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Estimating the economic impacts of tourism growth and special events

The paper provides an overview of some of the main issues that have arisen from the CGE modelling of Australian tourism undertaken by the authors in this CRC funded project. The economic simulations are based on different assumptions about the federal government fiscal policy stance, assumptions about the wage setting environment, and assumptions about the aggregate level of employment. Another set of simulations relate to a comparison of the economic impacts of a representative event using both Input-Output and CGE modelling. The comparison highlights differences in results of event evaluation using I-O and CGE models and provides further support to use of the latter technique and application of cost benefit analysis for governments concerned with efficient allocation of scarce resources to promote tourism development.

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A new approach to estimating economic impacts of tourism

Despite its continued use in tourism, particularly in event assessment, Input-Output (I-O) analysis has been rejected in most other areas of economic impact evaluation. I-O models give highly misleading results because they overlook key real world determinants of the way changes in tourism expenditures impact economies. These determinants include constraints on the supply of labour, land and materials, exchange rate effects, and the way that governments fund the changes in, for example, the infrastructure support required for industry growth (Dwyer, Forsyth, Madden, & Spurr, 2000; Dwyer, Forsyth, & Spurr, 2003b).

In industrial countries, most of the economic policy discussion of the impacts of shocks to different industries relies on the more rigorous evaluation technique of Computable General Equilibrium (CGE) analysis, which recognises resource constraints and the inter-industry effects of demand shocks (Dixon & Parmenter, 1996; Yao & Liu, 2000; Harrison, Jensen, Pedersen, & Rutherford, 2000).

The CRC modelling project

A research team was established by Australia's Cooperative Research Centre for Sustainable Tourism (CRC) to develop a model which could be used to examine the economic impacts of tourism in Australia and the effects of policy changes or "shocks" to tourism demand. The model incorporates CGE models for each state of Australia. Initial development work has been focused on the State of New South Wales, Australia's most populous State and the major gateway for inbound tourism. Other states have been aggregated into a rest of Australia (RoA) category. Results are also available for Australia as a whole (Dwyer, Forsyth, Spurr, & Ho, 2003a,b).

The model can be used to analyse a wide range of tourism issues. Research applications to date have included:

- relative impacts on the NSW and Australian economies of changes in tourism from different sources – inbound, intrastate and interstate.
- the economic impact of events.

Research applications

(i)   Impact of tourism growth

The results indicate that domestic tourism markets are potentially important generators of income and jobs for the host State. In terms of the impacts per visitor, New South Wales Gross State Product (GSP) and employment gain most from intrastate visitation, provided the expenditure is sourced from RoA tourism expenditure foregone (that is, from NSW tourists choosing to travel within NSW rather than to the rest of Australia). The next greatest impact comes from increased interstate tourism from the rest of Australia to NSW. This suggests that promotional spending in domestic tourism markets may have greater cost effectiveness than international marketing expenditure in both the short and long runs, at least from the perspective of the state undertaking the promotion (though this need not be true for the nation as a whole).

The simulations indicate that increased interstate tourism to New South Wales can generate substantial economic impacts for that state but can adversely affect GSP and employment in other states and territories. The economic impacts on a given state will depend upon its industrial structure and the proportion of the state's population that visit

within, and outside, that state (Dwyer, Forsyth, Spurr, & Ho, 2003a). The extent of gains will also depend upon what domestic tourists give up to finance their trips. These issues have been neglected in the research literature to date.

From a nationwide perspective, expenditure by international tourists creates more GDP and employment, supporting the allocation of scarce resources into the marketing of Australia internationally. However, the modelling suggests that positive economic impacts occur at the national level from changes in domestic tourism as well. These outcomes were not dependent on any switching of Australian outbound tourism by Australians into domestic tourism which could provide further positive economic impacts. These will be examined in a future study.

(ii)   Economic impacts of events

A major use of I-O analysis in the tourism field has involved estimation of the economic impacts of events (Crompton, Lee and Shuster (2001). To determine the extent to which I-O and CGE models produce different estimates of an event's economic impacts, simulations of two representative events were carried out using the two approaches. These events are a large event, with the expenditure characteristics of a Formula 1 Grand Prix auto race, and another smaller event, such as might be held in a rural city.

For New South Wales, the assumed host State, the I-O model yields much larger multiplier values, and thus correspondingly larger projections of impacts on output, GSP, and employment than the CGE model for both the large and the small event. For the large event, the respective I-O multipliers are 80 percent, 100 percent, and 42 percent greater than the CGE counterparts, while for the small event they are, respectively, 73 percent, 56 percent, and 33 percent greater (Dwyer, Forsyth, Spurr, & Ho, 2003c).

For both scales of events, the I-O model projects changes in real output in Australia which are almost three times greater than those projected by the CGE model. Using I-O tables, all industry sectors, except for oil, natural gas, brown coal and dwellings (which experience no change in employment), experience a positive change in employment as a result of the event. The CGE model, in contrast, projects smaller increases in employment in most industry sectors and projects negative employment effects in several industry sectors both within and outside the host state.

In sum, the comparison reveals that two major (related) types of information are gained by using CGE rather than I-O models for event assessment: (1) the impact of event related expenditure on output, GSP, and employment in the RoA; and (2) the adverse impacts on output, value added and employment, in various industries, in the host State, interstate, or both. The results have implications for rigorous event assessment by all public agencies that support special events with taxpayer funds.

The model has also been adapted to measure net economic *benefits* from changes in economic activity (Dwyer, Forsyth, & Spurr, 2003b) Changes in economic activity, such as in GDP, are not a good measure of the net gain to the economy. They are measures of additional output, and there is often a cost to obtaining this output. Additional resources must be used to produce output, and these resources have a cost. With measures of net benefits we are able to get to the bottom line of policies and projects that involve costs to government or affected parties and benefits from greater economic activity. Determining these net benefits is an essential step in conducting a rigorous cost benefit analysis of an event, which compares total benefits (including other benefits such as resident consumer benefits from attending the event) to total costs (including any environmental costs from hosting the event). Conducting such a cost benefit analysis should be an essential requirement before a government incurs a real cost by committing funds to encourage an event.

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