

Probabilistic forecasts using expert judgement: the road to recovery from COVID-19

Online supplementary materials

A Supplementary plots for forecast evaluation

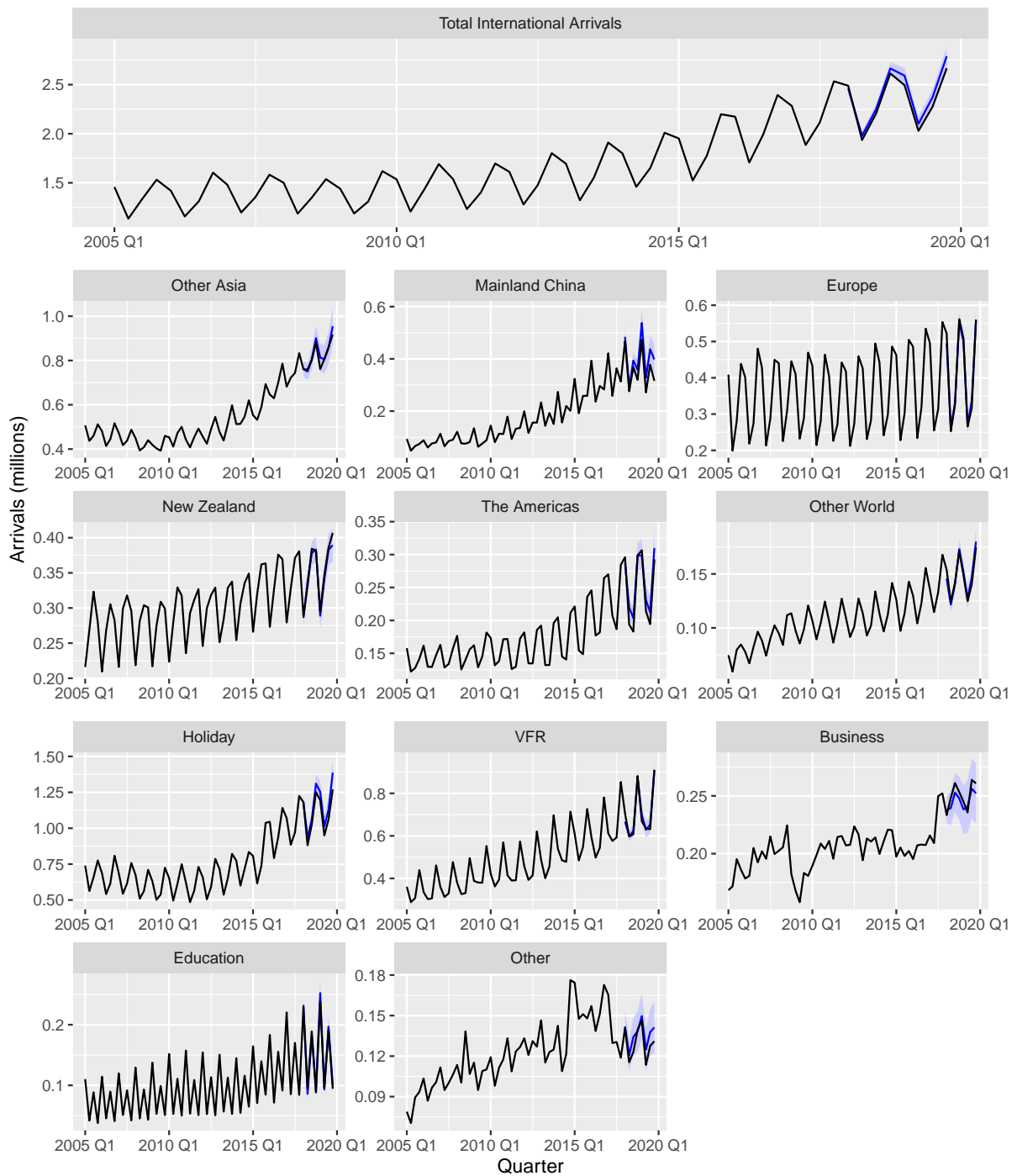


Figure 1: Forecast accuracy evaluation over the 2018 Q1–2019 Q4 test-set for international arrivals to Australia

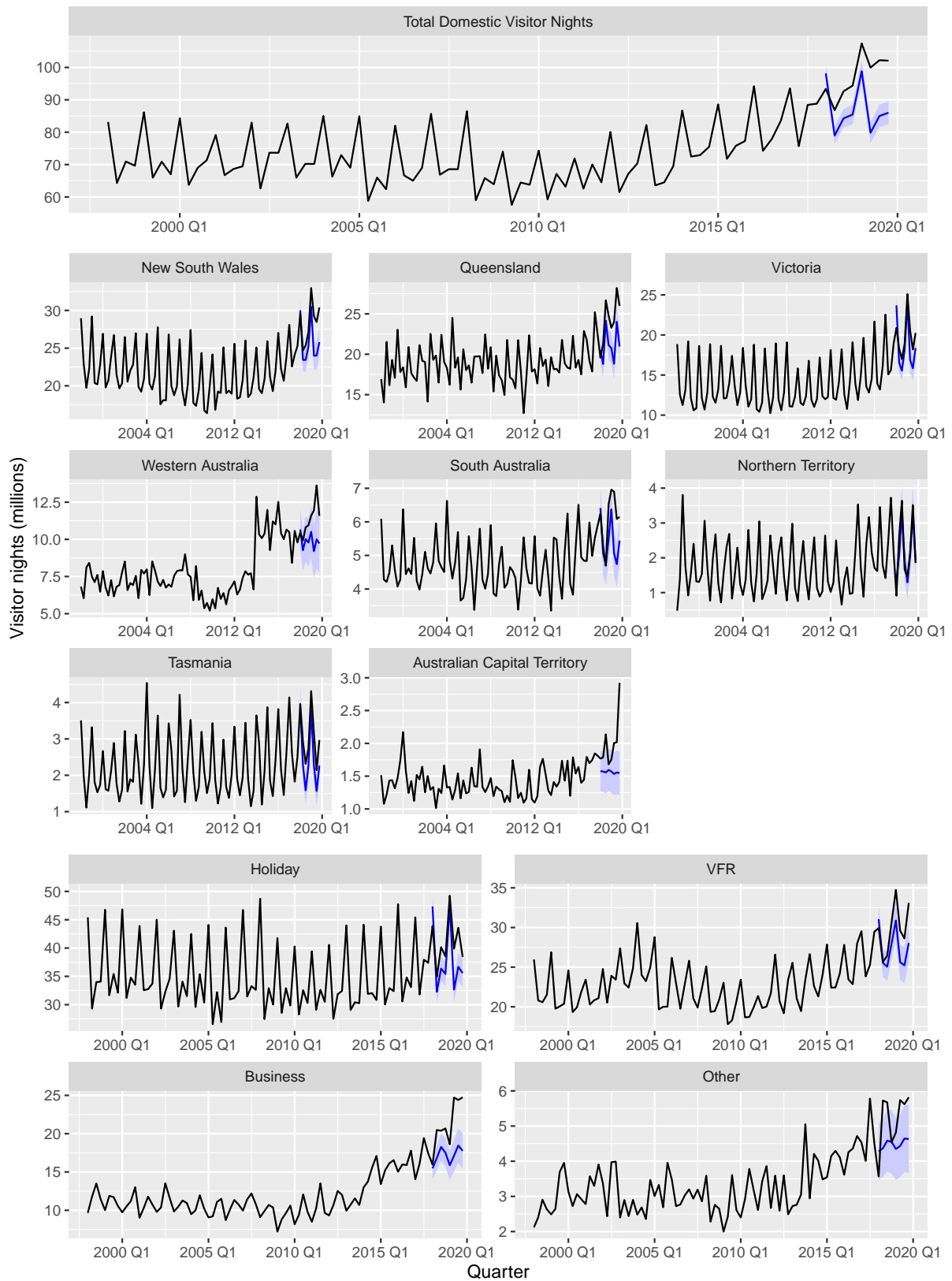


Figure 2: Time series and counterfactual forecasts for the period 2020 Q1–2019 Q4 for Australian domestic visitor nights

B Survey questionnaire design

In this appendix we provide the details of the questionnaire. Our aim was to make this as simple as possible for respondents in order to keep them engaged, but at the same time collect valuable information that will enable us to generate probabilistic scenario-based forecasts for the future of Australian tourism having endured the effect of COVID-19.

Background information

The COVID-19 Pandemic has resulted in massive disruptions to tourism worldwide and at this stage the timeframe for recovery is both long and uncertain. In this environment, where so much can change so quickly, producing conventional tourism forecasts is not appropriate.

There is however a need to consider the range of plausible recovery scenarios that draw on the collective views of tourism experts and practitioners. It is inevitable that tourism will eventually find its feet, and having a better understanding of how it might recover will assist with planning, policy formulation and industry advocacy.

By completing this short survey you are contributing to this information gathering process. We also understand that the uncertainty of the situation will limit the amount of information you may be able to provide and have designed the survey to reflect this.

About you and your sector

Question 1: Which sector best describes your organisation?

- Academic
- Consultant
- Government
- Industry - accommodation
- Industry - association
- Industry - aviation
- Industry - other transport
- Industry-food services
- Industry-tour operator services
- Industry-travel agency
- Other (please specify)

Question 2: How many people are currently employed by your organisation?

less than 5
5 to 19
20 to 49
50 to 199
200 or more

Question 3: How does this employment figure compare with the start of 2020?

Lower 90-100%
Lower 70-90%
Lower 50-70%
Lower 30-50%
Lower 10-30%
Lower 0-10%
Higher 0-10%
Higher 10-30%
Higher 30-50%
Higher than 50%

International arrivals to Australia

The purpose of the following questions is to get your views on the recovery trajectory for international tourism in terms of visitor numbers. With so much uncertainty we'd like you to consider future scenarios that take into account factors such as changing economic conditions, concerns around travel and safety, aviation access, the price of travel and potential discovery of a vaccine.

We appreciate that some of you may have more detailed knowledge than others. Please provide estimates for specific markets and specific travel categories should you wish.

Question 4: International arrivals to Australia have grown an average of 6% p.a. over the last 5 years. In the December quarter 2019, there were 2.7 million international visitors to Australia. Assuming that international borders reopen in the middle of 2021, what do you think international visitors will be for the December quarter of 2021 compared to the December quarter 2019 under a most likely scenario – your best estimate based on your knowledge and insight; a pessimistic scenario – reflecting a worse case highly unlikely, but still plausible outcome; an optimistic scenario – reflecting a best case highly unlikely, but still plausible outcome.

Most likely	Pessimistic	Optimistic
Lower 90-100%	Lower 90-100%	Lower 90-100%
Lower 70-90%	Lower 70-90%	Lower 70-90%
Lower 50-70%	Lower 50-70%	Lower 50-70%
Lower 30-50%	Lower 30-50%	Lower 30-50%
Lower 10-30%	Lower 10-30%	Lower 10-30%
Lower 0-10%	Lower 0-10%	Lower 0-10%
Higher 0-10%	Higher 0-10%	Higher 0-10%
Higher 10-30%	Higher 10-30%	Higher 10-30%
Higher 30-50%	Higher 30-50%	Higher 30-50%
Higher than 50%	Higher than 50%	Higher than 50%

Note: the rows were embedded in a dropdown menu.

Question 5: *In what year do you think international visitor numbers will return to 2019 levels?*

Please provide estimates for the most likely, pessimistic and optimistic scenario.

	2021	2022	2023	2024	2025	2026	2027	2028
Most likely								
Pessimistic								
Optimistic								

Question 6: *In what year do you think international visitor numbers for the following segments will return to 2019 levels? Please provide estimates only for the most likely scenario (This is an optional question- please provide information only where you have a view)*

	2021	2022	2023	2024	2025	2026	2027	2028
Holiday								
VFR								
Business								
Education								

Question 7: *In what year do you think international visitor numbers for the following markets will recover to 2019 levels? Please provide estimates only for the most likely scenario. (This is an optional question- please provide information only where you have a view)*

	2021	2022	2023	2024	2025	2026	2027	2028
New Zealand								
Mainland China								
Other Asia								
Europe								
The Americas								

Australian domestic tourism

The purpose of the questions that follow is to get your views on the recovery trajectory for domestic tourism. Factors we’d like you to consider in these future scenarios are the timing of

interstate border openings, transport access to the regions, domestic economic conditions, the price of travel, safety concerns and potential discovery of a vaccine. We appreciate that some of you may have more detailed knowledge than others. Please provide estimates for specific markets and specific travel categories should you wish.

Question 8: Domestic visitor nights have grown an average of 7% p.a. over the last 5 years. In the December quarter 2019, there were 103.4 million domestic visitor nights around Australia. Compared to these levels what do you think the number of domestic visitor nights will be for the December quarter 2020 and the December quarter 2021 compared to the December quarter 2019 under: a most likely scenario – your best estimate based on your knowledge and insight; a pessimistic scenario – reflecting a worse case highly unlikely, but still plausible outcome; an optimistic scenario – reflecting a best case highly unlikely, but still plausible outcome.

Same dropdown menu as in Question 4 was used but for both December quarter 2020 and December quarter 2021.

Question 9: In what year do you think domestic visitor nights will return to 2019 levels? Please provide a most likely, a pessimistic and an optimistic scenario.

Same options menu as in Question 5 were used.

Question 10: In what year do you think domestic visitor nights will return to 2019 levels for the following markets? Please provide estimates only for the most likely scenario. (This is an optional question-please provide market information only where you have a view)

	2021	2022	2023	2024	2025	2026	2027	2028
New South Wales								
Victoria								
Queensland								
South Australia								
Western Australia								
Tasmania								
Northern Territory								
ACT								

Question 11: In what year do you think domestic visitor nights for the following markets will return to 2019 levels? Please provide estimates only for the most likely scenario. (This is an optional question-please provide market information only where you have a view).

	2021	2022	2023	2024	2025	2026	2027	2028
Holiday								
VFR								
Business								