

Modelling budget management for public service in South African Municipalities: A structural equation modelling approach



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Background: For more than two decades, many municipalities have failed to render services effectively because of lack of competency and budget management skills to manage budgets. This has resulted in either over or under expenditure, which ultimately leads to poor service delivery.

Aim: This study aimed to develop a budget management model to improve public service in South African municipalities.

Setting: Three municipalities in the Western Cape, Eastern Cape and Free State are the areas where data were collected by researchers.

Methods: A quantitative research approach was employed and an online questionnaire was used for data collection from 261 participants in three municipalities. A structural equation modelling approach was used to develop the budget management model.

Results: The results revealed that risk management (RM), cash flow management (CFM) from employee perceptions have a positive impact on budget management; whereas CFM from general compliance with legislative consideration (LC) have a negative impact, budget planning (BP) and revenue and expenditure management (REM) have low impact on budget management for public service.

Conclusion: The study highlights the key factors (i.e. RM, BP, CFM, LC and REM) as a result of which managers at various levels fail to manage budgets effectively. The proposed model adds new insights to respond to budget management challenges. It is recommended that municipalities must improve their budget management skills for an effective public service. Findings from this study contribute to the existing body of knowledge by proposing a budget management model for public service in South Africa.

Keywords: budget management; budget planning; risk management; public service; local government.

Introduction

From 1994, part of the mandate of the first democratic government was to improve the standard of living of all South Africans, particularly the most disadvantaged. Chapter 7, Section 152 (b) of the South African 1996 Constitution outlines the objectives of local government, which are to provide services to the citizens in an appropriate way, promote social and economic growth, stimulate health and ensure that communities live in a safe environment (South Africa 2020). All these services are dependent on efficient and effective budgeting from local (municipal), provincial and national governments.

Since the early 1990s, the World Bank has imposed several budget models on developing countries. However, these models are more useful in developed countries than in developing countries, where there is often a clash between the neoliberal policies that underlie them and the policies and practices in developing countries (Molobela 2016:263). One of the World Bank's models is the 'Medium-Term Expenditure Framework (MTEF)', which was implemented by developing countries, particularly in Africa, in 2001 (Gollwitzer 2010:5). It is this model that has been used in post-apartheid South Africa with limited success. Many municipalities have found it very difficult

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to initiate and manage their budgets, which has negatively affected service delivery. This has led to numerous service delivery protests across the country. People require access to services and one of the most important basic principles of effective service is accessibility (Hasan et al. 2019:189).

Difficulties in budget management have led some municipalities being placed under the administration by provincial governments according to Section 139 of the Constitution of the Republic of South Africa (Motubatse, Ngwakwe & Sebola 2017; Manyaka & Sebola 2015). This statute states that the provincial government should intervene when municipalities are unable to fulfil their Constitutional obligations. Such difficulties warrant an investigation of their causes in a particular local municipality and the development of an alternative budget management framework for this municipality and possibly for wider application.

Given the above-mentioned research background, the primary research question of this study is: What effective budget management approach can South African municipalities adopt to improve their service delivery?

This article will discuss the literature on budget management in municipalities and the public sector in general. Furthermore, the methodology that will be followed to answer the research question will also be discussed with the aim of developing a budget management model for South African municipalities.

Problem statement

As evident in the literature reviewed, there is a serious disjuncture between the policy that the government promulgates and the implementation of effective service delivery in some municipalities in South Africa (Mathebula, Nkuna & Sebola 2016:70). The national government, through the allocation of a budget, provides opportunities and capital for municipalities to fulfil their Constitutional obligation to provide services to residents of municipalities. Mello (2018:2), stated that South African municipalities do not function at the required level by law and by the experiences of residents. One of the reasons is because of poor budget management in municipalities (Maluleke 2020). The author indicates that poor budget management, such as poor organised financial resources, lack of a good understanding of budget management amongst public servants, lack of budget management skills, financial management knowledge and performance management, leads to ineffective financial management (Maluleke 2020). These claims are also supported by Mpaata et al. (2019:2) and Scott et al. (2018:23).

Many municipalities lack well-qualified employees, particularly managers who are skilled and competent to manage budgets (Makwetu 2017:2). According to Schick (2007:116), one of the most significant challenges confronting local government when implementing budgeting is determining who should take responsibility when it comes to utilisation of public funds. Steyn's research (2014:67) suggested that there should be increased leadership involvement in the

budgeting process to ensure that this process effectively addresses the challenges of public institutions. Fongar et al. (2019) found that lack of understanding of administration and political leadership is one of the major concerns in municipal services. Furthermore, municipal leaders must instil a leadership culture that ensures that budgets are managed with diligence (Enwereji 2019; Maluleke 2020).

Based on the above-mentioned discussion, many municipalities have failed to render services effectively because of lack of competency and budget management skills to manage budgets. This has resulted in either over or under expenditure, which ultimately leads to poor service delivery. To this end, the research problem statement is summarised as follows: lack of budget management skills and poor financial resources implementation result in over or under expenditure, and ultimately lead to poor service delivery in South African municipalities. Thus, it is imperative to develop a budget management framework to improve municipal service delivery.

Research objective

The research objective of this study was to develop a budget management model for South African municipalities and to test this model using data obtained from the employees of three municipalities.

Literature review

Public sector budgets

The use of budgets by governments long preceded their use in private enterprise (Isaac, Lawal & Okoli 2015:1). With one major exception, public sector or service budgets have the same characteristics as private sector budgets. In the government, the budget is not designed with a focus on profitability (Raghunandan, Ramgulam & Raghunandan-Mohammed 2012:114). Olurankinse (2012:146) suggested that a budget is prospective in the sense that it refers to expected future revenue and expenditure. According to Tyer, Willand and Mikesell in Purtell and Fossett (2009:96), government accounting and budgeting systems historically have been designed to maximise central control and prevent theft through the use of fund accounting, line-item budgeting and central budget agency control over allocations and transfers.

Freeman et al. (2011:121) observed that budgets are designed to ensure that government revenues and expenditures are properly planned, authorised, controlled, evaluated and reported to the citizenry, legislature and creditors. Through its budget, government indicates how much it is willing to spend on public purposes, sets substantive policy priorities within overall spending levels, determines the amount that must be borrowed to finance approved spending and thus influences the economy (Ekeocha 2012:64).

Schick (2007:2) argued that without reliable financial controls, the budget cannot be used for other important government functions such as managing the economy, improving administrative efficiency and formulating public objectives

and priorities. Budget approval in the public sector (government) occurs at three stages: ministerial approval, executive approval and legislative approval (Olurankinse 2012:147). Deng and Peng (2011:76) postulated that the public budget, serving as a reflection of the collective public interest and as a legal constraint on government spending, can be an effective tool for promoting good governance and public interest. Financial management in government generally consists of three major components, which are:

- Budgeting, that is, the process of resource generation, allocation and management.
- Accountability that aims at honesty and judicious use of public funds.
- Control provides organisational structures for effective implementation (Ugoh & Ukpere 2009:839).

Given the importance of the budget in government, government officials must have timely, useful, up-to-date information on how actual operations during the year compared with the budget (Freeman et al. 2011:121).

Existing budgeting models in the municipalities

The World Bank and the International Monetary Fund developed a framework named the Medium-Term Expenditure Framework (MTEF), which is intended to facilitate several outcomes such as macroeconomic balance, improved resource allocation, budget predictability for ministries and efficient use of public funds (Gollwitzer 2010; Le Houerou & Taliencio 2002:4). The MTEF system in South Africa uses key sets of budget documentation to extract strategic information for decision making, to ensure commitment to decisions taken and to enable accountability (Folscher & Cole 2006:15).

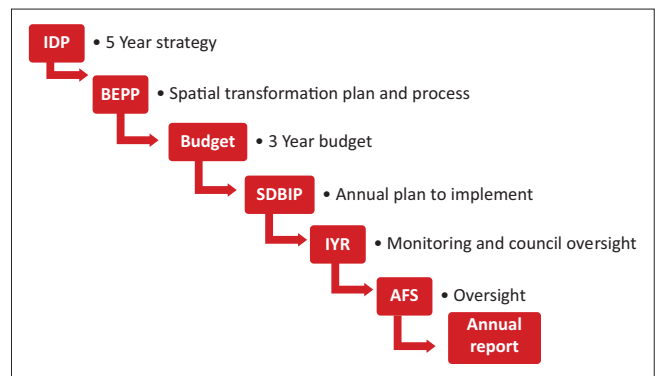
The MTEF is designed to be a key tool that supports and improves budget planning in the municipality and to bring resources, key policy issues and government programmes together. According to Shah (2009:238) 'the initial experience with the MTEF in South Africa, started in 1994, as such, lacked political involvement and had no clear link with the budget preparation process'. Taking these challenges into account, the government in 1997 merged the MTEF and the budget process to improve resource allocation and expenditure management.

Municipal budgeting framework

The framework in Figure 1 outlines the accountability cycle for budgeting and reporting for municipalities and the documentation the municipality must compile concerning each of these processes. The budgeting framework is demonstrated in Figure 1.

Five-year strategic plan (Integrated Development Plan)

The Integrated Development Plan (IDP) is a 5-year strategic plan (document) that is compiled by the governing party of the municipality and is linked to the voting cycle. It determines the strategies, objectives and service delivery targets of the



Source: National Treasury, 2004, *National treasury strategic plan 2004–2007*, viewed 01 August 2021, from <http://www.treasury.gov.za/publications/strategic%20plan/strat%20plan%202004%20to%202007.pdf>.

IDP, Integrated Development Plan (ID); BEPP, Built Environment Performance Plan; SDBIP, Service Delivery and Budget Implementation Plan; IYR, In-Year Reporting; AFS, Annual Financial Statements.

FIGURE 1: Local government accountability cycle.

municipality (Mathebula et al. 2016). Accordingly, a newly elected local government and the mayor draft a 5-year strategic plan that will outline strategic policy priorities and plans for the next 5 years (National Treasury 2004:n.p.). The 5-year plan will guide the new government in the budgeting process and policy prioritisation. The Built Environment Performance Plan's (BEPP) overarching goal is to ensure spatial transformation and restructuring by prioritising capital expenditure in regions that would maximise the positive impact on residents, drive private sector investment, and promote development and growth.

Three-year budget

Municipalities in South Africa plan their budgets by using the MTEF budgetary procedure (Gollwitzer 2010). The MTEF is a 3-year budget cycle, where government departments and municipalities are expected to implement the first year (year one) and leave the two outer years (Pearson, Pillay & Chipkin 2016:16). The implementation of the first year of the MTEF budget process is regulated by the *Municipal Finance Management Act 56 of 2003*. According to the *Municipal Finance Management Act 56 of 2003*, Section 53:

[T]he mayor in the municipality must present the annual budget for the upcoming financial year to the council not later than 2 weeks after the tabling of the national annual budget.

When compiling the annual budget, the budget and Treasury directorate within the municipality must distribute the prescribed schedules to all programme managers with a request to prepare the budget breakdowns in conjunction with the programme strategic plans (Ndebele et al. 2017). Thus, according to the MFMA, the accounting officer of the municipality must each year, before the beginning of the financial year, submit a monthly breakdown of anticipated income and expenditure (cash flow) of a department to the relevant treasury (South Africa 1999:50).

Monitoring and council oversight

Monthly financial reports

The accounting officer of a municipality must compile cash flow statements and in-year monitoring assessment reports of actual

expenditure and projected expenditure on a monthly basis. Thus, these reports should be submitted to the relevant Treasury and the Minister or Member of the Executive Committee (MEC) responsible for the department within 15 days of the end of each month (South Africa 1999:50). If there are deviations between what was projected and what was spent, the accounting officer must explain to the relevant treasury the remedial action taken to avoid any deviations from reoccurring.

Quarterly performance reports

Quarterly performance reports (QPRs) are compiled and submitted to the relevant treasury. These QPRs highlights the key departmental goals and objectives as indicated in the Annual Performance Plan. The purpose of the report is to assess the performance of a department on financial or non-financial issues. Progress in departmental performance against the budget and strategic plan is reported quarterly.

Oversight

Annual review process

The executive authority of the national or provincial government must consider the annual report. Because the budget is an estimate of future expenditure, it is necessary to continuously review and evaluate the budget against the actual expenditure to measure the extent of expenditure. If the allocation of these resources in the estimations (budget) is to be of any practical use, then there is a need to review the budget requests. The review assists in the coordination and the evaluation processes that will maximise the benefits derived from these scarce resources.

In government structures, many units do budgets at lower-cost centres. At a higher level, proposals are tabled, discussed, reviewed, synchronised (coordinated) and approved to ensure that there is a link between the plans, decisions and budgeting, resulting in a master budget, which, if properly executed, should be able to satisfy everyone contributing to the budgetary process.

Organisations should review budgets using the most recent and relevant information at their disposal to reflect what was budgeted for, how much was budgeted for, how much was spent on the particular item or project and how much is available or left to be spent. This process is carried out to review the performance of an organisation. Reviewing the budget helps an organisation to make effective decisions and set future direction. If budgets are reviewed continuously by management any underperformance can be detected timeously and the necessary actions can be taken.

Annual report and annual financial statements

According to the *Municipal Finance Management Act* 56 of 2003 (South Africa 1996:48), the accounting officer of the municipality prepares financial statements for each financial year following generally recognised accounting practices and standards. The Act further states that those financial

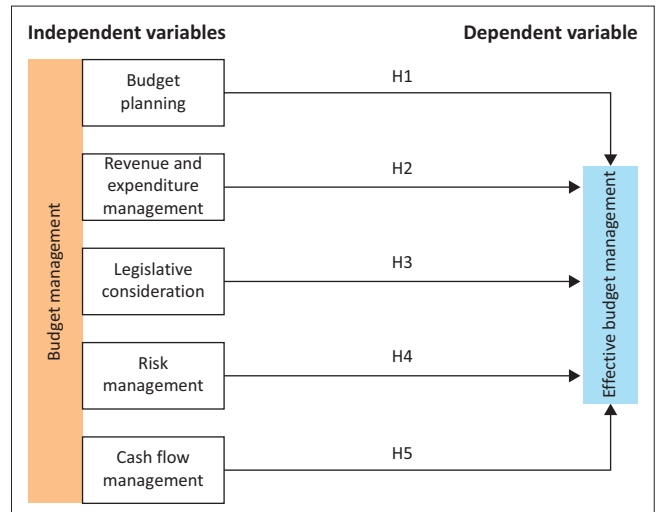


FIGURE 2: A proposed hypotheses development model.

statements should be submitted within 2 months after the end of the financial year to the auditor general and the relevant treasury to be audited.

At this stage, performance against the budget and strategic plan will be reported, which will include a performance report of the audit committee, annual financial statements and the oversight report on human resource management and service delivery.

Hypotheses underpinning the proposed budget model

Five hypotheses were advanced with respect to the proposed budget model. These are illustrated in Figure 2.

Effect of budget planning on budget management

Budgets are management planning and control systems; thus, the effectiveness of budgeting depends on how a budget is organised in the municipality (Sulistiyo & Pratiwi 2021). The budgeting process assists municipal managers to shift their focus away from short-term goals and day-to-day operations of the organisation and towards the long term (Melnichuk 2015). One of the key goals of budgeting is to focus on planning, resource allocation and evaluation so that the achievement of organisational goals becomes the primary goal of budgeting (Maher, Fakhra & Karimi 2018). In the light of this, the following hypothesis (H_1) is advanced:

H_1 : There is a relationship between budget planning and effective budget management.

Effect of revenue and expenditure management on budget management

According to Rakabe (2011:137), municipalities should have revenue management systems in place in order to effectively classify, collect, reconcile and record income, which is generated by the municipality from businesses and citizens for services rendered. Lack of revenue management systems

and procedures affects how municipalities budget for revenue and expenditure (Malobela 2016:13).

Transgressions such as fruitless, irregular and unauthorised expenditures are the major challenge municipalities face in relation expenditure management. The second hypothesis (H_2) is formulated as follows:

H_2 : There is a relationship between revenue and expenditure management and effective budget management.

Effect of legislative consideration on budget management

The Constitution is the supreme law that requires municipalities to manage financial resources with diligence and promotes accountability in the local government sphere. There are several statutes that empower municipalities and provide a legal framework for municipalities and municipal entities. The Municipal Financial Management Act (MFMA) is part of a number of parliamentary acts that focus on robust financial management and minimisation of maladministration in municipalities (Imuezerua & Chinomona 2015:359). The Municipal Finance Management Act gives clear direction to municipalities, municipal and municipal employees in general on how to effectively manage financial resources (Reddy 2016:2). Thus, we put it together forward into the hypotheses (H_3) as follows:

H_3 : There is a relationship between legislative consideration and effective budget management.

Effect of risk management on budget management

Risk is one of the challenges facing organisations and one which may negatively impact the activities and operations of an organisation in terms of achieving objectives (Ridha & Alnaji 2015:9). Ridha and Alnaji (2015:15) defined risk as 'an unexpected and uncertain event that could happen in the future and is counterproductive to the goals of the organisation'. According to Fadun (2013:225), economic volatility requires managers to focus and manage risk effectively at all levels of management. According to Nel (2019:60), different variables affect risk management in the public sector, including changes in a dynamic and unpredictable environment, accurate risk intelligence and knowledge and skills. Risk management is a vital activity that companies must undertake if they want to achieve their goals and business objectives (Ahmeti & Vladi 2017:323). Thus, we formulated the following hypothesis (H_4):

H_4 : There is a relationship between risk management and effective budget management

Effect of cash flow management on budget management

The movement of money into and out of a municipality's bank account is called cash flow. Money inflow consists of money that is received from ratepayers (property rates and tariffs), whilst cash outflows consist of money paid to staff

and service providers (Reutener & Fourie 2015:12). When more money flows in to than out of the bank account of the municipality, the municipality should have a 'surplus' of funds, which should enable the municipality to carry out its activities without any obstacles. If a municipality does not generate cash (cash inflow), this might lead to bankruptcy and thus the cash inflows and cash outflows determine the solvency of the municipality (Belobo & Pelsier 2014:227).

Effective cash flow management (CFM) is an important municipal function. Ineffective processes and monitoring of CFM systems affect the survival of a municipality (Belobo & Pelsier 2014:227). Municipalities should have realistic strategies to manage cash flow to achieve sustainability and survival (Myeni 2018:5). Municipalities must prepare realistic cash flow projections prior to the beginning of each fiscal year. The achievement of these projections must be monitored on a monthly basis using monthly cash flow statements or reports. In light of the given facts, we formulated the following hypothesis (H_5):

H_5 : There is a relationship between CFM and effective budget management.

Methodology

Research design

A quantitative research technique was used for the survey. Quantitative research aimed at explaining and describing phenomena and correlations. Statistical methods such as correlations, empirical (descriptive) were used to assist in the establishment of causal links. The quantitative dimension is focused on the fact that the research aimed to find the relationship between the independent variables (budget planning, revenue and expenditure management, risk management, CFM and legislation consideration) and the dependent variable (effective budget management). According to Neuman (2011:16), the quantitative design may be descriptive or experimental in nature, where only correlations between variables are formed by a descriptive analysis and causality is established by an experiment.

The research took a positivist approach, as it relied on hypothesis development and testing. Hypotheses were put forward in proportional or question form about the relations between the phenomena, where the influence of independent variables on the dependent variable was investigated. This study involved the development of five hypotheses and the testing of these in relation to a municipal budgeting model and the collection and analysis of data from selected municipal employees.

Data collection

Data for this study were gathered across three South African municipalities in the provinces of Western Cape, Eastern Cape and Free State. These three municipalities located in three different provinces are governed by different parties. These municipalities were purposely selected for the following reasons.

Municipality A from the Western Cape is under the administration in terms of Section 139(5) of the Constitution read with Section 139(1) of the *Municipal Financial Management Act*, 56 of 2003 (MFMA) due to poor financial management and maladministration (Makwetu 2019). Municipality B and C were selected from Eastern Cape and Free State provinces respectively. According to Parliamentary Monitoring Group (PMG) (2021), local government audit outcomes 2018/19 revealed that in the Eastern Cape, there was a widespread lack of financial controls and project monitoring. In the Free State, there was a deliberate lack of accountability by political and administrative leadership (PMG 2021). However, the municipality from Free State provinces received a financially qualified opinion with findings (Makwetu 2019). Therefore, the rationale for selecting these municipalities was to do a comparison of municipalities that performed differently in terms of the Auditor General's report on municipal performance in 2019/2020 fiscal year. Furthermore, the intention was to get the views of municipal employees who are working in different work environments. This enabled the researchers to obtain more broad perspectives on how the budget is managed in various political environments. The study's population was made up of individuals directly involved in budget management: clerks, assistant accountants, accountants and managers working for the municipalities. Data were collected using a questionnaire administered online via the Lime Survey. The sample size for this study was 261 (Table 1). In this regard, the sample of each municipality is as follows.

Data from the Lime Survey, which is linked to SPSS analysis of moment structures (AMOS), were transferred and captured to SPSS AMOS. The questionnaire consisted of two sections: Section A, biographical information about employees and Section B, Likert scale statements to be ranked by respondents.

Specific individuals in the study population were identified based on their participation in the budget preparation and monitoring process and were designated as the sample units that made up the sampling frame. With a total of 261 respondents, the requirement of a sample size of between 200 and 400 for structural equation modelling (SEM) was satisfied (Hair et al. 2017:7; Siddiqui 2013:286).

The reliability of the instrument was tested using exploratory factor analysis in AMOS version 20 using SEM. In addition, Cronbach's alpha was used to test the measuring scales used in the research instrument (questionnaire) that was sent to one municipality before sending it to the other two municipalities. For alpha to be acceptable, it should be 0.70

TABLE 1: Sample allocation of each municipality.

Municipality	Population	Sample
Municipality A	203	43
Municipality B	660	141
Municipality C	363	77
Total	1226	261

and above. In this study, Cronbach's alpha was 0.92, which was strong and acceptable.

Statistical techniques for data analyses

Structural equation modelling

Structural equation modelling is a tool used for statistical analysis by social science researchers (Hair et al. 2017:2). The SEM is especially useful in the social sciences, where many of the main ideas are not immediately measurable. The SEM examines the structure (model) and the relationships of the variables or constructs within the structure. For the purposes of this study, SEM was used to consider the relationships between the independent variables and the dependent variable and to identify which independent variables have a significant influence on the dependent variable. The SEM was also used for statistical testing. Furthermore, SEM can be viewed as a composite of regression, path analysis and factor analysis, with a focus on theoretical structures represented by latent factors.

One of the benefits of SEM is that a researcher can test the entire model in one analysis (Shadfar & Malekmohammadi 2013:582). For SEM to be effective, a system called AMOS has to be used to analyse data (Hair et al. 2017:2). According to Kline (2011:11), SEM is generally a technique used with large samples. In determining whether a model is fit for purpose, determining whether it fits the data collected is crucial (Gao, Shi & Maydeu-Olivares 2019:1). The SEM is a mixture of factor analysis, modelling of paths and partial least squares (Chen et al. 2014:253). According to Shadfar and Malekmohammadi (2013:585) for a researcher to determine whether or not it is appropriate to use SEM, there are certain fit statistics that need to be tested. These SEM fit statistics are summarised in Table 2.

Correlation analysis

According to Franzese and Luliano (2019:706), a correlation is a statistical technique that is used to assess the strength of a relationship connecting two quantitative variables. A significant correlation indicates that two or more variables are closely connected, whereas a correlation coefficient indicates that the variables are hardly related. In other words, correlation analysis is the process of analysing the intensity of that correlation with the available statistical data.

TABLE 2: Structural equation modelling fit indexes.

Name of the fit index	Cut-off for a good fit
Root mean square error of approximation (RMSEA)	Value closer to 0 not more than 0.08 = Good fit
Normed fit index (NFI)	NFI $\geq$ 0.90
Comparative fit index (CFI)	Value closer to 1 greater than 0.90 = Good fit
Non-normed fit index (NNFI)	NNFI $\geq$ 0.90
Incremental fit index (IFI)	Value closer to 1 = Good fit
Goodness of fit (GFI)	Value closer to 1 greater than 0.90 = Good fit
Relative fit index (RFI)	Value closer to 1 = Good fit

Source: Adapted from Hair, J.F., Hult, G.T.M., Ringle, C.M. & Sarstedt, M., 2017, *A primer on partial least squares structural equation modelling (PLS-SEM)*, 2nd edn., Sage, Los Angeles, CA.

The key correlation variable is that a coefficient of -1.0 shows a strong negative relationship and a coefficient of $+1.0$ shows a strong positive relationship. In this study, a correlation analysis was used to assess the relationship between budget planning, revenue and expenditure management, risk management, legislation consideration, CFM and effective budget management.

Regression analysis

Regression analysis links independent and dependent variables when allowing for statistical intercorrelation (Mafini 2014:164). Multiple regression aims to explain a variable's dependency on one (or more) independent variable; it essentially implies that perhaps the explanatory variable(s) has a one-way causal influence on the response variable, irrespective of whether the direction of impact is direct or indirect. In this analysis, multiple regression analyses were used to determine the factors that predicted or explained the largest proportion of the overall variance in the scores of the dependent variables.

Data analysis

Biographical results

The primary objective of the analysis of data from Section A of the questionnaire was to determine the suitability of the candidates for the work with which they worked in dealing with the budget at their lowest cost centre and the execution of budget allocations.

Question 1: How old are you this year?

In essence, this question was used to determine the age of the staff members involved in the budgetary process. Although age may not have a great impact on the ability to budget or manage budgeting procedures, researchers have recognised a link between age and the perceived level of budget comprehension. The ages of the respondents are shown in Table 3.

Table 3 shows that the highest percentage of participants at 28.4% ($n = 74$) were between the ages of 31 and 40 years. About 26.1% ($n = 68$) were between the ages of 41 and 50 years. Approximately 16.9% ($n = 44$) were between the ages of 26 and 30 years, 15% ($n = 40$) between the ages of 51 and 60 years, 8% ($n = 22$) between the ages of 61 and 66 years and 5% ($n = 13$) between the ages of 18 and 25 years. As fewer than a quarter of those surveyed are between the ages of 18 and 30, it could be argued that a significant majority

TABLE 3: Frequency table of the age.

Age	Frequency	Percentage
18–25 years	13	5.0
26–30 years	44	16.9
31–40 years	74	28.4
41–50 years	68	26.1
51–60 years	40	15.3
61–66 years	22	8.4
Total	261	100.0

should be considered mature adults with considerable life and work experience.

Question 2: What is your position in the organisation?

This question was advanced to the respondents to investigate their suitability in the study. Of 261 participants, only 167 respondents responded to this question. Table 4 shows the distribution of their positions in the municipalities.

Table 4 shows that the highest percentage by category of those who responded (23.6% [$n = 62$]) is that of managers. About 23.0% ($n = 59$) of the respondents occupied other positions such as accountants, engineers, clerks, 8.0% ($n = 21$) were directors, 6.9% ($n = 19$) were executive directors and 1.5% ($n = 4$), of the respondents were municipal managers. These results indicate the following: (1) that the levels of employment in municipalities relevant to budgeting were adequately represented in this survey, (2) that 60% of the sample categorised their employment as 'other' ($n = 59$) or did not answer the question ($n = 97$) making it difficult to know whether or not their work would include budgeting.

Question 3: 'How long have you been working for the municipality?'

This question aimed to establish the likely experience in local government and perhaps in budgeting. The responses are presented in Table 5.

As shown in Table 5, the largest group of respondents (31.8% ($n = 83$)) have been employed by the municipality for a period of 5 years or less. About 26.8% ($n = 70$) respondents were employed ($n = 70$) for 6 to 10 years, 18.0% ($n = 47$) for 11 to 15 years, 11.9% ($n = 31$) for 16 to 20 years and 11.5% ($n = 30$) for 21 or more years. This distribution shows that the highest number of employees (58.6%) in the municipality have 10 years or less and thus may lack experience in conceiving or executing budgets.

TABLE 4: Frequency table of the positions of the respondents.

Position	Frequency	Percentage
Municipal manager	3	1.5
Executive director	19	7.3
Director	21	8.0
Manager	62	23.6
Other	59	23.0
No response to this question	97	37.0
Total	261	100.0

TABLE 5: Number of years respondents have worked for a municipality.

Years	Frequency	Percentage
0–5 years	83	31.8
6–10 years	70	26.8
11–15 years	47	18.0
16–20 years	31	11.9
21–more years	30	11.5
Total	261	100.0

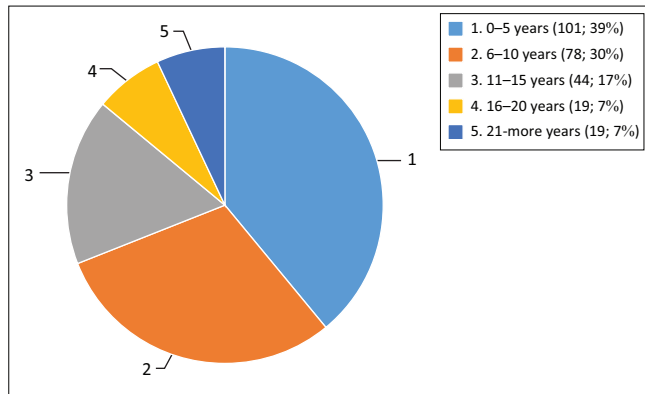


FIGURE 3: Number of years involved in budgeting and financial management policies.

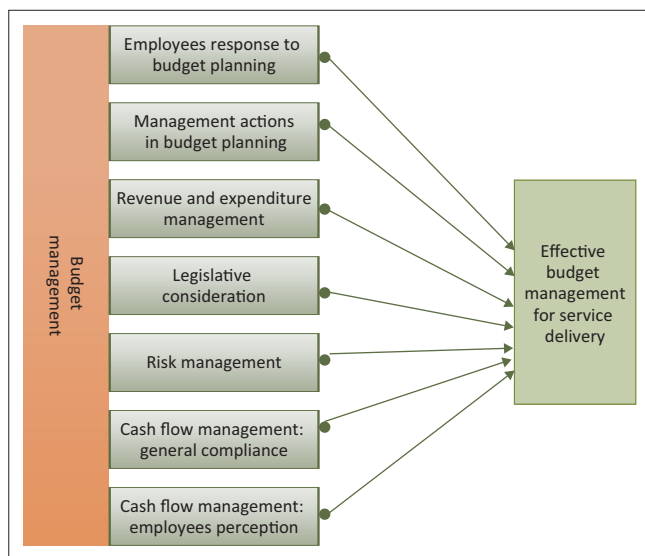


FIGURE 4: Revised model.

Question 4: 'How long have you been involved in budget management and implementation of financial management policies?'

The number of years spent engaging with budget formulation, management and financial management is likely to result in improved competence in these areas, particularly if there have also been opportunities to participate in training programmes. Figure 3 illustrates the number of years that the participants have been involved in implementing budgets and financial management policies.

Figure 4 shows that the largest category of respondents, 39% ($n = 101$), have been dealing with budgets and financial management policies for 5 years and less, with another 30% ($n = 78$) of the respondents involved in budgeting and financial management policies for 6 to 10 years, 17% ($n = 44$) for 11 to 15 years and 7% ($n = 19$) for 16 to 20 years. Only 7% ($n = 19$) of the participants have been involved in the implementation of budgeting and financial management policies for 21 years or more. It is concerning that the largest category of respondents (39%) has been involved in implementation of budgets and financial management policies for less than 5 years. This suggests that a significant percentage of municipal employees

TABLE 6: The highest qualifications of the respondents.

Level of education	Frequency	Percentage
National diploma	82	31.4
Bachelor's degree	103	39.5
Master's degree	55	21.1
Doctorate	3	1.1
Other	18	6.9
Total	261	100.0

have limited experience in the implementation of budgets and financial management policies.

Question 5: What is your highest qualification?

This question aimed at establishing the level of education of the participants in this investigation. Addressing the challenges faced by municipal employees requires them to have relevant qualifications and sufficient expertise. The responses to this question are presented in Table 6.

The largest category of respondents 39.5% ($n = 103$) has a bachelor's degree; 31.4% ($n = 82$) have a national diploma; 21.1% ($n = 55$) have a master's degree and 1.1% ($n = 3$) have a doctorate. A total of 6.9% ($n = 18$) of the respondents have other credentials, such as matriculation certificate, master's degree, or completed short courses.

Analysis of section B (questionnaire): Structural equation modelling results

Before conducting the SEM results and exploratory factor analysis (EFA) was carried out to validate the pattern fitness of key variables. In this research, the dimensions articulating effective budget management have been defined using EFA. To analyse the relationship between effective budget management and budget planning, risk management, revenue and expenditure management, CFM and legislative consideration; correlation and several linear regression analyses were used.

Exploratory factor analysis

Exploratory factor analysis is a statistical method used to explain variability in terms of a potentially smaller number of unnoticed variables amongst observed, correlated variables (Chen et al. 2014:253). It is used when the researcher wants to find patterns in the data where there is little or no knowledge on how the variables are correlated (Hair et al. 2017:3).

Based on the EFA results (Table 7), two key variables were determined to split into sub-variables. This includes budget planning and CFM. In terms of budget planning, the perspectives from employees and management in municipalities were split into Budget Planning 1 (*Estimated Value* = 0.024) and 2 (*Estimated Value* = 0.045), respectively. Furthermore, in this regard, CFM was split into CFM 1 (general compliance with legislation)

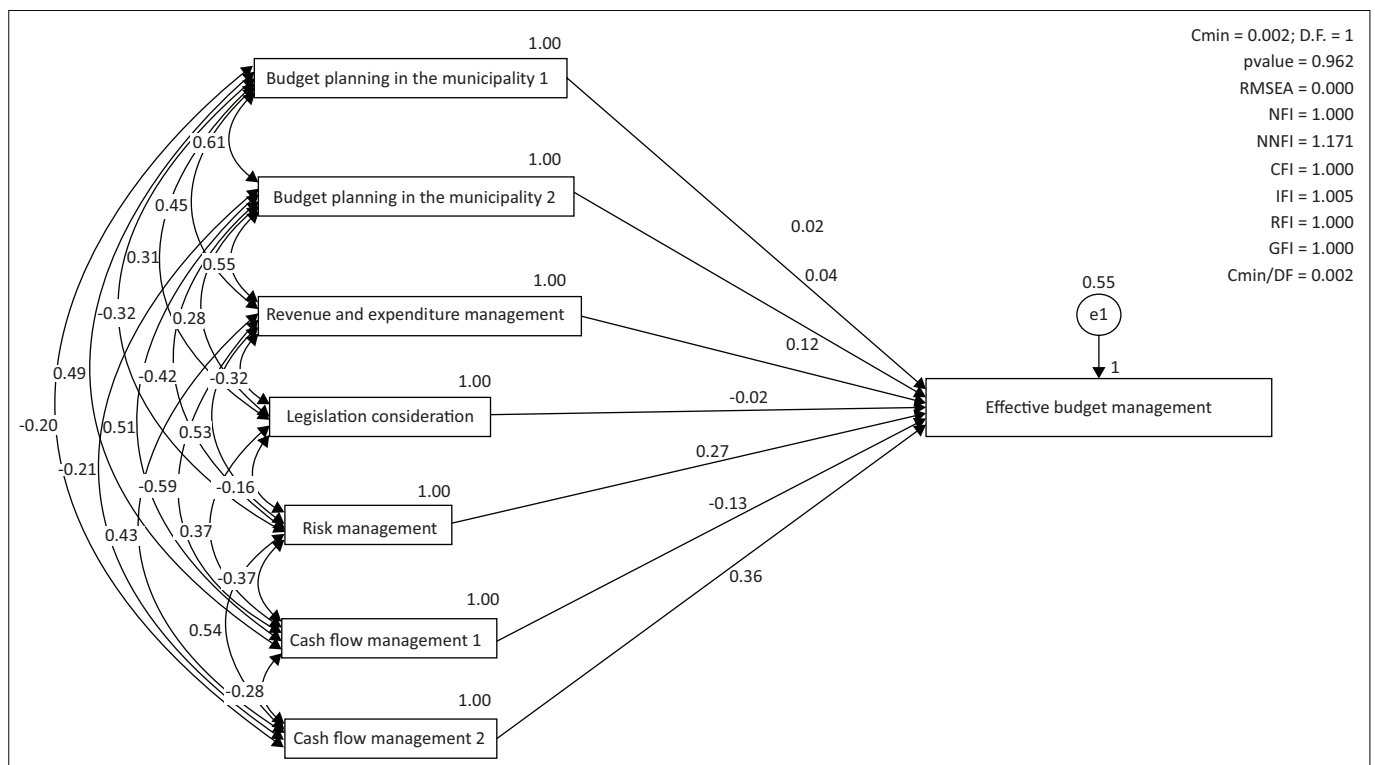
TABLE 7: Regression weights of the independent and dependent variables.

Path			Estimate	S.E.	C.R.	P	Significance level
EBM	<---	BPitM1	0.024	0.061	0.395	0.693	Not accepted at $p > 0.05$
EBM	<---	BPitM2	0.045	0.065	0.693	0.489	Not accepted at $p > 0.05$
EBM	<---	REM2	0.121	0.068	1.776	0.076	Partially accepted at $p > 0.05$
EBM	<---	LC	-0.023	0.051	-0.445	0.657	Not accepted at $p > 0.05$
EBM	<---	RM	0.273	0.061	4.469	*	Accepted at $p < 0.05$
EBM	<---	CFM1	-0.128	0.062	-2.060	0.039	Accepted at $p < 0.05$
EBM	<---	CFM2	0.364	0.057	6.388	*	Accepted at $p < 0.001$

Note: The rule of Structural Equation Model is that for the covariance to be significant and acceptable the $p < 0.05$ (Hanabe, et al, 2018:168), thus, when the $p < 0.001$ the covariance is strong and positively related.

EBM, effective budget management; BPitM, budget planning in the municipality; REM, revenue and expenditure management; CFM, cash flow management; LC, legislative consideration; RM, risk management; SE, standard error; CR, construct reliability.

*, $p < 0.001$.



NFI, normed fit index; RMSEA, root mean square error of approximation; NNFI, non-normed fit index; CFI, comparative fit index; IFI, incremental fit index; RFI, relative fit index; GFI, goodness of fit; Cmin/DF, chi-square fit statistics – degree of freedom.

FIGURE 5: Results: Budget management.

(Estimated Value = -0.128) and CFM2 (employee perceptions) (Estimated Value = 0.364).

The following section reports on the extent to which the statistics fit the proposed model using the imputed option in IBM SPSS AMOS 24. Following the development of the variables using the factor analysis regression process, a SEM was reconstructed with the analysis performed repeatedly until the model was relevant.

As stated, in the beginning of the article, the primary research objective was to develop a framework for budget management for local municipalities in South Africa.

The main model was created using SPSS AMOS. The following indices were tested for the budget management model: chi-square value (CMIN), p -value, root mean square error of approximation (RMSEA), normed fit index (NFI),

non-normed fit index (NNFI), comparative fit index (CFI), incremental fit index (IFI), relative fit index (RFI), goodness-of-fit index (GFI) and chi-square fit statistics – degree of freedom (CMIN/DF). Figure 5 illustrates the budget management model developed for South African municipalities.

Figure 5 presents the results of the regressions (budget management model). Table 7 presents the regression weights of the main model in Figure 5.

Based on the regression weights in Table 7, BPitM1 and BPitM2 have a very low impact on effective budget management at 0.02 and 0.04, respectively. However, the two constructs have a positive relationship with effective budget management. This is concerning because budget planning is important in municipalities for effective resource allocation and management (Hanabe et al. 2018:168).

Revenue and expenditure management (REM) has some impact on effective budget management at 0.12, whilst legislative consideration (LC) has a negative impact on effective budget management at 0.02. Risk management (RM) has a significant influence on effective budget management at 0.27. However, cash flow management (CFM 1) has a negative impact on effective budget management at -0.13 and cash flow management (CFM 2) has a strong and positive impact on effective budget management at 0.36 and the $p < 0.001$. The following indexes were used to test the budget management model: Cmin, p -value, RMSEA, NFI, NNFI, CFI, IFI, RFI, GFI and CMIN/DF. The results are interpreted in Table 8.

Table 8 shows that goodness-of-fit was confirmed for the budget management variable. In terms of the relationships of the paired independent variables in Figure 4, the covariance is significant because the $p < 0.05$. This is confirmed in Table 9. From a statistical point of view, a p -value less than 0.05 (typically ≤ 0.05) is statistically significant. It indicates strong evidence against the null hypothesis, as there is less than a 5% probability the null is correct (and the results are random).

TABLE 8: Interpretation of budget management.

Index	Level of acceptance (According to literature)	Result	Interpretation of the p -value
RMSEA	RMSEA < 0.08	0.00	Goodness-of-fit achieved
NFI	NFI > 0.90	1.00	Goodness-of-fit achieved
NNFI (TLI)	TLI > 0.90	1.17	Goodness-of-fit achieved
CFI	CFI > 0.90	1.00	Goodness-of-fit achieved
IFI	IFI > 0.90	1.01	Goodness-of-fit achieved
RFI	RFI > 0.90	1.00	Goodness-of-fit achieved
GFI	GFI > 0.90	1.00	Goodness-of-fit achieved

RMSEA, root mean square error of approximation; NFI, normed fit index; NNFI (TLI), non-normed fit index (Tucker–Lewis index); CFI, comparative fit index; IFI, incremental fit index; RFI, relative fit index; GFI, goodness-of-fit index.

TABLE 9: Covariance for paired independent variables.

Path			Estimate	SE	CR	P	Interpretation
BPitM1	<-->	CFM2	-0.196	0.060	-3.273	0.001	Strongly and positively related
BPitM2	<-->	CFM2	-0.211	0.061	-3.475	*	Strongly and positively related
REM2	<-->	CFM2	0.426	0.064	6.645	*	Strongly and positively related
RM	<-->	CFM2	0.536	0.069	7.724	*	Strongly and positively related
RM	<-->	CFM1	-0.371	0.064	-5.767	*	Strongly and positively related
REM2	<-->	CFM1	-0.590	0.071	-8.369	*	Strongly and positively related
BPitM2	<-->	CFM1	0.514	0.069	7.442	*	Strongly and positively related
BPitM1	<-->	CFM1	0.494	0.068	7.214	*	Strongly and positively related
REM2	<-->	RM	0.531	0.068	7.771	*	Strongly and positively related
BPitM2	<-->	RM	-0.417	0.066	-6.314	*	Strongly and positively related
BPitM1	<-->	RM	-0.315	0.064	-4.956	*	Strongly and positively related
REM2	<-->	LC	-0.323	0.059	-5.452	*	Strongly and positively related
BPitM1	<-->	LC	0.307	0.063	4.842	*	Strongly and positively related
BPitM2	<-->	REM2	-0.547	0.070	-7.867	*	Strongly and positively related
BPitM1	<-->	REM2	-0.446	0.067	-6.691	*	Strongly and positively related
BPitM1	<-->	BPitM2	0.607	0.072	8.431	*	Strongly and positively related
CFM1	<-->	CFM2	-0.195	0.059	-3.325	*	Strongly and positively related
LC	<-->	CFM1	0.366	0.065	5.653	*	Strongly and positively related
BPitM2	<-->	LC	0.279	0.063	4.439	*	Strongly and positively related
LC	<-->	RM	-0.164	0.053	-3.088	0.002	Strongly and positively related

BPitM, budget planning in the municipality; REM, revenue and expenditure management; CFM, cash flow management; LC, legislative consideration; RM, risk management; SE, standard error; CR, construct reliability.

*, $p < 0.001$.

A correlation coefficient greater than 0.5 is strong, whereas a correlation coefficient of less than 0.5 indicates a weak relationship. Table 10 shows the correlations between the independent variables in Figure 4.

The RM and CFM2 are strongly related; BPitM2 and CFM1 are strongly related; REM2 and RM are strongly related; BPitM1 and BPitM2 are strongly related.

Revised model

The findings of SEM revealed that some constructs that were originally conceptualised had to be split into two because of

TABLE 10: Correlations for paired independent variables.

Path			Estimate
BPitM1	<-->	CFM2	-0.197
BPitM2	<-->	CFM2	-0.212
REM2	<-->	CFM2	0.428
RM	<-->	CFM2	0.538
RM	<-->	CFM1	-0.373
REM2	<-->	CFM1	-0.593
BPitM2	<-->	CFM1	0.516
BPitM1	<-->	CFM1	0.496
REM2	<-->	RM	0.534
BPitM2	<-->	RM	-0.418
BPitM1	<-->	RM	-0.317
REM2	<-->	LC	-0.325
BPitM1	<-->	LC	0.309
BPitM2	<-->	REM2	-0.549
BPitM1	<-->	REM2	-0.447
BPitM1	<-->	BPitM2	0.609
CFM1	<-->	CFM2	-0.196
LC	<-->	CFM1	0.367
BPitM2	<-->	LC	0.280
LC	<-->	RM	-0.164

BPitM, budget planning in the municipality; REM, revenue and expenditure management; CFM, cash flow management; LC, legislative consideration; RM, risk management.

the nature of the statements that were advanced to the respondents, and this is explained in the given section (exploratory factor analysis). The variables that were split into two were budget planning and CFM. Budget planning was split into budget planning 1, which dealt with the responses of employees in relation to planning in the municipalities, whilst budget planning 2 dealt with management actions in relation to planning in municipalities. In addition, CFM was divided into two components: the first dealt with compliance with policy and legislation, whilst the second dealt with employee perception of CFM. Figure 4 illustrates the revised model.

Figure 4 encapsulates the revised study variables. Thus, the following conclusions are drawn on the revised model:

The role of lower level employees in relation to budget planning is critical to effective budget management. According to Sulistiyo and Pratiwi (2021), employees within an organisation play a critical role towards effective management of resources if they are involved in the planning process of the organisation. In addition, this would lead to a significant effect on the performance of the service delivery.

The actions and role of management in relation to budget planning have an impact on how budgets are effectively managed. Budgeting aids in the planning of various operations by requiring managers to review how circumstances may transform and what steps should be taken now, as well as by empowering managers to examine potential issues (Grimm 2018).

Recommendations

Based on the findings of the empirical study (primary data), which are tabled in Table 11. Some recommendations are made with the aim of helping to improve the quality of budget management in selected municipalities and perhaps also in other South African municipalities.

Table 11 summarises the overall results of the study. Thus, recommendations will be made on each independent construct in the next section.

TABLE 11: Interpretation of regression weights.

Path			Estimate
EBM	<---	BPitM1	0.024
EBM	<---	BPitM2	0.045
EBM	<---	REM2	0.121
EBM	<---	LC	-0.023
EBM	<---	RM	0.273
EBM	<---	CFM1	-0.128
EBM	<---	CFM2	0.364

EBM, effective budget management; BPitM, budget planning in the municipality; REM, revenue and expenditure management; LC, legislative considerations; CFM, cash flow management.

TABLE 12: Budget planning (Hypothesis 1).

Path		Estimate
Budget planning 1	→ Effective budget management	0.024
Budget planning 2	→ Effective budget management	0.045

Budget planning

Based on the results in Table 12, Budget planning 1 and 2 had a weak relationship with the values of 0.024 and 0.045, respectively.

In light of the results in Table 12, the following recommendations are made in relation to budget planning:

- It is strongly recommended that employees at lowest cost centers are involved in budget planning and resource allocation in municipalities. This will enable employees who are experts fields to implements their own projects.
- Management should formulate realistic standard operating procedures on the role of employees in the planning process within the municipality.
- There should be a clear distinction about who is responsible for planning and who is accountable for planning.
- When planning particularly from the level of managers, the objectives and goals of the municipality should be taken into consideration.

Revenue and expenditure management

Based on the results in Table 13, revenue and expenditure management had a weak relationship with the values of 0.121.

Thus, based on the results in Table 13 it is recommended that:

- Municipalities first increase the revenue base and then establish income-generating initiatives.
- Municipalities strictly follow the existing rules, regulations and procedures in order to enhance revenue collection and management.
- Municipalities ensure that the administration of revenue is carried out in an open, accountable and equitable manner.
- Municipalities must comply with the MFMA and other treasury regulations and policies when it comes to revenue and expenditure management.
- All employees involved in revenue management keep records of collected and anticipated revenue up-to-date.

Legislation and policies

According to Table 14, legislative consideration had a weak relationship with the values of -0.023.

Effective implementation of the MFMA can contribute to an improvement in the general performance of a municipality

TABLE 13: Revenue and expenditure management (Hypothesis 2).

Path		Estimate
Revenue and expenditure management	→ Effective budget management	0.121

TABLE 14: Legislation consideration (Hypothesis 3).

Path		Estimate
Legislative considerations	→ Effective budget management	-0.023

and in its financial performance, in particular. However, effective implementation of the *Municipal Finance Management Act* depends on the willingness and ability of accounting officers and all municipal officials. As legislation is critical in managing budgets, it is recommended that:

- All municipal staff should be constantly educated and trained in how to analyse and apply legislation.
- Because the national and provincial governments issue circulars and directives, municipal employees must be able to interpret and apply them.
- Municipalities should use laws and regulations for planning and growth purposes.
- The legislation should be amended to allow municipalities to obtain more financial resources from the national government.

Risk management

In Table 15, the relationship between risk management and effective budget management was not significant (*value* 0.273) which indicates that risk management does not have a strong impact on effective budget management.

Based on the results of this study in Table 15, the following recommendations are advanced:

- A municipal risk management committee should be chaired by an external person
- The risk management committee should have all the executive managers such as the Chief Financial Officer, the Executive of Corporate Services, the Executive of Infrastructure, the Executive of Local Economic Development and the Executive of Community services that will report to Council.
- All employees must be fully aware of the risk management policy.

Cash flow management

According to Table 16, CFM 1 and CFM 2 with the values of 0.128 and 0.364, respectively, has a weak relationship with effective budget management.

In relation to these split variables, the following recommendations are advanced:

- Cash flow projections must be submitted to the relevant treasury at least 3 months before the beginning of the new financial year.

TABLE 15: Risk management (Hypothesis 4).

Path	Estimate
Risk management → Effective budget management	0.273

TABLE 16: Cash flow management (Hypothesis 5).

Path	Estimate
Cash flow management 1 → Effective budget management	0.128
Cash flow management 2 → Effective budget management	0.364

- The cash flow for both revenue and expenditure should be reviewed on a monthly basis to comply with the targeted plans.
- Municipalities should use money for what they were budgeted for, in order to avoid deficits that might lead to the collapse of the municipalities.

Effective budget management

South Africa's move from the apartheid system before 1994 to a democratic system after 1994 paved the way for institutional reform. Whilst this move created opportunities for effective governance and robust budget and financial management, municipalities are still struggling to manage their budgets. Thus, it is recommended that municipalities ensure that:

- The budget is fully aligned with the IDP and Service Delivery and Budget Implementation Plan.
- A funded and credible budget is maintained for each financial year.
- Proper record keeping of council decisions for the implementation of the budget is encouraged.
- All employees are continuously trained and capacitated to manage and monitor budgets.
- As financial and budget management is technical, qualified people with the appropriate qualifications should be employed.
- The budget is continuously monitored and reviewed, as required by the *Municipal Finance Management Act*.

Limitations of the study

The research was limited to three selected municipalities. Therefore, the findings or results of this study cannot be generalised to other municipalities. In addition, the sample population was limited to employees who manage or are directly involved in the budget process. It would have been ideal to conduct the study in more municipalities. However, it was difficult to do so because of unwillingness of municipalities to participate in the study.

Conclusion

In South Africa, sound budget management practices are important for municipal survival. For budgets to be managed effectively, municipalities have to comply with regulations and statutes and implement them as mandated by the supreme law of the republic. Without proper budgeting in municipalities, service delivery is negatively affected. In essence, inadequate budget management indicates weak management of municipalities and, as a result, the institution's priorities in terms of its overall agenda to satisfy the legitimate aspirations of the public for good governance will not be achieved.

In 2012, the South African national government introduced a National Development Plan (NDP) to outline the long-term plans for the government. All spheres of government are required to link their strategic goals to the NDP. To achieve

the vision 2030 of the NDP, which is to alleviate poverty and inequality, municipalities must be staffed with competent, skilled and committed employees to deliver high-quality services to citizens, and to do so consistently.

The study was initiated in response to evidence of budgetary problems in some South African municipalities, with the aim of developing a budget management framework for the municipalities surveyed in the research. The study has brought to light factors that result in managers at various levels failing to manage municipal budgets efficiently and effectively and concludes with recommendations for responding to these factors.

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Competing interests

The authors declare that they have no financial or personal relationship(s) that may have inappropriately influenced them in writing this article.

Authors' contributions

The first author was a PhD candidate who was supervised by author 2 and 3.

Ethical considerations

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Data availability

The data that support the findings of this study are available on request from the corresponding author.

Disclaimer

The views and opinions expressed in this article are those of the authors and do not necessarily reflect the official policy or position of any affiliated agency of the authors.

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