FS)	73	80	100	95	80,8	97,5	92	100	100	50	50	100
Kou-Kamma (EC)	74	100	100	95	60,9	96,8	100	100	69	50	33,3	100
Dipaleseng (Mp)	75	100	100	95	77,8	98,9	100	100	94	0	33,3	100
Mtubatuba (KZN)	76	70	100	95	98,3	98,6	100	100	74	66,7	50	100
Greater Kokstad (KZN)	77	70	100	95	73,1	90,1	99	100	70	100	50	100
Elundini (EC)	78	70	100	95	80,2	77,1	90	100	94	100	50	100
Maphumulo (KZN)	79	50	100	95	99,4	88,2	100	100	75	100	66,7	100
City of Mbombela (Mp)	80	100	100	95	68,3	94,4	88	100	84	33,3	50	100
uMlalazi (KZN)	81	70	100	95	90,4	93,8	96	100	99	100	33,3	0
Kareeberg (NC)	82	100	100	95	79,4	90,9	91	0	87	100	33,3	100
Umdoni (KZN)	83	70	100	95	79,5	80,1	100	100	76	100	33,3	100
Mandeni (KZN)	84	70	100	95	90,4	96,4	89	100	92	66,7	50	100
Inxuba Yethemba (EC)	85	70	100	95	54,5	18,8	97	100	86	100	100	100
Uthukela District (KZN)	86	100	100	50	87,1	94,1	87	100	100	66,7	50	100
Thulamela (Lm)	87	70	100	95	81,7	83	100	100	86	50	50	100
Frances Baard District (NC)	88	70	100	95	72,9	91,5	96	100	92	50	50	100
Dannhauser (KZN)	89	70	100	95	51,1	89	100	100	100	100	0	100
Prince Albert (WC)	90	80	100	100	77,5	89,8	100	0	71	100	50	100
Ndwedwe (KZN)	91	70	100	95	0	93,7	100	100	66	100	83,3	100
Jozini (KZN)	92	70	100	95	77,8	94,7	100	100	73	50	50	100
Mbizana (EC)	93	70	100	95	95,9	85,9	100	100	92	33,3	33,3	100
Nqutu (KZN)	94	70	100	95	67,3	86,5	80	100	66	100	83,3	100
Phumelela (FS)	95	70	100	95	77,3	88,1	100	100	100	33,3	33,3	100
Eden District (WC)	96	70	100	95	91,1	87,7	54	100	90	100	100	100
Karoo Hoogland (NC)	97	100	100	50	96,1	96,2	100	100	71	50	33,3	100
Emadlangeni (KZN)	98	70	100	95	83,8	90,4	100	100	79	66,7	16,7	100
Engcobo (EC)	99	70	100	95	67,6	82,6	100	100	96	66,7	50	0
Matatiele (EC)	100	70	100	50	82	80,2	100	100	95	100	50	100
Raymond Mhlaba (EC)	101	70	100	95	85,2	87,5	100	100	100	50	0	100

Greater Sekhukhune District (Lm)	102	80	100	95	73,9	66,5	75	100	94	66,7	66,7	100
Nyandeni (EC)	103	70	100	95	70,2	59,9	72	100	100	100	66,7	100
Umzimkhulu (KZN)	104	70	100	95	88,2	98,4	84	100	98	66,7	50	0
Emthanjeni (NC)	105	100	100	95	86,5	92,1	58	100	99	50	33,3	100
Dawid Kruiper (NC)	106	100	100	95	76,2	85	57	100	99	50	50	100
Dr JS Moroka (Mp)	107	100	100	50	72,9	91,1	100	100	100	50	0	100
Central Karoo District (WC)	108	70	100	95	97,7	83,4	94	0	100	100	16,7	100
Merafong City (Gt)	109	100	100	95	86,9	76,4	73	100	68	50	33,3	100
Khâi-Ma (NC)	110	100	100	95	66,7	71,7	93	0	95	50	33,3	100
O.R.Tambo District (EC)	111	100	100	50	81	92,9	100	100	100	33,3	0	100
KwaDukuza (KZN)	112	50	100	95	83,2	88,9	90	100	94	66,7	50	100
Victor Khanye (Mp)	113	100	100	50	43,1	87,2	100	100	78	50	50	100
Sakhisizwe (EC)	114	50	100	95	63,1	95,2	100	100	93	50	50	100
Mkhondo (Mp)	115	100	100	50	75,7	87,2	85	100	87	50	50	100
Knysna (WC)	116	80	100	0	77,8	91,2	100	100	92	100	83,3	100
Z F Mgcawu District (NC)	117	0	100	100	89,2	95,5	100	100	96	100	83,3	100
Great Kei (EC)	118	70	100	95	64	74,3	97	100	81	50	33,3	100
Lejweleputswa District (FS)	119	70	100	0	83,8	98,3	100	100	99	100	83,3	100
Kamiesberg (NC)	120	70	100	95	60,1	79,7	96	100	94	33,3	33,3	100
Emalahleni (Mp)	121	100	100	50	68,4	84,9	100	100	91	50	0	100
Alfred Duma (KZN)	122	70	100	50	70,8	99,5	100	100	99	50	50	100
Amathole District (EC)	123	100	100	50	88,2	93,1	94	100	84	50	0	100
Emakhazeni (Mp)	124	100	100	50	73,2	86,4	96	100	92	50	0	100
Gert Sibande District (Mp)	125	0	100	95	84,9	92,8	100	100	98	100	83,3	100
Mbhashe (EC)	126	70	100	95	39,8	94	100	100	94	50	0	100
Pixley ka Seme District (NC)	127	100	100	95	96,9	92,1	94	0	78	33,3	0	100
Laingsburg (WC)	128	100	100	50	69,2	78	100	100	98	16,7	16,7	100
Chris Hani District (EC)	129	100	100	50	84,9	96,1	83	100	98	50	0	100
Ndlambe (EC)	130	100	100	50	89,4	99	99	100	82	16,7	0	100

Kgetlengrivier (NW)	131	100	100	95	45,6	95,2	60	100	100	33,3	33,3	100
Namakwa District (NC)	132	70	100	95	85,4	65,8	100	100	89	50	16,7	0
eDumbe (KZN)	133	50	100	95	68,4	94,2	99	100	93	50	16,7	100
Intsika Yethu (EC)	134	70	100	95	43,8	89,3	84	100	94	50	33,3	100
Harry Gwala District (KZN)	135	100	100	50	75,7	74,8	82	100	76	66,7	33,3	100
Greater Letaba (Lm)	136	70	100	50	93,4	72,1	100	100	97	33,3	50	100
Mantsopa (FS)	137	100	100	50	87,2	81	100	100	99	0	0	100
uMngeni (KZN)	138	70	100	50	94,4	89,3	100	100	71	100	33,3	0
Hantam (NC)	139	100	100	50	83,3	80,2	94	100	89	33,3	0	100
Ngquza Hill (EC)	140	0	100	100	82,3	79,6	100	100	84	100	83,3	100
Elias Motsoaledi (Lm)	141	70	100	50	81,2	99,6	91	100	86	50	50	100
Ephraim Mogale (Lm)	142	50	100	50	99,1	86	100	100	96	50	50	100
Mogale City (Gt)	143	100	0	95	89,7	95,5	100	100	69	16,7	16,7	100
Greater Taung (NW)	144	100	100	50	69	88,9	78	100	91	50	16,7	100
Waterberg District (Lm)	145	70	100	50	86,5	96,2	77	100	96	83,3	33,3	100
Mhlontlo (EC)	146	50	100	95	53,5	91	88	100	99	50	33,3	100
Ga-Segonyana (NC)	147	80	100	50	85,6	90,5	97	100	97	16,7	16,7	100
Bela-Bela (Lm)	148	100	100	50	54	69,8	67	100	67	100	50	100
Msukaligwa (Mp)	149	100	100	50	80,1	88,7	95	100	85	0	0	100
Umzimvubu (EC)	150	70	100	50	70,9	72,9	100	100	99	50	50	0
John Taolo Gaetsewe District (NC)	151	0	100	95	95,1	94,7	99	100	88	83,3	50	100
Emfuleni (Gt)	152	100	100	95	80,9	90,7	63	100	45	50	0	100
Dikgatlong (NC)	153	100	100	50	79,7	74,2	93	100	89	0	0	100
Nkosazana Dlamini-Zuma (KZN)	154	0	100	95	91	89,2	93	100	88	100	50	100
Gamagara (NC)	155	100	100	50	32,2	99,8	90	100	84	33,3	33,3	0
Nelson Mandela Bay Metropolitan (EC)	156	100	100	50	87,7	95,2	47	100	91	50	50	100
Makana (EC)	157	100	100	50	62,5	82,6	90	100	98	0	0	100
Makhuduthamaga (Lm)	158	50	100	95	82	94,3	86	100	68	50	16,7	100

King Sabata Dalindyebo (EC)	159	50	100	95	90,2	92,8	82	100	46	50	50	100
Port St Johns (EC)	160	70	100	50	52,8	93,9	85	100	96	33,3	50	100
Molemole (Lm)	161	0	100	95	71,3	81,8	93	100	96	100	50	100
Ngqushwa (EC)	162	0	100	95	97,8	90,6	100	100	93	50	50	100
Tokologo (FS)	163	100	100	0	93,8	96	67	100	98	50	50	100
Xhariep District (FS)	164	0	100	95	92	91,7	90	100	98	66,7	50	100
Umkhanyakude District (KZN)	165	70	100	0	86,5	89,8	100	100	100	50	33,3	100
Mafikeng (NW)	166	50	100	50	76,2	95	100	100	95	33,3	16,7	100
Mkhambathini (KZN)	167	0	100	95	39,6	92	100	100	78	100	50	100
Amajuba District (KZN)	168	70	100	50	75,7	92,6	72	100	76	50	50	100
Musina (Lm)	169	50	100	95	91	91	44	100	79	100	33,3	100
Lepele-Nkumpi (Lm)	170	70	100	50	60,4	68,3	88	100	93	33,3	33,3	100
Abaqulusi (KZN)	171	70	100	50	79,2	96,3	65	100	99	50	33,3	100
Thabo Mofutsanyane District (FS)	172	0	100	95	98,8	88,4	100	100	73	50	50	100
Pixley Ka Seme (Mp)	173	0	100	95	64,3	92,9	99	100	72	100	66,7	0
UPhongolo (KZN)	174	50	100	50	79	95	100	100	85	50	0	100
Kopanong (FS)	175	100	100	50	54,5	81,5	79	100	99	0	0	100
Siyathemba (NC)	176	100	100	0	82,9	96,2	100	100	90	0	0	100
Sundays River Valley (EC)	177	50	100	50	45,7	98,1	100	100	91	50	16,7	100
Rustenburg (NW)	178	100	100	50	36,1	77,5	71	100	52	83,3	16,7	100
Thembelihle (NC)	179	100	100	50	80	91,8	100	0	65	0	16,7	100
Nala (FS)	180	0	100	95	72,2	87,4	100	100	99	50	33,3	100
Maruleng (Lm)	181	0	100	95	68,8	88,6	100	100	74	50	66,7	100
!Kheis (NC)	182	100	100	50	59,7	95,5	70	100	100	0	0	100
Siyancuma (NC)	183	100	100	50	73	89	50	100	100	50	0	100
Oudtshoorn (WC)	184	50	100	50	83,2	91,3	99	100	65	66,7	0	100
Greater Tzaneen (Lm)	185	0	100	95	71,9	91,7	100	100	79	50	50	100
Lekwa (Mp)	186	70	100	95	67,7	82,3	59	100	55	50	33,3	100
Mooi Mpofana (KZN)	187	70	100	50	81,1	84,5	100	100	82	0	33,3	0

Ntabankulu (EC)	188	0	100	95	70,9	85,7	100	100	95	50	33,3	100
Greater Giyani (Lm)	189	70	100	0	82	97,3	89	100	98	50	33,3	100
Naledi (NW)	190	100	100	50	52,8	76	82	100	96	16,7	0	0
The Msunduzi (KZN)	191	100	100	0	86	94	92	100	55	66,7	16,7	0
Richtersveld (NC)	192	100	100	50	72,4	79,8	96	0	87	0	0	100
Dr Kenneth Kaunda District (NW)	193	70	100	50	87,9	86,9	52	100	94	50	50	100
Tswelopele (FS)	194	100	100	95	50,2	83,3	22	100	79	50	33,3	100
Maquassi Hills (NW)	195	70	100	50	55,9	93,6	91	100	96	0	0	100
Ray Nkonyeni (KZN)	196	0	100	100	61,2	91,5	63	100	96	100	100	0
The Big Five Hlabisa (KZN)	197	0	100	66.9*	91	79,8	100	100	97	56.0*	38.8*	100
Kai !Garib (NC)	198	70	100	0	98,1	77,9	100	100	80	0	50	100
Umzinyathi District (KZN)	199	50	100	0	87,4	96,6	100	100	99	50	16,7	100
Thaba Chweu (Mp)	200	100	100	0	96,3	89	82	100	77	16,7	0	100
Sedibeng District (Gt)	201	0	0	95	97,1	89,7	100	100	97	100	16,7	100
Joe Morolong (NC)	202	80	100	0	84,5	96,1	94	100	96	0	0	100
Mangaung Metropolitan (FS)	203	100	100	50	71,1	86,6	45	100	57	50	16,7	100
Magareng (NC)	204	100	100	50	36,9	79,8	78	100	63	0	0	100
Greater Tubatse-Fetakgomo (Lm)	205	0	100	66.9*	85,2	88,4	100	100	92	33,3	33,3	100
Polokwane (Lm)	206	0	100	50	93	87,6	100	100	82	50	50	100
Beaufort West (WC)	207	100	0	0	85,6	82	100	100	86	50	0	100
Msinga (KZN)	208	0	100	50	72,2	50,2	100	100	100	100	16,7	100
Walter Sisulu (EC)	209	70	100	0	97,1	66,9	100	100	87	0	0	100
Mamusa (NW)	210	100	100	0	38	23,3	100	100	100	0	0	100
City of Matlosana (NW)	211	50	100	50	46,4	87,2	87	100	80	16,7	16,7	100
Kannaland (WC)	212	100	100	0	94,6	70,6	90	0	100	0	0	100
Inkosi Langalibalele (KZN)	213	50	100	0	77,8	76,4	81	100	94	56.0*	38.8*	100
Moretele (NW)	214	50	100	50	62,7	97,1	81	100	93	0	0	100
Ratlou (NW)	215	0	100	50	73,5	86,4	100	100	97	50	50	0
Lekwa-Teemane (NW)	216	70	100	0	52,4	84,2	97	100	98	0	0	100

Ngwathe (FS)	217	80	100	0	58,6	93,2	81	100	73	16,7	16,7	100
Renosterberg (NC)	218	70	100	0	87,7	71,6	100	100	96	0	0	0
Makhado (Lm)	219	50	100	0	70,3	86,8	100	100	89	0	16,7	100
of Madibeng (NW)	220	100	100	0	56,5	95,6	100	100	0	0	0	100
Maluti a Phofung (FS)	221	100	100	0	61,6	75,2	61	100	100	0	0	100
Blouberg (Lm)	222	0	100	50	74,3	89,4	82	100	81	50	50	100
Metsimaholo (FS)	223	0	100	95	82,1	84,8	93	100	67	0	0	100
Kgatelopele (NC)	224	80	100	0	55,1	74,6	71	100	89	33,3	0	100
Ramotshere Moiloa (NW)	225	70	100	50	70,6	68,7	51	100	99	0	0	100
Nama Khoi (NC)	226	80	0	50	80	87,1	71	100	99	0	0	100
Dr Beyers Naude (EC)	227	100	100	0	61,5	83,3	59	100	82	0	0	100
West Rand District (Gt)	228	0	100	95	81,5	82,9	32	100	100	100	16,7	100
Tsantsabane (NC)	229	80	100	0	49,1	91,2	80	100	71	0	0	100
JB Marks	230	100	100	0	81,7	82,4	86	100	0	0	0	100
Tswaing (NW)	231	100	100	50	59,9	69,8	19	100	99	0	0	100
Enoch Mgijima (EC)	232	70	100	0	82,6	18,7	100	100	92	0	0	0
Mnquma (EC)	233	70	100	0	69,1	97,2	65	100	95	0	0	100
Alfred Nzo District (EC)	234	0	100	50	92,7	92,3	100	100	98	0	0	0
Collins Chabane (Lm)	235	0	100	50	39,6	71,9	100	100	81	50	0	100
Emalahleni (EC)	236	0	100	66.9*	92,4	98,6	100	0	58	17	0	100
Sarah Baartman District (EC)	237	0	100	95	55,5	68,9	16	100	94	100	50	100
Ditsobotla (NW)	238	70	100	0	88,9	93,6	49	100	87	0	0	100
Ubuntu (NC)	239	80	100	0	70	91,1	91	0	68	0	0	0
Bojanala District (NW)	240	0	100	0	94,3	81,3	100	100	97	16,7	0	100
Fezile Dabi District (FS)	241	70	100	0	86,1	79,2	49	100	93	0	0	100
Vhembe District (Lm)	242	0	100	0	69,3	76,4	95	100	100	50	0	100
Mohokare (FS)	243	50	100	0	55,3	73,8	87	100	66	0	0	100
Phokwane (NC)	244	50	100	0	48,8	95,1	78	100	73	0	0	100
Mogalakwena (Lm)	245	20	100	0	77,2	89,1	91	100	78	0	0	100

Municipality											
Nketoana (FS)	246	0	100	0	85	97,6	92	100	70	16,7	16,7	100
Mafube (FS)	247	0	100	0	68,6	78	100	100	86	0	16,7	100
Moses Kotane (NW)	248	50	100	0	80,2	88,7	59	100	66	0	0	100
Ngaka Modiri Molema District (NW)	249	0	100	0	54,8	81,1	100	100	87	0	0	100
Dr Ruth Segomotsi Mompati District (NW)	250	0	100	95	38,1	92,3	9	100	100	33,3	33,3	100
Kagisano-Molopo (NW)	251	0	100	50	62,8	67,7	50	100	96	16,7	16,7	100
Ba-Phalaborwa (Lm)	252	0	100	0	72,4	86,5	96	100	59	0	0	100
Mopani District (Lm)	253	0	100	0	57,1	73,9	88	100	97	0	0	100
Modimolle-Mookgopong (Lm)	254	0	100	0	57,2	83,8	40	100	99	56.0*	38.8*	100
Thabazimbi (Lm)	255	0	100	0	0	52,4	100	100	87	0	0	100
Letsemeng (FS)	256	0	100	0	91,2	81,9	61	100	72	0	0	100
Masilonyana (FS)	257	0	100	0	39,7	97,5	37	100	80	0	0	100

Annexure B: Expenditure on non-technical departments as a percentage of total expenditure (Administrative intensity)

Municipal_Code	Municipality	Category	Percentage
DC37	Bojanala Platinum	C1	100%
DC2	Cape Winelands DM	C1	33%
DC5	Central Karoo	C1	63%
DC40	Dr Kenneth Kaunda	C1	60%
DC32	Ehlanzeni	C1	79%

DC20	Fezile Dabi	C1	76%
DC9	Frances Baard	C1	46%
DC4	Garden Route	C1	39%
DC30	Gert Sibande	C1	45%
DC45	John Taolo Gaetsewe	C1	61%
DC18	Lejweleputswa	C1	75%
DC6	Namakwa	C1	63%
DC31	Nkangala	C1	26%
DC3	Overberg	C1	26%
DC7	Pixley Ka Seme (NC)	C1	81%
DC10	Sarah Baartman	C1	49%
DC42	Sedibeng	C1	57%
DC19	Thabo Mofutsanyana	C1	65%
DC36	Waterberg	C1	42%

DC1	West Coast	C1	18%
DC48	West Rand	C1	45%
DC16	Xhariep	C1	79%
DC8	Z F Mgcawu	C1	65%
DC44	Alfred Nzo	C2	59%
DC25	Amajuba	C2	43%
DC12	Amathole	C2	58%
DC35	Capricorn	C2	40%
DC13	Chris Hani	C2	57%
DC39	Dr Ruth Segomotsi Mompati	C2	26%
DC43	Harry Gwala	C2	37%
DC29	iLembe	C2	32%
DC14	Joe Gqabi	C2	32%
DC28	King Cetshwayo	C2	19%

DC33	Mopani	C2	16%
DC38	Ngaka Modiri Molema	C2	76%
DC15	O R Tambo	C2	64%
DC47	Sekhukhune	C2	86%
DC21	Ugu	C2	21%
DC22	uMgungundlovu	C2	53%
DC27	Umkhanyakude	C2	74%
DC24	Umzinyathi	C2	30%
DC23	Uthukela	C2	37%
DC34	Vhembe	C2	73%
DC26	Zululand	C2	32%
KZN238	Alfred Duma	Large Towns	29%
WC025	Breede Valley	Large Towns	18%
NC087	Dawid Kruiper	Large Towns	27%

FS192	Dihlabeng	Large Towns	92%
MP314	Emakhazeni	Large Towns	56%
EC139	Enoch Mgijima	Large Towns	41%
KZN433	Greater Kokstad	Large Towns	54%
EC157	King Sabata Dalindyebo	Large Towns	49%
WC048	Knysna	Large Towns	26%
KZN292	KwaDukuza	Large Towns	14%
NW383	Mafikeng	Large Towns	62%
EC104	Makana	Large Towns	61%
GT484	Merafong City	Large Towns	30%
FS204	Metsimaholo	Large Towns	19%
GT422	Midvaal	Large Towns	17%
LIM367	Mogalakwena	Large Towns	25%
FS201	Moqhaka	Large Towns	54%

WC043	Mossel Bay	Large Towns	24%
MP302	Msukaligwa	Large Towns	22%
WC045	Oudtshoorn	Large Towns	27%
WC032	Overstrand	Large Towns	17%
GT485	Rand West City	Large Towns	11%
KZN216	Ray Nkonyeni	Large Towns	74%
WC014	Saldanha Bay	Large Towns	17%
KZN212	Umdoni	Large Towns	69%
KZN222	uMngeni	Large Towns	34%
BUF	Buffalo City	Metros	20%
CPT	Cape Town	Metros	21%
EKU	City of Ekurhuleni	Metros	12%
JHB	City of Johannesburg	Metros	20%
TSH	City of Tshwane	Metros	21%

ETH	eThekwini	Metros	14%
MAN	Mangaung	Metros	27%
NMA	Nelson Mandela Bay	Metros	15%
MP301	Albert Luthuli	Mostly Rural	60%
LIM351	Blouberg	Mostly Rural	54%
MP325	Bushbuckridge	Mostly Rural	66%
LIM345	Collins Chabane	Mostly Rural	66%
KZN254	Dannhauser	Mostly Rural	86%
MP316	Dr J.S. Moroka	Mostly Rural	69%
LIM472	Elias Motsoaledi	Mostly Rural	53%
EC141	Elundini	Mostly Rural	54%
EC136	Emalahleni (EC)	Mostly Rural	41%
EC137	Engcobo	Mostly Rural	64%
LIM471	Ephraim Mogale	Mostly Rural	62%

LIM331	Greater Giyani	Mostly Rural	67%
LIM332	Greater Letaba	Mostly Rural	62%
NW394	Greater Taung	Mostly Rural	66%
LIM333	Greater Tzaneen	Mostly Rural	23%
KZN224	Impendle	Mostly Rural	81%
EC135	Intsika Yethu	Mostly Rural	94%
NC451	Joe Morolong	Mostly Rural	48%
KZN272	Jozini	Mostly Rural	92%
NW397	Kagisano-Molopo	Mostly Rural	73%
LIM355	Lepelle-Nkumpi	Mostly Rural	90%
LIM344	Makhado	Mostly Rural	64%
LIM473	Makhuduthamaga	Mostly Rural	70%
KZN291	Mandeni	Mostly Rural	76%
KZN294	Maphumulo	Mostly Rural	96%

LIM335	Maruleng	Mostly Rural	88%
EC121	Mbhashe	Mostly Rural	42%
EC443	Mbizana	Mostly Rural	57%
KZN281	Mfolozi	Mostly Rural	100%
EC156	Mhlontlo	Mostly Rural	43%
EC122	Mnquma	Mostly Rural	53%
LIM353	Molemole	Mostly Rural	61%
NW371	Moretele	Mostly Rural	100%
NW375	Moses Kotane	Mostly Rural	34%
KZN244	Msinga	Mostly Rural	86%
KZN293	Ndwedwe	Mostly Rural	79%
EC126	Ngqushwa	Mostly Rural	77%
EC153	Ngquza Hills	Mostly Rural	63%
KZN286	Nkandla	Mostly Rural	75%

MP324	Nkomazi	Mostly Rural	31%
KZN265	Nongoma	Mostly Rural	99%
KZN242	Nquthu	Mostly Rural	82%
EC444	Ntabankulu	Mostly Rural	88%
EC155	Nyandeni	Mostly Rural	84%
KZN235	Okhahlamba	Mostly Rural	68%
EC154	Port St Johns	Mostly Rural	70%
NW381	Ratlou	Mostly Rural	73%
KZN227	Richmond	Mostly Rural	39%
EC142	Senqu	Mostly Rural	38%
MP315	Thembisile Hani	Mostly Rural	62%
LIM343	Thulamela	Mostly Rural	44%
LIM476	Tubatse Fetakgomo	Mostly Rural	64%
KZN434	Ubuhlebezwe	Mostly Rural	69%

KZN266	Ulundi	Mostly Rural	59%
KZN271	Umhlabuyalingana	Mostly Rural	62%
KZN284	uMlalazi	Mostly Rural	37%
KZN221	uMshwathi	Mostly Rural	34%
KZN435	Umzimkhulu	Mostly Rural	45%
EC442	Umzimvubu	Mostly Rural	71%
KZN213	Umzumbe	Mostly Rural	76%
KZN262	uPhongolo	Mostly Rural	40%
NW403	City of Matlosana	Secondary Cities	30%
MP326	City of Mbombela	Secondary Cities	27%
WC023	Drakenstein	Secondary Cities	16%
MP312	Emalahleni (MP)	Secondary Cities	35%

GT421	Emfuleni	Secondary Cities	28%
WC044	George	Secondary Cities	15%
MP307	Govan Mbeki	Secondary Cities	23%
NW405	J B Marks	Secondary Cities	30%
NW372	Madibeng	Secondary Cities	54%
FS184	Matjhabeng	Secondary Cities	34%
GT481	Mogale City	Secondary Cities	26%
KZN225	Msunduzi	Secondary Cities	14%
KZN252	Newcastle	Secondary Cities	31%

LIM354	Polokwane	Secondary Cities	31%
NW373	Rustenburg	Secondary Cities	19%
NC091	Sol Plaatje	Secondary Cities	30%
WC024	Stellenbosch	Secondary Cities	15%
MP313	Steve Tshwete	Secondary Cities	22%
KZN282	uMhlathuze	Secondary Cities	10%
NC082	!Kai! Garib	Small Towns	47%
NC084	!Kheis	Small Towns	63%
KZN263	Abaqulusi	Small Towns	21%
EC124	Amahlathi	Small Towns	45%

LIM334	Ba-Phalaborwa	Small Towns	52%
WC053	Beaufort West	Small Towns	22%
LIM366	Bela Bela	Small Towns	47%
WC013	Bergrivier	Small Towns	22%
WC047	Bitou	Small Towns	24%
EC102	Blue Crane Route	Small Towns	24%
WC033	Cape Agulhas	Small Towns	35%
WC012	Cederberg	Small Towns	47%
NC092	Dikgatlong	Small Towns	77%
MP306	Dipaleseng	Small Towns	63%
NW384	Ditsobotla	Small Towns	38%
EC101	Dr Beyers Naude	Small Towns	23%
KZN436	Dr Nkosazana Dlamini Zuma	Small Towns	53%
KZN261	eDumbe	Small Towns	66%

KZN253	Emadlangeni	Small Towns	68%
NC073	Emthanjeni	Small Towns	17%
KZN241	Endumeni	Small Towns	52%
NC453	Gamagara	Small Towns	55%
NC452	Ga-Segonyana	Small Towns	20%
EC123	Great Kei	Small Towns	67%
NC065	Hantam	Small Towns	33%
WC042	Hessequa	Small Towns	19%
KZN276	Hlabisa Big Five	Small Towns	48%
KZN237	Inkosi Langalibalele	Small Towns	64%
EC131	Inxuba Yethemba	Small Towns	69%
NC064	Kamiesberg	Small Towns	48%
WC041	Kannaland	Small Towns	63%
NC074	Kareeberg	Small Towns	55%

NC066	Karoo Hoogland	Small Towns	48%
NC086	Kgatelopele	Small Towns	65%
NW374	Kgetlengrivier	Small Towns	85%
NC067	Khai-Ma	Small Towns	36%
FS162	Kopanong	Small Towns	60%
EC108	Kouga	Small Towns	20%
EC109	Kou-Kamma	Small Towns	23%
WC051	Laingsburg	Small Towns	38%
WC026	Langeberg	Small Towns	15%
MP305	Lekwa	Small Towns	31%
NW396	Lekwa-Teemane	Small Towns	49%
LIM362	Lephalale	Small Towns	26%
GT423	Lesedi	Small Towns	21%
FS161	Letsemeng	Small Towns	67%

FS205	Mafube	Small Towns	71%
NC093	Magareng	Small Towns	44%
FS194	Maluti-a-Phofung	Small Towns	45%
NW393	Mamusa	Small Towns	47%
FS196	Mantsopa	Small Towns	29%
NW404	Maquassi Hills	Small Towns	52%
FS181	Masilonyana	Small Towns	73%
EC441	Matatiele	Small Towns	52%
WC011	Matzikama	Small Towns	29%
KZN226	Mkhambathini	Small Towns	92%
MP303	Mkhondo	Small Towns	46%
LIM368	Modimolle-Mookgopong	Small Towns	23%
FS163	Mohokare	Small Towns	45%
KZN223	Mpofana	Small Towns	42%

KZN285	Mthonjaneni	Small Towns	41%
KZN275	Mtubatuba	Small Towns	50%
LIM341	Musina	Small Towns	41%
FS185	Nala	Small Towns	76%
NW392	Naledi (NW)	Small Towns	42%
NC062	Nama Khoi	Small Towns	31%
EC105	Ndlambe	Small Towns	24%
FS203	Ngwathe	Small Towns	39%
FS193	Nketoana	Small Towns	46%
NC094	Phokwane	Small Towns	54%
FS195	Phumelela	Small Towns	40%
MP304	Pixley Ka Seme (MP)	Small Towns	55%
WC052	Prince Albert	Small Towns	57%
NW385	Ramotshere Moiloa	Small Towns	53%

EC129	Raymond Mhlaba	Small Towns	57%
NC075	Renosterberg	Small Towns	60%
NC061	Richtersveld	Small Towns	48%
EC138	Sakhisizwe	Small Towns	60%
FS191	Setsoto	Small Towns	22%
NC078	Siyancuma	Small Towns	55%
NC077	Siyathemba	Small Towns	56%
EC106	Sundays River Valley	Small Towns	65%
WC015	Swartland	Small Towns	18%
WC034	Swellendam	Small Towns	25%
MP321	Thaba Chweu	Small Towns	55%
LIM361	Thabazimbi	Small Towns	51%
WC031	Theewaterskloof	Small Towns	37%
NC076	Thembelihle	Small Towns	45%

FS182	Tokologo	Small Towns	30%
NC085	Tsantsabane	Small Towns	34%
NW382	Tswaing	Small Towns	65%
FS183	Tswelopele	Small Towns	44%
NC071	Ubuntu	Small Towns	36%
NC072	Umsobomvu	Small Towns	29%
KZN214	uMuziwabantu	Small Towns	79%
KZN245	Umvoti	Small Towns	61%
MP311	Victor Khanye	Small Towns	39%
EC145	Walter Sisulu	Small Towns	34%
WC022	Witzenberg	Small Towns	20%
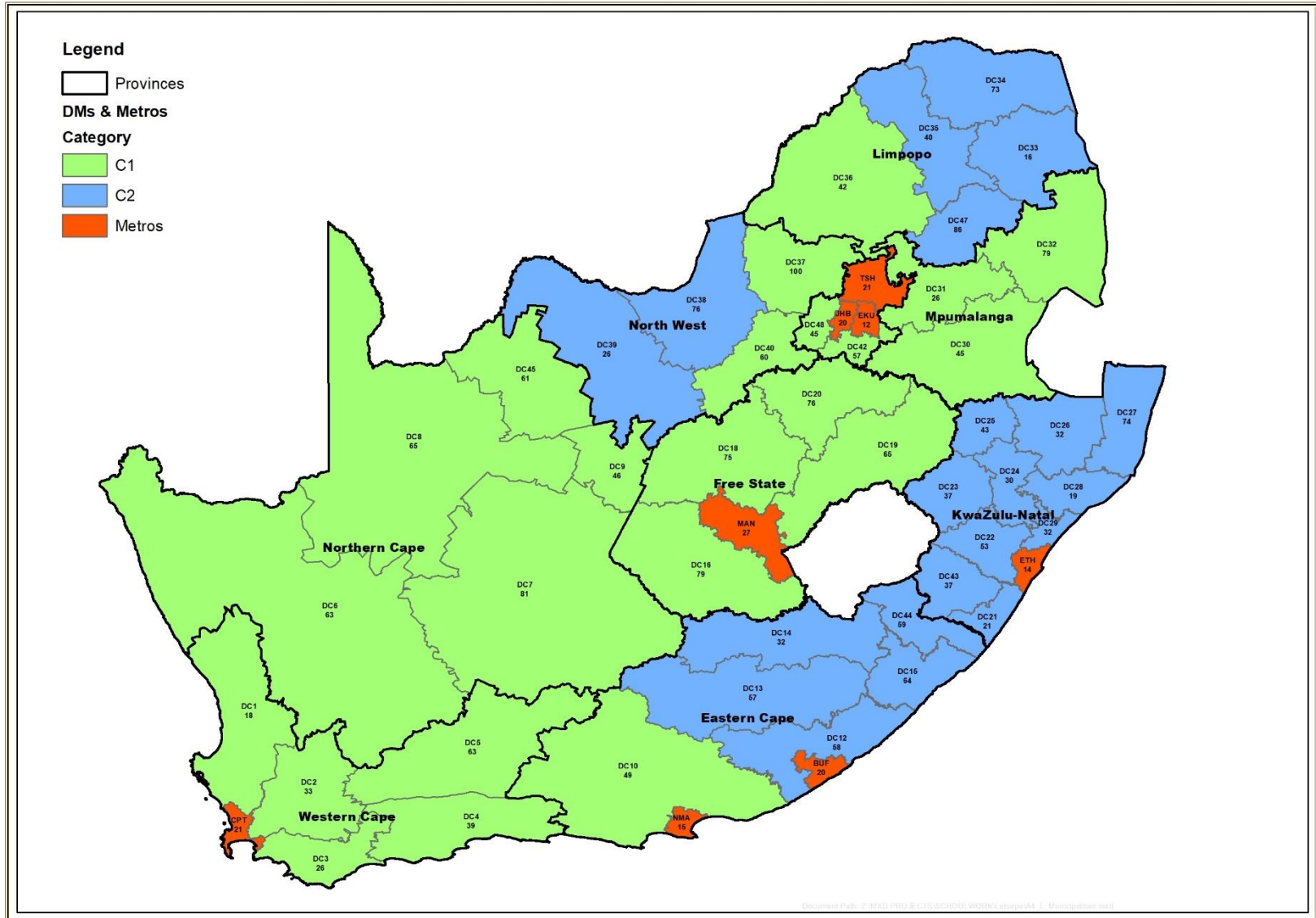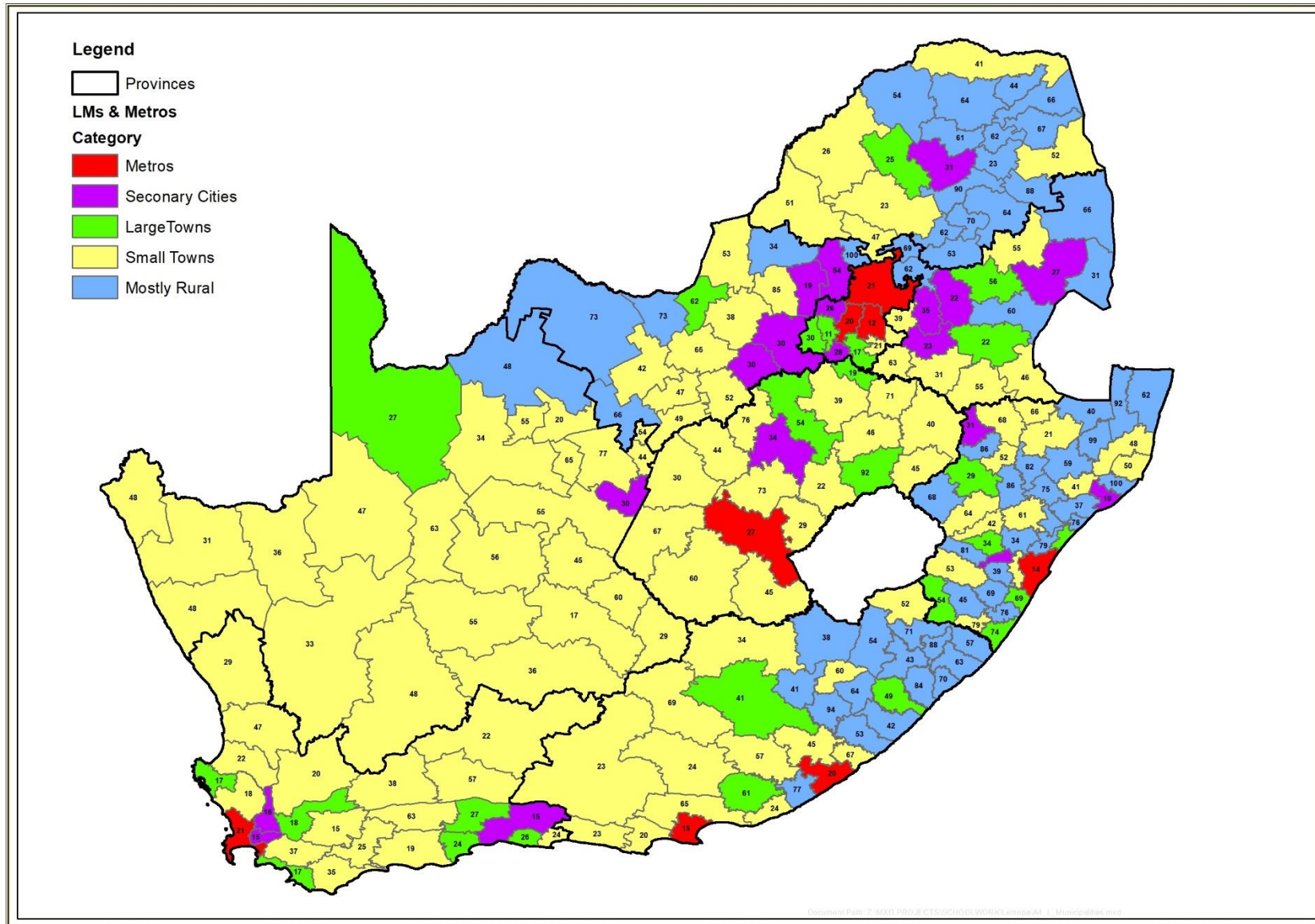
Chapter 4: Municipal personnel management

Chapter overview

This chapter addresses the third research question. These are as follows: Are municipalities managing their personnel and personnel remuneration affairs efficiently and in a fiscally sustainable manner?

The study demonstrates that municipalities, by item, already spend substantially more than they should on employee costs. The high spending levels on this item eclipsed the spending on bulk services, which is the cornerstone of revenue generation at the municipal level. In addition, the increased employee costs were not accompanied by a proportional increase in productivity and employment levels. Increases in staff numbers occurred mainly in administrative departments, with large decreases in professional staff in the electricity departments, where technicians replaced them.

Another reason for concern about increases in salaries and benefits at the local government level is that these increases far exceed inflation. They also surpass the agreements reached at the bargaining council, where trade unions negotiate with the South African Local Government Association (SALGA) regarding municipal salaries. On average, municipal employees enjoy better remuneration packages than their national and provincial counterparts. The current scenario marks a striking change compared with the remuneration levels of the 2006/07 financial year, when local government employees earned less than half the salaries of their national and provincial counterparts. The conclusion drawn in this chapter is that the generous increases in salaries and benefits of municipal employees are unsustainable and threaten the sustainability of municipal finances.

Abstract

This paper examines the influence of personnel management regarding municipal finances. The sources were budget documents published annually by the municipalities, data from Statistics South Africa and annual financial statements audited by the South African Auditor-General. The analysis revealed that municipalities already spend significantly more financial resources than they should on administration costs due to their large administrative components.. The most substantial budgetary pressure facing South African municipalities is the rising share of personnel expenditure. This expenditure has increased markedly over the last 12 years, without proportional increases in productivity or in the number of people employed at municipalities. The study found that these increases are considerably higher than in other spheres of government. They have a negative bearing on local government's ability to manage and fast-track service delivery.

This excessive spending on personnel has impacted smaller municipalities the most. Such expenditure diverts resources away from service delivery requirements, which also causes tension with the policy objectives of local government. This situation has created substantial cost pressure on municipal budgets. In some municipalities, particularly rural ones, this cost pressure eclipsed other service delivery expenditure to the extent that it undermined the coverage and quality of services offered. There is, therefore, a need for local government to limit increases in employee costs.

4.1   Introduction

The biggest contributor to high spending on the administrative component is personnel expenditure. At face value, the high proportion of this spending is not itself a problem. Building institutional capacity in municipalities is a complex process and is subject to the interplay of many factors, which are almost impossible to quantify in a credible and reliable manner. The current legislative framework does not facilitate such measurement. Moreover, wages and working conditions are not the same everywhere; hence, varying pay levels should be allowed from one municipality to the next. At the local government level, the introduction of the Municipal Systems Amendment Act addresses several personnel-related issues in municipalities. This includes regulating the duties, compensation, "benefits, and other terms and conditions of employment for municipal managers and managers and acting managers directly accountable to municipal manager" (National Treasury, 2011: 106).

However, policymakers at the national level have perceived personnel management practices without concern for broader fiscal implications (National Treasury, 2020). They have argued that the pattern of expenditure of any municipality reveals where its priorities lie. Their concern is that current practices in personnel management risk creating incentives that unintentionally encourage incompetency or under-performance because they foster an inward and short-term focus that is detrimental to the long-term objectives of a sustainable local government. However, the issue of local government employees' remuneration has received minimal formal research attention in South Africa even though evidence suggests that this area has become an issue in municipal fiscal sustainability. This point lends credence National Treasury's claims that wage agreements in the local government sphere have become one of the most disruptive budget events in the Medium Term Revenue and Expenditure Framework (MTREF) (National Treasury, 2011).

With this background in mind, the current chapter provides an analysis of municipal personnel management. Aspects of interest include personnel growth, spending trends, and cost drivers. Where possible, the information is disaggregated by municipal type. The chapter is organised as follows. Section 4.2 briefly describes the general literature on personnel management;

Section 4.3 examines municipal expenditure; Section 4.4 analyses the numbers of personnel; and Section 4.5 presents the empirical results from a benchmarking exercise. Section 4.6 discusses the implications of the results, and Section 4.7 concludes the chapter.

4.2   Literature review

The international literature suggests that while municipalities face different challenges, a common problem is the rising costs associated with employee benefits (Jacobson and Sowa, 2016). Jacobson and Sowa (2016) report that this problem creates a working environment in which resources or the ability to acquire new resources are limited. Under such conditions, municipalities have been forced to adapt to new circumstances (Levine 1984; Scorsone & Plerhoples 2010; Levine & Scorsone 2011; Martin, Levey & Cawley 2012; Getha-Taylor, 2016).

In the South African context, the Financial and Fiscal Commission (2013) stated that the practice of spending almost half of the operational budget on salaries and wages should be discouraged. It limits the funding available for service delivery, especially in smaller municipalities where service delivery needs appear to be neglected. This view was shared by Bekink (2006). The situation is not unique to South African municipalities. In the United States, much of the operational expenditure is used to pay salaries and allowances for employees. In some instances, as much as 96% is used for this purpose (Sekhar & Bidarkar, 1999).

It remains debatable whether public sector reforms that have led to higher spending on salaries have also resulted in improved employee performance (Diefenbach 2009; Brunetto, Farr-Wharton, Shacklock & Robson, 2012). Several studies of municipal labour markets have found that municipal employees are sometimes paid more than they should be in municipalities that are dominated by professional managers, who demand zealous efforts by the employees to perform optimally (Erickson, 1973; Ehrenberg, 1973). These managers reward exceptional performance with high pay and regard that as fair practice (Edwards & Edwards, 1982). For such managers, the perception is that the absence of motivation for their staff to perform is the likely cause of poor performance, even among individuals who possess the ability to do the job well (Wexley & Latham, 1981; Schumaker, 2004).

The above argument was challenged by the findings of the 2005 OECD study. It showed that the effects of performance-based pay on motivation are ambivalent (OECD, 2005). While the practice appears to motivate a minority of employees, the majority evidently do not see performance-based pay as an incentive (ibid.). Instead, job content and career development are the most important incentives for public sector employees (ibid.). It is unlikely that performance-based pay motivates the vast majority of employees, regardless of how it is structured (ibid.).

Several theorists believe that high-powered individual performance incentives are detrimental to organisational performance (Le Grand, 2003). Kohn (1998) observed that there is a belief that rewarding people for what they do makes them work harder and better, although research and experience suggest otherwise. Le Grand (2003) similarly stated that people assume that a figurative human being characterised by an infinite capacity to make rational decisions, such management theorists assume that employees are generally motivated by materialistic self-interest.

However, researchers are likely to agree that policies do not implement themselves. To assess whether a programme can be successfully implemented, scholars should invest more time in studying the factors that motivate those responsible for implementation (Weimer & Vining, 2005).

In some instances, researchers have found that patronage is the reason some municipal employees earn more than they should. In these instances, patrons enjoy higher wages and shorter hours than their counterparts in the private sector because of their political affiliation (Schiesl, 1977; Johnson & Libecap, 1989). Critics of patronage argue that this practise compromises the quality of public sector services and drives up the cost of providing those services. This phenomenon is different from the private sector where employees are paid according to the additional output generated by the additional input (Teso, Colonnelli & Prem, 2018).

Other researchers believe that trade unions play a key role in the huge increase in wages (Comimons, 1902). Both patronage and the unsustainable wage demands of unions cannot be tolerated. The aim should be to ensure that workers invest their time and energy in their work (Kahn, 1990; Harter, Schmidt & Hayes, 2002). In South Africa, due to the absence of uniform legal provisions, there is a tendency for remuneration packages for municipal or other managers to be particularly high. Sometimes they earn more than their counterparts at the national or provincial levels, with this phenomenon being particularly evident in metropolitan municipalities (Bekink, 2006).

Waning revenue sources have compounded the problem of personnel expenditure since the 2008 recession. In South Africa, fiscal consolidation measures have added to the challenge. Many municipalities are struggling to maintain their tax base and are experiencing declining revenues overall (Martin, Levey & Cawley, 2012; Getha-Taylor, 2016). This is not simply a "third world" phenomenon. Municipalities in the United States have experienced the same difficulties (Nelson, 2012). For example, increasing personnel costs and waning revenue collection increased the financial gap, with expenditure eclipsing revenue. This resulted in conditions where staff had to be laid off, and posts were frozen. In other countries, public

sentiment does not support municipal employees during times of marked recession. The trend is to reduce municipal employees to support the increased demand for actual services, given a reduction in resources (Getha-Taylor, 2016; Jacobson & Sowa, 2016).

Servicing a growing population tends to result in a scenario where public demand for services exceeds both the supply and the human resources. Literature suggests that under such circumstances, part of the solution is to hire extra personnel or devise new ways of teamwork (Brunetto, Farr-Wharton & Shacklock, 2011; Brunetto et al., 2012; Brunetto, Xerri & Nelson, 2013). Therefore, it would appear rational that municipalities would need to expand their capacity to deliver by employing many more staff members. Various researchers have supported this view and suggested that adequate resources positively impact employee performance (May, Gilson, & Harter, 2004; Rousseau & Aubé, 2010; De Cooman, Stynen, Van Den Broeck, Sels & De Witte, 2013). Similarly, Bakker & Demerouti (2007) found that onerous job demands can be overcome by a conducive environment and support from colleagues and managers in sharing the workload. By contrast, inadequate resources result in social problems such as poor morale, burnout, and increased staff turnover (Graen & Uhl-Bien, 1995; Diefenbach, 2009; Brunetto, Farr-Wharton & Shacklock, 2011; Sherman, Kennedy, Woodard & McComb, 2012; Brunetto et al. 2012). The Ministry of Finance (2006) advocated overall improvement through using personnel resources wisely, continuously developing know-how, and continuously improving operational processes.

The failure to ensure that employees have adequate resources and support detracts from employee performance and satisfaction and is attributable to ineffective management (Wang, Lin & Zhu, 2005; Beattie, 2006; Brunetto, Farr-Wharton & Shacklock 2011, 2012). Bekink (2006) reported that in many municipalities South Africa internal departments often operate at 50% or less of the minimum staff required to handle a given workload. Between 2006 and 2010, municipal employment levels did not increase significantly. There are several possible explanations for this scenario, including that municipalities may outsource operations as a cost-effective method of service delivery.

Bekink (2006) furthermore stated that many South African municipalities faced severe shortages of qualified and skilled personnel to provide services to municipal customers. He warned that without qualified and skilled employees, the quality of service provision would deteriorate, and some municipalities would be unable to fulfil and adhere to their constitutional obligations (Bekink, 2006). Staff with relevant expertise and training create the backbone of an efficient and effective functioning municipality (OECD, 2007). This view is shared by many researchers, who view the lack of competent, trained employees as an impediment to policy implementation (Kickert, Kljin & Koppenjan, 1997; Weimer & Vining, 2005).

Any analysis of personnel trends and remuneration in local government must consider structural changes at both the macro and micro levels. There have been many municipal amalgamations at the macro level, especially within the municipal types that can be classified as weak. They were amalgamated to improve efficiency and to focus on servicing the public. Such amalgamations were a response to changes in public demand and the devolution of responsibility from the national and provincial to local government spheres (Dollery, Wallis & Allan, 2006). South Africa has amalgamated many of its municipalities during the last two decades; in 2000 there were 843 municipalities, whereas in 2017 there were 257. To aid decisions about future territorial rescaling, it is crucial to augment the previously inconclusive evaluative knowledge of the effects of mergers.

4.3   Methods

The study examined budget documents published annually by Statistics South Africa, the municipalities and audited by the Auditor-General of South Africa. The period of financial data studied was the 11 years between 2006/07 and 2016/17. The original intention was to compare the personnel headcount for the same period for comparative reasons. However, this proved impossible, as the requirement to record personnel headcounts in budget documents was added only later during reform of the local government spheres. Hence, personnel headcount data is from 2007/08 to 2016/17. The disaggregation of personnel figures by levels and benefits was performed only from the 2009/10 financial year onwards. This study uses the compound annual growth rate (CAGR), instead of the traditional average growth rate. The CAGR is a far more accurate method of measuring the total return on an investment than the average rate of return method. Growth rates calculated using this method are a composite percentage that indicates what the growth rate would have been during the period if it had been smoothed and remained the same for the entire duration of the chosen period.

For the three spheres of government, trends in the employee costs and in operational expenditures were examined in both nominal and real terms. Estimates and revised estimates were examined to gain insight into estimation procedures. The proportion of expenditure items that contributed to the payment of salaries and allowances was computed by identifying such items from the total pool of operational expenditures. They included councillor remuneration because these costs are built into the salaries of each municipality; like other salaries and allowances, they represent a statutory obligation for each municipality.

The annual average rate of growth for expenditure items was computed using standard formulas. The same process was followed for any personnel headcount for which trends were examined. Additional qualitative criteria, such as the quality of presentation of budget

documents and the measure of dependence on other sources of revenue, were used to facilitate a comparison across municipalities.

The raw data sources used in this study included the annual and time-series data of local government spending and personnel. Additional data was obtained from Statistics South Africa, non-financial censuses of municipalities, the Statistics South Africa Labour Force Survey historical revisions, and data from the government's Vulindlela portal. These data can all be accessed through Statistics South Africa, the South African Reserve Bank (SARB), and the National Treasury.

The 257 municipalities examined in this study consisted of eight category A municipalities (metropolitan), 18 secondary city municipalities (B1), 25 large town (B2) municipalities, 98 small town (B3) municipalities, 61 rural municipalities (B4), 23 low-capacity district municipalities (C1), and 21 high-capacity district municipalities (C2).

4.4   Personnel expenditure

From 2007/08 to 2017/18, municipalities' actual total operating expenditure grew in nominal terms by 15%. During the same period, employee costs was the largest expenditure item. The latter figure grew at an average annual rate of 15.9% in nominal terms, from R19.1 billion to R99.9 billion, driven primarily by high wage increases and a generous system of allowances. The employee costs were the main driver of municipal expenditure during the study period.

Table 4. 1: Employee costs as a proportion of operational expenditure for municipal groups

Financial Years	Metros (A)	Secondary cities (B1)	Large towns (B2)	Small towns (B3)	Rural municipalities (B4)	Low-capacity districts (C1)	High-capacity districts (C2)
2007/08	28%	28%	36%	34%	20%	28%	24%
2008/09	27%	25%	33%	32%	36%	33%	24%
2009/10	27%	25%	31%	32%	37%	33%	23%
2010/11	27%	24%	32%	30%	35%	39%	27%
2011/12	27%	24%	29%	27%	33%	38%	27%
2012/13	27%	22%	30%	29%	33%	46%	27%
2013/14	27%	22%	30%	29%	35%	44%	29%
2014/15	26%	22%	29%	28%	36%	46%	32%
2015/16	27%	22%	30%	29%	34%	48%	31%
2016/17	27%	23%	30%	29%	35%	53%	34%
2017/18	28%	24%	31%	33%	35%	52%	33%
Average annual growth	**0%**	**-2%**	**-2%**	**-1%**	**6%**	**6%**	**3%**

Source: adapted from the local government database

Of this spending, metropolitan municipalities accounted for R19.1 billion, or 84% of the total across municipalities, in 2007/08. The metropolitan municipalities' expenditure grew at an average annual rate of 11%, reaching R55.2 billion in 2017/18. This amount accounted for 55% of all expenditure on municipal employees' compensation in nominal terms.

Rural municipalities accounted for 0.3% of the personnel expenditure in 2007/08 and 7% in 2017/18, growing from R77.1 million to R7.1 billion at an average annual rate of 57%. Table 4.2 indicates that beyond the metropolitan municipalities, all other municipal groups also experienced growth in their employee costs between 2007/08 and 2017/18. This increase could reflect both administrative inefficiencies and a growth in expenditure responsibilities – for example, where Members of Executive Committees (MECs) were able to reassign more functions to the districts.

Table 4.2: Expenditure on employee costs by municipal groups

Financial Years	Employee costs	Metros (A)	Secondary cities (B1)	Large towns (B2)	Small towns (B3)	Rural municipalities (B4)	Low-capacity districts (C1)	High-capacity districts (C2)
2007/08	22 900 712	19 135 990	1 678 818	814 734	586 407	77 145	372 298	235 320
2008/09	37 732 395	22 528 055	4 664 947	2 354 078	3 324 758	2 021 720	1 068 471	1 770 366
2009/10	44 183 648	26 201 593	5 313 060	2 774 618	4 035 593	2 516 234	1 228 175	2 114 375
2010/11	50 314 632	29 533 965	6 095 664	3 151 875	4 667 192	2 897 542	1 462 516	2 505 878
2011/12	56 865 107	33 733 094	6 634 189	3 462 398	5 292 265	3 331 636	1 618 085	2 793 440
2012/13	61 159 316	35 514 885	7 122 232	3 782 249	5 893 532	3 817 198	1 790 769	3 238 451
2013/14	68 929 469	39 977 402	7 971 842	4 090 323	6 595 517	4 474 993	1 841 226	3 978 166
2014/15	73 555 878	41 439 956	8 723 199	4 387 004	7 239 124	5 026 750	2 064 088	4 675 757
2015/16	82 083 657	46 478 396	9 818 628	4 803 766	8 017 818	5 714 031	2 211 635	5 039 383
2016/17	91 759 628	50 157 070	11 664 543	6 315 192	9 349 215	6 432 747	2 345 810	5 495 051
2017/18	99 907 086	55 150 895	12 706 883	6 969 813	9 351 268	7 133 942	2 533 166	6 061 119
Average annual growth	**16%**	**11%**	**22%**	**24%**	**32%**	**57%**	**21%**	**38%**

Source: adapted from the local government database

Remuneration of managers and senior managers

Between 2007/08 and 2017/18, senior managers' basic salaries and wages formed the biggest portion of the remuneration expenditure. These amounts grew at an average annual rate of 4%, from R588.5 million to R896.1 million in nominal terms. During the same period, the headcount for municipal managers and senior managers decreased from 1523 to 1474 people, representing an average annual growth rate of 0.4%. Hence, the remuneration packages for managers were disproportionately high. In addition, the growth in basic salaries and wages obscures substantial increases in the "other benefits and allowances" category. This category grew at an average annual rate of 8%, from R23.1 million to R51.7 million in nominal terms. Moreover, between 2009/10 and 2017/18, municipalities spent R125.9 million in overtime pay for senior managers. Of this amount, R78.5 million was spent in the 2016/17 financial year.

Table 4. 3: Managers' employee costs by various components

Financial Years	Basic Salaries and Wages	Cell phone Allowance	Housing Allowances	Medical Aid Contributions	Motor Vehicle Allowance	Other benefits and allowances	Overtime	Pension and UIF Contributions	Performance Bonus
2007/08	588 463 121	3 779 199	6 050 935	8 746 102	84 590 413	23 071 753	0	34 659 015	28 373 760
2008/09	736 749 634	4 753 557	6 149 168	9 603 071	110 581 639	31 848 439	0	40 986 741	44 707 591
2009/10	844 022 331	7 013 877	10 437 539	13 811 062	119 968 072	54 725 230	10 253 782	64 491 649	38 553 765
2010/11	914 977 241	10 369 891	11 096 741	12 794 793	131 126 704	60 522 985	8 670 702	66 074 490	47 844 525
2011/12	925 174 505	11 967 860	12 921 019	15 256 132	134 591 178	64 559 984	4 329 344	69 238 679	49 211 635
2012/13	1 114 005 411	10 011 454	12 013 605	17 128 662	137 336 344	58 648 911	7 149 136	71 420 761	32 774 095
2013/14	1 196 108 313	17 480 976	20 273 894	18 384 170	148 362 916	71 664 818	9 248 596	82 524 372	31 386 828
2014/15	1 195 037 095	9 085 293	16 137 210	17 028 895	135 930 354	63 519 133	5 847 229	85 398 768	40 562 495
2015/16	708 705 703	5 176 778	13 044 928	40 217 968	104 365 011	41 910 020	1 234 844	43 454 850	28 574 719
2016/17	1 180 307 441	8 960 199	23 788 300	36 589 421	105 040 759	76 977 834	78 514 142	108 274 582	34 308 182
2017/18	896 049 765	9 782 883	14 976 823	12 289 852	109 316 231	51 694 831	679 814	54 037 119	38 453 201
*Average annual growth	4%	10%	9%	3%	3%	8%	-29%	5%	3%

Source: adapted from the local government database

*If no data were available for 2007/08, the first reported expenditure year was used as the baseline to calculate the average annual growth rate.

Over the same period, pension and unemployment insurance fund (UIF) contributions have grown by 5%; cell phone allowances have grown by 10%, and housing allowances have grown by 9%. These increases indicate generous benefits afforded to senior managers in local government. Ordinarily, UIF grows in line with salary earned and the UIF contribution is set at 2% of a person's earnings, of which 1% is paid by the employee and 1% by the employer. This high growth in UIF benefits is thus a proxy for marked increases in salaries.

Despite all service delivery failures at the local government level, R414.8 million was spent on performance bonuses for senior managers between the 2007/08 and 2017/18 financial years. Moreover, the performance reward system for the general public service stipulates a maximum of 1.5% of total remuneration. However, low-capacity district municipalities offer as much as 6% of total remuneration in performance rewards to senior managers. Large town, metropolitan and rural municipalities averaged, respectively, 4%, 3% and 2.7% of remuneration over the evaluation period. These figures indicate substantial variation amongst the municipalities.

The following analysis looks at the remuneration packages of non-managers. These employees are those that are covered under the municipal bargaining council.

Remuneration of non-managers

Table 4.4 below shows that basic salaries and wages to non-management staff of the municipality commanded the largest portion of municipal remuneration expenditure. It accounted for 61% in 2007/08, growing from R16.6 billion in 2007/08 to R49.9 billion in 2017/18, representing an average annual growth rate of 12%. However, between 2007/08 and 2017/18, the wage agreement resulted in an average growth of 8%, implying that if

municipalities adhere to the municipal bargaining council, then 4% of the increase accounts for increases in the number of employees. During the same period, inflation averaged 6.1%. Hence, salaries and wage increases have consistently been higher than inflation because of the union's bargaining power. For example, in 2009/10 and 2010/11, inflation was at 6.5% and 3.8%, whereas the wage agreements at the bargaining council resulted in a 13% and 8.5% increase respectively. This point lends credence to claims that wage agreements in the local government sphere have become one of the most disruptive budget events in the MTREF.

Table 4. 4: Components of employee costs for non-managers

Financial Years	Basic Salaries and Wages	Cell phone Allowance	Housing Allowances	Medical Aid Contributions	Motor Vehicle Allowance	Other benefits and allowances	Overtime	Pension and UIF Contributions	Performance Bonus
2007/08	16 633 972 029	24 053 797	307 514 654	1 192 766 237	1 034 482 482	1 601 534 153	1 417 831 849	2 899 374 218	199 559 397
2008/09	20 249 779 343	47 200 216	333 816 692	1 555 326 474	1 122 826 914	2 588 352 978	1 813 123 226	3 551 218 182	290 720 207
2009/10	24 990 787 150	260 169 882	337 632 842	1 987 783 421	1 204 556 806	2 885 307 714	2 144 462 569	4 487 034 944	229 310 096
2010/11	27 867 926 521	252 798 058	247 806 406	2 105 059 526	1 195 118 662	4 005 358 071	2 446 255 884	4 995 928 070	381 370 899
2011/12	31 493 109 655	323 231 771	271 109 697	2 429 270 875	1 334 792 230	4 021 983 846	2 446 350 199	5 412 333 944	424 258 113
2012/13	33 591 432 541	102 843 481	255 482 139	2 619 556 086	1 782 289 868	4 441 039 213	2 713 079 088	5 946 696 144	376 245 420
2013/14	36 256 456 977	121 139 509	248 296 019	2 990 841 210	1 881 839 442	5 594 174 271	2 938 068 677	6 356 535 087	407 057 932
2014/15	38 474 296 066	146 167 175	321 654 972	3 501 989 571	2 304 031 815	4 178 261 068	3 204 278 483	6 746 971 207	422 816 959
2015/16	37 997 164 159	84 370 107	435 899 666	3 152 586 811	2 187 836 753	4 602 281 868	3 382 446 822	7 352 983 723	245 549 458
2016/17	42 505 040 614	137 476 175	478 198 661	3 575 402 719	1 887 596 640	5 811 530 183	3 946 230 767	6 389 403 961	352 620 620
2017/18	49 925 978 272	161 083 558	498 195 560	4 197 570 475	2 242 521 169	6 023 354 989	4 937 149 484	7 442 916 532	802 989 453
*Average annual growth	12%	21%	5%	13%	8%	14%	13%	10%	15%

Source: adapted from the local government database

In addition, there were substantial increases in the "other benefits and allowances" category, which grew at an average annual rate of 14% from R1.6 billion to R6 billion in nominal terms. Moreover, between 2007/08 and 2017/18, R31.4 billion was spent on overtime, with expenditure on this category increasing by 13% from R1.4 billion in 2007/08 to R4.9 billion in 2017/18. Lastly, between 2007/08 and 2017/18, R4.9 billion was paid in performance bonuses for non-managers. In the low-capacity districts and rural municipalities, performance bonuses for non-managers grew at an average annual rate of 16% and 20%, respectively. In 2017/18 alone, these two groups of municipalities spent R42.7 million and R68.2 million on performance bonuses for non-managers respectively.

4.5   Growth in personnel numbers

In the first decade of municipal reforms (1997/98 – 2006/07), municipalities were still in a state of transformation. The reform process required them to determine their personnel needs accurately and equip themselves with an appropriate number of personnel who had the necessary skills and experience. Over time, municipalities needed to continuously review their recruitment and selection strategies and provide growth opportunities for their personnel. All

this was done to enhance service delivery and satisfy the changing needs of the communities they served.

Between 2007/08 and 2017/18, the number of employees in local government decreased from 273,613 people to 273,545. This was understandable because during those years there was a period of rationalising municipalities through amalgamation. By contrast, during the same period, employees in the national and provincial spheres increased by 13% and 6% respectively.

Administrative staff

Between 2009/10 and 2017/18, municipalities started to report consistently on disaggregated staff complements. Table 4.5 shows that municipal staffing practices led to an increase of 21% in the total staff complement of non-managers during that time, from 193,281 employees to 233,987. This includes an increase of 29% in the municipal administration component headcount, from 105,720 employees to 136,185. This increase outpaced the rate at which employees were employed for frontline services. The main contributor to this growth was the human resource departments of municipalities; over the same period, they increased from 4,466 employees to 43,281. This finding was unexpected given that municipal amalgamations were intended specifically to reduce expenditure on this component. Moreover, clerks (clerical and administrative), elementary occupations, human resources, finance and information technology (IT) services accounted for 56% of the municipal headcount.

Table 4. 5: Personnel headcount disaggregated by levels and departments

Financial years	Total employees	Non-management	Administrative component	Human resources departments	Electricity professionals	Electricity technicians
2009/10	206 383	193 281	105 720	4 466	2 004	2 323
2010/11	219 796	206 827	115 812	4 246	2 493	2 353
2011/12	252 887	236 593	130 123	5 498	2 078	3 299
2012/13	251 061	233 017	134 710	4 421	1 816	3 549
2013/14	254 728	236 684	133 329	7 625	1 468	3 341
2014/15	247 832	230 102	122 906	5 330	1 943	3 639
2015/16	208 079	195 685	107 981	4 785	1 521	2 452
2016/17	250 507	234 305	131 852	6 558	1 798	3 744
2017/18	249 490	233 987	136 185	43 281	1 811	3 673
	21%	21%	29%	869%	-10%	58%

Source: adapted from the local government database

The increase in administrative personnel should be evaluated together with core service delivery personnel. The headcount for electricity professionals decreased over the study period by 10%, from 2004 people to 1811, indicating an exodus of electrical engineers from municipalities. These electricity professionals have been replaced by technicians as a cheaper alternative. Hence, the technician headcount increased by 61% from 2323 to 3673, at an

average annual growth rate of 58%. This trend is a cause for concern given that electricity is the primary source of municipal revenue.

4.6 Compensation trends and municipal productivity

Between 2009/10 and 2017/18, municipal employee costs grew at an average annual rate of 11.4%. This increase was far higher than the nominal GDP increase of 7.7% over the same period (Figure 4.1).

Figure 4. 1: Growth in employee costs and nominal GDP
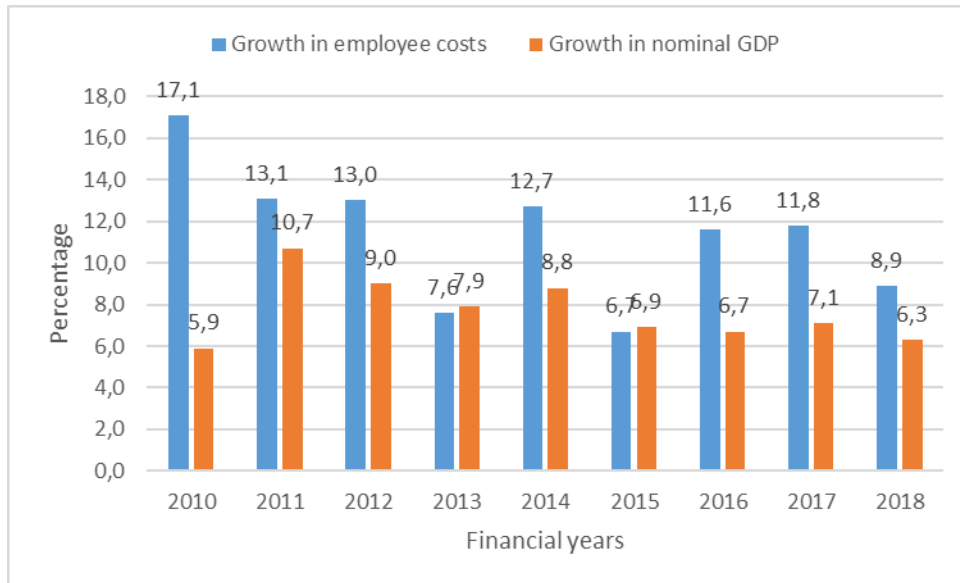
Source: author's own

Moreover, the growth in municipal salaries has been far higher than that of per capita GDP (Figure 4.2), and by 2018 was 4.1 times larger. This problematic trend of unbalanced increases in productivity versus municipal employee costs must be addressed to improve efficiency. It can be argued that the widening gap is partly the result of slow economic growth and high unemployment levels, both of which suppress per capita GDP. However, such a vast disparity is unsustainable.

Figure 4. 2: Average annual remuneration for municipal employees versus per capita GDP
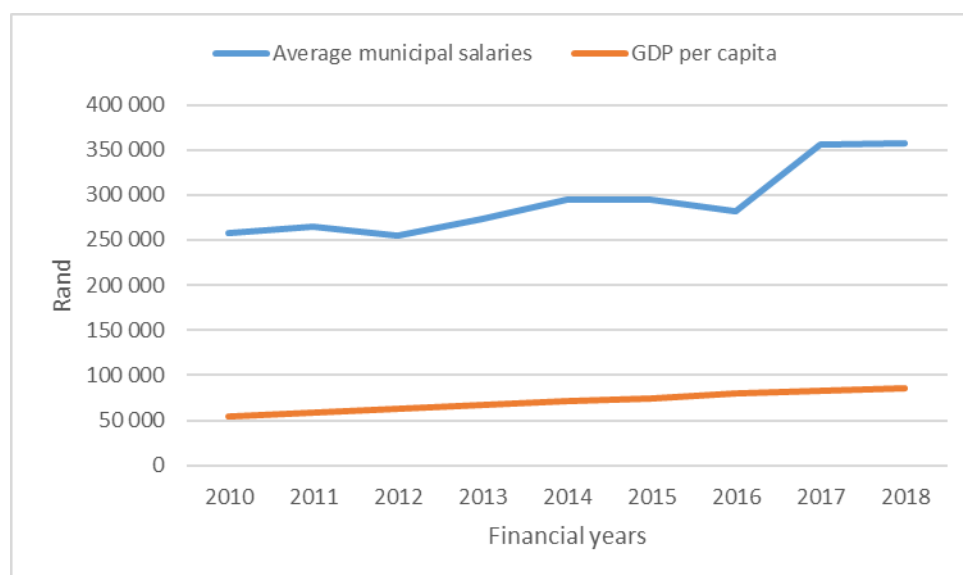
Source: author's own

4.7   Comparison between local government and other spheres

A comparison of employee costs and headcount numbers for the three spheres of government provides a picture of how well local government is performing, compared with other spheres of government. This part of the analysis excludes managers, senior managers, and politicians; including these groups would distort the picture. For example, chief financial officers perform the same jobs across the three spheres, but they are remunerated differently in different municipalities because of the differing sizes of municipal budgets. By contrast, at the national and local government levels, they receive uniform remuneration. Similarly, councillors are paid from municipal budgets, whereas in other spheres of government, only Ministers and Members of the Executive Council responsible for that department are remunerated.

Table 4.6 shows that the average salaries in municipalities increased markedly from R245,456 in 2009/10 to R571,328 in 2019/20, representing an average annual growth rate of 8.8%. This amount of real growth is of concern. The growth rates in the national and provincial spheres of government were, respectively, a more modest 7.3% and 7.2% over the same period. It is worth noting that local government did start at a high baseline, with an expenditure per employee of R195,948 for national employees and R211,352 for provincial employees in 2009/2010. However, over time, local government employees have continued to receive higher increases. There are many reasons this trend could be attributed to. Municipalities generally have generous systems of benefits and performance rewards (as indicated in Table 4.4 above).

Table 4. 6: Comparison of employee costs and headcount numbers for the three spheres of government (excluding managers, senior managers and politicians)

Years	Full-time equivalents			Compensation expenditure (R)			Average salaries		
	National	Provincial	Local	National	Provincial	Local	National	Provincial	Local
2010	309 585	884 727	149 120	60 972 210 088	186 989 080 270	36 602 420 000	196 948	211 352	245 456
2011	321 548	909 737	164 133	69 249 847 843	209 949 960 236	41 989 322 000	215 364	230 781	255 825
2012	327 485	915 259	189 125	75 773 561 360	225 312 886 833	48 525 636 000	231 380	246 174	256 580
2013	326 186	913 950	189 976	81 943 926 810	241 815 894 199	52 592 856 000	251 219	264 583	276 839
2014	325 221	906 458	192 856	88 177 046 460	258 749 750 260	59 016 950 000	271 129	285 452	306 016
2015	342 448	888 266	200 998	98 180 348 515	271 133 712 929	64 463 546 000	286 702	305 239	320 717
2016	336 625	868 377	210 713	106 086 101 482	291 541 424 841	69 330 692 000	315 146	335 732	329 029
2017	337 203	866 785	183 178	113 783 156 951	314 306 527 279	54 827 839 000	337 433	362 612	299 315
2018	328 647	873 964	213 415	120 557 787 904	348 471 980 198	89 431 731 000	366 830	398 726	419 051
2019	328 280	878 589	212 232	129 256 490 411	372 011 362 964	97 830 874 000	393 739	423 419	460 962
2020	322 033	894 928	180 309	128 633 059 384	379 576 459 890	103 015 669 000	399 441	424 142	571 328
Average annual growth	0,4%	0,1%	1,9%	7,8%	7,3%	10,9%	7,3%	7,2%	8,8%

Source: adapted from the local government database

4.8   Benchmarking employee costs as a percentage of operating expenditure

Local wages and living conditions can mean diverse wage levels in different parts of the country. Hence, although benchmarking is a helpful process, one cannot assume that wage and working conditions are the same everywhere. In addition, organisational structures may differ from one municipality to the next.

Added to this diversity is the wage negotiation process. Wage agreements in the local government sphere have become a highly disruptive budget event in the calendar. As a result, tension exists in the political economy in local government.

Municipalities do not participate directly in the bargaining process. Once an agreement is reached, they are obliged to pay the salary increases agreed to in the bargaining council, where trade unions bargain with the SALGA regarding municipal salaries. Municipalities are expected to increase their internally generated substantive revenue and to cover additional salary costs by adjusting the rates and fees they charge consumers. Unfortunately for municipalities, the local government equitable share formula does not have a component that deals with salary costs. If it did, municipalities could argue that national government should assist them to cover the cost of salary increases.

Although benchmarking is helpful for wage negotiations, one cannot assume that wage and working conditions are the same everywhere or that organisational structures are the same from one municipality to the next. There is a need for National Treasury and the Department of Cooperative Governance to "interrogate the composition of local government expenditure and to strike an appropriate balance between capital and current spending" (Pakkies, 2016). The composition of rural municipal expenditures is mainly towards employee costs (EC), with 36% of operating expenditures spent on this item. Hence, it is the costliest item in operational expenditure. Figure 4.4 shows the data for employee costs as a percentage of the total

operation budget. The National Treasury (2014), through the MFMA Circular No. 71, set a norm range of 25% to 40% for remuneration (Employee-Related Costs and Councillors Remuneration) as a percentage of total operating expenditure.

Figure 4.3 below shows the average employee costs spending as a percentage of total operational expenditure between 2011/12 and 2017/18 financial years (also see Annexure A).

Figure 4. 3: Employee costs as a % of total expenditure map
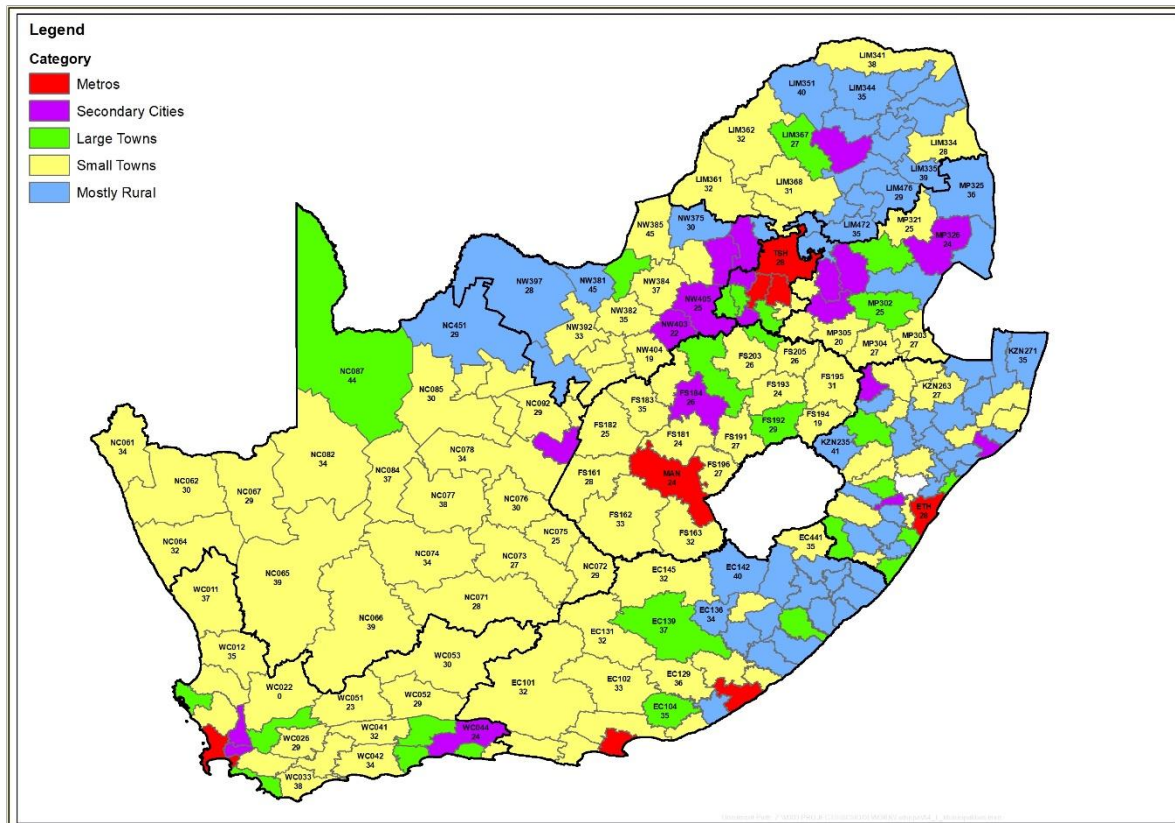
Source: author's own map

This above map shows that rural municipalities generally spend most of their budgets on employee costs, averaging 37% of their budgets between the 2011/12 and 2017/18 financial years, the same municipalities remain most underserved. However, the average masks wide variations between the municipalities as

eighteen of the rural municipalities spent more than the 40% stipulated maximum. The Greater Giyani area spent the most, at 49%. Hence, the ratio between the cost of employees and operational expenditure costs was well above the set threshold.

In the category of large towns, only the Dawid Kruiper and Ray Nkonyeni towns spent more than 40%, at 44% and 42% respectively. Midvaal and Mossel Bay spent 23% and 28% respectively. Within the small town municipalities, the troubled Dr Nkosazana Dlamini-Zuma, Mkhambathini and Ramotshere Moiloa towns spent 41%, 46% and 45% respectively. These

figures are higher than the percentage spent by efficient municipalities such as Witzenberg, which spent 29% of its operational expenditure on employee costs.

This point casts doubt on the optimal organisational size that municipalities should have and their sustainability. The figures suggest that the funds intended to improve a municipality's long-term prospects are often tied up in employee costs. Hence, the potential gains of funding for rural municipalities have been largely nullified by a surge in staff costs and increases in pay grades. Less has been spent on trading services and local economic development. Funds have been diverted to municipal administration and corporate services.

Pakkies (2016) cited Moreno-Dodson (2012) as saying that "specific categories of public expenditure, such as investment in capital assets", are likely to enhance growth more than others. The growth enhancing element of the investment in infrastructure is also validated by the possible revenue that could be raised through user charges. Municipal expenditure should be channelled towards municipal assets. These assets include the expenditure related to bulk services (electricity, water, sanitation and refuse removal) and infrastructure. They include the refurbishment and maintenance costs, to ensure that there is a balance between the consumption and investment expenditures (Ghosh & Gregoriou, 2008).

The municipal governance index of 2019 uses compliance, financial management capacity, ability to roll out projects, and capacity constraints as performance measures. Based on these aspects, Nkangala District Municipality is one of the best-performing low-capacity districts, yet it spends only 24% of its operational expenditure on compensating employees. Other districts that are similar in terms of municipal circumstances – namely population, demography, physical size, topography, settlement patterns, services, property, and plants and equipment – include West Rand, Xhariep, ZF Mgcawu, Pixley Ka Seme (NC), Sedibeng, John Taolo Gaetsewe, and Lejweleputswa. They spend more than 60% of their operational expenditure on employee costs. Most of these municipalities (notably, West Rand, Pixley Ka Seme, Xhariep, and John Taolo Gaetsewe) are in financial crisis in 2017/18 financial year.

Improving efficiency would bring significant benefits. Had all the municipalities in the sample been as efficient as the best-performing ones within a group of municipalities, local government would have realised greater savings. The funds could then be invested in improving service delivery.

4.9   Discussion

A well-resourced local government can address the many challenges of being "at the coal face" of service delivery. In recent years, personnel management and spending have become more pronounced in local governments. This scenario emphasises prudent personnel

spending, lending credence to the need for a thorough assessment of the impact of personnel management in municipal finance problems.

About 30% of the total municipal operating budget was spent on employee costs at an aggregate level. The category "employee costs" includes all current personnel-related payments to municipal employees - both wages and salaries and social contributions. Social contributions refer to employee benefits funded by the municipality, such as pension or medical scheme contributions (Bekink, 2006). The percentage of total operating expenditure accounted for by employee costs varies from municipality to municipality, depending on the extent to which they have outsourced some of their service delivery functions and whether they are responsible for substantial revenue-generating functions (National Treasury, 2011).

It should be a concern that the total remuneration of municipal employees increased at a real average annual rate of 14.2% between 2006/07 and 2016/17. By contrast, municipal employment over the same period decreased at an average annual rate of 6%. The result has been a substantial increase in the average cost of employment, at a real average annual rate of 15% (from R43,313 in 2006/07 to R174,467 in 2016/17). The outcome of the municipal amalgamations process was expected to result in savings that would be ploughed back to service the needs of the poor. However, in reality, municipalities have redirected the savings to remunerate their personnel. Therefore, the extreme increases in employee costs pose a serious risk to the sustainable provision of services. Such increases raise the cost of core municipal services and could push those costs beyond the affordability threshold.

Figure 4.4 below shows the real expenditure per employee across the three spheres between 2006/07 and 2015/16 financial years.

Figure 4. 4: Real expenditure per employee across the three spheres
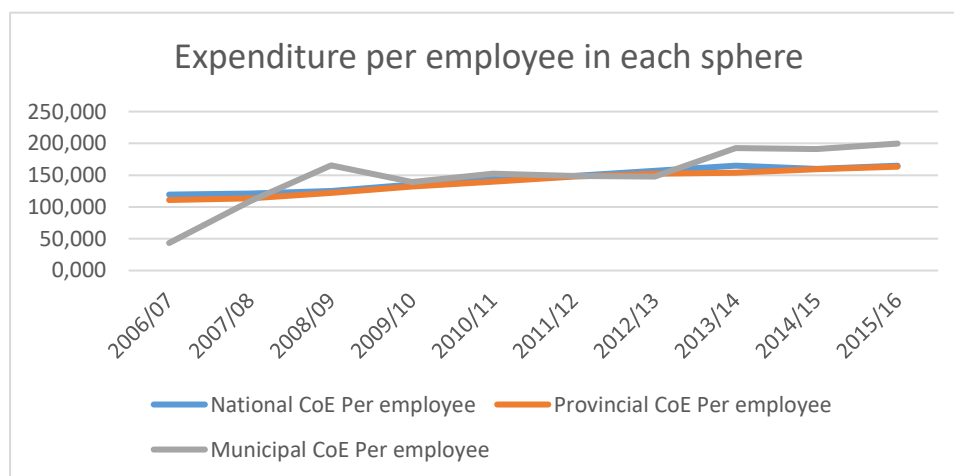
Source: author's own calculation

In contrast to the real employee remuneration and average annual growth of 14.2% in local government, the national and provincial governments have each grown by 5%. Between 2006/07 and 2016/17, an overall inflation-adjusted real increase of 63% occurred in average remuneration and equity for public servants, both national and provincial. This figure increase is far surpassed by the increase in local government, which displayed an overall inflation-adjusted real increase of 277% in average remuneration and equity for municipal employees. The picture is exacerbated by an average 12% increase in the headcount of public service personnel, compared to a decrease of 6% in municipal personnel over the same period.

Figure 4.5 below shows the number of public service employees in the three spheres of government between fiscal years 2007/08 and 2017/18, showing that the provinces employ the most public employees, and this number has increased over time. However, the figure also shows that municipalities employ the fewest employees and that these numbers have remained largely the same from 2007/08 to 2017/18. The trend for municipal employees is worrying as the number of municipalities has fallen significantly from 289 to 257 over the same period.

Figure 4. 5: Headcount per sphere
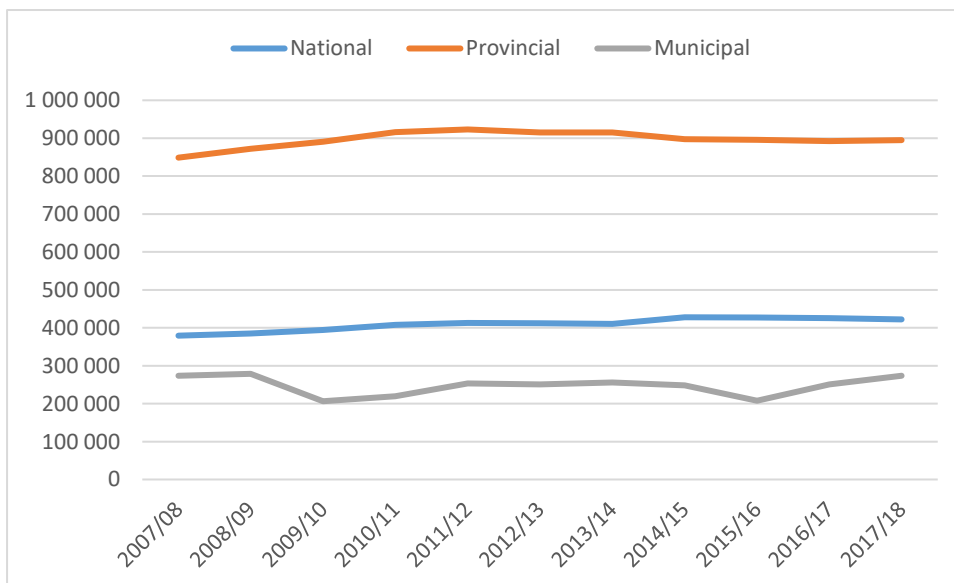
Source: author's own calculation

Investing in financial and technical excellence results in service delivery sustainability and audit outcomes that indicate a sound base from which the services are provided. This is evident from the metros and secondary cities. Rural and district municipalities are still lagging. In 2017, this asymmetric distribution of administrative capacity remained evident. Although there were municipalities that functioned relatively well, there were still wide-ranging institutional weaknesses in South Africa.

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National Treasury has responded by driving a process of building capacity in provincial and national departments to implement infrastructure projects where it is lacking. National Treasury is also working with the provincial treasuries to support municipalities to build their capacity. It has, for some time, assisted in a comprehensive and substantive process of building budgeting, financial management and revenue management capacity in municipalities.

4.9.1 Implications for municipal budgets

Disaggregating the spending by municipal groups, especially for recent years, shows that all municipal groups have grown by more than inflation. Employee costs in rural municipalities grew the most, at a rate of 31% in nominal terms regarding benefits paid. Cell phone allowance, housing allowance, motor vehicle allowance, pension and UIF contributions, and performance bonus increased at average annual rates of 53%, 28%, 30%, 29%, and 40% respectively. The employer pension fund contributions in 2017/18 amounted to between 15% and 22% (Municipal Employees Pension Fund, 2018). The general public service employees' contributions were between 13% and 16% (Government Employees Pension Fund, 2018).

In essence, these municipalities are not living the reality of a constrained economy. Although the figures mask considerable variation between municipalities, rural municipalities in particular derived much of their revenue (65%) from operational transfers. Their trading services accounted for 12% and property rates for 10%, with other revenues accounting for 12%. This level of dependence on intergovernmental transfers, without curtailing employee remuneration, would make it difficult for the municipality to respond adequately to the needs of a growing population and to address the backlogs.

Overall, some municipalities have incurred reasonable personnel cost increases, whereas others show inflated costs. The former group has been able to scale up their service delivery. For the latter group, the unexplainable increases have meant that substantial resources intended for service delivery have been used to cover personnel-related costs.

As Pakkies (2016) suggests, there is a need to question the composition of municipal spending and to strike an appropriate balance between spending on operational improvements and investments and consumptive spending. This balance depends on many factors, including whether the municipal population is growing, shrinking, or stable, and whether the current condition of infrastructure is sound or dilapidated. Also important is whether spending on expenditure prioritises households' preferences, as set out in the Integrated Development Plans (IDPs).

4.9.2 Strategies to deal with the municipal wage bill crisis

To reduce the municipal wage bill, municipalities will need to follow due process, but ideally, they should change the terms and conditions of original employment contracts. If that approach does not yield the required savings, another option would be to apply retrenching staff to bring down the numbers.

A breach of contract may lead to litigation. However, it may be that the terms of the original employment contract need to be changed due to changes in the employer's operational requirements. In this case, it is possible that the employer - under certain circumstances - is entitled to initiate termination proceedings if the employees do not accept the changes.

A critical matter is ensuring that municipalities are in a position to retain adequate and requisite skills to deliver on their mandate after implementing any mutual separation agreements. They should compare the demand for skills in the current situation versus the anticipated situation after implementing the mutual separation agreement. Other strategies to facilitate mutual separation agreements include allowing early retirement exits without pension penalties and making payments for unused annual leave. Compensation for medical assistance based on the number of pensionable service years and membership of a registered medical aid scheme, and pro-rata service bonuses. While these strategies may require upfront costs, they would lead to long-term fiscal sustainability benefits.

Such strategies will require that municipal and policymakers answer a series of questions. The first is whether the municipal organisational structure is administratively intense. If yes, then there are two options available to a municipality. One is to review the municipal organisation structure to develop a fit-for-purpose structure. The second option is to conduct a skills audit of all employees to reskill some to be deployed in the technical service departments and assign them accordingly. If a municipality has opted to review its organisational structure, it will need to evaluate job descriptions (JDs) and release redundant positions.

However, if the municipality's spending on personnel is high, a different strategy would apply. This process will involve reviewing remuneration packages or reviewing the category of each municipality. Reviewing remuneration packages would involve reviewing staff benefits and policies that inform these benefits, along with a decision on whether to reduce or freeze salaries. If the municipality falls under the category of wage scale that it cannot afford, then reviewing the category of the municipality is the recommended action. This review would result in a municipality falling into a lower category. As a last resort, the municipality can institute retrenchments.

Figure 4.6. below summarises, in a decision tree format, the various strategies available to municipalities seeking to address organisational structures that are not fit-for-purpose and those with high employee costs.

Figure 4. 6: Strategies for unsuitable organisational structures and high employee

Source: author's own

4.10   Conclusion

It is widely believed that fiscal decentralisation offers significant gains for the efficiency of resource allocation and accountability to citizens. However, the South African context suggests otherwise. Personnel expenditure in real terms was the fastest growing item in municipal budgets between 2006/07 and 2016/17. This item averaged a real annual growth rate of 14.2%, from R11.6 billion in 2006/07 to R43.7 billion in 2016/17, and the rising share of personnel expenditure became the biggest budgetary pressure facing municipalities. This vast growth in personnel expenditure is not in itself a problem. The cause for concern is that over the same period, staff numbers have decreased. Hence, municipal employees are being paid far more than they were previously. The combination of these two factors has resulted in the real costs of municipal employees growing at an average annual rate of 15%, from R43,313 in 2006/07 to R174,467 in 2016/17. This growth surpassed that of both the national

and provincial governments, whose average annual growth rates over the same period were R168,383 and R166,234, respectively. (By contrast, in 2006/07, the local government average cost was a fraction of its two counterparts'.) This scenario lends credence to the claims that current salaries in the local government sphere are generally higher than in the national and provincial spheres of government.

The core of this problem is the generous system of benefits and the lucrative performance awards that local government pays.

Reforms in the local government sphere quite clearly require municipalities to determine their personnel needs accurately; they are also required to equip their departments with the appropriate number of personnel having the necessary skills and experience.

4.11   Policy recommendations

Prototype organisational designs

The findings of this study cast doubt on the idea of there being an optimal organisational size for municipalities to be sustainable. This work has examined the implications of municipal staffing practices in the absence of prototypical organisational structures, norms, and standards. It would also be helpful to develop a costing model to determine the cost of running an efficient municipality. Due to the variation in municipal circumstances, such a model could be used in conjunction with benchmarks from the best municipalities (per category) to identify a range within which municipalities should fall. The following points should be considered during the organisational design:

- *Conduct a review of organisational design structures to establish alignment with municipal functional responsibilities;*
- *Identify an appropriate organisational design, and compare it to the existing structure;*
- *Make recommendations to improve the design's alignment with municipal functional mandates;*
- *Undertake a process to establish the need for and relevance of vacant posts, whether funded or not;*
- *Review employee costs to establish potential savings between the existing and proposed organisational design;*
- *Strengthen the human resources capability to update and redesign job profiles to ensure alignment with the functional requirements of each post;*
- *Strengthen and rework the current performance management system so that it is aligned to the updated job profiles; and*
- *Establish a mechanism to address redundant staff, temporary workers, "permanent" contractors, and similar pressures on employee costs.*

Remuneration policies

The payment of bonuses, rewards, and other benefits can be used to lift staff morale and reward exceptional performance. However, such benefits – specifically those given to senior

management – should be aligned with service delivery targets. These targets appear in municipal IDPs, the Service Delivery and Budget Implementation Plans (SDBIPs), and the audited financial statements presented to council with annual reports. Therefore, municipalities should be mindful of cost increases without achieving the necessary benefits for service delivery. They should understand that these dynamics can undermine poverty-alleviation programmes.

Reducing municipal wage bills

The organisational structures of the municipalities studied in this work were not fit-for-purpose. In addition, a high proportion of employees were located in the non-technical services department. Municipalities have several options for addressing their fiscal sustainability. The reality is that their finances are largely tied up in administration structures and employee costs.

4.12   References: Chapter 4

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4.13   Chapter 4: List of Annexures

Annexure A: Employee costs as a percentage of total operational budget

Municipal_Code	Municipality	Category	Percentage
DC37	Bojanala Platinum	C1	49%
DC2	Cape Winelands DM	C1	45%
DC5	Central Karoo	C1	49%
DC40	Dr Kenneth Kaunda	C1	38%
DC32	Ehlanzeni	C1	47%
DC20	Fezile Dabi	C1	51%
DC9	Frances Baard	C1	46%
DC4	Garden Route	C1	46%
DC30	Gert Sibande	C1	32%
DC45	John Taolo Gaetsewe	C1	60%
DC18	Lejweleputswa	C1	61%
DC6	Namakwa	C1	46%
DC31	Nkangala	C1	24%
DC3	Overberg	C1	55%
DC7	Pixley Ka Seme (NC)	C1	62%
DC10	Sarah Baartman	C1	34%
DC42	Sedibeng	C1	61%
DC19	Thabo Mofutsanyana	C1	49%
DC36	Waterberg	C1	54%
DC1	West Coast	C1	44%
DC48	West Rand	C1	58%
DC16	Xhariep	C1	61%
DC8	Z F Mgcawu	C1	66%
DC44	Alfred Nzo	C2	32%
DC25	Amajuba	C2	33%
DC12	Amathole	C2	39%
DC35	Capricorn	C2	36%
DC13	Chris Hani	C2	20%

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DC39	Dr Ruth Segomotsi Mompati	C2	25%
DC43	Harry Gwala	C2	28%
DC29	iLembe	C2	29%
DC14	Joe Gqabi	C2	32%
DC28	King Cetshwayo	C2	23%
DC33	Mopani	C2	30%
DC38	Ngaka Modiri Molema	C2	36%
DC15	O R Tambo	C2	27%
DC47	Sekhukhune	C2	31%
DC21	Ugu	C2	34%
DC22	uMgungundlovu	C2	30%
DC27	Umkhanyakude	C2	29%
DC24	Umzinyathi	C2	19%
DC23	Uthukela	C2	29%
DC34	Vhembe	C2	46%
DC26	Zululand	C2	28%
KZN238	Alfred Duma	Large Towns	31%
WC025	Breede Valley	Large Towns	27%
NC087	Dawid Kruiper	Large Towns	44%
FS192	Dihlabeng	Large Towns	29%
MP314	Emakhazeni	Large Towns	31%
EC139	Enoch Mgijima	Large Towns	37%
KZN433	Greater Kokstad	Large Towns	34%
EC157	King Sabata Dalindyebo	Large Towns	33%
WC048	Knysna	Large Towns	26%
KZN292	KwaDukuza	Large Towns	25%
NW383	Mafikeng	Large Towns	38%
EC104	Makana	Large Towns	35%
GT484	Merafong City	Large Towns	25%
FS204	Metsimaholo	Large Towns	27%
GT422	Midvaal	Large Towns	23%
LIM367	Mogalakwena	Large Towns	27%
FS201	Moqhaka	Large Towns	27%

WC043	Mossel Bay	Large Towns	28%
MP302	Msukaligwa	Large Towns	25%
WC045	Oudtshoorn	Large Towns	37%
WC032	Overstrand	Large Towns	31%
GT485	Rand West City	Large Towns	29%
KZN216	Ray Nkonyeni	Large Towns	42%
WC014	Saldanha Bay	Large Towns	33%
KZN212	Umdoni	Large Towns	40%
KZN222	uMngeni	Large Towns	28%
BUF	Buffalo City	Metros	27%
CPT	Cape Town	Metros	22%
EKU	City of Ekurhuleni	Metros	23%
JHB	City of Johannesburg	Metros	23%
TSH	City of Tshwane	Metros	28%
ETH	eThekwini	Metros	28%
MAN	Mangaung	Metros	24%
NMA	Nelson Mandela Bay	Metros	29%
MP301	Albert Luthuli	Mostly Rural	33%
LIM351	Blouberg	Mostly Rural	40%
MP325	Bushbuckridge	Mostly Rural	36%
LIM345	Collins Chabane	Mostly Rural	42%
KZN254	Dannhauser	Mostly Rural	27%
MP316	Dr J.S. Moroka	Mostly Rural	31%
LIM472	Elias Motsoaledi	Mostly Rural	35%
EC141	Elundini	Mostly Rural	37%
EC136	Emalahleni (EC)	Mostly Rural	34%
EC137	Engcobo	Mostly Rural	32%
LIM471	Ephraim Mogale	Mostly Rural	41%
LIM331	Greater Giyani	Mostly Rural	48%
LIM332	Greater Letaba	Mostly Rural	42%
NW394	Greater Taung	Mostly Rural	44%
LIM333	Greater Tzaneen	Mostly Rural	25%
KZN224	Impendle	Mostly Rural	38%

EC135	Intsika Yethu	Mostly Rural	48%
NC451	Joe Morolong	Mostly Rural	29%
KZN272	Jozini	Mostly Rural	36%
NW397	Kagisano-Molopo	Mostly Rural	28%
LIM355	Lepelle-Nkumpi	Mostly Rural	39%
LIM344	Makhado	Mostly Rural	35%
LIM473	Makhuduthamaga	Mostly Rural	24%
KZN291	Mandeni	Mostly Rural	36%
KZN294	Maphumulo	Mostly Rural	35%
LIM335	Maruleng	Mostly Rural	39%
EC121	Mbhashe	Mostly Rural	36%
EC443	Mbizana	Mostly Rural	34%
KZN281	Mfolozi	Mostly Rural	36%
EC156	Mhlontlo	Mostly Rural	38%
EC122	Mnquma	Mostly Rural	49%
LIM353	Molemole	Mostly Rural	48%
NW371	Moretele	Mostly Rural	23%
NW375	Moses Kotane	Mostly Rural	30%
KZN244	Msinga	Mostly Rural	26%
KZN293	Ndwedwe	Mostly Rural	38%
EC126	Ngqushwa	Mostly Rural	43%
EC153	Ngquza Hills	Mostly Rural	53%
KZN286	Nkandla	Mostly Rural	32%
MP324	Nkomazi	Mostly Rural	41%
KZN265	Nongoma	Mostly Rural	51%
KZN242	Nquthu	Mostly Rural	36%
EC444	Ntabankulu	Mostly Rural	41%
EC155	Nyandeni	Mostly Rural	48%
KZN235	Okhahlamba	Mostly Rural	41%
EC154	Port St Johns	Mostly Rural	42%
NW381	Ratlou	Mostly Rural	45%
KZN227	Richmond	Mostly Rural	43%
EC142	Senqu	Mostly Rural	40%

MP315	Thembisile Hani	Mostly Rural	20%
LIM343	Thulamela	Mostly Rural	38%
LIM476	Tubatse Fetakgomo	Mostly Rural	29%
KZN434	Ubuhlebezwe	Mostly Rural	46%
KZN266	Ulundi	Mostly Rural	30%
KZN271	Umhlabuyalingana	Mostly Rural	35%
KZN284	uMlalazi	Mostly Rural	33%
KZN435	Umzimkhulu	Mostly Rural	38%
EC442	Umzimvubu	Mostly Rural	32%
KZN213	Umzumbe	Mostly Rural	40%
KZN262	uPhongolo	Mostly Rural	37%
NW403	City of Matlosana	Secondary Cities	22%
MP326	City of Mbombela	Secondary Cities	24%
WC023	Drakenstein	Secondary Cities	26%
MP312	Emalahleni (MP)	Secondary Cities	24%
GT421	Emfuleni	Secondary Cities	18%
WC044	George	Secondary Cities	24%
MP307	Govan Mbeki	Secondary Cities	21%
NW405	J B Marks	Secondary Cities	25%
NW372	Madibeng	Secondary Cities	18%
FS184	Matjhabeng	Secondary Cities	26%
GT481	Mogale City	Secondary Cities	24%
KZN225	Msunduzi	Secondary Cities	22%
KZN252	Newcastle	Secondary Cities	23%
LIM354	Polokwane	Secondary Cities	22%
NW373	Rustenburg	Secondary Cities	16%
NC091	Sol Plaatje	Secondary Cities	35%
WC024	Stellenbosch	Secondary Cities	28%
MP313	Steve Tshwete	Secondary Cities	28%
KZN282	uMhlathuze	Secondary Cities	23%
NC082	!Kai! Garib	Small Towns	34%
NC084	!Kheis	Small Towns	37%
KZN263	Abaqulusi	Small Towns	27%

EC124	Amahlathi	Small Towns	40%
LIM334	Ba-Phalaborwa	Small Towns	28%
WC053	Beaufort West	Small Towns	30%
LIM366	Bela Bela	Small Towns	30%
WC013	Bergrivier	Small Towns	39%
WC047	Bitou	Small Towns	33%
EC102	Blue Crane Route	Small Towns	33%
WC033	Cape Agulhas	Small Towns	38%
WC012	Cederberg	Small Towns	35%
NC092	Dikgatlong	Small Towns	29%
MP306	Dipaleseng	Small Towns	25%
NW384	Ditsobotla	Small Towns	37%
EC101	Dr Beyers Naude	Small Towns	32%
KZN436	Dr Nkosazana Dlamini Zuma	Small Towns	41%
KZN261	eDumbe	Small Towns	37%
KZN253	Emadlangeni	Small Towns	37%
NC073	Emthanjeni	Small Towns	27%
KZN241	Endumeni	Small Towns	34%
NC453	Gamagara	Small Towns	21%
NC452	Ga-Segonyana	Small Towns	27%
EC123	Great Kei	Small Towns	35%
NC065	Hantam	Small Towns	39%
WC042	Hessequa	Small Towns	34%
KZN276	Hlabisa Big Five	Small Towns	53%
KZN237	Inkosi Langalibalele	Small Towns	29%
EC131	Inxuba Yethemba	Small Towns	32%
NC064	Kamiesberg	Small Towns	32%
WC041	Kannaland	Small Towns	32%
NC074	Kareeberg	Small Towns	34%
NC066	Karoo Hoogland	Small Towns	39%
NC086	Kgatelopele	Small Towns	26%
NW374	Kgetlengrivier	Small Towns	25%
NC067	Khai-Ma	Small Towns	29%

FS162	Kopanong	Small Towns	33%
EC108	Kouga	Small Towns	36%
EC109	Kou-Kamma	Small Towns	31%
WC051	Laingsburg	Small Towns	23%
WC026	Langeberg	Small Towns	29%
MP305	Lekwa	Small Towns	20%
NW396	Lekwa-Teemane	Small Towns	21%
LIM362	Lephalale	Small Towns	32%
GT423	Lesedi	Small Towns	22%
FS161	Letsemeng	Small Towns	28%
FS205	Mafube	Small Towns	26%
NC093	Magareng	Small Towns	28%
FS194	Maluti-a-Phofung	Small Towns	19%
NW393	Mamusa	Small Towns	32%
FS196	Mantsopa	Small Towns	27%
NW404	Maquassi Hills	Small Towns	19%
FS181	Masilonyana	Small Towns	24%
EC441	Matatiele	Small Towns	35%
WC011	Matzikama	Small Towns	37%
KZN226	Mkhambathini	Small Towns	46%
MP303	Mkhondo	Small Towns	27%
LIM368	Modimolle-Mookgopong	Small Towns	31%
FS163	Mohokare	Small Towns	32%
KZN223	Mpofana	Small Towns	25%
KZN285	Mthonjaneni	Small Towns	30%
KZN275	Mtubatuba	Small Towns	39%
LIM341	Musina	Small Towns	38%
FS185	Nala	Small Towns	32%
NW392	Naledi (NW)	Small Towns	33%
NC062	Nama Khoi	Small Towns	30%
EC105	Ndlambe	Small Towns	36%
FS203	Ngwathe	Small Towns	26%
FS193	Nketoana	Small Towns	24%

NC094	Phokwane	Small Towns	19%
FS195	Phumelela	Small Towns	31%
MP304	Pixley Ka Seme (MP)	Small Towns	27%
WC052	Prince Albert	Small Towns	29%
NW385	Ramotshere Moiloa	Small Towns	45%
EC129	Raymond Mhlaba	Small Towns	36%
NC075	Renosterberg	Small Towns	25%
NC061	Richtersveld	Small Towns	34%
EC138	Sakhisizwe	Small Towns	41%
FS191	Setsoto	Small Towns	27%
NC078	Siyancuma	Small Towns	34%
NC077	Siyathemba	Small Towns	38%
EC106	Sundays River Valley	Small Towns	30%
WC015	Swartland	Small Towns	30%
WC034	Swellendam	Small Towns	33%
MP321	Thaba Chweu	Small Towns	25%
LIM361	Thabazimbi	Small Towns	32%
WC031	Theewaterskloof	Small Towns	34%
NC076	Thembelihle	Small Towns	30%
FS182	Tokologo	Small Towns	25%
NC085	Tsantsabane	Small Towns	30%
NW382	Tswaing	Small Towns	35%
FS183	Tswelopele	Small Towns	35%
NC071	Ubuntu	Small Towns	28%
NC072	Umsobomvu	Small Towns	29%
KZN214	uMuziwabantu	Small Towns	38%
KZN245	Umvoti	Small Towns	34%
MP311	Victor Khanye	Small Towns	29%
EC145	Walter Sisulu	Small Towns	32%
WC022	Witzenberg	Small Towns	29%

Annexure B: Number of employees by municipality (excluding Senior managers and Councilors)

Location Description	Locat Code	TOTAL 2010	TOTAL 2011	TOTAL 2012	TOTAL 2013	TOTAL 2014	TOTAL 2015	TOTAL 2016	TOTAL 2017	TOTAL 2018	TOTAL 2019	TOTAL 2020
Head count												
Buffalo City	BUF	4944	4912	5190	5137	5169	5190	5575	5575	5612	4958	5196
Cape Town	CPT	20321	22005	22179	22673	23074	24325	25959	27006	28137	29362	29513
West Coast	DC1	732	732	616	616	630	630	630	643	643	599	637
Sarah Baartman	DC10	21	20	20	20	27	24	36	36	36	36	36
Amathole	DC12	1058	1097	1194	1110	1110	1754	1754	1754	989	0	1243
Chris Hani	DC13	0	0	25	328	214	214	0	825	332	0	0
Joe Gqabi	DC14	18	0	0	29	257	29	258	0	0	0	0
O R Tambo	DC15	113	113	158	166	817	869	919	1397	1456	1456	1506
Xhariep	DC16	0	0	0	0	48	43	0	0	0	0	0
Lejweleputswa	DC18	92	85	85	105	105	109	109	109	109		
Thabo Mofutsanyana	DC19	49	0	59	0	0	0	0	0	0	0	0
Cape Winelands DM	DC2	482	446	446	461	471	0	392	0	398	386	375
Fezile Dabi	DC20	44	44	35	57	0	0	0	0	0	0	0
Ugu	DC21	1496	1844	1890	1247	1258	1398	1256	0	295	559	559
uMgungundlovu	DC22	31	31	33	265	299	415	52	39	62	62	62
Uthukela	DC23	0	0	0	0	74	1238	1468	847	1058	1058	1003
Umzinyathi	DC24	43	21	50	58	16	15	15	0	0	0	194
Amajuba	DC25	63	83	0	0	81	72	72	80	80	0	0
Zululand	DC26	374	374		0	0	0	0	0	0		0
Umkhanyakude	DC27	0	364	22	0	0	0	0	0	0	315	315
King Cetshwayo	DC28	243		260	236	305	322	410	0	430	456	456
iLembe	DC29	99	382	382	528	528	535	0	0	610	610	522
Overberg	DC3	253	313	284	262	262	0	110	0	0	0	534
Gert Sibande	DC30	79	111	79	79	79	122	122	122	0	0	0
Nkangala	DC31	0	0	69	166	190	192	163	0	164	164	170
Ehlanzeni	DC32	127	127	127	127	126	126	126	107	107	0	0
Mopani	DC33	0	0	0	0	0	0	0	0	0	0	0
Vhembe	DC34	33	33	664	785	0	0	0	0	0	9	9
Capricorn	*DC35*		444	406	446	859	959	460	0	838	838	838
Waterberg	DC36	23	31	32	46	100	100	100	100	100	0	97
Bojanala Platinum	DC37	171	155	325	325	353	357	357	357	0	0	190
Ngaka Modiri Molema	DC38	13	0	340	373	0	618	618	0	382	585	585
Dr Ruth Segomotsi Mompati	DC39	63	43	43	61	66	65	12	12	12	12	
Garden Route	DC4	591	0	743	743	416	558	441	542	564	564	564
Dr Kenneth Kaunda	DC40	47	47	4	4	4	0	0	0	10	8	8
Sedibeng	DC42	836	0	760	715	712	495	495	422	422	410	0

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Harry Gwala	DC43	211	206	229	260	260	269	269	269	286		286
Alfred Nzo	DC44	163	0	0	0	0	0	0	210	386	363	
John Taolo Gaetsewe	DC45	0	57	57	21	22	0	82	0	64	53	
Sekhukhune	DC47	414	0	0	242	242	242	0	0	0	0	0
West Rand	DC48	14	0	20	20	22	22	22	0	20	0	0
Central Karoo	DC5	145	141	91	91	117	60	107	0	167	167	167
Namakwa	DC6	103	103	41	39	48	48	0	0	48	48	
Pixley Ka Seme (NC)	DC7	65	0	24	24	35	36	49	0	0	0	0
Z F Mgcawu	DC8	148	141	79	83	111	64	73	74	74	86	0
Frances Baard	DC9	0	62	62	85	112	112	112	0	9	0	48
Dr Beyers Naude	EC101	0	0	0	0	497	0	0	0	332	332	252
Blue Crane Route	EC102	6	0	0	5	0	0	0	0	0	455	455
Makana	EC104	670	670	670	0	670	67	67	173	0	653	
Ndlambe	EC105	0	397	411	554	565	350	0	0	453	0	455
Sundays River Valley	EC106	151	162	164	173	173	176	179	0	0	211	287
Kouga	EC108	0	0	808	808	841	830	831	0	900	904	0
Kou-Kamma	EC109	0	0	159	159	104	152	169	0	137	146	146
Mbhashe	EC121	2	0	0	0	0	0	0	0	0	0	
Mnquma	EC122	1	1	1	0	12	14	23	0	0	0	
Great Kei	EC123	23	19	15	217	215	247	241	0	118	126	126
Amahlathi	EC124	195	213	228	279	279	8	25	0	94	0	0
Ngqushwa	EC126	0	166	78	72	128	0	41	0	191	132	132
Raymond Mhlaba	*EC129*								0	0	0	0
Inxuba Yethemba	EC131	0	0	319	319	319	311	305	0	307	307	307
Intsika Yethu	EC135	0	0	0	157	164	118	118		0	0	0
Emalahleni (EC)	EC136	168	124	136	163	173	186	156	156	156	125	127
Engcobo	EC137	79	79	5	0	0	0	0	0	0	0	0
Sakhisizwe	EC138	0	0	0	192	188	0	152	0	0	0	0
Enoch Mgijima	*EC139*							0	183	0	187	187
Elundini	EC141	209	209	210	0	214	214	204	0	284	238	272
Senqu	EC142	122	184	0	75	75	75	174	174	176	176	239
Walter Sisulu	*EC145*							0	281	281	281	
Ngquza Hills	EC153	245	0	0	222	107	0	0	0	63		308
Port St Johns	EC154	176	254	254	254	0	0	209	209	209	205	205
Nyandeni	EC155	0	0	192	208	246	246	262	262	262	251	252
Mhlontlo	EC156	0	0	176	176	176	176	176	176	176	0	0
King Sabata Dalindyebo	EC157	0	0	983	945	945	971	971	0	727	727	727
Matatiele	EC441	95	1133	14	14	14	114	13	113	111	318	280
Umzimvubu	EC442	0	0	0	0	0	0	250	250	250	250	250
Mbizana	EC443	16	0	0	0	247	250	250	250	250	250	250
Ntabankulu	EC444	84	0	74	77	98	132	128	0	167	167	0
City of Ekurhuleni	EKU	0	16834	16770	14958	16646	16646	16646	17483	19641	16073	16667
eThekwini	ETH	17139	17513	18839	21107	23111	23215	21101	23895	21476	21469	25230
Letsemeng	FS161	117	117	115	115	23	169	263	0	0	0	
Kopanong	FS162	426	458	458	458	458	458	458	0	419	419	

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Mohokare	FS163	188	226	263	313	318	270	250	184	203	118	118
Masilonyana	FS181	0	0	0	0	10	78	365	448	448	448	336
Tokologo	FS182	10	10	15	15	43	180	210	198	172		151
Tswelopele	FS183	170	168	370	202	202	202	258	258	258	258	258
Matjhabeng	FS184	1882	0	2000	1652	1652	1652	2078	2078	2078	2078	1685
Nala	FS185	465	465	468	538	791	791	0	0	795		0
Setsoto	FS191	176	0	752	0	715	715	777	640	640	640	640
Dihlabeng	FS192	501	589	716	807	430	300	300	358	358	1066	
Nketoana	FS193	117	346	414	374	519	633	366	366	492	668	0
Maluti-a-Phofung	FS194	0	0	0	0	0	33	512	823	86	86	86
Phumelela	FS195	353	230	230	230	471	431	440	41	41	41	0
Mantsopa	FS196	311	0	0	0	0	337	257	257	291	0	0
Moqhaka	FS201	30	30	0	767	728	992	892	878	0	859	859
Ngwathe	FS203	515	515	614	614	842	842	842	834	834	22	0
Metsimaholo	FS204	803	721	1136	1130	1205	1067	1239	1280	1279	1279	1279
Mafube	FS205	0	0	561	594	704	702	727	672	672	672	672
Emfuleni	GT421	4466	1333	2680	1611	1611	0	2144	2141	1924	2446	0
Midvaal	GT422	513	513	544	577	571	577	618	543	734	668	668
Lesedi	GT423	480	0	433	433	436	400	400	0	400	400	
Mogale City	GT481	140	261	256	264	1068	1167	1054	832	832	192	192
Merafong City	GT484	0	1078	1138	1020	928	1138	1138	776	822	791	791
Rand West City	*GT485*							0	1109	1109	798	798
City of Johannesburg	JHB	22463	23611	24015	25097	20223	22156	29695	22827	24429	26660	25670
Umdoni	KZN212	333	333	333	322	333	316	300	0	52	52	284
Umzumbe	KZN213	34	41	3	0	55	0	0	11	13	0	11
uMuziwabantu	KZN214	8	8	0	0	0	0	0	0	0	0	0
Ray Nkonyeni	*KZN216*		0	883	0	0	1624	0	1663	1663	1663	0
uMshwathi	KZN221	5	5	134	134	138	153	189	199	199	193	171
uMngeni	KZN222	344	344	344	356	325	337	452	452	452	452	136
Mpofana	KZN223	67	67	161	100	158	119	115	115	127	124	0
Impendle	KZN224	32	53	51	57	60	0	48	0	74	74	71
Msunduzi	KZN225	3502	0	0	0	0	2342	2273	3332	3218	3187	2933
Mkhambathini	KZN226	67	68	54	56	36	36	36	36	36		57
Richmond	KZN227	101	108	143	103	99	122	124	124	124	114	
Okhahlamba	KZN235	106			140	140	0	0	0	0	222	224	227
Inkosi Langalibalele	*KZN237*							0	0	0	0	0
Alfred Duma	*KZN238*							612	0	0	572	572
Endumeni	KZN241	0	298	315	335	302	324	324	0	324	324	324
Nquthu	KZN242	0	0	57	22	78	0	90	0	145	0	0
Msinga	KZN244	40	0	61	0	0	0	0	0	0	0	0
Umvoti	KZN245	0	131	0	142	198	235	48	31	0	510	510
Newcastle	KZN252	0	1473	1060	1026	1026	1274	2386	0	1430	1430	
Emadlangeni	KZN253	58	58	46	66	72	72	47	51	83	83	
Dannhauser	KZN254	86	86	86	0	0	0	0	17	0	0	0
eDumbe	KZN261	100	107	116	116	102	102	102	0	102	20	102

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uPhongolo	KZN262	100	8	173	0	121	280	280	0	272	0	
Abaqulusi	KZN263	634	610	612	556	618	0	0	0	0	0	0
Nongoma	KZN265	106	153	0	8	8	0	0	0	0	0	0
Ulundi	KZN266	0	6	6	6	7	0	0	0	0	0	0
Umhlabuyalingana	KZN271	0	89	70	70	58	58	101	0	22	22	22
Jozini	KZN272	78	78	0	40	102	0	0	0	122	122	0
Mtubatuba	KZN275	0	0	0	0	0	0	89	0	145	177	177
Hlabisa Big Five	*KZN276*							20	0	24	31	27
Mfolozi	KZN281	42	48	48	52	56	0	0	0	0	0	0
uMhlathuze	KZN282	1660	1670	1670	1644	1674	1674	1865	2447	2459	2480	2519
uMlalazi	KZN284	408	409	421	421	421	371	205	205	198	202	254
Mthonjaneni	KZN285	80	85	91	97	101	115	57	0	101	108	0
Nkandla	KZN286	45	45	30	32	0	0	0	0	74	83	83
Mandeni	KZN291	126	126	126	126	182	172	172	178	146	123	131
KwaDukuza	KZN292	1136	1136	872	999	929	934	794	0	1065	1094	1094
Ndwedwe	KZN293	62	44	45	45	6	38	45	0	85	68	70
Maphumulo	KZN294	42	0	0	23	23	48	62	67	75	0	0
Greater Kokstad	KZN433	636	636	0	424	424	306	306	306	298	449	421
Ubuhlebezwe	KZN434	0	0	0	122	157	164	175	165	348	348	176
Umzimkhulu	KZN435	46	35	61	32	28	46	62	0	93	93	99
Dr Nkosazana Dlamini Zuma	*KZN436*							131	0	157	77	147
Greater Giyani	*LIM331*		371	447	479	55	67	67	67	67	67	0
Greater Letaba	LIM332	0	224	224	289	289	32	32	32	34		44
Greater Tzaneen	LIM333	603	559	623	621	621	539	571	555	550	556	500
Ba-Phalaborwa	LIM334	354	618	1194	509	373	373	373	0	373	339	339
Maruleng	LIM335	31	31	26	0	0	0	0	0	0	0	0
Musina	LIM341	30	0	66	66	74	74	0	0	25	28	28
Thulamela	LIM343	0	0	0	0	0	0	0	0	0	0	0
Makhado	LIM344	557		737	688	688	688	688	12	85	364	85
Collins Chabane	*LIM345*							0	124	0	0	174
Blouberg	LIM351	104	125	125	131	159	165	167	163	163	163	163
Molemole	LIM353	0	124	110	8	88	0	0	141	155	155	155
Polokwane	LIM354	2082	2082	1553	1759	1725	1725	1264	1655	1655	1800	1800
Lepelle-Nkumpi	LIM355	0	0	190	168	154	201	154	0	142	142	
Thabazimbi	LIM361	226	226	249	249	371	371	371	0	0	0	
Lephalale	LIM362	139	159	331	335	429	429	432	0	438	438	486
Bela Bela	LIM366	468	0	316	304	304	308	325	333	331	331	0
Mogalakwena	LIM367	617	0	0	640	724	724	724	0	346	945	947
Modimolle-Mookgopong	*LIM368*							0	0	754	754	714
Ephraim Mogale	LIM471	210	262	357	264	335	350	345	340	340	0	340
Elias Motsoaledi	LIM472	103	189	281	248	242	377	377	335	331	328	315
Makhuduthamaga	LIM473	6	13	13	26	26	31	31	31	33	37	37
Tubatse Fetakgomo	*LIM476*							0	25	25	25	
Mangaung	MAN	3531	3531	3608	2902	3932	3435	4103	0	3908	3908	3908
Albert Luthuli	MP301	279	279	279	514	514	514	0	0	0	0	

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Name	Code											
Msukaligwa	MP302	402		513	513	723	720	666	662	866	0	0
Mkhondo	MP303	26	112	152	152	288	418	462	462	432	432	467
Pixley Ka Seme (MP)	MP304	0	0	0	0	0	0	257	231	219	0	0
Lekwa	MP305	0	653	653	436	436	436	436	438	0	0	
Dipaleseng	MP306	0	172	212	212	29	0	32	0	0	0	
Govan Mbeki	MP307	0	0	0	0	0	1396	151	1863	0	0	0
Victor Khanye	MP311	372	389	420	546	546	546	546	0	0	0	
Emalahleni (MP)	MP312	1018	1011	1100	1098	1104	1341	0	1328	1300	1369	
Steve Tshwete	MP313	958	1285	1328	1357	1269	1292	1275	0	1276	1510	1361
Emakhazeni	MP314	268	330	356	342	330	330	112	112	112	112	
Thembisile Hani	MP315	192	0	172	172	172	164	220	220	394	0	0
Dr J.S. Moroka	MP316	541	0	0	599	229	0	554	648	718	77	495
Thaba Chweu	MP321	0	0	0	0	0	0	369	403	403	0	0
Nkomazi	MP324	0	0	883	623	1070	34	36	42	42	0	0
Bushbuckridge	MP325	0	0	1688	1896	1529	1529	1529	1529	1529	1529	0
City of Mbombela	*MP326*							1416	1673	1630	1864	1838
Richtersveld	NC061	139	99	108	90	90	109	110	0	107	118	118
Nama Khoi	NC062	236	0	235	235	303	303	244	0	327	0	0
Kamiesberg	NC064	0	0	74	74	65	72	83	0	115	95	0
Hantam	NC065	55	138	143	133	133	133	0	0	0	0	
Karoo Hoogland	NC066	0	98	88	88	98	88	85	0	85	99	89
Khai-Ma	NC067	60	62	62	93	97	143	139	0	83	83	75
Ubuntu	NC071	86	0	200	260	260	0	0	0	0	225	225
Umsobomvu	NC072	146	153	4	53	53	55	55	0	143	147	
Emthanjeni	NC073	417	341	313	313	316	426	426	426	435	435	435
Kareeberg	NC074	66	66	66	66	66	66	61	78	61	61	61
Renosterberg	NC075	0	111	116	116	87	87	110	0	145	0	0
Thembelihle	NC076	57	65	62	0	1	0	54	54	54	54	0
Siyathemba	NC077	245	0	231	231	231	224	224	0	0	0	
Siyancuma	NC078	0	168	172	172	183	191	249	0	0	9	9
!Kai! Garib	NC082	0	0	235	265	0	623	84	0	0	0	
!Kheis	NC084	52	65	65	65	65	0	94	0	127	124	124
Tsantsabane	NC085	0	0	0	0	0	336	289	343	348	348	0
Kgatelopele	NC086	77	77	77	94	94	0	96	95	132	0	
Dawid Kruiper	*NC087*							0	0	949	949	854
Sol Plaatje	NC091	1334	1342	1447	1457	1465	1525	1525	1583	1585	1688	1688
Dikgatlong	NC092	254	97	159	171	175	157	157	0	0	0	0
Magareng	NC093	42	42	20	14	15	25	0	25	131	0	0
Phokwane	NC094	0	0	125	275	318	288	288	318	318	318	
Joe Morolong	NC451	0	0	0	126	47	119	179	0	244	146	0
Ga-Segonyana	NC452	0	0	277	277	285	316	408	0	469	390	399
Gamagara	NC453	286	472	472	360	354	385	354	0	346	0	
Nelson Mandela Bay	NMA	5412	5627	6010	5820	6001	6232	6261	0	5549	5525	6389
Moretele	NW371	0	0	14	14	30	30	219	219	253	253	253
Madibeng	NW372	672	774	0	878	970	878	1023	1023	1023	1023	1023

Rustenburg	NW373	236	0	0	0	0	0	0	0	0	0	150
Kgetlengrivier	NW374	188	208	217	217	0	220	220	216	18	18	18
Moses Kotane	NW375	659	659	504	302	302	302	374	374	374	431	191
Ratlou	NW381	0	31	55	55	0	138	0	0	6	0	0
Tswaing	NW382	181	346	346	346	346	346	312	312	336	373	373
Mafikeng	NW383	804	804	1076	932	892	892	0	0	584	584	584
Ditsobotla	NW384	653	653	653	635	635	635	635	635	635	635	
Ramotshere Moiloa	NW385	338	338	523	523	0	0	367	0	0	0	0
Naledi (NW)	NW392	366	366	366	396	404	404	410	411	399	353	353
Mamusa	*NW393*		166	0	214	222	166	227	0	0	48	0
Greater Taung	NW394	0	0	0	0	0	0	0	313	23	341	341
Lekwa-Teemane	NW396	0	149	149	186	0	0	178	0	0	214	
Kagisano-Molopo	*NW397*			0	0	0	0	30	30	30	53	0
City of Matlosana	NW403	2140	2140	2160	2150	2086	2118	2291	2389	2424	2467	
Maquassi Hills	*NW404*		290	290	284	302	302	251	0	332	428	
J B Marks	*NW405*								1419	1419	1504	1639
City of Tshwane	TSH	12952	12734	17090	16794	16804	17222	17846	20105	19190	18788	12
Matzikama	WC011	380	0	355	424	386	403	401	0	387	420	433
Cederberg	WC012	247	271	271	260	266	269	256	0	304	307	564
Bergrivier	WC013	0	0	349	341	367	377	354	0	355	360	357
Saldanha Bay	WC014	1018	0	1015	1030	1038	1018	1018	0	916	916	919
Swartland	WC015	532	524	524	528	520	503	525	0	556	535	548
Witzenberg	WC022	801	829	841	767	759	759	759	0	556	556	330
Drakenstein	WC023	1765	1765	1733	1733	1737	1747	1403	1440	976	1816	1713
Stellenbosch	WC024	0	983	1011	1004	1021	1021	1055	1178	1149	1178	1178
Breede Valley	WC025	854	842	961	959	952	958	941	0	965	1012	713
Langeberg	WC026	595	619	647	588	602	602	1195	0	642	656	663
Theewaterskloof	WC031	515	483	436	406	357	505	494	0	478	508	554
Overstrand	WC032	0	966	978	945	966	966	1017	968	1021	1027	735
Cape Agulhas	WC033	260	263	263	263	268	269	280	177	177	189	0
Swellendam	*WC034*		207	421	263	268	221	225	0	252	264	233
Kannaland	WC041	194	194	33	33	102	0	93	0	6	0	0
Hessequa	WC042	0	0	0	0	0	505	505	497	455	487	487
Mossel Bay	WC043	780	819	835	845	815	899	906	961	961	992	1014
George	WC044	1014	1014	988	1045	1039	1013	1023	1036	0	1036	861
Oudtshoorn	WC045	669	639	611	585	542	542	526	538	538	518	551
Bitou	*WC047*		64	381	309	397	419	444	444	534	534	476
Knysna	WC048	551	601	633	633	701	701	671	671	671	603	726
Laingsburg	*WC051*		0	0	54	54	54	54	60	60	64	65
Prince Albert	WC052	60	70	70	43	43	43	56	0	56	56	56
Beaufort West	WC053	302	0	340	348	362	362	362	343	343	343	446
Total		**149120**	**164133**	**189125**	**189976**	**192856**	**200998**	**210713**	**183178**	**213415**	**212232**	**180309**

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Chapter 5: Measuring Efficiency in District Municipalities' Water and Sanitation Functions in South Africa

Chapter overview

Chapter 5 addresses the fourth research question: How efficiently have district municipalities fulfilled their service delivery responsibilities? The context of this question is the belief by the Minister and the Members of Executive Committees (MECs) responsible for local government that district municipalities have more capacity than the local municipalities within their jurisdictions. This chapter draws on literature, government documents and works commissioned by the African National Congress, the Department of Cooperative Governance and Traditional Affairs and the Department of Provincial and Local Government. These reports have called into question the role of district municipalities that lack water and sanitation functions. These studies have assumed that district municipalities that fulfil water and sanitation functions are better placed to perform that function on the behalf of the local municipalities within their jurisdiction.

This chapter focuses on the 21 district municipalities which are water service authorities, although two of these did not report the data needed for this analysis. The chapter discusses their ability to discharge these functions efficiently. The findings indicated that only seven of the 19 municipalities were efficient in the 2015/16 financial year. Given these findings, it is not clear why high service responsibility municipalities are deemed to possess more capacity and to be more efficient to provide water and sanitation services to locals than are local municipalities within these districts. This study concludes that savings can be realised if these district municipalities could improve the way they deliver the services.

The study also recommends that government should abandon the two-tier system of category B/C municipalities as a separate and constitutionally entrenched sub-category of local government. This would improve the financial sustainability of local municipalities as they would be able to raise funds from the water and sanitation services. Furthermore, government funds that are currently allocated to district municipalities would be shared amongst the local municipalities. This research chapter has a bearing on the viability of the envisaged district development model (DDM), as it addresses the inefficiencies in these municipalities.

Abstract

This chapter examines the efficiency with which district municipalities that provide water and sanitation services deliver on those services. It analyses the expenditures and outputs attributable to these functions, using the data envelopment analysis (DEA) technique as applied to cross-sectional data for 2015–2016. The sample included 19 high service

responsibility municipalities with water and sanitation functions. Among the 19 municipalities, 12 were found to be inefficient and spent a high proportion of their operational expenditure on municipal administration.

Furthermore, using an instrumental variable approach, this study examined the determinants of variation in water and sanitation service efficiency. These drivers were identified as fiscal autonomy (self-generated revenues), value of assets and number of households within each municipal jurisdiction. The challenge is that municipalities already spend significantly more than they should on administration costs to maintain large administrative components. This spending crowds out service delivery and investment expenditures. This scenario makes these municipalities fiscally unsustainable over time, as the asset base is highly dependent on grants and their asset management practices are below the required levels. If high service responsibility municipalities are to be efficient and sustainable, local government should do the following: create cost-savings measure, divert resources to frontline services and promote improved governance for the long-term sustainability of public finances.

Keywords: efficiency, administrative intensity, service delivery, employee costs, households

5.1 Introduction

The benefits of decentralisation include enhancing a government's accountability to its citizens and improving efficiency in resource allocation. Such benefits have been advocated in governance literature since the early 1960s (Faguet, 2001). It is believed that fiscal decentralisation is vital for economic and political benefits. Economic benefits accrue because of the improved efficiency that results from better matching of services with citizen demands so that local preferences can be accounted for, as well as greater willingness to pay for these services. However, recent scholarship on decentralisation is more nuanced, with several researchers asking "Under what circumstances does decentralisation produce better outcomes?" It seems that for decentralisation to work, there needs to be a functional local political dynamic that includes engaged citizens, decent media coverage and preferably a vibrant local civil society.

South Africa has generally reaped the benefits of its fiscal decentralisation reform agenda. The country's fiscal decentralisation seems to have been relatively effective and beneficial in metropolitan municipalities, where many more poor households have services than in 1994. This is less so in rural municipalities, where most households remain underserved. Up to 55.4% of water backlogs occur in rural municipalities, as do approximately 39.7% of sanitation backlogs and 44.8% of electricity backlogs.

Some scholars have attributed the failures at local government level to poor efficiency in delivering services (Kroukamp & Cloete, 2018; Masuku & Jili, 2019). Efficiency in spending

requires maximising output from a given set of inputs to improve the delivery of services in line with local priorities. All municipalities are expected to prioritise their service delivery and developmental responsibilities. However, in South Africa, district functions differ substantially across the 44 districts. As mentioned, this chapter focuses on the 21 high service responsibility district municipalities that have been deemed to have good capacity and to be efficient in providing water and sanitation services to locals. Unfortunately, due to inconsistency in reporting, the analysis has been done on 19 of these municipalities.

The South African Constitution allocates specific functions to each of the three spheres of government. Regarding the exogenous factors, the South African national framework for municipal taxation powers is determined by Section 229 of the Constitution (National Treasury, 2011). That section authorises municipalities to impose a property tax and surcharge on fees for municipal services, subject to national regulation (National Treasury, 2011). Moreover, the management of the local government fiscal framework is regulated by five main pieces of legislation and a subsidiary set of regulations.

The first Act is the Municipal Finance Management Act, 2003 (Republic of South Africa, Act 56 of 2003) (MFMA), which regulates the financial practices of local governments, including procurement, human resource management, and auditing of financial statements. The second Act is the Municipal Systems Act, 2000 (Republic of South Africa, Act 32 of 2000) (MSA), which regulates planning, appointment of staff, governance, credit control policies and issues related to billing systems in municipalities. The third Act is the Municipal Fiscal Powers and Functions Act, 2007 (Republic of South Africa, Act 12 of 2007) (MFPFA). Together with the MSA, this Act implements Section 229 of the South African Constitution. The fourth Act is the Municipal Property Rates Act, 2004 (Republic of South Africa, Act 6 of 2004) (MPRA). This Act provides for the uniform application of rates, exemptions and rebates.

The fifth relevant Act is the annual Division of Revenue Act (DoRA). This Act allocates funds to the three spheres of government through what is called a vertical division of revenue. It also allocates local government's equitable share, Regional Services Council (RSC) levy replacement grant and fuel levies, and conditional grants to local governments through the national budget process. Furthermore, it regulates how transfers are made and how local governments must report on transfers. The Act has at times been used as a mechanism to enforce fundamental policy changes, such as redistributing substantial resources from the urban economy to fund services in rural areas. These changes included improving the quality of conditional grant administration at all levels of government, improving timely financial reporting on transfers, continuing grant consolidation, and shifting responsibilities to local government.

The above Acts create a comprehensive framework for local government administration. The MSA, the Local Government Municipal Structures Act 117 of 1998 (Structures Act) and the Property Rates Act fall under the jurisdiction of the Minister responsible for local government. The MFMA, the MFPFA and the DoRA fall under the purview of the Minister of Finance. The Electricity Regulation and Water Supply Acts fall under the Ministers responsible for Public Enterprises and Water and Sanitation respectively. The Ministers (departments) mentioned above are responsible for drafting and proposing amendments, while the National Assembly is responsible for amending the laws.

Within this comprehensive framework, there is no explicit overlap, but there are many interrelationships. For example, the MSA governs credit control policies and issues related to billing systems in municipalities. In contrast, the MFMA governs how revenues collected under these policies and through billing systems should be reported. Collectively, these laws make municipalities more accountable and financially sustainable, and enable them to provide essential services to their communities (National Treasury, 2011).

In terms of the South African Constitution, local government has the executive authority and right to administer the reticulation of water and electricity. However, national and provincial governments have the legislative and executive authority to oversee the effective performance of municipalities in terms of their functions. Some functions are shared, such as basic education and health, others are exclusive, such as defence. Subsequent to the Constitution, the Structures Act, in conjunction with the delimitation process carried out by the Municipal Demarcation Board, created two tiers of local government across the country. The eight metropolitan municipalities are an exception. The Structures Act provides for a specified set of functions to be assigned to district (category C) municipalities. The remaining functions are to be assigned to local (category B) municipalities.

There is provision for the Minister of Cooperative Governance, at the national level, to authorise a different assignment in respect of four essential district functions. The MEC responsible for local government can do the same at the provincial level to adjust the assignment in respect of the remaining functions. This varied responsibility of powers and functions in the provision of services to communities in district municipalities has led to several contestations and complex functional assignments. These assignments may require the development of an overly complex – and thus opaque – system of local government fiscal framework. In these two tiers of local government, the major functional issue is the assignment of functions between local and district municipalities. This leads to substantial inefficiencies in the system. In some cases, the same (or similar) functions are performed by both district and local municipalities. In other cases, one municipality is formally assigned the function and is funded for it, but another municipality performs the function. Local municipalities' position

needs to be viewed in conjunction with the district municipalities that are authorised for essential services; the weak or less-capacitated local municipalities are usually found in the "high-capacity type" districts that suffer from fiscal stress.

With this background in mind, the objectives of this chapter are threefold. The first is to establish the efficiency with which district municipalities with water and sanitation functions deliver on these services. The second objective is to identify the determinants of variation in the efficiency of water and sanitation services. The last objective is to identify the long-term fiscal sustainability of district municipalities with water and sanitation functions; to do so, their ability to induce cost-saving measures to attain efficiency is analysed.

The chapter is divided into seven parts. Section 2 briefly reviews the literature on local government efficiency, and Section 3 describes the service delivery responsibilities of district municipalities in the South African local government environment. Section 4 discusses methods and models employed to analyse the efficiency of district municipalities in discharging their functions. Section 5 considers the results obtained from the models and quantifies savings that can be made if district municipalities reduce their inefficiencies. Section 6 evaluates and discusses the determinants of variation in water and sanitation service efficiency. The chapter ends with brief concluding comments and policy implications, presented in Section 7.

5.2 Literature review

Empirical evidence suggests that fiscal decentralisation can have negative consequences, such as an increase in inequality, bribery, and corruption (Musgrave & Musgrave, 1976; Oates, 1972; Prud'homme, 1995; Oates, 2005; Tanzi, 2008). Nevertheless, there is a broad consensus that fiscal decentralisation can also lead to more efficient resource allocation by ensuring that spending priorities reflect the needs and preferences of communities (Tiebout, 1956; Oates, 1972; Shah & Boadway 1994; Faguet, 2001; Allen and Flynn, 2006; Das-Gupta & Bird 2012).

Fiscal decentralisation implies that the national government should be responsible for functions whose benefits extend to the entire country or where economies of scale are essential (Musgrave & Musgrave, 1984; Rao & Sen, 1996; Fjelstad 2001). Proponents of fiscal decentralisation have emphasised its potential economic benefits and the ability to improve government efficiency (Oates, 1999; Brand, 2005; Raich, 2005 and Rao, 2004; Rodriguez-Pose & Sandall, 2008). These views are consistent with the argument that decentralising responsibility for resource allocation - or moving government closer to the people - promotes efficiency (Oates, 1999; Brand, 2005; Raich, 2005; Rao, 2004). Decentralisation allows

subnational government to respond to the particular combination of services that local citizens need and to use local information to deliver services efficiently.

For some scholars such as Drew, Dollery & Kortt (2016), efficiency is the maximisation of output from a given set of inputs, which is equivalent to what economists call technical efficiency (TE). Efficiency is usually expressed as the ratio of costs (of labour and other inputs) to outputs or outcomes (Grizzle & Pettijohn, 2002; Melkers & Willoughby, 2005; Monkam, 2014; Drew, Dollery& Kortt, 2016). "Productivity" refers to the relationship between the quantity of output or outcome and input (Olsson, 2008; Drucker, 2000; Pakkies, 2016). Pakkies (2016) points out that productivity is generally expressed as the quantity of output (or outcome) per unit of input. Westhuizen & Dollery (2009, 4) define productive efficiency as the "use of resources in the technologically most efficient manner in order to obtain the maximum possible output (s) from a given set of inputs".

Improving efficiency in municipal administration by minimising wasteful expenditure without compromising service delivery should be of critical importance to any government (Pakkies, 2016). However, it is evident that weaknesses in municipal administration can negate such gains at the local government level (Siddle & Koelble, 2016). In response to the weaknesses in municipal administration, the government of South African introduced reforms in financial management and budgeting in 2003 with the enactment of the Local Government Financial Management Act 56 of 2003 (MFMA). The MFMA is designed to target and maximise the expenditure of available resources on selected priorities. These expenditure controls were reflected in the annual budgets and were focused on performance, efficiency and effectiveness in the use of public resources (Siswana, 2007; Pakkies, 2016). These objectives were later revised as part of the public expenditure management reforms (Pakkies, 2016). The result was three pillars: Fiscal sustainability, allocative efficiency and productive efficiency (World Bank, 1998; Pakkies, 2016). These factors form the basis for public expenditure management reforms and are interdependent and complementary (Pakkies, 2016).

The first of the three pillars of public expenditure management is fiscal sustainability. This pillar emphasises that fiscal policy must remain sustainable (Zagler & Dürnecker, 2003) so that it does not become a source of macroeconomic instability. Fiscal control therefore only makes sense if the local government allocates resources to key priorities, as set out in the Integrated Development Plan (IDP) of each municipality.

The second pillar of public expenditure management is allocative efficiency. Some authors refer to the concept of allocative efficiency as "effectiveness". For these authors, effectiveness means "doing the right things", - that is, setting appropriate goals to achieve an overall objective (Drucker, 2000). Allocative efficiency requires the ability to allocate resources

equitably in budget priorities so that household preferences are taken into account, as outlined in IDPs (Pakkies, 2016). In this case, allocative efficiency aims to replace inefficient activities with more cost-effective activities (Allen & Tommasi, 2001; Pakkies, 2016). Given this scenario, the composition of local government spending needs to be questioned (Pakkies, 2016). A balance must be maintained between spending on operational improvements or investment and current spending. This balance depends on many other factors, such as whether the municipal population is growing, shrinking or stable. The current condition of infrastructure might be either good or dilapidated. Many South African municipalities have serious problems with water losses, which require operational improvements. However, they often want to build new water treatment facilities, whereas experts rather advise paying to stop the leakages. This balance is often referred to as allocative efficiency (Pakkies, 2016).

In the public expenditure management literature, "productive efficiency" is recognised as the third pillar of public expenditure management. This term refers to the relationship between inputs and outputs or outcomes (Pakkies, 2016). Efficiency and productivity are essentially similar and differ mainly in the way the relationship is expressed. Productive efficiency means focusing on improvement, i.e. using resources better, faster and more economically. Effective use of budgetary resources, both technical and functional, depends on the capacity of designed programmes and the provision of services at low cost (Pakkies, 2016). Minimising per capita expenditures is also critical (Allen & Tommasi, 2001; Pakkies, 2016).

In public expenditure management, the focus is on performance, which must be evaluated in terms of the objectives of fiscal sustainability, efficiency (both allocative and productive) and effective use of public funds (Premchand, 1993; Pakkies, 2016). Scott (2001) highlighted that public expenditure management can improve the flexibility and efficiency of financial management (Pakkies, 2016). Administrators can allocate resources according to current needs rather than based on historical expectations presented in estimates (Pakkies, 2016).

Expenditure management principles must be embedded in an organisation's culture. Organisations cannot promote allocative and productive efficiency without a management culture that supports such reform and internalises it as a management function (Allen & Tommasi, 2001; Pakkies, 2016).

5.3 District municipalities with primary service delivery responsibilities

There are 21 high service responsibility municipalities. Examples are the Harry Gwala and Alfred Nzo municipalities (see Annexure A for the full list). Examples of local municipalities falling under these districts are Greater Kokstad and Mbizana, respectively. Most high service responsibility municipalities depend on grants to fund their operating expenditure due to low economic and business activities in their regions. Grants accounted for more than 66% (R8.6

billion) of the total budgeted revenue of R13 billion in the 2015/16 financial year. RSC levy replacement grants accounted for 16% of operating revenue, compared to 55% for low service responsibility municipalities. The rest is accounted for by water and sanitation service charges and other unspecified income.

The aggregate operating expenditure of high service responsibility municipalities for 2015/16 amounted to R16.1 billion. Of this, 30% was allocated to salaries (R5 billion), 9% to electricity and water (R1.4 billion), 7% to contracted services (R1.1 billion) and 26% to other unspecified (R4.6 billion). Unlike low service responsibility municipalities, high service responsibility municipalities have substantial capital expenditure responsibilities due to their water and sanitation functions. Although these municipalities have been allocated the water and sanitation functions, they spend limited amounts on these functions – as evident in the administrative intensity ratio (see Annexure B).

The local government equitable share (LGES), RSC replacement levy, user charges, surcharges, property tax and infrastructure grants all provide revenue sources to assist municipalities in providing essential services. It is important to note that beyond the provision of basic services, municipalities can prioritise to what extent they will perform the other functions they are responsible for. It is not possible to provide a first-rate service for every function. Municipalities must thus determine how to spend their resources to prioritise the functions they consider most important. Often, municipalities take on functions without adequate funding, known as "unfunded mandates". However, in many other cases, the issue is that municipalities do not prioritise these functions in the allocation of their resources.

According to van der Westhuizen & Dollery, (2009), "South African district municipalities had municipal executive and legislative authority over substantial spatial areas".

Municipalities are also empowered to raise revenue from service charges or user fees regarding the municipal services they provide. The tariffs set for such services are meant to be cost-reflective in terms of Section 74 of the MSA. Furthermore, the ability to raise income from user charges is linked to the municipality authorised to perform a specific service. In areas where a category C municipality is authorised to perform a water and sanitation function, that municipality alone can raise income through user fees.

5.4   Methods

To measure the efficiency with which district municipalities discharged their water and sanitation functions, this study analysed the expenditures and outputs attributable to these functions through the DEA technique. This is a linear mathematical programming approach to frontier estimation, used to measure the relative performance of institutions where multiple inputs and outputs are available. The method was applied to cross-sectional data for 2015/16

for 19 high service responsibility municipalities. This is the preferred method of measuring technical and scale efficiencies, as well as productivity changes in decision-making units (DMUs) and service overtime (Coelli, Rao & Battese, 1998; Worthington & Dollery, 2001; Woodbury, Dollery & Rao, 2002; Afonso & Fernandes, 2008 Boetti, Piacenza & Turati, 2010; Monka, 2014; Yusfany, 2015 and Drew, Dollery & Kortt, 2016). It measures weighted outputs to weighted inputs, and the efficiency score ranges from 0 to 1.

In the second part of this chapter, a regression analysis is conducted to explore the relationships between the independent variable (variable returns to scale (VRS) scores) and the nondiscretionary contextual factors. The nondiscretionary contextual factors are self-generated revenues, the value of assets and the number of households within each municipal jurisdiction as independent variables. These independent variables impact the measured efficiency. Constant returns to scale (CRS) and VRS are two measurements tools for assessing the scale efficiency. The assumption of CRS is acceptable only when the DMUs operate under the condition of optimal size. However, in the real world, the situation is different, because competition is imperfect and financial constraints cause institutions not to operate at their optimal size. The VRS model overcomes this by accounting for imperfect competition. The VRS models essentially perform a linear interpolation between observed DMUs so that the scale size is controlled for. The value of the scale efficiency indicates whether an institution is too big or too small. Scale efficiency is calculated as CRS/VRS. If the institution is too small, its scale efficiency shows that it operates under increasing returns to scale, which implies that more inputs could be employed to increase the output. If the scale efficiency indicates that an institution is too big, it operates at decreasing returns to scale and there is a need to reduce the inputs to operate at an optimal level. If the value is 1, the DMU is operating at full scale and taking full advantage of economies of scale.

This study presents four models (Model 1, Model 2, Model 3 and Model 4) to explain the variation in efficiency. The results might have policy implications. In Model 1, all three outputs were employed: i) households receiving water services, ii) households receiving sanitation services and iii) total households within each municipal jurisdiction. Model 2 excluded the total number of households in each municipal jurisdiction as an output and examined only the households receiving water and sanitation services. In models 3 and 4, the aim was to examine whether a specific component existed for which a municipality was efficient, namely, either the water or the sanitation functions. To do so, water and sanitation beneficiaries were excluded in turn.

An input orientation model was adopted, since municipalities take outputs as exogenous and have a large degree of control over the level of inputs within functional areas. This is because the various pieces of legislation would have the unintended consequence of restricting the

amount of output possible in any one-off period. As a result, a suitable behavioural objective for the relevant DMUs or institutions would be that of input minimisation rather than output maximisation.

In the first regression stage of the analysis, an important task was to attribute variations in efficiency scores of the DEA measures to specific characteristics of a DMU – in this case, a district municipality and its environment. Several linear regression models were employed to examine these relationships. The VRS efficiency scores were used to control for variable size. The multiple regression analysis technique was adopted to test the strength of relationships between the independent variable, namely VRS score, and the nondiscretionary contextual factors which could affect the measured efficiency. These factors were administrative intensity; population growth between 2015 and 2016; the asset value of a district municipality; and the municipality's self-generated revenues, compliance with relevant legislation, financial management capacity, ability to roll out projects and capacity constraints.

The second regression approach sought to explain the slack inefficiency in each district municipality. "Slack" here refers to excessive utilisation of specific resources or the under-provision of inputs. This analysis was expected to illuminate areas of concern for management.

5.4.1 Specification of Inputs and Outputs

For the DEA model, researchers have used various variables as proxies for municipal input and output. An example of an input proxy is municipal operating expenditure. Proxies for output include service level data for water, sanitation, electricity, and refuse removal as well as total population (Westhuizen & Dollery, 2009; Boetti et al. 2010; Financial and Fiscal Commission, 2011; Monkam, 2014). Proxies for output variables are used because of the direct link between operational expenditure and provision of municipal outputs. In the current study, to establish this link, operational expenditure was broken into two components: employee costs and other operational expenditure items. Both these expenditure components are what these municipalities have reported to be incurred by the water and sanitation functions of the municipality.

This study was focused on measuring the efficiency with which district municipalities authorised for water and sanitation functions discharge their responsibilities. Hence, the outputs being measured were, first, households receiving the water and sanitation services and, second, the total number of households in each municipal jurisdiction. The use of households rather than population was proposed by Drew & Dollery (2014), who argued that that using population as a proxy can overestimate the municipal output and that the number of households should rather be used.

The variables used to provide efficiency measures for the nonparametric methodology are outlined in Table 5.1. Statistical data were collected from official sources, including the Auditor-General South Africa, Statistics South Africa and the National Treasury database. The quality of these sources implies a high reliability of the data because it is official and verified. All data pertained to the year ending 30 June 2016 because of inconsistent reporting by district municipalities and delays in obtaining audited financial data.

5.5   Empirical Results

Descriptive statistics refer to the range of values for each variable for the period under study. The results are shown in Table 5.1. The average household growth between 2015 and 2016 was 0.6%, and the average self-generated revenues of a municipality was 44%.

Table 5. 1: Descriptive statistics of the variables chosen for the study

Variables	Mean	Standard Error	Median	Standard Deviation	Range	Minimum	Maximum	Count
Technical efficiency from CRS DEA	0,705277778	0,056690122	0,646	0,24051582	0,685	0,315	1	18
Technical efficiency from VRS DEA	0,776388889	0,050883831	0,7665	0,21588181	0,594	0,406	1	18
Scale efficiency = crste/vrste	0,899388889	0,027033886	0,9435	0,11469506	0,386	0,614	1	18
Admin intensity	0,475257207	0,050563114	0,416346939	0,21452112	0,699818216	0,16437922	0,864197437	18
Population growth 2015-2016	0,00633093	0,001078449	0,007044265	0,00457547	0,020267282	-0,005885	0,014382266	18
Asset value	2233664880	408580767,4	2178837575	1733461388	6023415929	628523	6024044452	18
self-generated revenues	0,438392499	0,023495858	0,446264901	0,09968448	0,363814472	0,24299982	0,60681429	18
Compliance	83	6	100	23	57	43	100	18
Financial management capacity	68	3	72	15	49	41	90	18
Ability to roll out projects	96	1	99	6	17	83	100	18
Capacity constraints	67	4	68	17	70	26	97	18

Source: author's own

The average figures shown in Table 5.1. mask the wide variation within municipalities. For example, the Zululand District Municipality had the largest self-generated revenues, at 61%, whereas Harry Gwala had the smallest, at 24%. Of the 19 district municipalities, 10 achieved 100% compliance with relevant legislation, and none of them achieved 100% for the financial management capacity indexed indicator. Nine of the 19 district municipalities had 100% ability for rolling out projects, whereas none had no capacity constraints.

Six high service responsibility municipalities were found to have achieved technical efficiency using the CRS Model 1. Another five had achieved the same levels using the other three models. Seven high service responsibility municipalities had achieved pure technical efficiency in the variable scale on all four models. Six high service responsibility municipalities, the same ones that achieved technical efficiency using CRS Model 1, had achieved scale efficiency.

The average operational expenditure spent on the administrative component in a municipality was 48%. Mopani spent the least in this regard, at 16%, whereas Sekhukhune spent the most, at 86%. This high spend on the administrative component of the municipality by Sekhukhune could explain the decreasing returns to scale.

Table 5.2 shows the results for the efficiency scores, based on the DEA model 1, for all high service responsibility municipalities in South Africa for which data were available. In the 2015/16 financial year, seven high service responsibility municipalities (Amajuba, Mopani, O.R. Tambo, Vhembe, Zululand, Alfred Nzo, and Capricorn) were more efficient than the others, with efficiency scores of 1 when using the pure technical efficiency method. The average efficiency score across all of the high service responsibility municipalities was 0.784. This value suggests that, on average, district municipalities in South Africa could theoretically have achieved the same level of output or essential services with about 21.6% fewer inputs. It must be emphasised that the focus of this study was the efficiency of service provision. The results do not pertain to effectiveness, which encompasses matters of outcome, quality, appropriateness or accessibility.

Table 5. 2: Water and Sanitation DEA efficiency scores by municipality

District Municipalities	Technical efficiency (measured by CRS DEA)	Technical efficiency (measured by VRS DEA)	Scale efficiency (calculated as CRSTE/VRSTE)	Returns to scale
iLembe	0,601	0,928	0,648	drs
Alfred Nzo	1,000	1,000	1,000	-
Amajuba	1,000	1,000	1,000	-
Amathole	0,494	0,503	0,982	drs
Capricorn	1,000	1,000	1,000	-
Chris Hani	0,568	0,703	0,808	drs
Harry Gwala	0,659	0,685	0,961	drs
Joe Gqabi	0,633	0,663	0,954	irs
King Cetshwayo	0,567	0,692	0,818	drs

Mopani	0,614	1,000	0,614	drs
Ngaka Modiri	0,315	0,406	0,775	irs
O.R. Tambo	1,000	1,000	1,000	-
Sekhukhune	0,557	0,757	0,736	drs
Ugu	0,373	0,465	0,803	drs
uMkhanyakude	0,761	0,854	0,891	irs
Umzinyathi	0,430	0,471	0,914	drs
Uthukela	0,724	0,776	0,933	irs
Vhembe	1,000	1,000	1,000	-
Zululand	1,000	1,000	1,000	-
mean	**0,700**	**0,784**	**0,886**	

Source: adapted from the local government database

The distribution of inefficiency indicates that 12 (or 63%) of high service responsibility municipalities were technically inefficient in the provision of water and sanitation services. Only 63.1% of them had an efficiency score greater than 70%. Ugu and Ngaka Modiri Molema were the least efficient of the high service responsibility municipalities. They would have been able to support their existing activity levels using only 53.5% and 59.4% of their resources, respectively.

The efficiency scores suggest that inefficient high service responsibility municipalities need to strike a better balance in their spending. They must balance their spending on operational improvements, investment in infrastructure and operational costs (such as salaries, travelling, office equipment and information communication technology). Their efficiency could improve if they spend their resources wisely on their priority programmes.

Scale efficiency is a measure of whether a municipality is operating at its optimal size. Six (or 31.6%) of high service responsibility municipalities were scale efficient, and 89.5% of them had an efficiency score greater than 70%. The average productivity loss due to scale inefficiency was 11.4%. It was evident that Joe Gqabi, Uthukela, uMkhanyakude and Ngaka Modiri were operating at the increasing returns to scale portion of the VRS frontier. For these high service responsibility municipalities, the output increases by a larger proportion than the increase in inputs during the production process. This means that they were not operating at their optimal level even after improving their efficiency and could employ further resources to achieve an even bigger outcome. In other words, increasing returns to scale lead to decreasing marginal costs.

By contrast, Amathole, Harry Gwala, iLembe, King Cetshwayo, Mopani, Umzinyathi, Chris Hani, Sekhukhune and Ugu high service responsibility municipalities were operating at decreasing returns to scale. This implies that increases in all inputs led to a less-than-proportional increase in output, thereby increasing the marginal costs.

Table 5. 3: Projected efficiency savings

R 000'	Current costs	Efficiency costs	Projected savings

Municipalities	Employee costs	Operational Expenditure	Employee costs	Operational Expenditure	Employee costs	Operational Expenditure
Amathole	205	336	103	169	102	167
Capricorn	78	229	78	229	0	0
Harry Gwala	68	209	47	143	21	65
iLembe	70	384	65	201	5	183
Joe Gqabi	68	159	45	105	23	53
King Cetshwayo	59	411	41	151	18	260
Mopani	194	719	194	719	0	0
O.R. Tambo	203	507	203	507	0	0
Umzinyathi	46	382	22	110	24	272
Uthukela	112	145	87	112	25	33
Zululand	70	182	70	182	0	0
Alfred Nzo	106	117	106	117	0	0
Chris Hani	123	426	86	265	37	161
uMkhanyakude	55	124	47	106	8	18
Vhembe	418	90	418	90	0	0
Ngaka Modiri	151	363	61	147	90	216
Sekhukhune	157	529	119	401	38	128
Amajuba	18	102	18	102	0	0
Ugu	183	647	85	259	98	388
Total	**2 384,1**	**6 059,4**	**1 894,8**	**4 115,3**	**489,4**	**1 944,1**

Source: adapted from the local government database

As can be seen from Table 5.3, improving the efficiency would bring substantial benefits while still achieving the required outputs. This point was illustrated in the VRS input target analysis, in which savings in input costs (measured by improved efficiency) led to a reduction of R2.4 billion per annum in the 19 sampled municipalities. Of this amount, R489.4 million could be saved in the compensation of employee expenditure, and R1.9 billion could be saved on other operational expenditure items. In rand value terms, Amathole, King Cetshwayo, Umzinyathi and Ugu constituted R1.3 billion (or 54.6%) of the total potential savings. These would be the first municipalities to focus on in the short to medium term.

5.6   Determinants of Variation in Water and Sanitation Service Efficiency

Multiple regression analysis was conducted to explore the relationships between the independent variable (VRS scores) and the nondiscretionary contextual factors which could impact the measured efficiency. The results are shown in Table 5.4. The nondiscretionary factors are regarded as proxies for variables such as topography, age and condition of infrastructure. Surprisingly, governance factors – such as compliance with relevant legislation, financial management capacity, the ability to roll out projects and capacity constraints – within the municipalities did not significantly impact their efficiency in fulfilling their water and sanitation functions. This insignificant effect of the indicators of municipal governance on efficiency indicates a possible over reliance in audit outcomes as proxies for good governance.

Table 5. 4: Determinants of Efficiency in Water and Sanitation Services

Variables	Pure Technical efficiency		Scale efficiency	
	Coefficients	*Standard Error*	*Coefficients*	*Standard Error*
Admin intensity	-0,032838307	0,301500073	-0,01981193	0,132618927

Population growth	32,00186096	19,82197938	13,33606616	8,718968456
Asset value	1,18946E-11	6,43338E-11	-3,64989E-11	2,82981E-11
self-generated revenues	1,001117242	0,814771492	-0,327824797	0,358388373
Compliance	0,001968808	0,007684991	-0,001918927	0,003380348
Financial management capacity	0,005506383	0,007736639	0,008999434	0,003403067
Ability to roll out projects	0,000803657	0,012143045	0,008394006	0,005341284
Capacity constraints	-0,007284617	0,006622961	-0,002553464	0,0029132

Notes: Asterisks represent the significance level, where *, 0.10; **, 0.05 and ***, 0.01

The strong positive correlation between pure technical efficiency and the self-generated revenues implies that own-source revenues within a municipality are associated with better efficiency regarding the water and sanitation function. In other words, the ability to rely on own revenue improves the long-term fiscal outlook of the municipality's service delivery model. This finding is consistent with the traditional fiscal decentralisation theory. The theory states that relying on own revenue can improve the efficient allocation of resources by making it possible for revenue and expenditure priorities to reflect the needs and preferences of communities (Tiebout, 1956; Oates, 1972; Shah & Boadway 1994; Faguet, 2001; Allen & Flynn, 2006; Das-Gupta & Bird 2012).

Another important factor that had a significant positive effect on efficiency was the value of assets in a municipality under the pure technical efficiency model. The results suggest that increases in asset value increased the efficiency with which water and sanitation functions were delivered. This finding underlines the importance of effective long-term asset management planning. The condition of an asset starts to deteriorate from the first day it is used. "At some point, it becomes necessary to rebuild or replace parts of the asset to restore it to the required functional condition or extend its useful life" (World Bank, 2009). Repairs and maintenance generally involve returning an asset to its original level of service requirements, and lack of maintenance has economic consequences. Ageing and poorly maintained assets can result in distribution losses and leakages of water.

Scale efficiency was regressed upon nondiscretionary contextual factors, and the coefficients were examined. The results showed that scale efficiency was relatively high for high service responsibility municipalities that had little fiscal autonomy (self-generated revenues). It is likely that these municipalities have been able to identify the optimum scale of services for their constituencies, especially given the large increases in government grants over time. These grants are unconditional, namely LGES and RSC levy grants, and can technically be perceived as own revenue sources.

In addition, when scale efficiency was regressed upon asset value, the scale efficiency model coefficient showed a significant statistically negative effects of asset value. This result implies that as the asset value increases, high service responsibility municipalities experience decreased efficiency. A possible explanation may lie in inefficiencies due to distribution losses

and leakages due to lack of refurbishment and maintenance; there is a tendency to rather build new infrastructure. This pattern could be linked to perverse incentives in the conditional grant system of funding for South African municipalities. Grants are provided for building new infrastructure, with politicians enjoying announcing the construction of new projects. However, in a high service responsibility municipality with substantial poverty, over-investment in infrastructure increases the operational costs during future years, without an economic return. The South African government should counter the prioritisation of staff costs and maintenance of costly administrative departments at the expense of service delivery programmes in those high service responsibility municipality where infrastructure has aged.

The log of population growth, for both the pure technical efficiency and the scale efficiency models, was positive and significant for the efficiency of high service responsibility municipalities. This result indicates that the efficiency of populous municipalities was strong during the period under review. This could be largely due to the demand for services, which forces municipalities to do more with less and to find efficient ways of meeting the growing demand for resources. By implication, these populous high service responsibility municipalities have been able to identify the optimum scale of their water and sanitation operations. The reason is that their population growth has been stable over time.

The final analysis relates to the regression of total slack for water and sanitation (assuming variable returns to scale) against the nondiscretionary contextual factors which affect the measured efficiency. Slacks represent only the leftover portion of inefficiencies, after proportional reductions in inputs compared with their efficient peers to emulate. A slack value reflects an inappropriate mix of inputs. Results from the VRS DEA model showed that while there was no slack in the employee cost input variable, a reduction in other operational expenditure could be gained beyond that implied by the radial projections. This would imply an equal decrease in all inputs. In other words, there was an inappropriate mix of inputs in the delivery of water versus sanitation services. The iLembe, King Cetshwayo, Umzinyathi, Chris Hani and Ugu municipalities were the only five high service responsibility municipalities to reflect a slack in the inputs.

5.7   Determinants of Water and Sanitation Services: Total Slack

Estimated coefficients and elasticities were calculated according to the means for the two discretionary inputs and three outputs. The results are listed in Table 5.5. The interaction term between the total slack variable and nondiscretionary contextual factors (other than administrative intensity and capacity constraints) had a negative and significant impact on slack. This result implies that as the total slack increases, the coefficient of municipalities' nondiscretionary contextual factors decreases.

Table 5. 5: Estimated coefficients: regression model

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	336,9407886	173,8848361	1,937723819	0,084617789	-56,41403881	730,295616	-56,41403881	730,295616
Admin intensity	75,75787672	39,25642036	1,929821314	0,08569704	-13,04631579	164,5620692	-13,04631579	164,5620692
Population growth	-12058,42277	2580,894745	-4,67218696	0,001164986	-17896,8123	-6220,03324	-17896,8123	-6220,03324
Asset value	-1,96379E-09	8,3765E-09	-0,23444008	0,819889819	-2,09127E-08	1,69852E-08	-2,09127E-08	1,69852E-08
self-generated revenues	-77,78226234	106,0862501	-0,73319834	0,482097349	-317,766033	162,2015083	-317,766033	162,2015083
Compliance	-0,711676206	1,000614107	-0,71123943	0,494955286	-2,975222576	1,551870163	-2,975222576	1,551870163
Financial management capacity	-0,519579096	1,007338957	-0,51579371	0,618429431	-2,798338133	1,75917994	-2,798338133	1,75917994
Ability to roll out projects	-2,544896225	1,581069193	-1,60960459	0,141944846	-6,121523223	1,031730774	-6,121523223	1,031730774
Capacity constraints	1,551156278	0,862333936	1,798788397	0,105592952	-0,399578611	3,501891168	-0,399578611	3,501891168

Source: author's own calculation

Moreover, other things being equal, expenditure slack (both radial and non-radial) is determined by administrative intensity. All five municipalities that had slack were operating on a decreasing return to scale. Hence, slack can be improved by reducing the administrative-related expenditure.

Interpretation of results

Over the past decade, several grants have been introduced to improve municipal capacity. The first is the Financial Management Grant, administered by the National Treasury. It helps municipalities implement reforms to their budgeting and financial reporting systems and build their capacity for financial planning, budgeting, and developing systems to link results and allocations. This grant also supports municipalities in implementing the Municipal Financial Management Act 56 of 2003 (MFMA) and reforming municipal financial reporting. The second grant is the Municipal Systems Improvement Grant, administered by the Department of Cooperative Governance and Traditional Affairs. It funds a number of projects in municipalities to implement the district development model approach (National Treasury, 2021). The third grant is the Infrastructure Skills Development Grant, administered by National Treasury. National Treasury (2021) reports that this grant aims to "develop capacity within municipalities by creating a sustainable pool of young professionals with technical skills in areas such as water, electricity, and town planning". These grants were intended to build municipal capacity for effective service delivery.

For the three major municipal infrastructure grants, a portion of the expenditure was used to build municipal capacity to prepare project proposals and manage infrastructure projects. The Municipal Infrastructure Grant provides 5% for this purpose, Urban Settlements Development Grant and Integrated Urban Development Grant provide 3% and 5% respectively.

Municipalities with high service delivery responsibilities receive all three grants for capacity building. Between 2010/11 and 2015/16, these municipalities received R334 million on capacity building.The performance of municipalities with high service responsibility suggests little progress has been made in building municipal capacity, although various grants have been introduced in the past with this objective. As part of Annexure D, this research study outlines a framework for improving municipal performance based on theory of change.

The evidence presented indicates that the district municipalities with high service responsibilities have been performing water and sanitation functions poorly. The inappropriate mix of inputs was observed in five municipalities with high service responsibilities. The same municipalities were operating with declining profitability, indicating high marginal costs. This implies that there is scope for these municipalities to reduce their operating costs. Given the inefficiency of these municipalities, the capacity building grants given to them have not served their purpose. Furthermore, it is unclear why the Minister and the MECs responsible for local government have assigned the functions to provide these services to local communities.

The legislation is clear that certain functions should be delivered either by the local or by the district municipality. However, the functional assignments made by the Minister and the MECs responsible for local government were interim arrangements – yet so far, they seem to have been viewed as permanent. This issue needs to be reviewed and resolved. To ensure that there is little or no overlap, there should be a review of the local government matters listed in Part B of Schedules 4 and 5 as assigned to either the district or the local municipality. The review should also ensure that each service is practically delivered at the level where it is best located.

In a recent attempt to improve performance, the government, under the leadership of the Presidency and the Ministry of Cooperative Governance, has initiated a process to introduce the DDM. This model is a government collaborative strategy focused on the 52 district areas. Under this model, the Government plans to conduct diagnostic assessments for all districts (44 districts and 8 metropolitan areas) and comprehensive plans for each of these district areas. These diagnostic assessments will help identify the capabilities, systems, services, institutional gaps and key constraints that impede effective and robust municipal performance (National Treasury, 2021). It is envisioned that the development of institutional improvement or support plans will inform all future capability building and local government service delivery support initiatives (ibid., p109).

5.8   Conclusion

The objectives of the chapter were threefold. The first aim was to establish the efficiency with which high service responsibility municipalities that had water and sanitation functions

delivered on these services. Here, "efficiency" means maximising outputs using the least resource inputs. The results showed that inefficiencies have largely nullified the impact of the funding to local government that was intended to improve how high service responsibility municipalities discharge their service delivery responsibilities. The sample of 19 municipalities could theoretically have achieved the same level of essential services with about 21.2% fewer resources, on average. However, the average masks wide variations between the municipalities. The difference between the six most efficient high service responsibility municipalities and the least efficient municipality (Ugu), at 0.633, was substantial. Based on these findings, it is unclear why the Minister and the MECs responsible for local government consider high service responsibility municipalities better positioned to provide water and sanitation services to local communities than the local municipalities within these districts. Second, regression techniques were employed to identify the determinants of water and sanitation service efficiency variation. The findings indicated that self-generated revenues, asset value and population growth played key roles in determining the efficiency of service provision. The results suggest that increases in asset value increased the efficiency with which water and sanitation functions were delivered. This point underlines the importance of effective long-term asset management planning.

In addition, the log of population growth indicated that the efficiency of highly populous municipalities was strong during the period under review. This could be due to the high demand for services forcing municipalities to do more with less and to find efficient ways of meeting the demand for resources. The argument here was that populous high service responsibility municipalities have been able to identify the optimum scale of their water and sanitation operations because population growth has been relatively stable over time.

The inappropriate mix of inputs was observed in five high service responsibility municipalities. The same municipalities operated at a decreasing rate of return, signalling high marginal costs. The relationship between efficiency and self-generated revenues is consistent with the traditional fiscal decentralisation theory, which states that relying on own revenue can lead to efficient resource use. A third regression model found that administrative intensity was the driver of the inappropriate mix in resource inputs.

The third objective of this chapter was to identify the long-term fiscal sustainability of district municipalities with water and sanitation functions and their ability to induce cost-saving measures to attain efficiency. The results showed that R8.4 billion was spent by the 19 high service responsibility district municipalities to deliver their water and sanitation services. Of this amount, R2.4 billion (or 28.8%) could have been saved if all 19 district municipalities had been operating efficiently.

5.9   Recommendations

5.9.1   Rationalise the existing funding sources into a single grant

It is critical that local government is properly capacitated to fulfil its developmental role. The inefficiencies found have largely nullified the impact of the funding to local government that was intended to improve how high service responsibility municipalities discharge their service delivery responsibilities. The inefficiency suggests that limited progress has been made in building municipal capacity, although a number of grants have been introduced in the past with this objective. Annexure C shows that over a six-year period, the South African government supported all the 257 municipalities with capacity-building programmes to the tune of R14.8 billion. The increase in funding to local government without a concomitant improvement in service delivery points to the waste of already limited resources.

A new approach to capacity building transfers should have the following characteristics:

- The design of the grant should take into account all aspects of municipal capacity needs, particularly those set out in legislation. This should include, at a minimum, financial management and systems, administrative systems, planning systems, service delivery and infrastructure, and monitoring systems.

- The approach to municipal capacity building should strike an appropriate balance between the development of an integrated set of capabilities at the municipal level and the need for sequencing of capacity building. Sequencing is important to ensure that municipalities develop capacities such as sound financial management practices before addressing their longer-term needs such as performance management. Integration is necessary to ensure that municipalities do not underspend or develop these capacities in isolation from each other.

- In all cases, national government must avoid overloading municipalities with support in the form of many uncoordinated grants. Capacity building initiatives need to be focused on the existing, internal capacity of municipalities and should respond to their own identified needs rather than the requirements of other spheres of government.

5.9.2 Change the concept of high service responsibility municipalities

This recommendation entails doing away with the concept of high service responsibility municipalities as a separate and constitutionally entrenched sub-category of local government. This study has noted several inefficiencies in how high service responsibility municipalities fulfil their service delivery responsibilities. In conclusion, a structural change in the current two-tier system of governance is recommended. A model is needed that would do

away with the concept of high service responsibility municipalities as a sub-category of local government.

This option would require radical change, including constitutional and statutory amendments. However, it would address several of the challenges experienced under the current two-tier system of governance. This option is unlikely to be popular with politicians as it is not in line with the policy proposal made at the 2012 Mangaung conference of the African National Congress. The proposal called for a Differentiated Local Government Model in which district municipalities should focus on coordinating, planning and supporting local municipalities' functions. The resolutions of the conference further called for a new funding model for district municipalities and for district municipalities to exist only in areas where there are weak local municipalities (African National Congress, 2012).

The problem with the policy direction of the ruling party is that it leaves room for weak local municipalities to exist, despite anecdotal evidence indicating that this arrangement is highly inefficient. A single-tier of local government would result in savings on administration costs after municipal amalgamations. These savings would be based on the administration costs of high service responsibility municipalities, which would not be needed should these municipalities be absorbed into the local municipality. Savings from doing away with high service responsibility municipalities could be used to address deficits and other financial management challenges in local municipalities.

Should high service responsibility municipalities continue to exist, there is a need to establish appropriate benchmarks for the inputs required to achieve particular outputs. Such benchmarks would help to address the anomalies evident in the composition of expenditure for high service responsibility municipalities in the DEA model. This benchmarking tool should establish fixed costs for maintaining the core staff to execute the functions listed in Part B of Schedules 4 and 5 of the Constitution. Thereafter, it should establish variable costs that rise with increases in – for example – population or households.

5.10   References: Chapter 5

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5.11   Chapter 5: List of Annexures

Annexure A: list of 21 high service responsibility municipalities and their administrative intensity

Municipal_Code	Municipality	Category	Percentage
DC44	Alfred Nzo	C2	32%
DC25	Amajuba	C2	33%
DC12	Amathole	C2	39%
DC35	Capricorn	C2	36%
DC13	Chris Hani	C2	20%
DC39	Dr Ruth Segomotsi Mompati	C2	25%
DC43	Harry Gwala	C2	28%
DC29	iLembe	C2	29%
DC14	Joe Gqabi	C2	32%
DC28	King Cetshwayo	C2	23%
DC33	Mopani	C2	30%
DC38	Ngaka Modiri Molema	C2	36%
DC15	O R Tambo	C2	27%
DC47	Sekhukhune	C2	31%
DC21	Ugu	C2	34%
DC22	uMgungundlovu	C2	30%
DC27	Umkhanyakude	C2	29%
DC24	Umzinyathi	C2	19%

DC23	Uthukela	C2	29%
DC34	Vhembe	C2	46%
DC26	Zululand	C2	28%

Annexure B: Administrative intensity map
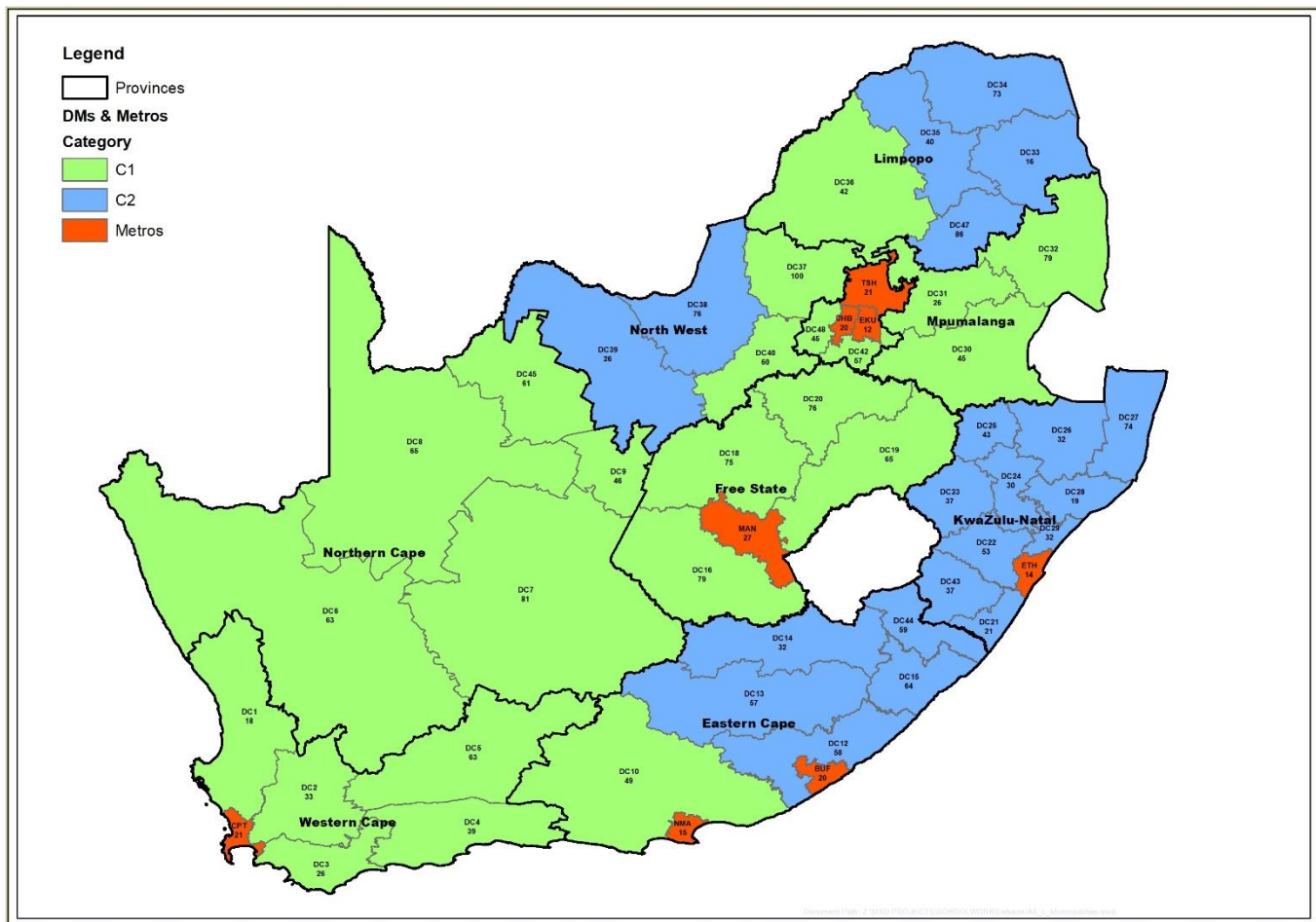
Annexure C: Capacity building in support of Local government

	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24
R million							**Medium-term estimates**		
Direct transfers	**1 901**	**2 008**	**2 521**	**2 526**	**2 575**	**2 522**	**2 515**	**2 624**	**2 691**
Municipal infrastructure support agency	304	350	381	342	344	360	345	350	351
Municipal Finance Improvement Programme	121	74	69	141	149	118	120	124	125
Infrastructure skills development	124	130	141	141	149	144	155	159	160
Local government financial management	452	465	502	505	533	545	552	566	569
Programme and project preparation support	251	267	292	294	310	314	341	361	377
3% of urban settlements development grant allocated for capacity building	244	311	341	339	350	317	222	221	230
Municipal Infrastructure Grant PMU	404	412	795	764	741	725	780	843	880
Indirect transfers	**251**	**19**	**103**	**92**	**111**	**120**	**135**	**140**	**147**
Municipal systems improvement	251	19	103	92	111	120	135	140	147
Total	**2 152**	**2 027**	**2 624**	**2 618**	**2 686**	**2 642**	**2 651**	**2 764**	**2 838**

Annexure D: Theory of change

Problem Statement	Despite investments and support, the capacity-building system in local government is fragmented, expensive, and results are inadequate.

Inputs	Activities	Outputs	Intermediate Outcomes	Long-term Outcomes

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Resources needed to build capable municipalities.	Activities needed to reach your outcomes.	Tangible results you produce through your activities.	Outcomes expected of your intervention(s).	Outcomes you hope to observe beyond your intervention timeframe.
• Financial resources • Employees • Municipal systems • Programmes • Policy & legislation	**Diagnoses** • Why are municipalities failing to meet their objectives? **Evidence** • Comprehensive and empirical evidence based on observation and expert & local inputs **Design** • What needs to be done? • Principles: sequenced, buy-in, commitment and cooperation, includes progress indicators that reflect objectives **Implementation** • Principles: long-term commitment, cooperation, agility-flexibility, monitoring **Assessment of progress** • Progress against pre-determined indicators	**Local government** • Improvement in standard municipal governance indicators • Increased accountability for own governance • Decreased poor audit outcomes • Improved service delivery **Provincial** • Increased ability in supporting municipalities deliver mandate **National** • Treasury: accurate records on financial aspects of capability building; reduced allocations • DPSA: professionalization of SMS • COGTA: increased capacity to drive & manage capability building system	• Appropriate capability building system • Collaborative, context-specific & evidence-based diagnosis • Improved understanding of causal drivers of outcomes & effective sequencing/prioritisation of activities • Appropriate design of capability development programmes & performance indicators • Increased ability to monitor progress & adjust programme design • Long-term & sustainable improvements in organisational outcomes	• Efficient & effective local government able to deliver services

Impact	Integrated capability building system with clear results

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Chapter 6: Conclusions and recommendations

Conclusion and recommendations

6.1   Introduction

This chapter reviews the main findings and contributions of the study as well as its limitations. The theoretical and practical implications of the research are then explored. Finally, topics for future research are suggested.

This study provides insight to enhance the sustainability of municipal finances by contextualising short-term resource allocation decisions within a long-term strategic and developmental perspective. It has proposed a model to measure municipal fiscal sustainability and has argued that the current composition of municipal expenditure is inefficient. The analyses interrogated the composition of local government expenditure. The findings showed that municipalities already spend significantly more than they should on administration costs towards maintaining large municipal administrations, and that a high proportion of item expenditure has been spent on compensating municipal employees. The four main objectives of this study were:

1. To develop a set of municipal sustainability indicators, with application to a selected group of municipalities in South Africa (Chapter 2).
2. To explore the patterns and characteristics of the composition of municipal expenditure in terms of its administrative intensity. This included the determinants of administrative intensity and their impact on fiscal sustainability (Chapter 3).
3. To explore the patterns and characteristics of the composition of municipal expenditure in terms of personnel management, and to provide a thorough assessment of the fiscal risks associated with municipal personnel management at local government level (Chapter 4).
4. To establish the efficiency with which district municipalities that perform water and sanitation functions deliver on these services, and to identify the determinants of variation in the efficiency of water and sanitation services (Chapter 5).

6.2 Main findings

Each of the subheading below represents a specific finding from the four research articles presented in this research study.

Municipal fiscal gap is widening

A sample of 7 metropolitan municipalities were chosen to test the new fiscal sustainability model. The findings indicate that Mangaung, Buffalo City, Nelson Mandela Bay and the City of Tshwane require urgent interventions and policy changes to maintain their long-term fiscal sustainability. This is because all four municipalities lack sufficient revenue to cover their expenditures and thus incur a long-term primary deficit gap. The longer they operate at the current level, the harder it will be to maintain the current service provision to the serviced customers. Given the current high number of unserved consumers within these municipalities, the municipality is not able to fulfil its constitutional obligation of providing basic services to its community.

The Cities of eThekwini, Johannesburg and Cape Town have potential surpluses that would make them remain fiscally sustainable well into the future. This is because they have optimised their borrowing scope by creating an enabling environment and developing strategies to make them attractive to creditors. This scenario allowed them to borrow at relatively low prices. They have also been paying their debts relatively fast; as a result, they do not have any repayment gaps.

Applying the model introduced in the first paper (chapter 2) of this dissertation highlighted the challenges that South African municipalities face if they are to move to a sustainable fiscal trajectory. Today's structural surpluses or deficits seem to be the main determining factors for how fiscally sustainable a municipality is in the long run. The widening fiscal gap requires immediate action by municipalities. Given the difficulties and the legislative process required to introduce a new tax, the focus should rather be on improving efficiency. On the revenue side, this implies charging cost-reflective tariffs and being able to collect revenues due to the municipality. On the expenditure side, efficiency can be attained through changing the composition of municipal spending; by spending less on administrative departments and the employee costs; and by spending more on revenue-generating assets and items, such as purchasing bulk services (to be sold to the consumer).

In addition, high future deficits lead to a risk premium, which increases the cost of borrowing. Theoretically, an efficient financial market rewards municipalities that display sustained and exceptional financial performance with superior credit ratings and low borrowing costs (Wachtel & Young,1987; Zahid, 1988; Bastida, Guillamón & Benito, 2014). Interest rate

reductions are important because they reduce the liability and debt service costs that the municipality faces, making additional funding available for service delivery.

Generous systems of benefits and lucrative performance awards paid

The underlying problem in the rising expenditure for employee costs is the generous systems of benefits and lucrative performance awards paid by local government. The performance reward system for general public service stipulates a maximum of 1.5% of total remuneration; however, low-capacity districts offered as much as 6% of total remuneration in performance rewards. This is considerably higher than in other spheres of government. It has a negative bearing on government's ability to keep administered prices within the inflation target band of between 3% and 6%.

All levels of municipal employees have benefited from these generous benefit packages. However, senior managers in local government have seen their pension contributions, medical aid contributions and "other benefits and allowances" growing at average annual rates of 17.6%, 21% and 14% respectively. These figures signal the generous benefits afforded to this class of employees between 2007/08 and 2016/17. Given that personnel numbers did not increase much, the challenge is lack of adherence to the binding national wage agreements – which itself is often above the inflation rate.

Municipalities are showing signs of collapse, instigated by their maintaining large administrative departments

The administrative intensity of municipalities shows that their organisational structures were bloated, and a high proportion of employees were located in the non-technical service department. For example, Umkhanyakude District Municipality had a staffing structure of 399, of which 335 positions were filled at the time of the study. As a water services authority, approximately 53% of the staff were located in the technical services department. By contrast, West Rand District Municipality, a district municipality with no major service delivery functions, had the largest structure, with 539 approved positions. This discrepancy is concerning.

However, building institutional capacity is a complex process that is subject to the interplay of many factors, which are impossible to quantify in a credible and reliable way. That is why measures of organisational efficiency that are based only on curtailing organisational personnel numbers run the risk of creating perverse incentives; they create an inward and short-term focus that is detrimental to the long-term objectives of government. The issue of personnel is compounded by waning revenue sources after the 2008 recession and by the fiscal consolidation measures in South Africa.

This imbalance requires examination of the municipal organisational structures according to municipal size. Both the remuneration practices and the organisational structures require the creation of typologies against which municipalities can be benchmarked and perhaps also assessed and funded. Typologies provide a basis for understanding the types of municipalities that may or may not be able to undertake certain powers and functions. This means that municipalities with similar functions, topography and population densities must have similar sized organisational structures.

Inefficiencies in the two-tier system

There is poor efficiency with which high service responsibility municipalities have delivered on the water and sanitation functions. It is unclear why the Minister and the MECs responsible for local government have assigned the functions to provide these services to local communities. It is therefore not enough that the differentiation between types of district municipalities has been limited to whether the district municipality has retained the authority for the water and sanitation function or not. The assignment of a function to district municipalities has not led to the function being exclusively performed either by the district municipality or the local municipality. In several instances, it has led to misalignment between fiscal and assignment between these two categories of municipalities. This has happened even where the district municipality and the local municipality have signed an appropriate service level agreement.

Therefore, the distribution of functions between local and district municipalities is not always clear, and the lines of decision-making and accountability are not always adequately defined.

It is clear that the two-tier system of category B/C municipalities creates a range of inefficiencies that impact on service delivery. This study suggests a model that does away with the concept of high service responsibility municipalities as a separate and constitutionally entrenched sub-category of local government. This option requires radical changes, including constitutional and statutory amendments, and addresses several of the challenges experienced in the current two-tier system of governance. A single-tier system should result in gains in efficiencies and performance through merging the districts and locals and also because the arrangement would eliminate the duplication of functions.

There is a need for municipalities to find a cost-effective best service delivery model

There is a need for municipalities to distinguish between exercising an authority versus being a service provider. This requires each municipality to evaluate the advantages and disadvantages of various options. For a fiscally sustainable trajectory, municipalities must aim for a service delivery model that would enable cost-savings while maximising the benefits for the communities being served. Some options to be considered in arriving at an optimal service delivery model are summarised in Table 6.1 below.

Table 6. 1: Decision matrix for efficient optimal service delivery model

Procurement Method	Basic Principles	Advantages	Disadvantages
Direct Procurement	Fair, transparent, open competitive process	Municipalities have established practice	All the risks (financial, technical, labour) are borne by the municipality
Public–Private Partnership (PPP)	A long-term partnership between a private sector actor and a government entity Is only applicable to large-scale projects	Risk is shared between parties	A complex regulatory framework
Joint Ventures between government entities	Two entities of government partner for the purposes of delivering a specific project	Shared risk and responsibility	Partners may have conflicting management approaches, and may not contribute equally to the venture
Establishment of a Municipal entity	Provides services, which may include supplying the service to end users who do not use the water for household purposes, providing catchment management services	The entity board would take on the risk of a project and sell water on to the municipality	The entity board is established at the behest of the sector Minister, and reports to the Minister; the municipality would have no say in the board appointees
Outsourcing the service	Municipality would provide the minimal level of service and auction out the other level of service to private providers, providing catchment management services	The municipality provides the service outlined by the Constitution Less burden to meet the demand	The municipality would need to retrench excess employees and will lose the revenue from trading services because of additional service provided

Source: Author's own

Failures in the current capacity building system

Local government plays an important role in delivering services that are critical to translating policies aimed at eradicating poverty and inequality into concrete programmes. It is therefore critical that municipalities properly capacitated to fulfil their mandates. This suggests that limited progress has been made in building municipal capacity, although a number of grants have been introduced in the past with this objective. The increase in funding to local government without a concomitant improvement in service delivery points to the waste of already limited resources.

To address the efficiency issues, national and provincial government should exercise their monitoring role over local government to ensure that municipalities prioritise their revenue and expenditure management to avoid cash flow challenges. The municipalities must also conduct change management. They must demonstrate the willingness to correct the root cause of revenue and expenditure management inefficiencies. This would require the political arm of the municipality to respect the right of the administrative arm to exercise credit control action to recover monies owed to municipalities. Historic inaction by the municipalities means that they are now owed large amounts. This has led to them struggling to pay their creditors, as is the case of monies owed to Eskom and water boards. Advocacy programmes and campaigns emphasising that customers are liable to pay for the services consumed would need to be

intensified to halt the culture of non-payment among households and businesses. This would again require political commitment and pronouncement at all levels of government.

The key findings and recommendations from each of the four papers are laid out in Table 6.2.

Table 6. 2: Key findings and recommendations from the four papers

Paper and Title	Key findings	Recommendations
Paper 1: A framework for assessing fiscal sustainability, with an application to metropolitan municipalities in South Africa	City of Tshwane and Buffalo City are found to be in the most difficult fiscal sustainability positions through the application of the framework in this study. They have the largest resource gap and the largest primary gap.	Buffalo City has the largest primary gap (revenue minus expenditure) and has 48.9% of its population living below the poverty line; the limited tax base at this municipality means that greater efforts must be made to reduce expenditure. For fiscal sustainability, the reduction in expenditure must be 3.7% relative to its current budget. The City of Tshwane has the largest debt repayment gap (high debt and high service costs). Savings on debt service costs would be a direct cash benefit to the municipality. In turn this would allow it to devote these resources to other spending priorities. They would greatly benefit from renegotiating the interest rate charged and the length of debt commitment. Another option available to this municipality is to sell non-strategic assets to pay off the debt; this would reduce both the repayment gap and the fiscal gap.
Paper II: The administrative intensity in local government and its impact on the fiscal sustainability of municipalities. Paper III: Assessment of the fiscal risks associated with municipal personnel management at local government level.	There is evidence of excessive spending on administrative departments of the municipality, with operational transfers perpetuating this expenditure. There is evidence of excessive spending on salaries and benefits.	There are two categories of transfers to municipalities: LGES and conditional grants. Each is likely to induce significantly different types of spending behaviour by municipalities. On the one hand, municipalities enjoy more discretion in using LGES funding, which is unconditional transfers. In contrast, earmarked grants must be used for clearly specified projects. Therefore, earmarked subsidies should be more effective in prompting local governments to spend money on service delivery responsibilities. Funding for service delivery responsibilities must be earmarked as such, as municipalities have been shown to prioritise administrative expenditure and staff costs. The current practices defy the constitutional provision that municipalities must prioritise basic services to the people. This may require constitutional amendment, because the Constitution also states that municipalities are entitled to an equitable share of nationally raised funds. This imbalance requires a relook at the municipal organisational structures by municipal sizes. This means that municipalities with similar topography and population densities must have similar sized organisational structures. Improving efficiency in operational transfers should be seen as necessary work before further funds are transferred to rural municipalities. Therefore, this suggests the need for more interventions to manage the perverse incentives of the operational transfers. National government must resuscitate the plans for a single public service. Currently, the employees of national and provincial government fall within a single policy framework, from which local government is excluded. The single public service initiative was meant to bring local government into the framework under which national and provincial governments operate. This would assist with harmonising the conditions of service, as municipalities currently enjoy generous benefits packages.
Paper IV: Measuring Efficiency in District Municipalities' Water and Sanitation Functions in South Africa	R8.4 billion was spent by district municipalities in delivering their water and sanitation services function. Of this amount, R2.4 billion or 28.8% could have been saved had all the 19 district municipalities sampled operated at an efficient level.	There is a need to establish appropriate benchmarks for the inputs required to achieve particular outputs. This would assist in addressing the anomalies evident from composition of high service responsibility municipal expenditure in the DEA model. This benchmarking tool should establish fixed costs of maintaining the core staff to execute the functions listed in Part B of Schedules 4 and 5, and then variable costs that rise along with population or households.

6.3   Overview of the study

This dissertation was divided into four distinct but complementary papers, each forming a chapter. Chapter 2 introduced a model to measure municipal fiscal sustainability that considers the demographic impact on municipal revenue and expenditure. It also factors in municipal balance sheet items like assets, municipal equity and liabilities. This is a nuanced approach which moves beyond merely conducting a cash flow analysis and calculating norms and ratios. To measure a municipality's sustainable path, this chapter introduces four interdependent indicators. These indicators present various options for closing the fiscal gap.

Chapter 3 was divided into three parts. The first part determined the scale effects and determinants of administrative intensity of South African municipalities between 2011/12 and 2017/18. It addressed the following questions: Is the composition of municipal expenditure geared towards fiscal sustainability? Or are municipalities gradually showing signs of collapse, instigated by maintaining large administrative departments? The chapter highlighted a fundamental systemic incoherence within the present constellation of the composition of municipal spending. That is, municipalities spend high proportions of their budgets maintaining large administrative departments for their operations, at the expense of service delivery departments. The high spending on administration limits spending that could be channelled towards investment programmes that would boost the local economies (Pakkies, 2016).

Chapter 4 explored the patterns and characteristics of the composition of municipal expenditure in terms of its personnel management. It provided an assessment of the fiscal risks associated with municipal personnel management at local government level. It asked the question: Are municipalities managing their personnel and personnel remuneration affairs efficiently and in a fiscally sustainable manner? In its approach the proportion of expenditure that goes towards the payment of salaries and allowances was computed by identifying these items from the total pool of operational expenditure items. These items included councillor remuneration and salaries as these costs represent a statutory obligation to each municipality. The raw data sources used for this chapter included the annual and time-series data about local government spending and personnel.

Chapter 5 established the efficiency with which district municipalities that have water and sanitation functions deliver on these services. It also identified the determinants of water and sanitation services efficiency variations and the long-term fiscal sustainability of district municipalities with water and sanitation functions. It analysed their ability to induce cost-saving measures to attain efficiency. It asked the question: How efficient have district municipalities been in discharging their service delivery responsibilities in light of the belief that they have

more capacity than the local municipalities within their jurisdiction? The analysis used the actual expenditures and outputs attributable to these functions in the data envelopment analysis (DEA) technique. This is a linear mathematical programming approach to frontier estimation-based technique for measuring the relative performance of institutions. The presence of multiple inputs and outputs method is applied to cross-sectional data set of 2015/16 financial year for 19 high service responsibility municipalities.

DEA is the preferred method for measuring technical and scale efficiencies as well as productivity changes in decision-making unit (DMU) services over time (Coelli, Rao & Battese, 1998; Worthington & Dollery, 2001; Woodbury, Dollery & Rao, 2002; Afonso & Fernandes, 2008; Boetti et al., 2010; Monka, 2014; Yusfany, 2015 and Drew, Dollery & Kortt, 2016). It measures weighted outputs to weighted inputs and the efficiency score ranges from 0 to 1. In the second part of this chapter, the author conducted a regression analysis to explore the relationships between the independent variable (VRS scores) and the nondiscretionary contextual factors. The nondiscretionary contextual factors are self-generated revenues, the value of assets and the number of households within each municipal jurisdiction as independent variables impacting the measured efficiency.

6.4 Novel Contributions: Synthesis and Summary

The following section summarise the contributions of the study. The theoretical and methodological aspects are discussed first, followed by the empirical contribution.

6.4.1 Theoretical contribution

An important addition to the local government financial management literature is that fiscal autonomy, which implies reliance on own-source revenue, results in a robust financial condition for local municipalities. This holds true across all municipalities as it leads to the efficient use of funds. This represents a substantive addition to the empirical administrative intensity literature. The current study offers new insights to reconsider for the future fruition and architecture of the local government fiscal framework, which to date has largely been driven by calls for government to increase operational transfers from national level to municipalities. The implication is that South Africa must endeavour to ensure that, to the extent possible, municipalities must be provided with stronger revenue-raising powers.

This would be in line with the theory that there is potential for strong alignment between municipalities' revenue interests and the service delivery interests of residents if there is a revenue–service link. Revenue from tax could strengthen this link if the revenue is used appropriately to meet the needs of the community. However, because the economic strength and potential of different municipalities varies substantially, it is not likely that the same

mechanism will be appropriate for all municipalities. As a result, increased own revenues or tax bases are probably most appropriate for metropolitan and selected large local municipalities. However, government would need to move with caution on this point because of the potential economic impact of increasing local taxes. When designed meticulously, an increase in a municipality's tax or revenue base would make such municipalities rely less on national transfers. This would render funding more available for other municipalities with more limited revenue or tax bases.

Another aspect of the theoretical contribution is the finding that capital transfers from national to municipalities were an important factor in determining administrative costs; such transfers led to the inefficient use of funds. This represents a substantive addition to the empirical administrative intensity literature. Municipalities are already spending significantly more than they should on administration costs (measured by administrative intensity) and not enough on services delivered (measured by the number of unserved poor households). Therefore, although literature on investment in infrastructure suggests economic benefits, there is a need to reconfigure how capital grants are made conditional.

The cost of compliance was denoted by a statistically strong positive coefficient of correlation between administrative intensity and capital transfer. This finding may justify claims of over-regulation. Punitive actions on the unlawful diversion of capital grants to operations may also need to be reinforced as they may be responsible for this inefficiency. However, in the current fiscal and economic environment, it is unlikely that capital transfers could be increased. Nonetheless, policymakers should be preparing for mechanisms that could be put in place for future increases of local government resources.

Table 6. 3: Summary of the Theory of Change for building capable local government

| Problem Statement	Despite investments and support, the capacity-building system in local government is fragmented, expensive, and results are inadequate.			
Inputs	**Activities**	**Outputs**	**Intermediate Outcomes**	**Long-term Outcomes**
...urces needed to ...capable ...cipalities. • Financial resources • Employees • Municipal systems • Programmes • Policy & legislation	Activities needed to reach your outcomes. **Diagnoses** • Why are municipalities failing to meet their objectives? **Evidence** • Comprehensive and empirical evidence based on observation and expert & local inputs **Design** • What needs to be done? • Principles: sequenced, buy-in, commitment and cooperation, includes progress indicators that reflect objectives **Implementation** • Principles: long-term commitment, cooperation, agility-flexibility, monitoring **Assessment of progress** • Progress against pre-determined indicators	Tangible results you produce through your activities. Local government • Improvement in standard municipal governance indicators • Increased accountability for own governance • Decreased poor audit outcomes • Improved service delivery Provincial • Increased ability in supporting municipalities deliver mandate National • Treasury: accurate records on financial aspects of capability building; reduced allocations • DPSA: professionalization of senior managers • DCoG: increased capacity to drive & manage capability building system	Outcomes expected of your intervention(s). • Appropriate capability building system • Collaborative, context-specific & evidence-based diagnosis • Improved understanding of causal drivers of outcomes & effective sequencing/prioritisation of activities • Appropriate design of capability development programmes & performance indicators • Increased ability to monitor progress & adjust programme design • Long-term & sustainable improvements in organisational outcomes	Outcomes you hope to observe beyond your intervention timeframe. • Efficient & effective local government able to deliver services
Impact	Integrated capability building system with clear results			

Lastly, this dissertation contributes to the development of a theory of change and a framework for building municipalities that can deliver services efficiently and sustainably.

6.4.2 Methodological contribution

Eastern Europe and the former Soviet Union have a long tradition of calculating normative costs, premised on the notion that it is possible to understand the cost of running an efficient municipality. South Africa has also set out norms and ratios. Evidence from the study suggests that in cases where these are imposed as norms, they can cause severe dysfunction and distortion. For example, National Treasury set a rage of between 25% and 40% of staff costs to operational budget. Given the nature of municipalities, this norm disadvantages municipalities with small budgets and those with few service delivery responsibilities.

This study contributes to the limited literature on municipal fiscal sustainability, a theme that cuts across all four papers. It led to the development of a new model to assess the long-term fiscal sustainability of municipal finances, presented in Figure 6.1. From this model, four indicators were introduced that can be used to measure the fiscal sustainability of a municipality. These indicators are designed to guide responses to specific problems. For instance, one indicator reflects which element (primary, repayment or investment gap) compromises a municipality's fiscal sustainability. Another can be used to rank municipalities in terms of overall fiscal sustainability.

Figure 6. 1: Long-term fiscal sustainability model
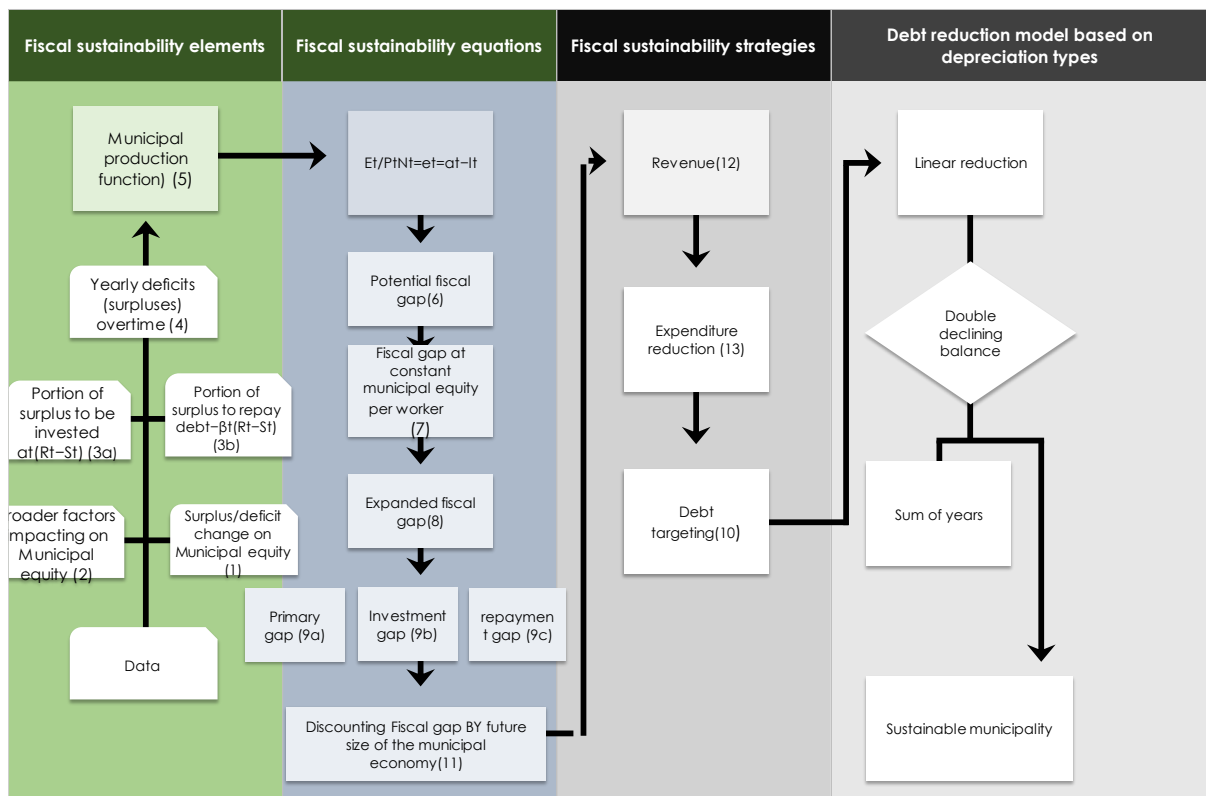
The second novel contribution involves decisions about dealing with municipal debt – the "how" and "when" and "how fast" to deal with such debt. This study suggests that to attain fiscal sustainability, local government needs to manage debt to adequate levels, by facilitating affordability to repay this debt. It must manage infrastructure and assets for long-term economic and social sustainability.

There are four methods that municipalities can use to decrease the level of indebtedness over time. The first and preferred debt management method is called the "unit of production" approach and it uses asset growth as proxy of productivity. It is denoted by the equation below:

$(L_t - L_T)/ \Sigma (Ag) (Ag_t)$

where LT is the target debt at time horizon T, Ag is the assets growth year-on-year (YoY) and Agt is the assets growth YoY at t. It allows for the municipality to manage its debt if that debt reaches levels that are considered unsustainable. The target ratio for the debt will be different for different municipalities. It should be set at a level considered sustainable by the rating agencies, to control for any potential downgrade to the municipal credit rating. If managed well, borrowing by financially sound municipalities gives credence to the option of tapping into future revenues immediately.

The second method that this study proposes to manage the costs of debt over time is a linear reduction. This reduction factor applies to debt ratio; that percentage can be taken either from assets or liabilities or a combination. It denotes the level of reduction that is constant and distributed equally over the years to achieve the targeted ratio of debt during a specific period. This approach avoids recalculations. The downside to this method is that it takes longer than other models to reach the targeted debt ratio.

The third method is that of a double-declining balance. This is an accelerated depreciation method that counts an expense more rapidly than straight-line depreciation, which uses the same amount of depreciation each year over an asset's useful life.

The fourth and final method is the sum of years method. Under this method, the depreciation rate percentage for each year is calculated as the number of years in remaining asset life, for the same year, divided by the sum of remaining asset life every year through the asset's life.

Another novel contribution of this study is that it helps to navigate the issue of efficiency in service provision, which occupies policymakers and practitioners alike. It does so by providing a decision matrix for an efficient service delivery model of local government service provision, shown in Table 6.1 above. It should assist municipalities in deciding whether to enter into PPPs, outsource or insource services as a cost-saving measure. It further provides a decision

matrix for improving efficiency in the organisational structure (Paper II) and in personnel spending (Paper III).

Lastly, chapters 3 and 4 found that organisational structures of the municipalities were not fit-for-purpose, resulting in a high proportion of employees being located in the non-technical services department. This research presents a decision tree for dealing with these issues, shown in Figure 6.2.

Figure 6. 2: Dealing with the municipal wage bill crises

Source: author's own diagram

Such strategies will require that municipal and policymakers answer a series of questions. The first is whether the municipal organisational structure is administratively intense. If yes, then there are two options available to a municipality. One is to review the municipal organisation structure to develop a fit-for-purpose structure. The second option is to conduct a skills audit of all employees to reskill some to be deployed in the technical service departments and assign them accordingly. If a municipality has opted to review its organisational structure, it will need to evaluate job descriptions (JDs) and release redundant positions.

However, if the municipality's spending on personnel is high, a different strategy would apply. This process will involve reviewing remuneration packages or reviewing the category of each municipality. Reviewing remuneration packages would involve reviewing staff benefits and policies that inform these benefits, along with a decision on whether to reduce or freeze salaries. If the municipality falls under the category of wage scale that it cannot afford, then reviewing the category of the municipality is the recommended action. This review would result in a municipality falling into a lower category. As a last resort, the municipality can institute retrenchments

6.4.3   Empirical contribution

Chapters 3 and 4 benchmarked the administrative and personnel costs and identified the most efficient municipalities in terms of governance and financial management. The findings from these chapters show that within municipal groups, potential efficiency savings can be realised. There are considerable variations in administrative cost-per capita remuneration scales in areas with similar demographic features.

This nuanced literal benchmarking exercise examined the actual costs incurred by real municipalities. It used well-governed municipalities – the so-called best performers in term of governance and financial management – as the benchmarks. It looked at what it costs to cover administrative expenses (Chapter 3); the cost of salaries and emoluments; and the costs per capita population (Chapter 4).

Regarding whether non-technical service departments are crowding out service delivery departments, the findings indicate that over time, governance and administration experienced rapid average annual growth. These expenses grew by 19% between 2002/03 and 2017/18, whereas trading service expenditure grew by an average annual rate of 14% over that period. This is an indication that at a functional level, spending on governance and administration crowds out spending on the trading service function. This trend indicates a need for a policy change and for local government to refocus expenditure towards service delivery functions, since there has been a prolonged period of inefficient spending.

Empirical evidence emerging from Chapter 4 is that in real terms, personnel expenditure has been the fastest growing item in municipal budgets. It averaged a real annual growth rate of 14.2% between 2006/07 and 2016/17, from R11.6 billion to R43.7 billion.

Chapter 5 shows that with improved efficiencies, savings can be generated from the way high-capacity district municipalities deliver on their water and sanitation functions. Had all the district municipalities been as efficient as the top six (Amajuba, Alfred Nzo, Capricorn, O.R Tambo, Vhembe and Zululand) in 2015/16, R2.4 billion would have been saved and redirected to other priority areas. The result shows that inefficiencies have largely nullified the impact of

funding to the local government for high service responsibility municipalities to discharge their service delivery responsibilities. The sample of 19 municipalities on average could have theoretically achieved the same level of essential services with about 21.2% fewer resources. However, the average masks wide variations between these municipalities. The difference between the six most efficient high service responsibility municipalities and the least efficient municipality (Ngaka Modiri), at 0.406, was substantial. Based on these findings, it is not clear why high service responsibility municipalities have been deemed to have more capacity and to be more efficient to provide water and sanitation services on behalf of the locals.

Regression techniques were then employed to identify the determinants of water and sanitation services efficiency variation. These findings indicate that the self-generated revenues, asset value and population growth all played key roles in determining the efficiency of water and sanitation services provision. The inappropriate mix of inputs was observed in five high service responsibility district municipalities; these municipalities also operated at a decreasing rate of return, signalling high marginal costs. The relationship between efficiency and self-generated revenues is consistent with the traditional fiscal decentralisation theory, which states that it can lead to more efficient resource use.

A third regression model found that administrative intensity was the driver of the inappropriate mix in resource inputs. This contribution to the body of knowledge signals bloated administrative components within these high service responsibility municipalities. chapter showed that R8.4 billion was spent by district municipalities in delivering their water and sanitation services function. Of this amount, R2.4 billion or 28.8% could have been saved had all the 19 district municipalities sampled operated at an efficient level.

6.5   Implications for decision makers

The following section summarises the implications of the findings for decision makers.

6.5.1   Financial management

The inability of most municipalities to collect a significant proportion of the revenues that are due to them has been a perennial concern of policy makers seeking to stabilise municipal finances. This problem has been ascribed to many underlying issues. They include incidents of unverifiable government property ownership; an inability of poor consumers to pay for services; inadequate internal controls throughout the functional areas intended to support revenue generation and revenue collection; poor quality of billing data, and thus also of billing invoices for customers; and an insufficient mechanism to ensure cost-reflective tariffs. National and provincial governments, particularly the National Treasury and provincial treasuries, must substantially increase their oversight of local government finances and

consider reforms to strengthen the regulatory environment surrounding local government finances.

Furthermore, increasing the pool of available funds requires doing things better, from both the revenue and expenditure sides. The key issues are how municipalities can fully exploit the revenue potential and use the resources they have efficiency and effectively. This prudent financial management of scarce resources would add value for money to municipal finances, as it would imply that more funds would be available for core mandates of the municipalities.

6.5.2 Fit-for-purpose organisational designs

The findings of this study indicate a need to design an organisational structure that is fit-for-purpose for each group of municipalities. These fit-for-purpose organisational structures would help deal with vast variation in municipal circumstances: population, demography, physical size, topography, settlement patterns, services, property, and plants and equipment. Taking these factors into account would help to align non-technical service departments with technical service departments. This alignment would also help to counter the distortion caused by local wages and living conditions that lead to different wage levels.

The inefficiency in rural municipalities requires immediate attention as they already spend significantly more than they should on administration costs maintaining large administrative components, crowding out service delivery and investment expenditures. For policymakers, this could mean that additional funding for rural municipalities is likely to reinforce their municipal administrative function rather than promote service delivery. Moreover, while there is no scientific consensus on the level at which administrative costs become unsustainable, municipalities with high administrative costs are at greater financial risk in the long run.

6.5.3 Remuneration policies

The payment of bonuses and other benefits can be used to lift staff morale and reward exceptional performance. However, such benefits, specifically to senior management, should be aligned with service delivery targets. The relevant targets are contained in municipal IDPs, adoption of Service Delivery and Budget Implementation Plans (SDBIP) and audited financial statements presented to council with the annual report. The experienced levels of corruption, increased service delivery protests, and the quantum of fruitless and wasteful and irregular expenditures do not support this high level of bonuses. Municipalities should be mindful of cost increases in this regard, without the associated benefits to service delivery, because such a scenario can undermine poverty-alleviation programmes.

6.5.4   Municipal wage bill

The organisational structures of municipalities are not fit-for-purpose, with a high proportion of employees located in the non-technical services department. Municipalities have several options to address their fiscal sustainability. The reality is that their finances are tied up in extensive administration structures and high personnel costs, and the wage bill should be reduced.

To reduce the municipal wage bill, municipalities will need to follow due process, but ideally, they should change the terms and conditions of original employment contracts. If that approach does not yield the required savings, another option would be to apply retrenching staff to bring down the numbers.

A breach of contract may lead to litigation. However, it may be that the terms of the original employment contract need to be changed due to changes in the employer's operational requirements. In this case, it is possible that the employer - under certain circumstances - is entitled to initiate termination proceedings if the employees do not accept the changes.

A critical matter is ensuring that municipalities are in a position to retain adequate and requisite skills to deliver on their mandate after implementing any mutual separation agreements. They should compare the demand for skills in the current situation versus the anticipated situation after implementing the mutual separation agreement. Other strategies to facilitate mutual separation agreements include allowing early retirement exits without pension penalties and making payments for unused annual leave. Compensation for medical assistance based on the number of pensionable service years and membership of a registered medical aid scheme, and pro-rata service bonuses. While these strategies may require upfront costs, they would lead to long-term fiscal sustainability benefits.

Such strategies will require that municipal and policymakers answer a series of questions. The first is whether the municipal organisational structure is administratively intense. If yes, then there are two options available to a municipality. One is to review the municipal organisation structure to develop a fit-for-purpose structure. The second option is to conduct a skills audit of all employees to reskill some to be deployed in the technical service departments and assign them accordingly. If a municipality has opted to review its organisational structure, it will need to evaluate JDs and release redundant positions.

However, if the municipality's spending on personnel is high, a different strategy would apply. This process will involve reviewing remuneration packages or reviewing the category of each municipality. Reviewing remuneration packages would involve reviewing staff benefits and policies that inform these benefits, along with a decision on whether to reduce or freeze salaries. If the municipality falls under the category of wage scale that it cannot afford, then

reviewing the category of the municipality is the recommended action. This review would result in a municipality falling into a lower category. As a last resort, the municipality can institute retrenchments.

6.5.5 Two-tier problem of local government

The legislation is clear that certain functions should be delivered either by the local or by the district municipality. However, the functional assignments made by the Minister and the MECs responsible for local government were interim arrangements – yet so far, they seem to have been viewed as permanent. This issue needs to be reviewed and resolved. To ensure that there is little or no overlap, there should be a review of the local government matters listed in Part B of Schedules 4 and 5 as assigned to either the district or the local municipality.

Research shows that a differentiated model might work better as some DMs are strong (i.e. the six efficient ones relative to others) and some LMs are strong (i.e. those leading in good governance and administratively lean like the City of uMhlathuze). This differentiated model is, at least in part, a doctrine of decentralisation and subsidiarity theory. That theory seeks to ensure that each service is practically delivered at the level where it is best located.

In addition, national government should review the powers and functions of the three categories of municipalities to provide clarity and ensure good service delivery. The policy incoherence points to severe weaknesses in the framework for managing the assignment of functions between the spheres. It also creates the risk of sectors using different approaches to local government functional assignment. For example, public transport services continue to be subsidised by provincial governments, with little or no role for municipalities. Provincial governments continue to manage the national housing programme.

The roles of municipalities in municipal service provision and tariff setting and national regulatory bodies, such as NERSA, also need clarification. These roles have financial implications for municipalities. Electricity is a useful tool for collecting other revenues owed to a municipality. This is because the electricity supply to customers with outstanding bills can easily be cut off, and – unlike water – there are no constitutional obstacles to cutting off electricity. Furthermore, Eskom's distribution business means that municipalities are denied a major source of revenue in areas where Eskom is the distributor. This arrangement makes it much harder for municipalities to generate sufficient revenues to be able to fund all of their other service delivery obligations. Lastly, reconfiguring the two-tier system of local government would result in cost reduction. Costs can be reduced by reducing the degree of duplication across local and district municipalities; any "savings" produced in this way should be reinvested in improving municipal services. The main savings will come from reducing administrative costs by eliminating or reducing the size of the bureaucracy and councils

through reducing the number of district municipalities. The costs of service delivery are not expected to change significantly. However, some services currently performed by one tier of local government may be shifted to another tier. The public finance principle that "funds follow functions" would need to be applied.

6.6 Limitations of the study

There were a number of limitations to this research study. The following is a summary of the limitations encountered.

6.6.1 Limitations of approach

The benchmarking exercise as an approach has its limitations. In this research, the main limitation was that the cost of administration departments is based entirely on existing practices and staff complements in municipalities. This was compounded by a lack of norms and standards for administrative costs. Moreover, this study has shown that municipalities already spend substantially more than they should on administration. Hence, any inefficiencies found within the current groups of municipalities would lead to an overstatement the costs of running an ideal municipality. Ideally, the benchmarking exercise should have been complemented by estimating what it should cost to run an efficient municipality under the unique conditions faced by each municipality. That approach is referred to as zero-based costing.

The fiscal sustainability model introduced in this study was applied to 7 of the 8 metropolitan municipalities that consistently reported on all the variables necessary for this model. Metropolitan municipalities were chosen because they represent a small, manageable number of municipalities that are comparable. Other approaches could have been used to choose a group of municipalities to apply the model to, including applying the model to all municipalities that report consistently. This option was not possible due to the vast data to be analysed. However, it is likely that many of the municipalities that are currently struggling would be in a worse off situation than the seven that were examined.

6.6.2 Limitations of scope

A key limitation of the data used in measuring the efficiency with which high-capacity district municipalities delivery on the water and sanitation functions is that it is cross-sectional and thus only enables a snapshot view of the effect. Ideally, the analysis would be carried out on a panel dataset covering a longer period to better establish the effect of administrative intensity. However, the effect of inconsistent reporting by district municipalities, delays in obtaining audited financial data, and the use of an instrument that distorted the results when too many variables were included made it difficult to use the ideal approach. Because of the

inconsistency in reporting, Dr Ruth Segomotsi Mompati District Municipality and uMgungundlovu District Municipality were excluded from the analysis.

Another limitation introduced by using different data sources was a variation in quality regarding the estimations by municipalities. The data from the non-financial census of municipalities is largely self-reported and thus relies on the administrative capacity and competencies of the municipalities. Where these are low, poor data management and updating leads to poor estimations.

6.6.3   Limitations of methods

The DEA model has its limitations. The first is that the efficiency scores the model generates are relative to the institutions that have been input into the model. Therefore, while there were 6 municipalities that were found to be efficient, these were efficient in relation to the other municipalities in the selected group. The research has been clear on this point to avoid implying that the 6 efficient municipalities can be used as benchmarks for other groups of municipalities.

The second limitation of the DEA model is that efficiency scores depend on the combination of inputs and outputs selected. As a result, the score is sensitive to the selection of inputs and outputs, and an incorrect combination may easily distort the results the model produces. To control for this limitation, literature was used to inform both the inputs and the outputs to be used in the model.

The efficiency and effectiveness in revenue generation are important; it is also important how the revenue is used.

6.4   Recommendations for future research

- The absence of cost data made it difficult to determine whether municipalities were paying the correct amount for services they rendered. There is a need to develop a comprehensive costing framework. This framework will help to inform the allocation of adequate resources for municipalities.

- More research is needed to examine the impact of Eskom performing electricity reticulation and district municipalities performing water and sanitation functions in some local municipalities. The Constitution states that the former is a municipal function, but this arrangement prohibits the locals from collecting any revenues from these services.

- There is a need to sharpen the focus on municipal outputs and outcomes. The use of financial audit outcomes as a proxy for municipal outcomes was a compromise. More research is needed to produce timely, transparent, accurate and comparable

performance information to policy decision makers at all levels of government. The measures must reflect efficiency and equity in allocation and spending decisions.

- The chapter on administrative intensity highlights a need to design prototypes of municipal organisational structures. This will help to ensure that the organisational structures are fit-for-purpose, to avoid instances where an entire department exists for functions over which the municipality has no authority.

- Research is need on how much it would be reasonable for municipalities to pay to attract quality employees to rural areas. Currently these areas offer few opportunities for employees and their spouses and children.

6.5   Parting reflection

There is scope for municipalities to deliver improved services regarding the functions they are responsible for. However, to put local government finances on a sustainable path, municipalities must make smart choices. These choices include improving spending efficiencies across local government programmes, improving the composition of spending by reducing growth in employee costs, and protecting infrastructure investments that can grow the economy.

Government has embraced the district development model in which all of government operates in unison. It focuses on the municipal district and metropolitan spaces as the impact areas for joint planning, budgeting and implementation. In the long-term, this model has the potential to make the coordinated efforts of government far more impactful.

The Constitution includes commitments to free basic services. South Africa maintains one of the most extensive welfare programmes in the developing world. The fiscal commitments implied by current basic services arrangements need to be quantified as part of a broader consideration of basic social services reform. It is moreover in the general public interest that a minimum level of service is established and maintained for all residents, regardless of their ability to pay. A substantial proportion of municipal residents cannot afford even minimal service payments. The rollout of indigent support has not been prioritised. There are critical institutional barriers, such as administrative intensity, a generous system of remuneration, and high levels of inefficiency – even in the best-resourced municipalities.

To address the problem of sustainability in municipal finances and services, local government should continue to seek opportunities to increase the efficiency of its expenditure. This implies limiting annual wage increases, and where possible, reskilling or redeploying administrative staff to frontline services. This calls for reforms to review municipal organograms and the introduction of fit-for-purpose organisational designs for different kinds of municipalities.

Establishing financially sustainable municipalities hinges on good management and significant cost recovery on services, but service payment remains a significant problem. Sustainable service provision cannot be made without regard to cost. The difference between projected revenue and expenditure produces a long-term structural balance estimate, which, together with economic forecasts, can be used to predict municipal sustainability. At its centre is a sustainability modelling exercise, which this study introduces.

The structure and composition of government spending and the basic model could serve as a starting point for discussing whether spending is correctly distributed between competing priorities. Given the split between consumption and investment, if wages continue to grow significantly above inflation, then the long-term sustainability of municipal finances is compromised. The impact of the composition of spending on economic outcomes is also an important consideration. Comparative analysis of the structure of government spending, social and economic outcomes and the institutional basis of these outcomes are essential topics.

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