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Tourism economics and policy analysis: Contributions and legacy of the Sustainable Tourism Cooperative Research Centre

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The Centre for Economic Policy (CEP) located within Australia's Sustainable Tourism Cooperative Research Centre, engaged with government, industry and researchers for over a decade to advance policy analysis in tourism contexts. This paper discusses the contributions of the CEP in three major areas—the development of tourism satellite accounts, economic impact analysis and policy evaluation. The conceptual and empirical work undertaken by CEP, and the fertile research agenda it developed, is incomplete and poses an ongoing challenge to tourism researchers, practitioners and destination managers internationally to help to progress the advances already made.

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1. Introduction

The Sustainable Tourism Cooperative Research Centre (STCRC) was first established under the Australian Government's Cooperative Research Centres (CRC) Program at the end of 1997, and re-funded for a further seven-year term commencing July 2003. The CRC Program was an initiative of the Australian Government designed to drive innovation by providing funding to support collaborative links between industry, research organisations, educational institutions, and relevant government agencies. It aimed to bring the highest quality research providers and industry together, to focus on outcomes for business, community, and the environment.

The STCRC brought together academic and industry participants as members. Its mission was to lead the world in sustainable tourism research, commercialisation, extension and education. Specific goals were to provide intellectual leadership for the sustainable development of Australian tourism, engaging with government and industry to produce knowledge products to position Australia as the centre of tourism innovation and world's best practice. As part of its research program the STCRC established a Centre for Economic Policy (CEP) that produced research in tourism economics and policy analysis which was to be at the ‘cutting edge’ internationally.

This paper provides an overview of some of the important contributions made by CEP during the life of the STCRC. It is not intended as an historical account of the theoretical and practical contributions made to tourism economics by the CEP. Rather, it aims to emphasise their continued relevance in an unfinished research agenda. The fertile research agenda developed by CEP is incomplete and poses an ongoing challenge to tourism researchers, practitioners and destination managers internationally to help to progress the work already undertaken.

The contributions of the CEP were wide ranging but can be classified under three main headings—tourism satellite accounting, computable general equilibrium modelling, and policy analysis.

2. Tourism satellite accounting

A major issue for the tourism industry, and for all levels of government dealing with it, was how to accurately assess the importance of tourism relative to other sectors of the economy, and from there to have a credible and rigorous means for assessing the impact of changes whether these came from developments in the industry itself or the wider economy, or as a result of the policies or actions of governments.

The most credible data source for data on tourism demand and the supply of tourism industries is a national or regional Tourism
Satellite Account (TSA). TSAs are constructed using a combination of visitor expenditure data, industry data, and Supply and Use Tables from the system of national accounts of destinations. TSAs provide detailed production accounts for the tourism industries, including data on employment, and linkages with other productive economic activities. They provide an internationally recognized and standardized method of assessing the scale and impact of tourism related production and its links across different sectors (Spurr, 2006).

While TSA were initially developed with support of the UNWTO as primarily a national level concept constructed within a country’s system of national accounts, many of the key decisions in planning and development and management of tourism occur at the local and regional level and are the responsibility of regional/state or local governments, regional destination management organisations and local businesses. In 2001 the Australian Bureau of Statistics (ABS) published its first experimental TSA for Australia. CEP participated in consultations with the ABS on the development and implementation of the national TSA and then worked with the national and state governments to develop a methodology to extend the TSA structure down to the sub-national level. CEP subsequently began to produce annually updated regional tourism accounts for each of the eight Australian states and territories. For the first time internationally, regional tourism accounts were produced across a whole country which were fully consistent both between the states and with the national TSA (Ho et al., 2008; Pambudi et al., 2009; Spurr et al., 2007). These reports were continued over the remaining seven years of the STCRC’s life and have subsequently been produced by the government research agency Tourism Research Australia (TRA).

In a further development, extending national TSA estimates downwards to regions below the state level, CEP subsequently published a set of regional tourism economic accounts for nine tourism regions in the Australian state of Queensland accompanied by a detailed discussion of the methodology used in producing these estimates (Dwyer, Pham, Spurr, Ruhnau, & Scott, 2008; Pham, Dwyer, & Spurr, 2009; Pham, Dwyer, & Spurr, 2010).

Regional TSA have since become a significant program for research and development under the International Network on Regional Economics, Mobility and Tourism (INRouTe), a collaborative study initiated through the UNWTO and Centre for Cooperative Research in Tourism, Spain (CICtourGUNE) which is seeking to develop a set of general guidelines on measurement and economic analysis of tourism at sub-National levels prior to a proposed worldwide consultation in 2016. The work of the CEP in respect of developing consistent concepts, definitions and methodologies to ensure credibility and comparability between the national TSA standards and Tourism Accounts developed at the state and regional levels foresaw much of this work and was described in several journal publications (Pham, Dwyer, & Spurr, 2008, 2009).

A further important extension of the TSA methodology undertaken by the CEP was the estimation of the wider flow on effects which tourism generates across the economy generally (indirect effects). The TSA, based as it is on the direct contribution of tourism, measures only the effects of direct transactions between the visitor and a domestic supplier of a tourism good or service. The Australian government’s tourism research agency, Tourism Research Australia, had extended this by producing estimates of the total, direct plus indirect, contribution of tourism to the economy. The CEP further extended these estimates to the state and territory level in a report on the indirect contribution of tourism (Ho et al., 2007). These estimates were subsequently incorporated into the CEP’s annual state and territory TSA.

Research by the CEP had always been driven by a conviction that there is substantial scope for using the TSA methodology to provide a structure for more detailed breakdowns of the information they provide. Using the TSA methodology, CEP developed detailed estimates of taxation from tourism by type of tax and level of government in receipt of the revenue (Forsyth et al., 2007).

Along the way, members of CEP participated internationally in intergovernmental Advisory Groups, Workshops and Conferences held by the UNWTO and Asia Pacific Economic Cooperation (APEC) in the development of the agreed TSA methodology and the dissemination of information and training on the TSA. They contributed to the development of private sector inputs to the TSA negotiations by the WTTC (World Travel and Tourism Council). And they assisted the UNWTO in developing a methodology for measuring the size of the business tourism sector (Dwyer, Deery, Jago, Spurr, & Fredline, 2007).

CEP research (Dwyer, Forsyth, & Spurr, 2007, 2007) also performed a useful contribution to the literature by clearly distinguishing between the economic contribution (a TSA measure) and its economic impacts (estimated through economic modelling), a distinction often confused by researchers. CEP was among the first to recognise that TSA provide the basic information required for the development of models of the economic impact of tourism. A TSA is a necessary tool to adapt I-O tables and national accounts (and thus Social Account Matrix derived from them) to tourism specificities. CEGE models developed by CEP for tourism industry analysis included tourism data from Australia’s national TSA giving the work a credible and consistent data base for modelling tourism’s economic impacts (Dwyer, Forsyth, Spurr, & Ho, 2003, 2005, Pham & Dwyer, 2013). CEP analysis demonstrated that a CEGE model, which is constructed with an explicit tourism sector in a manner consistent with the national TSA, and which draws on national TSA definitions and data, can provide an appropriate and cost effective tool for producing simulated TSA’s at the state/provincial level (Dwyer et al., 2005). If the assumptions and definitions adopted to build the tourism specific components of the CEGE model are consistent with those of an official TSA structure the resulting CEGE generated TSA should be broadly consistent with what would be produced in a fully constructed TSA.

Several measures of tourism yield have been developed by CEP using the data contained in TSA. These include expenditure per tourist, return on capital, profitability, GDP, value added, and employment. Given that TSA distinguish the numbers and expenditure of different tourist markets by origin the yield contribution measures can be developed per tourist by origin market (Dwyer et al., 2006, 2007). CEP research further identified the manner in which the concept of yield can be broadened to embrace sustainable yield by incorporating measures of environmental and social impact (Dwyer & Forsyth, 2008; Lundie, Dwyer, & Forsyth, 2007). Adding environmental and social dimensions to the yield concept implies, however, that decision makers have to deal increasingly with trade-offs between economic and environmental and social dimensions, respectively.

A relatively neglected research topic has been measures of tourism productivity at the industry level. TSA can be used to develop performance indicators such as measures of productivity, prices and profitability for the tourism industry as a whole. They can also be used to explore performance in individual sectors. Tourism researchers now have the data to explore the performance of individual tourism sectors or of the entire tourism industry relative to that of other industries, domestically and internationally. TSA provide the opportunity for tourism economists to contribute to our understanding of the carbon footprint associated with the tourism industry. The advantage of using the TSA to estimate the carbon footprint is that it ensures that the measure is comprehensive, and incorporates all emissions from all industries which make up tourism. That is, if the relationship between
industry production and greenhouse gas (GHG) emissions is known, then it is possible to calculate the emissions which are due to tourism, by applying these relationships to the TSA industry output data. Since the TSA is extensively used as a measure of the size of the economic contribution of the tourism industry, this carbon footprint is an environmental measure which is consistent, in terms of definition of the industry, with the economic measures. The CEP explored the issues in estimating the GHG emissions from the tourism industry and related activity in Australia (Dwyer, Forsyth, Spurr, & Hoque, 2010; Dwyer, Forsyth, Spurr, & Hoque, 2011). Two approaches were employed and contrasted—a ‘Productive Approach’ and an ‘Expenditure Approach’. These studies showed that, depending on the approach adopted, tourism contributes between 3.9 per cent and 5.3 per cent of total industry greenhouse gases in Australia. Depending on the precise inclusions and exclusions, tourism was found to rank between 5th and 7th of all Australian industries in respect of its volume of carbon emissions (Forsyth et al., 2008). CEP also extended this analysis to estimate tourism’s carbon footprint at the regional level for the Australian state of the Queensland using a methodology which could be readily replicated to make similar estimates for other Australian states and territories, and potentially for regions in other countries through the use of regional TSA data (Hoque et al., 2010).

Estimating tourism’s carbon footprint represents a starting point for the development of industry strategies to mitigate and adapt to climate change. The approach adopted by CEP is applicable to any destination with a TSA, enabling tourism stakeholders to play an informed role in assessing appropriate climate change mitigation strategies for their destination.

3. Contributions to economic impact analysis and policy

The study of the economic impacts of shocks to tourism demand (positive or negative) has recently undergone a ‘paradigm shift’ as a result of the use of computable general equilibrium (CGE) models in place of Input-Output (I-O) models. CEP from its inception recognised the need for a change of approach to estimating the economic impacts of tourism (Dwyer, Forsyth, Madden, & Spurr, 2000; Dwyer, Forsyth, & Spurr, 2004). The CEP contribution was twofold. One contribution involved a series of papers that criticised the ‘Standard View’ of estimating the economic impacts of a shock to tourism demand. Another type of contribution involved a series of papers of an empirical nature that demonstrated the power of the alternative CGE approach to impact analysis with far greater tourism policy relevance.

3.1. Criticism of the ‘Standard Approach’

Increased tourism expenditure from inbound markets potentially has direct, indirect and induced effects on a host destination, leading to increased production, income and employment. To estimate the multiplier effects of the increased expenditure the standard approach of researchers and consultants was to employ an I-O model. In several papers, CEP researchers argued that this standard approach to economic evaluation in the tourism context, fails to satisfy best practice assessment. The criticisms of I-O modelling focussed on the rigidity of its assumptions and its unsuitability for policy analysis (Dwyer et al., 2000; Dwyer et al., 2004; Dwyer, Forsyth, Spurr, & van Ho, 2008).

Unless there is significant excess capacity in tourism-related industries, the primary effect of a tourism demand shock in economy-wide expansion in inbound tourism is to alter the industrial structure of the economy rather than to generate a substantial increase in aggregate economic activity, including income and employment generation. Its effect will thus show up as a change in the composition of the economy rather than as a net addition to activity. An outcome of the CEP research, together with contributions by other critics of I-O modelling (e.g. the Nottingham group associated with Thea Sinclair and Adam Blake), was a greater awareness among tourism researchers that, for any given expenditure shock to a destination, the change in economic variables will vary according to features of the economy such as: the particular industries that are the recipients of the direct expenditure; strengths of the business linkages between the different industry sectors in the economy; the assumed factor constraints (supplies of land, labour, capital); the import content of consumer goods and inputs to production; the production and consumption relationships assumed; changes in the prices of inputs and outputs; changes in the exchange rate; the workings of the labour market; and the government fiscal policy stance. This increased awareness has made economic impact analysis more complex while enhancing its policy relevance (Dwyer & Pham, 2012). While I-O modelling is incapable of taking account of these features of real world economies, it came to be recognised that an alternative approach, based on CGE modelling could do so.

3.2. Development of a CGE model

CEP policy analysis from its inception was based on the conviction that, in evaluating economic impacts of tourism, there is a need to model the economy, as far as is possible, as it really is, recognising other sectors and markets and capturing feedback effects. This required the development of a CGE model comprising a set of behavioural and structural equations that characterise the production, consumption, trade and government activities of the Australian economy. The model constructed was known as ‘M2RNSW’, a modified version of the M2R model (Han, Madden, & Pant, 1998), the basis of which is an adaptation of the Monash multi-regional forecasting (MMRF) model of Australia’s states and territories (Naqvi & Peter, 1996). A two-region model was created by preserving the separate identity of only the state of New South Wales, while the other seven regions of MMRF were aggregated into a single ‘Rest of Australia’ region. A key feature of the CRC model, absent from most other CGE models at the time, was its explicit incorporation of tourism sectors including international visitors, interstate and intrastate visitors, and international outbound tourism. Allowance was also made for different tourist types (business, holiday, visiting friends, other). The model’s tourism database was made consistent with national and state TSA data. Details of the model are given in Dwyer, Forsyth, Spurr and Ho (2003, 2005).

CEP came to play a world leadership role in respect to the use of CGE models for estimating the economic impacts of tourism shocks. CGE models are helpful to tourism policy makers who seek to use them to provide guidance about a wide variety of ‘what if?’ questions, arising from a wide range of domestic or international expenditure shocks or alternative policy scenarios. The M2RNSW model provided a substantial capacity for the CEP to measure the impact of tourism on the Australian economy, and the effects of changes in tourism flows or conditions, nationally and regionally, but the influence of CEP approaches and findings travelled well beyond Australia’s borders. The discussion below addresses the contributions made to economic impact analysis and policy.

3.2.1. Economic impacts of inbound tourism

In an early application of the CGE model, CEP estimated the effects of an increase in world, interstate and intrastate tourism on the economy of Australia’s largest state, New South Wales (Dwyer et al., 2003). Compared to the international tourism market, domestic tourism has tended to be neglected by both tourism
stakeholders and researchers. An assumption has prevailed among tourism stakeholders and researchers that, nationally and within a state’s borders, domestic tourism represents mainly transfers of expenditure, with minimal impacts on GSP and employment. The CEP simulations showed that this neglect is unfortunate. Depending on what is given up by intrastate tourists to finance their trip, intrastate tourism may have greater impacts per dollar expended than the more emphasized ‘glamour’ markets of inbound (international and interstate) tourism. Another significant finding was that increases in interstate tourism are associated with relatively large economic impacts on the state regardless of whether the substitution relates to other tourism or to (non-tourism) goods and services. There are important implications here also for the treatment of resident expenditure as ‘transferred expenditure’ in assessing the economic impacts of special events (see below). The study also indicated that promotional spending in domestic tourism markets might have greater cost effectiveness than international marketing expenditure, a result with important implications for DMOs. Also relevant to DMO (STO) strategy is the support this study gave to the earlier findings of Adams and Parmenter (1995) that some states which simply maintain their marketing share of a growing market may experience a fall in their GSP and overall employment, depending on the composition of their industry. Once this result is more fully appreciated by state tourism authorities it is likely to produce additional pressures on cooperative destination marketing arrangements (Dwyer, 2003).

3.2.2. Tourism crises

Studies of crises using CGE models reveal that crises affecting tourism affect other industries as well and the total impact must be considered in formulating policy responses. CGE modelling provides valuable input into policy formulation with its identification of gainers and losers from exercising different crisis responses.

Australian tourism experienced the effects of two major crises in 2003—the Iraq War and Severe Acute Respiratory Syndrome (SARS). While conceding that the relative impacts of a complex array of impacts on travel decision-making are almost impossible to dissect, CEP explored the economic effects of these crises on tourism to Australia. Although the SARS crisis resulted in less inbound tourism, it also led to reduced outbound tourism from Australia. The net economic impacts on the nation depend upon the extent to which cancelled or postponed outbound travel are allocated to savings, to domestic tourism, or to the purchases of other goods and services. Once substitution effects are accounted for, the net impact of the crisis was seen to be substantially less than had been thought. CEP CGE simulations, recognising that increased domestic tourism to some extent counteracts the fall in inbound tourism, showed that the net effects for the tourism industry as a whole and for the overall economy were not as severe as were feared by tourism stakeholders (Dwyer, Forsyth, & Spurr, 2006c; Dwyer, Forsyth, Spurr, & Ho, 2006).

The CEP modelling exercise revealed several issues regarding the economic effects of tourism crises that need further research. One concerns the estimation of the ‘pent-up’ demand for travel following a period of travel postponements and cancellations. In general, the focus of attention has been on the economic losses in the crisis period rather than on subsequent periods. Information on the latter is of obvious use for strategic planning by stakeholders in both the public and private sectors. Additionally, the question of what types of expenditures are made by residents in lieu of outbound travel is an important but under-researched topic in the crisis literature. Another neglected area of research concerns those residents who substitute an international holiday for a domestic experience. Such travellers may have a greater tendency to fly to their destination, raising questions about the influence of crises on the type of tourism undertaken and the extent to which both the volume and patterns of domestic tourism expenditure change. These issues remain under-researched in the tourism literature.

3.2.2. Special events

CEP researchers have made a substantial contribution to the economic evaluation of special events both in development of frameworks for event assessment (Dwyer & Jago, 2012; Jago & Dwyer, 2006), as well as in identifying the main elements of a CGE approach to event evaluation (Dwyer, Forsyth, & Spurr, 2005, 2006b, 2006c). CEP researchers also published several papers emphasising the importance of benefit measures to inform policy making in the events area (to be discussed in Section 4).

A particular target of CEP criticism of event assessment was the standard use of I-O modelling to derive multipliers that were then used to estimate the impacts of events on economic variables such as GDP/GRP, household income and employment. In real world economies which are subject to resource constraints, the net impact on output and jobs from a boom in demand associated with a special event is much less than I-O modelling suggests. Continued use of I-O modelling by researchers and consultants, where impact estimates across all industries were uniformly positive, raised the strong presumption among CEP researchers that overall, there was excessive funding being devoted to subsidising events, and that the funds being used are probably being misallocated (Dwyer et al., 2004).

A study by Dwyer, Forsyth and Spurr (2005, 2006c, 2006d) compared the results of using CGE and I–O modelling to estimate the economic impacts of a special event held in the State of New South Wales (NSW). The expenditure data were based on that for the Qantas Australian Grand Prix of 2000 (but with the location transposed from Melbourne to Sydney). The I-O model yielded much larger multiplier values, and thus correspondingly larger projections of impacts on output, GSP, and employment than the CGE model, both for the host state of NSW and nationally. For the host state, the I-O multipliers for output, GSP and employment were, respectively, 80%, 100%, and 42% greater than the CGE counterparts. Contrasting the effects on the host state and the rest of Australia (RoA), the I–O model projected increased real output, GSP and employment in RoA as interstate firms supply industrial or consumer goods and services to meet the additional demand associated with the event in NSW. The CGE model, in contrast, projected decreased real output, GSP and employment in RoA. This is due to the fact that the expenditure by interstate visitors to the event must be financed by reduced expenditure within other states. The CGE model simulations also highlight those industries that contract as a result of the expenditure injection, something which I-O analysis is incapable of revealing. While I–O modelling projected a positive change in output and employment in all industries in the host state and nationally, the CGE model projected reduced output and employment in several industries in both jurisdictions. By ignoring the negative impacts of event related expenditure, the I-O study produced a grossly excessive estimate of the impact on economic activity.

CEP research clearly demonstrated that the type of model employed in event impact assessment is critically important to the findings. For larger events in particular, models need to reflect factor constraints, price changes (including the exchange rate), employment and wage realities and must recognise that some regions and industries will gain while others might lose. CEP research shows that new modelling approaches reflecting changing economic realities are more relevant than those traditionally employed, and are more likely to resonate with financial decision makers in government and industry. The research findings have influenced the direction of event assessment research globally.
3.2.4. Taxation

In an early paper, CEP researchers had argued that a serious emerging problem to tourism globally arises as individual countries each with market power over their tourism industry, impose taxes on tourism services and pass them on to foreign tourists. However, this constitutes a barrier to trade in tourism services, and what is rational for an individual country is inefficient for the world as a whole. Excessive taxation of international tourism will be the result, and this taxation will be very difficult to negotiate away. Ultimately, tourism growth is likely to suffer relative to other sectors in the global economy (Forsyth & Dwyer, 2003). Given the ongoing imposition of tourism taxes globally, particularly on aviation, it would appear that this concern has not been heeded as different destinations, acting in their own self-interest, increase taxes on visitors.

3.2.5. The Passenger Movement Charge

The CEP CGE model was used to assess the impacts of Australia’s form of a departure tax, the Passenger Movement Charge (PMC), on key economic variables, such as GDP, GNI and economic welfare, and on tourism industry output and employment (Forsyth, Dwyer, Pham, & Spurr, 2014). The PMC is a tax on all persons departing Australia by air and sea. For Australia as a whole, a rise in the PMC is positive for Australia as a whole though it is negative for the tourism industry. The negative impact on the tourism industry is smaller to the extent that domestic tourism substitutes for outbound tourism. However, there will be a net positive impact on the economy as a whole because of the tax effect—a country gains from foreign tourists paying taxes rather than residents. This effect is sufficient to outweigh other impacts. This result contrasts with studies done in other countries of air passenger duties using I-O approaches. The study suggests that if funds become available, reducing the PMC would not be a cost effective way of helping the tourism industry, and that other methods, such as increasing promotion or measures directed to improving tourism industry productivity, may prove to be more cost effective for the economy as a whole.

3.2.6. Carbon tax

The development of ‘green’ CGE models is an important step towards identifying the extent of externalities associated with tourism and other industries. Based on the MMRF-GREEN model (Adams, Horridge, & Wittwer, 2003) which was developed to estimate the greenhouse gas emissions associated with economic activity, CEP investigated the potential economic impacts of introduction by the Australian government of its now abandoned Carbon Pollution Reduction Scheme, a cap and trade mechanism for reducing greenhouse gas emissions in Australia (Dwyer, Forsyth, Spurr, & Hoque, 2013; Dwyer, Forsyth, & Spurr, 2012). While not targeted at tourism specifically, the carbon tax/ETS was proposed to create a price for carbon emissions, raising costs in those industries that directly or indirectly produce emissions, including tourism. CEP modelling showed that under the proposed scheme, the tourism sector would contract with falls in real tourism gross value added and tourism employment. The largest falls were projected to be in accommodation, air and water industries and in cafes, restaurants and food outlets. Overall, the gains experienced by some tourism industries will be heavily outweighed by contractions in some of the tourism characteristic industries. Since the direction of impacts on the tourism industry can be expected to be similar for any pricing scheme to reduce carbon emissions, the analysis is very relevant to engagement by the tourism industry in policy discussion on climate change mitigation measures and for enhancing our understanding of the implications for tourism of climate change mitigation policies generally.

3.2.7. Dutch disease

Despite the reality that tourism industries around the world are facing the challenges of structural change posed by booming (non-tourism) sectors, discussion of Dutch Disease in the tourism literature has typically focussed on tourism as the booming sector leading to de-industrialisation. CGE modelling of the impacts of a mining boom on the Australian tourism industry by CEP confirms a Dutch Disease effect with tourism as the disadvantaged industry (Dwyer, Pham, Jago, Bailey, & Marshall, 2015; Forsyth, Dwyer, & Spurr, 2014; Pham, Jago, Spurr, & Marshall, 2015). From mid 2004 to 2012, Australian tourism faced a typical Dutch Disease situation. Mining as an export industry competed with other sectors of the economy for labour, capital and goods and services, thereby pushing up prices and the exchange rate. CEP used CGE modelling to assess impacts of the mining boom on the Australian economy and tourism in particular, through two broad mechanisms: an income effect and a price effect. The boost to household consumption provided by the boom through increased mining revenues supports increased demand for leisure tourism generally. These gains are offset, however, by reduced inbound tourism and increased outbound tourism resulting from the higher value of the Australian dollar. ‘Crowding out’ effects are most apparent for those parts of the tourism industry with greater dependence on leisure travel in the mining states, where competition from mining-related business travel is most intense, and in segments of the domestic industry which compete most directly with outbound travel.

The CGE analysis provided detailed macro and micro level estimates that indicate the complexities of the effects of the booming sector on tourism regionally (inter- and intra-state), by industry sector (accommodation and air services) and also for different tourism markets (e.g. leisure versus business travel). The micro level analysis, supplemented by input from key tourism organisations, highlights the extent and range of tourism impacts associated with the boom, and the implications for different groups of tourism stakeholders. Analysis of the regional and sectoral impact of the mining boom indicated that it represents a double-edged sword for Australian tourism stakeholders, with some components (e.g. business tourism) benefiting and other segments (e.g. leisure tourism) losing out. The modelling results showed that the boom delivered strong positive impacts to Australia’s minerals rich states but adversely impacted upon the growth of the other states and territories. As the tourism sector does not supply many inputs to the mining sector, higher mining exports do not directly induce much demand for tourism. In contrast, the mining boom creates more competition for labour demand, particularly as wage rates in mining-related industries increase sharply. This means that traditionally lower-paying, less-skilled industries such as tourism have substantial difficulty
competing with mining to attract and retain workers. The net economic effect on Australian tourism is negative, particularly in respect of the impacts of Fly-In-Fly-Out (FIFO) and Drive-In-
Drive-Out (DIDO) workers in the mining states (Pham, Bailey,
Marshall, Spurr, & Dwyer, 2013).

The CEP research shows that structural changes taking place in a
destination, underpinned by expanded exports in sectors other
than tourism, can cause a substantial downturn in inbound and
domestic tourism markets, with consequent gains and losses to
different tourism stakeholders. A legacy of the mining boom is a
leisure tourism sector under considerable pressure on a number of
fronts. The CEP framework of analysis can be applied in destinations
worldwide that are experiencing export booms in commod-
ities other than tourism. Forsyth, Dwyer, and Spurr (2014) whether
the same types of effects as those experienced in Australia exist in
other destinations is an empirical matter, as is the size of these
effects.

3.2.8. Yield and destination marketing

CGE modelling can be used to develop ‘economy-wide’ yield
measures of tourist ‘worth’. Economy wide yield measures indicate
the bottom line for the economy from tourist spending after all
inter-industry effects have taken place (Dwyer et al., 2006, 2007).

Dwyer and Forsyth (2008) estimated three economy wide yield
measures associated with fourteen of Australia’s major tourism
origin countries and for three of Australia’s regions. The yield
measures are gross value added, gross operating surplus and
employment. The economic impacts were then converted to yield
measures by determining the economy wide effects of an additional
tourist from each market. Yield measures based on CGE modelling
can inform organizations in both the private and public sector about
effective allocation of marketing resources and types of tourism
development that meet operator and destination manager objec-
tives. Further research is required as to how tourism economic yield
can be usefully incorporated into a measure of sustainability
incorporating economic, social and environmental dimensions.

The changing dynamics of the tourism marketplace, as well as
increasing constraints on Destination Management Organisations
(DMOs) to allocate scarce marketing funds efficiently, demand that
the prospective return on investment in destination marketing be
estimated as accurately as possible. From a public policy perspec-
tive, economy-wide measures of visitor yield provide information
unavailable using other approaches. Using CGE modelling, CEP
estimated the return on investment associated with promoting
Australia in nine key visitor source markets (Dwyer, Pham, Forsyth,
& Spurr, 2014). While Australia provides a context for study, the
approach taken by the CEP has relevance to destination marketing
organizations worldwide.

CEP policy analysis revealed that the results of CGE modelling
are sometimes surprising and indicate the value of using this so-
phisticated approach to impact analysis of tourism shocks in pref-
ereence to standard I-O modelling. While it is likely that many of the
results obtained by CEP for Australia are generalizable to other
countries worldwide, the extent to which this is the case can only
be determined by future studies that take account of the circum-
stances of different destinations.

4. Policy analysis

4.1. Measuring the benefits and costs of tourism and airline
liberalisation

It is important to distinguish between impacts and (net) benefits
of a tourism shock or policy initiative. Many studies estimate the
impact of some change or policy on economic variables, such as the
impact of carbon polices on tourism, the impact of a crisis such as
SARS on GDP, through its effect on tourism, or the impact of an
event on GSP and employment. These studies provide very useful
information in the policy making process. However, they do not
give us a measure of whether a change results in an economy being
better off or worse off — additional GDP (or GSP) creates some
benefits, but usually, some costs as well. Ultimately, if one is to
determine whether a policy makes the economy better or worse off,
there needs to be a measure of net benefits or costs.

There are two ways in which this can be done. Cost benefit
analysis (CBA) is specifically designed to assess net costs and ben-
efits, or welfare. More recently, CGE models, which provide a means
of assessing a range of impacts, have been used to assess net costs
and benefits. The two methods provide, in principle, the same
answer to the question “is the economy better off” as a result of a
policy. However, both methods involve approximations — CBA is
mainly a partial equilibrium approach, and it misses out on
measuring general equilibrium effects, whereas CGE models as
used are typically more aggregative and miss out on detail.

It is a straightforward matter to include a net benefit measure in
a CGE model, and in some countries this is now being done regu-
larly. This means that CGE models can be used to assess whether
the country is better off or not as a result of a policy — there is no need
to rely on inaccurate and misleading proxies, such as the impact on
GDP or consumption, which are often used in Australia and in other
countries.

Below, we examine four policy problems each of which have
been addressed by the CEP:

- Measuring the costs and benefits of promotion
- Evaluating events
- Evaluating airline liberalisation
- Assessing aviation taxes

4.2. The costs and benefits of tourism promotion

As noted above, the CEP made an estimate of the impact of
tourism promotion on the Australian economy (Dwyer et al., 2014).
The next stage would be to assess the net benefits and costs of this
promotion. The Australian government’s main micro economic
adviser, the Productivity Commission, called for this to be done,
though it did not recommend how best to do this (Productivity
Commission, 2015). So far as we are aware, this type of exercise
has not been done to date for Australia or any other country.
However, based on the research done by CEP, it is a straightforward
matter to do it.

There are two key rationales for government support for desti-
nation promotion. One is that there is a public good aspect to
promotion. Most firms are not able to promote effectively in na-
tional or global markets and thus decline to help fund it (the free
rider problem). The second is less commonly advanced, and it relies
on the existence of distortions in markets, such as taxes. When
tourists visit a destination, they spend money and the destination
gets a benefit when this expenditure is taxed. The benefits asso-
ciated with the first rationale are very difficult to measure, though
those stemming from the second can be measured easily. Benefits
from promotion cannot readily be assessed using the normal tools
of CBA, given that there are myriad effects spread throughout the
economy. However, these benefits are straightforward to assess
using the CGE approach.

A “cost-benefit” calculation can be done using a CGE model.
This involves measuring the impact of promotion spending on
tourism spending (see above) and determining the net benefit
from this spending. This can be compared to the net cost of the
promotion, and benefit-cost ratio can be estimated (see Forsyth, 2015).

To show this, an example of a submission to a Productivity Commission Research Report by Australia’s national tourism marketing body, Tourism Australia, on the impact of the agency’s promotion spending on visitor expenditure, is used (Tourism Accommodation Australia, 2014). If we take account of the fact that additional spending on promotion also entails a marginal welfare cost of taxation of 1.275 per $1 to fund the spending, plus an administrative margin of 0.25 of the promotion spending, this leads to a cost per $ of promotion spending of 1.59 ($1.275 \times 1.25)
The only change required from the Tourism Australia estimate is then to replace the estimated economic impact (an additional $15 of tourism expenditure) with the net benefit or welfare change from tourism—this has been estimated by the CEP as 13.5% of the expenditure. Using the CEP estimate that an additional $1 of tourism expenditure would yield benefits of $2.025 ($15 \times 0.135), a $1 of promotion spending would cost $1.59 to produce a net benefit of $2.025, yielding a net cost-benefit ratio of 1.27. Different parameters would give rise to different estimates of this cost-benefit ratio—however, the important result is that a CBA of tourism promotion, as called for by the Productivity Commission, indicates that the promotion spending remains a worthwhile investment.

It should be noted that this is a partial measure of the benefits from promotion, since there is no allowance for the “public good” rationale for promotion. These are rough calculations, though they do indicate that the type of cost-benefit calculations are eminently feasible, though only by using a CGE approach. More rigorous examination of the returns to promotion is warranted. The approach taken by the CEP has application worldwide.

4.3. Event evaluation

As discussed above, CEP was one of the earliest users of CGE models in event evaluation—in particular, in relation to evaluating the impact of events. It did not go further and assess the net benefits of events themselves, though it did contribute to the literature on benefit measurement. In spite of the importance of measuring benefits for policy purposes, there has been little research in this area, in Australia or elsewhere. There has been some use of CGE models which include a net benefit or welfare measure elsewhere, notably by Blake in a pre-event study of the London Olympics (Blake, 2005). There has also been some use of CBA in event evaluation (ACT Auditor-General, 2002; Victorian Auditor-General, 2007). Interestingly, the latter study also included a CGE study of the same event—however, it was only an impact study, and the two studies’ results are not comparable.

A current area of research concerns the relative merits of CBA and CGE models as a means of evaluating events. The comparison has been discussed in work by CEP (Dwyer, Jago, & Forsyth, 2016), Abelson (2011) and the Productivity Commission (2015). The Commission’s Report takes a strong line on the appropriate way of evaluating events—it prefers CBA and says that all the methods are not appropriate.

There are some event specific limitations which arise when using CBA. Most events draw visitors from outside the region, state or country. If these visitors are incurring expenditures, how can the benefits or costs to the home economy be measured? CBA has no answer to this question, other than by making arbitrary assumptions. A CGE approach can, data permitting, do a complete evaluation when combined with approaches to value event related social and environmental impacts. The problem of integrating CGE modelling and CBA in event evaluation remains unresolved despite its importance to event assessment worldwide.

4.4. Airline liberalisation

International airlines are both export services industries, and import competing industries—the two need to be taken together. Most international airline routes are regulated on a bilateral basis. This often means that if a country is asked to allow a foreign owned airline to have more capacity, it will expect more capacity for its own airlines. Imports and exports will be jointly determined. In reality, there tends to be situations where a country, Australia for example, is the net exporter of airline services (e.g. to the US) and others where it is a net importer (e.g. from the UAE).

Another relationship which is important is the complementary one between international aviation and tourism. Efficient international aviation increases the benefits from tourism. The Productivity Commission (2015), in its recent report on tourism, calls for “transparent cost-benefit analysis” to be used when liberalisation is being considered, such as when additional capacity is being “granted” to a country’s airlines to fly to Australia. Both CBA and CGE approaches can be used to evaluate liberalisation. However, one limitation of CBA is that it does not have a rigorous way of measuring the benefits and costs of inbound and outbound tourism (Forsyth, 2006).

A study of the benefits and costs of airline liberalisation for Australia undertaken by CEP (Forsyth & Ho, 2003), the starting point was a CBA study done by the Productivity Commission in 1998. This study did not measure any benefits or costs of inbound and outbound tourism, though it did include other costs and benefits, and it recognised that tourism benefits should be included. The CEP CGE model was used to make estimates of the benefits from inbound tourism, along with the costs of outbound tourism. This was done for a number of air transport markets in Asia, including the important Australia–Japan market. The result was a total measure of all the costs and benefits from liberalisation. Liberalisation was positive for several markets, though not all. In the Japan market, Australia gained more from inbound Japanese tourism than it lost from outbound tourism, but overall, liberalisation was not positive (other factors outweighing the tourism benefits). This is an example of using a CGE model to fill in the gaps which are left by a CBA study and the approach can be applied worldwide.

4.5. The Passenger Movement Charge

As discussed above, The Passenger Movement Charge (PMC), levied on all outgoing passengers from Australia, is a barrier to tourism exports. The important question should be—does Australia gain from having this barrier? There have been many studies of equivalent taxes, such as the UK APD, and studies, invariably based on Economic Impact Analysis (EIA), which conclude that they are harmful to the country imposing them. A study of the PMC in Australia, also based on EIA, concludes that it is harmful to Australia (IATA, 2013).

A study undertaken by CEP, however, came to a radically different conclusion regarding the effects of the PMC (Forsyth et al., 2014). This study, as noted above, used a CGE approach, taking into account the “tax exporting” aspect of the PMC. In effect, a country gains if it can export its taxes, i.e. get nationals of other countries to pay them. This is an example of the “optimal tariff” argument, in that Australia can use its market power in the tourism market to raise its prices.

Beyond estimating the economic impacts, to assess whether a country gains or loses from imposing a tourism tax such as the PMC, a cost-benefit calculation needs to be done. On the one hand there are the revenue effects, which are positive for the country since they involve substituting taxes paid by its nationals by taxes paid by...
foreigners. On the other hand, there is a loss of tourism benefits from inbound tourism, as well as a possible gain or loss from lower outbound tourism (usually a gain). Given that the reduction in gains from inbound tourism are small relative to tourism expenditure (the figure of 13.5% was used in the discussion of promotion above), it is not surprising that Australia gains from imposing the tax. It may not be efficient from a global perspective, but it makes sense for an individual country like Australia. Forsyth et al. (2014) also examined the effects of the Australian tourism industry-unlike the nation as a whole, the tourism industry loses.

There are ways in which the PMC can be changed. It would be possible to gain more revenue at less cost to the tourism industry by a change to its structure. Another possibility involves linking revenue to tourism promotion. While there are downsides to ear-marking revenues from taxes, it may be worthwhile considering an arrangement whereby additional revenue from the PMC would be used for tourism promotion, thereby creating a benefit for the tourism industry and increasing the gains from tourism exports.

5. Conclusion

In all, engagement with industry and government formed a very large part of the work of the CEP over most of the life of the STCRC. This was reflected in a constant stream of meetings, workshops, presentations and reports which were given to a very wide range of industry and government bodies, generally at their invitation and frequently in active cooperation with them. These included the national and all of the eight state and territory governments, tourism industry representative bodies (including Tourism Council of Australia (TCA) and Tourism and Transport Forum (TTF, government research agencies) (Tourism Research Australia, Australian Bureau of Statistics, Productivity Commission, destination marketing and management agencies such as Tourism Australia, Destination New South Wales, Events New South Wales), and their equivalents in other states. CEP also regularly met with major industry stakeholders such as Qantas which sponsored a University chair for 7 years to support the CEP modelling effort. This role was always seen as integral to the work of the CEP in support of the prescribed role of CRCS as a catalyst for enhancing collaboration between university researchers and industry and government.

The STCRC ceased to exist in 2010, and with it, the funding necessary to support the wider CEP research agenda. At a time when productive interactions between modellers and users and associated learning effects, seems to characterise an increasing number of CEPs, this presents a real problem for the CEP. While it is easy to see how the PMC may be changing around the world, the implications of climate change: Issues and actions. UK: Elsevier.

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