RETHINKING FISCAL DECENTRALIZATION IN SOUTH AFRICA

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ABSTRACT

This article seeks to analyse the fiscal sustainability of municipalities in South Africa in view of increasing protests about the poor level of service delivery – especially in the smaller municipalities. International evidence also reflects disappointment with the classical view that government closer to people addresses the allocation problem more effectively with the lower spheres of government more accountable to the residents. The lack of "hard budget constraints" with revenue support in the form of grants and subsidies causes fiscal prudence to be eroded and in many instances local fiscal objectives are not aligned with that of the national government. Of crucial importance is the sustainability of the finances of the municipalities and this article identifies criteria with which sustainability at the local government sphere can be quantified. Two distinct dimensions are discussed, namely a static dimension as well as a dynamic dimension where the impact of changes in income and expenditures on debt ratios is measured. The results show that if grants and subsidies be deducted from revenue, most municipalities will not survive financially. In many instances revenue is only collected after a long lag if collected at all. Municipalities' debt is increasing and backlogs in the expansion and maintenance of infrastructure are widening. The research results tend to support the view that government should carefully re-evaluate the number of municipalities allowed to manage their own budgets and that more stringent financial reporting be enforced. [JEL classification: H71; H72; H77]

INTRODUCTION

This article was sparked by the following comment made by the Auditor-General of South Africa in his 2003/04 report on local government financing published in March 2004 (RP 123/2004):

1 Professor in Economics University of Pretoria. The author would like to acknowledge the valuable inputs provided by Mr. Leon Wessels from CA Ratings as well as the research inputs from Mrs Esman Nyamongo and Vasco Nhabinde, both Ph.D. students at the Department of Economics University of Pretoria.

"Overall an alarming trend was discovered, namely the debt management and the basis of income generation might not provide sufficient funds for delivering the services expected of municipalities. This means that sustainability of service provision by local government has to be called into question.

Between 2002 and 2003 total debt increased by 12 per cent or R5,1 billion. This can further be broken down into an increase in trading debt of 19 per cent or R6,4 billion, also coupled with an increase in the provision for bad debts of 28 per cent or R1,3 billion. This demonstrates that provision for bad debt is increasing at an alarming rate of more than twice the equivalent increase in total debt"

The question immediately springs to mind – how sustainable is this growing debt scenario and, is sufficient control exercised, from a fiscal prudence point of view, on the finances of municipalities? In the South African case the reality is that municipalities have been burdened with developmental duties as part of the *Reconstruction and Development Programme* (RDP), the first official economic framework introduced by the new democratic government after 1994. The problem though is that municipalities seem to be the least capacitated to deal with these problems. What then is the international experience and views regarding the role of municipalities in the modern fiscal framework?

This discussion will not provide a full review of such development of thoughts, but a brief overview will suffice. The argument for fiscal decentralisation is anchored in the so-called *First Generation* theory of bringing government closer to the people. Arrow, Musgrave, Samuelson, and others have done seminal work in this field. The basic view is that decentralisation of government will address the problems with allocative inefficiency (Litvack *et. al*.:1998) by allowing smaller communities to take responsibility for government by forcing local government to be more relevant and more accountable to the community. In the developing world such decentralization has in many instances also been initiated to address problems of unemployment and inequity regarding the distribution of income. In this regard the Tiebout model served as the baseline motivation with competition between municipalities with regard to tariffs and incentives providing the impetus for better governance assuming that people will *vote with their feet*.

The process of fiscal decentralisation has not been without problems. In many instances municipalities lack capacity both in terms of skills and finances. National governments have been accused of using the municipalities as a dumping ground for ex-politicians who do not make it in the national or provincial sphere. Corruption and other malpractices seem to bloom – especially in the local government sphere, with a severe lack of electoral accountability. In many instances municipalities only become agents for the National government (principal – agent concept) with the former losing sight of the real problems in their jurisdiction. The relative immobility of households renders the Tiebout model inefficient with very little evidence of the redistributive potential of decentralized governments. The optimization of intergovernmental grants from national to municipal governments also serves as a base for many disputes that cause central governments to be extremely sensitive

to *hard budget constraints* and therefore, effective and prudent fiscal control are instituted. The practice of *tax exporting* provides incentives for expansion beyond efficiency levels but seriously affects the narrow tax base of neighboring jurisdictions. The latter problem seems to be crucial. Municipalities find it extremely difficult to survive financially given their defined responsibilities. In many instances the complaint is that fiscal decentralisation has taken place without the necessary revenue empowerment.

Davoodi and Zou (1998) found a negative relationship between fiscal decentralization and economic growth in developing countries in their study of 46 countries for the period 1970 to 1989. They also failed to establish any meaningful correlation between fiscal decentralisation and economic growth in developed countries. Their explanation is that sub-national governments spend a larger portion of their budgets on items such as salaries and wages and welfare that negatively affect economic growth when compared to the effect of capital expenditure on infrastructure. Thus, more decentralization slows economic growth according to their findings.

The Niskanen proposition, namely, that public agents tend to maximize their budgets to enhance their power base (Rosen: 1992, 139) contributed strongly to the so-called *public choice* school arguing against government intervention, be that at a national or local level. Reported failures to internalize interjurisdictional externalities have lately contributed to a so-called *second generation theory* which differs fundamentally from the *first generation theory* (Oats: 2004, 3). According to this approach there is no reason why asymmetry of information should be a reason for fiscal decentralization. With modern high-tech technology national government can be as informed as local government and national governments has to be informed anyway in order to be able to calculate transfers correctly. According to this approach the idea that national governments do not understand the problems of local government is therefore a dichotomy. The school argues that local government exploits national government's hesitance to enforce *hard budgets* and tend to provide perverse incentives at high cost that may not be aligned with national fiscal objectives. Debt write-offs have become a common practice (see also South Africa as discussed in the next paragraph). The argument is that fiscal responsibility now become endogenous to the system with the latter becoming unstable with the corresponding macro and micro threats to the economy. Larger municipalities have a better chance to be rescued because they are regarded as *too big to fail* while local government institutions easily blame central government for their failures with disconsolate voters paying the bill at local and central spheres of government.

The effect of this is that there is a growing school of concern about the efficiency and capability of local government. Of crucial importance is how municipalities cope with their budgets (and expectations). In this context fiscal sustainability needs to be quantified regularly and in a scientific way – which is what is addressed in this article. The concerns raised by the Auditor-General in the introductory paragraph seems to be in line with this development and the analysis of fiscal finance at the local government sphere in the next paragraph supports the importance of a serious re-look at local government in South Africa. In a significant presentation at the 2004 conference of the International Institute of Public Finance one of the pioneers in the area, Prof Wallace Oats, argued that despite the obvious advantages which accompany decentralization, there is growing evidence

world-wide of a reverse tendency towards more centralization. South Africa should be aware of this tendency.

LOCAL FISCAL SUSTAINABILITY IN SOUTH AFRICA

Fiscal sustainability and measurement

Blanchart (see Burger 2001: 14) defines fiscal sustainability as whether or not the current course of fiscal policy can be sustained without public debt exploding or imploding. In the case of exploding debt, government has to increase taxes or decrease expenditure or even monetize the debt. At a local government level, our understanding of fiscal sustainability is that such a government is able to cover its expenditures out of its own revenues, reducing its dependence on borrowing and transfers from the national government. Bird (2004, 4) describes the problem as follows:

> *Sustainability sounds like a good thing. Unfortunately, there is no clear definition of what it actually means. A simple and obvious interpretation of 'fiscal sustainability,' for example, might be simply that a government can cover its expenditures out of its own revenues, that is, without depending on either transfers or borrowing. Another interpretation – structurally similar, but very different substantively – might be that a government can cover its operational expenditures out of its own current revenues (excluding transfers). Yet another might be that it can cover all of its expenditures (including investment) out of its own revenues (taxes, fees), and pre-determined levels of transfers and borrowing. What all these interpretations have in common is that sustainability has three distinct quantifiable aspects – the level of revenues (however defined), the level of expenditures (however defined), and the difference between the two (the deficit). The main indicator of whether fiscal performance is satisfactory (sustainable) or not is thus the size of the deficit, and whether it is becoming smaller or larger as time goes on.*

At a municipal sphere the concept of fiscal sustainability has to be understood a little differently, because the ability of municipalities to manage their revenue base and more than often also their expenditures, are largely restricted by higher levels of government. As Bird (2004) states:

> *Operating expenditures are simply not allowed to exceed operating revenues. The provincial government establishes the very existence of local governments and their geographic boundaries; it mandates the expenditure responsibilities of municipalities and standards for local service provision; it determines the revenues they can raise; it sets detailed rules for levying the property tax; it further shapes and directs municipal expenditures through its grant programs; and it determines the extent to which municipalities are allowed to borrow to meet capital requirements. At one level, what this high degree of provincial control means is that there simply can-*

not be any 'fiscal crisis' at the local level because local governments are strictly held to balanced budgets for operating purposes.

Two distinct dimensions of sustainability that have to be considered are the *static* dimension – the relation of the levels of revenues and expenditures, and the *dynamic* dimension – the relation of the growth rates of income and expenditures. Sustainability could, for example, be measured by considering the buoyancies/elasticities between expenditure and economic growth and also income and growth. Should the former be more buoyant/elastic than the latter, sustainability could become problematic over time. As far as revenue is concerned, another approach could also be to project the level of future taxes based on past trends in expenditure and other forms of income. Thus, should a municipality continue on a *business as usual* manner, what will the impact thereof be on tax policy to provide for the needed revenue? (Bird: 2004). In this study both dimensions are quantified by using static analysis as well as dynamic forward looking analysis.

Using forward looking analysis sustainability is measured by quantifying the estimated level of debt that results from changes in the primary balance and the net impact of real parameters such as interest rates and growth on outstanding debt. Since fiscal needs are often driven by demographic factors, the latter also have to be considered and in the regression analysis demographics in the *per capita* variables are captured. Thus the critical issue is the dynamics of the debt that originates from what happens with the budget balance including debt service payments. From an inter-temporal point of view it is argued that fiscal policy is sustainable when the government budget constraints hold in present value terms. Thus, the current debt should be offset by the sum of expected future discounted primary budget surpluses when interest payments are excluded. For municipalities such a definition of fiscal sustainability is somewhat complicated by the additional aspect of transfers according to the equalization grant. The problem is that it is difficult to ascertain true budget constraints in the case of extra-budgetary revenues and expenditures among municipalities. This problem is enhanced when data are not reported in a timely manner and/or are incomplete.

Of crucial importance is the quality of information available. As stated by the Auditor-General, a large percentage of municipalities simply do not provide their financial statements timely and in many instances information is either lacking or questionable. Given the limited information, sustainability is often assessed by using a set of fiscal indicators such as the level and trend of revenue and expenditures, the extent of borrowing, dependence on grants, delays in revenue collection (days). Agencies use such information to supply information to potential investors regarding the *fiscal health* of a municipality for the purpose of risk assessment. The problem though, is that despite their usefulness, such indicators may not necessarily give a reliable indication of the longer-term (even inter-temporal) aspects of fiscal sustainability. Also, municipalities do not regularly evaluate their infrastructure. What is really needed to assess the sustainability of a municipality is a more detailed analysis of the state of the infrastructure and the level of investment required to maintain and expand infrastructure as well as the quality of service delivery. In South Africa backlogs in infrastructure are estimated and published by the National Treasury,

but the quality of service delivery only became an issue when local communities started to protest against poor service delivery in mid-2005. Given the many structural and geographical changes in South Africa over the past ten years since democratisation, historical trends in data series are also limited to only a few years.

Using the mainstream models for measuring fiscal sustainability in the local sphere is problematic since revenue is obscured by transfers and subsidies received from national government. Thus, municipal budgets are not regarded as *hard* budgets to the extent that expenditure is restricted to revenue collected. Also, the gross geographical product for specific municipalities is not officially published. This makes it difficult to use the methodology utilised in mainstream analysis. In order to compensate, it was necessary to adjust the national GDP based on the size of the population in the municipalities in the analysis. Thus, it was assumed that in the sample, the municipalities' share of GDP is determined by the share of their aggregate population to total population in the country. This assumption is rather crude and certainly not the best proxy for GGP but given the fact that all the variables are expressed as ratios, it does not really matter since totals for individual municipalities are not used in our forward looking analysis.

The forward looking model uses an adjusted version of the Wickens and Uctum (1993) model (Jacobs *et al*., 2001). *Firstly* the intertemporal budget constraint was used to define scenarios indicating under what conditions fiscal sustainability is possible. *Secondly*, the responsiveness of local government debt is quantified to changes in the primary balance and debt service payments by using a simple OLS regression model. Data was obtained from the National Treasury (2004) but also from annual reports from municipalities. In this regard data was obtained for 27 municipalities from the company: CA Ratings, responsible for risk analysis at local government sphere (Leon_Claasen@ratings.co.za). The municipalities included in the sample serve as a proxy for all category B rated municipalities that reflect all those with their own budgets excluding the main municipalities. Unfortunately, specific information on the state of the infrastructure in the sample or on how service delivery has changed over the last decade were unobtainable. Also, since panel data is used and GGP figures per municipality could not be obtained, property values in each municipality as a variable to proxy the growth in income were used.

Methodology for estimating the growth of local government debt

Borrowing from the Uctum and Wickens model used in the article in the *South African Journal of Economics* (Jacobs et al., 2001), the government's intertemporal budget constraint can be written in nominal terms as

$$G_t - T_t + iB_{t-1} = \Delta B_t + \Delta M_t = -S_t \qquad (1)$$

where G is government spending on goods and services and transfers, T is government revenue, B is the value of the public debt outstanding, at period t_1, i is the interest rate on government debt, M is the monetary base and S is total budget surplus. The debt in year t is equal to the difference between spending and revenue for year t, plus the sum of the

outstanding debt and the interest cost thereon. To separate the impact of the interest rate G does not include interest payments on government debt since it is accounted for in the term i_tB_{t-1}. Expressing (1) in terms of ratios to nominal GGP gives:

$$g_t - \tau_t + (i - \Pi_t - \eta_t)b_{t-1} = \Delta b_t + \Delta m_t + (\Pi_{t+} \eta_t)m_{t-1} = - s_t \quad (2)$$

where the lower-case letters g, τ, b, m and s denote the ratio of the corresponding upper-case variables to nominal GGP, $\Pi_t = (P_t-P_{t-1})/P_{t-1}$ and $\eta_t=(Y_t-Y_{t-1})/Y_{t-1}$, with P and Y representing the price level and real GGP respectively. Equation (2) indicates that new bond issues, money-base creation and seignorage finance the interest-inclusive government deficit. In the case of municipalities the latter has little meaning and Equation (2) can be rewritten as:

$$d_t+\rho_t b_{t-1} = \Delta b_t \quad (3)$$

where $d_t=g_t-\tau_t-\Delta m_t-(\Pi_t + \eta_t)m_{t-1}$ is the primary local government deficit expressed as a proportion of nominal GGP and $\rho_t=i_t-\Pi_{t+} \eta_t$ is the real *ex post* interest rate adjusted for real output growth. Equation (3) is an identity, which holds *ex post* in time t. Looking forward, the identity can only hold in *ex ante* terms.

Thus, in period t+1,

$$b_t=E_t[(1+\rho_{t+1})^{-1}(b_{t+1}-d_{t+1})] \quad (4)$$

where b_t is known in period t, and for the one period budget constraint to hold in expectational terms, must equal the expected discounted net debt/ GGP ratio in period t+1, conditional on information at time t. In order for fiscal policy to be sustainable for one period in the future, equation (4) must hold.

The corresponding expression for n periods ahead is obtained by solving forward and successively substituting the future compound discounted debt:GGP ratio to give the n-period intertemporal budget constraint:

$$b_t = E_t\delta_{t,n}b_{t+n} - E\sum_{i=1}^{n}\delta_{t,i}d_{t+i} \quad (5)$$

where

$$\delta_{t,n} = \prod_{s=1}^{n}(1+\rho_{t+s})^{-1}$$

is the time-varying real discount factor n periods ahead, adjusted for real GGP growth rate, r_t defined as

$$r_t = \prod_{s=1}^{t}\frac{1}{(1+i_s)}$$

Thus, the present stock of debt is equal to the sum of the present value of future primary surpluses plus the present value of the stock of debt in year "n".

From an intertemporal budget constraint point of view municipalities would be solvent if the present stock of government debt were equal to the present value of all future primary surpluses. Thus, a necessary condition for sustainability is that as n moves to infinity, the discounted value of the expected debt/GGP ratio converges to zero. This is also known as the transversality condition, meaning that no new debt is issued to meet interest payments.

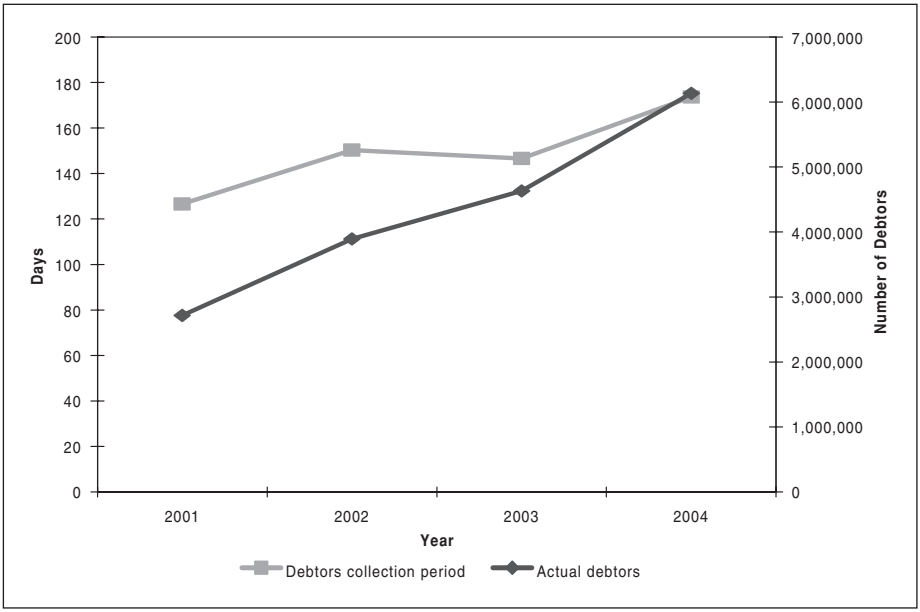
Secondly, in the OLS regression model a panel regression analysis was used to analyse the responsiveness of municipal debt to various municipal constraints, such as debt collection period (days), revenue and revenue per capita of the municipalities, debt arrears, and municipal expenditure. This part of the analysis is aimed at measuring the sensitivity of municipal debt to the variables mentioned in order to be able to prioritise policy tools when addressing the growing debt problem. A major problem to overcome was the lack of data with only a four-year time series. Thus, panel data had to be used which constrained the analysis to pooled coefficients, with the result that municipalities individually, may not necessarily fall within the ambit of the coefficients determined. The panel used has 108 observations for four years (2001-2004). The variables analysed consist of debt of the municipalities (defined as the municipality long-term liabilities); debt collection periods in days; income per capita (where the taxable land and non taxable land were used as a proxy of the municipality income); debt arrears; municipal expenditure; grants; and revenue. The results show that local government debt is very sensitive to grants, which is understandable since municipalities on average overspend. Due to the lack of data and the methodology used, spurious results could not be tested for and the problems with autocorrelation can be ascribed to the use of panel data. However, that was the best that could be achieved within the constraints and the results are comfortingly meaningful.

FINDINGS

Static analysis

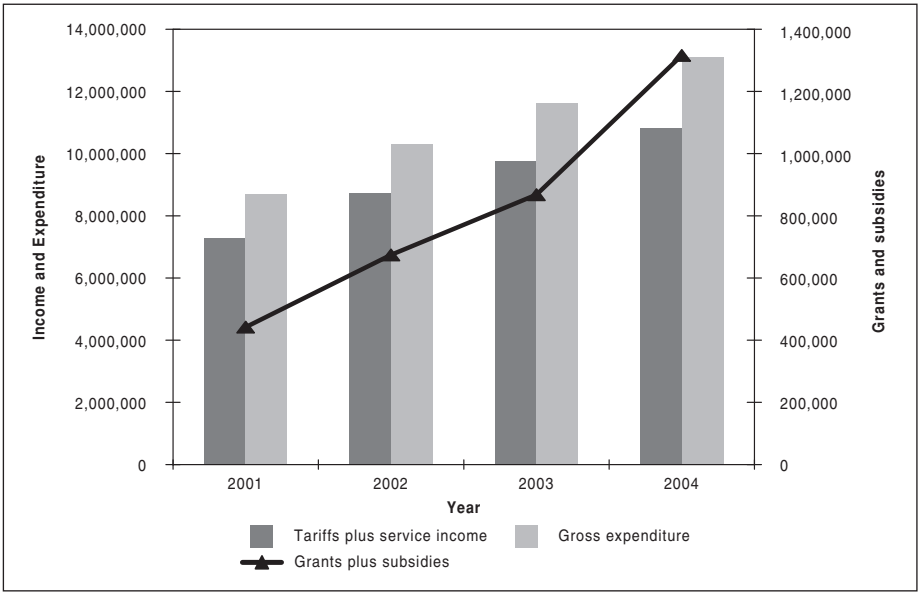
In total there are 284 municipalities which together constitute the sphere of local government. Information on 27 (mainly category B) municipalities were obtained from CA Ratings. Casual analysis shows that the collection period has a severe impact on the liquidity of municipalities. The Figure below shows that since 2001, the average revenue collection period increased from 127 days to 174 days. This compares favourably with the findings of the Auditor-General (AG) for the top 50 municipalities in which case the average collection period in 2003, was 322 days, with a highest of 1 322 and a low of 52 days. The concern is that the collection period translates directly into cash flow, meaning that municipalities increasingly experience liquidity problems. It is therefore understandable that the total debt figures are also on the increase with a corresponding increase in non-recoverable debt. According to the AG, total debt increased between 2002 and 2003 by R5,1 billion or 12 per cent, while the provision for bad debt increased by 28 per cent or R1,3 billion. Thus, provision for bad debt is increasing at a rate of more than twice the equivalent increase in total debt. Figure 1 shows that the actual number of debtors in the sample (debt outstanding 55 days and more) also increased sharply between 2001 and 2004 from just below 3 million to more than 6 million.

Figure 1: Revenue collection period and number of debtors



Source: CA Ratings and own calculations

Figure 2: Income and expenditure patterns and grants plus subsidies



Source: CA Ratings and own calculations

Figure 2 shows that although revenue collected and expenditure are on the increase, the gap is widening, filled by an exponential increase in grants and subsidies from national government. The reason is obvious; the increase in the period within which revenue is collected is on the increase which causes liquidity and cash-flow problems that are not taken into account when funds are spent. This is certainly not a sustainable scenario and confirms the concern raised by the Auditor-General. Local government debt seems to be growing explosively and the spheres of local government, is therefore, not sustainable.

In 2004 the following municipalities received in excess of 10 per cent of their total income from grants and subsidies:

Table 1: Municipalities receiving in excess of 10% of income through grants and subsidies

Municipality	Percentage income
Abaqulusi	10.3
Buffalo Bay	17.2
Maluti-a-Phofung	40.8
Mangaung	16.6
Matjabeng	15.7
Mogalakwena	13.1
Polokwane	19.5
Stellenbosch	20.3
Greater Tzaneen	15.6

Source: CA Ratings

The Table shows that the case of Maluti-a-Phofung raises particular concerns (40,8% of income) but questions could also be asked about municipalities such as Stellenbosch (20,7%) and Polokwane (19,5%).

Table 2 shows those municipalities where the debtor collection period exceeds 175 days (the mean value of the sample). Of particular concern is the case of Emfuleni (488,9 days) and Matjabeng (329,9 days). The reality seems to be that a culture of non-payment has been established which reflects poor management and bad communication with debtors.

Table 2: Municipalities where the debtor collection period exceeds 175 days

Municipality	Period in days
Emfuleni	488.9
Goran Mbeki	228.1

Municipality	Period in days
Lesedi	236.4
Maluti-a-Phofung	254.7
Matjabeng	329.9
Mogalakwena	255.3
Mogale City	271.9
Newcastle	195.4
Sol Plaatje	282.0

Source: CA Ratings

A major concern is also the case of low levels of capital expenditure compared to operating expenditure. In the sample the mean value of this ratio is 15 per cent and Table 3 shows the number of municipalities where the ratio is below the mean. Again the names of municipalities like Emfuleni (1%), Govan Mbeki (-3,6%), Matjabeng (4,7%), Mogale City (0%) and Greater Tzaneen (7,5%) appear on the list. Given the need to expand infrastructure and to maintain current structures, these low levels of investment expenditure pre-empt a collapse of infrastructure sometime in future, if not already a problem.

Table 3: Municipalities where the capital/operating expenditure ratio is below the mean

Municipality	Ratio
Drakenstein	9.0
Emfuleni	1.0
George	14.1
Govan Mbeki	-3.6
Kouga	2.7
Matjabeng	4.7
Mogale City	0.0
Msunduzi	14.8
Polokwane	14.0
Rustenburg	8.0
Saldana Bay	13.4
Greater Tzaneen	7.5
Witzenberg	3.0

Source: CA Ratings

A more in-depth analysis reveals the following:

Dynamic analysis

Intertemporal analysis of the growth in debt

In the various scenarios tested below, the values of the total debt over time in the different scenarios are calculated from starting values of the debt and the chosen deficit/GGP ratios. The chosen values in the various scenarios are therefore d_t, CPI, and η_t. All other columns in the tables are calculated from these. By using the intertemporal method, the long term implications are being considered. The fact that the base figure of the debt/GGP ratio more than doubles over a period of eleven years emphasizes the seriousness of the sustainability problems.

Scenario 1 (see Table 4) represents the most optimistic scenario with the deficit/GGP ratio marginally increasing to the three per cent level as from 2005 onwards and long term interest rates and inflation also only marginally higher but the economic growth remaining at current levels. By 2014 the debt/GGP ratio is expected to increase to 5,9 (from 2,5 in 2003). The Table shows that such a sharp increase in the debt/GGP ratio does not portray fiscal discipline. The value of b_t (the discounted value of accrued deficits and debt over the 11 year horizon) increases from 2,5 to 5,9 – a tendency which is clearly explosive and therefore not sustainable.

In scenario 2 the growth rate is lower and the inflation and interest rates are higher. The impact thereof is that the debt/GGP ratio increases from 2,5 to 7,1 compared to 5,9 in scenario 1. Thus, within the eleven years of the forward looking exercise, the debt/GGP ratio increases nearly three-fold. In the sample, this means that debt increases from R4,4 billion to R16,9 billion. According to statements by the Department of Provincial and Local Government, municipal debt in 2004 amounted to approximately R40 billion which means that the municipalities in the sample represent about 13 % of the total debt. Should the debt in the sample then be increased to 100% in 2014, the increase in debt will be approximately R92 billion according to scenario 2 compared to the more optimistic scenario 1 in which case the debt increase will be approximately R80 billion.

Regression analysis

Table 6 below shows the results obtained when Regression 1 was run with debt arrears, while Regression 2 was run without debt arrears. The results show that grants tend to reduce the debt of the municipalities at a one to one ratio. It is clear that in a *soft budget scenario* like this, municipalities rely almost totally on grants and subsidies to balance their budgets. Of crucial importance, though, is the lag in the period of revenue collection. Regression shows that a one day extension of revenue collection increases debt by approximately R109 000.

Table 4: Scenario 1 – Fiscal sustainability with deficit/GDP ratios constant and most realistic macro scenario

Year	GGP (region)	Def/GGP	Debt/GGP	LT Govrate	CPI	nu	rho	1+rho	delta	debt	Delta*b	Delta*d	Sumdelta*d	bt	Diffbt*bt
2003	179 753 065	0.2	2.5	10.451	6.5	3.0	0.951	1.00951		4 426 308	0.00000000		0.00	0.00	-2.50
2004	185 145 657	0.2	2.7	8.271	4.5	3.0	0.771	1.00771	0.992349	5 034 620	5.897062308	0.198470	3.08	8.98	6.26
2005	190 700 027	0.3	3.0	8.000	4.5	3.0	0.500	1.00500	0.987412	5 783 687	5.867723689	0.296224	2.88	8.78	5.75
2006	196 421 028	0.3	3.4	9.000	5.0	3.0	1.000	1.01000	0.977636	6 606 032	5.809627415	0.293291	2.59	8.48	5.12
2007	203 295 764	0.3	3.7	9.000	5.0	3.5	0.500	1.00500	0.972772	7 481 317	5.780723796	0.291832	2.29	8.19	4.51
2008	210 411 115	0.3	4.0	9.000	5.0	3.5	0.500	1.00500	0.967932	8 413 112	5.751963976	0.290380	2.00	7.90	3.90
2009	217 775 504	0.3	4.3	9.000	5.0	3.5	0.500	1.00500	0.963116	9 404 435	5.723347240	0.288935	1.71	7.61	3.29
2010	225 397 647	0.3	4.6	9.000	5.0	3.5	0.500	1.00500	0.958325	10 458 451	5.694872876	0.287497	1.42	7.32	2.68
2011	233 286 565	0.3	5.0	9.000	5.0	3.5	0.500	1.00500	0.953557	11 578 479	5.666540175	0.286067	1.14	7.03	2.07
2012	241 451 594	0.3	5.3	9.000	5.0	3.5	0.500	1.00500	0.948813	12 768 000	5.638348433	0.284644	0.85	6.75	1.46
2013	249 902 400	0.3	5.6	9.000	5.0	3.5	0.500	1.00500	0.944093	14 030 661	5.610296948	0.283228	0.57	6.46	0.85
2014	258 648 984	0.3	5.9	9.000	5.0	3.5	0.500	1.00500	0.939396	15 370 290	5.582385023	0.281819	0.28	6.18	0.24

Source: CA Ratings; Quarterly Bulletin of the Reserve Bank (various issues); Own calculations

Table 5: Scenario 2 – Fiscal sustainability with deficit/GDP ratios and interest rates

Year	GGP (region)	Def/GGP	Debt/GGP	LT Govrate	CPI	nu	rho	1+rho	delta	debt	Delta*b	Delta*d	Sumdelta*d	bt	Diffbt*bt
2003	179 753 065	0.2	2.5	10.451	6.5	3.0	0.951	1.00951		4 426 308	0.00000000		0.00	0.00	-2.50
2004	185 145 657	0.2	2.7	8.271	4.5	3.0	0.771	1.00771	0.987412	5 034 620	0.00000000		2.94	2.94	0.22
2005	190 700 027	0.3	3.0	8.000	4.5	3.0	0.500	1.00500	0.995025	5 783 687	0.00000000	0.197482	2.74	2.74	-0.33
2006	196 421 028	0.3	3.3	9.000	6.0	3.0	0.000	1.00000	0.995025	6 546 460	0.00000000	0.298507	2.44	2.44	-0.89
2007	201 331 553	0.3	3.6	10.000	7.0	2.5	0.500	1.00500	0.990075	7 347 667	0.00000000	0.297022	2.14	2.14	-1.51
2008	206 364 842	0.3	4.0	11.000	7.0	2.5	1.500	1.01500	0.975443	8 263 424	0.00000000	0.292633	1.84	1.84	-2.16
2009	211 523 963	0.3	4.4	12.000	7.0	2.5	2.500	1.02500	0.951652	9 316 331	0.00000000	0.285495	1.55	1.55	-2.85
2010	216 812 062	0.3	4.9	13.000	7.0	2.5	3.500	1.03500	0.919470	10 533 899	0.00000000	0.275841	1.27	1.27	-3.59
2011	211 232 364	0.3	5.4	14.000	7.0	2.5	4.500	1.04500	0.879876	11 949 820	0.00000000	0.263963	0.99	0.99	-4.39
2012	227 788 173	0.3	5.9	14.000	7.0	2.5	4.500	1.04500	0.841986	13 483 115	0.00000000	0.252596	0.73	0.73	-5.19
2013	233 482 877	0.3	6.5	14.000	7.0	2.5	4.500	1.04500	0.805729	15 142 550	0.00000000	0.241719	0.47	0.47	-6.01
2014	239 319 949	0.3	7.1	14.000	7.0	2.5	4.500	1.04500	0.771032	16 937 524	0.00000000	0.231310	0.23	0.23	-6.85

Source: Own calculations

Table 6: Dependent Variable: Debt

	Regression 1	Regression2
Grant	-1,0312 (0,3481)	-1,0728 (0,3394)
MR	-0,8247 (0,3358)	-0,8467 (0,3326)
ME	1,0947 (0,3311)	1,0910 (0,3300)
Days	109,1377 (60,7288)	103,0353 (59,6084)
Y	-1,4249 (0,5528)	-1,4091 (0,5503)
DETA	-0,2089 (0,3618)	
Statistics	R^2 = 0,4751	R^2 = 0,4734
	Adj-R^2 = 0,4494	Adj-R^2 = 0,4530
	D-W = 0,1793	D-W = 0,1780
	F-stat = 18,4666	F-stat = 23,1496
	Prob (F-Stat) = 0,0000	Prob (F-Stat) = 0,0000

The increase in the revenue collecting capacity of the municipality thus reduces the need to resort to external sources to finance expenditure. Municipal revenue has a negative sign, as expected and is statistically significant. Regression 1 shows that an increase in revenue of R1 will decrease the need for borrowing by about R0,82. As far as expenditure is concerned the sign is correct and the coefficient meaningful. An increase in municipal expenditure of R1 will cause an increase in the borrowing requirement of approximately the same amount (R1,09). Using the property value in each municipality as a proxy for income (wealth) levels, also produced the correct sign although the coefficient seems to be a bit high with R1 increase in income (wealth) reducing the borrowing requirement by R1,43. Debt arrears produce a wrong signal and do not seem to be statistically significant. Intuitively, one would expect arrears to compel municipalities to resort to more debt or request more grants. In Regression 2, debt arrears have been omitted and the results show that the results in Regression 1 are not substantially affected.

In order to take into account the demographic profile of the municipalities involved in the sample, regressions 1 and 2 were re-estimated with income per capita as an additional variable. Note that income is again represented by property values. The result is shown in Table 7 below:

Table 7: Dependent Variable: Debt

	Regression 3	Regression 4
Grant	-0,9954 (0,3494)	-1,0240 (0,3394)
MR	-0,8190 (0,3384)	-0,8343 (0,3348)
ME	1,0671 (0,3333)	1,0650 (0,3319)
Days	128,5698 (61,2515)	124,3076 (60,0550)
YP	-0,3445 (0,1543)	-0,3458 (0,1536)
DETA	-0,1445 (0,3642)	
Statistics	R^2 = 0,4670	R^2 = 0,4663
	Adj-R^2 = 0,4409	Adj-R^2 = 0,4454
	D-W = 0,1707	D-W = 0,1701
	F-stat = 17,8737	F-stat = 22,4868
	Prob (F-Stat) = 0,0000	Prob (F-Stat) = 0,0000

The results replicate the ones obtained in Table 6 except that the coefficients for the days outstanding, increase quite substantially. Compared to a coefficient of 1,09 in Regression 1 the coefficient now increases to 128,6 or 124,3 where the debt arrears have been omitted. This means that municipalities' income per capita also affect the size of their debt, which is understandable since it reflects the revenue base of the municipality. An increase in per capita income results in a reduction in the borrowing requirement of municipalities of approximately R0,34 as the revenue base of the municipality is expanded.

CONCLUSION

The intertemporal analysis shows that municipal deficits are sensitive to macro and demographic variables that influence the primary balance as well as the level of debt service payments. Without grants and subsidies from higher levels of government, municipalities will not survive and given a realistic scenario of economic realities the debt/GGP ratio of municipalities will grow more than two-fold over the next decade if not compensated for by intervention by national government. From a sustainability point of view, the crucial issue is the imbalance between growth in expenditures and revenue, which results in increased deficits and debt. The regression analysis shows

the sensitivity of debt to variables such as the number of days of outstanding debtors and given the tendency for this period to increase, it can be expected that the debt ratios will rise. Also, revenue and expenditures impact on debt with especially the latter contributing to increased debt levels. An increase in revenue (even per capita revenue), lowers the borrowing requirement and the expansion of the revenue base seems to be a logical solution.

The answer does not lie in the decentralization of tax powers to municipalities. In its Seventh Interim Report, the *Commission of Inquiry into Certain Aspects of the Tax Structure in South Africa* (Katz Commission, 1997), stated that evidence from developing countries and economies in transition suggests that when national government has incomplete control over the policies, administration and collections of their respective tax instruments because of poor tax administration in the local government sphere, it may lead to conflict and less efficiency (Katz: 177). The Commission also recommended that in a jurisdiction with big differences in administrative capacity among the different spheres of government, it is advisable to centralize all administration of national taxes. Furthermore, the Commission points out that in cases where municipalities are able to deliver more effective and cost efficient services, the electorate generally has greater trust in the fiscal decentralization process. Efficiency is not attained by rigid demands for more speedy devolution of revenue sources and powers to sub-national governments (*Ibid:* 178).

The results obtained in this analysis indicate that local government finances do not seem to be sustainable. Much of the discipline required to enforce hard budget constraints are undermined by life lines extended to municipalities by national and provincial governments. To establish such a discipline at the local government sphere, such governments have to be compelled to bear the cost but also reap the benefits of their fiscal decisions. In order to be able to do this, their finances will have to be monitored in much more depth and more regularly. Also, the results of analysis of this kind will have to be made known to ensure accountability and also the possible benefits from competition among the municipalities.

While some municipalities seem to be able to cope, the sustainability of others is questioned. Although the introduction of the *Local Government: Municipal Public Finance Act,* 2005 (MPFA) will certainly contribute towards more sound policy in the local sphere, the growing debt scenario points at a potential massive collapse of the local government system which will necessarily result in a takeover from national government. Some of the major tendencies are the increase in days before payment, non-payment, the increase in operational expenditures compared to maintenance and extension of infrastructure and fraud and corruption which drain available funds that could have been used to address the accumulating woes of municipalities.

Poor information is a major problem as reported by the Auditor-General. Accounts should be comprehensive and readily available in order for reports to be submitted timeously. The question should be asked whether national government provides sufficient administrative support and guidance to municipalities.

Capital expenditure backlogs to compensate for budget shortages pose a generic problem. Atkinson (2003: 6) argues that the present system of development funding as

experienced by municipalities is a *hit and miss* affair, generally consisting of applying for as much funding as possible and when funding is made available to the municipality, it tends to be for priorities determined by the funders (line departments or donors) with little regard to strengthening diverse projects by creating mutually supportive and sustainable administrative or developmental measures. The implication thereof is that each project stands on its own without being evaluated in context of the broader developmental picture. A typical example is water and sanitation projects where projects are being initiated and funded by the Department of Water Affairs and Forestry (DWAF) and not by the municipalities themselves, further reducing the possibility that municipalities will obtain the skills transfers they need to manage their affairs in the real sense. Atkinson further states that the appointment of politically well connected officials to administer the responsibilities of municipal managers are inappropriate when realizing the huge developmental challenges facing municipalities.

If fiscal sustainability is to be used as a yardstick for successful decentralization, the views portrayed by the second generation school of thought become extremely relevant. The question should be asked whether the *advantage* of bringing government closer to the people with the *first generation* model's allocative advances, still make sense in view of the fiscal sustainability problems that many of them experience. Evidence from this research seems to support the opposite view and it is suggested that government carefully re-evaluate the number of municipalities allowed to manage their own budgets, but specifically also enforce more stringent financial reporting.

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