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The economic impacts of outsourcing the Tourism Refund Scheme

Report by Access Economics Pty Limited for the
**Department of Industry Tourism
and Resources**

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EXECUTIVE SUMMARY

Taxing exports has long been recognised as a counter-productive approach to the funding of government services. Tourism – one of Australia’s largest exports – is relatively heavily taxed. International visitors to Australia pay GST on a large parts of their expenditure bundle, including accommodation, restaurants and shopping. Ideally, international visitors should be exempt from tax on all their expenditure. Due to difficulties in administering and policing a ‘tax-exempt’ status for visitors, like many other countries, Australia only gives tax refunds on items purchased in Australia and then exported. The refund is also available to Australians that purchase items in Australia and then export those items within 30 days.

The current Tourist Refund Scheme (TRS) refunds the GST on purchases over \$300 on a single receipt. The reforms will allow claimants to aggregate multiple receipts from the same merchant. Private operators will be introduced and they will be able to charge a commission of up to 20% to process refunds. This is expected to result in more widespread knowledge about the TRS and greater uptake.

In 2004-05, 3.9% of Australian residents travelling abroad and international visitors to Australia (433,255 people) claimed the TRS. Refunds were claimed on \$550.6 million worth of purchases, resulting in refunds of \$50.1 million. The average value of items claimed was \$1,274. Australians accounted for 48% of the amount claimed and international visitors the remaining 52%. Hence, \$286 million of the total amount claimed was by international visitors.

Average international visitor expenditure on shopping on items to take home was \$311 per person and \$1,586 million in total in 2006. Deducting the amount already claimed indicates \$1,317 million of shopping is not being claimed. The average expenditure by the 4.8 million international visitors not claiming in that year was thus \$274. While this is lower than the \$300 threshold, there is a wide distribution around that average, so many eligible people are not claiming, due to the hassle of claiming the TRS and the lack of knowledge about the TRS.

Greater promotion of the TRS is expected to increase uptake from 3.9% to 10% of departing travellers. However, the additional uptake is likely to be at lower expenditure rates than the 3.9% already claiming at \$1,271 per person. Interpolating between the known data points (3.9% of people claim \$1,271 per person and 100% of people claim \$318 per person) suggests per capita expenditure at a 10% uptake would be \$817, resulting in \$908 million in claims and \$82.5 million in GST refunds, an increase of \$32.4 million over the base year.

Because of the price-sensitive nature of tourism and the highly competitive global market for attracting visitors, the resulting increase in the price competitiveness of the Australian tourism industry leads to an increase in visitation and tourist shopping, relative to the ‘no reform’ scenario. There is also a minor stimulation of demand for shopping from outbound tourists. General equilibrium modelling of this reduction in the price of tourism exports indicates that it drives additional economic activity, increasing real GDP by \$53.5 million. This increase in activity claws back \$7.7 million in GST revenues and \$9.9 million in other State taxes. The net revenue loss to the States and Territories is thus only \$14.8 million.

The impact of TRS outsourcing on government revenues at the national level is summarised in the table below.

**EFFECT OF TRS OUTSOURCING ON GOVERNMENT REVENUES
AT THE NATIONAL LEVEL (\$ MILLION)**

	7% TRS take-up	10% TRS take-up
Initial change in GST revenues due to TRS outsourcing	-18.2	-32.5
Increase in GST revenue due to economic expansion arising from TRS outsourcing	2.04	7.72
Change in other State revenues as a result of TRS outsourcing (aggregated across all States/Territories)	2.66	9.92
Net effect of TRS outsourcing on government revenues at the national level	-13.5	-14.8

Source: Access Economics calculations.

The modest revenue loss from lightening the tax burden on tourism exports is more than outweighed by the impact on Australia's competitiveness and the resulting gain in prosperity.

Access Economics, June 2007

1. INTRODUCTION

Tourism makes a highly substantial contribution to the Australian economy. In recognition of this, the Australian Government is focused on developing appropriate strategies to foster continual development and growth of the tourism industry.

In its Tourism White Paper, *A Medium to Long Term Strategy for Tourism*, the Australian Government committed to undertake a review of existing tourist shopping arrangements, including the potential outsourcing of the Tourism Refund Scheme (TRS), in order to identify and analyse options for improving the delivery and administration of the scheme and inwards and outwards duty-free shops.

As a result of the review, the Australian Government has decided to make a number of changes to improve the flexibility of the existing tourist shopping arrangements including changes to the TRS. For these changes to be made, the unanimous agreement of the State and Territory Governments is needed, as they require a change in GST legislation.

It is in this context that Access Economics has been commissioned by the Department of Industry, Tourism and Resources (DITR) to model the impacts of outsourcing the TRS to private sector providers.

1.1 PROJECT OBJECTIVES

The aim of the project is to estimate the full range of taxation and revenue effects of outsourcing the TRS at the State and Territory level. This independent economic assessment is to demonstrate to State and Territories the potential economic gains of adopting the proposed reform.

The project involves quantitative modelling of the economic benefit of the proposed private sector operation of the TRS function including:

- ❑ estimation of how and to what extent the TRS outsourcing will increase tourism spending in each State and Territory, including its impact on rural and regional tourist areas;
- ❑ Computable General Equilibrium (CGE) modelling to examine the flow-on and the broader economy-wide effects of outsourcing in terms of output, employment and exports by industry sectors, (particularly in retail, accommodation and hospitality sectors) by states;
- ❑ examination of the direct and net effects of taxation changes on State and Territory revenue;
 - as mentioned earlier outsourcing is expected to increase the TRS take up rate from its current level of 3.9% to around 7%, reducing GST receipts available for allocation to State and Territory governments by an estimated \$46 - \$50 million per annum;
 - however some of this lost GST may be illusory reflecting 'new' shopping which may not have been undertaken prior to outsourcing, analysis should consider this;
 - determine the net tax effect on state and territories after considering all taxation impacts including the income and payroll taxes;

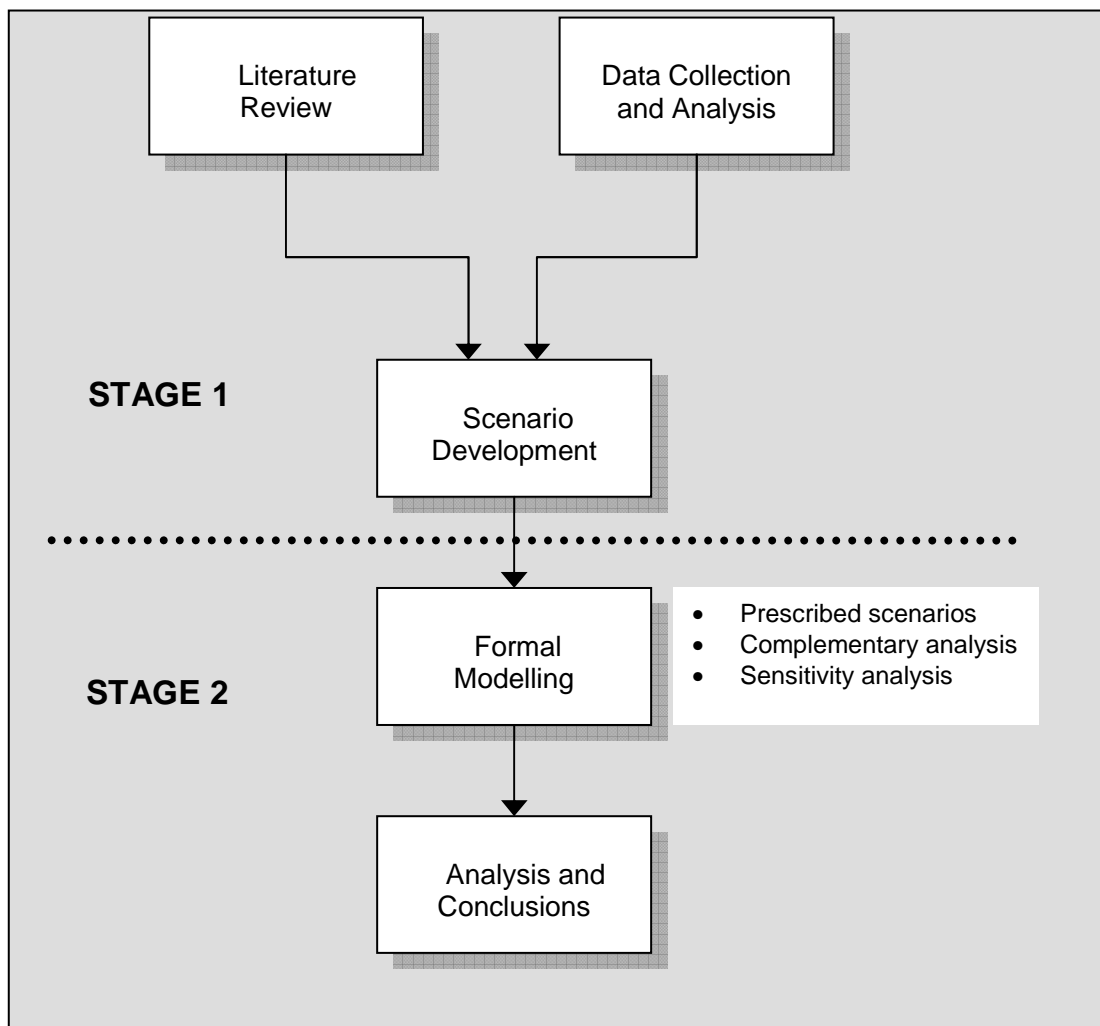
- ❑ estimation of the overall net benefit to the states and to the economy from this measure; and
- ❑ examination of the current scale of tourism shopping and its current impact on State and Territory economies.

1.2 PROJECT APPROACH

A schematic outline of Access Economics’ approach is shown in Figure 1-1. The first stage is designed to review the appropriate literature as well as collect and analyse relevant data in order to devise a range of scenarios for quantitative analysis. During this stage, the Access Economics project team worked closely with DITR to develop and finalise the appropriate modelling scenarios and model inputs.

The second stage of the project took the information gathered and processed in Stage 1 through formal modelling and analysis. The Access Economics General Equilibrium Model (AE-GEM) was customised to incorporate the sectoral and geographic detail required by the study. The tourism pricing and quantity shocks that constituted the various scenarios were then fed into the model and the results analysed in depth.

FIGURE 1-1: APPROACH TO PROJECT: SCHEMATIC OUTLINE



Source: Access Economics

1.3 REPORT STRUCTURE

This report is organised as follows. The next chapter provides a brief description of current TRS arrangements and the proposed changes to the scheme. Chapter 3 presents the Access Economics' General Equilibrium Model and the various modelling scenarios considered in this report. The modelling results are analysed in Chapter 4. Chapter 5 concludes the report.

2. BACKGROUND

As part of the introduction of *A Next Tax System*, the Australian Government established the TRS to enable overseas visitors and Australians travelling abroad to claim refunds of GST and wine equalisation tax (WET) paid on goods that they purchase in Australia and take with them. The scheme applies to residents and non-residents.

2.1 CURRENT TRS ARRANGEMENTS

The TRS currently provides outbound travellers with a refund of the GST paid on purchases of \$300 or more made through a single retailer, recorded on a single invoice and made up to 30 days prior to departure.

At present, the TRS is Government funded and managed by Customs, while Fintrax operates the back-office arrangements and handles the electronic processing of refunds. The take-up rate of refunds (3.9% in 2004-05) has been relatively low due to a lack of effective marketing and promotion.

Under the *A New Tax System (Commonwealth-State Financial Arrangements) Act 1999*, GST refunds made under the TRS are deducted when determining GST revenues to the States. The States also bear the administrative costs of the scheme (which were \$14 million 2004-05). Since its introduction in July 2000:

- ❑ TRS annual GST refund has grown from \$29.7 million 2000-01 to more than \$50 million in 2004-05;
- ❑ total TRS claims have increased from 246,904 claims in 2000-01 to 433,255 claims in 2004-05. The corresponding retail sales also increased proportionally from \$326.7 million in 2000-01 to \$550.5 million in 2004-05; and
- ❑ Australian outbound travellers have been major users of the TRS, accounting for 48% of the total claims made in 2004-05, up from 22% in 2000-01.

Although the current scheme is simple and accessible to all retailers and to all travellers at all departure points, the take-up rate of refunds (3.9% of all inbound and outbound travellers in 2004-05) has been relatively low due to a lack of effective marketing and promotion.

2.2 PROPOSED NEW ARRANGEMENTS

In the 2007-08 budget unveiled recently, the Australian Government announced that repayment arrangements under the TRS would henceforth be outsourced to multiple refund providers.

Under the outsourced model, private sector refund operators would be freely able to compete in the open market for the opportunity to make GST claims on behalf of tourists. In this model, the tourist would provide the power of attorney to the refund operator to claim the GST refund on their behalf. The refund operators would then apply directly to the revenue authority (the Australian Taxation Office) on behalf of the tourist.

Under the model:

- ❑ Operators would be able to charge a fee/commission (up to a maximum of 20%) to the tourists for managing and processing refund claims on their behalf;

Shopping and Other Spending by International Visitors in Australia

The following table shows the amounts spent by international visitors on shopping and other items across the States and Territories in 2005.

State/Territory	Visitors '000	Visitor nights '000	Total expenditure (including packaged tours) \$ million	Accommodation food and beverage (AFB) expenditure \$ million	Non-AFB expenditure \$ million	Take home shopping \$ million
NSW	2,783	48,742	4,771	1,948	2,823	594
VIC	1,346	27,075	2,324	979	1,345	283
QLD	2,136	30,049	3,227	1,213	2,014	424
SA	335	6,363	440	184	256	54
WA	636	15,716	1,295	545	750	158
TAS	134	2,537	172	71	101	21
NT	349	2,627	377	120	257	54
ACT	158	1,771	134	59	75	16
Total Australia	5,046	134,885	12,740	5,120	7,620	1603

Source: Tourism Australia

- Tourists would have the option to select a refund operator of their choice according to the commission charged;
- Retailers would have the option to align themselves with a particular refund operator; and
- Customs would continue the export verification of goods at airports.

Under the proposed outsourcing system, refund providers would be licensed to operate under certain conditions, including:

- TRS refunds must be made available at all departure points;
- all retailers must be able to access the system;
- refunds will be subject to audits and penalties will apply for inappropriate activity.

Other proposed changes to tourist shopping arrangements include:

- extending the period during which travellers can purchase goods and be eligible to claim a refund of GST and WET through the TRS from 30 days to 60 days; and
- extending the period during which travellers can make tax-free purchases through the sealed bag system from 30 days to 60 days.

2.3 EXPECTED IMPACTS OF TRS OUTSOURCING

Outsourcing the refund scheme to multiple private providers who will operate in competition with one another in securing commissions from GST refunds is expected to lead to increased promotion of the TRS and, consequently, take-up of the scheme. Greater awareness of the TRS is expected to boost the level of shopping undertaken in Australia by tourists as well as by outbound Australian travellers (who accounted for 48% of total claims made in 2004-05).

Greater international awareness of the TRS may also lead to an increase in the number of incoming leisure visitors to Australia, which will benefit other tourism-related sectors such as accommodation, restaurants and cafes, and air/ground transportation. On the other hand, to the extent that some visitors have largely pre-determined travel budgets, by lowering the relative price of shopping items, increased expenditure on shopping arising from the new TRS arrangements may crowd out visitors' expenditures on meals, sports and entertainment events etc.

More specifically, the expected impacts of TRS outsourcing can be classified as follows:

Increase in spending on shopping by international visitors

- ❑ an increase in the TRS take-up rate as awareness of the scheme rises due to increased marketing and promotion;
- ❑ an increase in spending on shopping per overseas visitor as the average post-tax price of shopping falls;

Change in the composition of international visitor expenditure

- ❑ a potential decrease in international visitor spending on other tourism sectors such as accommodation, restaurants and cafes due to a change in relative prices (as GST on meals and accommodation cannot be refunded) if average spending per visitor remains largely constant;

Increase in spending on shopping by outbound Australian travellers

- ❑ an increase in spending on shopping per outbound Australian (as Australian prices are perceived to be more competitive, when the 10% 'discount' is factored in, relative to prices at the destination country);

Increase in visitor arrivals

- ❑ a potential increase in the number of overseas visitors as Australia is perceived to be a more attractive international shopping destination and a consequent increase in total tourism spending in Australia;
- ❑ a shift in international visitor spending from rural and regional tourist areas to metropolitan ones with large concentrations of retail stores and where retail choices are widest;

Changes in magnitude and composition of government revenues

- ❑ GST revenues foregone by States and Territories as more overseas visitors and outbound Australians who are eligible to claim GST refunds do so
 - the magnitudes may be substantial as an increase in the TRS take-up rate is magnified by the likely increase in shopping spending which may displace other types of tourism spending (on meals, accommodation, entertainment etc) that are not GST-refundable
 - this is, however, counterbalanced by non-GST refundable tourism spending by additional overseas visitor arrivals as the new TRS arrangements enhance Australia's reputation as a shopping destination
- ❑ changes in the amount of payroll and other taxes taxes paid by potentially expanding tourism-related businesses to State and Territory governments and corporate income and other taxes paid to the Australian Government.

2.4 PREVIOUS STUDIES

In 2005-06, CRA International was commissioned to undertake a review of tourist refund scheme options. CRA assumed that there would be substantial increase in the take-up rate of refunds from 3.9% to around 10% (based on international experience under privately operated refund schemes). They did not undertake formal general equilibrium modelling but adopted a simple partial equilibrium approach using national input-output tables compiled by the Australian Bureau of Statistics (ABS).

The main findings contained in the CRA report with respect to the economic impacts of outsourcing the TRS are:

- Total direct spending by tourists in Australia would rise by \$108 million. This consists of:
 - A price-induced spending increase of \$41 million (assuming a demand elasticity of -2.0) because more tourists are aware of the refund, the average prices paid by tourists fall and this induces an increase in spending;
 - The availability of cash refunds at airports increases tourist spending at retail outlets by \$47 million; and
 - Tourists spend \$20 million on tourist refund operator services.
- Assuming a multiplier of 1.4, the direct increase in spending produces a total (direct and indirect) increase in spending in the economy of \$152 million.
- The increase in value added (or Gross Domestic Product) resulting from this additional spending is estimated to be \$71 million, based on the assumption that 47% of the value of sales constitutes value added.
- The additional value added is available for distribution as income to workers, owners of businesses and governments (taxation revenue). The increase in value added results in a private income benefit of \$58 million:
 - additional labour income, net of taxes, of \$42 million;
 - additional net income to capital of \$5 million, some of which would accrue to foreign shareholders; and
 - a direct benefit to Australian outward bound tourists of \$8 million, because more tourists are aware of the availability of the refund.
- If the reduction in GST collections are excluded (on the grounds that the policy intent is that tourists not pay GST on eligible purchases), then there is a \$38 million gain in revenue, consisting of:
 - an increase in income tax collections of \$24 million;
 - a saving in TRS administrative costs of \$10 million; and
 - additional GST collection from the indirect or induced increase in consumer spending of \$4 million.
- If reduced GST collections are counted, the net cost to government is \$17 million.

The CRA report argues that the impact of private operation of the TRS on tourist spending in Australia and on income generation may be much larger than the above estimates. This is because most refund operators offer a range of services to affiliated retailers and tourists that have the potential to further increase the level of tourist spending. These include the provision of information to retailers that may enable them to better target and meet the needs of tourists. There are also promotional and training activities directed to increasing sales to tourists. Given the size of tourist spending, a modest success rate from these activities would

induce a very large increase in the absolute value of tourist spending. In contrast, the Australian Customs Service has no incentive to promote tourist spending under the current TRS arrangements.

Tourism Refund Schemes in Other Countries

There are approximately 40 countries around the world that operate a tax refund scheme. The three broad models used to provide GST/VAT refunds to tourists are:

- Government processing model – under this model, adopted in Australia and Thailand, the government funds and runs the tourist refund function
- Reimbursement agent model – under this model, the refund operator(s) make a full refund claim on behalf of the tourist for a commission while the retailer is not involved in the refund payment process
- Retailer model – under this model, the retailer provides the refund directly to the traveller, subject to export verification, although they may appoint a private company to act as the refund operator on their behalf

Most countries operate the retailer model. It is used in some form by all of the countries in the European Union and many others in Europe and Asia.

Canada

GST within Canada is charged at a standard rate of 7% and Harmonized Sales Tax (HST) at a standard rate of 15%. Travellers to Canada may be eligible for a refund on certain goods and services on which the GST or HST are imposed. Each receipt must exceed CAN\$50 and the total amount of receipts must exceed CAN\$200.

Canada has a dual system which offers the choice of a private company refunding the taxes (which charges a commission) or a government agency refunding the taxes (with no commission charged). The private company may provide the refund instantly as cash in any currency.

United Kingdom

VAT within the UK is charged at 17.5% and for certain goods purchased, international visitors are eligible to claim a refund on the taxes paid. The VAT Retail Export Scheme is voluntary. Travellers can only claim a refund if they purchase goods from shops participating in the scheme.

Singapore

Singapore levies a 5% GST, which is refundable for eligible international visitors. A minimum purchase of \$300 is required but the minimum purchase falls to \$100 if the goods are purchased from retailers affiliated with a refund agent. (Retailers not affiliated with a refund agent may process refunds themselves.) Travellers can accumulate purchases from the same store or from outlets of the same chain.

New Zealand

Like the United States, New Zealand does not offer international visitors the opportunity of obtaining a refund of the 12.5% GST when leaving the country. Although they have no model of tax refunds, there are some stores in the major cities that sell their goods free of both duty and tax and then have these goods delivered to the airport to await pick-up by the traveller on their departure.

3. SCENARIO DESIGN AND MODELLING FRAMEWORK

This chapter discusses the key assumptions underpinning the modelling exercise and provides a brief description of the formal modelling framework. More details on the Access Economics-General Equilibrium Model are provided in Appendix A.

3.1 SCENARIO DESIGN

Overall Approach

Computing the effects of TRS outsourcing on tourism expenditures by international visitors requires determining the effect of outsourcing on the price of tourism exports. A change in the price of tourism exports will change the quantity of tourism exports through its effect on the expenditure per international tourist and the number of such tourists.

The effect of TRS outsourcing on domestic spending involves determining the increase in GST refunds to outbound Australian travellers.

Key Tourism Data

The key tourism data used in the scenario design exercise are shown in Table 3-1. This data was required to calculate the proportion of spending on shopping items to take home to total visitor spending (excluding package tours and prepaid international airfares).

TABLE 3-1: KEY TOURISM DATA USED IN SCENARIO MODELLING

Statistic	Value in 2006
Average spending on shopping to take home (\$)	311
Average visitor expenditure (excluding package tours and prepaid international airfares) (\$)	2,738
Total number of international visitors	5,099,000
Proportion by claim value of refundees who are international visitors	0.52
Total expenditure on shopping to take home (\$b)	1.586
Total expenditure (excluding package tours and prepaid international airfares) (\$b)	13.961
Shopping to take home as proportion of total visitor expenditure (%)	11.36

Data sources: Tourism Australia International Visitor Survey (2006)

To project the value of refund claims and the amounts to be refunded under the proposed new TRS arrangements requires forecasting a plausible take-up rate and conjecturing the relationship between the expected take-up rate and the value of the average claim.

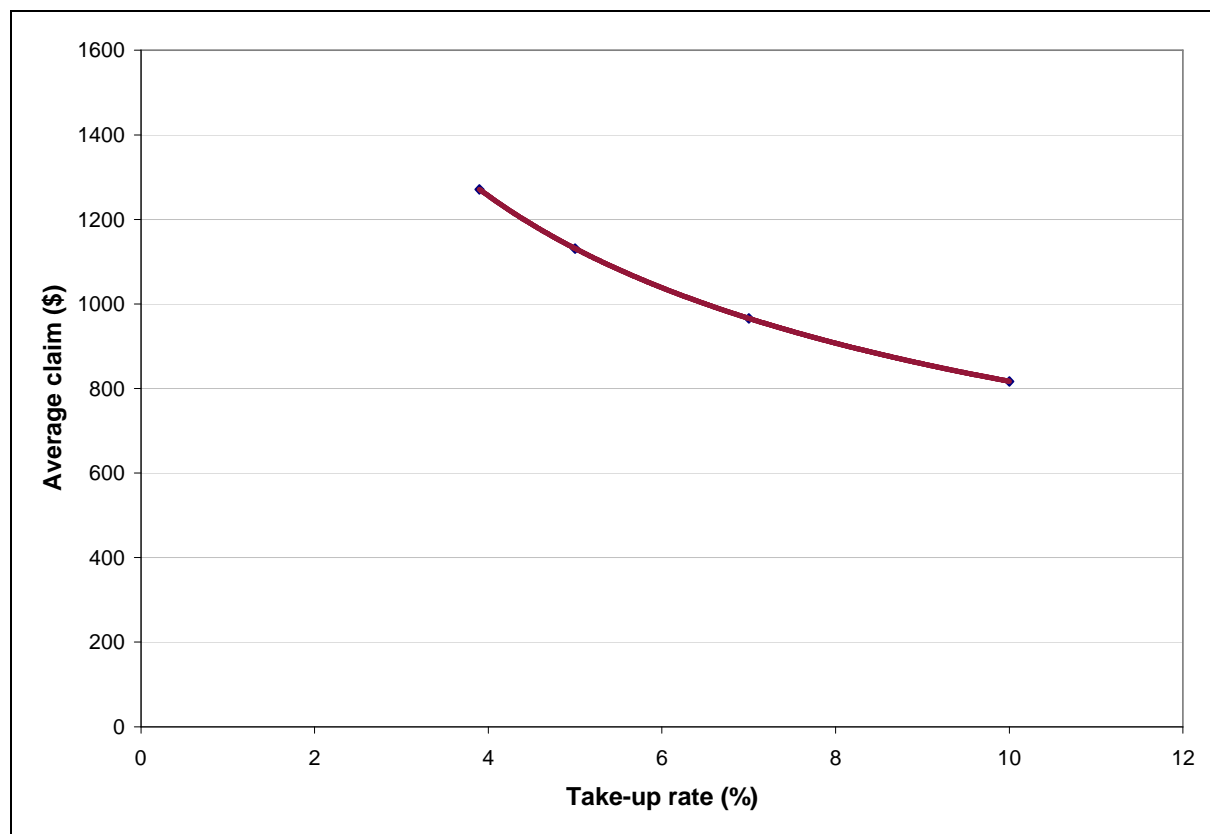
In 2004-05, the TRS take-up rate was 3.9% under the current TRS arrangements. The Treasury has estimated that the take-up rate after the implementation of the TRS changes will be approximately 7%. As reported in the previous chapter, in their review of tourist refund options, CRA International forecasted a take-up rate of 10% based on international

experience under privately operated refund schemes.¹ Access Economics will analyse the economic impacts of TRS outsourcing under both take-up rates.

The average claim across international visitors and outbound Australians was \$1,271 in 2004-05. (The average claim by Australians was \$1,296, and Australian claims constituted 48% of all claims by value in that year.) The average TRS claim is expected to decline as the take-up rate increases. The underlying intuition is that relatively high spending tourists have a greater incentive to make claims. As awareness increases among tourists under a private scheme, the spend per average claimant falls as lower spending claimants become aware of the refund.

Access Economics believes that the relationship between the expected take-up rate and the value of the average claim is likely to take the non-linear form shown in Figure 3-1. Interpolating between the known data points (3.9% of people claim \$1,271 per person and 100% of people claim \$318 per person) suggests per capita expenditure at a 10% uptake would be \$817.

FIGURE 3-1: PROJECTED AVERAGE TRS CLAIM FOR A GIVEN TAKE-UP RATE



Source: Access Economics

Change in the price of tourism exports

Table 3-2 shows the total value of claims and GST refunds for a given take-up rate using the relationship between the take-up rate and the average claim postulated in Figure 3-1.

¹ CRA International 2006, *Review of Tourist Refund Scheme Options*, February.

An increase in the TRS take-up rate from 3.9% to 10% coupled with a reduction in the average claim from \$1,271 to \$817 is expected to result in an additional \$908 million in claims and \$82.5 million in GST refunds, an increase of \$32.4 million over the base year.

TABLE 3-2: IMPACT OF ASSUMPTIONS ON TRS TAKE-UP AND AVERAGE CLAIM

	Take-up rate (%)	Average claim (\$)	Number of claims	Value of claims (\$m)	Total refunds (\$m)
Current TRS arrangement	3.9	1271	433,255	551.0	50.1
With outsourcing	7.0	966	777.637	751.0	68.3
	10.0	817	1,110,910	908.0	82.5

The value of additional claims to each State and Territory as a result of TRS outsourcing under alternative assumptions of the take-up rate is shown in Table 3-3 below.

TABLE 3-3: VALUE OF ADDITIONAL CLAIMS DUE TO TRS OUTSOURCING

State/Territory	Increase in value of TRS claims (\$m)	
	7% take-up	10% take-up
New South Wales	74.1	132.3
Victoria	35.3	63.0
Queensland	52.9	94.4
South Australia	6.7	12.0
Western Australia	19.7	35.1
Tasmania	2.7	4.7
Northern Territory	6.8	12.0
Australian Capital Territory	2.0	3.5
Australia	200.2	357.0

The 'average' GST rate for international visitor spending on shopping in Australia is calculated as follows:

Current average tax rate = proportion of visitor shopping spending that was not GST-refunded

** GST rate*

$$= (1.586 - 0.551 * 0.52) / 1.586 * 10\%$$

Under the proposed new TRS arrangements and assuming a take-up date of 10% and a commission of 20% charged by TRS operators:

New average 'tax' rate = proportion of visitor shopping spending that is not GST-refunded

** GST rate + proportion that is refunded * TRS commission rate * GST rate*

$$= (1.586 - 0.908 * 0.52) / 1.586 * 10\% \\ + (0.908 * 0.52) / 1.586 * 20\% * 10\%$$

Using these formulas and the tourism data discussed previously, the current average tax rate is found to be 8.19% while the new average tax rate post-outsourcing is 8.03% under a take-up rate of 7% and 7.62% under a take-up rate of 10%. These tax rates are applied to 11.36% of total spending by international visitors.

In addition, there was also a slight stimulus in demand for shopping from outbound tourists, although this was not a significant component of the analysis as the price responsiveness of outbound tourists is considerably lower than inbound.

3.2 OVERVIEW OF THE MODELLING FRAMEWORK

AE-GEM is a large scale, dynamic, multi-region, multi-commodity computable general equilibrium model of the world economy. It is similar to the Global Trade and Environment Model (GTEM) used by the Australian Bureau of Agricultural and Resource Economics (ABARE). In fact, we have an open source modelling agreement with ABARE that allows joint use and development of GTEM.

The model provides clients with a single, robust, integrated economic framework in which to analyse key developments over time, such as significant economic reforms. This framework is critical to decision makers operating in a world increasingly linked through international trade and investment.

AE-GEM is a recursive dynamic model that solves year-on-year over a specified timeframe. The model is then used to project the relationship between variables under different scenarios, or states, over a predefined period. In particular, it projects changes in macroeconomic aggregates such as *GDP*, *employment*, *export and import volumes*, *investment* and *private consumption*. At the sectoral level, we are able to provide detailed results such as output, exports, imports and employment. Being dynamic or time-varying in nature, AE-GEM allows us to undertake scenario analysis on a year-by-year basis.

An important feature of the model is that it sets the Australian economy in a global context. There is a distinct advantage in using a global model in this project because it does not require the same restrictive balance of payments assumptions as single region models (models that treat the rest of the world as exogenous). Experience has shown that general equilibrium models that rely on these restrictive assumptions can produce counter-intuitive results.

Base data

There are 87 geographical entities in the database that underpins AE-GEM. The regional aggregation used in this modelling exercise is presented in Table 3-4.

The detailed analysis undertaken in scenario design stage forms the basis of the shocks that are applied to the appropriate sectors in the model. The sectoral detail in the model is summarised in Table 3-5.

The specification of the detail in the model has been chosen to allow for scenarios relating to international tourism to be considered. For example, a sector has been disaggregated in the model that explicitly accounts for international tourism exports, which combines a bundle of goods and services purchased by international tourists. The data underpinning this sector has been calibrated across each State and Territory represented in the model to data published by TRS and the ABS.

TABLE 3-4: GEOGRAPHICAL REGIONS IN AE-GEM

Number	Description	Number	Description
1	New South Wales (incl. ACT)	10	South East Asia
2	Victoria	11	North America
3	Queensland	12	South and Central America
4	Western Australia	13	European Union
5	South Australia	14	Rest of Europe
6	Tasmania	15	Former Soviet Union
7	Northern Territory	16	Middle East
8	Rest of Oceania	17	North Africa
9	East Asia	18	Rest of Africa

TABLE 3-5: SECTORS IN THE AE-GEM DATABASE

No	Description	No	Description
1	Primary agriculture	9	Road and rail transport
2	Processed agriculture	10	Water transport
3	Mining	11	Air transport
4	Manufacturing	12	Communications
5	International tourism	13	Finance and business services
6	Utilities	14	Recreation and other services
7	Construction	15	Government services
8	Trade (including retail)	16	Ownership of dwellings

The economic environment

An important feature of the modelling exercise is the specification of the economic environment in which the TRS reform scenarios are assumed to take place. In the simulations the following assumptions have been made.

- ❑ Real wages adjust so that the natural rate of unemployment for any economy observed in the base case is maintained in the long term. In the short term, employment can vary due to either demand or supply side conditions. For example, the supply of labour can increase in the short term in response to increases in real wages;
- ❑ The government tax rate is exogenous and the public sector borrowing requirement can vary;
- ❑ The capital stock in each region adjusts to maintain the rates of return achieved in the base case in the long term; and
- ❑ Real consumption and national savings move in line with national income (or gross national product) and the balance of trade adjusts to achieve this outcome.

Modelling process

The central purpose of the modelling exercises is to identify the economy-wide impacts of TRS outsourcing in terms of output, employment and exports by industry sectors (particularly retail, accommodation and hospitality) as well as the impacts by State and Territory.

The basic methodology involves comparing two sets of simulations of the model. The first is a “business as usual” (BAU) or baseline simulation. This is Access Economics’ standard long-run projection of the model. The second set of simulations corresponds to the scenario(s) with the new TRS arrangements.

The net economic benefit for each scenario is computed by comparing the results from the two sets of simulations. The impacts of the policy change are measured by differences between the business-as-usual and policy intervention scenarios at a point in time.

The net economic benefit is the result of a complex interaction of multiple effects. The economy-wide impact of TRS outsourcing, for example, is made up of the following direct and indirect components:

The direct economic impact on tourism-related industries due to changes in the magnitude and composition of tourism spending.

Plus flow-on (or ‘multiplier’) economic effects on downstream sectors of the economy, plus an increase in inputs purchased from upstream sectors (such as manufacturing and food production), as a result of the increase in tourism activity.

Minus any ‘crowding out’ (or ‘displacement’) effects arising from TRS outsourcing, such as labour being diverted from other sectors of the economy to the expanding tourism-related industries as a result of an economy that is operating very close to full capacity.

4. MODELLING RESULTS

The sectoral, macroeconomic and revenue impacts of TRS outsourcing as determined by Access Economics' general equilibrium modelling are discussed below.

The modelling assumes that the TRS reforms are implemented sometime in 2008. The full effects of these reforms are expected to be felt in 2009.

4.1 SECTORAL IMPACTS

The sectoral impacts associated with a 7% TRS take-up rate are shown in Table 4-1. International tourism exports rise by just over a quarter of a per cent in each State/Territory with TRS outsourcing.

TABLE 4-1: IMPACT OF TRS OUTSOURCING ON VARIOUS SECTORS IN 2009 (%)

Sector	NSW	VIC	QLD	SA	WA	TAS	NT	AUS
Exports								
International tourism	0.264	0.282	0.273	0.283	0.285	0.270	0.278	0.273
Output								
Trade (including retail & accommodation)	0.008	0.002	0.005	0.001	0.000	0.002	0.011	0.005
Recreation and other services	0.012	0.006	0.012	0.002	0.005	0.005	0.017	0.009

Note: Figures for the ACT are subsumed under those of NSW.

Table 4-2 shows the sectoral impacts associated with a 10% take-up rate. In this case, international tourism exports will be approximately 1% higher in each State and Territory in 2009 as a result of TRS outsourcing. The impact of TRS outsourcing on the trade sector varies between 0.002% (WA) and 0.043 (NT) while that on the recreational and other services sector varies between 0.01% (SA) and 0.061% (NT).

TABLE 4-2: IMPACT OF TRS OUTSOURCING ON VARIOUS SECTORS IN 2009 UNDER A 10% TAKE-UP RATE (%)

Sector	NSW	VIC	QLD	SA	WA	TAS	NT	AUS
Exports								
International tourism	0.928	0.984	0.950	0.988	0.998	0.942	0.971	0.955
Output								
Trade (including retail & accommodation)	0.025	0.008	0.020	0.004	0.002	0.010	0.043	0.016
Recreation and other services	0.040	0.021	0.043	0.010	0.018	0.021	0.061	0.032

Note: Figures for the ACT are subsumed under those of NSW.

4.2 MACROECONOMIC IMPACTS

As can be seen in Table 4-3 and Table 4-4, TRS outsourcing has the greatest impact on the Gross State Product (GSP) of NSW and Queensland, states where international tourism is

particularly important. GSP in NSW rises by \$41.2 million in 2009 under the assumption of a 10% take-up rate. The corresponding figure for Queensland is \$10.4 million. While Victoria's and the Northern Territory's GSP are projected to rise slightly under the new TRS arrangements, the GSP of South Australia and Western Australia are projected to decline somewhat. For example, Western Australia's GSP is slated to fall by \$3.5 million under the 10% take-up rate assumption.

Nationally, TRS outsourcing is expected to lift Australia's real GDP by \$53.5 million in 2009 under this assumption (and by \$18.5 million under the assumption of a 7% take-up rate). This GDP result for Australia is less than the assumed increase in tourist expenditure as it reflects the value added component of the additional expenditure. In addition, a relatively large component of international tourist shopping in Australia is actually of goods made overseas and imported.

TABLE 4-3: MACROECONOMIC IMPACTS OF TRS OUTSOURCING (7% TAKE-UP RATE)

Region	Int. tourism/GSP (2005-06)	Real GDP %	Real GDP \$million (2009)	Exports %	Employment FTE
NSW	1.45	0.0036	13.4	0.0002	132
VIC	1.00	0.0001	0.3	0.0070	5
QLD	1.77	0.0011	2.0	0.0129	24
SA	0.70	-0.0006	-0.4	0.0060	-4
WA	1.09	-0.0011	-1.4	0.0058	-14
TAS	1.00	-0.0005	-0.1	0.0053	-1
NT	3.08	0.0008	0.1	0.0201	1
Australia	1.32	0.0018	18.5	0.0064	144

Note: Figures for the ACT are subsumed under those of NSW.

TABLE 4-4: MACROECONOMIC IMPACTS OF TRS OUTSOURCING (10% TAKE-UP RATE)

Region	Int. tourism/GSP (2005-06)	Real GDP %	Real GDP \$million (2009)	Exports %	Employment FTE
NSW	1.45	0.0110	41.2	0.0040	376
VIC	1.00	0.0014	3.5	0.0196	42
QLD	1.77	0.0054	10.4	0.0385	129
SA	0.70	-0.0006	-0.4	0.0159	-2
WA	1.09	-0.0029	-3.5	0.0176	-31
TAS	1.00	-0.0003	0.0	0.0135	0
NT	3.08	0.0036	0.5	0.0682	4
Australia	1.32	0.0052	53.5	0.0197	518

Note: Figures for the ACT are subsumed under those of NSW.

International exports are projected to rise by 0.0385% in Queensland under the assumption of a 10% take-up rate. Under this assumption, employment rises by 376 full-time equivalents (FTEs) in NSW and 129 FTEs in Queensland in 2009. Employment is projected to fall marginally by 31 FTEs in Western Australia in 2009. Nationally, employment is expected to rise by 518 FTEs.

In the tables above, NSW includes the ACT. The ACT has an international tourism proportion of GSP of 0.69, which is similar to South Australia's. Taking the South Australian results as indicative of the impacts on the ACT, the projected GSP loss for the ACT would be \$0.121 million in 2009.

Differential impacts across States and Territories

Privatising the TRS is projected to increase Gross State Product (GSP) from BAU levels in NSW, Queensland, Victoria and the Northern Territory. Western Australia, South Australia and Tasmania experience slight declines. On the upside, each State and Territory experiences an increase in demand for international tourism, as described above. However, the relative contribution of international tourism differs by State and Territory which results in an uneven pattern of impacts across Australia driven by competition for scarce resources, particularly labour.

The best example of contrasting fortunes is NSW and Western Australia. To begin with, the NSW economy is relatively more reliant on international tourism than Western Australia (as measured by international tourism expenditure as a proportion of GSP). This means that an increase in international tourism demand in NSW is off a relatively higher base than it is in Western Australia, thus contributing to a greater increase in output.

The loss in Western Australian GSP arises despite an increase in international tourism demand in the state. The reason for this is that other States, particularly NSW and Queensland, experience a relatively larger demand resulting from this reform which results in resources such as labour and capital diverting from Western Australia. As such, the expansion in employment in NSW and Queensland comes at the expense, somewhat, of Western Australia. The Australian economy is currently experiencing the tightest labour market conditions for several decades. As such, it is difficult to drive expansion across the entire economy using demand side measures.

4.3 GOVERNMENT REVENUE IMPACTS

As discussed in Chapter 3, TRS outsourcing is expected to result in an initial decline in GST revenues of \$18.2 million under a 7% TRS take-up rate and \$32.4 million under a 10% take-up rate. However, Access Economics' GE modelling indicates that the economic expansion engendered by the rise in tourism exports due to TRS outsourcing will increase GST revenues across States and Territories by \$2 million under a 7% take-up rate and by \$7.7 million under a 10% take-up rate (see Table 4-5).

**TABLE 4-5: EFFECT OF TRS OUTSOURCING ON GOVERNMENT REVENUES
AT THE NATIONAL LEVEL (\$ MILLION)**

	7% TRS take-up	10% TRS take-up
Initial change in GST revenues due to TRS outsourcing	-18.2	-32.5
Increase in GST revenue due to economic expansion arising from TRS outsourcing	2.04	7.72
Change in other State revenues as a result of TRS outsourcing (aggregated across all States/Territories)	2.66	9.92
Net effect of TRS outsourcing on government revenues at the national level	-13.5	-14.8

Source: Access Economics calculations.

Note: Refer to Table 3-2 for the derivation of the initial change in GST revenues.

Coupled with an increase in other State revenue streams (detailed in Table 4-6 and Table 4-7) of \$2.7 million and \$9.9 million under the alternative take-up rate assumptions, the net reduction in government revenues across both State/Territory and federal levels amounts to \$13.5 million under a 7% take-up rate and \$14.8 million under a 10% take-up rate. It should be noted that these numbers are extremely small relative to the \$38.8 billion in GST revenues collected in 2005-06.

TABLE 4-6: IMPACT OF TRS OUTSOURCING ON STATE REVENUES (7% TRS TAKE-UP) - \$M

	NSW	VIC	QLD	SA	WA	TAS	NT	ACT	Total
Employers payroll taxes	0.78	0.07	0.11	0.00	-0.03	0.00	0.01	0.03	0.97
Taxes on property	0.72	0.04	0.12	-0.01	-0.06	0.00	0.00	0.05	0.87
Taxes on gambling	0.22	0.02	0.04	0.00	0.00	0.00	0.00	0.01	0.28
Taxes on insurance	0.18	0.01	0.01	0.00	-0.01	0.00	0.00	0.01	0.20
Taxes on use of goods and performance of activities	0.28	0.02	0.05	0.00	-0.02	0.00	0.00	0.01	0.33
Other	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	2.18	0.16	0.33	-0.02	-0.12	0.00	0.01	0.11	2.66

TABLE 4-7: IMPACT OF TRS OUTSOURCING ON STATE REVENUES (10% TRS TAKE-UP) - \$M

	NSW	VIC	QLD	SA	WA	TAS	NT	ACT	Total
Employers payroll taxes	2.59	0.33	0.51	0.03	-0.05	0.01	0.03	0.10	3.56
Taxes on property	2.41	0.25	0.57	0.02	-0.15	0.01	0.01	0.17	3.29
Taxes on gambling	0.74	0.12	0.18	0.01	-0.01	0.00	0.01	0.02	1.06
Taxes on insurance	0.60	0.07	0.07	0.00	-0.02	0.00	0.00	0.02	0.75
Taxes on use of goods and performance of activities	0.93	0.09	0.22	0.01	-0.04	0.00	0.00	0.04	1.25
Other	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	7.27	0.86	1.56	0.06	-0.26	0.03	0.05	0.35	9.92

5. CONCLUSIONS

Expenditures by international visitors can be viewed as Australian tourism exports. In the same way that Australian exports of manufactured products are purchased by overseas residents, expenditure by foreign tourists is expenditure by overseas residents but so happens to occur in Australia. It is generally accepted that imposing a consumption tax on exports leads to inefficient resource allocation. By increasing the incentive for promoting and advertising the TRS, outsourcing is likely to raise the scheme's take-up rate and hence promote economic efficiency.

Because of the price-sensitive nature of tourism and the highly competitive global market for attracting visitors, the resulting increase in the price competitiveness of the Australian tourism industry leads to an increase in visitation and tourist shopping, relative to the 'no reform' scenario. General equilibrium modelling of this reduction in the price of tourism exports indicates that it drives additional economic activity, increasing real GDP by \$53.5 million under the assumption of a 10% post-reform TRS take-up rate. This increase in activity claws back \$7.7 million in GST revenues and \$9.9 million in other State taxes. The net revenue loss to the States and Territories is thus only \$14.8 million.

The modest revenue loss from lightening the tax burden on tourism exports is more than outweighed by the impact on Australia's competitiveness and the resulting gain in prosperity.

APPENDIX A: A DESCRIPTION OF AE-GEM

AE-GEM is a large scale, dynamic, multi-region, multi-commodity computable general equilibrium model of the world economy. The model solves for the equilibrium quantities of commodities and factors of production by equating their demand and supply as determined by the behaviour of the agents represented in the model. These agents optimise their behaviour in each region of the model.

AE-GEM is based on a substantial body of accepted microeconomic theory. The model projects changes in macroeconomic aggregates such as GDP, employment, export volumes, investment and private consumption. At the sectoral level, the model provides detailed results such as production, exports, imports and employment.

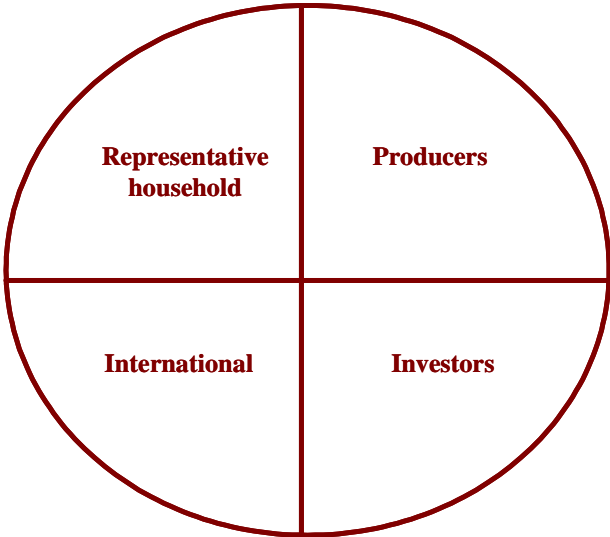
The model is based on set of key underlying relationships between the various *components* of the model. These relationships are solved simultaneously. Figure 5-1 shows the key components of the model for an individual country. The components include a representative household, producers, investors in the country of interest and international linkages with the other countries or regions. Below is a description of each component of the model and the key linkages between components. Some additional, somewhat technical, detail is also provided.

THE REPRESENTATIVE HOUSEHOLD

Each region in the model has a so-called *representative household* that receives and spends all income. The representative household allocates income across three different *expenditure* areas: private household consumption, government consumption, and savings.

Going clockwise around Figure 5-1, the representative household interacts with producers in two ways. First, in allocating expenditure across household and government consumption, demand for production is sustained. Second, the representative household owns and receives all income from factor payments (labour, capital, land and natural resources) as well as net taxes. Factors of production are used by producers as *inputs into production* along with intermediate inputs. The level of production, as well as supply of factors, determines the amount of income generated in each region.

FIGURE 5-1: KEY COMPONENTS OF AE-GEM



The representative household's relationship with investors is through the supply of investable funds – savings.

The relationship between the representative household and the international sector is twofold. First, importers compete with domestic producers in consumption markets. Second, other regions in the model can lend (borrow) money from each other.

Some detail

- ❑ The representative household allocates income across three different expenditure areas - private household consumption; government consumption; and savings - to maximise a Cobb-Douglas utility function.
- ❑ Private household consumption is determined to maximise utility (through a Constant Difference in Elasticity (CDE) of substitution function) and minimise cost by substituting domestic and imported commodities (through a Constant Elasticity of Substitution (CES) aggregator).
- ❑ Government consumption is determined to maximise utility (through a Cobb-Douglas function) and minimise cost by substituting domestic and imported commodities (through a Constant Elasticity of Substitution (CES) aggregator).
- ❑ All savings generated in each region are used to purchase bonds whose price movements reflect movements in the price of generating capital.

PRODUCERS

Apart from selling goods and services to private households and government, producers sell products to each other (for intermediate usage) and to investors.

Intermediate usage is where one producer supplies inputs into another's production. For example, airlines supply transport services to many sectors in the economy.

Capital is an input into production. Investors react to the conditions facing producers in a region to determine the amount of investment. Generally, increases in production are accompanied by increased investment. In addition, the production of machinery, construction of buildings and the like that forms the basis of a region's capital stock is undertaken by producers. In other words, investment demand adds to private and government expenditure by the representative household, to determine the demand for goods and services in a region.

Producers interact with international markets in two main ways. First they compete with producers in overseas regions for export markets, as well as in their own region. Second, they use inputs from abroad in their production.

Some detail

- ❑ Sectoral output equals the amount demanded by consumers (households and government) and intermediate users (firms and investors) as well as exports.
- ❑ Intermediate inputs are assumed to be combined in fixed proportions at the composite level.
- ❑ To minimise costs, producers substitute between domestic and imported intermediate inputs governed by the Armington assumption as well as between primary factors of production (through a CES aggregator). Substitution between skilled and unskilled labour is also allowed (again via a CES function).

- The supply of labour is positively influenced by movements in the wage rate governed by an elasticity of supply is (assumed to be 0.2). This implies that changes influencing the demand for labour, positively or negatively, will impact both the levels of employment and the wage rate. This is a typical labour market specification for a dynamic model such as AE-GEM. There are other labour market 'settings' that can be used. First, the labour market can take on long-run characteristics with aggregate employment being fixed and any changes to labour demand changes being absorbed through movements in the wage rate. Second, the labour market can take on short-run characteristics with fixed wages and flexible employment levels.

INVESTORS

Investment takes place in a global market where different regions are allowed to have different rates of return reflecting different risk profiles and severities of policy impediments to investment. The global investor ranks countries as desirable investment destinations based on two factors: current economic growth and rates of return in a given region compared with global rates of return.

Some detail

- Once aggregate investment is determined, the investor is assumed to consume composite investment commodities in fixed proportions, and minimise costs by substituting domestic for imported commodities (CES).

INTERNATIONAL LINKAGES

Each of the components outlined above are operating, simultaneously, in each region of the model. That is, for any simulation the model forecasts changes to trade and investment flows within, and between, regions subject to producers, consumers and investors optimising their behaviour. Of course, this implies some global conditions must be met such as global exports and global imports being the same and global debt repayments equalling global debt receipts each year.