An Evaluation of Determinants of Nonpayment of Municipal Services in Soweto

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Abstract: Soweto is the largest and economically vibrant South African township in which 1.695 million South Africans live and work. Soweto falls under the City of Johannesburg Metropolitan Municipality (CJMM) in South Africa. The research work was carried out to explore socioeconomic factors that undermine the extent to which ratepayers and residents of Soweto pay their municipal service fees promptly. A matrix of indicators developed by Hilhorst, Behrens, Brouwer and Sneller (2022) was used for quantifying indicators. The survey was based on information gathered from 545 residents of Soweto. Univariate methods (analysis based on single variables), bivariate methods (analysis based on pairs of variables), and multivariate methods (confirmatory factor analysis) were used for estimating influential determinants. The main finding of research was that 62.94% of participants (343 out of 545 respondents) of the study paid their municipal bills promptly, whereas the remaining 37.06% of respondents (202 out of 545 participants) did not do the same. Results obtained from a variety of multivariate analyses showed that the nonpayment of municipal services was influenced by the ability to resolve problems promptly, long duration of residence in Soweto (11 years or longer), and the provision of accurate financial statements.
Keywords: Soweto, Nonpayment of municipal services, Structural Equations Modelling

Introduction and background to study

Soweto is a township that belongs to the City of Johannesburg Metropolitan Municipality (CJMM, 2022). The CJMM has a total area of 1, 645 square km and a population of 5.5 million people. It has a population density of 2, 700 people living in a square kilometer of area. The CJMM consists of 80.17% of blacks, 9.79% of whites, 5.27% of coloureds, and 4.76% of Asians. The CJMM contributes 14.9% to the South African GDP (Gross Domestic Product). The total number of employed people living in the CJMM is 2.13 million (41.88% of all people who are employed in Gauteng Province). The CJMM is home to Johannesburg Stock Exchange and has a wealth of 248 billion American Dollars. Johannesburg generates 16.5% of the total wealth of South Africa. Johannesburg employs 12% of all employed South Africans. Soweto was established as a place of residence to black employees who worked in industry, factories, commerce and mining companies in Gauteng Province. The name "Soweto" comes from "South Western Townships". The aim of research was to explore common causes of nonpayment of municipal service bills among residents and ratepayers of Soweto. The study is valuable for people living and working in Soweto as it enables them to share their views and opinions with employees and officials of the City of Johannesburg Metropolitan Municipality (CJMM). Municipal employees who provide municipal services to people who live and work in Soweto fall under the CJMM. The performance of such employees is assessed by officials who work in the CJMM. The main task of such employees is ensuring service delivery in accordance with norms and standards that are applicable to the population living in Soweto. The population of Soweto is 1, 695, 000 (Statistics South Africa, 2022). The total area of Soweto is about 200.03 square kilometres. The density of Soweto is about 6, 400 people per square kilometres. About 98.5% of people living in Soweto are black Africans. The remaining 1.5% of the population are white (0.1%), coloured (1%), Asian (0.1%) and others (0.2%). Soweto was created following the creation of the Urban Areas Act of 1923.

Table 1 shows the contribution made to the South African national Gross Domestic Product (GDP) by the nine provinces of South Africa. The table shows that Gauteng, KwaZulu-Natal and the Western Cape make the top three largest contributions to GDP. Soweto falls under Gauteng Province. Soweto is the largest South African township in which Black-owned vibrant business enterprises conduct business in various economic sectors. Recent studies have shown that the economy of Soweto can grow at a much faster pace provided that sound economic planning, good leadership and incentives are provided to local and international investors (Sinwell, Ngwane & Maggott, 2022). In order for this to happen, the people of Soweto need to make a valuable contribution to the City of Johannesburg Metropolitan Municipality (CJMM) by paying up their municipal bills promptly and efficiently. Soweto is one of the regions within Gauteng Province in which the efficiency and quality of municipal services needs to be enhanced.

Table 1: South African provinces and their Gross Domestic Products

Rank	Province	Population size	GDP in millions of Rand
1	Gauteng	15, 888, 000	1, 566, 951
2	KwaZulu-Natal	11, 682, 000	741, 690
3	Western Cape	7, 009, 100	637, 132
4	Eastern Cape	6, 542, 000	357, 855
5	Mpumalanga	4, 776, 000	354, 114
6	Limpopo	6, 102, 000	337, 099
7	North West	4, 146, 000	313, 642
8	Free State	2, 973, 000	235, 902
9	Northern Cape	1, 280, 000	93, 353
	South Africa	60, 517, 561	4, 637, 914

Source: Statistics South Africa (2022)

Table 2 shows first languages spoken at Soweto and percentages of people who speak the languages. The percentage of people speaking IsiZulu is 36.90%. The percentage of people speaking Sesotho is 15.46%. The percentage of people speaking Setswana is 12.81%. The percentage of people speaking IsiXhosa is 8.64%. The percentage of people speaking Xitsonga is 8.82%.

Table 2: Fist languages spoken at Soweto and percentages

Fist language	Number of people	Percentage
IsiZulu	469, 873	36.90%
IsiXhosa	109, 977	8.64%
Afrikaans	16, 567	1.30%
Sepedi	65, 215	5.12%
Setswana	163, 083	12.81%
English	29, 602	2.32%
Sesotho	196, 816	15.46%
Xitsonga	112, 346	8.82%
SiSwati	9, 292	0.73%
Tshivenda	29, 498	2.32%
IsiNdebele	56, 737	4.46%
Other	14, 334	1.13%
Total	1, 695, 000	100.00%

Soweto is home to 237, 567 dwellings (Statistics South Africa, 2022). Soweto is characterised by four-room dwelling units constructed to needy people following the elections held on 27 April 1994. Following the construction of such dwelling units, it was possible to alleviate the acute shortage of dwelling units for the population of Soweto. In the period since April 1994, Soweto has been able to attract wealthy entrepreneurs and business enterprises (Maphela& Cloete, 2020: 535). Many residents of Soweto who live in small houses have improved and expanded their homes. Since 1996, CJMM has managed to promote environmental sanitation, cleanliness, the construction of paved streets, and the plantation of trees. It has also improved public parks. In 1996, the City of Johannesburg Metropolitan Municipality formally identified 325, 000 dwellings for rating and taxing purposes (Veriava, 2021: 317). Various socioeconomic factors that undermine overall productivity and the quality of municipal service delivery in CJMM (2022) have been pointed out to residents and ratepayers. Although Soweto has its own economic difficulties, it has attracted hundreds of thousands of rural migrant communities with the hope of enjoying a better life, better municipal, health and educational services. The study conducted by Lawrence (2020) has found that the nonpayment of municipal services is a key obstacle to adequate power supply in Soweto, and that the interruption of power supply exacerbates socioeconomic poverty.

Power outages are commonly experienced in Soweto. Such power outages discourage economic activities and investment in the economy of Soweto.

Nilsson and Blomkvist (2021: 101143) have pointed out that high unemployment, lack of economic opportunities, poverty, and failure to promote good leadership principles undermine the collection of fees that are owed to local municipalities in Soweto Township. Vyas-Doorgapersad and Kemp (2020: 3) have pointed out that local municipalities in Gauteng Province are owed huge amounts of unpaid monies by residents of Townships. Kambule, Yessoufou and Nwulu (2021: 2646) have suggested the use of performance monitoring and appraisal with the aim of improving service quality and efficiency. They have recommended the use of performance appraisal and monitoring mechanisms on a regular basis. The authors have argued that performance appraisal, monitoring and evaluation are required to improve the collection of service fees that are owed by residents, ratepayers and businesses.

Mendenhall, Kim, Panasci, Cele, Mpondo, Bosire and Tsai (2022) have found that inadequate monitoring and evaluation of municipal services often leads to the nonpayment of service fees to municipalities. According to the author, the main obstacles to satisfactory municipal service delivery to business enterprises are lengthy bureaucracy, red tape, lack of specialised skills, and poor managerial and administrative leadership at municipal level. Huschke and Coetzee (2020:4) have shown that community-based interventions are necessary to collect unpaid municipal service fees. The authors have shown the need for good leadership, accountability, transparency and quality control mechanisms. Such a step is expected to attract viable business enterprises to Soweto and motivate people to pay their bills in good time. This step is recommended as a means of motivating people of Soweto to pay their municipal bills in time. Researchers have shown that it is beneficial to use community-based support programmes, the promotion of awareness campaigns and incentives to residents and ratepayers as a means of encouraging people to pay their municipal bills in time. Elected municipal officials must lead by good example in order to succeed in collecting unpaid fees from residents and ratepayers.

Dietrich, Hornschuh, Khunwane, Makhale, Otwombe and Morgan (2020) have argued that it is essential for the City of Johannesburg to implement municipal services with quality and efficiency before residents and ratepayers show adequate commitment to pay for municipal services. It has been pointed out by the authors that satisfactory healthcare and community-based services are helpful for motivating residents and ratepayers to pay their municipal bills in time.

Surveys carried out by De Juan and Wegner (2019) and Clark (2019) have identified common causes of nonpayment of municipal services in Gauteng townships including Soweto and Alexandra. The authors have found that not enough incentives are provided to residents of townships to pay promptly and take part in community level development initiatives. Various elements of the Municipal Finance Management Act (Act no. 53 of 2003) are often disregarded by local municipalities. This leads to comments and remarks from stakeholders such as the South African Auditor-General. Various comments and remarks are made in the report published by the South African Auditor-General (2022) for 2020/2021. These comments have identified various examples in which municipal resources have been used without adhering to recommended guidelines.

Research work carried out by Millington and Scheba (2021) indicates that large volumes of municipal water is lost due to broken, damaged and rotten pipelines in several South African local municipalities. South Africa loses an average of 1.1 million litres of water every year due to leakages from pipes and reservoirs. About half of this loss of water is attributed to leaking water pipes and damaged infrastructure in Soweto and Alexandra townships (Adedeji, Hamam, Abe & Abu-Mahfouz, 2018: 471). Dlamini, Simatele and Serge Kubanza (2019: 251) have found that about half of all residents of townships in Johannesburg fail to pay for water and light services. Eales (2017:35) has argued that the use of prepaid water meters is highly valuable for ensuring prompt payment of water services in South African townships such as Soweto and Alexandra. Chenoweth and Bird (2018:54) have suggested a framework that provides incentives to people who pay their bills promptly. Breakfast, Bradshaw and Nomarwayi (2019: 113) and Neto and Camkin (2020: 101016) have drawn attention to the need for expanding municipal infrastructure to accommodate the needs of new migrant communities in townships and suburbs of CJMM and other municipalities in Gauteng Province. Maphela and Cloete (2020: 536) have proposed a practical framework for integrating the payment of service delivery fees for municipal services through prepaid meters.

The estimated Gross Domestic Product of Gauteng is R1.42 trillion. The estimated per capita Gross Domestic Product of Gauteng is R421, 245 (CJMM, 2022). Even though these figures are high by South African standards, Johannesburg attracts new migrants every year from all 9 provinces. The infrastructure of Johannesburg is unable to cope due to a huge backlog of unexpanded and unrepaired municipal infrastructure (Simatele, Dlamini & Kubanza, 2017).

Surveys carried out in CJMM by Ballard, Dittgen, Harrison and Todes (2017), Benit-Gbaffou (2018) and Dewettinck and Van Dijk (2013)indicate that residents and ratepayers demand efficient and affordable services. Disruptions of services lead to protests and non-payment. The remedial action is to use monitoring and

evaluation processes. In many parts of the world, local municipalities are required to monitor, evaluate and control the prompt collection of service fees from residents and ratepayers. The prompt collection of fees is essential for rolling out services. Service quality standards are lowered due to lack of capacity to meet service-related demands. The demand for municipal services in Gauteng municipalities has increased significantly due to inability to manage the migration of new communities into Gauteng from the rest of South Africa. Dewettinck and Van Dijk (2013) have found that strict monitoring and quality control is essential to ensure the provision of essential municipal services is a key obstacle to the ability to collect service fees that are owed to local municipalities.

The City of Johannesburg Metropolitan Municipality (CJMM) provides standard municipal services to residents of Soweto. These services are electricity, water, waste management, sanitation, safety and security, the repair and maintenance of street roads and lights, the repair and maintenance of sewerage lines and water pipes, safety and security, health services, educational services and emergency and rescue services. These services are the same as services that are provided to all 278 municipalities in South Africa.

The ability of CJMM to provide highly efficient and affordable services to residents and ratepayers of Soweto is dependent upon the extent to which residents and ratepayers of Soweto pay their municipal service bills promptly and efficiently. In an environment in which residents and ratepayers pay their municipal bills in good time, it is possible to plan and execute essential services based on a mutually agreed timetable. Studies carried out in the City of Tshwane by Worku (2014, 2015, 2016) have found that the prompt and efficient payment of municipal bills is a reliable predictor of the ability of business enterprises to grow and remain profitable.

John, Selaelo John and Khutso Lavhelani (2022:58) and Worku (2018, 2021A, 2021B) have identified obstacles to the successful implementation of IDP plans of actions in South African municipalities. The most notable obstacles to good municipal service delivery are inability to use scarce municipal resources efficiently, failure to meet time tables of service delivery that are scheduled and published, shortage of logistical resources, and shortage of specialised skills.

Performance appraisal must be carried out based on key performance indicators (KPIs) of municipal employees. Both the MSA and MFMA stipulate that performance appraisal must be carried out based on KPIs. There needs to be satisfactory accountability to the National Treasury with regards to expenditure incurred in the course of municipal service delivery according to the MSA and MFMA. The two pieces of legislation empower the South African Auditor-General (2022) to take all appropriate measures and precautions to safeguard public finances and resources.

The essential municipal services to be assessed are water, electricity, sanitation, waste removal, the repair and maintenance of roads and street lights, the task of distributing financial statements that are current and verifiable, services related to account queries, verification of payments, interruption about the interruption of essential services, the installation of pre-paid electricity meters, the maintenance of street lights, the maintenance and repair of municipal roads and traffic lights, and safety and security related services. Surveys by Worku (2021A, 2021B) and John, Selaelo John and KhutsoLavhelani (2022) have pointed out the need for leadership quality and accountability to the people.

Methods and materials of study

The sample size of study was 545 dwelling units in Soweto. As such, data was collected from 545 eligible residents and ratepayers of Soweto. Dwellings who had legal disputes with CJMM were excluded from the study. A structured questionnaire was used for collecting quantitative data on socioeconomic factors that are known to affect the nonpayment of municipal services in Soweto and many other South African Townships. At each dwelling, the head of the dwelling was invited to take part in the study. Eligible respondents had to be able to complete the questionnaire of study without requiring any further assistance from the researcher of study as a requirement for taking part in the survey. Respondents who were unable to understand and complete the questionnaire of study on their own were excluded from the study. Participation in the study was voluntary. The survey required collecting information on 71 variables of study by using a questionnaire. A composite index defined by D'Inverno and De Witte (2020:1129-1141) was used for measuring values of various socioeconomic constructs. A pilot study was carried out at the site of survey before the actual study was carried out. This process was helpful for having the questionnaire of study refined (Bell, Bryman&Harley, 2022).

The 71 independent variables of study consist of socioeconomic factors that motivate people and businesses living and operating in Soweto to make prompt payment for municipal services rendered. Examples of such variables are level of income, occupation, family size, home ownership, marital status, age, and duration of residence in Soweto. Some of these constructs are stipulated in good corporate governance and good leadership codes stipulated by Mervin King (Khale & Worku, 2015: 753-770). These codes are highly

applicable to CJMM employees whose job is to render municipal services to people who live and work in Soweto.

The statistical methods used for performing quantitative data analyses included frequency tables (Fellows and Liu, 2021), crosstab analyses (Beh and Lombardo, 2021), and confirmatory factor analysis (Chatfield and Collins, 2018). Standard goodness-of-fit tests (Montgomery, Peck and Vining, 2021) were used for testing and verifying the reliability of estimated models and results. All such goodness-of-fit tests confirmed that all fitted models and estimated parameters were reliable.

Results of data analysis

Data was gathered from 545 people who lived and worked in Soweto. Each one of these 545 people indicated whether or not they paid their municipal bills promptly (yes, no). They also indicated how satisfied they were with services rendered to them by employees of CJMM whose job is to render such municipal services to them. It can be seen from the table that 62.94% of participants (343 out of 545 respondents) of the study paid their municipal bills promptly, whereas the remaining 37.06% of respondents (202 out of 545 participants) did not do the same.

Table 3 shows the list of variables of study used for performing structural equations modelling along with their Cronbach Alpha coefficients (Chatfield & Collins, 2018). The table shows that all Cronbach Alpha coefficients are large enough. That is, the magnitudes are 0.75 or above. This indicates that the tools used for the measurement of the 6 variables of study are internally consistent and reliable enough (Chatfield & Collins, 2018).

Table 3: Cronbach Alpha coefficients (n=545)

Variable of study	Type of variable of study	Magnitude of Cronbach Alpha coefficient
The prompt payment of municipal bills	Dependent variable of study with 2 possible values (yes, no)	0.8476
Ability to resolve problems promptly	Independent variable of study with 2 possible values (yes, no)	0.8327
Lengthy duration of residence in Soweto	Independent variable of study with 2 possible values (11 years or longer, 10 years or shorter)	0.8279
Accuracy of municipal statements	Independent variable of study with 2 possible values (Accurate, Inaccurate)	0.8103
Perceived quality of Electricity services	Independent variable of study with 2 possible values (Adequate, Inadequate)	0.7612
Perceived quality of water services	Independent variable of study with 2 possible values (Adequate, Inadequate)	0.7558

Table 4 shows estimates obtained from Structural Equations Modelling (SEM). Structural Equations Modelling (Mueller and Hancock, 2019) works quite well with large sample sizes of studies and precise measurements. The suitability of the 6 variables chosen for performing structural equations modelling was based on confirmatory factor analysis. All 6 variables used for performing structural equations modelling had large Cronbach Alpha coefficients (0.80 or above). The table shows that the prompt payment of municipal bills among people living and working in Soweto is significantly influenced by 3 factors. These 3 factors are the ability to resolve problems promptly, the duration of residence in Soweto, and the accuracy of municipal statements issued to customers of Soweto.

Table 4: Predictors estimated from structural equations modelling (n=545)

Factor affecting the prompt payment of municipal bills among residents of Soweto	Coefficient	Z-Statistic	P-value	OIM Std. Error
Ability to resolve problems promptly	3.33	6.46	0.0000	0.0108
Duration of residence in Soweto	2.91	5.94	0.0000	0.0114
Accuracy of municipal statements	2.62	4.93	0.0000	0.0259

Estimates obtained from goodness-of-fit tests for Structural Equations Modelling

Various standard goodness-of-fit tests were used for ensuring the adequacy of the fitted structural equations model. Examples of such goodness-of-fit tests are the adjusted goodness-of-fit indicator (AGFI), the Tucker-Lewis Indicator (TLI), and the root mean square error of approximation (RMSEA), the coefficient of determination (CD) and the comparative fit index (CFI). All these goodness-of-fit tests confirmed that the fitted model was highly adequate.

Table 5 shows estimates obtained for 5 goodness-of-fit tests.

Table 5: Values of goodness-of-fit statistics for estimated SEM model (n=545)

Goodness-of-fit test	Estimated value of test statistic
AGFI = Adjusted Goodness-of-fit Indicator	0.9667 (Large)
TLI = Tucker-Lewis Index	0.9707 (Large)
RMSEA = Root mean square error of approximation	0.0418 (Small)
CFI = Comparative Fit Index	0.9602 (Large)
CD = Coefficient of Determination	0.8208 (Large)

Discussion of results

The study has produced important results supported by empirical analyses. In this regard, the first important result of data analysis is that 76.12% of the 545 residents of Soweto who were chosen for the study paid their municipal bills promptly, whereas the remaining 23.88% of the 545 residents of Soweto did not do the same. The study has found that the prompt payment of municipal bills among people who live and work in Soweto was significantly influenced by 3 factors. These 3 factors were the ability of employees of the CJMM to resolve account-related queries promptly, a lengthy duration of residence in Soweto (11 years or more), and the accuracy of municipal statements issued to residents and ratepayers of Soweto by employees of the CJMM whose job is to render municipal services to them.

The study conducted by Alexander, Runciman, Ngwane, Moloto, Mokgele and Van Staden (2018) shows that it would be strategically beneficial for the City of Johannesburg Metropolitan Municipality to roll out workplace training opportunities to all employees who work on financial issues. The key aspects of the MFMA must be made clear to all such employees. A workshop should be provided to all employees on customer relationships and service level agreements so that they look after the interests of all stakeholders of Soweto. The survey by Atkinson (2021) indicates that a training needs assessment survey is highly valuable for the City of Johannesburg Metropolitan Municipality to enhance productivity. Needs assessment will lead to tailor made training. Tailor made training will lead to enhanced performance. This process is highly valuable for achieving improved productivity, job satisfaction and a better appraisal from clients of the CJMM.

Figure 1 displays a framework constructed based on findings achieved from the research carried out in Soweto. The framework is suitable for improving the pace of collecting revenues from residents and ratepayers who reside and work in Soweto.
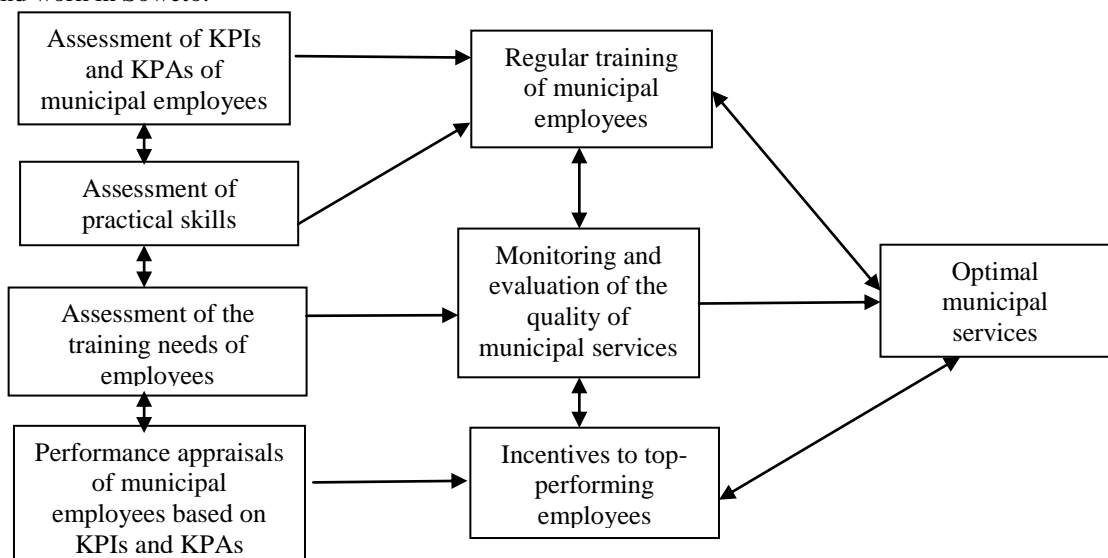

Figure 1: Framework for ensuring satisfactory municipal services
Source: Adapted from work done by Ananda and Pawsey (2019: 55-72)

Mulamba (2021) has shown that the key elements of municipal service delivery are all based on good ethical leadership. Good leadership is critical to developing and maintaining a mature culture of adequate service delivery. Effective leadership is an amalgamation of dedicated efforts that has an impact on others to follow suit and do the same. Major contributions are made by municipal managers and supervisors. The decisions, actions and behaviours of good leaders lay the foundation for effective service delivery. The following aspects of ethical leadership are essential for providing adequate municipal services.

The study conducted in Poland by Florek, Herezniak and Augustyn (2021) has measured and quantified the level of commitment and contribution of municipal employees to the brand image of 66 district-level local municipalities in Poland. This task was achieved by conducting performance assessment, monitoring and evaluation based on the KPIs and KPAs of municipal employees providing municipal services in 66 districts in various geographical regions of Poland. The study shows the benefits of adhering to aspects of the IDP adopted by the City of Johannesburg Metropolitan Municipality for ensuring satisfactory municipal service delivery by municipal employees. The lesson from Poland is that employees are highly motivated when they are assessed based on their own KPIs and KPAs by their line function managers. The other lesson is that it is highly helpful to provides work-related incentives such as tailor-made training opportunities to municipal employees.

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