

Deloitte Access Economics

Economic impact of tourism marketing expenditure in Tasmania

Tourism Industry Council
Tasmania

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Key findings

- Against most economic indicators, recent years have seen Tasmania underperform relative to the national economy and forecasts continue to suggest that State growing considerably slower than national trends.
- The sectors upon which the Tasmanian economy has been – and continues to be – most reliant are firmly in the economic slow lane. The factors underpinning this economic weakness are partly cyclical (driven, among other things, by the strength of the Australian dollar) and partly structural, as Australia’s comparative advantage shifts.
- Tourism is an important industry to Tasmania’s economy and potential exists for it to play a greater role over time. Survey data reveals that the State’s tourism offering shows significant appeal to potential visitors and visitation to the state has outpaced national performance over the last decade.
- Capitalising on the economic opportunity that exists requires effective destination promotion to appropriate target markets. The nature of the tourism industry – and tourism marketing in particular – provide a strong case for Government involvement in the promotion of destinations as without this, underinvestment is likely.
- The modelling presented in this report shows that, while a level of uncertainty surrounds the precise magnitude of the impacts, there is a significant economic return to destination marketing activity.
- If destination marketing expenditure was increased to its target level, each \$1 million of this increase which was unmatched by other states would generate –
 - Between \$6m and \$19m in gross state product – that is a return on investment of between 1:6 and 1:19.
 - Between 68 and 218 jobs – that is one job for every \$4,600 to \$14,700 spent on marketing activity.

Deloitte Access Economics

1 Background

Tasmania's economy has faced solid headwinds for some time and its recent economic performance has been among the nation's weakest. The sectors upon which the state's economy has typically relied have been on the downside of Australia's two-speed economy; some are likely to be in long term decline. Fashioning an economic vision for Tasmania has been accordingly been challenging.

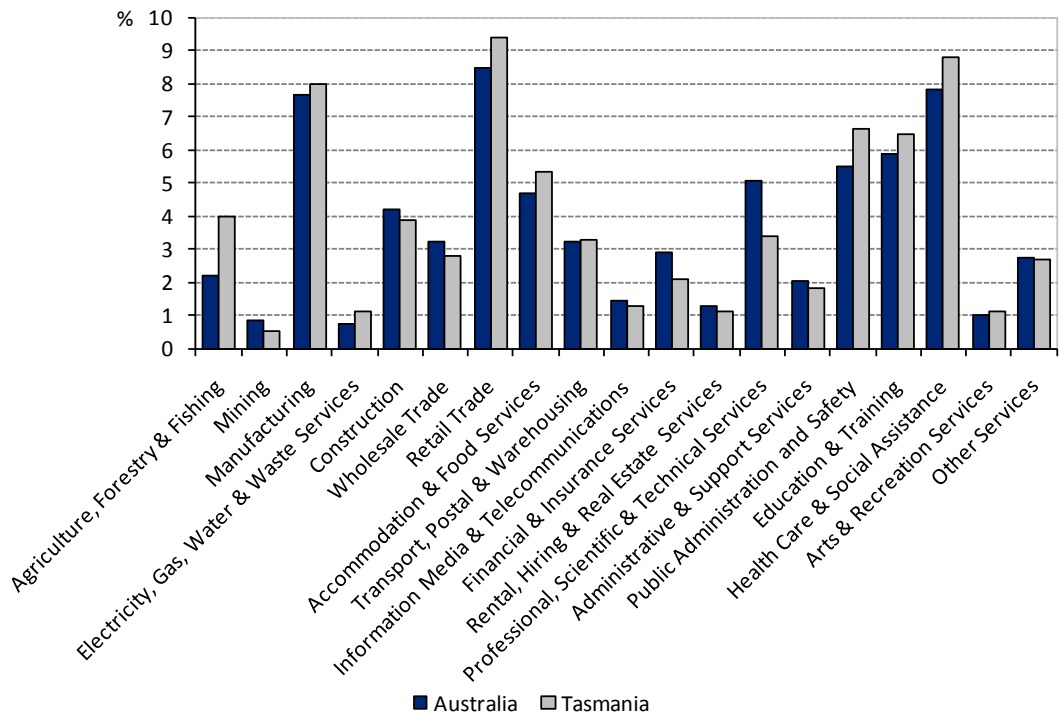
However, notwithstanding the challenges that recent macroeconomic conditions have presented, tourism has been among the more positive aspects of the State's economy. Indeed, over the last decade, visitor nights by both domestic and international visitors have grown more strongly in Tasmania than they have at the national level. Despite its geographic disadvantages, Tasmania's iconic wilderness, eco-tourism and cultural attractions are a key advantage for the State's economy and one with significant upside potential. Realising this potential requires effective, coordinated promotion of the sector and it is this area that, given the market failures that pervade, there is a legitimate rationale for government involvement.

1.1 Tasmanian Economy

At a high level, the structure of the Tasmanian economy is not overly dissimilar to that of the nation. However, the areas where it does diverge are instructive in considering the recent historical performance of the State's economy. Sectors which have been at the heart of Australia's economic growth over recent years – mining and construction especially – are underrepresented in the Tasmanian economy while sectors which have lagged over recent years are relatively prominent. More specifically,

- the proportion of workers employed in the Agriculture, Forestry and Fishing sector is nearly twice the national average;
- employment is also above average in Retail Trade; Accommodation and Food Services (both of which indicate a strong tourism sector); Public Administration; Education and Training; and Health Care and Social Assistance; and
- conversely, employment in Professional, Scientific and Technical Services; Mining and Financial Services is significantly below the national average.

Chart 1.1: Employment by industry (% total); Tasmania and Australia

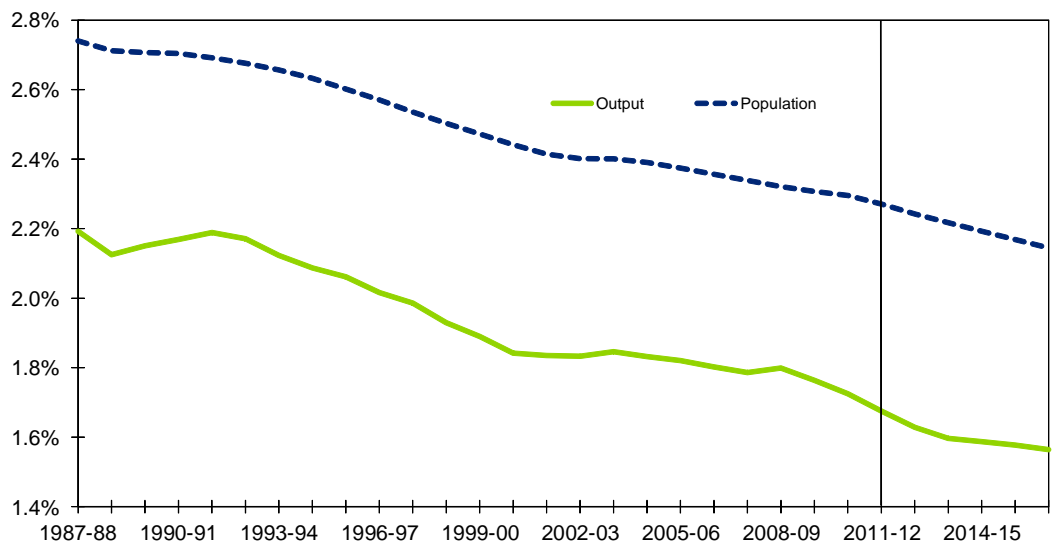


Source: Deloitte Access Economics based on Australian Bureau of Statistics labour force data

Economic performance

Given the composition of the Tasmanian economy, it is not surprising that it has been one of the nations’ poorer performers over recent years. Indeed, as population and economic growth in the State has continued to be out-paced by growth at the national level, Tasmania’s share of the Australian economy and population has trended steadily downward (Chart 1.2).

Chart 1.2: Tasmania’s share of the national economy



Source: Deloitte Access Economics’ *Business Outlook*

As Deloitte Access Economics' recently released *Business Outlook* reports, Tasmania's economic indicators are awash in a sea of red ink. In fact, it is hard to find elements of the State's economy that are growing. There are bright spots, however, including in dairy and aquaculture and aspects of tourism.

At a macro level, Deloitte Access Economics' forecasts are for relatively modest growth: 0.7% in 2013-14 and 2.3% in 2014-15. Then again, 'relatively modest growth' is actually a considerable improvement on recent trends. However, as with all forecasts, there are a variety of downside risks and the materialisation of any of these will see these projections not met.

Table 1.1: Summary of key economic indicators

	2011-12	2012-13	2013-14	2014-15
GSP growth (%)	0.5	-0.2	0.7	2.3
Share of national economy (%)	1.7	1.6	1.6	1.6
Population growth (%)	0.3	0.4	0.5	0.5
Employment growth (%)	-0.1	-0.2	1.0	0.6
Unemployment rate (%)	6.2	6.9	7.1	6.9
Private consumption growth (%)	-2.2	-1.2	3.3	1.5
Private household investment growth (%)	3.0	-10.9	1.9	8.2
Private commercial investment growth (%)	-10	-20.9	9.4	10.9

Source: Deloitte Access Economics' *Business Outlook*

Tasmania's economic slowdown is evident in the lack of spending by businesses – they aren't building many new factories or much office space, and they're not buying much by way of new machinery or equipment either. And the slowdown is also evident in housing construction, which remains in reverse gear. Perhaps most remarkably, it is evident in the pullback in spending by families, with consumer spending on the back foot amid falls in employment levels and very weak wage growth. In fact, if you take inflation out, spending by consumers today is no better than it was immediately prior to the global financial crisis. Moreover, with some key international markets suffering slowdown, exports have been falling (though at least imports have been doing the same).

However, in a fundamental sense that is a list of symptoms rather than causes. The most obvious negative among the key drivers of Tasmania's economy remains the \$A. Combined with the continued improvement in the quality of Asia's manufacturing sectors, the \$A's strength is cutting swathes from Tasmania's once proud strength in manufacturing. Moreover, that other long standing mainstay of the local economy – forestry products – is also struggling with the \$A at these levels, with high profile bankruptcies and closures among the wood chip mills and related businesses.

Then there's the fact that, unlike in the rest of Australia, population growth is continuing to tail away. The other States may be seeing a recovery in their population growth, but that just isn't true of Tasmania. A vicious cycle has developed. Prospects are better elsewhere, and that's encouraging people to leave. But when they do leave, that cuts demand even further, increasing the economic headwinds for the State. As a result, population growth appears to be stagnant at best, having dropped back to lows last seen a decade ago, and unemployment is substantially above that in other states.

Among the positives for the state's economy, however, is the fortunes – and prospects – of the tourism industry. Over the last decade, visitor nights spent in the state by international and interstate tourists has both grown more rapidly than national comparators. Over the last three years, however, this out-performance has waned – particularly for domestic holiday travellers where a significant fall in visitor nights has been experienced at a time when visitation nationally has edged down only marginally. Looking forward, Deloitte Access Economics' forecast points to this trend continuing with Tasmania projected to outperform Australia on both international and – especially – domestic visitor nights.

1.2 Economics of government expenditure on destination marketing

Market forces typically encourage resources to be employed in their most productive use, optimising private returns and supporting the maximisation of economic welfare. However, in some instances the free market is incapable of maximising social welfare due to the presence of so-called 'market failures' – conditions under which private decisions will not lead to socially optimal outcomes. In this case, effective government intervention – be that through regulation, financing or provision – can contribute to the achievement of market outcomes that better reflect social optimality.

A common theme in tourism is that the benefits of additional activity flow disparately throughout the economy. Rather than a single entity capturing these benefits, the gains accrue to a host of different businesses across industry sectors and geographic bounds. For example, a new tourism attraction that induces additional visitation to a given region will generate economic benefits significantly beyond those which it directly captures. And these broader benefits are not factored into the decision making of the investor/developer – only the direct financial returns are considered. Cases where the commercial case is not compelling will see investment not take place, even if it would have been a net positive for the region's economy.

This feature of the tourism industry – the dispersed nature of activity – provides a prima facie case for government involvement in tourism markets. One of the strongest areas this case exists is in relation to issues of coordination such as tourism marketing. If left to its own devices, tourism businesses will considerably underinvest in destination marketing, compared with would be considered optimal from an industry-wide or economy-wide standpoint.

Since the benefits of destination marketing can never be fully captured by the business undertaking the investment, the incentives for a business to unilaterally invest in marketing will always be weak and the resulting outcome will be underinvestment. Government investment not only overcomes these problems, but also enables a coordinated approach and consistent message to be taken to the market, increasing the probability that the marketing spend is effective.

2 Analytical framework

The remainder of this report presents the findings of analysis conducted to examine the potential impact of alternative marketing expenditure scenarios on the Tasmanian economy. It builds on work conducted by BDA Marketing Planning (BDA) and utilises Deloitte Access Economics’ in-house economic models to assess the impacts on employment and gross state product (GSP) in Tasmania.

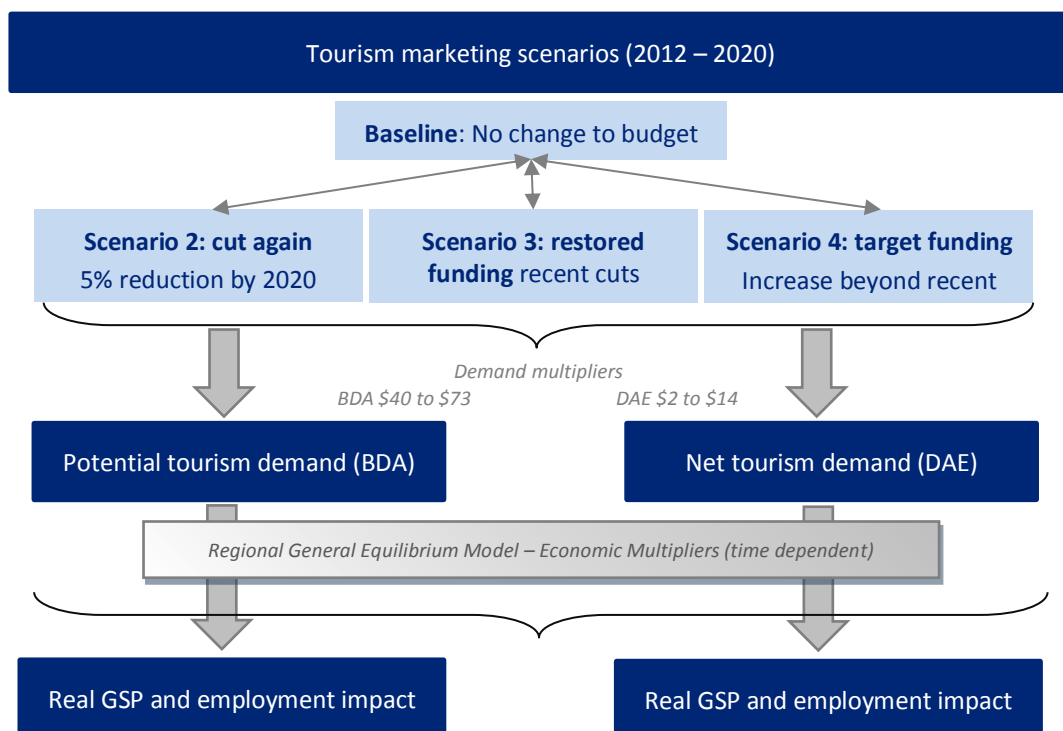
Figure 2.1 is an illustrative representation of the analytical framework adopted to estimate the economic impact of marketing activity in Tasmania. The basis of the analysis is four scenarios of tourism marketing expenditure to which inferred demand and economic multipliers are systematically applied.

‘Multipliers’ are a commonly used and theoretically sound form of model parameterisation. Essentially, multipliers illustrate how a given amount of output – be that marketing expenditure or tourism consumption – impacts a related economic measure. In this case:

- **Demand multipliers** illustrate how \$1 of additional tourism marketing expenditure contributes to tourism expenditure in Tasmania; and
- **Economic multipliers** illustrate how \$1 of additional tourism expenditure contributed to key economic outcomes, GSP and employment, both directly and indirectly through links with other sectors.

Multipliers are a valuable tool for demonstrating the nature of a given entity or sector’s contribution to the economy, and the magnitude of the flow-on effects generated by direct activity in the sector (in this case Tourism marketing).

Figure 2.1: Schematic of the analytical framework



2.1 Tourism and marketing spend scenarios

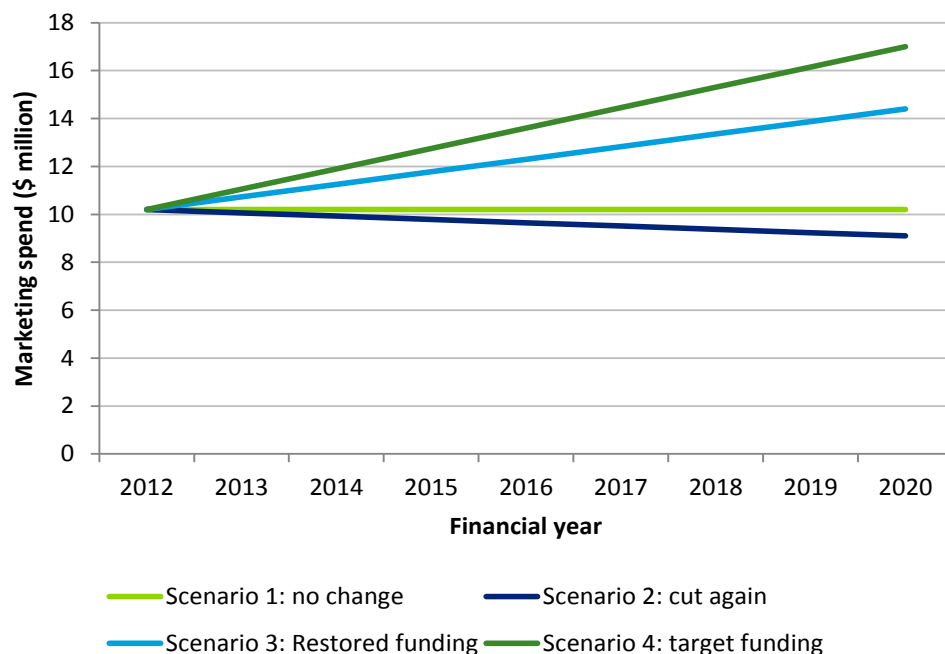
The economic impact of tourism marketing expenditure is primarily informed by the outcomes of the BDA analysis that investigated the implications on tourism expenditure of four stylised scenarios of tourism marketing expenditure in Tasmania. The results of the analysis, and its associated survey, were summarised in two succinct BDA reports:

- *Tourism in Tasmania: Status, Outlook & Marketing Spend Scenarios* (BDA 2012b); and
- *If only they knew... The impact on consumer demand from raising awareness of the best Tasmanian experiences.* (BDA 2012a)

The BDA analysis investigated four scenarios of marketing expenditure, as follows:

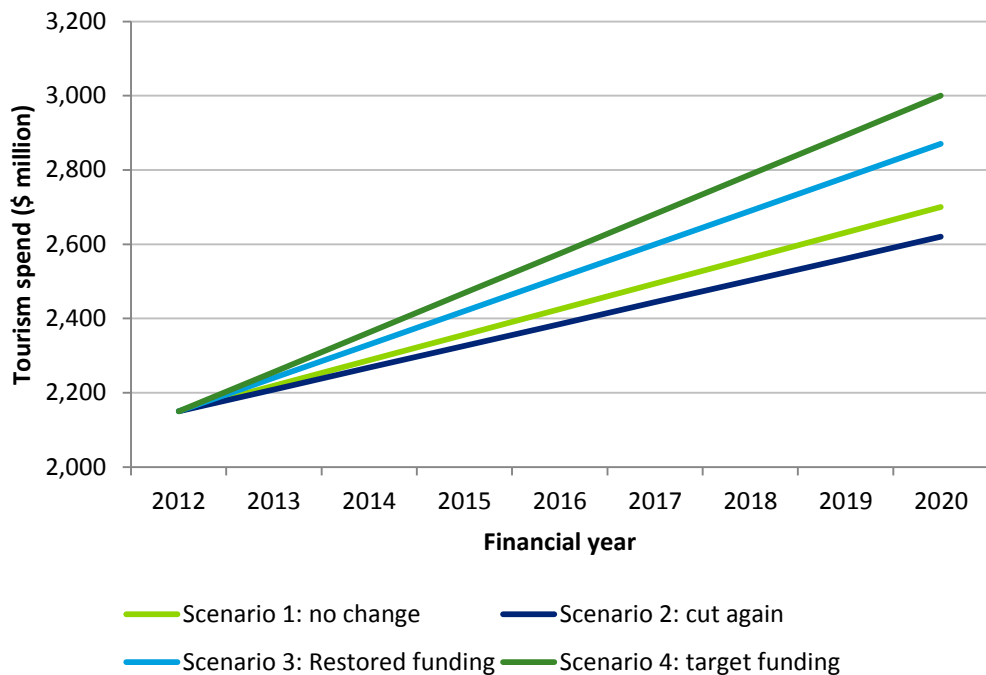
1. **Scenario 1 – no change:** Tourism Tasmania funding for marketing remains constant at 2011-12 spend levels. For the purposes of this scenario analysis, Scenario 2 was taken as the ‘Business-as-usual’ case or baseline scenario for evaluating marketing spend implications on economic outcomes in Tasmania.
2. **Scenario 2 – cut again:** Tourism Tasmania Budget reduced by 5% (with the full amount taken from marketing spend).
3. **Scenario 3 – restored funding:** recent Tourism Tasmania budget cuts are restored and all funds are directed into consumer marketing.
4. **Scenario 4 – target funding:** Tourism Tasmania funding is increased beyond recent budget cuts and all funds are directed into consumer marketing.

Chart 2.2: Tasmanian tourism marketing expenditure scenarios (BDA)



Source: BDA 2012b

Chart 2.2 shows the modelled tourism demand responses stemming from BDA’s detailed analysis of the relationship between tourism marketing and tourism (visitor) expenditure.

Chart 2.3: Associated tourism demand to marketing scenarios

Source: BDA 2012b

Please refer to Appendix A for more information on the BDA approach and analysis.

2.1.2 Comparisons with previous Access Economics research

For benchmarking and comparison purposes, Deloitte Access Economics also quantified the economic impacts from tourism marketing spend based on a set of parameters derived from previous internal econometric investigations into the relationship between marketing spend and tourism demand. This work was in the context of Western Australia and Victorian tourism potential, but can be tailored to suit Tasmanian conditions. The key findings from these reports and their appropriateness in a Tasmanian environment are outlined in Appendix A.

Table 2.1 summarises the inferred set of demand multipliers - from both the BDA and Deloitte Access Economics work - used for the scenario analysis of marketing impact on tourism expenditure. The four scenarios presented in the BDA analysis reveal non-linear multiplier outcomes. That is, under the marketing cut scenario, the impact on tourism demand is shown to be a decrease of \$73 for each \$1 in budget cuts, while the restored funding and target funding scenarios demonstrate an increase in tourism expenditure in the order of \$40 for each additional \$1 spent on marketing.

Thus the 'low' and 'high' demand multipliers from the BDA analysis represent the different relative outcomes across the four marketing spend scenarios. The DAE 'low' and 'high' ranges, on the other hand, reflect the dependencies of State demand outcomes to cross-jurisdictional marketing activity relative to internal marketing spend. That is, the 'low' multiplier represents a scenario where Tasmania's tourism marketing spend is matched by the other States and Territories, while the 'high' multiplier represents a scenario where Tasmania's tourism marketing spend moves independently of the other jurisdictions.

Table 2.1: Representative demand multipliers for the Tasmanian tourism industry

Multiplier	Source	Low	High
Marketing : tourism expenditure	BDA	\$40.00	\$73.00
International marketing : tourism expenditure	DAE	\$2.80	\$12.30
Interstate marketing : tourism expenditure	DAE	\$2.00	\$14.00

Source: BDA and DAE

The most striking observation from Table 2.1, however, is the significant variation in the demand implications of marketing spend between the BDA and DAE analyses. Essentially, this is a product of the design and intended use of the analyses:

- The DAE analyses are detailed econometric exercises designed to estimate the implications of marketing spend on tourism demand after controlling for all other influential factors (including income, exchange rates, airfares and relative prices).
 - That is, given the empirical impact of previous destination marketing expenditure, it considers the net impact future marketing spend would likely have on tourism demand.
- The BDA analysis projects potential demand based on the observed historical relationship between marketing spend and tourism demand (in isolation), while also factoring in an assessment of the scale of the market opportunity.
 - That is, given past experience and identified market opportunity, it considers how much demand could potentially be generated by more spending.

From a technical perspective, both time series models (as employed by BDA) and econometric models (as used by Deloitte Access Economics) are based on sound causal theory and both are acceptable frameworks for exercises of this nature. The approach employed by BDA more effectively reflects the potential market opportunity, taking into account attitudes and perceptions toward the Tasmanian tourism offering as well as historical trends. Conversely, the approach utilised in Access Economics' previous studies is a backward-looking one, taking past empirical relationships between marketing expenditure and tourism expenditure (other factors held constant) as the basis for future projections.

Of note, however, is that both the BDA and DAE analyses revealed a scarcity in reliable data available to quantify the effects of marketing on tourism spending. This issue, in and of itself, is the core limiting factor to these types of analyses. Shown in Appendix A is a more detailed list of limitations that highlight the areas where improved data would allow for more detailed investigations of the effects of tourism marketing.

2.2 Economy wide model

The cornerstone of the approach to modelling the economic impact of demand-generating marketing activity for the tourism industry is Deloitte Access Economics' in-house economy-wide – or computable general equilibrium (CGE) – model (known as AE-RGEM). CGE models provide a fully integrated framework for analysing policies and initiatives impacting the macro-economy and are regarded by government and their central agencies as the preferred tool of analysis for these types of impact studies.

Essentially, the CGE model contains a complex system of underlying economic relationships between the various agents (e.g. households, producers, investors, government etc.). The model formulas are solved simultaneously until ultimately the prevailing market equilibrium is reached for each forecast year (the end point of one projection year, acting as the starting market position for the next).

The model projects changes in macro-economic aggregates such as GDP, employment, investment and private consumption. The trigger for these changes is a specific modeller defined set of economic 'shocks', tailor-made to investigate the particular policy area of interest (in this case, the impact of tourism marketing expenditure). The model is capable of producing outputs at detailed sectoral and regional levels.

General equilibrium models, such as Deloitte Access Economics' in-house model (known as DAE-RGEM), are a widely accepted tool for determining the direct and indirect impacts of economic developments and policy changes. The model is based on a substantial body of accepted microeconomic theory. Consistency with the national accounting framework allows analysis of macroeconomic and sectoral impacts. Of course, any economic model is highly dependent on its assumptions, parameters and data. Large scale general equilibrium modelling requires considerable amounts of each. A summary of the model is presented in Appendix A.

2.2.1 Economic multipliers

The CGE model is used to derive GSP and employment 'multipliers' for tourism expenditure based on a stylised economic 'shock' or 'shift' compared to baseline tourism expenditure in Tasmania. The shock was applied as a basic linear increase in tourism expenditure over the 2013 to 2020 financial years; to a maximum of an additional \$200 million in tourism expenditure in 2020. As all the BDA scenarios are linear by design and all are of a similar order of magnitude, the multipliers stemming from this stylised shock are reasonably applied across all the tourism marketing scenarios of demand (outlined in Section 2.1).

Tourism is an unconventional industry, with activity in the sector defined not by the good or service produced (although some may be identified as almost entirely 'tourism'), but by the origins of the person consuming it. That is, a given good or service is classified as part of the tourism industry where the consumer is a visitor to the region, but not so where the consumer is a local. The consumption bundle of tourists is therefore ultimately what defines tourism as an 'industry' and as such, the 'tourism industry' affectively accounts for some proportion of every conventional (supply-side) industry in the economy.

What determines the magnitude of the linkages between tourism, as an industry, and upstream sectors of the economy (and therefore the magnitude of the flow-on effects arising from a given dollar of tourism expenditure), is the conventional industries in which the average tourism dollar is spent. For the purposes of the stylised tourism shock application, 'tourism expenditure' is divided out amongst the trade (61%), transport (30%) and recreation (9%) conventional CGE industries based on 2010-11 State Tourism Satellite Account tourism consumption by product (TRA 2012).

Table 2.2 shows the key economic multipliers for the Tasmanian tourism industry as demonstrated by the stylised tourism expenditure shock application through the CGE model. The multipliers can be interpreted as follows: every additional million dollars spent by tourists in the Tasmanian economy is estimated to generate:

- \$900,000 in gross state product (GSP) initially, reducing to \$700,000 in gross state product as the effects of additional economic activity diminish over time; and likewise
- a gradually diminishing employment effect of 12.46 FTE (Full Time Equivalent employment positions) initially down to 8.11 FTE in 2020.

The economic multipliers represent both the projected incremental increase in economic output and welfare due to the direct impact of boosted marketing funding on demand for tourism services and the flow-on economic effects on downstream sectors of the economy.

Table 2.2: Economic multiplying effects from tourism expenditure in Tasmania

Year ending 30 June	2013	2014	2015	2016	2017	2018	2019	2020
Multiplier								
Real GSP: Expenditure	0.90	0.82	0.78	0.75	0.73	0.72	0.71	0.70
Employment: Expenditure (\$m)	12.46	10.96	10.04	9.42	8.97	8.62	8.34	8.11
Employment:GSP (\$m)	13.86	13.31	12.88	12.53	12.23	11.98	11.76	11.56

Source: DAE-RGEM

However, the increase in demand for tourism is likely to displace some economic activity, which is said to be 'crowded out'. In other words, increased demand for resources in one sector often come at the expense of these resources being used elsewhere in the economy. DAE-RGEM recognises that the economy faces a realistic set of constraints, and as a result, in real terms, the economy-wide increase in GSP is lower than the associated increase in tourism exports.

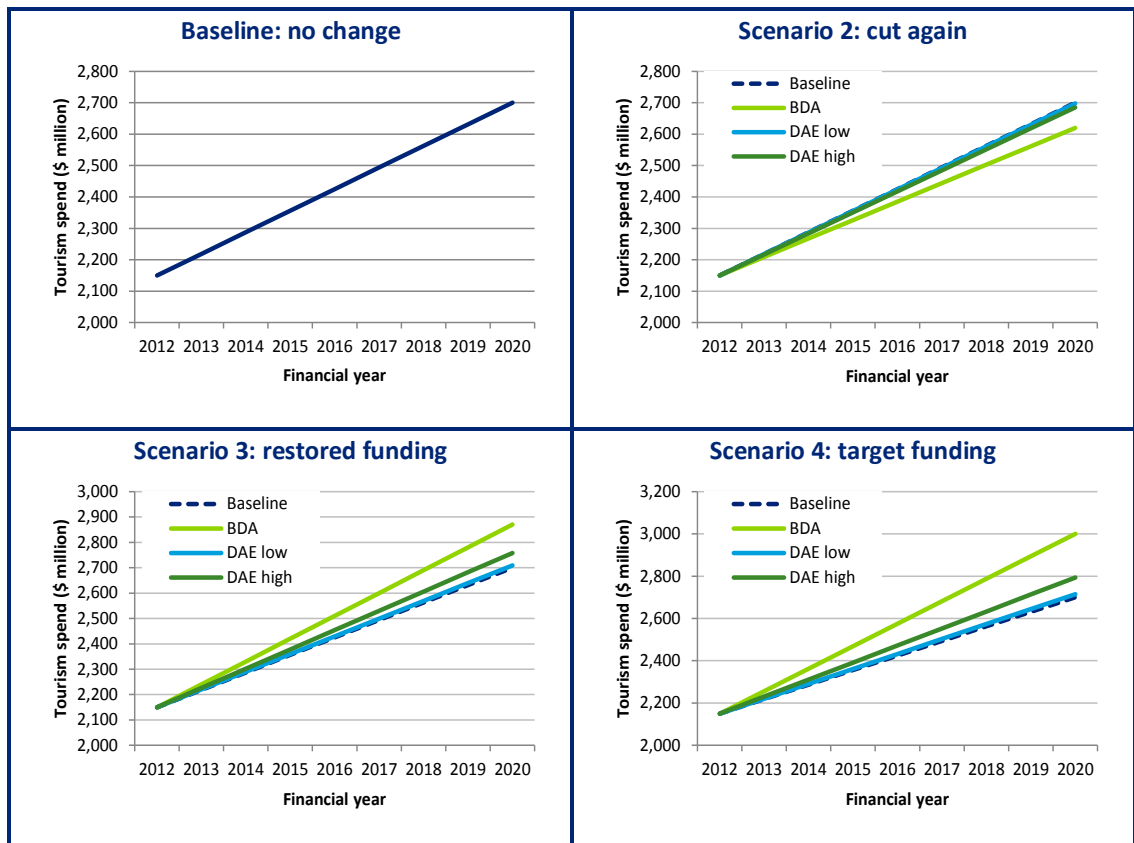
3 Economic impact analysis

The analytical framework presented in Section 2 presented four core marketing expenditure scenarios that form the basis of the economic impact analysis:

1. **Baseline – no change:** Tourism Tasmania funding for marketing remains constant at 2011-12 spend levels.
2. **Scenario 2 – cut again:** Tourism Tasmania Budget reduced by 5% (with the full amount taken from marketing spend).
3. **Scenario 3 – restored funding:** recent Tourism Tasmania budget cuts are restored and all funds are directed into consumer marketing.
4. **Scenario 4 – target funding:** Tourism Tasmania funding is increased beyond recent budget cuts and all funds are directed into consumer marketing.

The BDA analysis projected the potential tourism expenditure outcome for each of these four scenarios. To broaden the reach of the scenario analysis, DAE has estimated low and high demand multipliers for international and interstate tourists independently that are applied to the tourism marketing scenarios to provide a benchmark comparison representing the projected net impact on tourism demand.

Table 3.1: Tourism expenditure outcomes by marketing scenario



Source: BDA and DAE

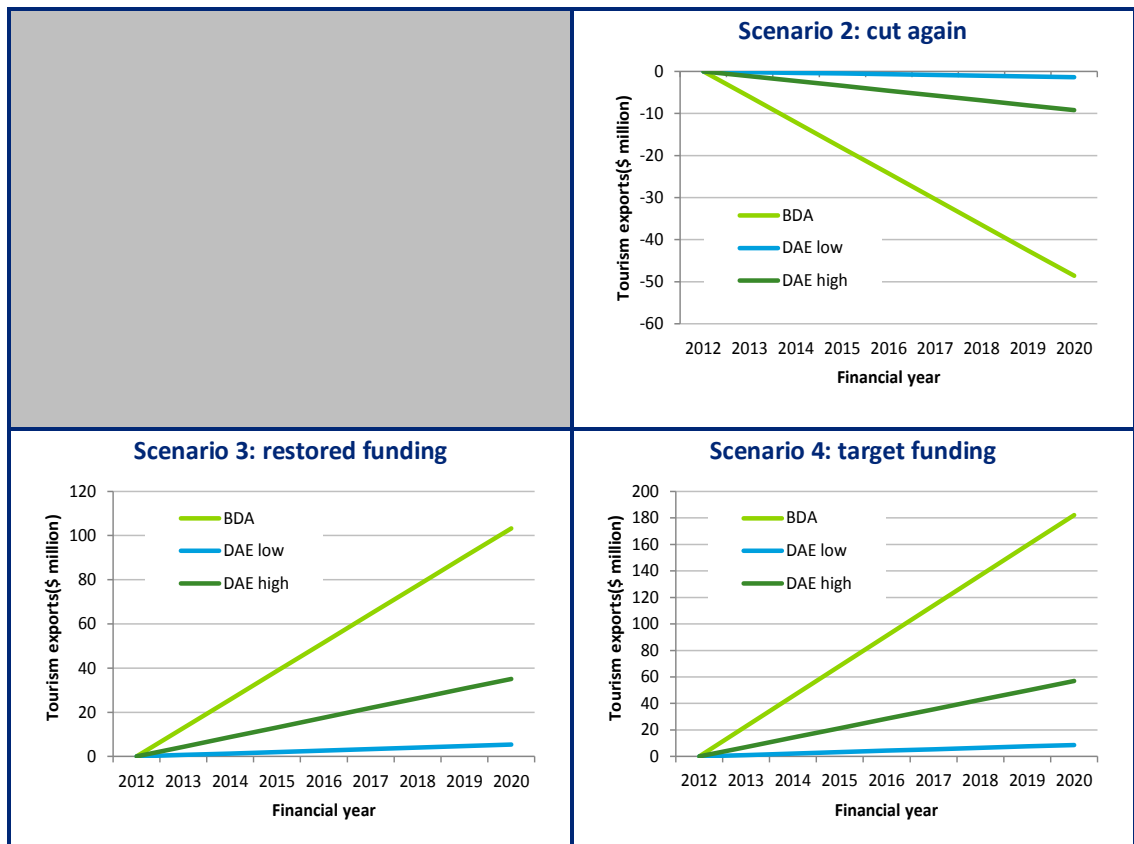
3.1 Tourism export impacts

As any effect from tourism marketing on *intrastate* tourism demand is not considered an ‘export shock’, but rather a redistribution of internal State consumption, there will be no economic gains from changes to this market segment. That is, any increase in intrastate tourism demand as a result of the marketing scenarios is assumed to be wholly offset by the associated decrease in resident consumption.

As the Victorian study by DAE noted, it is possible that there may be some gains from an overall lift in tourism spending as a result of a targeted marketing campaign or from an increase in potential interstate trips by Tasmanians which are averted. However these were deemed to be marginal and, as such, are considered negligible for the purposes of this scenario analysis.

Table 3.2 shows the tourism export impacts from interstate and international visitors for each of the tourism marketing scenarios compared to baseline forecasts. These were derived by applying the implied interstate and international visitor share of tourism expenditure for the year to June 2012 (NVS 2012, IVS 2012) to the total tourism expenditure outcomes shown in Table 3.1 above.

Table 3.2: Tourism export impacts by marketing scenario



Source: BDA and DAE

3.2 Economic impact

The final phase of the applied analysis is in bringing together the economic multiplier (shown in Table 2.2) effect of tourism expenditure in the Tasmanian economy and the tourism exports impact of the three representative tourism marketing scenarios. The outcomes are detailed in Table 3.3 below.

Table 3.3: Economic impacts on Tasmanian economy of tourism marketing scenarios

	2012	2013	2014	2015	2016	2017	2018	2019	2020
Baseline									
GSP (\$m)	24,345	24,285	24,465	25,025	25,646	26,292	27,035	27,828	28,558
Employment ('000)	236	236	238	239	241	245	248	252	254
Scenario 2: cut again									
GSP impact (\$m)									
BDA		-5.5	-10.0	-14.2	-18.3	-22.3	-26.2	-30.2	-34.1
DAE high		-1.0	-1.9	-2.7	-3.5	-4.2	-5.0	-5.7	-6.5
DAE low		-0.2	-0.3	-0.4	-0.5	-0.6	-0.8	-0.9	-1.0
Emp't impact (FTE)									
BDA		-76	-133	-183	-229	-272	-314	-355	-394
DAE high		-14	-25	-35	-43	-52	-60	-67	-75
DAE low		-2	-4	-5	-7	-8	-9	-10	-11
Scenario 3: restored funding									
GSP impact (\$m)									
BDA		11.6	21.2	30.2	38.8	47.3	55.7	64.1	72.4
DAE high		3.9	7.2	10.3	13.2	16.1	19.0	21.8	24.6
DAE low		0.6	1.1	1.6	2.0	2.5	2.9	3.3	3.8
Emp't impact (FTE)									
BDA		161	283	389	486	579	668	754	837
DAE high		55	96	132	166	197	227	257	285
DAE low		8	15	20	25	30	35	39	44
Scenario 3: target funding									
GSP impact (\$m)									
BDA		20.5	37.5	53.2	68.5	83.5	98.4	113.1	127.8
DAE high		6.4	11.7	16.6	21.4	26.1	30.7	35.3	39.9
DAE low		1.0	1.8	2.5	3.3	4.0	4.7	5.4	6.1
Emp't impact (FTE)									
BDA		284	499	686	858	1,022	1,179	1,330	1,477
DAE high		89	156	214	268	319	368	415	461
DAE low		14	24	33	41	49	56	63	70

Source: In-house marco-economic model and DAE.

Note: baseline employment is expressed as employed persons, impacts are in FTEs.

The results show the significant potential stimulus impact that additional marketing funding could have on the Tasmanian economy ('BDA' outcomes) as well as the range for the

expected net economic impact of the representative tourism marketing scenarios ('DAE' outcomes). In summary:

- A further cut in the marketing budget, as depicted in the Scenario 2 outcomes, results in a potential GSP loss of \$34 million by 2020 and a potential employment decrease of 394 FTE employment positions.
- On the other hand, a restoration in the funding budget could potentially see GSP increase by as much as \$72 million and employment increase by up to 837 FTE employment positions by 2020.
- And, if tourism marketing funding were to reach the BDA target level, by 2020 GSP and employment in Tasmania could potentially increase by \$128 million and 1,447 FTE employment positions respectively.

Appendix A: Tourism demand implications of marketing

BDA marketing scenarios and tourism demand implications

The following focuses on the approach adopted by BDA in quantifying the implications on tourism demand from changes in marketing expenditure.

Tourism expenditure implications

To calculate the tourism expenditure implications of each marketing scenario, BDA projected forward the observed historical relationship between marketing spend and tourism demand. The key assumptions of this approach were:

- Marketing expenditure continues to impact on demand as observed in recent years;
- All other factors that influence demand are assumed to be constant;
- The impact on all purposes of trip is consistent with the impact observed on holiday demand;
- The impact on inbound, intrastate, overnight and day trip demand is consistent with the impact observed on interstate demand; and
- The impact of marketing expenditure outcomes is fully realised by 2020.

BDA sourced the bulk of the underlying data from Tourism Research Australia's (TRA) National Visitors Survey (NVS) and International Visitors Survey (IVS), as well as from the ABS' Overseas Arrivals and Departures (OAD) publication.

To supplement this, BDA conducted a customised online survey which provided stimulus material for 11 key Tasmanian Tourism offerings. The survey was targeted to Tasmania's major interstate origin markets of Sydney and Melbourne; collecting information including core demographics and broad travel preferences, visitor intentions and behavioural responses. Notably, the survey collected data on respondent's initial level of awareness and appeal to the 11 key Tasmanian Tourism offerings, and their new level of appeal and travel intention following their recognition of the stimulus material.

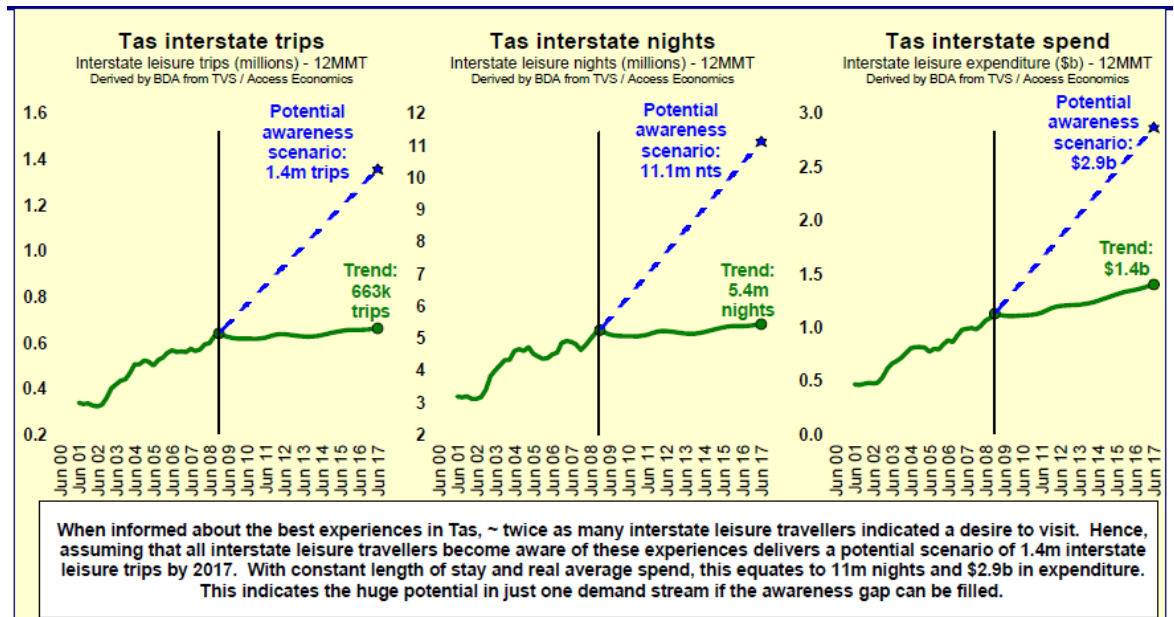
The key observations from the data and survey analysis were:

- **Significant, untapped potential:** Very low awareness of key Tasmanian tourism offerings, but high appeal once stimulus material provided.
- **Historic correlation:** Recent large falls in holiday consideration, intention and visitation – aligned with a significant decline in marketing expenditure – implied an increased awareness gap in Tasmanian tourism experiences.
- **Lag effects:** Historic data of tourism marketing spend against interstate holiday trips to Tasmania revealed a 1 year lag between marketing and
- **Quantitative measures:** (1) Prior to exposure to stimulus 39% of respondents were considering travelling to Tasmania for a holiday; following exposure to stimulus 79% of respondents were likely or certain to travel to Tasmania for a holiday; (2) Those aware of Tasmania advertising are 2 to 3 times more likely to intend to visit or visit

Tasmania; (3) only 18% of the surveyed population was aware of Tasmanian tourism advertising.

BDA applied these key outcomes to the trend demand forecast to estimate the extent of the gap between trend (awareness levels remain constant) and potential (everyone made aware of the Tasmanian experiences). The potential awareness scenario provides the upper bound on the economic potential of tourism marketing spend.

Figure A.1: Potential awareness scenario results



Source: BDA 2012a

Deloitte Access Economics' analyses of tourism marketing potential

Victorian tourism potential

In 2005, Access Economics undertook a detailed econometric analysis for Tourism Victoria (TV), quantifying the impact of its marketing expenditure on the state's economy. The econometric outcomes and key findings were drawn on again by Access Economics in a follow up report for Tourism Victoria in 2010 (DAE 2010). The findings of the 2010 analysis are used for the benchmarking analysis.

The econometric analysis included two phases. Phase I was the development of a time series, covering at least twenty years of history, for Victorian tourism exports, broken down for international and interstate exports. Phase II used the time series developed in econometric estimation of the effects of marketing expenditure by TV on Victorian tourism export income.

The analysis, however, was limited due to a lack of data. In particular, the absence of time series information for marketing expenditure by other states and territories, both internationally and interstate, was a major 'gap' in the underlying data. This gap is particularly significant in respect of Victoria's share of total Australian tourism export income and for interstate tourism export income for Victoria. Similar data limitations were faced and noted by BDA.

The conclusions of the analysis were as follows:

- Despite data limitations, the hypothesis that international and interstate marketing by Tourism Victoria boosts gross tourism export income for Victoria was supported by the available econometric evidence. This conclusion was most strongly supported in the case of tourism export income from overseas visitors to Victoria. It was less strongly supported for export income from interstate visitors to Victoria.
- Access Economics speculated that the less significant relationship found with respect to interstate tourism exports, and quite possibly the value of the marketing with respect to Victoria's share of international tourism exports to Australia, reflect in part the inability to incorporate data on the competitive effects of marketing efforts by the other seven State and Territory Tourism Commissions.
- Consequently, Access Economics concluded that \$1 (real) extra of tourism marketing internationally by Tourism Victoria can generate an additional \$14 (real) in export income for *Australia*, with Victoria receiving its current share of that (about 25% - 30%).
- The statistically significant positive coefficients on the marketing variables for interstate tourism exports and Victoria's share of international tourism exports to Australia should be interpreted much more cautiously (and qualitatively) as signifying that marketing *is* effective in boosting gross tourism export income for Victoria. However, a longer time series would need to be tested, and the data gaps noted above filled, before a more solidly-based conclusions could be tested and, if significant, used.

In summary, the 2010 analysis found that every additional dollar of international tourism marketing expenditure by Tourism Victoria generated \$2.80 in tourism export income for Victoria and \$11.20 for other States and Territories - a total of \$14 for the Australian economy.

The statistical analysis was not as revealing for interstate exports - the relationship between marketing expenditure and tourism exports was statistically weak. On net, it was concluded that under a scenario where Victoria's marketing expenditure is on a par with other states, the net increase in Victoria's tourism exports is likely to be negligible. However, although statistically weak, the analysis did find a 22:1 multiplier in cases where Victoria's marketing expenditure was not matched by the other states and territories.

Finally, gains at the state level for intrastate income were deemed likely to be marginal, limited to an overall lift in tourism spending as a result of the campaign or an increase in potential interstate trips by Victorians which are averted.

Western Australia tourism marketing impact

In 2008, Tourism Western Australia (WA) commissioned Access Economics to undertake an econometric analysis of the economic impacts of tourism marketing, particularly the boost funding since 2005 (DAE 2008).

As in the Victorian analysis, three distinct equations separated international, interstate, and intrastate visitor demand. On a technical level, the effect on intrastate tourism demand is not considered an export shock; rather it is an alternate distribution of expenditure by home state residents. Both Access Economics reports noted that, in this context, the extrapolation of the visitor demand impact of intrastate tourists on GSP and employment is not relevant for a net economic impact analysis.

The measure of tourism demand used in the econometrics for the Western Australian analysis was visitor nights. All equations used a combination of the following explanatory factors for visitor nights;

- marketing;
- income; and
- relative price effects between the destination and origin regions.

Overall, the analysis found that despite data limitations, the hypothesis that international marketing by Tourism WA boosts gross tourism export income for Western Australia was supported by the available econometric results. More specifically, the econometric analysis found that:

- A \$1 increase in international marketing funding for Western Australia increases Western Australian *international* tourist export earnings by \$12.30 (with a one year lag).
- The intrastate results suggest a \$1 increase in marketing Western Australia within the state increases tourism sector expenditure by \$2.79.
- A statistically significant relationship between marketing Western Australia interstate could not be established due to data limitations. It was therefore *inconclusive* as to whether interstate marketing was effective. However, previous analysis undertaken by Access Economics, established a positive link between marketing and visitor nights. Based on this previous work, a \$1 increase in interstate marketing funding by Tourism Western Australia would increase *interstate* export earnings in the order of \$14 (with a one year lag).

Translating to a Tasmanian market

As described, the prior pieces of tourism potential work undertaken by DAE were in the context of Victoria and Western Australia tourism. Before applying these outcomes within the context of this Tasmanian scenario analysis, it is worth exploring the various market and economic factors that might drive Tasmanian outcomes, on average, to differ from those of WA or Victoria.

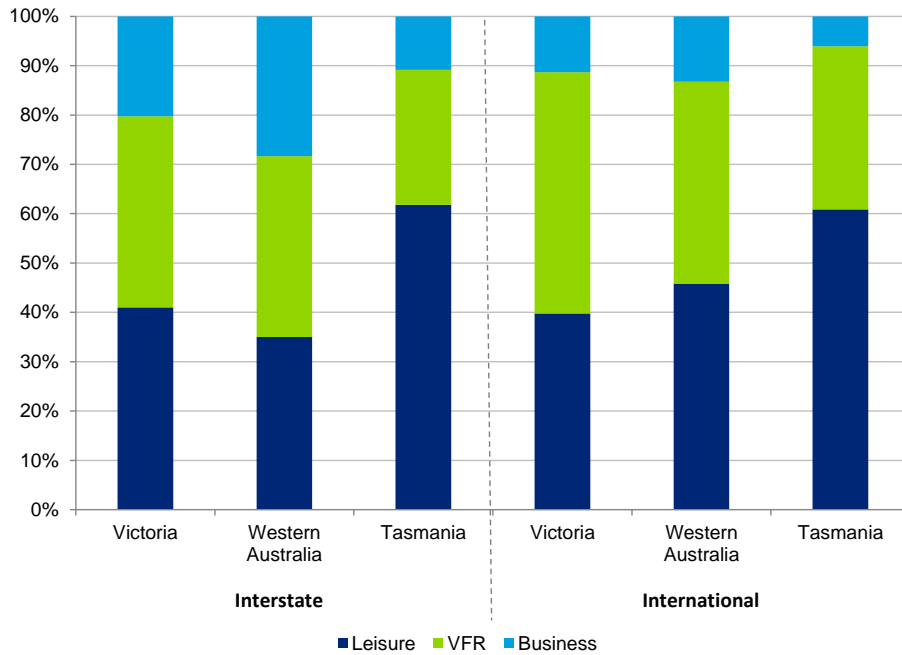
Broadly speaking, variations in expected outcomes would be due to either the relative visitor profile to each region or the tourism product offering of the regions. These are discussed in more detail in the following.

Visitor profile

The following charts outline the key indicators of visitor profiles across Victoria, Western Australia and Tasmania. Comparisons of the indicators - whether they relate to average expenditure, purpose of visit or average duration of stay – provide a high level perspective to the relevance of the application (and any required upside or downside variance) of WA and Victorian tourism marketing impact parameters in a Tasmanian context.

Chart A.1 shows that the Tasmanian leisure sector makes a relatively larger contribution to visitor demand, while the contribution of the business sector is relatively minor compared to that in Victoria and WA. As tourism marketing campaigns are largely aimed at increasing awareness of leisure tourism options within a region, the implications of these outcomes (in isolation) is that Tasmania might expect a relatively higher demand impact from direct tourism marketing.

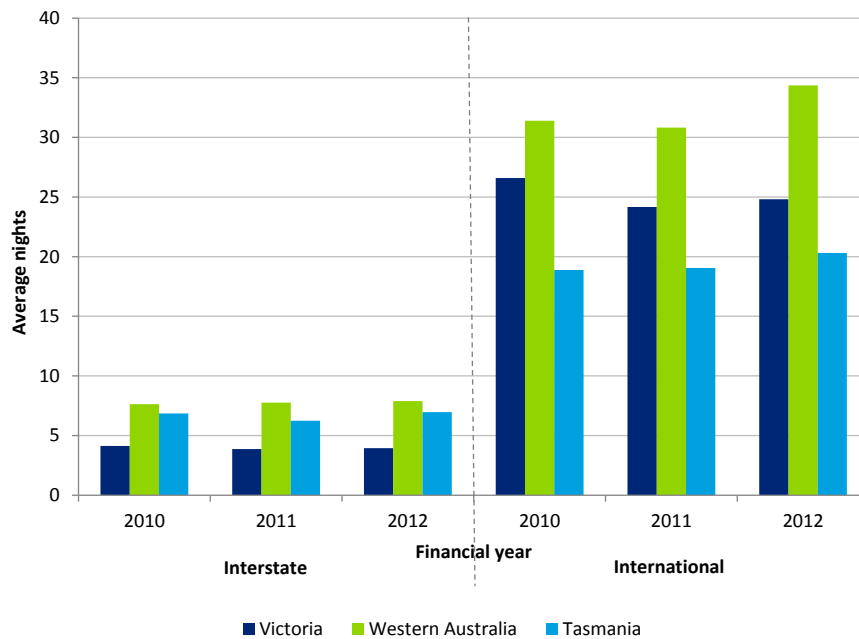
Chart A.1: Grouped purpose of visit shares by State and source market, 2010-11



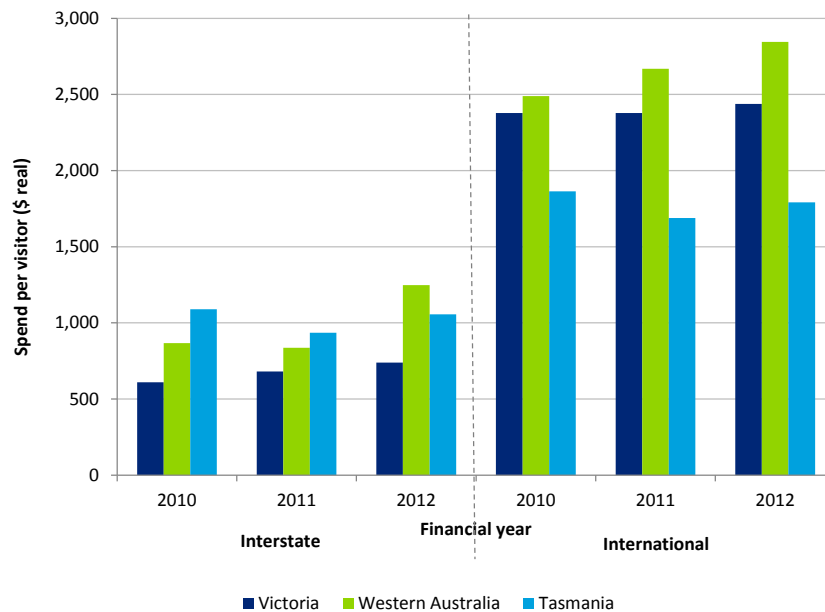
Source: NVS 2012 and IVS 2012. *VFR = Visiting Friends and Relatives

However, the reverse is true when assessing average visitor expenditure (Chart A.2) and duration of stay (Chart A.3) across the three jurisdictions. As Tasmania has recorded lower average visitor expenditure and duration over the last three years, the demand impact of tourism marketing could be expected to be lower than Victoria and WA as Tasmania would need to entice relatively more visitors to record a similar (weighted) expenditure impact.

Chart A.2: Average duration of stay by state and source market



Source: NVS 2012 and IVS 2012

Chart A.3: Average visitor expenditure by state and source market

Source: NVS 2012 and IVS 2012

On aggregate, and particularly given the existing high statistical variances on the econometric estimates for Victoria and Western Australia, the offsetting impact of these visitor indicators is expected to be immaterial to the outcomes of econometric testing in this environment. And thus, while useful contextually, relative visitor profiling is not expected to significantly influence the reliability of the application of WA and Victorian parameters in a Tasmanian context.

Product profile

The tourism offerings of these three States are in many ways like comparing apples with oranges; vastly different but - if targeted effectively through marketing – each as enticing as the other. On the other hand, each of the three states offers nature tourism, historic sites, self-drive touring routes, food, wine, art and culture; and therefore all are well-positioned to expect positive demand outcomes from target tourism marketing campaigns.

The real key to assessing the relative merits (and expected marketing impact) of the product offering is in understanding where the majority of the demand potential lays and the ease with which this demand can be enticed into the region. To this end, the following three aspects of the product offerings are deemed to be the most influential in assessing the reasonableness of WA and Victorian parametric outcomes in a Tasmanian context:

- Existing awareness of product:** As the BDA analysis highlighted the gap between product awareness and product appeal is the key to Tasmania's tourism demand potential. The low awareness (but high appeal) profile of Tasmania's tourism attractions is in contrast to Victoria's high awareness and WA's moderate awareness (and high appeal) profiles. Thus there is significant tourism potential for Tasmania in raising product awareness, while for Victoria and WA it is more about tapping in to the existing awareness and increasing market share.
- Geographic location:** In terms of enticing demand into the regions, a key barrier for Tasmania is its remote geographic location – similar in many ways to that of WA. Thus, qualitatively, it does not seem unreasonable to assume Tasmania would

receive similar demand benefits as WA from tourism marketing (given the demand potential is appropriately and equivalently targeted for each of the destinations).

- **Market competition:** Experts and existing research generally agree that Australia has no direct market competition in terms of tourism (i.e. there is no tangible substitute for travelling to Australia with its unique location and tourism attractions). Indeed, cross price effects are rarely identified as significant drivers for tourism demand in and to Australia. However, Tasmania can be argued to be an exception due to its similar tourism offerings and structure to that of New Zealand (i.e. both are compact islands, with a similar location and climate, offering a range of self-drive and nature tourism experiences).

In this regard, Tasmania differs from WA and Victoria, and tourism demand impacts from marketing may be adversely impacted. However, this impact when viewed in combination with all the other comparators presented in this section, is not expected to have a material impact on the relevance of utilising WA and Victorian outcomes for tourism marketing impacts on demand in a Tasmanian context.

Limitations of the analyses

Overall, both the BDA and Deloitte Access Economics analyses revealed a scarcity in reliable data available to quantify the effects of marketing on tourism spending. This issue, in and of itself, is the core limiting factor to these types of analyses. The following list of limitations is shown to highlight the areas where improved data would allow for more detailed investigations of the impact of tourism marketing.

- BDA's analysis revealed that behavioural responses vary across regions (e.g. the barriers versus incentives to travel to Tasmania are very different for people in Western Australia compared to Victoria, say). However a lack of significant data prevented both BDA and Access Economics from quantitatively investigating these differentials in the tourism marketing analyses. Ability to analyse at this more refined regional level would provide useful insights particularly in terms of better targeting marketing spend.
- Similarly, both the BDA and DAE quantitative investigations were marked by the use of broad segmental and market aggregations. For example, the BDA analysis assumed all purposes of travel to be consistent with holiday demand outcomes, and that the impact on all source markets was consistent with interstate demand outcomes. The DAE econometric analysis, on the other hand, did dissect the source market observations (international versus interstate and intrastate), however even at this high level dissection of the data DAE struggled to find good statistical models with which to isolate the impact of marketing.

However, these various travel cohorts have been observed to have widely different incentives and behavioural responses to travel demand. For instance, marketing aimed at business travellers will have vastly different design features to marketing aimed at holiday tourism. Again, the lack of data available to quantify these variations limits any detailed correlation analysis between marketing and tourism expenditure.

- BDAs findings when comparing awareness of advertising to interstate holiday trips to Tasmania appear to show a sort of legacy effect of marketing. That is, even when tourism marketing spend took a downturn, holiday trips kept increasing or at least decreased at a slower rate. Indeed, the DAE analyses did reveal a short term (generally one year) lag effect of tourism marketing on demand but did not specifically isolate the longer term legacy effects. A deeper understanding of the

longer term demand implications of tourism marketing would be valuable to campaign targeting of short term gain as well as longer term legacy benefits.

- The Deloitte Access Economics' analyses found material demand dependencies between the target state's tourism marketing expenditure relative to the marketing activity in other jurisdictions, although had difficulty in reliably quantifying the extent of this impact. The BDA analysis was designed to quantify the market 'potential' that exists, and thus did not incorporate cross-jurisdictional dependencies. This demonstrates the fundamental difference in the two frameworks – while BDA investigated the demand potential of marketing removed of any interdependencies with other jurisdictions (and indeed, any other tourism demand drivers), DAE isolated the net marketing impact after controlling for all other quantifiable drivers of tourism.

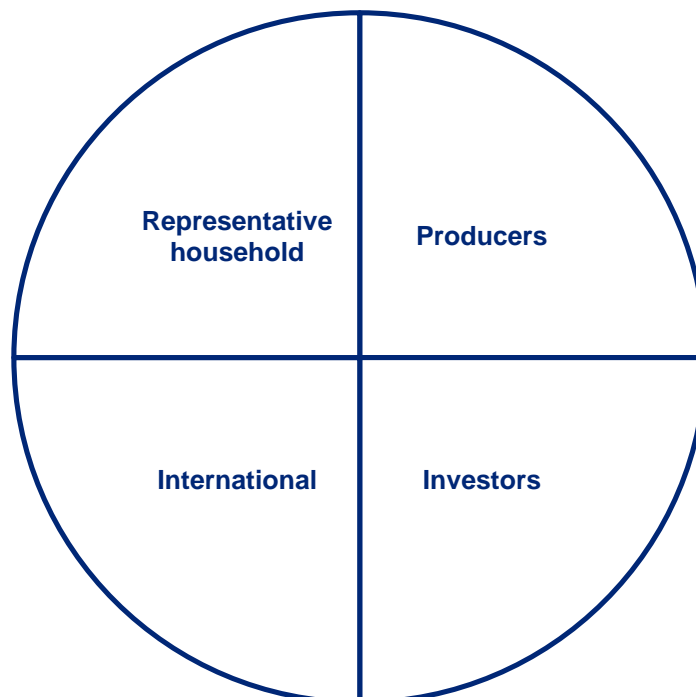
Appendix B: DAE-RGEM

DAE-RGEM is a large scale, dynamic, multi-region, multi-commodity computable general equilibrium model of the world economy. The model allows policy analysis in a single, robust, integrated economic framework. This model projects changes in macroeconomic aggregates such as GDP, employment, export volumes, investment and private consumption. At the sectoral level, detailed results such as output, exports, imports and employment are also produced.

The model is based upon a set of key underlying relationships between the various components of the model, each which represent a different group of agents in the economy. These relationships are solved simultaneously, and so there is no logical start or end point for describing how the model actually works.

Figure B.1 shows the key components of the model for an individual region. The components include a representative household, producers, investors and international (or linkages with the other regions in the model, including other Australian States and foreign regions). Below is a description of each component of the model and key linkages between components. Some additional, somewhat technical, detail is also provided.

Figure B.1: Key components of DAE-RGEM



DAE-RGEM is based on a substantial body of accepted microeconomic theory. Key assumptions underpinning the model are:

- The model contains a 'regional consumer' that receives all income from factor payments (labour, capital, land and natural resources), taxes and net foreign income from borrowing (lending).
- Income is allocated across household consumption, government consumption and savings so as to maximise a Cobb-Douglas (C-D) utility function.
- Household consumption for composite goods is determined by minimising expenditure via a CDE (Constant Differences of Elasticities) expenditure function. For most regions, households can source consumption goods only from domestic and imported sources. In the Australian regions, households can also source goods from interstate. In all cases, the choice of commodities by source is determined by a CRESH (Constant Ratios of Elasticities Substitution, Homothetic) utility function.
- Government consumption for composite goods, and goods from different sources (domestic, imported and interstate), is determined by maximising utility via a C-D utility function.
- All savings generated in each region are used to purchase bonds whose price movements reflect movements in the price of creating capital.
- Producers supply goods by combining aggregate intermediate inputs and primary factors in fixed proportions (the Leontief assumption). Composite intermediate inputs are also combined in fixed proportions, whereas individual primary factors are combined using a CES production function.
- Producers are cost minimisers, and in doing so choose between domestic, imported and interstate intermediate inputs via a CRESH production function.
 - The model contains a more detailed treatment of the electricity sector that is based on the 'technology bundle' approach for general equilibrium modelling developed by ABARE (1996).¹
- The supply of labour is positively influenced by movements in the real wage rate governed by an elasticity of supply.
- Investment takes place in a global market and allows for different regions to have different rates of return that reflect different risk profiles and policy impediments to investment. A global investor ranks countries as investment destinations based on two factors: global investment and rates of return in a given region compared with global rates of return. Once the aggregate investment has been determined for Australia, aggregate investment in each Australian sub-region is determined by an Australian investor based on: Australian investment and rates of return in a given sub-region compared with the national rate of return.
- Once aggregate investment is determined in each region, the regional investor constructs capital goods by combining composite investment goods in fixed proportions, and minimises costs by choosing between domestic, imported and interstate sources for these goods via a CRESH production function.
- Prices are determined via market-clearing conditions that require sectoral output (supply) to equal the amount sold (demand) to final users (households and government), intermediate users (firms and investors), foreigners (international exports), and other Australian regions (interstate exports).
- For internationally-traded goods (imports and exports), the Armington assumption is applied whereby the same goods produced in different countries are treated as

¹ Australian Bureau of Agricultural and Resource Economics (ABARE), 1996, MEGABARE: Interim Documentation, Canberra.

imperfect substitutes. But in relative terms imported goods from different regions are treated as closer substitutes than domestically-produced goods and imported composites. Goods traded interstate within the Australian regions are assumed to be closer substitutes again.

- The model accounts for greenhouse gas emissions from fossil fuel combustion. Taxes can be applied to emissions, which are converted to good-specific sales taxes that impact on demand. Emission quotas can be set by region and these can be traded, at a value equal to the carbon tax avoided, where a region's emissions fall below or exceed their quota.

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 B.1, the representative household interacts with producers in two ways. First, in allocating expenditure across household and government consumption, this sustains demand for production. 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.

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 on composite goods is determined by minimising a CDE (Constant Differences of Elasticities) expenditure function. Private household consumption on composite goods from different sources is determined by a CRESH (Constant Ratios of Elasticities Substitution, Homothetic) utility function.
- Government consumption on composite goods, and composite goods from different sources, is determined by maximising a Cobb-Douglas utility function.
- All savings generated in each region is used to purchase bonds whose price movements reflect movements in the price of generating capital.

Producers

Apart from selling goods and services to households and government, producers sell products to each other (intermediate usage) and to investors. Intermediate usage is where one producer supplies inputs to another's production. For example, coal producers supply inputs to the electricity sector.

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 household and government expenditure from 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 overseas 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. As mentioned above, the exception to this is the electricity sector that is able to substitute different technologies (brown coal, black coal, oil, gas, hydropower and other renewables) using the 'technology bundle' approach developed by ABARE (1996).
- To minimise costs, producers substitute between domestic and imported intermediate inputs is 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 level of employment and the wage rate. This is a typical labour market specification for a dynamic model such as DAE-RGEM.

There are also other labour market 'settings' that can be used. First, the labour market could 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 could take on shortrun characteristics with fixed wages and flexible employment levels.

Investors

Investment takes place in a global market and allows for different regions to have different rates of return that reflect different risk profiles and policy impediments to investment. The global investor ranks countries as investment destination 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 in each region, the regional investor constructs capital goods by combining composite investment goods in fixed proportions, and minimises costs by choosing between domestic, imported and interstate sources for these goods via a CRESH production function.

International

Each of the components outlined above operate, 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 optimising behaviour by producers, consumers and investors. Of course, this implies some global conditions must be met such as global exports and global imports are the same and that global debt repayments equals global debt receipts each year.

Table B.2 outlines the eight regions in the model, including Australia, countries like China and Japan and multi-country regions like East Asia and the Euro Zone.

Table B.2: Modelling regions

	Region
1	Australia
2	China
3	Japan
4	East Asia
5	India
6	USA
7	Euro Zone 27
8	Rest of the World

Source: Deloitte Access Economics

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