# DEVELOPING AN INTEGRATED SUITE OF REGIONAL TOURISM SATELLITE ACCOUNTS (TSAS): A CASE STUDY FROM AUSTRALIA

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# Developing an Integrated Suite of Regional Tourism Satellite Accounts: A Case Study from Australia[1]

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## Abstract

*This paper presents an overview of the development of a set of TSA for each of the six Australian states and two territories. The paper discusses the nature of TSA, their importance, as well as the particular challenges of developing regional TSA. These issues include data limitations, the treatment of interstate trade, taxes/subsidies and reconciliation with the national TSA.*

## Introduction

The role of Tourism Satellite Accounts (TSA) in providing an information base for assessing the economic contribution of tourism to an economy is now widely understood. Following international agreement at a UNWTO conference on Tourism Statistics in Nice in the year 2000 on the concepts and methodology for developing TSA, they have been developed at the national level in many countries. However, since tourism activity tends to be unevenly concentrated within countries, national TSA cannot help us to determine the importance of tourism to different sub-regions or provide any guidance as to its potential as a tool for regional development in particular cases (Jones 2005). Thus Florida attracts proportionately more tourist expenditure than Kansas, and Quebec more than Manitoba. Moreover, the industry structure of these states are different implying that tourism will make a different contribution to the economy even if visitor expenditure volumes and patterns were similar.

The extensive involvement of governments in tourism at a state or provincial, and local, level in areas such as planning, infrastructure provision and often marketing, has led to a strong demand for information of the kind provided in a TSA to be made available at the state (province) or regional level. In Australia each state or territory has its own governmental structure, and each encourages tourism development through its tourism department or office. The federal government Green Paper, *A Medium to Long Term Strategy for Australian Tourism*, noted that if TSA were available at the State, Territory

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and regional levels this would provide "a valuable input to industry and government in terms of tourism's impacts and help inform investment and policy decisions by industry and government respectively" (Tourism Australia 2003).

In April 2005 a meeting of the Tourism Research Committee (TRC), comprising the heads of research of all state and territory government tourism agencies in Australia, suggested that the STCRC prepare a proposal to ASCOT[2] (comprising representatives of the state and territory tourism ministries or agencies and Tourism Australia), for the development of TSA and Computable General Equilibrium (CGE) tourism models covering each of the Australian states and territories. It was considered that a single linked set of such models would offer significant advantages and synergies. These include ensuring consistent concepts, structure, and sources and treatment of data, leading to comparable results across states and territories and with the national TSA and cost efficiencies from the use of a single specialist research team and cost sharing across the states. The results could also feed into the development of consistent indicators of tourism industry performance and benchmarking data. The TSA would be constructed to reflect the structure and content of the national TSA and provide each state/territory with the following information:
(i)   contribution of tourism to each state and territory economy, including tourism's contribution to Gross State Product, Gross Value Added, employment and interstate and international trade;
(ii)  a measure of tourism inter-relationships with other industries which rely on tourism;
(iii) estimates of these variables broken down by international, intra state, inter state and outbound tourism;
(iv) comparable estimates across industries, over time, and across states and territories and with the national aggregates.

The project discussed herein involves developing a set of TSA for each of the six Australian states and two territories. This is believed to be the first regional /national TSA set based on regional level data and reconciled with a national TSA in any country. The integrated development of TSA covering all regions of a country has involved finding solutions to a range of issues, including those arising from data limitations at the state and territory level, the differing industrial structures between the states and limited availability of data on interstate trade; and the need to ensure overall consistency in methods, definitions and aggregate results with the national TSA.

This paper will first highlight the main features of a TSA. This discussion conveys the importance of the concept and the rationale for its development by state and regional governments. The paper then outlines the method adopted for developing a suite of regional TSA for the eight Australian states and territories.  A key objective has been to ensure that common concepts, definitions and data sources are adopted across each of the eight TSA and with the national TSA produced by the Australian Bureau of Statistics – these are based on, recommended international standards endorsed by the UN Statistical

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[2] The main objective of the Australian Standing Committee on Tourism (ASCOT) is to improve co-operation and co-ordination of Government policies and activities as they affect tourism. ASCOT normally meets twice annually, the Chair rotates annually and the Department provides the secretariat. ASCOT comprises representatives of the relevant Ministers´ departments and Tourism Australia.

Commission (OECD 2000, OECD et al 2000, ABS 2005a, b).  The paper then discusses some problem areas which arose in developing the eight TSA including the difficulties in resolving issues such as those arising from data limitations at the regional level, differing industrial structures of the regional economies, and from ensuring consistency with the national TSA. Finally, the paper discusses some uses to which TSA based information can and cannot be legitimately applied.

## Tourism Satellite Accounts

The problem with measuring the economic significance of tourism spending is that "tourism" does not exist as a distinct sector in the standard system of national accounts (SNA). Many of the items that tourists purchase are not normally regarded as tourism related products – for example clothing and footwear, ballpoint pens, groceries, books, telecommunications, or cosmetics. As a consequence, a substantial amount of tourism related consumption is 'statistically invisible' in the sense that it is incorporated within the measures for these other industry sectors. To measure the economic value of tourism activity in an economy, nationally or regionally, purchases of these items by tourists need to be identified and separated out. This is not provided for in the standard, pre-TSA, national accounting framework making it very difficult to identify the contribution to an economy generated by tourism demand and expenditure.

To compare tourism with industries which are identified in the SNA thus requires the construction of a "composite" or "artificial" tourism industry. The "satellite" account seeks to do this providing a clearer view of the relative importance of tourism as an economic activity and to trace its interrelationship with traditional industry sectors contained within the national accounts (Spurr 2006). TSA represent the 'official methodology' that enables tourism activity to be compared with other major industries in terms of size of value added, output and employment contributed to the national economy (OECD 2000).

State and Territory governments in Australia recognise that a TSA can serve as a tool for improving strategic management and planning for the tourism industry and to enhance the effectiveness of industry policies.  One of the major features of a TSA is that it is set within the context of the whole economy, so that tourism's contribution to major national accounting aggregates can be determined, and can be compared with other industries. Like its national counterpart, a regional TSA has substantial policy relevance, including:

● provision of consistent and credible information on the significance of tourism expenditures for use in assessments of tourism's role in state and territory development planning.
● increased understanding of the economic importance of tourism and a credible source of data for internal government budgetary and planning purposes and public uses.
● a basis for comparison of tourism's contribution and economic performance within and between states and territories and nationally in Australia.
● a data base for more extensive studies of the performance of the tourism industry, eg. to measure productivity growth and profitability.

● use of common and consistent concepts, and data from the TSA will lead to increased credibility, a wider range of applications, and more cost effective development and use of tourism models which can be developed to study tourism economic impacts.
● all of which can contribute to improved public policy decision making and planning in relation to tourism.

## Development of a Suite of Regional TSA

The TSA developed for each of the six Australian states and two territories take the same form and structure as the national TSA published by the Australian Bureau of Statistics (ABS 2005a). They are each consistent in terms of concepts, definitions and primary tourism data sources with the national TSA. The TSA have been developed for the year 2003-04, the most recent year for which the national TSA was available when the project commenced.

In only a small number of countries (eg. Canada, Norway, the UK, USA, and Australia) have there been attempts to develop TSA for regions. There are two basic approaches to constructing a 'regional TSA' (Jones 2005):

(1) a 'bottom up' approach involving the construction of a TSA for the region in question, with regional demand equated to regional supply for each product, hence the derivation of a set of tourist product ratios which enable a full reporting
(2) a 'top down' approach involving the regionalisation of a national account, providing a small number of 'key' results, usually by reference to indirect indicators (e.g. volume of trips or supply). This usually involves allocating national totals for key indicators (Tourism Gross Value added (TGVA), dependent employment) across regions according to indirect indicators.

The main advantages of the 'bottom up' approach is that it treats the region for TSA purposes as a 'small nation' (eg. treating other regions as outside the reference economy; substituting international imports with international plus interregional etc.). This means that the TSA classification and structure, and supporting data collection can be adapted to regional circumstance (Jones 2005). However its limitations include the fact that it is a data intensive process on both the demand side and supply side. Indeed, data requirements are often be more onerous than those for the national TSA. Further, it is impossible to construct without a reasonably well developed system of regional accounts. The approach is also very costly to undertake. Difficulties in reconciliation or comparison with other regional results or with the national TSA, if a different system of classification, different regional survey sources or a different base year is used. This reinforces the importance of the use of common survey design and methodologies where possible, and that any disaggregation of tourism products can be re-aggregated to common standards and thus aid comparability (Jones 2005).

Advantages of the 'top down' approach have been discussed by Jones (2005). These include (i) standardisation of structure across regions, (ii) relatively low cost particularly if there are good quality demand and supply surveys that can be regionalized; (iii) easier integration into national series of variables (eg. TGVA) which will aid the production of

up-to-date results; (iv) expected high credibility in the eyes of politicians and officials within central government given that the regional TSA starts from the national TSA results. A major potential limitation, however, is that the standardisation of structure across regions can restrict adequately accounting for regional differences in tourism activities between regions and different tourism industry structures. As pointed out by Jones, unless there is a full set of regional Input-Output Tables upon which to base the TSA it is likely that *national* ratios for important aspects such as industry production functions, or imports of products (here including inter-regional imports of course) must be adopted, or adapted for regional differences. As we shall see this was the case for the suite of regional TSA developed for Australia.

The suite of TSA for all Australian states and territories contain elements of both approaches. The STCRC consulted with the Australian Bureau of Statistics in the development of the regional TSA to optimize consistency with national tourism output figures in the Australian TSA.

In the hybrid (part bottom up part top down) approach adopted for this project each state and territory was effectively treated as a small nation. State and territory specific Input-Output tables were used, derived from the MMRF-G CGE model developed by the Centre of Policy Studies at Monash University (Adams 2006). However, in order to maximise consistency across the eight TSA, and importantly with the national TSA, wherever possible consistent data sets have been drawn upon. Interstate trade was treated as if the region was a separate country trading with other countries (states), allowing regional concerns to be addressed within the TSA structure and classification scheme.

Tourism expenditure data comes from a relatively new tourism data set produced by the federal government tourism statistical body, Tourism Research Australia, under which top-down and bottom-up information has been used to allocate visitor expenditure from the two major national tourism surveys (the International Visitor Survey and National Visitor Survey) to each of the states (Tourism Research Australia 2005).

On completion of the eight preliminary TSA the results were reconciled with the national TSA to ensure that the individual state results summed to the national totals and that individual data problems had been resolved in ways which did not detract from overall consistency across the national and state TSA. This process allowed the project to garner advantages of the top down approach such as enhanced standardisation across regions, constraints on aggregate numbers warding off pressures toward exaggeration of the results, and consequent identification with the credibility enjoyed by the ABS's national TSA estimates.

The use of a single STCRC modelling team to undertake construction of the TSA had several advantages. It helped to:

● ensure the use of a consistent methodology and assumptions so that the TSA and impact models are comparable and credible;
● enable cost savings from economies of scale to be shared between the participants;

● exploit conceptual and data development synergies from linking development of the TSA and CGE model development which is to follow;
● provide ongoing cost savings for future updates of the TSA and applications and upgrades of the CGE models, given joint ownership and a single manager for the project and CGE models
● support capacity building in the application and further development of tourism economic models and the opportunities for further research they offer.

## The Outcome

The suite of eight TSA provides consistent statistical data on the economic contribution of tourism to each of the state and territory economies. The results provide states and territories with rigorously developed estimates of tourism's contribution to consumption, output, gross value added, gross state product and employment for each of the states and territories for the year 2003/04. The TSA also provide information about the detailed composition of the industry in each state, for example, indicating how much value added is present in the accommodation part of the industry or the local transport part. For each state, headline outputs of the TSA were: Tourism Industry GSP (by type of visitor); Tourism Consumption; Tourism Industry Output; Tourism Industry GVA; Tourism Employment; Comparison to Non-Tourism Industries; Taxes on Tourism Products. Some key percentages for the eight regions appear in Table 1.

| | NSW | Vic | Qld | SA | WA | Tas | NT | ACT | Australia |
|---|---|---|---|---|---|---|---|---|---|
| TGVA/GVA | 3.6% | 3.0% | 4.6% | 3.2% | 2.7% | 5.1% | 5.9% | 2.3% | 3.5% |
| TGSP/GSP | 3.9% | 3.2% | 5.3% | 3.7% | 3.2% | 6.0% | 7.2% | 2.8% | 3.9% |
| Tourism employment/employment | 5.5% | 47% | 6.8% | 4.8% | 5.5% | 8.1% | 13.5% | 5.1% | 5.6% |

Table 1 indicates the significance of tourism GVA to total state GVA, tourism GSP to total state GSP and the proportion of state employment associated with tourism. These percentages indicate the importance of tourism to each state. Other percentages that were estimated included the share of tourism in interstate trade in key sectors such as air and water transport, food manufacturing, beverage manufacturing, transport equipment manufacturing, and other manufacturing. Space limitations preclude further discussion herein.

## Issues

Regional TSA involve additional complexities over and above development of national TSA (Jones 2005). Several challenges are posed in developing regional TSA. Examples are those arising from data limitations at the state and territory level, differing industrial structures between the states, and the need to ensure overall consistency in methods, definitions and aggregate results with the national TSA.

### Data limitations

A number of data related issues arose during the course of the project. Visitor expenditure data is collected in Australia by a government agency, Tourism Research

Australia (TRA) through the International Visitor Survey (IVS) and the National Visitor Survey (NVS). This data is not specifically collected by state and territory although, since 2001, TRA have mapped the expenditure data to the states using average nights spent. They do this by five broad expenditure categories. For this project we were able to use these TRA expenditure estimates and map them to wider nine industry category allocation using expenditure shares from the national ABS TSA. This approach, while imperfect, filled a major gap in the expenditure information required for the state TSA.

An early confrontation of our project estimates with those of the ABS produced marked differences in employment estimates which we identified as relating particularly to employment generated in the retail sector by tourism. The difference arose from our industry tables having combined retail and the much less labour intensive wholesale sector and led to our being forced to further segment our industry categories.

A similar industry grouping issue arose in relation to railways which our industry tables had identified under land transport. When applied to states which had clearly differing usage of railways we again obtained misleading results.

The reliability of data on cruise ship visitor expenditures came under question during our data consultations with one state identifying cruise related expenditure as constituting a substantial part of their total international visitor expenditures. While TRA judged their aggregate estimates for cruise ship visitor expenditures to be reasonably reliable, and the impact of any likely level of error small, the discussions led to a commitment by TRA to re-examine the allocations of this expenditure between states.

*Interstate Trade*

A particular complication in developing the state and territory TSA has been that, unlike the national TSA, state and territory, TSA need to include a term for interstate trade in tourism. A state may produce tourism services which are consumed in another state. For example, wine may be produced in one state but sold for visitor consumption in another. Or an airline may be based in one state but provide services within another. In the national TSA these appear as a normal part of tourism production for the country, but for the individual state they constitute an example of the export of tourism goods and services. If these were not counted as part of the tourism production within the state, then aggregate state tourism production would be inconsistent with the national TSA. Because this embraced the major components of interstate trade in tourism goods and services, and for reasons of practical convenience, these were confined to air and water transportation, and manufactures broken down into food, beverages, transport equipment and other manufactured items.

Inter state air transport constitutes a significant component of tourism generated output, value added and employment. The Queensland state treasury, for its earlier state TSA for that state, allocated air transport output equally between the states where the origin airport and destination airport were located. For this project we used a more comprehensive set of tables developed by the ABS which has allocated air transport

services to the states. The effects are significant with a major air transport headquarters hub like New South Wales garnering 50% of the total Australian GVA from air transportation services.

*Taxes*

The TSA for each state includes a one line item for taxes on tourism products. This conforms to the practice in the ABS national TSA. Work is ongoing to provide additional detail on taxes. Examples of such taxes in an Australian context are the Goods and Services tax (GST), import duties, and gambling taxes. Omitted are a range of taxes imposed during the process of producing the goods and services purchased by visitors. These include payroll and land taxes, Under a related project the STCRC CTEPR team are developing a detailed study of taxes at the state and territory level which will break them down by tier of government - state or federal; and analyse the distribution of the GST which is collected by the federal government, but redistributed, by means of a formula not specifically linked to tax collections, to the individual states. This information is to be provided as a separate report in mid- 2007 and will ultimately be incorporated into the CGE economic impact models to be produced for the states.

*Subsidies*

Tourism also makes use of subsidised services, the main one of which in Australia is related to the public transport system in the cities. Measuring the extent of subsidy is difficult, since tourists tend to use specific parts of the systems, in particular longer distance inter state or inter regional transport and dense inner urban routes, which are less likely to be heavily subsidised than the outer urban routes. Tables developed by the ABS in preparing the original national TSA for 1997/98 contained estimates of the subsidies provided for tourism, along with total taxes on tourism. Subsequent TSA have only provided estimates of net taxes. A recent study by the Productivity Commission (Productivity Commission, 2005) made a detailed estimate of subsidies to tourism, but it adopted a markedly different definition of tourism, and thus its results cannot be used for this work. Our examination of this work has suggested that subsidies in the national TSA may be overestimated and we are in discussion with the ABS about the possibility of their revisiting these estimates when they next update their core TSA estimates in 2008.

*Reconciliation with National TSA*

Specific data are used in each state and this poses an issue of whether state magnitudes sum to the national total.

The eight TSA were reconciled with the national TSA to ensure that the individual state results sum to the national totals and that individual data problems have been resolved in ways which do not detract from overall consistency across the national and state TSA. Our experience was that all of our individual state and territory TSA required downward adjustment in the light of the reconciliation. This presumably reflected issues related to industry structure and interstate trade involved in our choice of the MMRF based Input-Output tables, the grouping of industries and the allocation of tourism expenditures to

industry sectors in the model. As consistency with the national TSA was a principal objective for the project, primarily to ensure the credibility of the overall estimates, the results were thus mapped to the ABS TSA results involving some scaling back of the original estimates.

*Indirect Effects of Tourism*

As with the national TSA, the regional TSA reports consider only the direct effects of tourism expenditures. This is consistent with the internationally agreed TSA methodology (OECD et al 2000). It is, however, intended that estimates of tourism's indirect contribution to each state economy will be developed in the later stage of this research project due to be completed in the second half of 2007. While direct effects are considered to be the most appropriate measure for comparison of the economic contribution of tourism with other non-tourism industries, the aggregation of tourism's direct and indirect effects can be useful, for example, in the context of economic impact analysis or as an aid to understanding the wider flow on effects of tourism to employment across the economy.

*Economic Impacts*

TSA are not, *per se*, economic impact models. A subsequent phase of this research project will link the state and territory TSA with tourism Computable General Equilibrium (CGE) based economic impact models. These models will be used to estimate detailed impacts of changes in tourism demand on the national and state economies, to identify the effects of economic developments on tourism, and to simulate the economic effects of policy options likely to impact on tourism which may be under consideration by governments. These economic impact models are planned to be completed by the end of 2007.

### Conclusions

We believe that the linked and fully integrated suite of eight state and territory TSA, and subsequently CGE models, supported by a detailed breakdown of tourism taxes, will be unique in the world in its provision of rigorous and consistent statistical data on the economic contribution of tourism across each of the state and territory economies, based on regional level data, using internationally and nationally endorsed concepts and definitions and fully reconciled with the national TSA. The suite of TSA will provide a hitherto unavailable resource for understanding tourism's economic contribution and for future analysis and research at the national and state and territory level in Australia.

The technique adopted, combining elements of a top down and bottom up approach to regional TSA development, provides some particular advantages. These include issues of practicality given that it has allowed a largely model based development process drawing on data which was already largely available in Australia. This made for significant efficiencies, relative speed of development and cost effectiveness which would not have been available using a more heavily bottom up approach. It also accessed the credibility and comparability which comes from a high level of consistency across the suite of TSA

and with the national ABS produced TSA. The approach adopted, however, depends on the availability of a consistent set of state Input-Output tables, reasonably extensive and reliable tourist expenditure data at the state level, and good national industry statistics, as well as a comprehensive national TSA which enjoys the imprimatur of the national statistical agency.

In a subsequent phase the project will link state TSA with state tourism CGE based economic impact models. With the suite of tourism CGE models and TSA being developed in this project, it will be possible to explore a wide range of leading edge tourism measurement and economic impact issues at the state and national level in Australia, with lessons for destination managers internationally.

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