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Tourism Research Australia

# Factors affecting the inbound tourism sector

- the impact and implications of the Australian dollar



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RESEARCH  
AUSTRALIA





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## Executive summary

Tourism, along with other trade-exposed sectors such as manufacturing, is prone to the risk of currency fluctuations (as well as many other economic risks). This paper explores the impact of the appreciating Australian dollar, together with a range of other factors, on the Australian tourism industry.

Since the early 2000s, the Australian dollar has appreciated significantly against the US dollar. In May 2011, the Australian dollar reached its highest point of US\$1.10 since it was floated in 1983 and has been trading around this level since then. This position, combined with recent strong increases in aviation capacity, and solid income growth has seen a very strong surge in Australians travelling overseas (average annual growth of around 7.5 per cent over the last decade). However, there has been relatively low growth in inbound visitation, with international holiday travel remaining at similar levels to that of ten years ago.

Tourism currently ranks first (along with education) as Australia's largest services export earner, generating \$23 billion in exports, and sixth largest of all export sectors.

An increasing outbound market is contributing to a widening 'tourism trade deficit', from a peak surplus of \$3.6 billion in 1999–00 to a deficit of \$5.0 billion in 2009–10.

Tourism is an industry which is determined by a range of factors, both external and internal to the industry. As part of a Tourism Australia (TA)–Tourism Research Australia (TRA) initiative, TRA has undertaken an assessment of the impact of economic indicators, and their relative importance<sup>1</sup> on the travel decisions of inbound visitors to Australia.

By including these variables, TRA is able to assess and rank the relevance of exchange rates, which are an important factor in explaining the travel choices of international travellers. The report also considered other factors—notably income—as determinants of travel demand. A summary of these results is provided below (with further detail provided in Appendices 2 to 4).

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<sup>1</sup> This work has been undertaken using the Tourism Forecasting Committee forecasting framework and results taken from domestic-outbound substitution analysis (undertaken by the Department of Resources, Energy, and Tourism for the Tourism Research Advisory Board).

This paper focuses on the impact of changes in economic influences on inbound tourism demand. Volume elasticities are provided for 26 source markets by four purposes of visit sectors (*Leisure travellers*, those *Visiting friends and relatives*, *Business travellers*, and *Other travellers*). An analysis of expenditure has been provided via an analysis of bilateral exchange rate volatility and the impact this has on tourism demand.

### Key findings:

- In the short-term, income is responsible for the strongest causality in relation to tourism demand. For a 1.0 per cent increase in inbound source market incomes, tourism demand increases by 0.8 per cent.

**Table E1: Inbound tourism short-run elasticities**

Indicator	Business	VFR*	Holiday	Other	<b>Total</b>
Income	1.06	0.53	0.86	0.51	<b>0.78</b>
Relative price	-0.19	-0.09	-0.33	-0.10	<b>-0.24</b>
Air capacity	0.28	0.42	0.55	0.39	<b>0.47</b>

Source: TRA unpublished data

\*Visiting friends and relatives

- In the long-term, income again is responsible for the strongest causality in relation to tourism demand. For a 1.0 per cent increase in inbound source market incomes, tourism demand increases by 1.3 per cent – indicating a movement from inelastic to elastic.<sup>2</sup> Consumers also become more responsive in light of a higher Australian dollar in the longer term. While still remaining inelastic, sensitivity on average doubles.

**Table E2: Inbound tourism long-run elasticities**

Indicator	Business	VFR*	Holiday	Other	<b>Total</b>
Income	1.60	1.10	1.24	1.93	<b>1.33</b>
Relative price	-0.23	-0.20	-0.61	-0.58	<b>-0.46</b>
Air capacity	0.29	0.42	0.55	0.40	<b>0.47</b>

Source: TRA unpublished data

\*Visiting friends and relatives

<sup>2</sup> In economics, the elasticity is the ratio of the per cent change in one variable to the per cent change in another variable. It is a tool for measuring the responsiveness of a function to changes in parameters in a unitless way. For example, if a coefficient greater than one is provided, this indicates that the dependent variable is elastic when compared to the explanatory variable.

- Exchange rate volatility has an impact on Australia's tourism competitiveness. The rise of the Australian dollar requires visitors having to consider increasing their travel 'wallet' or reducing their average length of stay. In the short-term, this issue will be worn by the consumer, with some sectors more sensitive to changes than others. However, in the long run, the industry is likely to bear this cost as consumers choose other destinations.



## **1 Introduction**

The Australian dollar is currently at its highest level against the US dollar since being floated in 1983 (US\$1.10). Further reflecting Australia's terms of trade, the inflation adjusted *Trade Weighted Index* is at its highest level in over forty years.

The rise of the Australian dollar reflects the strength of Australia's economy relative to a range of other economies, most notably developed economies. Underpinning this growth is continued strong demand for Australian resource and energy commodities, mainly from Asia.

A higher Australian dollar is likely to impact the Australian tourism sector by reducing Australia's international competitiveness and reducing the spending power of tourists once in Australia. However, a higher Australian dollar impacts the domestic tourism sector by improving the price competitiveness of outbound tourism, an import. In 2010, outbound departures increased 13.2 per cent while inbound increased 5.4 per cent.

Tourism demand is linked to prices caused partly by a higher Australian dollar but it is not the only factor contributing to the deterioration in Australia's tourism balance of trade (from a peak surplus of \$3.6 billion in 1999–00 to a deficit of \$5.0 billion in 2009–10). Other contributing factors are slower economic growth in many of our traditional inbound markets, due to the Global Financial Crisis (GFC); increases in air capacity; and corresponding heavy discounts in airfares to many alternative leisure destinations.

In addition, factors such as income are also critical in assessing how markets react to change in economic factors. A balanced consideration of demand drivers is required to determine the true impact. While the Australian dollar has appreciated strongly in recent years, there have been significant changes in real incomes, with western markets experiencing poor economic growth and eastern markets generally experiencing good economic growth. Further, real airfares have declined with significant business model changes in the aviation industry (such as increased low/lower cost carriers) targeting leisure visitors.

## 2 Methodology

Tourism Research Australia (TRA) is responsible for producing long-term tourism forecasts for endorsement by the Tourism Forecasting Committee. The TRA forecasting framework applies a systematic econometric approach using a range of factors such as price, income, and air capacity for 26 source markets by purpose, to explain changes in inbound visitor volumes.<sup>3</sup> TRA has employed this framework as part of this project (refer **Appendix 1** for an overview of the methodology).

## 3 International tourism decisions

Australia's inbound tourism industry currently represents around 27 per cent of tourism gross domestic product. Inbound tourism is Australia's largest services export, worth \$23 billion. This section provides an analysis of international tourism demand with regard to visitor numbers and expenditure.

In recent years, the Australian dollar has appreciated on the back of relatively solid economic growth in the mining and resources sector. Corresponding to this period, tourism—in terms of both visitor numbers and expenditure—has increased at a relatively low rate, resulting in a deficit both in arrivals and the tourism balance of trade (Figure 1). A stronger Australian dollar has dominated the story when trying to explain why, in recent years in particular, the industry has experienced lower than average volumes growth.<sup>4</sup> It is widely accepted that tourism visitation and expenditure is (highly) correlated to the relative price of tourism services for a particular destination.

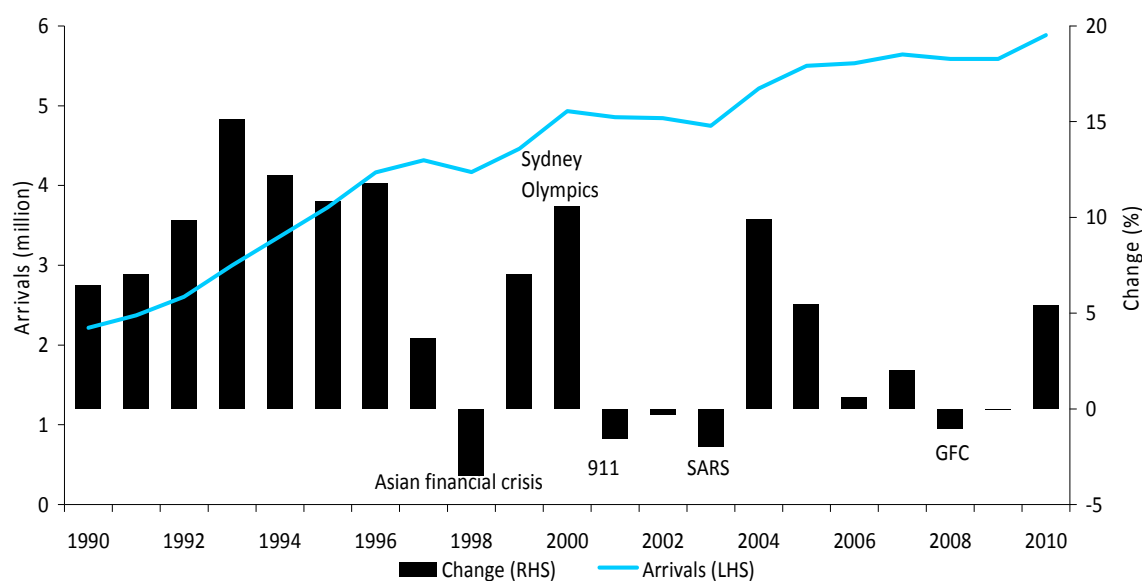
The impact of the Australian dollar is just one of a range of factors in driving tourism demand with income, wealth and confidence also other important drivers – if not the most important, as consumers need income to finance purchases. In this context, it is assumed that income is the most important driver of tourism demand, followed by price drivers such as the exchange rate and airfares.

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<sup>3</sup> Income is defined as per capita gross domestic product; price is defined as the bilateral exchange rate between Australia and the source inbound market; and air capacity is defined as the direct air capacity between Australia and the source inbound market.

<sup>4</sup> It should be noted that though inbound tourism volumes since 2000 have increased 19.5 per cent (or almost 1 million visitors) to 5.9 million, HMSA15+ occupancy rates have increased from 58 per cent in 2000 to 64 per cent in 2010.

**Figure 1 Inbound visitor arrivals 1990 to 2010**



Sources: Australian Bureau of Statistics, *Overseas Arrivals and Departures* (ABS cat. no. 3401.0).

However, in a price context, TRA's hypothesis is that while the exchange rate may not be the most important determinant, its influence (or price elasticity) is likely to vary for across purpose segments. For example, as the Australian dollar appreciates, the cost of Australian tourism services increases relative to overseas tourism services. As a result, alternative destinations become more appealing to consumers.

While *Leisure travellers* are likely to have some preferences to travel to a certain destination, they ultimately have full flexibility in the choice of destination. In addition, *Leisure travellers* typically have a more limited budget when compared with other types of travellers. For this reason, they are likely to have a higher price elasticity of demand, and are less likely to visit if Australia becomes less competitive due to exchange rate pressures.

By contrast, *Business travellers* have less flexibility as to where and when they travel, and usually have very little flexibility in timing of trips, meaning they are forced to accept the going price at the time they need to travel. Further, *VFR travellers*, while also restricted in terms of destination, are more likely to have flexibility in timing, and so may defer a trip if the exchange rate is unfavourable.

### 3.1 International tourism demand – visitors

Consistent with market theory, this project assumes that tourism demand will respond in various ways to the abovementioned factors, both in magnitude and direction. For example, given tourism is a discretionary good, rising incomes should have a positive impact on demand; rising prices should have a negative impact; increased air capacity should impact in a positive manner – this may be a result of increased participants (and competition) resulting in lower prices.

This is generally what has been found. Both in the short-term and over the long-term, income was the dominant factor. In fact, when comparing the magnitude of income and price elasticities, income was around three times greater than price. A summary of income, price, and air capacity elasticities are provided below. A complete list of elasticities for individual markets is provided at Appendices 2 to 4.

**Table 1: Inbound tourism short-run elasticities**

Indicator	Business	VFR*	Holiday	Other	Total
Income	1.06	0.53	0.86	0.51	<b>0.78</b>
Relative price	-0.19	-0.09	-0.33	-0.10	<b>-0.24</b>
Air capacity	0.28	0.42	0.55	0.39	<b>0.47</b>

Source: TRA unpublished data

\*Visiting friends and relatives

- In the short-term, inbound tourism demand is most responsive to changes in income. For a 1.0 per cent increase in inbound source market incomes, tourism demand increases by 0.8 per cent. While consumers react in a negative manner to rising prices, it is the variable that consumers are least responsive to.
  - the average short-run increase for a 1.0 per cent increase in inbound source market income is estimated at a 1.1 per cent increase for *business*, 0.9 per cent increase for *holiday*, and 0.5 per cent increase for *VFR*;
  - the average short-run response for a 1.0 per cent increase in Australia–source market relative price is estimated at a 0.2 per cent decrease for *business*, 0.3 per cent decrease for *holiday*, and a 0.1 per cent decrease for *VFR*; and
  - the average short-run response for a 1.0 per cent increase in air capacity between Australia and the source market is estimated at a 0.3 per cent increase for *business*, 0.6 per cent increase for *holiday*, and 0.4 per cent increase for *VFR*.

**Table 2: Inbound tourism long-run elasticities**

Indicator	Business	VFR*	Holiday	Other	Total
Income	1.60	1.10	1.24	1.93	<b>1.33</b>
Relative price	-0.23	-0.20	-0.61	-0.58	<b>-0.46</b>
Air capacity	0.29	0.42	0.55	0.40	<b>0.47</b>

Source: TRA unpublished data

\*Visiting friends and relatives

- In the long-term, inbound tourism demand is again most responsive to changes in income. For a 1.0 per cent increase in inbound source market incomes, tourism demand increases by 1.3 per cent – noting consumers become elastic in the long-term. Consumers also become more responsive in light of a higher Australian dollar in the longer term. While still remaining inelastic, sensitivity on average doubles.
  - In the long run, sector sensitivities increased, as expected, ranging from 1.6 per cent for *business*, 1.2 per cent for *holiday*, and 1.1 per cent for *VFR*;
  - Sensitivity to prices also increased in the longer term, as expected, ranging from 0.2 per cent for *business*, 0.6 per cent for *holiday*, and 0.2 per cent for *VFR*; and
  - In the long run, air capacity sensitivity remained relatively static.

### 3.2 International tourism demand – expenditure

Tourism expenditure growth has also slowed during a period of a rising Australian dollar. For example, real tourism exports increased 2.3 per cent over the period 1999 to 2004. This was a period when the Australian dollar averaged around US\$0.61. When compared to the period 2005 to 2010—when the Australian dollar averaged US\$0.82—real tourism exports increased 1.1 per cent.

For some markets, per capita expenditure has grown marginally or even moderately. However, when converted into home currencies a different story is revealed – one where per capita expenditure has had to increase dramatically due to an appreciating Australian dollar (refer Table 3). The rise of the Australian dollar requires visitors having to increase their travel 'wallet'. This reduces Australia's competitiveness. In the short-term, this cost will likely be worn by the consumer, with some purpose of visit sectors more sensitive to changes than others. In the long run, the industry will likely bear much of this cost through price reductions or quality improvements to remain competitive with other destinations which are seen as better value.

As shown in Tables 1 and 2, the purpose of visit assessed most likely to respond to changes in cost is leisure. Analysis shows that for this segment over the past 10 years, nominal per visitor expenditure has increased at a rate largely consistent with inflation. Yet when adjusted for inflation average expenditure for a range of inbound source markets have experienced sharp declines. These declines may be partially explained by a rising Australian dollar. For example, for Chinese holiday visitors over the period 2000 to 2010 (where the Australian dollar appreciated 45 per cent against the Chinese Renminbi), nominal per-visitor expenditure declined 19 per cent (from AU\$3,890 to AU\$3,142).

When taking into account inflation, Chinese average holiday expenditure declined from \$3,890 to \$2,404 – a decline of 38 per cent. When translated into Chinese Renminbi, this real expenditure decline converts to around half that decline—at 20 per cent—from RMB18,758 to RMB14,963. This shows that on average, Chinese holiday visitor expenditure was not discounting at the same real rate, in home currency terms, due to a rising dollar (refer Table 3).

**Table 3: Visitor expenditure comparisons**

	Change in expenditure (2000 to 2010)		
	Nominal (\$AUD)	Real (\$AUD)	Real (\$Home)
China	-19	-38	-20
United Kingdom	-7	-29	10
United States	-26	-44	-11
New Zealand	9	-17	-17
South Korea	26	-4	55
Japan	-11	-32	-13
Singapore	-4	-27	-9
Malaysia	-1	-24	1
Germany	2	-22	-14
India	39	6	-34
Canada	1	-23	-16
France	12	-14	-6
Indonesia	-7	-29	22
<b>Average</b>	<b>1</b>	<b>-23</b>	<b>-4</b>

Sources: Tourism Research Australia unpublished data; [www.oanda.com](http://www.oanda.com)

Exchange rate volatility is a further issue that exacerbates the industry's trade competitiveness. TRA analysis shows that expenditure volatility in home currency terms is around 60 per cent greater—relative to expenditure in Australian dollar terms—due to the volatility of bilateral exchange rates.

The challenge for the industry is how to manage this issue. Productivity improvements, and ensuring Australia is seen as a quality destination that represents value, are just two ways to reduce the industry's exposure to this issue.

## 4 Conclusion

TRA's analysis shows that among a range of external and internal factors, international tourism demand does respond to changes in the Australian dollar. However, while this response is relatively low in magnitude it should not be discounted. Other price determinants, such as air capacity, are also low in magnitude. Price influences, for which exchange rates play a role, are usually considered once the decision has been made to either spend on travel, or other goods or services, or to save.

Among the factors assessed in this analysis, the dominant factor is income and over the longer term, this influence increases. The disparity in magnitude between income and other explanatory factors may be explained by the fact that consumption of tourism services depends on a consumer's propensity to spend (consumers respond to all manner of drivers, notably income).

For the Australian tourism industry, implementing policies that seek to control external factors, such as income or external prices (e.g. exchange rates) is not an option. However, strategies that differentiate between volume and value, and are based on market response during periods of economic growth, are an option.

Opportunities for Australia (which are likely to offset the risk of a rising Australian dollar) include increases in real wealth in many of Australia's emerging source markets, notably China and India. Further, other drivers such as lower airfares (in real terms), accommodation costs, and experience and perceived quality will all influence future industry opportunities.

Emerging economies can provide Australia with solid export opportunities now and in years to come given expected income growth. And with innovation and labour productivity improvements being pursued through the National Long-Term Tourism Strategy, Australia's tourism industry's competitiveness may be enhanced through lower industry wage costs, and improved product quality and service delivery.

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## Appendix 1

### Inbound methodology

TRA's models use a range of exogenous variables. The main interest in these models lies in the relationship between tourism demand and the income and price variables (refer below for the generic functional form for the inbound, outbound and domestic models). Consumer theory states that for any given product/service price, income, and competing products/services are the main factors in the decision process. For tourism, other factors such as destination attributes, airfares, and quality of experience are also expected to influence expenditure. The variable of interest is tourism arrivals. Variables likely to provide explanatory power include:

- income (Y)
- relative price/multilateral exchange rates ( $P^r$ )
- air capacity (C)
- event (E)
- season (S)

In the absence of complete information, it is reasonable to assume that a consumer's decision to travel may be expressed as:

$$\text{Arrivals} = f(Y, P, C, E, S) \quad [1]$$

Using economic principles as the basis for modelling expenditure allows for some general predictions to be made about the impact of economic factors. First, growing incomes enable increased consumption of discretionary goods and services such as tourism. Therefore, in the long run, visitor flows can be expected to be income elastic (i.e. income elasticities are expected to be positive and greater than unity in magnitude). Second, if destination choices are influenced largely by cost factors—given the availability of many destinations from which to choose—visitor flows can also be expected to be highly sensitive to prices (i.e. own price elasticities are expected to have negative signs and less than unity in magnitude), and the competitive prices to be positively correlated with visitor flows. Thirdly, for a destination such as Australia, changes in air capacity are likely to have an impact on price and therefore competitiveness.

While using a causal econometric model, where methods are based on the (economic) relationship between the variable to be forecasted and an independent variable, other methods such as time series (ARIMA) and trend forecasting are available.<sup>5</sup> The advantage of using a causal method as described above is that we are using many of the same explanatory variables for forecasting inbound activity, outbound activity, and domestic activity. Further, we are able to provide our assumptions in a transparent way.

Where appropriate, employing alternative methods may provide options where a causal application is not valid, either statistically and/or according to economic theory.

Using this economic framework, the abovementioned identification assumptions provide the following functional form for inbound visitor arrivals:

$$arrivals_{f,t} = \beta_0 + \beta_1 * [gdp_{f,t} / pop_{f,t}] + \beta_2 * [price_{f,t}] + \beta_3 * [aircapacity_{f,t}] + \beta_4 * [season_t] + \beta_5 * [event_t] + u_i \quad [1]$$

Where f	=	foreign country
t	=	quarter
arrivals <sub>ft</sub>	=	arrivals from market f in quarter t
gdp <sub>ft</sub>	=	real gross domestic product in foreign market f in quarter t
pop <sub>ft</sub>	=	population in foreign market f in quarter t
price <sub>ft</sub>	=	relative price based on Australian and foreign market CPI and exchange rates
air capacity	=	direct air capacity between market f and Australia in quarter t
season	=	seasonal dummy variables
event	=	temporary events with major direct impacts on the industry

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<sup>5</sup> In statistics and econometrics, and in particular in time series analysis, an autoregressive integrated moving average (ARIMA) model is a generalization of an autoregressive moving average (ARMA) model. These models are fitted to time series data either to better understand the data or to predict future points in the series (forecasting).

Initial results using function [1] were mixed. Arrivals for most markets were largely correlated with income, relative price, air capacity, season, and event and all (generally) correct a priori signage and confirming signage. To confirm each model, TRA relies on several critical underlying assumptions:

- i) consumers will spend a fixed proportion of their income on items such as travel – as incomes rise, demand will rise;
- ii) consumers will seek to maximise their utility and differentiate between destinations based on price – as prices increase, demand will decrease; and
- iii) short-run elasticities should be less than long-run elasticities. This is an important point of differentiation as the rise (fall) of prices and incomes over the long run can be significantly different. This is because, say with rising prices, consumers have less time to adapt and alter their travel plans in the short-run, but as time passes they are able to find substitute destinations, making them more price elastic.

Based on these abovementioned assumptions, TRA was required to constrain a limited set of equations whose income or price coefficients did not meet these criteria.

## Appendix 2

### Elasticities – inbound income

	First year impact					Impact in 5 years				
	Business	VFR	Holiday	Other	Total	Business	VFR	Holiday	Other	Total
New Zealand	1.17	0.31	0.28	0.16	0.44	1.90	0.63	0.38	0.64	0.73
Japan	1.21	2.08	2.58	1.64	2.33	3.00	4.17	2.58	6.59	3.02
United Kingdom	2.02	0.66	1.58	0.09	1.20	2.36	1.32	2.10	0.36	1.75
United States of America	0.74	0.61	0.71	2.27	0.82	0.98	1.23	1.42	4.55	1.53
China (excludes SARs and Taiwan Province)	.	0.34	0.34	0.13	0.24	0.69	0.77	0.48	0.64	0.59
Singapore	0.63	0.73	0.31	0.21	0.44	0.85	1.47	0.63	0.89	0.84
Korea	0.85	0.63	0.81	0.30	0.70	1.16	1.30	1.67	1.28	1.53
Malaysia	0.62	0.32	0.37	1.00	0.45	0.83	0.66	0.37	2.03	0.66
Hong Kong (SAR of China)	0.50	0.33	0.92	0.49	0.70	0.68	0.70	1.26	1.03	1.04
Germany	3.80	1.10	0.90	1.38	1.29	4.49	1.48	1.21	5.63	1.94
India	1.18	.	0.52	.	0.40	1.39	1.53	1.00	3.46	1.72
Indonesia	0.62	0.90	0.29	.	0.35	0.83	1.83	0.38	0.46	0.63
Taiwan	1.30	0.35	1.72	0.23	1.37	1.78	0.73	3.60	1.00	2.86
Thailand	0.45	0.26	0.37	-0.08	0.28	0.60	0.52	0.74	-0.32	0.48
Rest of Asia	0.56	0.52	0.97	0.39	0.66	1.09	1.30	1.30	1.56	1.32
France	1.26	0.09	0.26	0.05	0.33	1.68	0.38	0.52	0.21	0.60
Ireland	0.43	0.76	1.51	0.45	1.11	0.85	1.52	3.02	1.80	2.34
Italy	2.08	0.71	0.59	-0.01	0.75	2.77	1.43	0.79	-0.06	1.09
Netherlands	0.53	0.86	0.50	1.01	0.62	0.70	1.72	2.03	4.06	1.92
Switzerland	4.71	1.12	1.85	0.50	1.86	6.30	2.25	3.73	2.01	3.55
Nordic Countries (Scandinavia)	2.66	0.73	0.80	.	0.96	3.55	1.48	1.62	2.33	1.89
Rest of Europe	2.39	0.74	1.27	0.39	1.22	2.82	1.33	1.84	1.88	1.84
Total Middle East & North Africa	2.66	0.73	0.80	.	0.96	3.55	1.48	1.62	2.33	1.89
Canada	1.85	0.77	1.11	1.20	1.02	3.71	1.03	1.48	4.82	1.66
South Africa	1.37	0.20	0.61	.	0.56	1.84	0.82	1.23	1.66	1.19
Rest of World	1.08	0.54	0.84	0.59	0.79	1.58	1.09	1.22	1.96	1.33
<b>Total Inbound</b>	<b>1.06</b>	<b>0.53</b>	<b>0.86</b>	<b>0.51</b>	<b>0.78</b>	<b>1.60</b>	<b>1.10</b>	<b>1.24</b>	<b>1.93</b>	<b>1.33</b>

Source: Tourism Research Australia unpublished data

### Appendix 3

#### Elasticities – inbound relative price

	First year impact					Impact in 5 years				
	Business	VFR	Holiday	Other	Total	Business	VFR	Holiday	Other	Total
New Zealand	-0.19	-0.04	-0.05	.	-0.07	-0.25	-0.08	-0.10	-0.42	-0.13
Japan	-0.14	-0.33	-0.37	.	-0.32	-0.19	-0.65	-0.73	-1.34	-0.70
United Kingdom	-0.06	-0.03	-0.46	.	-0.24	-0.12	-0.05	-0.93	-0.27	-0.49
United States of America	-0.22	-0.18	-0.43	-0.19	-0.30	-0.30	-0.37	-0.88	-0.79	-0.62
China (excludes SARs and Taiwan Province)	.	-0.10	-0.08	-0.14	-0.08	.	-0.21	-0.16	-0.55	-0.21
Singapore	-0.14	-0.11	-0.91	-0.08	-0.54	-0.19	-0.23	-1.83	-0.16	-1.06
Korea	-0.50	-0.13	-0.94	-0.10	-0.67	-0.68	-0.26	-1.28	-0.42	-0.97
Malaysia	-0.31	-0.25	-0.50	0.04	-0.37	-0.31	-0.50	-0.67	0.06	-0.52
Hong Kong (SAR of China)	-0.07	-0.01	-0.17	-0.03	-0.11	-0.09	-0.05	-0.23	-0.07	-0.15
Germany	.	-0.05	-0.11	-0.21	-0.10	.	-0.07	-0.15	-0.88	-0.18
India	-0.43	-0.11	-0.50	-0.58	-0.37	-0.29	-0.46	-0.68	-2.36	-0.83
Indonesia	-0.13	-0.29	-0.46	0.03	-0.31	-0.13	-0.60	-0.62	0.05	-0.44
Taiwan	-0.22	-0.21	-0.52	.	-0.41	-0.30	-0.42	-1.05	-0.40	-0.86
Thailand	-0.08	-0.06	-0.44	.	-0.23	-0.16	-0.09	-0.59	0.17	-0.28
Rest of Asia	-0.14	-0.14	-0.45	-0.13	-0.25	-0.16	-0.32	-0.78	-0.55	-0.50
France	-1.10	-0.01	-0.11	-0.48	-0.24	-1.50	-0.04	-0.47	-1.00	-0.56
Ireland	-0.21	-0.50	-0.23	0.49	-0.21	-0.44	-1.03	-0.96	1.01	-0.70
Italy	-0.07	-0.17	-0.03	.	-0.06	-0.10	-0.72	-0.06	-0.80	-0.23
Netherlands	-0.08	-0.07	-0.18	-0.19	-0.14	-0.10	-0.31	-0.75	-0.39	-0.54
Switzerland	.	-0.20	-0.34	.	-0.25	.	-0.78	-0.66	-0.37	-0.59
Nordic Countries (Scandinavia)	-0.90	-0.03	-0.12	-0.64	-0.24	-1.21	-0.12	-0.50	-2.62	-0.67
Rest of Europe	-0.24	-0.06	-0.31	-0.12	-0.23	-0.33	-0.14	-0.66	-0.62	-0.49
Total Middle East & North Africa	-0.90	-0.03	-0.12	-0.64	-0.24	-1.21	-0.12	-0.50	-2.62	-0.67
Canada	-2.64	-0.05	-0.23	.	-0.22	-2.64	-0.20	-0.47	-0.79	-0.47
South Africa	-0.59	-0.03	-0.45	.	-0.30	-0.59	-0.13	-0.60	-0.74	-0.43
Rest of World	-0.18	-0.09	-0.33	-0.12	-0.24	-0.22	-0.20	-0.61	-0.59	-0.47
<b>Total Inbound</b>	<b>-0.19</b>	<b>-0.09</b>	<b>-0.33</b>	<b>-0.10</b>	<b>-0.24</b>	<b>-0.23</b>	<b>-0.20</b>	<b>-0.61</b>	<b>-0.58</b>	<b>-0.46</b>

Source: Tourism Research Australia unpublished data

## Appendix 4 Elasticities – inbound air capacity

	First year impact					Impact in 5 years				
	Business	VFR	Holiday	Other	Total	Business	VFR	Holiday	Other	Total
New Zealand	0.09	0.59	0.73	.	0.55	0.09	0.59	0.73	.	0.55
Japan	0.23	0.10	0.97	0.06	0.76	0.23	0.10	0.97	0.24	0.77
United Kingdom	.	0.14	0.29	.	0.19	.	0.14	0.29	.	0.19
United States of America	0.19	0.88	0.56	.	0.50	0.25	0.88	0.56	.	0.51
China (excludes SARs and Taiwan Province)	.	0.49	0.68	0.87	0.57	.	0.49	0.68	0.87	0.56
Singapore	0.79	-0.09	.	0.54	0.21	0.79	-0.09	.	0.54	0.21
Korea	0.22	0.06	0.45	0.07	0.32	0.22	0.06	0.45	0.07	0.32
Malaysia	0.46	1.02	0.91	.	0.79	0.46	1.02	0.91	.	0.79
Hong Kong (SAR of China)	0.57	0.41	0.00	0.48	0.21	0.57	0.41	0.00	0.48	0.21
Germany	0.48	-0.07	0.21	.	0.19	0.48	-0.07	0.21	.	0.19
India	0.67	0.05	0.65	.	0.34	0.61	0.05	0.65	.	0.33
Indonesia	0.31	.	0.79	0.28	0.55	0.31	.	0.79	0.28	0.54
Taiwan	0.90	0.16	1.33	0.01	1.02	0.90	0.16	1.33	0.04	1.02
Thailand	0.53	0.66	.	0.95	0.38	0.53	0.66	.	0.95	0.38
Rest of Asia	0.39	0.33	0.60	0.46	0.46	0.38	0.33	0.60	0.48	0.46
France	0.87	0.91	1.04	1.62	1.05	0.87	0.91	1.04	1.62	1.05
Ireland	0.58	0.97	-0.58	0.51	0.05	0.58	0.97	-0.58	0.51	0.05
Italy	1.03	0.80	0.50	1.75	0.71	1.03	0.80	0.50	1.75	0.71
Netherlands	0.48	0.08	0.11	0.19	0.15	0.48	0.08	0.11	0.19	0.15
Switzerland	1.35	0.92	0.60	0.53	0.71	1.35	0.92	0.60	0.53	0.71
Nordic Countries (Scandinavia)	0.97	0.24	0.30	0.90	0.42	0.97	0.24	0.30	0.90	0.42
Rest of Europe	0.40	0.23	0.32	0.47	0.32	0.40	0.23	0.32	0.47	0.32
Total Middle East & North Africa	0.97	0.24	0.30	0.90	0.42	0.97	0.24	0.30	0.90	0.42
Canada	.	.	0.17	.	0.10	.	.	0.17	.	0.10
South Africa	.	0.61	0.61	0.03	0.49	.	0.61	0.61	0.03	0.49
Rest of World	0.27	0.41	0.56	0.39	0.47	0.28	0.41	0.56	0.40	0.47
<b>Total Inbound</b>	<b>0.28</b>	<b>0.42</b>	<b>0.55</b>	<b>0.39</b>	<b>0.47</b>	<b>0.29</b>	<b>0.42</b>	<b>0.55</b>	<b>0.40</b>	<b>0.47</b>

Source: Tourism Research Australia unpublished data



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