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# Economic Analysis of Cook Islands Air Route Underwrite Agreements

Prepared for

Government of the Cook Islands

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# Contents

**Executive Summary** **i**

Net Economic Effects of the LAX-RAR Underwrite ii

Net Economic Effects of the SYD-RAR Underwrite iv

Other Effects v

Looking Forward vi

**1 Introduction** **1**

**2 Methodology** **3**

**3 Analysis and Results** **5**

3.1 Context 5

3.2 Underwrite Scenario 14

3.3 Alternative Scenarios 16

3.4 Future Net Effects on Cook Islands GDP 21

3.5 Historic Net Effects on Cook Islands GDP 25

3.6 Other Effects 26

3.7 Looking Forward 30

# Executive Summary

This report analyses the economic benefits and costs of the agreements to underwrite Air New Zealand's non-stop services between Los Angeles and Rarotonga (LAX-RAR) and between Sydney and Rarotonga (SYD-RAR). These agreements are estimated to cost the Cook Islands $7.7 million and $4.4 million per annum respectively.

We estimate the *net* effect on total economic activity (GDP) in the Cook Islands of each underwrite agreement individually, taking into account the additional international visitors that each underwrite generates and the expenditure of those visitors, relative to economic activity that could be generated by alternative use of the underwrite funds.

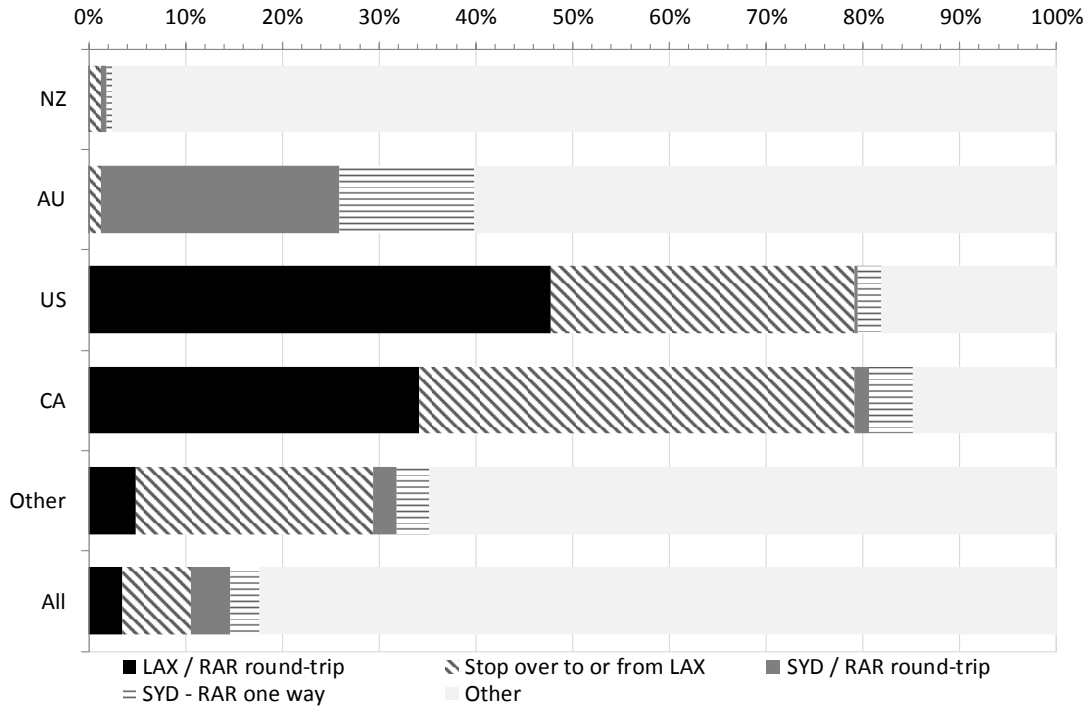
Our analysis is based on detailed arrivals and departure data provided by the Government of the Cook Islands. Based on this data, Figure 1 summarises the travel patterns of various visitors to the Cook Islands and the use of the underwritten flights. The following patterns are evident:

- The LAX-RAR service is used by around 80% of visitors from the US and Canada in at least one direction. It is also used by around 30% of visitors in the 'Other' category (mostly Europe).

- The LAX-RAR service is used by around 1% of New Zealand and Australian visitors to stop-over in the Cook Islands on the way to or from Los Angeles.

- The SYD-RAR service is predominantly used by Australian visitors, and around 40% of visitors from Australia use it in at least one direction.

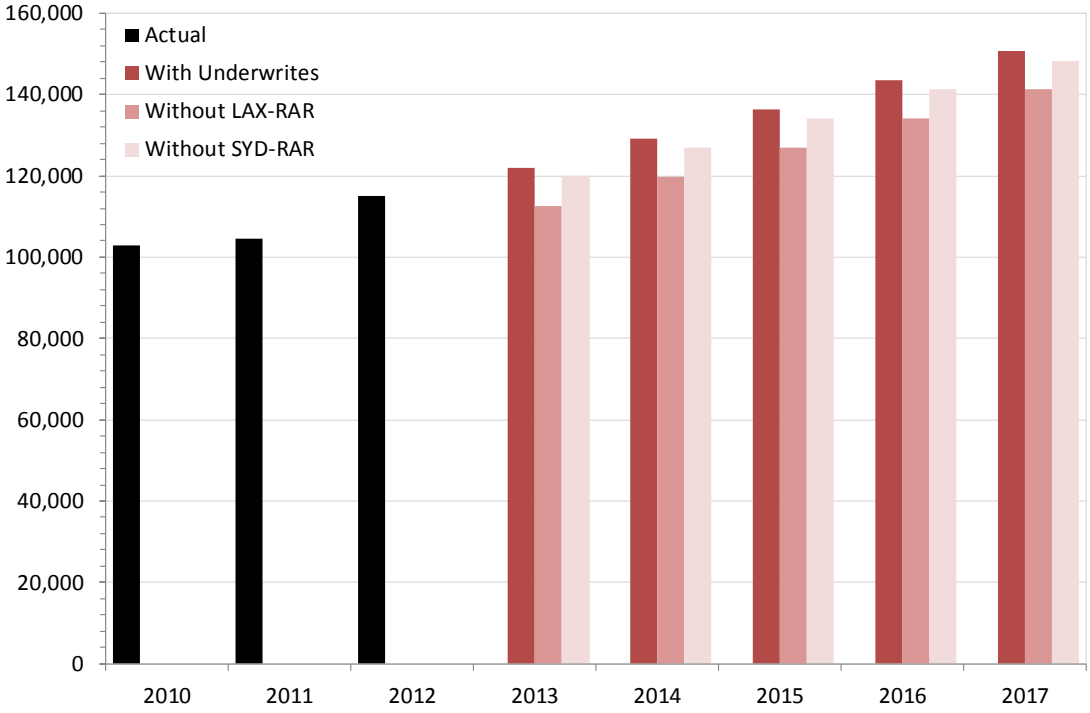
Figure 1 Summary of travel patterns for international visitors arriving and departing during 2012.



Based on analysis of travel patterns and forecasts of international visitor arrivals derived from recent trends, forecasts of arrivals were developed under the assumption that each of the two services was not underwritten and did not operate (Figure 2).

Loss of the LAX-RAR service is estimated to reduce international visitor arrivals by around 9,500 per year. Loss of the SYD-RAR service is estimated to reduce arrivals by around 2,200 per year. These estimates take account of the fact that some users of these services would continue to visit the Cook Islands in the absence of the service.

Figure 2 Actual and forecast total visitor arrivals to the Cook Islands.




The difference in visitor arrivals in each scenario was multiplied by estimates of average length of stay (around 8 days) and expenditure per day ($200) for different types of visitor, to estimate the net change in visitor expenditure associated each underwrite. This was translated into an estimate of GDP using an appropriate conversion factor (multiplier) and compared to estimated GDP that could be generated by alternative use of the underwrite funds.

## Net Economic Effects of the LAX-RAR Underwrite

Table 1 shows the expected net changes in economic activity of the LAX-RAR underwrite over five years. The additional visitors generated by the underwrite agreement spend around $15.5 million per year. Net of the cost of the underwrite agreement, the net change in Cook Islands GDP is estimated at just under $6 million per year. This is around 1.8% of total Cook Islands GDP.

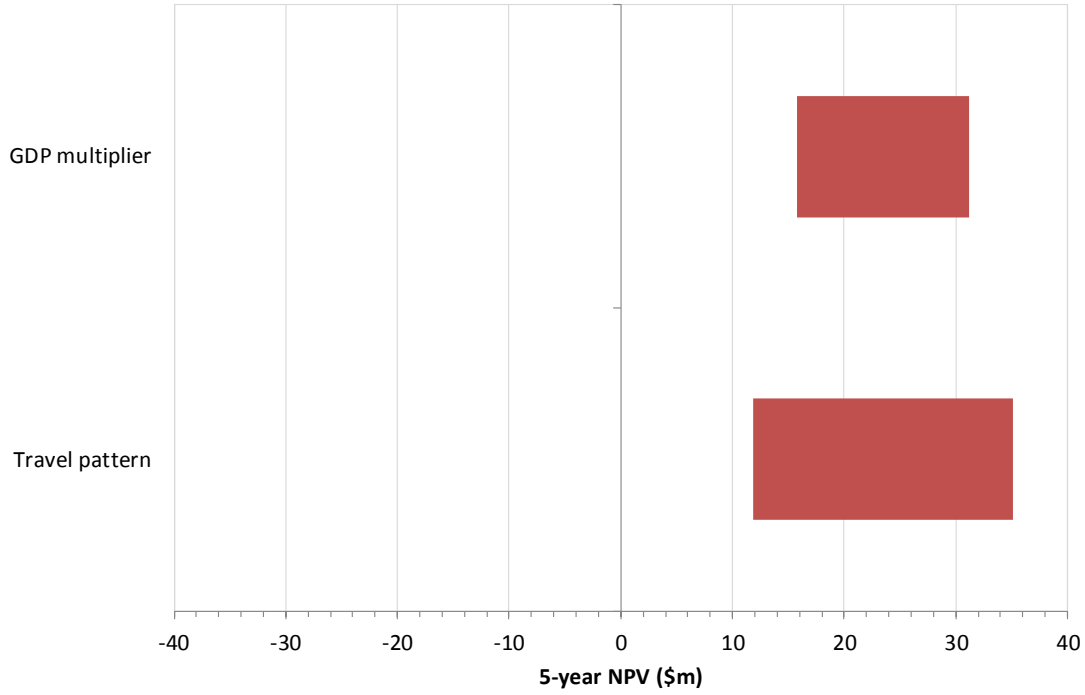
Table 1 Expected net impacts of the LAX-RAR underwrite

| | 2013 | 2014 | 2015 | 2016 | 2017 |
|---|---|---|---|---|---|
| Difference in international visitors | 9,512 | 9,531 | 9,549 | 9,567 | 9,585 |
| Difference in visitor expenditure ($m) | 15.5 | 15.5 | 15.5 | 15.6 | 15.6 |
| Underwrite cost ($m) | 7.7 | 7.7 | 7.7 | 7.7 | 7.7 |
| **Difference in GDP ($m)** | **+5.8** | **+5.9** | **+5.9** | **+5.9** | **+5.9** |
| Cost per additional visitor ($) | 809 | 808 | 806 | 805 | 803 |
| Expenditure per additional visitor ($) | 1,629 | 1,628 | 1,627 | 1,626 | 1,625 |

Figure 3 shows how the net change in GDP over five years varies with alternative plausible assumptions about the GDP multiplier and travel patterns of visitors if the LAX-RAR service did not operate. The net effect over five years is estimated to vary between +$16 million and +$31 million depending on the GDP multiplier and +$12 million and +$35 million depending on travel patterns.

Overall, the LAX-RAR underwrite is estimated to make a **net positive** contribution to economic activity in the Cook Islands between 2013 and 2017.

Figure 3 Sensitivity of LAX-RAR underwrite results to alternative assumptions.




Using data on actual visitor arrivals on the LAX-RAR service, we also estimated the historic contribution of the LAX-RAR underwrite to Cook Islands GDP for 2010 to 2012. Overall we estimate this underwrite agreement increased Cook Islands GDP by between around $6.6 million and $7.7 million per year (Table 2).

Table 2 Analysis of the estimated historic impacts of LAX-RAR.

| | 2010 | 2011 | 2012 |
|---|---|---|---|
| Travellers on LAX-RAR* | 11,142 | 12,155 | 12,254 |
| Difference in arrivals | 8,914 | 9,724 | 9,803 |
| Difference in visitor expenditure ($m) | 14.6 | 15.8 | 16.0 |
| Underwrite cost ($m) | 4.3 | 7.0 | 6.3 |
| **Difference in GDP ($m)** | **7.7** | **6.6** | **7.3** |

* Number of visitors to the Cook Islands who used this service in at least one direction.

## Net Economic Effects of the SYD-RAR Underwrite

Table 3 shows the expected net changes in economic activity of the SYD-RAR underwrite over five years. The additional visitors generated by the underwrite agreement spend around $4 million per year. Net of the cost of the underwrite agreement, the estimated net change in Cook Islands GDP is a reduction of $0.7 million currently, increasing to a reduction of $0.1 million in 2017.

Table 3 Expected net impacts of the SYD-RAR underwrite

| | 2013 | 2014 | 2015 | 2016 | 2017 |
|---|---|---|---|---|---|
| Difference in international visitors | 2,041 | 2,158 | 2,276 | 2,393 | 2,511 |
| Difference in visitor expenditure ($m) | 3.5 | 3.7 | 3.9 | 4.1 | 4.3 |
| Underwrite cost ($m) | 4.4 | 4.4 | 4.4 | 4.4 | 4.4 |
| **Difference in GDP ($m)** | **-0.7** | **-0.5** | **-0.4** | **-0.2** | **-0.1** |
| Cost per additional visitor ($) | 2,156 | 2,039 | 1,933 | 1,838 | 1,752 |
| Expenditure per additional visitor ($) | 1,718 | 1,718 | 1,719 | 1,719 | 1,720 |

Figure 4 shows how the net change in GDP over five years varies with alternative plausible assumptions about the GDP multiplier and travel patterns of visitors if the SYD-RAR service did not operate. The net effect over five years is estimated to vary between -$5.9 million and +$2.8 million depending on the GDP multiplier and -$9.3 million and +$6.2 million depending on travel patterns.

Overall, the SYD-RAR underwrite is estimated to make a **marginally negative** net contribution to economic activity in the Cook Islands between 2013 and 2017.

Using data on actual visitor arrivals on the SYD-RAR service, we also estimated the historic contribution of the SYD-RAR underwrite to Cook Islands GDP for 2011 and 2012. Overall we estimate this underwrite agreement reduced Cook Islands GDP by between $0.3 million and $0.9 million per year (Table 4).

Immigration data indicates that the SYD-RAR service is predominantly used by residents of New South Wales in Australia, while Australian residents from other states tend to travel via Auckland.

Figure 4 Sensitivity of SYD-RAR underwrite results to alternative assumptions.

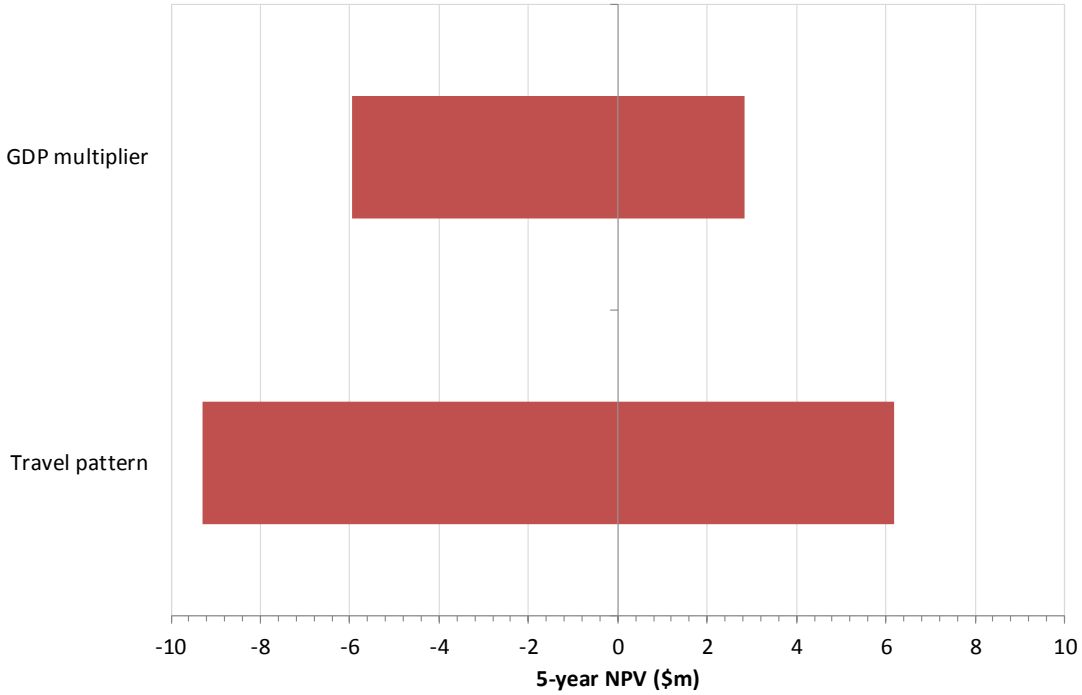



Table 4 Analysis of the estimated historic impacts of SYD-RAR.

| | **2011**** | **2012** |
|---|---|---|
| Travellers on SYD-RAR* | 4,534 | 8,219 |
| Difference in arrivals | 1,083 | 1,950 |
| Difference in visitor expenditure ($m) | 1.9 | 3.3 |
| Underwrite cost ($m) | 2.2 | 4.6 |
| **Difference in GDP ($m)** | **-0.3** | **-0.9** |

* Number of visitors to the Cook Islands who used this service in at least one direction.

** 2011 results are for six months only.

## Other Effects

### *Travel within the Cook Islands*

Using data on domestic travel, we estimate that around 25% of international visitors arriving on the underwritten flights travel to Atiu or Aitutaki. This suggests that the LAX-RAR underwrite generates around 2,000 additional visitors per year to the outer islands, and SYD-RAR generates around 750 additional visitors per year.

### *Air freight and exports*

Export freight volumes on both underwritten services are very low and do not appear to be increasing over time. This is likely because the weekly frequency of these services is not useful for time-sensitive exports. Given the very good freight services via Auckland, the underwritten services are expected to have no significant impact on exports.

*Outbound travel by Cook Islands residents*

Around 90% of outbound travel by Cook Island residents is to New Zealand, with only around 1,400 annual departures to destinations other than New Zealand. This suggests that the underwritten services have a minimal impact on outbound travel by residents.

## Looking Forward

The following issues are relevant for the future of the underwrite agreements:

- The cost-based structure of the underwrite agreements gives Air New Zealand weak incentives to reduce costs and maximise revenues, while exposing the government to risk as the amount of the underwrite payment is open-ended.

- Negotiating fixed annual underwrite payments would improve Air New Zealand's incentives and reduce the government's risk.

- Provision of the underwritten services could be put out for tender, to introduce competition and possibly reduce the cost.

- The underwrite agreements subsidise all passengers on the LAX-RAR and SYD-RAR services, regardless of whether these visitors would have come to the Cook Islands without the subsidy. Alternative ways of stimulating tourism demand such as direct airfare subsidies in the off-peak season may be more cost effective.

- The visitor markets supported by the LAX-RAR service are in decline while the 767 aircraft used to provide the service will be replaced by more expensive aircraft in the medium term. Some or all of the $7.7 million annual cost of this underwrite may be better spent on growing the tourism sector rather than maintaining declining markets where costs are expected to increase.

- The SYD-RAR service supports a growing market but it is not clear whether the $4.4 million annual cost is the best way to grow the tourism sector. This agreement costs around $2,000 per additional visitor, which should be compared to other ways of generating tourism demand such as marketing and investment in tourism infrastructure.

# 1 Introduction

The Government of the Cook Islands has engaged Covec to evaluate the economic benefits and costs of agreements to underwrite Air New Zealand's non-stop services between Rarotonga and Los Angeles and between Rarotonga and Sydney. The underwrite agreements guarantee that Air New Zealand will not make losses on these routes, and in return Air New Zealand undertakes to provide a minimum level of service on each route.

The current minimum service level is one Boeing 767 flight per week in each direction. Both services are currently making losses, requiring underwrite payments estimated at around $7.7 million on LAX-RAR and $4.4 million on SYD-RAR for 2013/14.[1] The analysis in this report assumes that the same subsidies will be required in future years, although actual subsidies could decrease (eg if load factors improve) or increase (eg if a more expensive aircraft type is used on the routes).

Our objective is to estimate the *net* effect on Cook Islands GDP of each underwrite agreement (individually), accounting for both the economic benefits and costs of these agreements. The benefits largely arise from additional international visitor expenditure in the Cook Islands that would not otherwise occur if these routes were not underwritten and did not operate. The costs arise from the fact that the underwrite funds could be put to alternative uses that would also generate economic activity.

We note that GDP only measures economic activity as reflected in market transactions. Other potential benefits and costs of the underwrites are not included in GDP. For example, alternative uses of the underwrite funds could involve health and education expenditure that generate benefits not fully reflected in GDP. While beyond the scope of this report, it would be reasonable for the Government to take such factors into consideration in its overall evaluation of the underwrite agreements.

The analysis in this report is based on detailed immigration processing data provided to Covec by the Government of the Cook Islands. The data covered the period from January 2010 to December 2012 and included information on every individual international arrival to and departure from the Cook Islands.

The data for each arriving passenger included:

- A unique anonymous identifier
- Date of arrival
- Arrival flight
- Visa status (visitor, permanent resident, etc)

[1] All figures in this report are in New Zealand dollars.

- Nationality (country of passport)

The data for each departing passenger was similar. Using the unique identifiers, we were able to match arrivals with departures in around 92% of cases.[2] Thus for the majority of visitors to the Cook Islands we were able to determine the flights used for arrival and departure. This allowed us to understand the propensity to use the underwritten flights by international visitors and the extent to which the Cook Islands is used by travellers as a stop-over (for example between Auckland and Los Angeles). We were also able to calculate average length of stay for different categories of visitors.

In addition to arrival and departure data, we were provided with:

- visitor survey results for 2012 that were used to estimate average expenditure for international visitors from different countries of origin; and

- Cook Islands government budget forecasts for visitor arrivals by country of origin in future years.

Covec also undertook economic analysis of the two underwrites in 2012. That analysis was based on high level international visitor totals and we were not able to examine in detail the patterns of international travel to and from the Cook Islands. The current report makes use of highly detailed arrivals and departure data, and updated visitor expenditure data. In our view, the analysis in this report is a significant improvement on the previous study, however the overall accuracy of our results is reliant on the accuracy of the data provided to us.

[2] Some passengers arriving towards the end of 2012 had not yet departed and were not recorded in the departures dataset. In some other cases we could not match arrival and departure identifiers successfully for unknown reasons. To correct for this, we calculate travel patterns (percentages) based on the matched arrivals and departures, and then scale up to match the total number of arrivals.

# 2 Methodology

For each of the two underwrite agreements, the objective of our analysis is to estimate the *net* economic value to the Cook Islands in GDP terms. The Cook Islands Government faces a policy choice of whether or not to continue these agreements. That policy choice would be enhanced by comparing the likely future state of the Cook Islands economy with and without each agreement. For each underwrite agreement, our analysis therefore involves the comparison of two future scenarios:

1. An **underwrite** scenario, representing a continuation of the status quo with the current underwrite agreement in place; and

2. An **alternative** scenario, representing the state of the world if the current underwrite agreement is discontinued and no alternative underwrite agreement is signed.

In each scenario, we calculate the *difference* in the GDP estimates due to changes in visitor expenditure between the underwrite and alternative scenarios, to arrive at the net economic value of the underwrite agreement. We have done this for each underwrite agreement individually.

It is important to understand that this is a forward-looking analysis based on the difference between the underwrite and alternative scenarios. When evaluating the reasonableness of these scenarios, the important feature is the relative difference between the two scenarios, in each future year. Most of our analysis below therefore focuses on setting an appropriate difference between the scenarios. We do this through detailed analysis of the arrival and departure patterns of international visitors.

The alternative scenario for each underwrite agreement is based on the assumption that Air New Zealand would cease to operate the relevant route. This will generate the maximum possible estimate of the value of the underwrite agreements. In reality, there are some other possibilities, including that Air New Zealand:

1. continues to operate the route, possibly with reduced capacity and/or higher airfares; or

2. ceases to operate the route but another carrier (possibly a low-cost carrier or charter operator) commences the route.

In either of these cases, the net economic value of the underwrite agreements will be *less* than we have calculated in this report. However, it is difficult to estimate the probability of these scenarios and their timing, and we do not attempt to do so.

Another crucial question for the analysis is the alternative use of the underwrite funds. We assume that the subsidies paid by the Cook Islands Government to Air New Zealand would be available for other purposes, such as investment in other tourism projects, tax reduction, or investment in education services, health, housing, etc. Thus the economic value created by the underwrites due to additional international visitors

must be compared to the value created by alternative spending by Government, or reductions in tax.

Our analysis concentrates on the economic effects of changes in the number of international visitors to the Cook Islands. For the same reasons as outlined in our 2012 report, we expect effects on air freight and outbound travel by Cook Island residents to be minimal in comparison to the effect on inbound international visitors. These issues are briefly analysed in section 3.5.

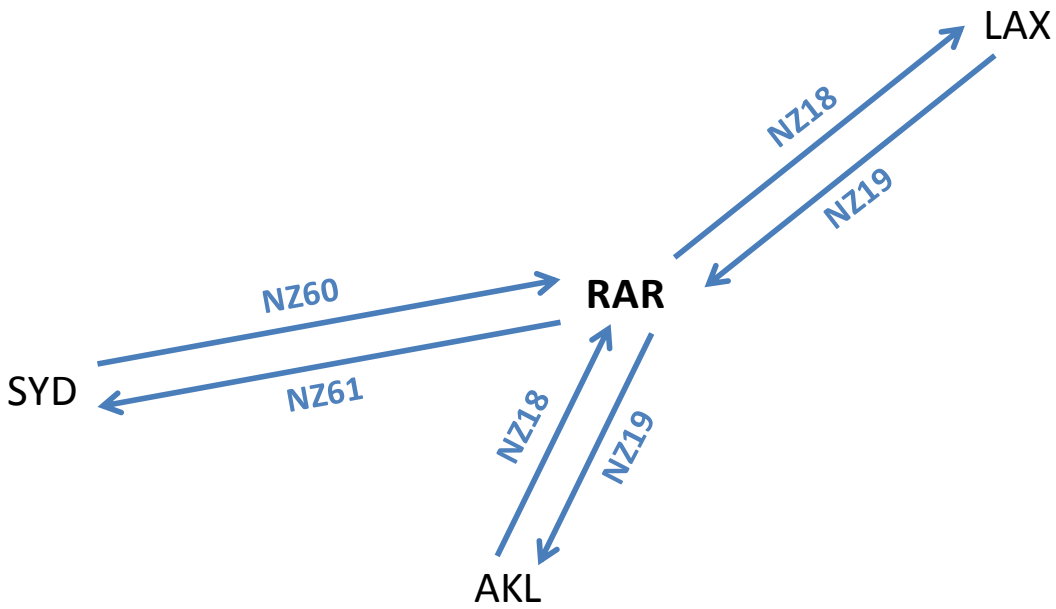
# 3 Analysis and Results

## 3.1 Context

Our analysis focuses on international visitor travel to and from the Cook Islands. About 90% of all international arrivals to the Cook Islands are visitors. The remainder are mostly Cook Islands residents and people on work visas. We focus on visitors as arrivals of other types are much less likely to depend on the operation of the underwritten flights.

Figure 5 illustrates the routes of the underwritten flights. NZ18/19 operates between Auckland and Los Angeles via Rarotonga. NZ60/61 operates between Sydney and Rarotonga. There are several other flights operated by Air New Zealand and Virgin between Auckland and Rarotonga. Auckland is also well connected to Sydney and other points in Australia, to North America, Asia and the Pacific. Many travellers to and from Rarotonga travel via Auckland.

Figure 5 The underwritten flights.

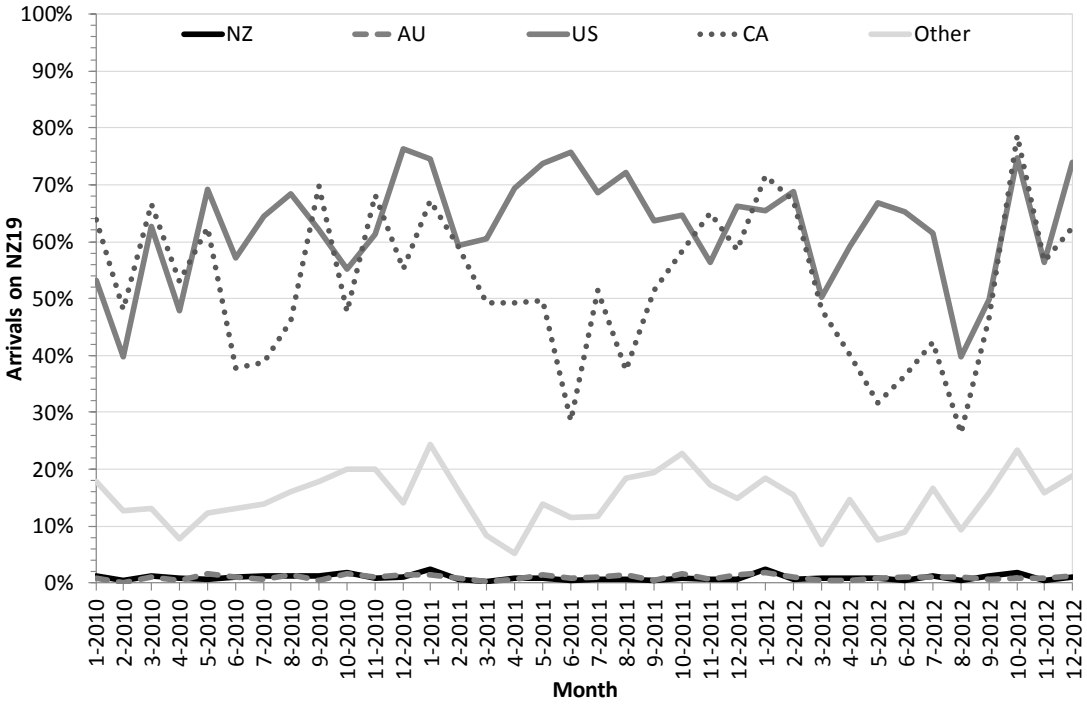



### 3.1.1 Aggregate use of underwritten flights

In aggregate, NZ19 (from Los Angeles) is used by about 7% of all international visitors to the Cook Islands, and NZ60 (from Sydney) is used by about 6%. The propensity to use these flights varies considerably across visitors of different nationality.[3] Figure 6 shows the proportion of international visitors of different nationalities arriving on NZ19. This flight is used by around 60% of US and Canadian arrivals, but only around 1% of Australia and New Zealand arrivals. It is also used by around 15% of arrivals from other origins (mostly Europe). These patterns do not appear to be changing significantly over time.

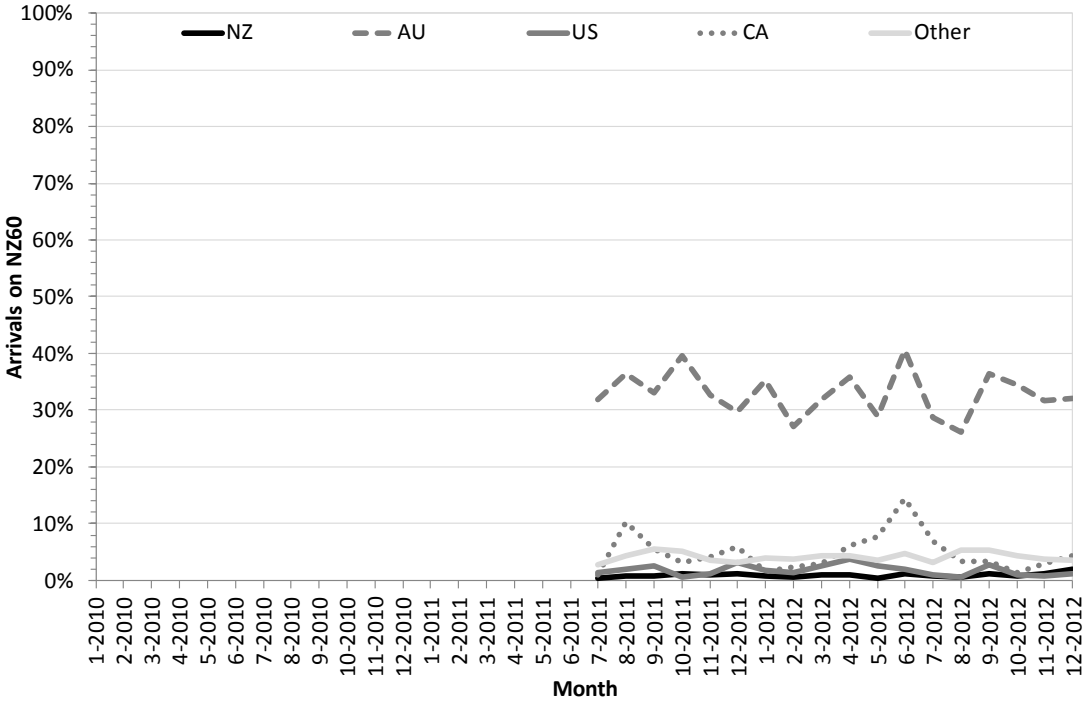
[3] For the purposes of this analysis we have assumed that each visitor's nationality (country of passport) is the same as their country of residence.

Figure 6 Monthly proportion of international visitor arrivals on NZ19 by nationality.




Similarly, Figure 7 shows that NZ60 is used by around one-third of Australian arrivals and comparatively small proportions of arrivals from other countries. Again there is no clear trend in these proportions.

Figure 7 Monthly proportion of international visitor arrivals on NZ60 by nationality.



Departures on NZ18 and NZ61 exhibit generally similar patterns to arrivals with respect to nationality (Figure 8 and Figure 9).

Figure 8 Monthly proportion of departures on NZ18 by nationality.

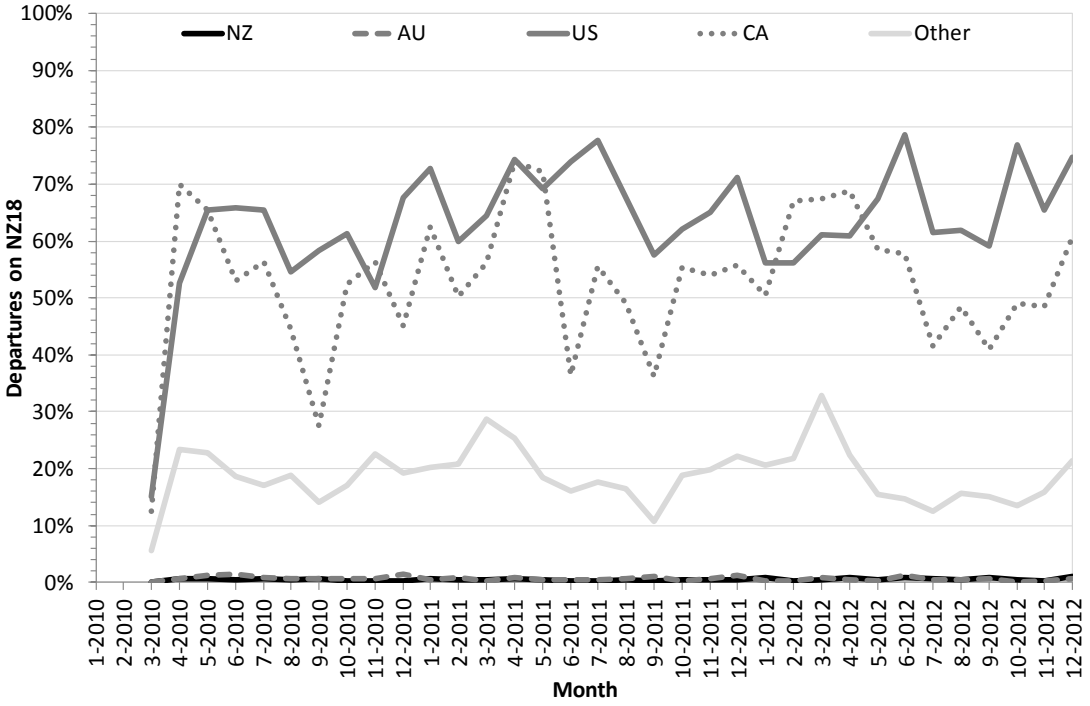
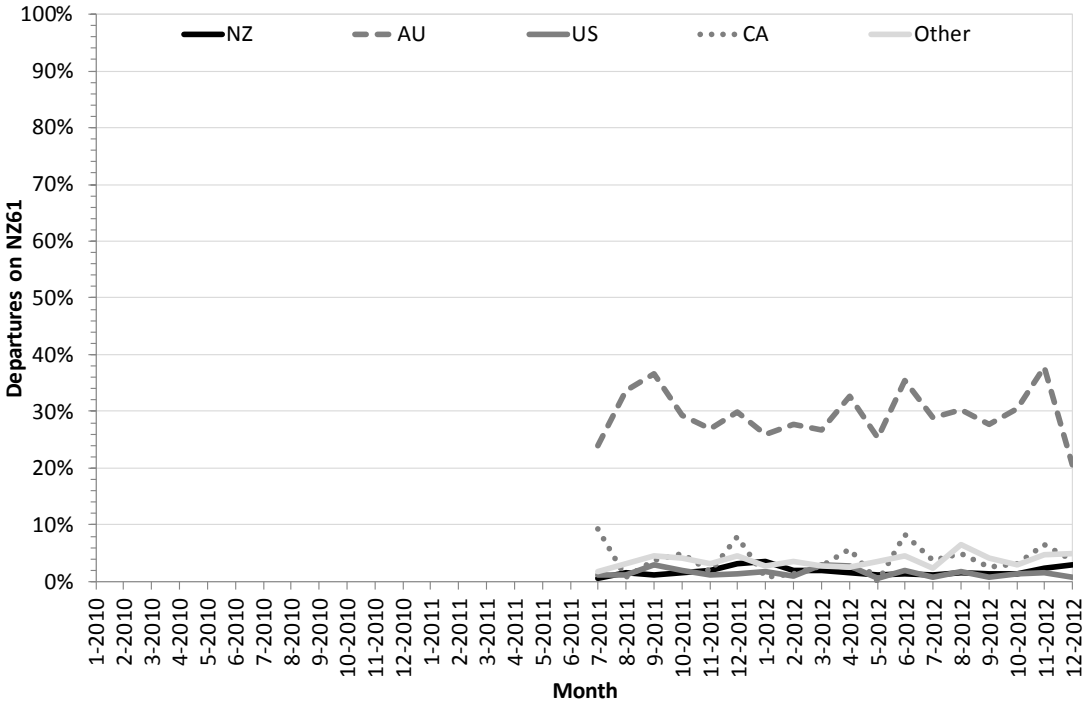



Figure 9 Monthly proportion of departures on NZ61 by nationality.

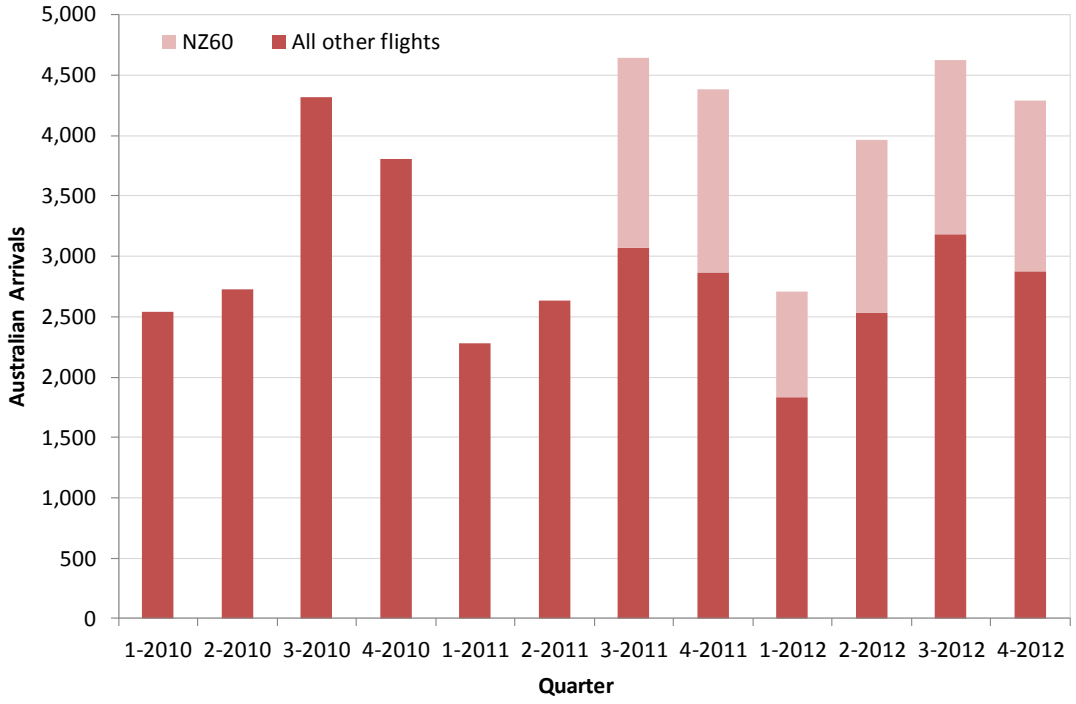


### 3.1.2 Effects of NZ60 on Australian arrivals

As NZ60 was introduced in July 2011, with our dataset it is possible to compare the pattern of Australian arrivals before and after this date. A key question is the extent to which the introduction of NZ60 stimulated new visitor arrivals from Australia, versus substitution from other existing routes.

Figure 10 shows the number of Australian resident arrivals on NZ60 versus other flights, where the monthly data has been converted to quarterly to facilitate comparison. The data indicate that NZ60 caused a combination of growth and substitution in Australian arrivals. Relative to the period immediately prior to the introduction of NZ60, we estimate around 40% of Australian visitors arriving on NZ60 are new arrivals, and the remaining 60% are substitution from other flights. This translates to around a net gain of around 2,200 Australian visitors per year, if NZ60 operates year-round.

Figure 10 Quarterly arrivals of Australian residents.




### 3.1.3 Analysis of Australian visitors

Using immigration data it is possible to classify Australian visitor arrivals to the Cook Islands by their state of residence in Australia. Figure 11 shows estimated total annual Australian arrivals by state of residence for 2010 – 2012. The strongest growth in arrivals has been from residents of New South Wales and Queensland (Figure 12).

Arrivals from Western Australia have grown quickly in percentage terms, but from a relatively low base. Arrivals from Victoria are essentially constant. In terms of visitor numbers (rather than percentages), the largest changes have been in visitors from New South Wales (around 1,000 in 2012) and Queensland (around 600 in 2012). Figure 13 shows the distribution of arrivals of Australian residents on NZ60 by state. As expected, this flight is predominantly used by residents of New South Wales.

Figure 11 Annual arrivals of Australian residents by state of residence.

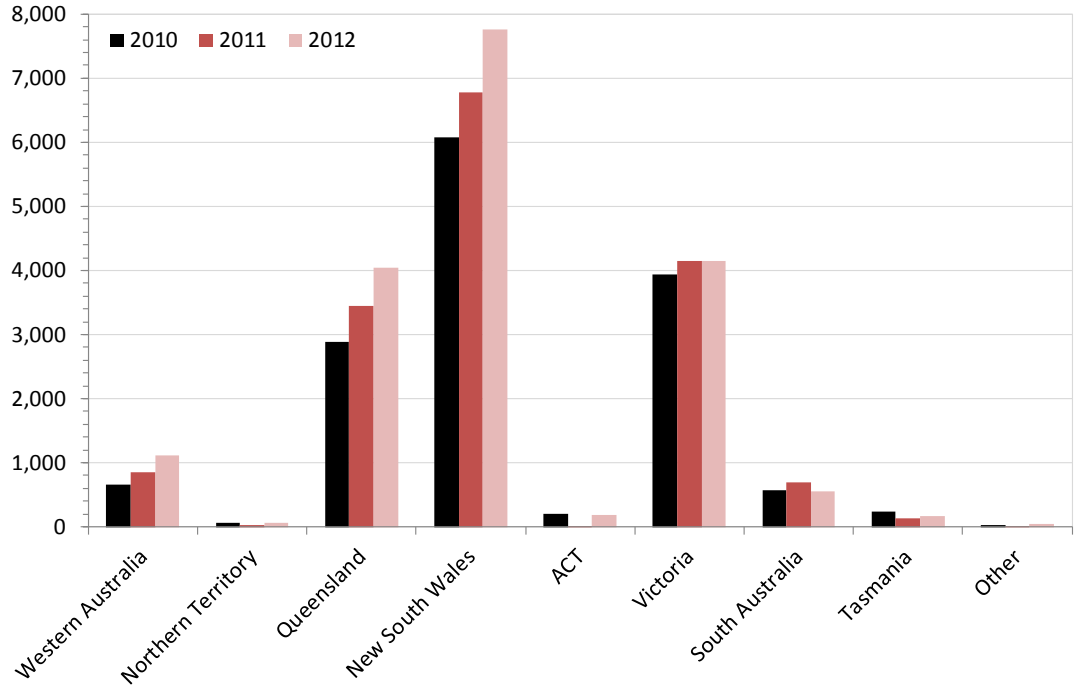
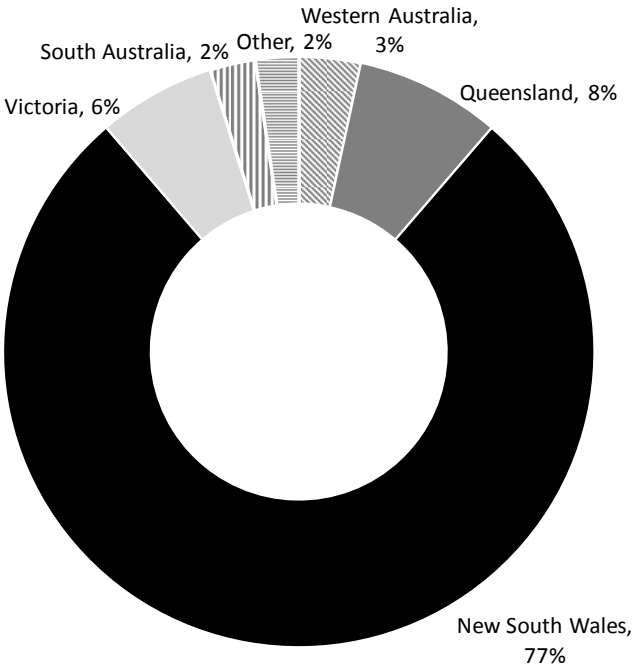



Figure 12 Growth rate of annual visitor arrivals of Australian residents by state of residence. Northern Territory and ACT are not shown as the small arrival numbers translate to very large growth rates.

Figure 13 Australian arrivals on NZ60 by state of residence.




### 3.1.4 Analysis of visitor travel patterns

The underwritten flights may be used for various reasons. For example, travellers may undertake a round-trip between Los Angeles and Rarotonga by arriving on NZ19 and departing on NZ18. Or travellers may stop-over in Rarotonga on the way to Los Angeles by arriving in Rarotonga on any flight except NZ19 and then departing on NZ18. Similar travel patterns are possible with respect to NZ60/61. It is possible that these different travel patterns will be affected in different ways if the underwritten flights did not operate, thus it is useful to analyse these patterns in the data.

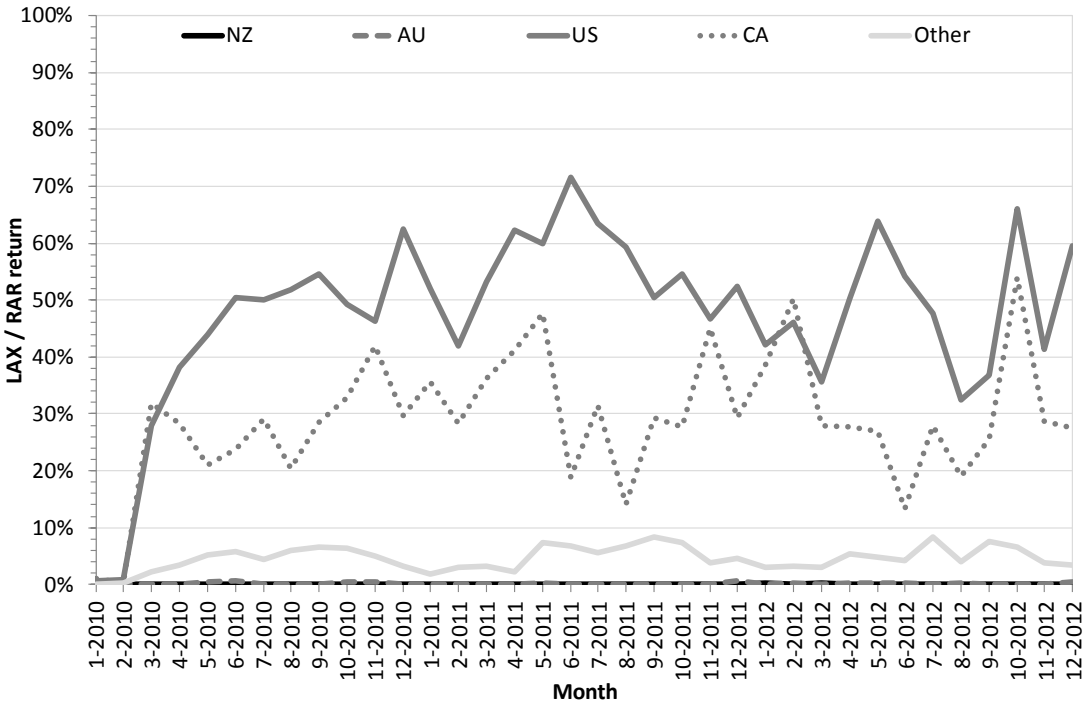
Regarding the underwritten flights, the following patterns are of interest:

- **LAX / RAR round-trip:** Arrival on NZ19 and departure on NZ18
- **Stop-over on the way to or from LAX:**
  - Arrival on any flight except NZ19, and departure on NZ18; or
  - Arrival on NZ19, and departure on any flight except NZ18
- **SYD / RAR round-trip:** Arrival on NZ60 and departure on NZ61
- **SYD-RAR one way:**
  - Arrival on any flight except NZ60, and departure on NZ61; or
  - Arrival on NZ60, and departure on any flight except NZ61

### *LAX / RAR round-trip*

Figure 14 shows the proportion of international visitors arriving from Los Angeles on NZ19 and departing on NZ18. A total of around 4,000 visitors per year use this itinerary type, including around 49% of visitors from the US and 30% of visitors from Canada. A negligible proportion of New Zealand and Australian residents and about 5% of visitors from other countries use it.

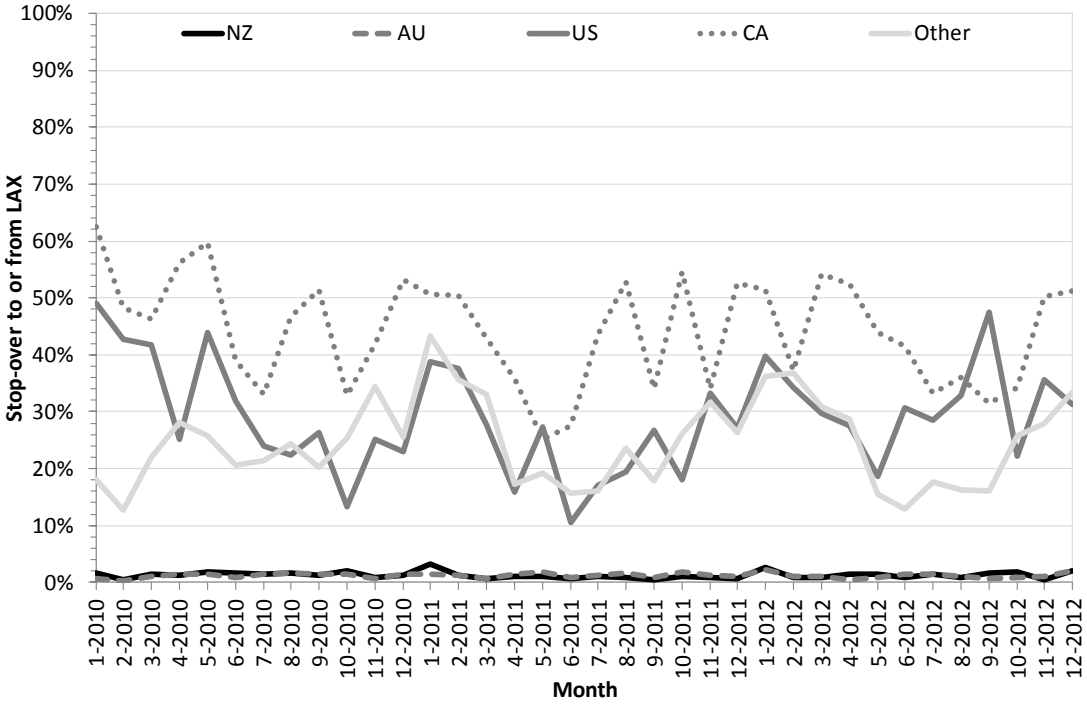
Figure 14 Monthly proportion of international visitors arriving with LAX / RAR return itineraries.




### *Stop-over on the way to or from LAX*

Figure 15 shows the proportion of international visitors arriving on any flight except NZ19 and departing on NZ18, or arriving on NZ19 and departing on any flight except NZ18. This itinerary type is used by around 8,000 visitors per year, comprising 1% of each of New Zealand and Australian arrivals, 28% of US arrivals, 46% of Canadian arrivals and 24% of other arrivals.

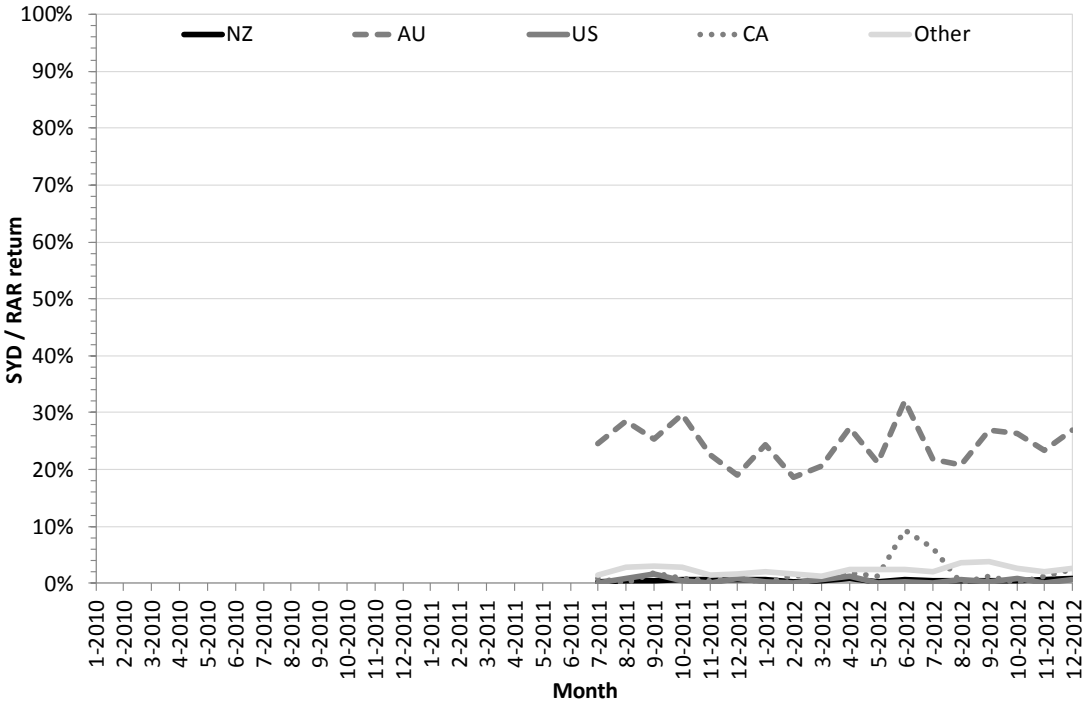
Figure 15 Monthly proportion of international visitors stopping over in Rarotonga on the way to or from Los Angeles.




### *SYD / RAR round-trip*

Figure 16 shows the proportion of international visitors arriving from Sydney on NZ60 and departing on NZ61. In 2012, a total of around 4,700 visitors used this itinerary, comprising around 25% of Australian arrivals.

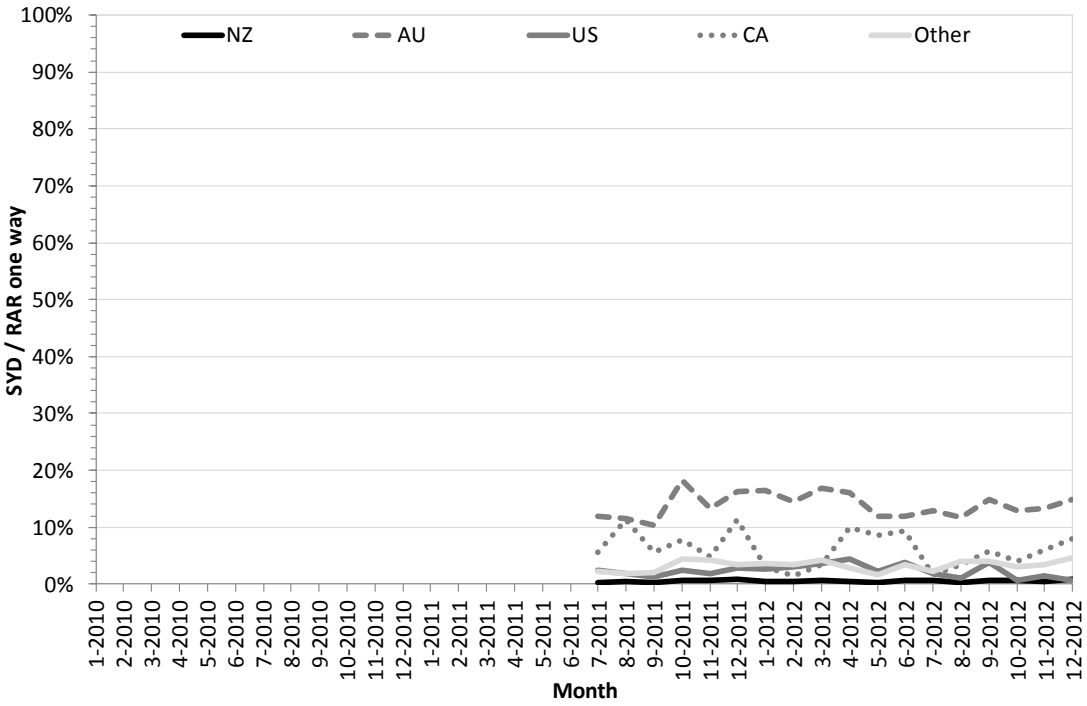
Figure 16 Monthly proportion of international visitors arriving with SYD / RAR return itineraries.



### *SYD-RAR one way*

Figure 17 shows the proportion of international visitors either arriving on any flight except NZ60 and departing on NZ61, or arriving on NZ60 and departing on any flight except NZ61. This itinerary type was used by around 3,400 visitors in 2012, comprising around 14% of Australian arrivals.

Figure 17 Monthly proportion of international visitors travelling non-stop between Sydney and Rarotonga in one direction and using any other flight in the other direction.




### *Summary of travel patterns*

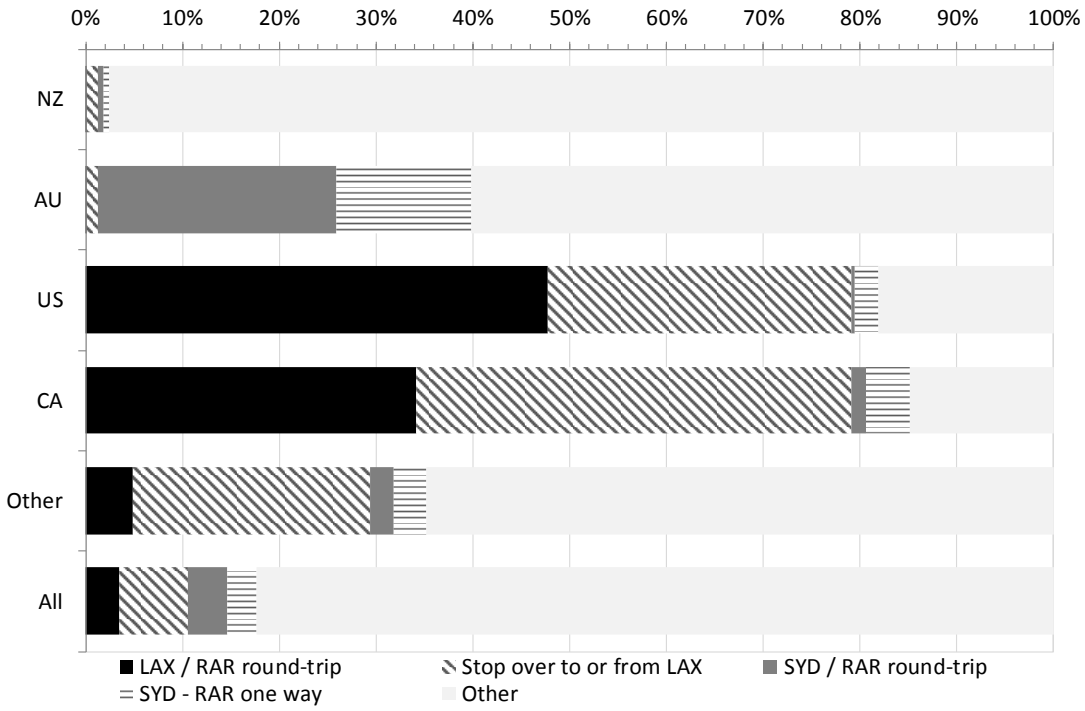
Figure 18 summarises the travel patterns analysed above for international visitors from different countries arriving and departing during 2012.[4] It is clear that NZ18/19 is heavily used by visitors from North America and countries in the 'other' category (mostly the UK and Europe). NZ18/19 also facilitates a small but noticeable number of stop-overs to or from Los Angeles by New Zealand and Australian residents.

Similarly, NZ60/61 is primarily used by Australian residents, with around 39% of Australian visitors using this service in at least one direction during 2012. However the majority of Australian visitors used an itinerary in the 'Other' category, the vast majority of which involved travel via Auckland in both directions.

The monthly data presented in the figures above gives no evidence to suggest that these general patterns are changing significantly over time, although there is variation from month to month.

[4] This excludes visitors who arrived in late 2012 but had not yet departed by the end of the dataset.

Figure 18 Summary of travel patterns for international visitors arriving and departing during 2012.



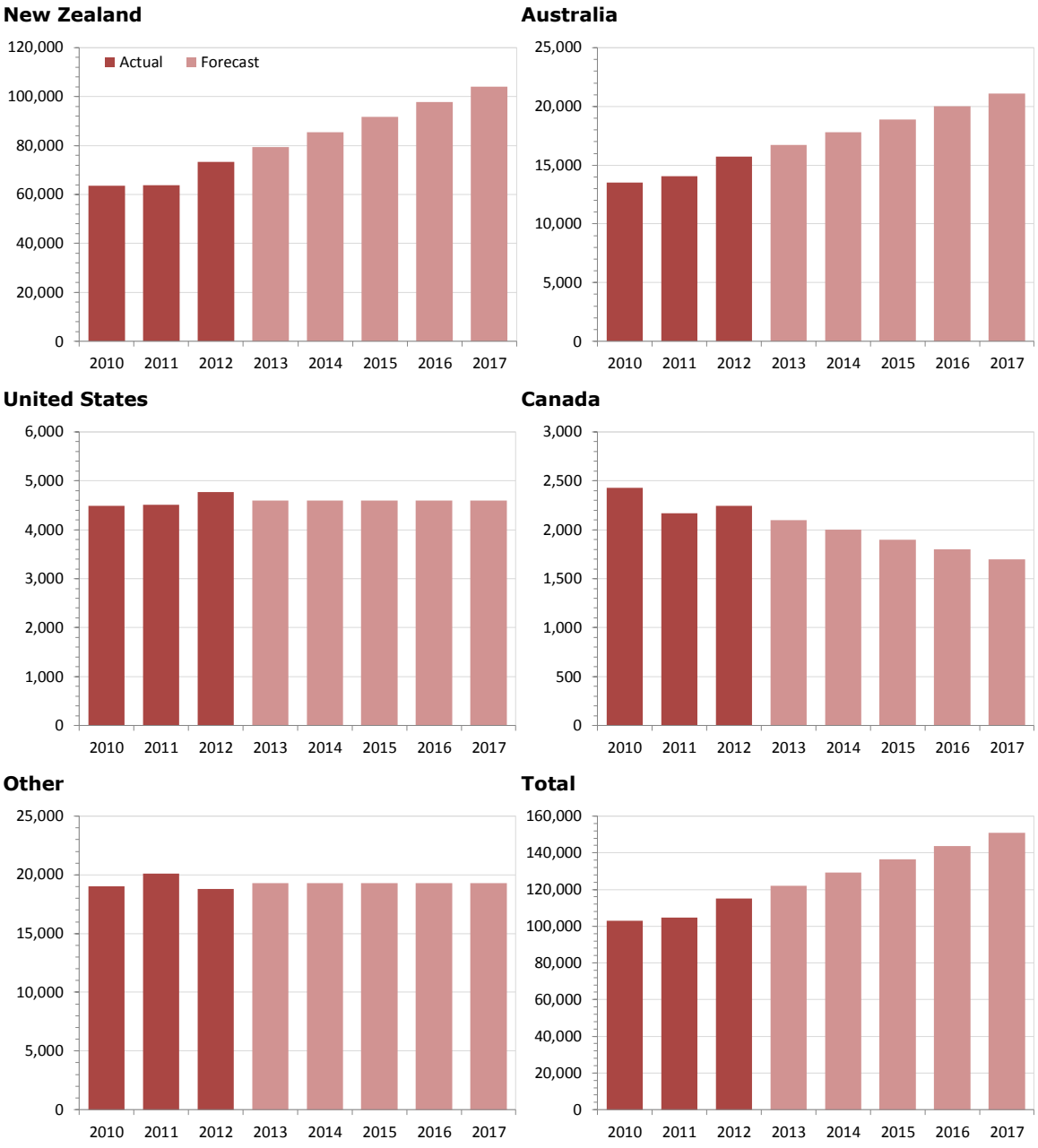

## 3.2 Underwrite Scenario

The underwrite scenario assumes that both routes continue to be underwritten and continue to operate. The scenario consists of forecasts of the number of annual visitor arrivals for calendar years 2013 – 2017. These forecasts were generated by extrapolating recent trends in arrivals from each country.

These forecasts are shown in Figure 19. Arrivals from New Zealand and Australia are expected to continue to increase. Arrivals from other origins are expected to remain constant, or to decline in the case of the 'other' category. Total arrivals are forecast to rise from 115,000 in 2012 to around 151,000 in 2017.

As explained above, our analysis depends on the *difference* between the underwrite scenario and alternative scenarios and not the accuracy of each individual scenario. Thus the accuracy of these forecasts is not a major issue. The key assumptions relate to the change in visitor arrivals if either route is not underwritten. These assumptions are discussed in section 3.3 below.

Figure 19 Forecasted arrivals in the underwrite scenario.




*Source:* Ministry of Finance

## 3.3 Alternative Scenarios

Each alternative scenario involves one of the routes not being underwritten and not operating. We have estimated the effect on international visitor arrivals and expenditure, given the above analysis of visitor travel patterns. Since there is some uncertainty about how travellers will behave in the absence of the underwritten routes, we estimate a range of scenarios intended to capture the likely possibilities.

The starting point for each alternative scenario is the underwrite scenario described in section 3.2 above. To generate the alternative scenario, we estimate the relative reduction in the number of international visitors, if the relevant route did not operate. For each visitor country of origin, this was done in a two-step process:

1. Use the historic travel patterns across the types of itineraries analysed in section 3.1.3 above to generate a potential number of arrivals using each itinerary type.

2. Reduce these potentials by factors reflecting the expected effect of the lack of each underwritten route on arrivals.

The factors referred to in step 2 may be different for different itinerary types, reflecting the fact that the absence of a route will have a different impact on travellers who were planning to use that route for both legs of a round-trip, versus only one leg of their journey. We discuss these assumptions for each route below.

### 3.3.1 LAX-RAR (NZ18/19) not underwritten

Table 5 shows the assumed travel patterns used to generate potential arrivals for each of three types of itinerary relevant to this scenario. These are based on historic averages between 2010 and 2012.

Table 5 Assumed travel patterns to generate potential arrivals by itinerary type.

| | NZ | AU | US | CA | Other |
|---|---|---|---|---|---|
| LAX / RAR round-trip | 0.1% | 0.1% | 48.6% | 30.1% | 4.5% |
| Stop-over to or from LAX | 1.2% | 1.2% | 28.1% | 45.9% | 24.2% |
| Other itinerary | 98.7% | 98.7% | 23.3% | 24.0% | 71.2% |

In the absence of the LAX-RAR route, travellers between Los Angeles and Rarotonga would have to travel via an intermediate point, most likely Auckland. The convenience of the non-stop LAX-RAR service is illustrated by the high proportion of visitors from North America that choose to use this service in one or both directions, despite the fact that it does not operate frequently.

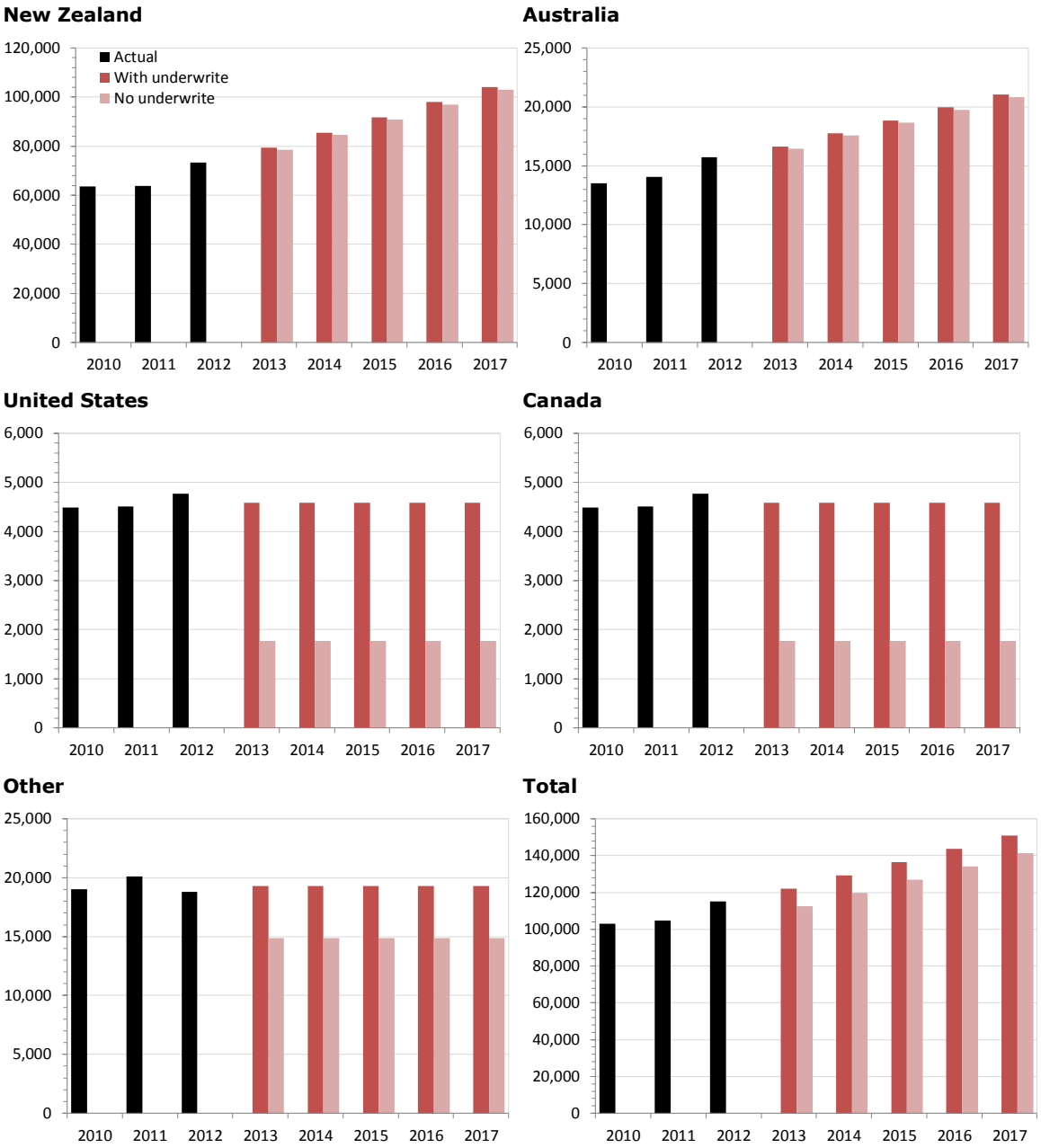
Passengers who wished to have a Pacific Island stop-over on the way to or from Los Angeles would also find it relatively inconvenient to visit Rarotonga in the absence of this route. Alternatives with better connections include Fiji, Tahiti and Hawaii. Accordingly, we assume that the loss of the LAX-RAR route would have a relatively significant effect on passengers travelling on LAX / RAR round-trips, or using Rarotonga as a stop-over to or from Los Angeles (Table 6).

Table 6 Assumed reduction in potential arrivals by itinerary type if LAX-RAR did not operate.

| | Low | Expected | High |
|---|---|---|---|
| LAX / RAR round-trip | 60% | 80% | 100% |
| Stop-over to or from LAX | 60% | 80% | 100% |
| Other itinerary | 0% | 0% | 0% |

Figure 20 shows the implications of the 'expected' case assumptions on the number of international visitor arrivals if LAX-RAR is not underwritten. We estimate a reduction in total visitor arrivals of around 9,500 per year in the expected case, ranging between 7,000 for the low scenario and 12,000 for the high scenario.

Figure 20 Assumed annual visitor arrivals in the 'expected' case if LAX-RAR is not underwritten.



The most significant effects are on visitors from North America and Europe. There is a small reduction in the number of New Zealand and Australian arrivals, reflecting lower use of the Cook Islands as a stop-over destination. Table 7 summarises the assumed reduction in visitor arrivals from each origin if LAX-RAR is not underwritten and does not operate, relative to the underwrite scenario in each year.

Table 7 Assumed annual **reductions** in international visitor arrivals if LAX-RAR is not underwritten, relative to the underwrite scenario in each year.

| | **2013** | **2014** | **2015** | **2016** | **2017** |
|---|---|---|---|---|---|
| NZ | | | | | |
| Low | 600 | 647 | 694 | 741 | 788 |
| Expected | 800 | 862 | 925 | 988 | 1,050 |
| High | 1,000 | 1,078 | 1,156 | 1,234 | 1,313 |
| Australia | | | | | |
| Low | 134 | 143 | 151 | 160 | 169 |
| Expected | 178 | 190 | 202 | 214 | 225 |
| High | 223 | 238 | 252 | 267 | 282 |
| United States | | | | | |
| Low | 2,113 | 2,113 | 2,113 | 2,113 | 2,113 |
| Expected | 2,818 | 2,818 | 2,818 | 2,818 | 2,818 |
| High | 3,522 | 3,522 | 3,522 | 3,522 | 3,522 |
| Canada | | | | | |
| Low | 955 | 913 | 871 | 829 | 787 |
| Expected | 1,274 | 1,218 | 1,161 | 1,105 | 1,049 |
| High | 1,592 | 1,522 | 1,452 | 1,382 | 1,311 |
| Other | | | | | |
| Low | 3,332 | 3,332 | 3,332 | 3,332 | 3,332 |
| Expected | 4,443 | 4,443 | 4,443 | 4,443 | 4,443 |
| High | 5,554 | 5,554 | 5,554 | 5,554 | 5,554 |
| Total | | | | | |
| Low | 7,134 | 7,148 | 7,162 | 7,175 | 7,189 |
| Expected | 9,512 | 9,531 | 9,549 | 9,567 | 9,585 |
| High | 11,891 | 11,913 | 11,936 | 11,959 | 11,981 |

### 3.3.2 SYD-RAR (NZ60/61) not underwritten

Table 8 shows the assumed travel patterns used to generate potential arrivals for each of three types of itinerary relevant to this scenario. These are based on historic averages between 2010 and 2012.

Table 8 Assumed travel patterns to generate potential arrivals by itinerary type.

| | NZ | AU | US | CA | Other |
|---|---|---|---|---|---|
| SYD / RAR round-trip | 0.5% | 24.5% | 0.5% | 1.7% | 2.3% |
| SYD / RAR one-way | 0.5% | 13.9% | 2.3% | 6.1% | 3.2% |
| Other itinerary | 98.9% | 61.7% | 97.2% | 92.1% | 94.4% |

In the absence of the SYD-RAR route, relatively frequent and convenient options are available for travelling between Australia and Rarotonga via Auckland. These include flights operated by Air New Zealand and Virgin Australia. Other airlines including Emirates and Qantas operate trans-Tasman flights from various points in Australia.

These options are reflected by the fact that over 60% of Australian resident arrivals to the Cook Islands do not use the SYD-RAR service at all. Of those Australians using it, the majority use the service in both directions, suggesting the users of the service are predominantly Sydney residents.

As discussed in section 3.1.2 above, we estimate that 40% of the Australian resident arrivals to the Cook Islands on NZ60 are net new arrivals and 60% are substitution from other services. We use this observation to calibrate our assumption about the reductions in arrivals assumed if the service did not operate.

These assumptions are shown in Table 9. The 'high' scenario generates a similar reduction in Australian arrivals as assuming that all of the net new arrivals on NZ60 did not arrive if the service did not operate. In reality, some of these may travel on other services, thus the 'expected' scenario reflects a more conservative assumption about the loss of Australian arrivals.

Table 9 Assumed reduction in potential arrivals by itinerary type if SYD-RAR did not operate.

| | Low | Expected | High |
|---|---|---|---|
| SYD / RAR round-trip | 10% | 30% | 50% |
| SYD / RAR one-way | 5% | 15% | 25% |
| Other itinerary | 0% | 0% | 0% |

Figure 21 shows the implications of the 'expected' case assumptions on the number of international visitor arrivals if SYD-RAR is not underwritten. We estimate a reduction in total visitor arrivals of around 2,200 per year in the expected case, ranging between 750 for the low scenario to 4,200 for the high scenario. The most significant effects are on visitors from Australia. There is a small reduction in the number of arrivals from New Zealand and other countries. Table 10 summarises the assumed reduction in visitor arrivals from each origin if SYD-RAR is not underwritten and does not operate, relative to the underwrite scenario in each year.

Figure 21 Assumed annual visitor arrivals in the 'expected' case if SYD-RAR is not underwritten.

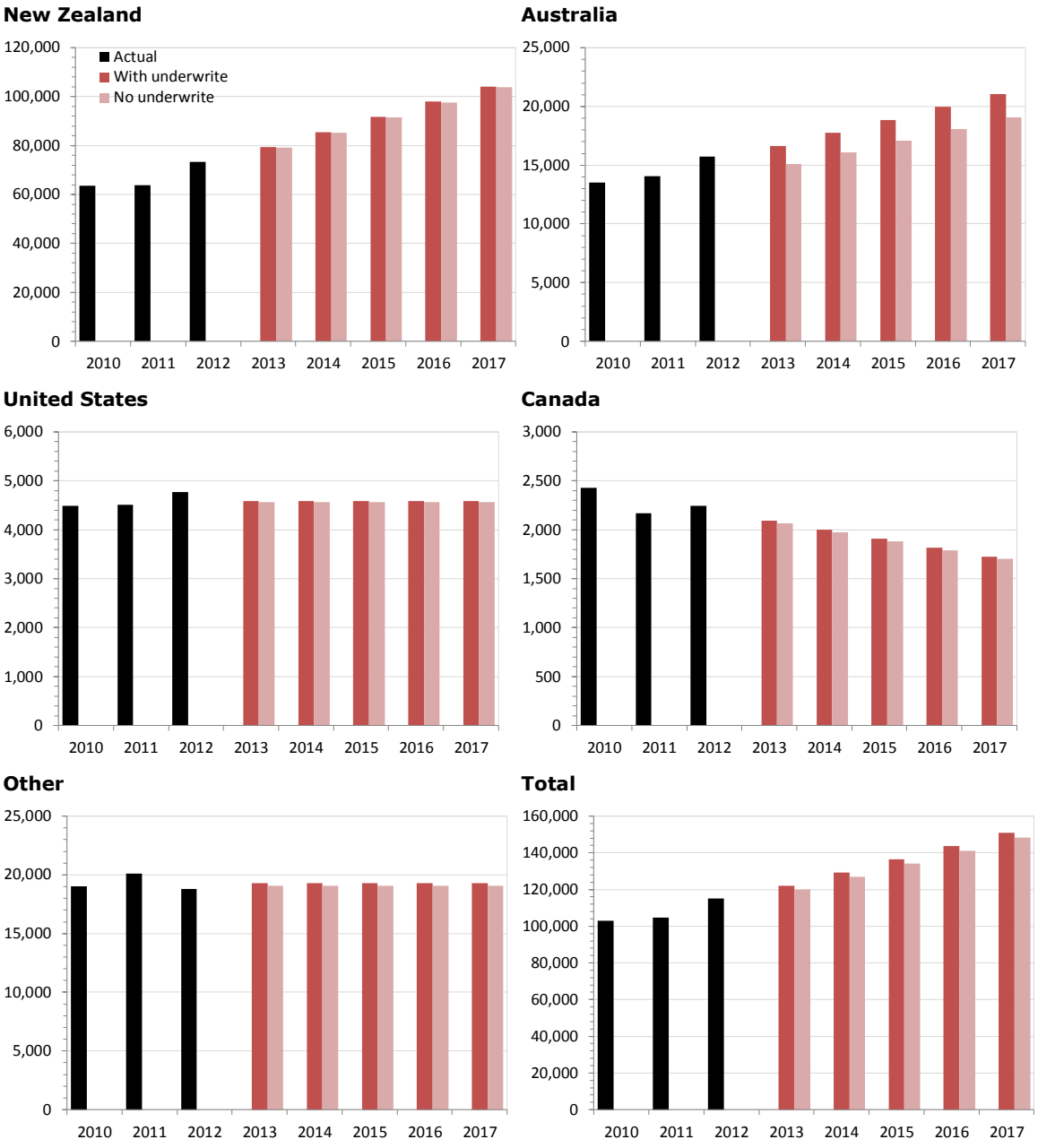


Table 10 Assumed annual **reductions** in international visitor arrivals if SYD-RAR is not underwritten, relative to the underwrite scenario in each year.

| | 2013 | 2014 | 2015 | 2016 | 2017 |
|---|---|---|---|---|---|
| NZ | | | | | |
| Low | 64 | 69 | 74 | 79 | 84 |
| Expected | 192 | 207 | 221 | 236 | 251 |
| High | 319 | 344 | 369 | 394 | 419 |
| Australia | | | | | |
| Low | 523 | 557 | 592 | 626 | 661 |
| Expected | 1,568 | 1,672 | 1,775 | 1,879 | 1,983 |
| High | 2,613 | 2,786 | 2,959 | 3,132 | 3,305 |
| United States | | | | | |
| Low | 7 | 7 | 7 | 7 | 7 |
| Expected | 22 | 22 | 22 | 22 | 22 |
| High | 37 | 37 | 37 | 37 | 37 |
| Canada | | | | | |
| Low | 10 | 10 | 9 | 9 | 8 |
| Expected | 30 | 29 | 27 | 26 | 25 |
| High | 50 | 48 | 46 | 44 | 41 |
| Other | | | | | |
| Low | 76 | 76 | 76 | 76 | 76 |
| Expected | 229 | 229 | 229 | 229 | 229 |
| High | 382 | 382 | 382 | 382 | 382 |
| Total | | | | | |
| Low | 680 | 719 | 759 | 798 | 837 |
| Expected | 2,041 | 2,158 | 2,276 | 2,393 | 2,511 |
| High | 3,401 | 3,597 | 3,793 | 3,989 | 4,185 |

## 3.4 Future Net Effects on Cook Islands GDP

The number of international visitors and their expenditure in the Cook Islands is expected to be lower in the alternative scenarios relative to the underwrite scenario, which will reduce economic activity in the Cook Islands. However, the underwrite funds would be available for other purposes that could generate economic activity. The net effect on GDP therefore depends on the amount of economic activity generated by the international visitors that would be lost, relative to the activity generated by alternative use of the underwrite funds.

### 3.4.1 Visitor expenditure

The number of visitor arrivals in each scenario was translated into an expenditure estimate by multiplying by average length of stay and average expenditure per day.

Average length of stay was calculated for visitors from different origins using the arrival and departure dataset, by matching arrivals and departures and calculating the number of days between the date of arrival and date of departure (Table 11).[5] Average

[5] We excluded from this calculation people who stayed longer than 30 days. There are a small number of visitors with relatively long stays that tend to distort the averages.

expenditure per day was calculated from data provided in the 2012 Cook Islands visitor surveys and estimated at NZ$200 per person per day.

Table 11 Average length of stay estimates.

| | Average length of stay (days) |
|---|---|
| New Zealand | 8.3 |
| Australia | 8.7 |
| United States | 7.7 |
| Canada | 9.5 |
| Other | 8.0 |

### 3.4.2 GDP conversion factors ('multipliers')

Appropriate factors can convert expenditure estimates into GDP estimates. In general, a dollar of expenditure by a tourist is classified as an export, and this directly increases GDP by one dollar. The expenditure will also lead to consumption expenditure by local residents, which further increases GDP indirectly. However, the direct and indirect expenditure will increase imports to some extent, which reduces GDP. The combination of all of these effects gives the appropriate conversion factor ('multiplier') for visitor expenditure to GDP.

We have looked to the existing literature to determine an appropriate multiplier. Previous studies of the economic impact of the SYD-RAR and LAX-RAR routes by BERL and Airbiz appear to have used an overall GDP multiplier of 0.76.[6] This is consistent with a recent study of tourism GDP multipliers for Hawaii, which estimated a multiplier of 0.77.[7] Covec has also used multipliers of around 0.75 for estimating GDP impacts of tourism expenditure.[8] For the present analysis, we use a multiplier of 0.75.

In the alternative scenarios, the funds spent by the Cook Islands Government on the underwrite agreements will be available for other uses. To enable a valid calculation of the *net* economic value of the underwrite agreements, we must calculate the GDP that would be generated by the underwrite funds in their alternative use, ie the opportunity cost of the underwrite agreements.

---

[6] While we believe the BERL/Airbiz multiplier is appropriate, we have serious concerns with other aspects of their analysis, in particular the calculation of economic impacts of the routes without reference to a reasonable counterfactual scenario. The BERL/Airbiz methodology implicitly assumes that all non-resident passengers on the SYD-RAR and LAX-RAR routes would not visit the Cook Islands if these routes did not operate, which is an extreme and unrealistic assumption that overstates the actual net economic impact of the routes.

[7] Tian, E., J. Mak and P. Leung (2011). "The direct and indirect contributions of tourism to regional GDP: Hawaii". Economic Research Organization at the University of Hawaii, Working Paper No. 2011-5. Available at http://www.uhero.hawaii.edu/assets/WP_2011-5.pdf.

[8] For example, "The impact of the Louis Vuitton Pacific Series 2009 on Auckland", Covec, March 2009, available at http://www.covec.co.nz/sites/covec.tst/files/resources/2009%20LVPS%20Final%20Report.pdf.

If a particular alternative use were known, then an appropriate multiplier could be calculated for that expenditure. In our view, an appropriate assumption is to use the same multiplier as for international visitor expenditure since, at worst, the government could simply spend the underwrite funds on hotel rooms and tourist activities (or pay subsidies directly to tourism operators).

However we also generate results for other multipliers in the alternative scenario (0.5 and 1.0) to test the importance of this assumption. What really matters is the relative value of the multiplier for tourist expenditure versus alternative use of the underwrite funds. This relativity depends on the relative productivity of alternative expenditure versus tourist expenditure. Applying a multiplier of 0.75 is equivalent to assuming that alternative government expenditure (or tax reductions) would be equally productive as tourist expenditure. The other multipliers of 0.5 and 1.0 reflect alternative expenditure that is less productive and more productive respectively.

### 3.4.3 Results for the LAX-RAR underwrite

Table 12 summarises the net impacts of the LAX-RAR underwrite, for the 'expected' scenario and assuming a GDP multiplier of 0.75 for both visitor expenditure and alternative use of the underwrite funds. Overall, we estimate the underwrite increases Cook Islands GDP by just under $6 million per year, net of its cost.

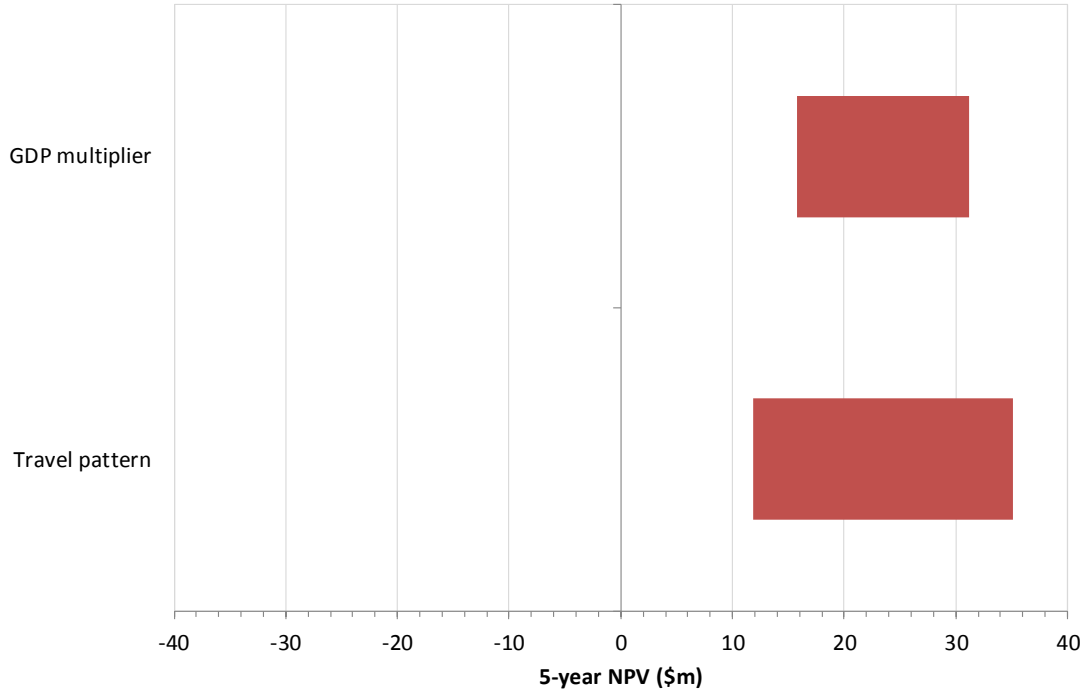
Table 12 Expected net impacts of the LAX-RAR underwrite

| | 2013 | 2014 | 2015 | 2016 | 2017 |
|---|---|---|---|---|---|
| Difference in international visitors | 9,512 | 9,531 | 9,549 | 9,567 | 9,585 |
| Difference in visitor expenditure ($m) | 15.5 | 15.5 | 15.5 | 15.6 | 15.6 |
| Underwrite cost ($m) | 7.7 | 7.7 | 7.7 | 7.7 | 7.7 |
| **Difference in GDP ($m)** | **+5.8** | **+5.9** | **+5.9** | **+5.9** | **+5.9** |
| Cost per additional visitor ($) | 809 | 808 | 806 | 805 | 803 |
| Expenditure per additional visitor ($) | 1,629 | 1,628 | 1,627 | 1,626 | 1,625 |

Figure 22 shows the range of possible results for the net effect of the LAX-RAR underwrite on Cook Islands GDP for different assumptions about the GDP multiplier and travel patterns. These results are presented in net present value terms over five years, assuming an 8% discount rate. The NPV varies between about +$16 million and +$31 million if the GDP multiplier varies between 0.5 and 1.0. The NPV varies between +$12 million and +$35 million under the 'low' and 'high' assumptions about travel patterns that were described in Table 6.

Overall, these results indicate that the LAX-RAR underwrite agreement makes a **net positive** contribution to economic activity in the Cook Islands and this result is robust to alternative plausible assumptions.

Figure 22 Sensitivity of LAX-RAR underwrite results to alternative assumptions.




### 3.4.4 Results for the SYD-RAR underwrite

Table 13 summarises the net impacts of the SYD-RAR underwrite, for the 'expected' scenario and assuming a GDP multiplier of 0.75 for both visitor expenditure and alternative use of the underwrite funds. Overall, we estimate the underwrite reduces Cook Islands GDP by about $0.7 million in 2013, increasing to a reduction of $0.1 million by 2017, relative to alternative uses of the underwrite funds.

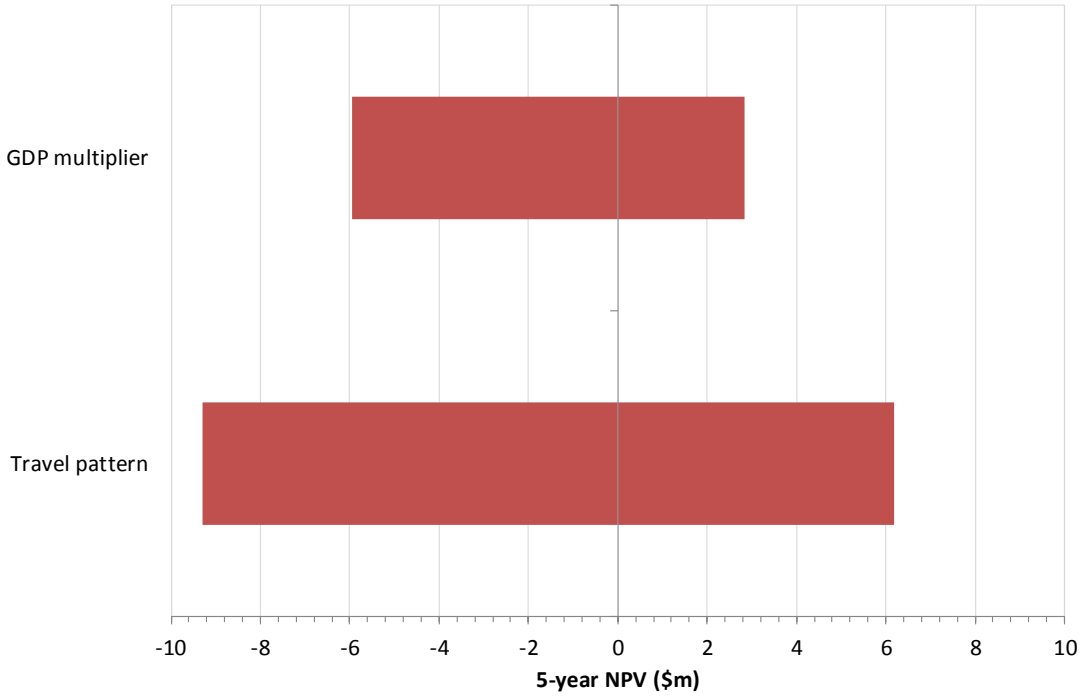
Table 13 Expected net impacts of the SYD-RAR underwrite

| | 2013 | 2014 | 2015 | 2016 | 2017 |
|---|---|---|---|---|---|
| Difference in international visitors | 2,041 | 2,158 | 2,276 | 2,393 | 2,511 |
| Difference in visitor expenditure ($m) | 3.5 | 3.7 | 3.9 | 4.1 | 4.3 |
| Underwrite cost ($m) | 4.4 | 4.4 | 4.4 | 4.4 | 4.4 |
| **Difference in GDP ($m)** | **-0.7** | **-0.5** | **-0.4** | **-0.2** | **-0.1** |
| Cost per additional visitor ($) | 2,156 | 2,039 | 1,933 | 1,838 | 1,752 |
| Expenditure per additional visitor ($) | 1,718 | 1,718 | 1,719 | 1,719 | 1,720 |

Figure 23 shows the range of possible results for the net effect of the SYD-RAR underwrite on Cook Islands GDP for different assumptions about the GDP multiplier and travel patterns. These results are presented in net present value terms over five years, assuming an 8% discount rate. The NPV varies between -$5.9 million and +$2.8 million if the GDP multiplier varies between 0.5 and 1.0. The NPV varies between -$9.3 million and +$6.2 million under the 'low' and 'high' assumptions about travel patterns that were described in Table 9.

Overall, these results indicate that the SYD-RAR underwrite agreement makes a **marginally negative** contribution to economic activity in the Cook Islands. Under plausible assumptions, the underwrite may make a small positive or small negative net contribution to Cook Islands GDP, although the result is more likely to be negative than to be positive.

Figure 23 Sensitivity of SYD-RAR underwrite results to alternative assumptions.




## 3.5 Historic Net Effects on Cook Islands GDP

We have also estimated the net contribution of the two underwrite agreements to Cook Islands GDP between 2010 and 2012, using data on the actual number of visitor arrivals on these flights. We have made the same assumptions as in Table 6 and Table 9 to estimate the number of visitors to the Cook Islands that would not have come in each year if the underwritten flight did not operate. This can then be used to estimate the expenditure and GDP associated with each underwrite, in the same fashion as described above for the future forecasts.

### 3.5.1 Historic Effects of LAX-RAR

Table 14 summarises the estimated effects of the LAX-RAR service between 2010 and 2012 based on actual arrivals on the service. We estimate that between around 9,000 and 10,000 visitors per year would not have come to the Cook Islands if this service did not operate. Using the actual annual underwrite payments, this translates to a net increase in GDP of between $6.6 million and $7.7 million per year.

These results vary between a net gain of around $3.6 million and $10.5 million per year depending on the assumptions about the GDP multiplier for alternative expenditure

and visitor travel patterns. Overall it is likely that the LAX-RAR underwrite agreement made a net positive contribution to Cook Islands GDP in 2010 to 2012.

Table 14 Analysis of the estimated historic impacts of LAX-RAR.

| | 2010 | 2011 | 2012 |
|---|---|---|---|
| Travellers on LAX-RAR* | 11,142 | 12,155 | 12,254 |
| Difference in arrivals | 8,914 | 9,724 | 9,803 |
| Difference in visitor expenditure ($m) | 14.6 | 15.8 | 16.0 |
| Underwrite cost ($m) | 4.3 | 7.0 | 6.3 |
| **Difference in GDP ($m)** | **7.7** | **6.6** | **7.3** |

* Number of visitors to the Cook Islands who used this service in at least one direction.

### 3.5.2 Historic Effects of SYD-RAR

The SYD-RAR service has operated since mid-2011. Table 15 summarises the estimated effects of the SYD-RAR service based on actual arrivals on the service. Using actual underwrite payments, we estimate the agreement led to a reduction in Cook Islands GDP of $0.3 million in 2011 and $0.9 million in 2012.

The full-year GDP impacts for 2012 vary between -$2.1 million and +$0.7 million depending on the value of the GDP multiplier for alternative expenditure and visitor travel patterns. Overall it is likely that the SYD-RAR underwrite agreement made a negative contribution to Cook Islands GDP in 2011 and 2012.

Table 15 Analysis of the estimated historic impacts of SYD-RAR.

| | 2011 | 2012 |
|---|---|---|
| Travellers on SYD-RAR* | 4,534 | 8,219 |
| Difference in arrivals | 1,083 | 1,950 |
| Difference in visitor expenditure ($m) | 1.9 | 3.3 |
| Underwrite cost ($m) | 2.2 | 4.6 |
| **Difference in GDP ($m)** | **-0.3** | **-0.9** |

* Numbers of visitors to the Cook Islands who used this service in at least one direction.

## 3.6 Other Effects

This section considers effects of the underwritten flights on other activity beyond international visitor arrivals and expenditure.

### 3.6.1 Travel within the Cook Islands

Some visitors arriving on the underwritten flights travel beyond Rarotonga to the outer islands. To the extent that people and businesses in the outer islands contribute less than those in Rarotonga to the cost of the underwrites, the policy partially acts to re-distribute economic activity from Rarotonga to elsewhere in the Cook Islands.

Using data on arrivals on the underwritten flights matched to data on domestic travel within the Cook Islands, we estimate that around 25% of visitors arriving on NZ60 and

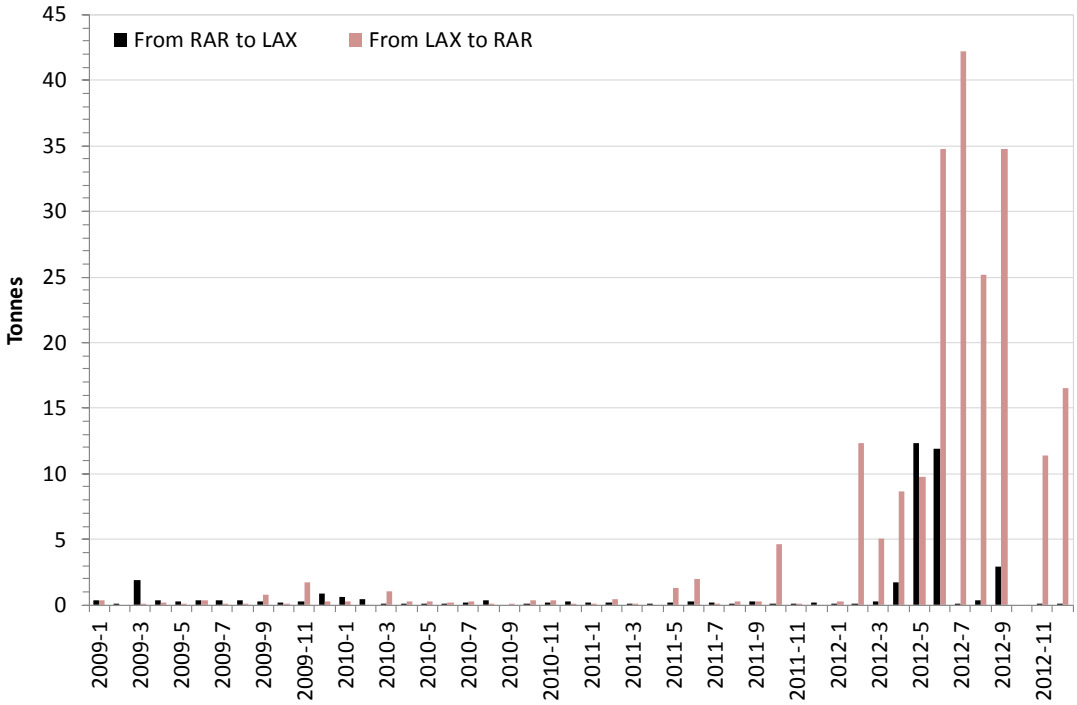
NZ19 travel to Atiu or Aitutaki. Of these visitors, around 10% are using Air Rarotonga's day tour flight to Aitutaki (flight 1612). The remainder stay for one or more nights in the outer islands.

Under the 'expected' scenario, this suggests the LAX-RAR underwrite makes a net contribution of around 2,000 visitors per year to the outer islands, and SYD-RAR makes a net contribution of around 750 visitors per year.

### 3.6.2 Air freight

The underwritten flights facilitate the transport of air freight as well as passengers. Figure 24 shows monthly air freight volumes in both directions on the LAX-RAR service between 2009 and 2012. The majority of air freight is imports, with a relatively small amount of exports. It does not appear that this service is used regularly for exports from the Cook Islands.

Figure 24 Monthly air freight volumes between Rarotonga and Los Angeles



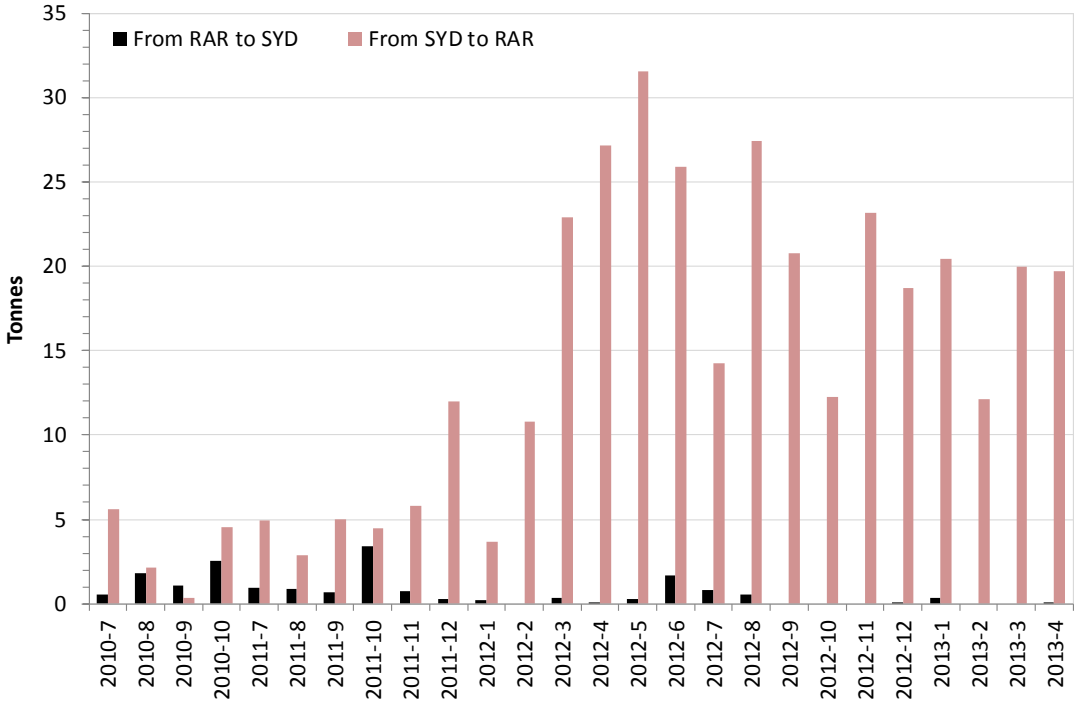

*Source:* US Bureau of Transport Statistics

Similarly, Figure 25 shows monthly freight volumes on the SYD-RAR service since mid-2010. Again the freight traffic is dominated by imports, with very small amounts of exported freight each month.

Air freight is relatively time sensitive compared to sea freight, but less time sensitive than passengers. Absent the SYD-RAR or LAX-RAR routes, air freight to/from the Cook Islands can travel via Auckland with a relatively small increase in travel time. In addition, the SYD-RAR and LAX-RAR services only operate once per week in each direction, which means that highly time-sensitive freight can only use this service if it is ready to be exported or imported on the day the service operates.

The principal exports of the Cook Islands are live, fresh and chilled fish, and pearls. Fish exports are relatively time sensitive and suitable for air freight, thus SYD-RAR and LAX-RAR may be used by fish exporters, however to date this has not occurred in large volumes. The extent to which these services will be used by fish exporters in future is unknown, however this could be assessed by surveying exporters about their intentions.

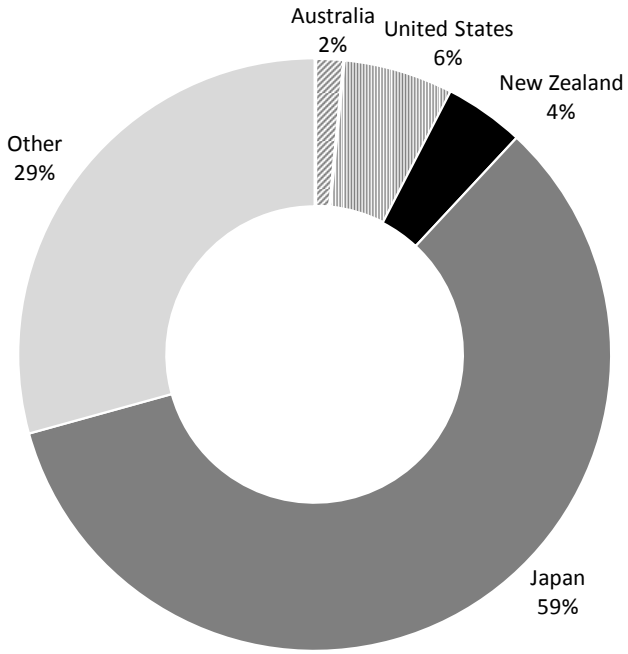
Figure 25 Monthly Air freight volumes between Sydney and Rarotonga.




*Source:* Australian Bureau of Infrastructure, Transport and Regional Economics.

Figure 26 shows the value of Cook Islands exports by destination. Japan is the largest export destination, and it seems unlikely that air freight exports to Japan would use the underwritten services. The value of exports to the US and Australia are very small.

Figure 26 Value of Cook Islands exports by destination, 2011.




*Source:* Cook Islands Statistics Office.

### 3.6.3 Outbound travel by Cook Islands residents

The number of short-term international departures by Cook Island residents is ten times smaller than the number of international visitor arrivals. In 2012 there were around 12,000 resident departures compared to around 120,000 international visitor arrivals.

Data on the main destination of departing residents is not available, but we can partially estimate the destination of outbound Cook Islands residents by comparing departure numbers with arrivals elsewhere. Table 16 undertakes this comparison with New Zealand international visitor arrivals and shows that around 90% of short-term overseas trips by Cook Islands residents are to New Zealand.

In recent years the estimated number of Cook Islands resident departures that were *not* to New Zealand has averaged around only 1,400 per year. This suggests that the loss of either the LAX-RAR or SYD-RAR service would have a minimal impact on outbound travel by Cook Islanders.

Table 16 Outbound travel by Cook Islands residents

| | 2008 | 2009 | 2010 | 2011 | 2012* |
|---|---|---|---|---|---|
| Short-term departures by Cook Island residents | 12,024 | 11,921 | 11,875 | 12,240 | 11,856 |
| Cook Islands residents visitor arrivals in NZ | 11,346 | 11,042 | 10,577 | 11,309 | 9,856 |
| NZ proportion | 94% | 93% | 89% | 92% | 83% |

*Source:* Statistics New Zealand and Cook Island Statistics Office.

* Departure data for 2012 is provisional.

## 3.7 Looking Forward

The above analysis suggests that the LAX-RAR underwrite makes a net positive contribution to the Cook Islands economy, while the contribution of the SYD-RAR underwrite is marginal. The following sections briefly discuss some issues that the government may wish to consider in its evaluation of the future of the underwrite agreements and use of the associated funds.

### 3.7.1 Structure of the underwrite agreements

The terms of the underwrite agreements are cost-based. The government guarantees that Air New Zealand will cover all costs of the LAX-RAR service, and will make a 10% return on costs of the SYD-RAR service. Such cost-based arrangements are known as "low power" procurement contracts as they give the provider weak incentives to (a) reduce costs and (b) maximise revenues in order to minimise any deficit. In addition, the underwrite agreements expose the government to risk as the annual amount of the underwrite payment is open-ended and affected by factors beyond its control such as aviation fuel prices.

An alternative approach that could avoid these problems is to negotiate a fixed annual underwrite payment in advance. Additionally, the provision of service could be tendered to multiple airlines, in order to generate some competition for provision of the underwritten services and reduce the size of the payment. Such tenders are commonly used by governments to provide subsidised telecommunications services in rural areas.

### 3.7.2 Alternative ways of stimulating tourism demand

The effect of the underwrite agreements is to subsidise certain types of travel to the Cook Islands. However, the subsidies only occur indirectly, via payments to Air New Zealand. Furthermore, the travel of *all* passengers on the underwritten flights is subsidised, regardless of whether or not they would have visited the Cook Islands without the subsidy. The underwrite agreements are therefore relatively blunt tools to stimulate tourism demand to the Cook Islands.

An alternative could involve directly subsidising airfares rather than flights. This could potentially be used to better target the subsidies at visitors who would not otherwise visit the Cook Islands. Furthermore, airfare subsidies could be targeted in the off-peak season when there is high spare capacity in the Cook Islands tourism sector. This would help to prevent subsidised visitors from "crowding out" other visitors and increasing the net impact of the subsidies.

### 3.7.3 Alternative tourism strategies

The LAX-RAR underwrite is largely a "maintenance" strategy. It delivers a relatively large number of visitors but from stagnant or declining markets. In contrast, the SYD-RAR underwrite is a "growth" strategy that delivers a smaller number of visitors from a growing market. This raises two questions:

a) Given that the visitor markets supported by the LAX-RAR underwrites are in decline, what is the long-term plan to counteract this trend? The lifetime of the

767 aircraft is limited and more expensive aircraft will need to be used in future. Would it be better to spend some or all of the $7.7 million annual cost of this underwrite on growing rather than maintaining the tourism sector, given that this underwrite agreement will not be sustainable indefinitely?

b) Is investing $4.4 million per year in the SYD-RAR underwrite agreement the best way to grow the Cook Islands tourism sector? We estimate that this agreement costs around $2,000 per additional visitor that it generates. How does the per-visitor cost compare to alternatives such as marketing or investment in tourism infrastructure within the Cook Islands?

Answering these questions requires undertaking a forward-looking analysis, taking into account future trends in traveller behaviour and the costs of providing air services, rather than simply seeking to maintain the status quo.