

#### University of New England

#### **School of Economics**

## Local Government Performance Monitoring in NSW: are 'At Risk' Councils Really at Risk?

by

David Murray and Brian Dollery

No. 2004-15

#### **Working Paper Series in Economics**

ISSN 1442 2980

http://www.une.edu.au/febl/EconStud/wps.htm

Copyright © 2004 by UNE. All rights reserved. Readers may make verbatim copies of this document for non-commercial purposes by any means, provided this copyright notice appears on all such copies. ISBN 1 86389 9103

## Local Government Performance Monitoring in NSW: are 'At Risk' Councils Really at Risk?

David Murray and Brian Dollery \*\*

<sup>\*\*</sup> David Murray was an Honours student in the School of Economics at the University of New England

Brian Dollery is a Professor in the School of Economics and UNE Centre for Local Government at the University of New England.

Contact information: School of Economics, University of New England, Armidale, NSW 2351, Australia. Email: <a href="mailto:bdollery@une.edu.au">bdollery@une.edu.au</a>.

#### 1. INTRODUCTION

NSW local governments are assessed by the NSW Department of Local Government (DLG) to either be "at risk" or "not at risk", with this outcome dependant on the analysis of a range of key performance indicators derived from comparative performance tables constructed by the DLG on the basis of information supplied by individual municipalities. In the formation of monitoring lists, the DLG undertakes a subjective analysis of these indicators to determine whether a council should be classified as "at risk" or not. In this paper, an econometric evaluation of these lists is undertaken in order to determine whether the indicators employed and the results published by the DLG are sufficiently robust to withstand analytical scrutiny. Put differently, are municipal councils deemed to be 'at risk' on the basis of the DLG analysis of selected key performance indicators (KPIs) really 'at risk' or have they merely been erroneously classified as 'at risk'?

The paper itself is divided into eight main parts. Section 2 provides relevant institutional information by way of background to the subsequent analysis. Section 3 discusses the requirements and selection of the chosen econometric model. Section 4 outlines the methodology of the model. Section 5 appraises the monitoring list for the year 2000/01, whereas Section 6 analyses the monitoring list for 2001/02. Section 7 examines the monitoring list for 2001/02.

Section 8 focuses on the overall robustness of the monitoring lists through the use of the indicators employed by the DLG. The paper ends in section 9 with some brief concluding comments on the policy implications of the empirical analysis.

#### 2. INSTITUTIONAL BACKGROUND

As part of its drive to improve the transparency of the public sector, the NSW state government requires councils to submit annual reports on their performance covering eighteen areas, including financial results, infrastructure status, employment information, and progress made in meeting specified external legislative requirements. The NSW DLG then uses this information to compile annual comparative performance tables based on various key performance indicators. The information contained in these comparative performance tables detail each council's performance in eleven categories, with a total of thirty different performance indicators employed. Appendix Table 1 summarises the resultant KPIs.

The DLG presents data on the state high scores, low scores, means and medians for each indicator and breaks the results down into the eleven categories shown in Appendix Table 1. Individual municipalities are grouped into eleven discrete subsets, ranging from 'urban capital city' through to 'rural remote large', in order to facilitate comparisons of structurally similar local authorities by

aggregating presumed 'peer' councils, despite recognising that 'when assessing the performances of councils, it is important to remember that local circumstances can influence how well a council provides its services' (DLG, 2004a, p.11).

Following this procedure, the DLG constructs 'monitoring lists' of councils containing those local authorities that have been identified as experiencing the greatest financial difficulty. These lists have been made public since the financial year 2000/01 in the DLG's annual reports. For the three financial years from 2000/01 to 2002/03, a total of 37 councils have appeared on the monitoring lists. Moreover, 14 councils have appeared thrice; 13 councils have appeared twice, and 10 councils have appeared once. For each successive year, the number of municipalities listed has grown (from 20 in 2000/01, 29 in 2001/02, to 30 in 2002/03). The KPIs used in compiling these listed are shown in Table 1:

### TABLE 1 FINANCIAL PERFORMANCE INDICATORS

Sources of revenue from ordinary activities

Total ordinary activities revenue per capita

Dissection of expenses from ordinary activities

Total expenses from ordinary activities per capita

Current ratio (unrestricted)

Debt service ratio

Capital expenditure ratio

Source: Compiled from DLG (2004a)

Councils that appear on the published monitoring lists are deemed by the DLG to be 'at risk'. They can then be subject to various onerous sanctions, ranging from closer scrutiny by the DLG to outright dismissal. It is thus obviously imperative that the procedures involved in determining 'at risk' councils be sound and that municipalities identified to be 'at risk' are in fact in serious difficulties.

#### 3. MODEL SELECTION

The selection choice of "at risk" or "not at risk" immediately suggests the use of econometric models with dependant variables that are dichotomous in nature; this dependant binary result must arise from an analysis of a range of independent variables. Linear models utilising ordinary least squares (OLS) methodology fail to address the "either/or" criterion that is employed, and may in fact provide probabilities of expected results that fall either side of a bound of 0 and 1. As a result, non-linear models are more appropriate (Carter Hill, 2001). Non-linear models will allow the dependant variable to viewed as the probability of occurrence, which by nature must fall within a 0 and 1 bound (Kennedy, 2003).

A cumulative density approach employing the probit model will provide for an "S" shaped curve constrained to a 0 and 1 y-axis, where the curve's slope will change as the values of the independent variable change. Consequently, the probit function provides the probability of a normal random variable falling to the left of a particular critical value and can be stated as (Carter Hill, 2001, p.371):

$$F(z) = P[Z \le z] = \int_{-\infty}^{u} \frac{1}{\sqrt{2\pi}} e^{-.5u^2} du$$

Where: Z is a normal random variable

z is a critical value

The statistical probit model, which expresses the probability that the dependant variable will take the value of 1, can be expressed as (Carter Hill, 2001, p.372):

$$p = P[Z \le \beta_1 + \beta_2 x] = F[\beta_1 + \beta_2 x]$$

Where: p is the probability

*F* is the probit function

This model assumes normally distributed errors and utilises maximum likelihood estimates, where the function provides that the probability of occurrence is 1, and that the probability of non-occurrence to be 1 minus the function. Consequently, the likelihood is the resulting product of two elements, the resultant product of probit functions for all observed occurrences, and the resultant product of all one minus the probit functions for all observed non-occurrences. However, in contrast to OLS estimates, the estimated coefficients do not indicate the effect of marginal changes in the explanatory variables on the probability.

7

Instead they provide for a function of that coefficient. Kennedy (2003) has argued that an adequate 'goodness of fit' for the model would be to sum the fractions of the correctly predicted number of zeros and the predicted number of ones, with a 'good' model exceeding unity.

This paper employs the probit model of estimation, since the two possible results are either "at risk" or "not at risk", which are binary in nature, and where results must fall within these bounds. Secondly, these two possible results are dependant on a range of indicators that are used by the DLG. Finally, this model allows us to examine the impact of a change in the value of indicators. Moreover, since the number of councils in NSW is sufficiently large, it can expected that maximum likelihood estimators will be normally distributed and consistent (Carter Hill, 2001).

#### 4. METHODOLOGY

The data used in the compilation of the published comparative tables is available in an electronic spreadsheet form from the DLG and covers the period from 1994/95 to 2002/03 in individual worksheets (DLG, 2004b). This data incorporates the 11 categories of KPI as shown in the Appendix Table 1, and it dissects these KPI's into their more specific components as shown by the sub-KPI's in Appendix

Table 2. The DLG (2004a) advises that the data is published in a 'raw form' as provided by the councils in their annual reports.

For ease of interpretation, a series of 'more applicable' abbreviations have been noted for the KPI's shown in Appendix Table 2. In order to avoid correlation errors and to ascertain the effects of population and area on the financial performance of councils, KPI20 and KPI40 were ignored in the analysis and the variables of Pop and Area were added (as data included in the data set). Table 2 shows the variables employed with their abbreviations.

TABLE 2

VARIABLES AND ABBREVIATIONS USED IN ANALYSIS

Abbreviation	Description	KPI <sub>ij</sub>	
ML	= 1 if council is on monitoring list		
IVIL	= 0 if council is not on monitoring list		
Council	A numerical identifier of each council		
RevTotal	Ordinary Revenue – Total	KPI <sub>10</sub>	
RevPCap1	Ordinary Revenue – Per Capita	KPI <sub>20</sub>	
ExpTotal	Ordinary Expenditure – Total	KPI <sub>30</sub>	
ExpPCap1	Ordinary Expenditure – Per Capita	KPI <sub>40</sub>	
Current	Current Ratio (Unrestricted)	KPI <sub>50</sub>	
Debt	Debt Service Ratio	KPI <sub>60</sub>	
CapEx	Capital Expenditure Ratio	KPI <sub>70</sub>	
Annual	Annual Report Submitted On-time	KPI <sub>81</sub>	
Environ	State of Environment Report Submitted On-time	KPI <sub>82</sub>	
Financ	Financial Report Submitted On-time	KPI <sub>83</sub>	
Pop	Population within council's boundaries		
Area	Area of council in square kilometres (sqkm)		
Ru	A dummy variable where 1 = Council in Rural/Regional area		
WatSew	A dummy variable where 1 = Council supplies water/sewerage		
	services.		

Accordingly, the probit model that is to be estimated takes the following form:

$$^{\wedge}p = F[\beta_1 RevTotal + \beta_2 ExpTotal + \beta_3 Current + \beta_4 Debt + \beta_5 CapEx + \beta_6 Annual + \beta_7 Environ + \beta_8 Financ + \beta_9 Pop + \beta_{10} Area]$$

Where: p is the predicted probability that a council can be classified as "at risk"

#### *F* is the probit function

No constant has been specified due to the variation that exists naturally between councils, and since the inclusion of such a value could provide distortion of overall results. Moreover, because the construction of monitoring lists is inevitably based on at least some degree of subjective judgment, they do not provide for a "base" coefficient for the degree of "at risk" status.

The results obtained have been analysed using a three-stage process:

(i) Is the coefficient sign as per the expectations presented in Table 3.

TABLE 3
EXPECTED SIGNS OF COEFFICIENTS

Variable	Expected	Reason
RevTotal	Sign –	Increased revenue available for service provision, therefore
RevPCap1	Not Used	less likely to be "at risk".
ExpTotal	+	Increased costs of service provision, therefore more likely to be "at risk".
ExpPCap1	Not Used	
Current	_	A higher ratio indicates more assets with fewer liabilities, accordingly, less likely to be "at risk".
Debt	_	A lower ratio indicates that debt is a lower proportion of revenue, therefore the council is less likely to be "at risk".
CapEx	_	Unity or greater would show that capital equipment is being replaced in line with depreciation.
Annual	+	Annual report submitted late shows that governance mechanisms are poor.
Environ	+	State of Environment report submitted late shows that governance mechanisms are poor.
Financ	+	Financial report submitted late shows that governance mechanisms are poor.
Pop	_	Larger populations should mean expenditure can be averaged across a higher number of people.
Area	+	Expenditure should increase in councils with larger areas.

(ii) Each variable is to be tested for significance utilising the following null hypotheses and alternative hypotheses:

$$H_0$$
:  $\beta_1 = 0$ ,  $H_1$ :  $\beta_1 \neq 0$ 

$$H_0$$
:  $\beta_2 = 0$ ,  $H_1$ :  $\beta_2 \neq 0$ 

$$H_0$$
:  $β_3 = 0$ ,  $H_1$ :  $β_3 \neq 0$ 

$$H_0$$
:  $\beta_4 = 0$ ,  $H_1$ :  $\beta_4 \neq 0$ 

$$\begin{split} &H_0\colon \beta_5 = 0, \, H_1\colon \beta_5 \neq 0 \\ &H_0\colon \beta_6 = 0, \, H_1\colon \beta_6 \neq 0 \\ &H_0\colon \beta_7 = 0, \, H_1\colon \beta_7 \neq 0 \\ &H_0\colon \beta_8 = 0, \, H_1\colon \beta_8 \neq 0 \\ &H_0\colon \beta_9 = 0, \, H_1\colon \beta_9 \neq 0 \\ &H_0\colon \beta_{10} = 0, \, H_1\colon \beta_{10} \neq 0 \end{split}$$

These hypotheses were tested against standard t-values at both the 5% and 10% significance levels, such that  $t_{0.25, \text{ n}>120} = \pm 1.96$ , and  $t_{0.05, \text{ n}>120} = \pm 1.645$ . Where the null hypothesis is rejected, it is concluded that sufficient evidence exists to claim significance of that variable in the likelihood of being categorised as "at risk".

(iii) Using a ratio of the overall proportion of successfully predicted results, the model will be tested for goodness of fit as discussed earlier. This will be used in place of traditional  $R^2$  values, where a higher ratio will indicate the degree of accuracy that the model displays. This will allow judgment to be made upon how "good" the model has been in predicting econometrically whether a council is "at risk" or not based upon the observed monitoring list for that year.

#### 5. ANALYSIS OF MONITORING LIST FOR 2000/01

#### 5.1 Situation in 2000/01

In 2000/01 there were 176 councils in NSW, of which 44 were classified as urban and 132 regional (NOLG, 2001). In that year, 20 councils were identified by the DLG as being "at risk" which represents 11% of all councils in NSW (DLG, 2001). Rates revenue was capped by the NSW DLG at 2.7% (LGAN, 2003).

#### 5.2 Results of Probit Analysis of 2000/01 Monitoring List

The monitoring list for 2000/01 was analysed using a probit regression analysis through Shazam. The results of this analysis are shown in Table 4.

TABLE 4
PROBIT ANALYSIS RESULTS FOR 2000/01

Variable	Estimated	Standard t-ratio		Significant Variables		Successful
Name	Coefficient	Error	t-ratio	5%	10%	Proportion
RevTotal	0.0000	0.0000	1.1752			
ExpTotal	0.0000	0.0000	-1.3431			
Current	-0.5415	0.1280	-4.2310	Yes	Yes	
Debt	0.2646	2.6766	0.0989			
CapEx	-0.0047	0.0217	-0.2183			0.841
Annual	0.1450	0.3519	0.4121			0.641
Environ	-0.3559	0.3516	-1.0123			
Finance	0.3188	0.4022	0.7928			
Pop	0.0000	0.0000	0.2564			
Area	0.0000	0.0000	0.6339			

Table 4 shows that of the ten variables that were chosen, only the current ratio was significant at both the 5% and the 10% significance level. The estimated coefficient of zero for total revenue, total expenditure, population, and area is unexpected and thus does not influence the monitoring list formation. Of the other variables, unexpected signs were obtained for the debt service ratio, and the timeliness of the annual and finance reports. Shazam reports the predicted successful proportion as 0.841, which indicates that the chosen variables in this model would predict 84.1% of the observed "at risk" councils for 2000/01.

#### 6. ANALYSIS OF MONITORING LIST FOR 2001/02

#### 6.1 Situation in 2001/02

In 2001/02 there were 175 councils in NSW, of which 44 were classified as urban, with 131 as regional (NOLG, 2002). In that year, 29 councils were identified by the DLG as being "at risk" which represents 16.5% of all councils in NSW (DLG, 2002). Rates revenue was capped by the NSW DLG at 2.8% (LGAN, 2003).

#### 6.2 Results of Probit Analysis of 2001/02 Monitoring List

The monitoring list for 2001/02 was analysed using a probit regression analysis through Shazam. The results of this analysis are shown in Table 5.

TABLE 5
PROBIT ANALYSIS RESULTS FOR 2001/02

Variable	Estimated	Standard	<i>t</i> -ratio	Significant	Variables	Successful
Name	Coefficient	Error	<i>t</i> -1 at10	5%	10%	Proportion
RevTotal	-0.0441	0.02900	-1.5201			
ExpTotal	0.04897	0.0280	1.7475		Yes	
Current	-0.3741	0.0742	-5.0402	Yes	Yes	
Debt	-1.3496	2.3042	-0.5857			
CapEx	-0.0141	0.0141	-0.9964			0.751
Annual	0.6970	0.3920	1.7781		Yes	0.731
Environ	-0.3995	0.3667	-1.0895			
Finance	-0.6460	0.5503	-1.1739			
Pop	-0.0049	0.00863	-0.5678			
Area	0.0001	0.0010	0.0897			

Table 5 shows that of the ten variables that were chosen, at the 10% significance level three were significant; namely, total expenditure, the current ratio, and the timeliness of the annual report; at the 5% significance level, this reduced to just one variable - the current ratio. All signs are as expected, except for the timeliness of both the State of the Environment report and the finance report. The predicted successful proportion is 0.751, which means that in 2001/02, 75.1% of the observed "at risk" councils could be successfully predicted.

#### 7. ANALYSIS OF MONITORING LIST FOR 2002/03

#### 7.1 Situation in 2002/03

In 2002/03 there were 175 councils in NSW, of which 44 were classified as urban, with 131 as regional (NOLG, 2003). In that year, 30 councils were identified by

the DLG as being "at risk" which represents 17.1% of all councils in NSW (DLG, 2003). Rates revenue was capped by the NSW DLG at 3.3% (LGAN, 2003).

#### 7.2 Results of Probit Analysis of 2002/03 Monitoring List

The monitoring list for 2002/03 was analysed using a probit regression analysis through Shazam. The results of this analysis are shown in Table 6.

TABLE 6
PROBIT ANALYSIS RESULTS FOR 2002/03

Variable	Estimated	Standard t-ratio		Significant Variables		Successful
Name	Coefficient	Error	t-ratio	5%	10%	Proportion
RevTotal	0.0000	0.0000	-0.0254			
ExpTotal	0.0000	0.0000	-0.2684			
Current	-0.2734	0.0664	-4.1147	Yes	Yes	
Debt	1.2171	1.2981	0.9376			
CapEx	-0.01391	0.0222	-0.6268			0.779
Annual	0.8440	0.4403	1.9171		Yes	0.779
Environ	-0.5572	0.4475	-1.2451			
Finance	-0.1372	0.3695	-0.3712			
Pop	0.0000	0.0000	-0.3007			
Area	0.0000	0.0000	0.5378			

Table 6 indicates that of the ten variables that were chosen, at the 10% significance level two were significant; namely, the current ratio, and the timeliness of the annual report; at the 5% significance level, this reduced to just one variable, the current ratio. The estimated coefficient of zero for total revenue, total expenditure, population and area is unexpected and thus does not influence the monitoring list formation. Of the other variables, unexpected signs were obtained for the debt service ratio, and the timeliness of the State of the Environment report and the finance report. Shazam reports the predicted

successful proportion as 0.779, which indicates that the chosen variables in this model would predict 77.9% of the observed "at risk" councils for 2002/03.

#### 8. DISCUSSION OF RESULTS

Inconsistencies are evident in the results reported in Tables 4, 5 and 6. These results will be discussed collectively.

#### 8.1 Signs of the Coefficients

Ignoring the significance of the coefficients, there is considerable diversity in the signs of the coefficients of the ten variables. Expectations were achieved for four variables in 2000/01, for eight variables in 2001/02, and for three variables in 2002/03. Three variables exhibited signs as per expectations across all monitoring lists; the current ratio (negative), the capital expenditure ratio (negative), and the timeliness of the annual report (positive). In 2000/01, the other variable that met expectations was the timeliness of the finance report (positive). However, this was not repeated in either of the other years. The other variables that met expectations occurred in 2001/02 for total revenue (negative), total expenditure (positive), the debt ratio (negative), population size (negative) and geographic area of the councils (positive). Of specific interest is that in 2000/01 and 2002/03, total revenue, total expenditure, population size and geographic area all returned

estimated coefficients of zero, thus demonstrating neither positive or negative coefficients. As both total revenue and total expenditure are considered to be financial indicators, it is of particular concern that for two of the periods examined, these two variables appear to have had no bearing upon the probability of whether a council could be classed as "at risk" or not.

#### 8.2 Significance of the Variables

In all three years, the current ratio remained significant at both the 5% and 10% significance levels. Other variables which displayed an element of significance at the 10% level were total expenditure in 2001/02, and the timeliness of the annual report in 2001/02 and 2002/03. At both significance levels, there was insufficient evidence to conclude significance for all other variables in the three years analysed. It is especially worrying that revenue is shown to be insignificant at the 10% level for all three years examined, and that expenditure is only shown to be significant once.

#### 8.3 "Goodness" of the Models

The goodness of the model for each year is somewhat surprising given the insignificance of many of the variables. This result varied from 0.751 in 2001/02 to 0.841 in 2000/01. Nevertheless, it is concluded that whilst the model allows for

prediction of over 75% of observed results (with a high of 84% in 2000/01), there remains considerable unexplained variation (up to 25%) beyond financial indicators and report timeliness in the selection of "at risk" councils.

#### 8.4 Robustness of Monitoring Lists since 2000/01

The monitoring lists as published by the DLG are for the specific purpose of identifying those councils that have "issues of concern with their financial operations" (DLG, 2003, p.61). In analysing these lists econometrically through the use of a probit regression model, it has been established that the majority of the financial indicators employed by the DLG are insignificant at the 10% significance level, and consequently the analysis performed by the DLG appears to lack a sound statistical basis. Moreover, whilst consistency in approach might be expected at least, this is not the case with the changing number of significant variables, and the discrepancies in sign of the variables over the examined period. As a result, the determination of financially "at risk" councils in NSW by the present methods employed by the DLG fails to provide an adequate indication of financial soundness for those councils which have been placed on monitoring lists for each year since 2000/01.

#### 9. CONCLUDING COMMENTS

This paper has sought to analyse the published monitoring lists of "at risk" councils in NSW. The results obtained indicate that at present there is no sound statistical basis for the identification of "at risk" by the NSW DLG.

Three aspects of our econometric results are particularly pertinent. In the first place, one of the major aims of our analysis has been to determine whether the methodology that is employed in the identification of "at risk" councils in NSW is sufficiently robust to withstand analytical scrutiny. It seems that the present methodology used to analyse councils' financial data is not valid. For instance, the probit analysis performed demonstrated that the greater majority of indicators employed by the DLG in monitoring list construction were insignificant at the 10% level. Moreover, in the goodness of fit analysis, there remained considerable unexplained variation in the proportion of correctly predicted "at risk" councils against the actual monitoring lists. Consequently, the conclusion is drawn that the present methodology employed by the NSW DLG cannot be considered sufficiently robust to predict actual "at risk" councils.

Secondly, the paper has sought to determine whether the monitoring lists provided an accurate representation of financial performance of NSW local authorities to the extent that the financial accountability of councils is adequately discharged. Our results indicate that the high proportion of insignificant variables

raises substantial doubts concerning the ability of the present methodology to determine "at risk" councils in NSW. It thus cannot be concluded that the existing monitoring lists provide an accurate representation of "at risk" councils. Moreover, where financial accountability is sought in the public sector, it is for the specific purpose that it will call institutions to account for the manner in which they manage their finances. NSW monitoring lists highlight specific named municipalities which purportedly display financial inadequacies. However, if the lists themselves are flawed, then they cannot be considered an adequate tool in discharging accountability requirements.

Finally, as we have seen, the findings of our paper suggest that those councils which have been publicly identified as "at risk" may in fact not be in a parlous financial state at all. This has the potential for opening up a political "can of worms" for both the NSW Government and the NSW DLG since those councils which have been labelled as "at risk" could seek legal redress. Moreover, local authorities which have been branded "at risk" may have been subject to subsequent close scrutiny, and even dismissal, when their actual financial soundness is in fact no worse than other councils within the same assigned classification category.

#### **APPENDIX**

# APPENDIX TABLE 1 NSW LOCAL GOVERNMENT ANNUAL REPORTS – KEY PERFORMANCE INDICATORS

Category	Key Performance Indicate	ator
1	Rating	
	1.1 Average rate per assessment	
	1.2 Outstanding rates, charges and fees	
	1.3 Percentage movement in rates and annual char	rges revenue from previous year
	1.4 Percentage movement in user charges and feet	s from previous year
2	Financial	
	2.1 Sources of revenue from ordinary activities	
	2.2 Total ordinary activities revenue per capita	
	2.3 Dissection of expenses from ordinary activities	es
	2.4 Total expenses from ordinary activities per ca	pita
	2.5 Current ratio (unrestricted)	
	2.6 Debt service ratio	
	2.7 Capital expenditure ratio	
3	Corporate	
	3.1 Number of equivalent full time staff	
	3.2 Compliance with statutory reporting deadlines	3
4	Library Services	
	4.1 Library expenses per capita	
	4.2 Circulation per capita	
5	<b>Domestic Waste Management and Recycling Service</b>	
	5.1 Average charge for domestic waste management	ent services per residential
	property	
	5.2 Costs per service for domestic waste collection	
	5.3 Recyclables – kilograms per capita per annum	
	5.4 Domestic waste – kilograms per capita per an	num
6	Water Supply Services	
	6.1 Average bill for residential customers (\$ per c	
	6.2 Operating costs including depreciation (\$ per	connected property)
7	Sewerage Services	
	7.1 Average bill for residential customers (\$ per c	
	7.2 Operating costs including depreciation (\$ per	connected property)
8	Planning and Development Services	
	8.1 Number of development applications determine	
	8.2 Mean time in calendar days for determining d	
	8.3 Median time in calendar days for determining	
	8.4 Legal expenses to total planning and developr	ment costs
9	<b>Environmental Management and Health Services</b>	

	9.1 Environmental management and health expenses per capita
10	Recreation and Leisure Services
	10.1 Net recreation and leisure expenses per capita
11	Community Services
	11.1 Community services expenses per capita

Source: Compiled from DLG (2004a)

APPENDIX TABLE 2
REVENUE AND EXPENDITURE ABBREVIATIONS

KPI <sub>1Y</sub>	Total ordinary activities revenue per capita		
11	$KPI_{11}$	Rates and annual charges	
	$KPI_{12}$	User charges and fees	
	$KPI_{13}$	Interest	
	$KPI_{14}$	Grants	
	$KPI_{15}$	Contributions and donations	
	KPI <sub>16</sub>	Other revenues	
KPI <sub>2</sub>	Total revenue from ordinary activities per capita		
$KPI_{3E}$	Dissection of expenses from ordinary activities		
	$KPI_{31}$	Employee costs	
	$KPI_{32}$	Materials and contracts	
	$KPI_{33}$	Borrowing costs	
	$KPI_{34}$	Depreciation	
-	KPI <sub>35</sub>	Other expenses	
KPI <sub>4</sub>	Total ex	penses from ordinary activities per capita	

#### REFERENCES

- Carter Hill, R., Griffiths, W. and Judge, G. (2001). *Undergraduate Econometrics*, 2<sup>nd</sup> Edition, John Wiley and Sons, New York.
- Kennedy, P. (2003). A Guide to Econometrics, 5th Edition, Blackwell, Oxford.
- Local Government Association of NSW and Shires Association NSW (LGAN) (2003).

  Submission No 226 to AHRSC (2003) *Rates and Taxes: A Fair Share for Responsible Local Government*, Australian Government Publishing Service, Canberra.
- National Office of Local Government (NOLG) (2001). 2000-01 Annual Report, National Office of Local Government, Department of Transport and Regional Services, Canberra.
- National Office of Local Government (NOLG) (2002). *2001-02 Annual Report*, National Office of Local Government, Department of Transport and Regional Services, Canberra.
- National Office of Local Government (NOLG) (2003). 2002-03 Annual Report, National Office of Local Government, Department of Transport and Regional Services, Canberra.
- NSW Department of Local Government (DLG) (2001). *2000-2001 Annual Report*, NSW Department of Local Government, Bankstown.
- NSW Department of Local Government (DLG) (2002). *2001-2002 Annual Report,* NSW Department of Local Government, Bankstown.

- NSW Department of Local Government (DLG) (2003). 2002-2003 Annual Report, NSW Department of Local Government, Nowra.
- NSW Department of Local Government (DLG) (2004a). 2002-2003 Comparative

  Information on New South Wales Local Governments, NSW Department of Local Government, Nowra.
- NSW Department of Local Government (DLG) (2004). *Comparative Information on*\*NSW Local Government Councils Time Series of Comparative Information,

  (accessed 5 July 2004) URL: <a href="http://www.dlg.nsw.gov.au/dlg/dlghome/dlg">http://www.dlg.nsw.gov.au/dlg/dlghome/dlg</a> comptime.asp.