

The Auditor-General
Audit Report No.38 2004–05
Performance Audit

Payment of Goods and Services Tax to the States and Territories

Australian National Audit Office

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of Australia 2005

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Canberra ACT
10 March 2005

Dear Mr President
Dear Mr Speaker

The Australian National Audit Office has undertaken a performance audit across agencies in accordance with the authority contained in the *Auditor-General Act 1997*. I present the report of this audit and the accompanying brochure to the Parliament. The report is titled *Payment of Goods and Services Tax to the States and Territories*.

Following its tabling in Parliament, the report will be placed on the Australian National Audit Office's Homepage—<http://www.anao.gov.au>.

Yours sincerely

A handwritten signature in black ink, appearing to read 'P. J. Barrett', is positioned above the printed name.

P. J. Barrett
Auditor-General

The Honourable the President of the Senate
The Honourable the Speaker of the House of Representatives
Parliament House
Canberra ACT

AUDITING FOR AUSTRALIA

The Auditor-General is head of the Australian National Audit Office. The ANAO assists the Auditor-General to carry out his duties under the *Auditor-General Act 1997* to undertake performance audits and financial statement audits of Commonwealth public sector bodies and to provide independent reports and advice for the Parliament, the Government and the community. The aim is to improve Commonwealth public sector administration and accountability.

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Contents

Abbreviations6

Summary and Recommendations7

Summary9

 Background9

 Audit objective9

 Audit conclusions10

 Recommendations and Treasury response10

Recommendations..... 11

Audit Findings13

1. Introduction 15

 Background15

 Audit approach17

2. Payment Calculation Mechanism 18

 Introduction.....18

 Verification of the spreadsheet.....18

 Systems documentation26

 Version and change control30

 Access controls31

 Disaster recovery and continuity planning35

Series Titles 37

Better Practice Guides.....40

Abbreviations

ABS	Australian Bureau of Statistics
ACSI 33	Australian Government Information Technology Security Manual
AGIMO	Australian Government Information Management Office
ANTS	A New Tax System
BBA	Budget Balancing Assistance
CGC	Commonwealth Grants Commission
CPI	Consumer Price Index
CSRD	Commonwealth State Relations Division (of Treasury)
DED	Domestic Economy Division (of Treasury)
DSD	Defence Signals Directorate
FAGs	Financial Assistance Grants
FHOS	First Home Owners' Scheme
GMA	Guaranteed Minimum Amount
GST	Goods and Services Tax
IAU	Intergovernmental Agreement Unit (of CSRD)
IGA	Intergovernmental Agreement on the Reform of Commonwealth-State Financial Relations
JCPAA	Joint Committee of Public Accounts and Audit
RRPs	Revenue Replacement Payments
SAT	South Australian Treasury
Treasury	(Commonwealth) Department of the Treasury

Summary and Recommendations

Summary

Background

1. The Goods and Services Tax (GST) came into effect on 1 July 2000. Under arrangements negotiated between the Commonwealth and the States¹, the Commonwealth pays all GST revenue collected to the States. Payments of the actual GST payable to the States are based on estimates and are later adjusted when the actual amount collected is known. Up to the end of 2003–04, the Department of the Treasury (Treasury) paid almost \$123 billion (including \$8 billion in Budget Balancing Assistance (BBA) (see para 2) to the States.
2. When the GST was introduced, the Commonwealth gave the States a guarantee that, during a transitional period, none of them would receive any less under the new arrangements than it did under the old arrangements. This is known as the Guaranteed Minimum Amount (GMA) and effectively is the same amount as the States would have received had the old arrangements continued. If the GST payable to any State is less than its GMA, the Commonwealth makes up the difference with BBA.
3. The States' GST entitlement is a simple calculation based on four variables (population, Commonwealth Grants Commission relativities, GST collections and unquarantined Health Care Grants). In comparison, the GMA calculation is complicated.
4. All States required BBA in the first two years of the GST's operation. In 2002–03, it was not required by Queensland and the Northern Territory. Only New South Wales required BBA in 2003–04. Treasury estimates that no State will require BBA in 2004–05. However, the Commonwealth is bound by regulation to continue calculating the GMA, and paying BBA if necessary, until 30 June 2006.

Audit objective

5. In view of the large amount of public money being paid to the States in GST revenue, the objective of the audit was to assess the adequacy and effectiveness of processes and procedures used by Treasury in making payments of GST revenues and associated amounts to the States.

¹ In this report, 'States' includes the Northern Territory and the Australian Capital Territory.

Audit conclusions

6. ANAO's audit did not identify any errors in Treasury's calculation of GMA or in Treasury's payment of BBA and GST to the States. Nevertheless, there is scope to improve processes to reduce the risk of errors in the future.

7. To calculate GMA and BBA, Treasury uses a Microsoft Excel spreadsheet. The spreadsheet was developed in-house with limited resources and without adequate consideration being given to alternatives. The resulting approach did not, in ANAO's view, adequately manage some important risks. Further, ANAO was unable to identify any evidence of a formal risk assessment process, either at the commencement of the GST or later, addressing such issues as the consequences of data corruption.

Recommendations and Treasury response

8. After 30 June 2006, the payment of GST and associated revenue to the States is likely to be considerably simplified in that calculation of BBA and GMA will not be required (unless the Commonwealth and States decide otherwise). However, it is likely that there will be a continuing need to assess the quantum of the benefit to the States of the introduction of the GST. Accordingly, ANAO has recommended that Treasury reconsider the adequacy of its current calculation mechanism. ANAO has also made recommendations relating to addressing control deficiencies in the existing Treasury spreadsheet.

9. In addition, ANAO has recommended that, in future similar circumstances, Treasury take a more appropriately robust approach towards managing the development and implementation of systems and related controls and procedures.

10. Of the three recommendations, the Treasury agreed with two recommendations in full and agreed with qualification in relation to one part of Recommendation 2. Treasury's response to the section 19 proposed audit report was as follows:

Treasury welcomes the ANAO's finding that there have been no errors in Treasury's calculation of states Guaranteed Minimum Amounts (GMA) or payments of Budget Balancing Assistance (BBA) and GST to the states.

Recommendations

**Recommendation
No.1
Para 2.31**

ANAO *recommends* that:

- a) Treasury review whether the spreadsheet that it presently uses to calculate GMA and BBA and to calculate payments of GST to the States is sufficiently robust and reliable for that purpose and likely future uses; and
- b) in future circumstances requiring the complex calculation and payment of substantial amounts from the Consolidated Revenue Fund, Treasury:
 - identify the most appropriate system or tool for calculating payments;
 - develop appropriately detailed system specifications; and
 - implement robust system controls.

Treasure response: Agreed.

**Recommendation
No.2
Para 2.36**

ANAO *recommends* that Treasury improve the documentation supporting its GST spreadsheet by:

- a) completing the 'Payments and Estimates Manual';
- b) updating the spreadsheet audit trail and maintaining it each time data is entered into the spreadsheet; and
- c) adopting more comprehensive and systematic verification procedures

Treasure response: Agreed (a) and (b), agreed with qualification (c).

**Recommendation
No.3
Para 2.53**

ANAO *recommends* that Treasury take prompt action to improve security and access controls in the GST spreadsheet used for estimating and calculating GST payments to the States.

Treasure response: Agreed.

Audit Findings

1. Introduction

Background

1.1 On 13 August 1998, the Commonwealth Government announced *A New Tax System* (ANTS)—its plan to reform the Australian taxation system. A major component of ANTS was the introduction of a Goods and Services Tax (GST), a broad-based tax of 10 per cent on the supply of most goods and services in Australia. The GST came into effect on 1 July 2000.

1.2 In June 1999, the Prime Minister and all State Premiers and Territory Chief Ministers signed the *Intergovernmental Agreement on the Reform of Commonwealth-State Financial Relations* (IGA). Greater detail on how the GMA is calculated is set out in a paper entitled *Methodology for Estimation of Components of the Guaranteed Minimum Amount*, which was agreed to by the Heads of Commonwealth and State Treasuries. This paper is referred to in this report as the Methodology Paper.

1.3 Under the terms of the IGA², the Commonwealth would collect the GST and remit it to the States. The Commonwealth also gave the States a guarantee that, during the transitional period,³ they would not receive any less under the GST than they did under the previous arrangements (which included Financial Assistance Grants (FAGs) and Revenue Replacement Payments (RRPs⁴)). This would involve the calculation of an amount known as the Guaranteed Minimum Amount (GMA). The GMA was equivalent to the amount States would have received under the previous regime. If a State's share of the GST actually collected was less than the GMA, the Commonwealth would 'top it up' with an amount known as Budget Balancing Assistance (BBA).

1.4 By the end of 2003–04, almost \$123 billion in GST and BBA had been paid to the States since the inception of the GST (see Table 1.1).

² The IGA is included as a Schedule to the *A New Tax System (Commonwealth-State Financial Arrangements) Act 1999* (the Financial Arrangements Act).

³ The transitional period was originally defined in the Financial Arrangements Act as the period up to the GST year commencing on or before 1 July 2002. It was subsequently extended by regulation to the period up to the GST year commencing on 1 July 2005.

⁴ RRP were introduced in August 1997 as a result of the High Court decisions *Ha and Lim v New South Wales* and *Walter Hammond and Associates v New South Wales* in which the High Court held that business franchise fees, which States collected, were unconstitutional.

Table 1.1**Amounts of GST and BBA paid to States and Territories, 2000–01 to 2003–04**

YEAR	GST (\$M)	BBA (\$M)	TOTAL (\$M)
2000–01	24 355	2 818	27 173
2001–02	26 632	4 094	30 726
2002–03	30 479	994	31 473
2003–04	33 219	69	33 287
TOTAL	114 685	7 974	122 659

Source: *Final Budget Outcome*, 2000–01 to 2003–04.

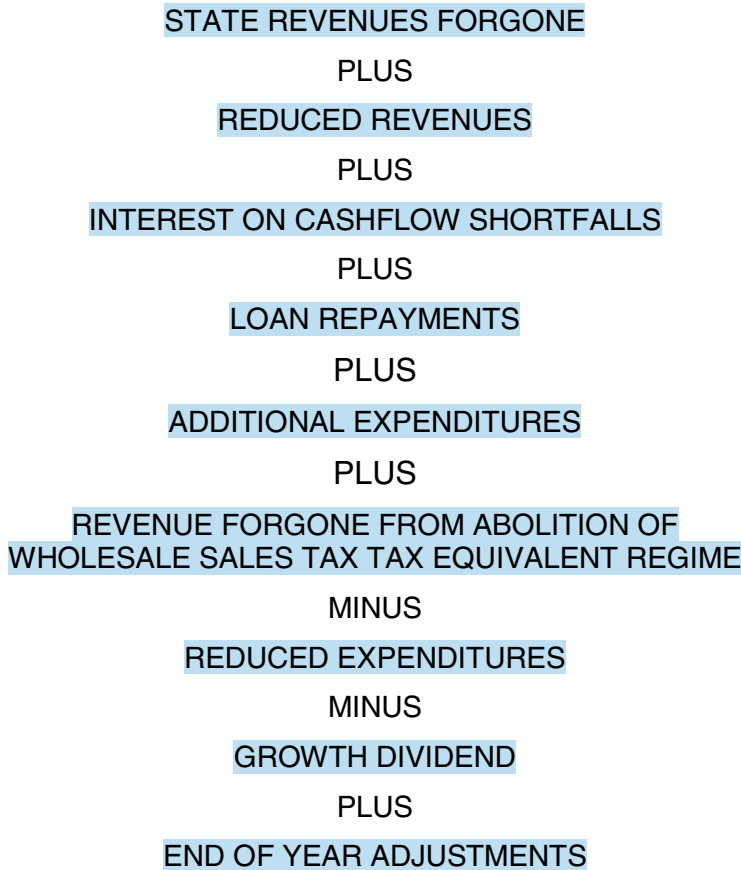
Note: Figures may not total exactly due to rounding.

1.5 Estimates by Treasury prior to the introduction of the GST suggested that, although GST revenue payable to the States in the first few years after its introduction would be less than the amount paid to them under the previous arrangements, it would eventually exceed it. This has, in fact, been the case. While all States required BBA in the first two years of the GST's operation, it was not required by Queensland and the Northern Territory in 2002–03 and only New South Wales required it in 2003–04. Treasury has estimated that no State will require BBA in 2004–05. However, the Commonwealth is bound by regulation to continue calculating the GMA, and paying BBA if necessary, until 30 June 2006.

1.6 Under the Financial Arrangements Act, responsibility for determining the GMA for each State rests with the Treasurer. In this context, Treasury calculates the GMA and makes the actual payments to the States.

Components of the Guaranteed Minimum Amount

1.7 FAGs and RRP's represent by far the largest components of the GMA. ANTS also included a number of other reforms. For example, in return for receiving GST revenue, States agreed to abolish a number of State taxes. Other components of the GMA were necessary because of the effect of the introduction of the GST itself. The components of the GMA (and whether they are added to or taken from the total) are illustrated in Figure 1.1.

Figure 1.1**Components of the Guaranteed Minimum Amount**

Source: *Methodology for Estimation of Components of the Guaranteed Minimum Amount*

Audit approach

1.8 The audit was conducted under Section 15 of the *Auditor-General Act 1997*. The objective of the audit was to assess the adequacy and effectiveness of processes and procedures used by Treasury in making payments of GST revenues and associated amounts to the States.

1.9 Audit fieldwork was conducted between August and December 2004. A Discussion Paper was provided to Treasury and ABS in December 2004, followed by a draft report in February 2005.

1.10 The audit was conducted in accordance with ANAO auditing standards at an estimated cost to the ANAO of \$291 000.

2. Payment Calculation Mechanism

Introduction

2.1 ANAO did not consider the methodology underpinning the calculation of GST, GMA and BBA because that was the subject of detailed negotiation between the Commonwealth and States and is set out in legislation (the Financial Arrangements Act). However, it did consider the mechanism used to calculate GST, GMA and BBA, and also issues such as procedures to correctly input data into the spreadsheet that Treasury uses for its calculations.

2.2 To calculate GST, GMA and BBA, Treasury uses Microsoft Excel. The spreadsheet contains 32 individual worksheets, many of which are linked to each other. In other words, to perform a particular calculation, a worksheet may draw in data which has been entered into, or calculated in, another worksheet elsewhere in the spreadsheet. The size and complexity of the spreadsheet are demonstrated by the fact that it contains, in total, more than 3000 rows, more than 500 columns and more than 21 000 separate formulas. Part of the reason that the spreadsheet is so large is that it not only calculates actual amounts to be paid, but also estimates future payments out to 2007–08 and contains other data out to 2009–10. This adds to the complexity of the spreadsheet and makes it difficult to navigate for the purpose of verifying that it is performing calculations correctly.

Verification of the spreadsheet

2.3 Since the Excel spreadsheet is the tool that Treasury uses to calculate payments to the States, it was fundamental to the audit to gain assurance that the spreadsheet actually achieves what it was designed to do. To this end, ANAO undertook substantive audit checking through the application of the following detailed processes:

- cross-checked all data ‘hard coded’ into the spreadsheet to its source (such as Population Determinations by the Australian Statistician, Consumer Price Index (CPI) and other indices, and data contained in the IGA and the Methodology Paper);
- mapped out the key relationships between data and worksheets within the spreadsheet to ensure links operated correctly;
- checked that the method of calculation in the spreadsheet was consistent with the IGA, the Methodology Paper and the Financial Arrangements Act;
- checked that the spreadsheet was consistent with Treasury’s ‘Payments and Estimates Manual’; and

- reconciled the spreadsheet to actual GST and BBA payments to the States.

2.4 Due to the size and complexity of the spreadsheet, this process was time-consuming. In the main, it showed that the spreadsheet is operating as Treasury intended and that it is consistent with the IGA, the Methodology Paper and the Financial Arrangements Act. However, the examination revealed some minor errors in data entry that were also inconsistent with the Payments and Estimates Manual.

Calculation of GST

2.5 Determination of the amount of GST payable to the States is conceptually straightforward. The four variables involved in the calculation are:

- GST collections by the Australian Taxation Office (ATO);
- the estimated population of each State as determined by the Australian Statistician;
- unquarantined Health Care Grants as advised by the Department of Health and Ageing; and
- Commonwealth Grants Commission (CGC) relativities.

2.6 In terms of this last variable, the IGA requires that GST revenue grants be distributed among the States in accordance with Horizontal Fiscal Equalisation principles. Horizontal Fiscal Equalisation has been defined as providing each State with the capacity to deliver the average standard of State-type services, assuming it operates at an average level of efficiency and makes the average effort to raise revenue from its own sources. To calculate the per capita relativities, the CGC uses a complex methodology to take account of differences in each State's capacity to raise revenue and ability to provide services.

2.7 The Financial Agreements Act is silent on the question of distribution and timing of periodic advances of GST revenue to the States, other than to allow advances to be made at the discretion of the Treasurer. However, the IGA specifies that GST revenue will be paid to the States on the 27th of each month.

2.8 For 2000–01, a profile of monthly and quarterly advances was adopted rather than paying GST as it was received. This was due to the uncertainty regarding actual revenue flows at the time. This was considered to provide benefits to the Commonwealth and the States from cash management and administrative convenience perspectives.

2.9 For subsequent years, the profile approach was continued, with advances based on estimates of GST revenue collections each month. Although the Treasurer has delegated responsibility for making payments to certain Treasury officials, it has been Treasury's practice to seek the Treasurer's approval of the payments profile. Section 21(2) of the Financial Arrangements Act provides for a delegate to be subject to the Treasurer's directions.

2.10 In June each year, the Commissioner of Taxation makes a formal determination of the total GST revenue for the year. The IGA requires that the Commissioner's determination be made in the following way:

- actual outcomes for the period 1 July to 31 May; plus
- estimated outcomes for the month of June; plus
- an adjustment, which may be positive or negative, to account for any difference between the estimated and actual outcome for the month of June in the previous year.

2.11 If needed, the IGA requires that a balancing payment for GST be made no later than 23 June.

2.12 As part of this audit, ANAO verified Treasury's calculation of GST payable to each State for each year between 2000–01 and 2003–04. ANAO examined the data inputs for each year and verified that the Treasury spreadsheet correctly calculated the GST payable to each State.

2.13 Although the payment amounts were found to be correct, the population worksheets contain a number of errors in annotations to the data. For example, a note to a figure for the population at December 2001 states that it is the Statistician's determination made on 27 May 2002 when it is, in fact, his 're-determination' made on 27 May 2003. Worksheet figures for estimated population at 31 December 2002 and 2003 are stated to be February 2002 projections, but are actually the Statistician's May 2004 're-determination' and determination of estimated population at those two dates respectively.

2.14 ANAO identified an issue in the Statistician's letters conveying his determinations to the Treasury. Under the previous legislation (the *States Grants (General Purposes) Act 1994* (the States Grants Act)), the Statistician was required to make two determinations each year: one for the current year and one for the preceding year. With the passage of the Financial Arrangements Act, the States Grants Act was repealed. Under the Financial Arrangements Act, the Statistician is only required to make a determination for the current year: there is no power for him to make a determination for the previous year. However, this figure is still needed by Treasury to calculate the GMA and the Statistician continues to supply it. Strictly speaking, however, his letter should refer to the determination for the current year and his revised estimate for the previous year. On this issue, the ABS advised ANAO in January 2004 that it will correct the wording for future determinations and revised estimates.

Calculation of GMA and payment of BBA

2.15 Under the IGA transitional arrangements, BBA is a payment to cover any shortfall for any State where its share of GST revenue does not exceed its GMA. For the transitional period up to 30 June 2006, the additional requirement to calculate GMA and BBA (see paragraph 1.3) has made Treasury's task more complex. In effect, it is necessary for Treasury to calculate States' entitlements under both the new and old tax regimes. In this context, Table 2.1 outlines the data used to calculate GMA (and, therefore, BBA).

Table 2.1**Components of the Guaranteed Minimum Amount**

GMA Item	Components
State revenues forgone	<ul style="list-style-type: none"> Financial Assistance Grants Revenue Replacement Payments State and Territory taxes: Financial Institutions Duty Stamp Duty on Marketable Securities Bed Tax
Reduced revenues	The amount by which States adjust gambling taxation arrangements to take account of the impact of the GST on gambling operators.
Interest costs on cash flow shortfalls (to 2002–03 only)	The interest cost incurred by States as a result of the change to cash flows arising from the replacement of weekly financial assistance grants, revenue replacements and State and Territory taxes with monthly GST revenue grants.
Loan repayments (2001–02 only)	The repayment of a guarantee loan by a State.
Additional expenditures	<ul style="list-style-type: none"> Payments to First Home Owners Costs of collecting GST payable to the ATO by a State
Other items	<ul style="list-style-type: none"> \$338 million spread evenly over three years starting in 2000–01 in respect of the claim by States in relation to revenue forgone from the abolition of the Wholesale Sales Tax (WST) Tax Equivalent Regimes \$269 million spread evenly over three years, to be included in the new Commonwealth-State Housing Agreement starting in 2000–01 in respect of the net increased public housing costs as a result of tax reform
Reduced expenditures	Off-road diesel subsidies and reduced costs from the removal of embedded WST and excises on purchases by a State government.
Growth dividend	Increase in revenue to a State attributable to the impact of the Commonwealth's taxation reform measures on economic growth.
Adjustments (from 2001–02)	Net difference between preliminary estimates and outcomes or final estimates for items that were taken into account in the previous year's Guaranteed Minimum Amount.

Source: *Intergovernmental Agreement on the Reform of Commonwealth-State Relations*, April 1999.

2.16 BBA is paid in quarterly instalments, on the first Tuesday of each quarter. The quarterly instalment payments are made on the basis of estimates as at Budget (July payment), September Heads of Treasuries Report (October payment), Mid Year Economic and Fiscal Outlook (January payment) and March Heads of Treasuries Report (April payment).

2.17 Throughout the year, Treasury updates its estimates of the GMA, and consequently BBA. Each quarterly payment is adjusted to account for updates of the total BBA to be paid in the year. As a result, each payment is intended to get each State to one quarter, one half, three quarters and then the total of the latest estimate of its entitlement.

2.18 In June each year, Treasury makes a formal determination of the total BBA for the year. If needed, a balancing payment to the States is made. However, as negative BBA payments cannot be made, any overpayment is recovered in the next financial year.

2.19 A major task undertaken as part of the audit was to examine the consistency between data in the spreadsheet and data sources. In this context, many of the calculations involved in deriving the GMA are based on expenditure figures or percentage shares agreed between the Commonwealth and the States in one or more of the Financial Arrangements Act, the IGA and the Methodology Paper. Other figures (such as CPI) are published data. All of these figures are manually entered by Treasury staff into the relevant worksheet in the spreadsheet (often more than once).

2.20 The principal purpose of Treasury's spreadsheet is to calculate the GMA (to allow any BBA payable to be calculated). Accordingly, the audit included detailed analysis of the spreadsheet, the data within it, related formulae and worksheet interrelationships. Table 2.2 below outlines the verification procedures applied by ANAO to each worksheet. It also shows the checks of manually entered base data and the source from which the ANAO verified it.

Table 2.2**ANAO Audit Verification**

Name of worksheet	Verification undertaken
All worksheets	Ensure links for a given period refer to the same period in linked worksheets
	Ensure that formulae are consistent across States and time periods
	Where data has been manually entered more than once, cross-check all occurrences
	'Desk check' for NSW for 2003–04 (ie manual duplication of calculation)
	Ensure that basis for formulae are consistent with Financial Arrangements Act, IGA and Methodology Paper
BBA	Does not contain base data
Beer (Low alcohol beer subsidies)	2002–03 expenditure for each State (from Treasurer's statement)
GST	Tax Commissioner's determinations (on Treasury file)
CPI	For each State: <ul style="list-style-type: none"> • CPI June 1999 to June 2000—ABS publication • CPI September 2000 to September 2008 - Treasury estimate (on Treasury file) • CPI adjusted to remove effect of introduction of GST—data supplied by Domestic Economy Division (DED) (on Treasury file)
Population (latest)	Determinations and estimates of population for each State by Australian Statistician for each year (on Treasury file)
Population (determination)	Determinations of population for each State by Australian Statistician for each year (on Treasury file)
Financial Assistance Grants	State relativities for each State calculated by CGC (from CGC publication for each year and on Treasury file)
Health Care Grants	Determinations by Minister for Health for each State for each year (on Treasury file)
Indexation	Does not contain base data

Name of worksheet	Verification undertaken
Revenue Replacement Payments (no indexation)	Percentage share between States for petroleum, alcohol and tobacco (s16, Financial Arrangements Act)
Revenue Replacement Payments (with indexation)	Percentage share in 1999–00 (petroleum and alcohol) and 1998–99 (tobacco) between States (s16, Financial Arrangements Act)
Gambling	Estimates by each State of gambling revenue foregone for each year (on Treasury file)
First Home Owners Scheme	<ul style="list-style-type: none"> • Number of first home buyers 1999–00 (ABS publication) • Expenditure as advised by States (on Treasury file)
GST administration costs	Costs as periodically agreed by Ministerial Council (from Council minutes on Treasury file)
Diesel (no indexation)	Estimates by States of expenditure in 1999–00 on off-road diesel subsidy (on Treasury file)
Diesel (with indexation)	Estimates by States of expenditure in 1999–00 on off-road diesel subsidy (on Treasury file)
Savings	Reduced costs to States from tax reform, 2000–01 to 2005–06. (Methodology Paper)
Taxes growth	Estimates of growth dividend (Methodology Paper)
GST growth	Estimates of growth dividend (Methodology Paper)

Source: ANAO analysis of Treasury data

2.21 ANAO did not identify any errors in the calculation of GMA, or in the payment of BBA.

Development of calculation mechanism

2.22 The ANAO notes that the spreadsheet was developed in-house with limited resources and without adequate consideration being given to alternatives. Other important elements of effective system development practices not evident included:

- an absence of detailed systems requirement specifications;
- no project plan with senior Treasury approval; and
- a lack of specialist expertise being applied, for example from Treasury's own Information Technology area.

2.23 Treasury has stated that it is very unlikely that any State will require BBA in the future and that, consequently, the importance of calculating the GMA is diminished. The ANAO has to question this view. First, the Commonwealth is presently bound by regulation to continue to calculate GMA until 30 June 2006. Second, ANAO notes that the spreadsheet was constructed to estimate future GST payments in part to assess whether, after the transitional period, States would be better off under the GST than under the previous regime. This has been the case to date, but ANAO notes that the Government may have a continuing need to gauge the quantum of the benefit to the States of the introduction of the GST. If that is the case, the spreadsheet will be required for the foreseeable future.

2.24 Against that background, ANAO considers that the weaknesses and risks it identified in the spreadsheet need to be addressed.

Systems documentation

2.25 ANAO was unable to locate any system documentation associated with the original development of the spreadsheet. This means that it is not possible to examine readily the logic underpinning the spreadsheet's construction. This also increases the difficulty of amending the spreadsheet if any significant modification is required in the future.

2.26 Treasury has developed a 'Payments and Estimates Manual' to assist officers responsible for operating the spreadsheet. Although Treasury advised the ANAO that the document was developed in 2001, it is not yet complete (for example, sections of it are in draft and bear hand-written comments and corrections). This means that, more than four years after the commencement of the GST, Treasury does not have a complete, up-to-date manual to assist staff of the Intergovernmental Agreement Unit (IAU), especially given the high turnover of staff in the Unit. None of the present staff in the Unit was there when the spreadsheet was constructed. The longest-serving member of the IAU with main responsibility for updating the spreadsheet was in the Unit for less than two years and left it during the course of the audit.

2.27 There is a facility in Excel to attach comments to particular cells. The IAU's Payments and Estimates Manual documents processes for calculating and making payments to the States. It states that, when a worksheet parameter is updated, the relevant officer documents this in the auditing worksheet by recording his or her name, the date updated, the number of the file where the hard copy of the parameter can be found, any additional comments and how they would like the parameter checked.

2.28 In practice, however, revised parameters in the worksheets are difficult to check in the absence of a clear audit trail. The general auditing worksheet and the individual parameter worksheet commonly indicate that particular parameters were updated in 2003 or 2004 and last checked in 2002 and omit reference to the Treasury file holding the source data. Treasury acknowledged to ANAO in January 2005 that the 'comments' facility which was designed to provide this audit trail had not, as a matter of course, been kept up to date⁵, but acknowledged that manual checklists had been used.

2.29 There are also numerous instances where non-variable data (such as the CGC relativities) have been manually entered into a number of different worksheets instead of being entered once and linked to where the data is required in other worksheets. Repeated manual entry of the same data clearly increases the risk of errors.

2.30 The auditing worksheet also omits reference to some of the parameters: for example, population, gambling revenue forgone and First Home Owners' Scheme (FHOS) expenditure. The worksheets for these parameters state that they were last updated in February 2004 and last checked in July 2003. They were in fact updated more recently than February 2004 but they omit references to files holding source data. In addition, worksheets for population, gambling revenue forgone and FHOS expenditure omit to indicate the files holding the Australian Statistician's population determinations and the States' advices of gambling revenue forgone and FHOS expenditure, which are the basis for these worksheets. From file search, and with assistance from Treasury staff, the ANAO has confirmed the accuracy of the data on those worksheets for the years to 2003–04. This exercise also drew attention to shortcomings in the maintenance of a consistently rigorous approach by Treasury to managing the records that support the data entered into the spreadsheet.

⁵ For example, the auditing worksheet indicates that data on Health Care Grants were updated in April 2004 and last checked in April 2002, but the Health Care Grants worksheet itself indicates that it was last checked in October 2003.

Recommendation No.1

2.31 ANAO *recommends* that:

- (a) Treasury review whether the spreadsheet that it presently uses to calculate GMA and BBA and to calculate payments of GST to the States is sufficiently robust and reliable for that purpose and likely future uses; and
- (b) in future circumstances requiring the complex calculation and payment of substantial amounts from the Consolidated Revenue Fund, Treasury:
 - identify the most appropriate system or tool for calculating payments;
 - develop appropriately detailed system specifications; and
 - implement robust system controls.

Treasury response

2.32 Treasury agreed with the recommendation and commented as follows:

Treasury agrees with recommendation 1(a). Treasury will evaluate the spreadsheet to ensure that it is adequate to meet likely future needs to estimate states' GMAs. However, Treasury expects that any review would have regard to the fact that the current spreadsheet has been used successfully for approximately seven reporting and estimates rounds each year, with no errors in payments or GMA calculations identified. A review would also need to have regard to the potential disruption involved in changing to a new system at this point in time and that, in future, the GMA calculations are likely to have less significance for actual payments as states cease to require BBA. Microsoft Excel also has the advantages of being widely used within Treasury (most staff new to the Division would have some familiarity with the programme) and by state treasuries (relevant work sheets can be provided to state treasuries with only minor changes).

Treasury agrees with recommendation 1(b). Treasury considers it important that the most appropriate system or tool be used for calculating and making future payments of substantial amounts from the Consolidated Revenue Fund. However, Treasury notes that decisions about the type of system to use for such calculations would be taken having regard to the complexity and sensitivity of the calculations required. In particular, Treasury expects that there will be instances where payments are relatively straight-forward and/or that the availability of an adequate software tool that is familiar to the majority of the relevant Treasury staff will mean that the expenditure of significant time and resources on systems development is not warranted.

Data and payment verification

2.33 Treasury informed ANAO that it uses a number of methods internally to verify the correct entry of data and to ensure that the final calculations of GMA are correct. The first is that a staff member checks the data entry against source data. Then another staff member independently enters data into a different version of the spreadsheet. However, this procedure is not formally documented.

2.34 The second method that Treasury uses to check the results is what appears to be an informal arrangement whereby the South Australian Treasury (SAT) attempts to duplicate the calculation using its own methods. However, actual payments of BBA to the States during a GST year are based on a range of estimates, such as forward estimates of the CPI. Due to the sensitivity of these figures, Treasury does not supply them to SAT which uses its own estimate in its 'duplication' of the calculation. While this allows SAT to arrive at a figure that is reasonably close to Treasury's, it is not possible for it to exactly duplicate Treasury's calculation until such time as the actual indices are released, which is well after payments have been made.⁶

2.35 ANAO questions the reliability of these verification measures, given the complexity and the amount of money involved, noting the significant work needed by ANAO to verify payments. The ANAO considers that more comprehensive and systematic verification procedures should be adopted which include a detailed audit trail.

Recommendation No.2

2.36 ANAO *recommends* that Treasury improve the documentation supporting its GST spreadsheet by:

- a) completing the 'Payments and Estimates Manual';
- b) updating the spreadsheet audit trail and maintaining it each time data is entered into the spreadsheet; and
- c) adopting more comprehensive and systematic verification procedures.

⁶ Subsequent payments are adjusted to account for any over or underpayment of BBA during a year. The amount ultimately received by a State will therefore depend on final outcomes. Forward estimates of the CPI and other variables might impact on the timing of payments within and between years, but not the total amounts received by States.

Treasury response

2.37 Treasury agreed with Recommendation 2(a) and 2(b) and agreed with qualification with Recommendation 2(c) and commented as follows:

Treasury agrees with recommendations 2(a) and 2(b).

In relation to recommendation 2(c), Treasury agrees with qualifications. Treasury's processes for checking and verifying the accuracy of data in the GST/GMA spreadsheet are extremely thorough. It would not have been possible for Treasury to calculate and correctly pay 470 GST and BBA payments to the states up to 30 June 2004 if this were not the case. Treasury's existing checking procedures include independent checking of all data entry, the independent 'build-up' of a separate version of the spreadsheet to enable results to be compared, together with the role of the states in developing their own estimates. It is worth pointing out that Treasury's estimate of the GMA is only part of a process whereby, under the Intergovernmental Agreement, the GMA for a state or territory is required to be determined by the Treasurer each year after receiving advice from Heads of Treasuries (that is, from the Secretary of the Australian Government Treasury and the head of each state and territory treasury). Treasury's estimates are checked and rechecked a number of times before being provided to the states and the states also have the opportunity to scrutinise Treasury's calculations (including comparing them with their own estimates) before these calculations could impact on actual payments.

The major shortcoming the ANAO appears to have identified is a lack of the formal documentation surrounding Treasury's checking processes necessary for future verification of the data and associated calculations. While Treasury considers that its existing processes are adequate to ensure that mistakes in estimates and payments do not occur and that there is little scope to add further layers of checking, Treasury will more thoroughly document its processes in future to allow for third party verification of these estimated payments.

Version and change control

2.38 The spreadsheet is periodically updated at the time of the various 'estimates rounds' (for example, Budget, Mid Year Economic and Fiscal Outlook and Pre-Expenditure Review Committee), but previous versions are permitted to remain on the system. ANAO was informed by Treasury that there are 'hundreds' of earlier versions of the spreadsheet on the system. Treasury rely on staff adhering to a 'naming convention' in order to ensure that authorised staff are accessing the current or latest version. ANAO considers that this poses an unacceptable level of risk that staff responsible for updating the spreadsheet may inadvertently access an earlier version of the spreadsheet. In relation to this issue, Treasury advised ANAO in January 2005 as follows:

Although it might be possible that staff might inadvertently access an earlier version of the spreadsheet, this should not involve any risk to GST or GMA estimates provided that the checks previously referred to are undertaken. While it is not documented, any change to the spreadsheet would go through normal checking procedures.

2.39 Treasury acknowledged to ANAO that it did not have any formal change control procedures. Some minor changes to the spreadsheet have been necessary to reflect a number of legislative changes. These changes were simply made by staff in the IAU at the time that the changes to legislation occurred. This presents risks to the integrity of the spreadsheet, particularly given the absence of documented systems specifications.

Access controls

2.40 Given the significance of the spreadsheet in the calculation of BBA and GST, ANAO considers that protection of the spreadsheet and access to it are important issues.

2.41 The current spreadsheet and all previous versions of it are located in a drive on the Treasury IT system to which access is limited to staff of the Commonwealth-State Relations Division (CSRD), which comprises 17 staff. Full access in order to make changes to the spreadsheet (as opposed to 'read-only' access) is limited to the five staff of the IAU within CSRD by means of a password. New staff arriving in the Unit are informed of the password orally.

2.42 Treasury indicated to ANAO that it was satisfied with the level of protection afforded to the spreadsheet. However, ANAO research revealed that the password facility provides only a basic level of protection from unauthorised amendment by individuals with access to the spreadsheet.

2.43 ANAO also noted that the password for the spreadsheet has never been changed in the more than four years it has been in use. ANAO was concerned that this may be contrary to government policy as set out in the Australian Government Information Technology Security Manual (also known as ACSI 33), which stipulates that 'Agencies should require passwords to be changed at least every 90 days'.⁷

⁷ Source: *Australian Government Information Technology Security Manual (ACSI 33)*, Defence Signals Directorate, March 2004.

2.44 In relation to the above, Treasury made the following comments:

Treasury's understanding is that the policy set out in the ACSI 33 which stipulates that Agencies should require passwords to be changed at least every 90 days relates to user authentication to a network. In the case of passwords being changed on individual files, Treasury IT Security does not consider that this is necessary due to the controls on network passwords and permissions to the H drive which do comply to the ACSI 33 standards. There is no specific information in the ACSI 33 in relation to password protecting files, and as the files are on a password protected network with permissions in place the ANAO's concern would appear to be misplaced.

2.45 On this issue, ANAO sought clarification from the Defence Signals Directorate (DSD), the agency which publishes ACSI 33. DSD responded as follows:

To answer your question, the original intent of the policy in ACSI 33 was to address system level access. I would, however, advise that your client should change the password on the file when a person leaves the group of people that has a legitimate need to know of the file's contents. The risk is where a person still no longer has a need to know but still has logical access to the file and thus able to access the file's contents. By undertaking the password changes upon a person leaving, the need-to-know principle is maintained. If your client hasn't already, I would also suggest that a threat and risk assessment be conducted on the risk of disclosure of the file's contents to a third party. Should the risk be found to be high, further security measures may be needed including the use of encryption. It should also help your client to determine if the current security measures are adequate.

2.46 A significant amount of data in the spreadsheet reflects agreements reached during the negotiation of the IGA. The Methodology Paper also contains such data. An example of this is the State shares used to calculate the alcohol RRP.⁸ ANAO has verified that this data has been correctly entered into the spreadsheet, but considers that it would be prudent to use the functionality available within Excel to lock these cells to prevent deliberate or inadvertent change.

2.47 Microsoft Excel offers various forms of protection for the data within a spreadsheet. For example, it is possible to 'lock' particular cells to prevent them being edited or changed. It is also possible to password protect particular cells and fields in a spreadsheet so that only specific authorised individuals can amend them. However, Treasury has not made use of this functionality. Most fields in the spreadsheet are accessible to, and can be manipulated by, any person who has access to it.

⁸ Financial Arrangements Act, subsection 16(2)(b).

2.48 In addition to the linkages within the spreadsheet, it is also linked to other spreadsheets located elsewhere on the same drive. These spreadsheets are similarly lacking in protection.

2.49 ANAO also has some reservations about the appropriateness of Excel as the software tool for this task. One of Excel's perceived strengths (the ease with which data can be changed and manipulated by several different users) could also be seen as a weakness in this instance. Further, its capacity to protect data is not considered to be strong. A website devoted to Excel states:

The encryption on Worksheet and Workbook structure passwords is extremely weak. Even Microsoft acknowledges that worksheet and workbook protection is a 'display' feature and not a 'security' feature.⁹

2.50 Although it appears possible for Treasury to ascertain when the spreadsheet was last modified, it does not record the identity of the particular individual who did so, or what change was made. This means that, if a person gained unauthorised access to the spreadsheet, it would not be possible to identify him or her. ANAO considers this to be a further security weakness.

2.51 In relation to the above, Treasury made the following comments:

As a general comment on this part of the report, in expressing concern about risks of inadvertent or deliberate entry of incorrect data, ANAO's analysis lacks a sense of perspective on the likelihood and consequences of such errors remaining undetected, especially in light of the fact that ANAO has found that all payments have been correct.

A recognition of the nature of the risks involved would assist in reaching an informed conclusion about the costs and benefits of committing resources to upgrading the security features associated with the spreadsheet.

In view of the role played by the states in developing their own estimates and the numerous checks that are undertaken, Treasury considers that any error is unlikely to remaining undetected for long. The major risk associated with such an occurrence is therefore not that states will be paid incorrect amounts, but rather, that resources might need to be committed to fixing any errors that are discovered. Treasury would also suffer a degree of embarrassment if an error was discovered by the states. We note that this is the same risk the Treasury faces in relation to any information that might find its way into documents that are transmitted outside the Department. Treasury's general IT, security and general checking procedures are considered adequate to deal with these risks.

⁹ Source: *Excel Help* <<http://www.dotxls.com/excel-security/23/introduction-to-excel-security>>.

2.52 As noted earlier in this report, ANAO was unable to identify any evidence of a formal risk assessment process. While ANAO accepts that the risk of malicious tampering with the spreadsheet may be low, the potential consequences are high.

Recommendation No.3

2.53 ANAO *recommends* that Treasury take prompt action to improve security and access controls in the GST spreadsheet used for estimating and calculating GST payments to the States.

Treasury response

2.54 Treasury agreed with the recommendation and commented as follows:

Treasury agrees with recommendation 3. Treasury's specialist IT staff will be consulted to ensure that optimal use is made of the functionality available within Excel to protect the integrity of the spreadsheet (including locking particular cells) and whether additional steps should be taken to improve security and access controls.

Treasury, however, notes that its general controls on network passwords and permissions offer significant protection against the spreadsheet being inappropriately accessed by individuals who do not have a 'need to know'. In particular, staff who leave the Commonwealth-State Relations Division (CSRD) are denied access to the relevant part of the network drive and are therefore unable to access the spreadsheet. Password protection of the spreadsheet itself is not intended to prevent access but serves to guard against staff inadvertently opening a 'non read-only' version on occasions when they are not intending to enter new data. Staff from other units within CSRD are not prevented from accessing the spreadsheet. However, access is necessary to enable these staff to assist in checking data at times of peak workload around major estimates rounds and to obtain information for their own legitimate needs.

Disaster recovery and continuity planning

2.55 Under the terms of the IGA, Treasury must make GST revenue payments to each State on the 27th of each month. Clearly, any major disruption to Treasury's IT systems could jeopardise its ability to meet this requirement which would adversely impact on the States' own financial arrangements. All Commonwealth agencies are encouraged to have detailed Disaster Recovery and Business Continuity Plans.¹⁰ ANAO sought to ascertain whether the GST spreadsheet was accorded appropriate priority for restoration in the event of an outage, given the potential impact on Commonwealth-State financial relations. To this end, ANAO obtained a copy of Treasury's Disaster Recovery Plan and its Business Continuity Plan.

2.56 On this issue, Treasury provided the following advice:

GST payments made to the States on the 27th of each month are based on a profile which reflects the expected monthly pattern of GST collections throughout the year. This profile is developed at the commencement of the year and monthly GST payments are not changed to reflect variations in estimates of total GST collections throughout the year. A final balancing payment is made in June which takes account of any difference between the amounts paid to the States in accordance with the profile and each State's final determined GST entitlement for the year.

Therefore, monthly GST payments to the States would be unaffected by any problem with the estimates spreadsheet. However, as previously noted, GST entitlements for each State can be calculated using only four variables. In the event of a disruption that affected Treasury's IT system at the time of the June determinations, the role of the Excel spreadsheet in relation to the GST could be replaced by manual calculation. BBA payments (where required) were made quarterly and, unlike GST, were adjusted each quarter to reflect changes in estimates. In the event of GMA calculations being disrupted by an IT failure, it is likely that Treasury would have simply continued to make quarterly BBA payments based on previous estimated entitlements. Subsequent payments would then be adjusted in the normal way to account for any previous over or under estimate as data is updated throughout the year.

¹⁰ The Protective Security Manual (Section 5) recommends that agencies should have such plans. JCPAA Report 399 (March 2004), entitled *Inquiry into the Management and Integrity of Electronic Information in the Commonwealth* recommended that the Australian Government Information Management Office (AGIMO) should 'ensure that Commonwealth agencies have in place comprehensive and tested business continuity and disaster recovery plans for their electronic records, networks and services'. The Government's response has been to support this recommendation in principle and work on its implementation is underway.

Actual payments made to the States (as opposed to calculations) are done through the SAP system [Treasury's Financial Management Information System] and ANAO's concern about the priority given for urgent restoration in the event of an IT failure would be more appropriately directed at the SAP system.

2.57 On the basis of this advice, and having considered Treasury's Disaster Recovery Plan and Business Continuity Plan, ANAO is satisfied that Treasury has adequate contingency measures in place.

Canberra ACT
10 March 2005



P. J. Barrett
Auditor-General

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