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THE UNIVERSITY OF ADELAIDE AUSTRALIA

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Is the Credit Rating Tail Wagging the Budgetary Dog?

- *preliminary Analysis of the South Australian Budget 2010-11*

John Spoehr
Barry Burgan

with assistance from

Julian Morrison and Lisa Rippin

EconSearch

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CONTENTS

1 KEY FINDINGS

Employment and output impact of proposed reduction in employment
Demand for separation packages will be high given the incentives for early take-up put in place by the State Government. For this reason public sector employment losses are likely to outpace employment gains generated by new initiatives in the State Budget.
The objective of focusing employment reductions in areas characterised as back-office functions can be expected to lead to rationalisation and centralisation of administrative and financial support services in an attempt to accelerate the movement towards shared service arrangements. This is likely to have a disproportionate impact on public sector employment in regional areas as shared service functions will almost certainly be based in Adelaide. The focus of the employment reductions in administrative and financial services will disproportionately affect women who are over-represented in employment in these areas.
Modelling of the proposed public sector job cuts from the 2009-10 and 2010-11 State Budgets (1,762 FTE jobs) indicate losses to Gross Regional Product and employment of: • $174 million in Gross Regional Product • 2,400 FTE jobs (the 1,762 direct jobs and almost 650 flow on jobs).
Credit Ratings in Perspective
While the benefits of a AAA rating are not insignificant they should not be overestimated. Expenditure cuts of the magnitude of those in the State Budget are a high price to pay for the modest financial benefits that flow from a AAA credit rating, particularly when it was apparent prior to the State Budget that there was no realistic prospect of a credit rating downgrade for South Australia.
AISR modelling of the financial impact of a credit rating down-grade indicates that the cost associated with a one increment downgrade is actually very low, suggesting that the credit ratings tail may be wagging the budgetary policy dog much more than it should be.
The direct impacts of a credit ratings downgrading are small in the context of South Australia's overall financial position. If interest rates on SAFA loans were to increase by 10 basis points as a consequence of a downgrading, the cost in terms of extra interest would amount to just $4.4 million in 2010-11, increasing to $14 million by 2013-14. A small rise in interest payments can easily be accommodated by increased revenue flowing from growth in the current budgetary context.

2 INTRODUCTION

This report provides results of a preliminary analysis of the direct and indirect employment and economic impact of the South Australian Budget. An input-output model developed by EconSearch Pty Ltd has been utilised to identify the employment and economic output impacts of stated employment reductions and expansions in the State Budget. This model is commonly used within government as a tool for estimation of the impact of new investments.

It is important to note that impacts of the employment reductions will be mediated by the rate of take-up of TVSPs. Our preliminary judgement is that demand for separation packages will be high given the incentives for early take-up put in place by the State Government. For this reason public sector employment losses are likely to outpace employment gains generated by new initiatives in the State Budget.

The objective of focusing employment reductions in areas characterised as back-office functions can be expected to lead to rationalisation and centralisation of administrative and financial support services in an attempt to accelerate the movement towards shared service arrangements. This is likely to have a disproportionate impact on public sector employment in regional areas as shared service functions will almost certainly be based in Adelaide. The focus of the employment reductions in administrative and financial services will disproportionately affect women who are over-represented in employment in these areas.

There is a high risk that the employment reductions will lead to significant losses of ‘corporate knowledge’ and skills which will lead to short term productivity losses in the public sector. The AISR will report on this and the likely spatial and gender impacts of public sector employment reductions in detail in a future report.

In addition, an analysis of the financial significance of small movements in credit ratings is undertaken to identify what the fiscal benefit of a AAA credit rating is given South Australia’s debt profile. While the benefits of a AAA rating are not insignificant they should not be overestimated. AISR modelling of the financial impact of a credit rating down-grade indicates that the cost associated with a one increment downgrade is actually very low, suggesting that the credit ratings tail may be wagging the budgetary policy dog more than it should be.

Expenditure cuts of the magnitude of those in the State Budget are a high price to pay for the modest financial benefits that flow from a AAA credit rating, particularly when it was apparent prior to the State Budget that there was no realistic prospect of a credit rating downgrade for South Australia. This was a consequence of relatively robust economic conditions, low unemployment and strong growth prospects associated with the expansion of the mining and defence sectors.

3 ECONOMIC IMPACT OF THE 2010-11 SOUTH AUSTRALIAN BUDGET EMPLOYMENT CUTS

This section of the report estimates the economic impact of employment reduction targets announced in the State Budget on the South Australian economy. It also takes account of previously announced reductions as well as estimates of employment created by new initiatives announced by the State Government. No account was taken of other changes to public sector expenditure announced in the budget.

From the *2010-11 Budget Statement* it was estimated that there will be 692 FTE job cuts arising from the net effect of budget initiatives in 2010-11. This is in addition to the previously announced savings initiatives of 1,070 FTE job cuts. The combined 2009-10 and 2010-11 State Budget job losses were estimated to total 1,762 FTE jobs.

The methodological and definitional factors underpinning this analysis can be found in **Appendix 1.**

3.1 PUBLISHED ESTIMATES OF PUBLIC SECTOR EMPLOYMENT CUTS IN 2010/11

The effect of new initiatives on full time equivalent (FTE) state government employment is detailed in Table 1. The State Government has budgeted for jobs losses of approximately 690 FTE jobs in 2010-11, in addition to the previously announced savings requirements resulting in the loss of 1,070 FTE jobs (Table 1).

In aggregate a total of 1,762 jobs will be cut from the public sector. The economic impact of these job losses on the South Australian economy is described in Section 3.2.

Table 1. Full-time equivalent employment impacts of new initiatives in 2013-14

	Expenditure initiatives	Savings initiatives	Total
Premier and Cabinet	7	-63	-56
Trade and Economic Development	1	-90	-89
Treasury and Finance	6	-80	-74
Planning and Local Government	0	-18	-18
Justice	349	-206	142
Primary Industries and Resources	7	-186	-179
Transport, Energy and Infrastructure	0	-213	-213
Health	1,277	-957	320
Education and Children's Services	66	-350	-284
Families and Communities	140	-108	32
Environment	2	-153	-151
Water	0	-17	-17
Tourism	0	-51	-51
Further Education, Employment, Science and Technology	127	-183	-56
Total 2010-11 initiative FTEs	1,981	-2,673	-692
Previously announced savings requirements			-1,070
Total FTEs			-1,762

Source: Reproduced from Government of South Australia (2010)

3.2 IMPACT ON THE SOUTH AUSTRALIAN ECONOMY

3.2.1 2010-11 STATE BUDGET FTE IMPACTS

The State Government has budgeted jobs losses of 692 FTE jobs in 2010-11. Total household disposable income arising from the 692 FTE jobs in South Australia was estimated to be almost $41 million in 2010-11. In aggregate, it was estimated that expenditure effects resulting from these jobs losses in South Australia in 2010-11 would have the following economic, employment and population impacts.

- Approximately $68 million in lost GRP which represents 0.09 per cent of GSP ($79.0 billion in 2008-09).

- Approximately 950 FTE jobs (692 direct job losses and approximately 250 flow-on jobs) which represents 0.12 per cent of the State total (777,000 FTE in 2008-09).

- Through market-driven activities (i.e. business activity generated by household expenditure) and related non-market activities (i.e. population driven services such as education) a total population impact of 400 persons which represents 0.02 per cent of the 2008-09 total (i.e. approximately 1.6 million persons).

The effect of these job cuts on direct and flow-on employment in South Australia is shown for the next 10 years in Table 2. The reduction in public sector employment from new initiatives in the 2010-11 Budget (initial impact) was estimated to be 692 FTE jobs. The flow-on effect in other sectors of the economy in the first year will be approximately 255 FTE jobs and takes account of the "new" consumption expenditure of those losing a job as they shift to welfare payments. Total employment impact of the job losses in 2010-11 will be approximately 950 FTE jobs. The impact of these jobs losses lessens over time in line with assumed labour productivity improvements.

Table 2. Employment impacts of the job losses on the SA economy - 2010-11 initiative FTEs

	Employment Impact (fte)		
	Initial	Flow-on	Total
Year 1	-692	-255	-947
Year 2	-692	-252	-944
Year 3	-692	-250	-942
Year 4	-692	-247	-939
Year 5	-692	-245	-937
Year 6	-692	-242	-934
Year 7	-692	-240	-932
Year 8	-692	-237	-929
Year 9	-692	-235	-927
Year 10	-692	-233	-925

[a] The estimation of net impacts needs to take account of "lost" consumption expenditure by the local unemployed before taking a job (or the "new" consumption expenditure of those losing a job as they shift to welfare payments).
Source: EconSearch analysis

3.2.2 PREVIOUSLY ANNOUNCED SAVINGS REQUIREMENTS FROM 2009-10 STATE BUDGET, FTES

Previously announced savings requirements were estimated to be 1,070 public sector job losses (Table 3). Total household disposable income associated with the 1,070 FTE jobs in South Australia was estimated to be almost $64 million in 2010-11. In aggregate, it was estimated that expenditure reductions resulting from these jobs losses in South Australia in 2010-11 would have the following economic, employment and demographic impacts.

- Almost $106 million in lost GRP which represents 0.13 per cent of GSP ($79.0 billion in 2008/09).
- Almost 1,500 FTE jobs (1,070 direct job losses and approximately 400 flow-on jobs) which represents 0.19 per cent of the State total (777,000 FTE in 2008-09).
- Through market-driven activities (i.e. business activity generated by household expenditure) and related non-market activities (i.e. population driven services such as education) a total population impact of 600 persons which represents 0.04 per cent of the 2008-09 total (i.e. approximately 1.6 million persons).

The effect of these job cuts on direct and flow-on employment in South Australia is shown for the next 10 years in Table 3. The reduction in public sector employment from previously announced savings requirements in 2009-10 (initial impact) was estimated to be 1,070 FTE jobs. The flow-on effect in other sectors of the economy in the first year will be almost 400 FTE jobs and takes account of the "new" consumption expenditure of those losing a job as they shift to welfare payments. Total employment impact of the previously announced job losses in 2009-10 will be almost 1,500 FTE jobs.

Table 3. Employment impacts of the job losses on the SA economy - previously announced savings requirements FTEs

	Employment Impact (fte)		
	Initial	Flow-on	Total
Year 1	-1,070	-394	-1,464
Year 2	-1,070	-390	-1,460
Year 3	-1,070	-386	-1,456
Year 4	-1,070	-382	-1,452
Year 5	-1,070	-378	-1,448
Year 6	-1,070	-374	-1,444
Year 7	-1,070	-371	-1,441
Year 8	-1,070	-367	-1,437
Year 9	-1,070	-363	-1,433
Year 10	-1,070	-360	-1,430

[a] The estimation of net impacts needs to take account of "lost" consumption expenditure by the local unemployed before taking a job (or the "new" consumption expenditure of those losing a job as they shift to welfare payments).
Source: EconSearch analysis

3.2.3 COMBINED IMPACT OF 2009-10 AND 2010-11 STATE BUDGETS FTES

The combined impact of 2009-10 and 2010-11 State Budget job cuts was estimated to total 1,762 FTE jobs (Table 4). Total household disposable income associated with the 1,762 FTE jobs in South Australia was estimated to be almost $105 million in 2010-11. In aggregate, it was estimated that lost expenditure arising from these jobs losses in South Australia in 2010-11 would have the following economic, employment and population impacts.

- Approximately $174 million in lost GRP which represents 0.22 per cent of GSP ($79.0 billion in 2008/09).
- Approximately 2,400 FTE jobs (1,762 direct job losses and almost 650 flow-on jobs) which represents 0.31 per cent of the State total (777,000 FTE in 2008-09).
- Through market-driven activities (i.e. business activity generated by household expenditure) and related non-market activities (i.e. population driven services such as education) a total population impact of around 1,000 persons which represents 0.06 per cent of the 2008-09 total (i.e. approximately 1.6 million persons).

The effect of these job cuts on direct and flow-on employment in South Australia is shown for the next 10 years in Table 4. The reduction in public sector employment from the combined 2009-10 and 2010-11 State Budgets (initial impact) was estimated to be 1,762 FTE jobs. The flow-on effect in other sectors of the economy in the first year will be approximately 650 FTE jobs and takes account of the "new" consumption expenditure of those losing a job as they shift to welfare payments. Total employment impact of the combined job losses in 2010-11 will be almost 2,400 FTE jobs.

Table 4. Employment impacts of the job losses on the SA economy – combined impact of 2009-10 and 2010-11 State budget FTEs

	Employment Impact (fte)		
	Initial	Flow-on	Total
Year 1	-1,762	-648	-2,410
Year 2	-1,762	-642	-2,404
Year 3	-1,762	-635	-2,397
Year 4	-1,762	-629	-2,391
Year 5	-1,762	-623	-2,385
Year 6	-1,762	-617	-2,379
Year 7	-1,762	-610	-2,372
Year 8	-1,762	-604	-2,366
Year 9	-1,762	-598	-2,360
Year 10	-1,762	-592	-2,354

[a] The estimation of net impacts needs to take account of "lost" consumption expenditure by the local unemployed before taking a job (or the "new" consumption expenditure of those losing a job as they shift to welfare payments).
Source: EconSearch analysis

It should be noted that these estimates relate only to the net public sector job losses and do not take account of any other expenditure changes included in the budget.

4 CREDIT RATINGS IN PERSPECTIVE

Understandably, a great deal of importance has been placed by the State Government on maintaining the state's AAA credit rating. There are financial and political benefits that flow from securing high ratings. While a one increment credit rating downgrade would have a modest financial impact in South Australia, the State Government rightly fears that a downgrade would have negative political consequences. It is important in this context to better understand the role of credit ratings and the likely financial consequences of small movements in credit ratings.

Prior to the State Budget there was no realistic prospect of a credit down-grade for South Australia given relatively robust national and domestic economic conditions, low unemployment and strong growth prospects associated with the expansion of the defence and mining sectors. In addition, major national projects like the National Broadband Network roll-out will have a significant stimulatory effect on the South Australian economy.

This section of the report explains the function of credit ratings and models the financial implications of a credit down-grade, concluding that the financial cost associated with a down-grade is actually very low, suggesting that the credit ratings tail may be wagging the budgetary policy dog much more than it should be.

4.1 UNDERSTANDING CREDIT RATINGS

AAA ratings are a signal that investing in the debt of AAA rated organisations represents an extremely low risk investment. These are generally reserved for government debt and are rarely awarded to corporations.

Credit ratings are provided by Ratings Agencies and are intended to play an advisory role to the market on the extent of risk an investor faces in investing in the debt instruments issued by a given entity. The major risk an investor bears in purchasing bonds - the core debt instrument issued by corporations and governments alike – is the risk that an entity may find it difficult or impossible to make repayments of either interest, or principal on its debt issues. Credit ratings are a measure of this risk and affect the holders of debt or prospective borrowers in a number of ways:

1. The poorer the credit rating the higher the interest rate that Investors in debt instruments are likely to demand. The consequences of a credit "downgrade" for a government generally include an increase in the interest costs associated with taking on new debt or renegotiating debt for loans that have matured.

2. There is a brand or marketing dimension to credit ratings – they provide a signal of the financial soundness and quality of management of an entity. In other words, a higher rating suggests that an entity is being managed "well". This provides an indirect benefit, in that other stakeholders (suppliers, customers and potential investor partners) see the entity as more reliable.

It is important to note that the allocation of credit ratings is far from an exact science as evidence by the allocation of high ratings to financial institutions issuing sub-prime housing loans in the United States. It is also important not to overestimate the financial impact of small changes in credit ratings. The Reserve Bank has concluded that "*the price impacts associated with rating announcements are fairly small, which implies that agencies are not generally viewed as consistently having access to important information that is not already in the public domain* (RBA, 2004: 15). The RBA reveals that "*Looking at a much larger group of Australian bonds, the typical yield differential between A rated and A– rated bonds is about 9 basis points"* (RBA, 2004: 13). While the move from one rating category to another seems small, the evidence tends to suggest that

- A downgrading does carry slightly greater effect than an upgrading
- The impact of a change is higher in the riskier ratings categories and
- Financial markets appear to attach particular significance to rating changes that carry companies from investment to sub-investment grade *(*RBA, 2004: 15).

Australian Governments consistently command high ratings. As Table 5 below illustrates, the majority of State and Territory Governments have a AAA rating. A slightly lower credit rating should not be viewed as an indicator of economic performance and prospects. It is noteworthy that Queensland – which has a AA+ rating, enjoys relatively high growth and has prospects for higher growth than most other states. The financial position of States and Territories in Australia is robust by international standards.

Table 5. Interstate Comparison of Key General Government Aggregates, 2008-09

	NSW	VIC	QLD	WA	SA	TAS	NT)	ACT
Net operating balance ($m)	-897	251	35	318	-233	-78	-64	187
Net lending (borrowing) ($m)	-3,275	-1,184	-4,399	-987	-872	-95	-150	-22
Net debt to revenue (%)	16.3	13.5	-52.1	-13.5	3.5	-22.9	-29.1	20.0
Net financial liabilities to revenue (%)	97.1	82.4	31.5	34.2	85.5	62.0	50.9	89.6
Credit rating*	AAA	AAA	AA+	AAA	AAA	AA+	AAA	Aa1

* Credit rating assigned by Standard and Poor's other than for the Northern Territory, where the Moody's rating is shown.
Source: Reproduced from Government of South Australia (2009b)

4.2 SOUTH AUSTRALIA'S DEBT POSITION - A SUMMARY FROM A RATINGS PERSPECTIVE

South Australia's net lending is set to decline from $1.8 billion in 2010-11, $0.8 billion in 2011-12 to a net lending surplus in 2013-14. Net debt (total borrowing - including deposits held and advances received - less the sum of cash and deposits, advances paid, and investments, loans and placements) rises modestly over the period from around $3.3 billion to $3.8 billion. The largest of the offsets is cash – at about $2.5 billion in 2009-10. Therefore, gross debt (approximately net debt plus cash) which is the amount that could be affected by a change in credit rating, is approximately $4 billion in 2009-10 ($1.5 billion net debt plus $2.5 billion cash offset), increasing to almost $5.8 billion in 2010-11, before rising to around $6.1 billion in 2011-12, then stabilising before declining. Table 6 provides financial estimates for the general government sector in South Australia.

Table 6. General Government Sector Budget Estimates, South Australia

	2009-10 Estimated	2010-11 Budget	2011-12 Estimate	2012-13 Estimate	2013-14 Estimate)	2014-15 [a] Projection
Net operating balance $m	167	-389	55	216	370	840
Net lending $m	-1,124	-1,791	-841	-194	126	689
Net debt $m	1,587	3,335	3,633	3,864	3,847	3,243
Net financial liabilities to revenue (%)	85.4	100.1	100.2	99.8	98.8	89.3

(a) Projections for 2014-15 are based on projections for revenue and expenditure aggregates rather than the detailed build up of portfolio expenditure and individual revenue items, which form the basis of the forward estimates up until 2013-14.

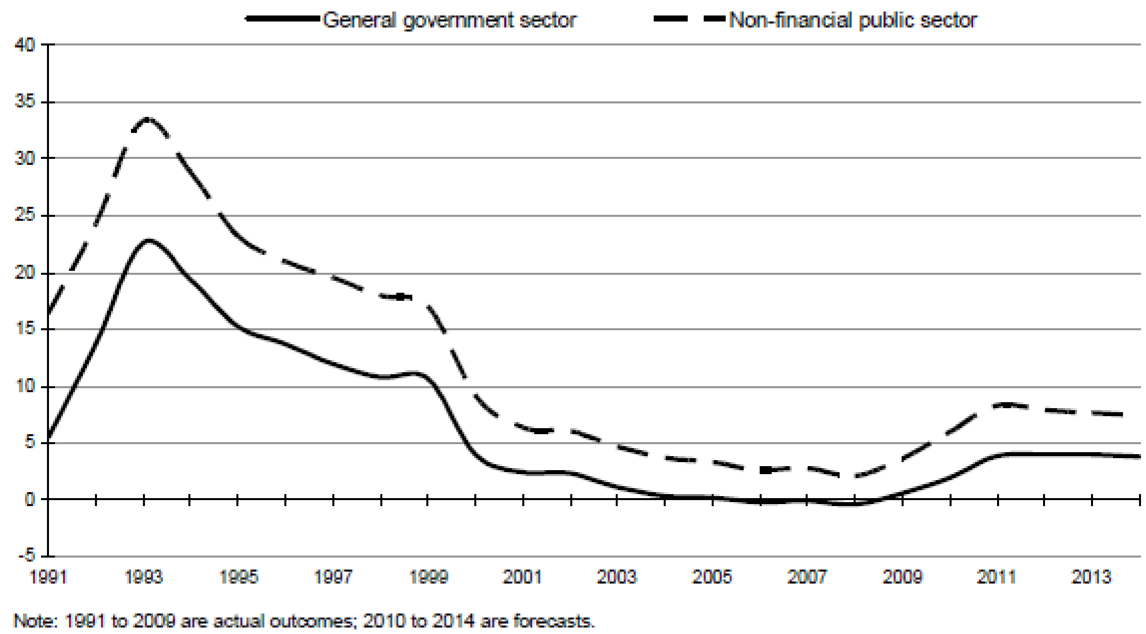
Source: Reproduced from Government of South Australia (2010)

In addition to general government sector debt, the debts of public sector non-financial and financial corporations need to be taken into account. These include:

- Public Non-Financial Corporations Sector - includes South Australian Water Corporation, Housing SA, Forestry SA, Land Management Corporation and West Beach Trust.
- Public Financial Corporations Sector – the major entity in this category is HomeStart Finance.

Figure 1 illustrates the debt of public sector non-financial corporation's from the 2010-11 Budget Papers. Net borrowings of non financial corporations amount to a little over $3 billion, and this is expected to be stable in coming years. The net debt position for the total non-financial public sector increases from around $1.6 billion in 2005-06 to a peak of $7.2 billion over the next 4 years.

Figure 1. Net Debt as a Percentage of GSP, South Australia



Source: Reproduced from Government of South Australia (2010: 1.5)

There is little information in the budget papers regarding Public Financial Corporations debt, but this can be ascertained from South Australian Government Financing Authority (SAFA) information and total public sector debt, summarised in Table 7 and Figure 2 below, suggesting that financial institution borrowings are of the order of $2 billion.

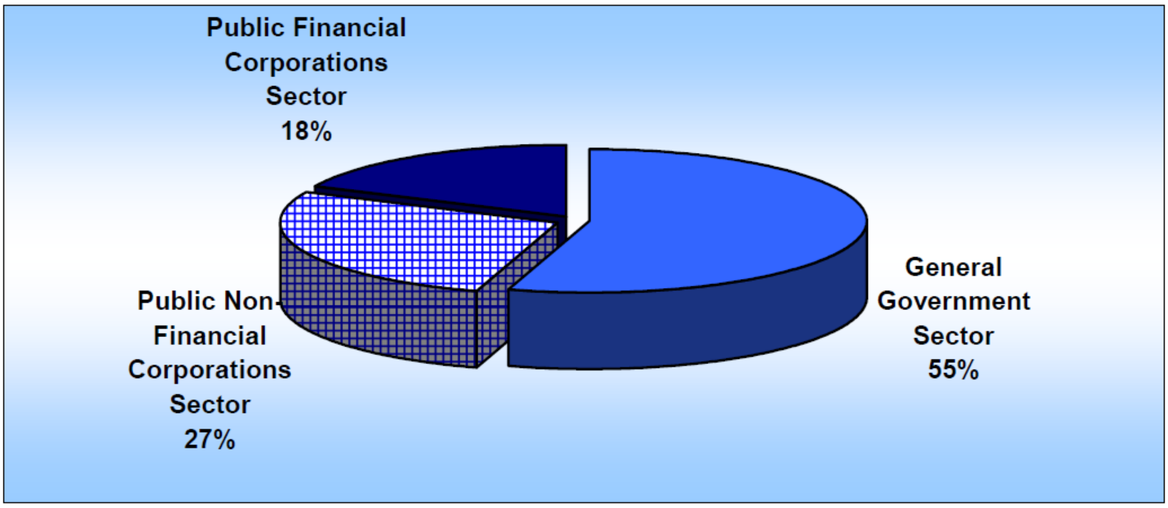
Table 7. SAFA's Five Year Financial Summary as at 30 June

	2008-09 ($m)	2007-08 ($m)	2006-07 ($m)	2005-06 ($m)	2004-05 ($m))
Total Assets	11,260	8,700	9,197	8,016	8,462
Total Liabilities	11,070	8,468	8,925	7,893	8,288

Source: SAFA (2009)

South Australian Treasury focuses on net debt (which as noted above is mainly borrowings less cash). From the State Budget Balance Sheet the following picture of Gross Debt or borrowings emerges. Note that the public financial corporation's borrowings figure is an estimate based on Figure 2 against the total level of SAFA debt (ie approximately 18% of $12 billion) – and this is assumed to remain constant.

Figure 2. Client Loans by Sector as at 30 June



Source: Taken from SAFA (2009) p.11

It is noted that the increase in borrowings in 2012-13 and 2013-14 is not associated with an increase in net debt, as the balance sheet information includes forecasts where it is matched by increases in cash on deposit. Table 8 summarises the estimated borrowings by sector in South Australia.

Table 8. Estimated Borrowings by Sector, South Australia

	2009-10 ($m)	2010-11 ($m)	2011-12 ($m	2012-13 ($m)	2013-14 ($m)
General	3,867	5,239	5,268	5,359	5,832
Public non-financial corporations	3,197	3,697	3,718	3,751	3,935
Public non-financial corporations	2,000	2,000	2,000	2,000	2,000
Total	9,064	10,936	**10,986**	11,110	11,767

Source: Government of South Australia (2010) and "Modelled Estimates"

The debt and interest implications of the government not following the Sustainable Budget Commission recommendations, has two major components. The first is that debt would be higher, and interest payments would be required on the increased debt. SAFA Public Loan Issue No. 9 has interest rates of 4.55% for 1 year maturities, 4.75% for 2 year maturities and 4.9% on 3 year maturities. The following calculations (Table 9) indicate the interest bill associated with the operating savings identified in the 2010-11 budget (about half of which are saving initiatives of the 2010-11 budget and half of which had been previously identified). At an average interest rate of 5% (allowing for some further increases in Reserve Bank determined interest rates) the interest bill over the four year period if the savings were not undertaken would be $152 million – and $76 million by the fourth year.

Table 9. Operating Savings Estimates, South Australia

	2010-11 ($m)	2011-12 ($m	2012-13 ($m)	2013-14 ($m)
Savings initiatives	124.8	372.2	491.1	582.7
Cumulative	124.8	452	943.1	1,525.8
Interest bill at 5%	6.2	22.6	47.2	76.3

Source: Modelled Estimates

To place this in context, the additional interest costs over the 2010-14 period represent 0.4% of total revenue, and 0.8% of own purpose revenue. Such small changes therefore could be covered by additional economic growth rather than austerity measures.

The second component relates to concern that higher debt levels will lead to a downgrading of South Australia's credit rating, leading to higher interest costs on all debt. As noted above the extra increase in interest will only apply to newly issued debt (including rolled over debt). Table 10 provides indicative calculations of the impact of a credit rating downgrade by one category based on failing to curtail the absolute level of debt. It is assumed that 20% of the 2009-10 level of debt will mature and need to be rolled over each year (an overestimate – based on an assumption that debt is issued with a short term to maturity and noting that debt only really built up in 2008-09 and 2009-10).

The table indicates that the direct impacts of a credit downgrading are relatively small. If interest rates on SAFA were to increase by 10 basis points as a consequence of a downgrading, the cost in terms of extra interest would only be $4.4 million in 2010-11, increasing to $14 million by 2013-14. A more extreme outcome of an increase by 20 basis points (very high relative to the RBA findings as cited above) would increase the interest bill by only $9 million in 2010-11 and $28 million by 2013-14.

Table 10. Estimated Cumulative Effect of Credit Rating Downgrading ($ million)

	2010-11	2011-12	2012-13	2013-14
Existing Debt rolled over	2,436	4,873	7,309	9,746
New Debt Required as per Budget Estimates	1,872	1,922	2,046	2,703
New Debt from Forgoing Operating Savings	125	452	943	1,526
Total Debt Exposed to New Interest Rate	**4,433**	**7,247**	**10,298**	**13,974**
Increase in Interest due to Down-grading of Credit Rating - 10 basis points "penalty"	4.4	7.2	10.3	14.0
Increase in Interest due to Down-grading of Credit Rating - 20 basis points "penalty"	8.9	14.5	20.6	27.9

Source: Modelled Estimates

These calculations suggest that the direct impacts of a downgrading are not significant in the context of South Australia's overall financial position.

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6 APPENDIX 1

6.1 MODEL CONSTRUCTION

For the purpose of estimating the economic impact of the public sector job losses on the South Australian (SA) economy, an input-output (I-O) model was constructed for 2008-09.

A standard I-O model for SA was developed for 2008-09, based on work undertaken by the consultants for Department of Trade and Economic Development (EconSearch 2009a), using the GRIT (Generation of Regional Input-Output Tables) method, a 'hybrid' method which utilises local data and computer methods to generate I-O tables. Whilst the majority of data compilation and manipulation was undertaken in *Microsoft Excel®* spreadsheets, the GRIT procedure was undertaken using *IO9* software (West 2009). An input-output table for the SA economy for 2008-09 was generated using the national I-O Table for 2005-06 (ABS 2009a) as a parent table for the GRIT procedure.

Sources of data for the SA I-O model are detailed in the report prepared for the Department of Trade and Economic Development titled *Input-Output Tables for South Australia and its Regions, 2006/07: Technical Report*.

In order to estimate the flow-on effects of the public sector job losses, the standard I-O model used for this project was incorporated into the RISE modelling framework[1].

To model the economic impacts of the job losses average government wages have been estimated from the I-O model utilised for this analysis. The marginal tax rate for personal income tax has been applied in order to estimate disposable income. The following assumptions have been made in order to estimate the impacts of the job losses:

- outward migration of 20 per cent (ie 20 per cent of people who lose their job will leave the state);
- labour productivity improvement of 1.0 per cent per annum; and
- 3 per cent inflation between 2009-10 and 2010-11.

6.2 INDICATORS OF ECONOMIC IMPACT USED IN THE ANALYSIS

Estimates of economic impact or economic contribution in this report are presented in terms of the following indicators:

- gross state product;
- employment; and
- household income.

Gross state product (GSP) is a measure of the net contribution of an activity to the state economy. GSP is measured as value of output less the cost of goods and services (including imports) used in producing the output. In other words, it can be measured as household income plus other value added (gross operating surplus and all taxes, less subsidies). It represents payments to the primary inputs of production (labour, capital and land). Using GSP as a measure of economic impact avoids the problem of double counting that may arise from using value of output for this purpose.

[1] The latest version of this model was developed by the consultants for DTED in 2009. See (EconSearch 2009a and 2009b) for further details.

Employment is a measure of the number of working proprietors, managers, directors and other employees, in terms of the number of full-time equivalent (FTE) jobs.

Household income is a component of GSP and is a measure of wages and salaries paid in cash and in kind, drawings by owner operators and other payments to labour including overtime payments, employer's superannuation contributions and income tax, but excluding payroll tax.

Estimates of economic impact are presented in terms of

- direct impacts;
- flow-on (or indirect) impacts; and
- total impacts.

Direct impacts are the initial round of employment and household income generated by an economic activity, in this case a reduction in public sector employment.

Flow-on (or indirect) impacts are the sum of production-induced effects and consumption-induced effects. Production-induced effects are additional employment and value added resulting from re-spending by firms that receive payments from the sale of goods and services to firms/organisations undertaking direct and indirect activities. Because this analysis considers only a fall in employment and a reduction in the associated household income, there are no production induced effects estimated. Consumption-induced effects are additional employment and value added resulting from re-spending by households that receive income from employment in direct and indirect activities.

Total impacts are the sum of direct and flow-on impacts.