Comments on ChCh Airport's PSE3 Proposal

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1. Christchurch International Airport Ltd (CIAL) is beginning a consultation with airlines over future pricing. As part of this process, CIAL commissioned Incenta Economic Consulting to undertake work on three issues: depreciation for PSE3, RAB adjustments from PSE2, and the asset beta component of the weighted average cost of capital (WACC). BARNZ has requested my independent expert review of the tilted annuity and WACC components of this document.

Depreciation

2. Incenta has recommended that CIAL use a tilted annuity to develop depreciation allowances for PSE3. This approach begins with the selection of the "tilt" factor, which is the annual rate of change of the total capital charge (i.e. the sum of a WACC return on assets and depreciation of assets). Incenta suggest that the tilt factor be set at a conservatively low estimate of demand (passenger) growth, specifically 1.5% per annum and that this be used as a "real" tilt factor.

3. I have no objection in principle to the use of a tilted annuity for this purpose, nor to the suggested tilt factor.

4. I have reviewed BARNZ replication of the tilted annuity and believe it accurately represents the proposed method. It also demonstrates the NPV neutrality of this approach.

WACC

5. Incenta has sought to deflect criticism by the Commerce Commission over CIAL's uplift of 0.05 to its asset beta by developing empirical evidence for its view that CIAL faces higher systematic risk than other airports. I have several concerns about this section of the Incenta report.

Levels or Growth Rates?

6. Incenta justifies its approach in part with reference to comments made by the ACCC in its determination of an asset beta for Sydney Airport in 2001. However, both the cited comments and the broader context in which they appear in the ACCC report refer to correlations between traffic measures and GDP. Incenta has instead explored the correlations between *growth rates* in these two variables.

7. The reason for this choice is not discussed by Incenta, nor are any sensitivity tests presented, for example to show that the choice of modelling growth rates rather than levels (or logarithms) was not material.

Sample Period

8. Incenta had data on matching time periods (2005 – 2015) for CIAL and all of the 26 airport entities in the Commission's analysis. However it chose to use a longer sample period for

CIAL, meaning that there is a mis-match between the sample period for the comparator set of 26 airports and the focal airport (CIAL).

9. This raises questions as to why that modelling choice was made, and what would have been the effect of using a common sample period. No raw data are provided, so it has not been possible to empirically investigate these questions.

Statistical Significance

10. It is clear from Table 3 of the Incenta report that the proxy asset beta estimates for CIAL are much less precise than for the Commission's sample. The p-value for the latter is zero, while the p-values for CIAL are 5% and 13% depending on the sample period.

11. I note that Incenta does not claim there is a statistically significant difference between proxy asset betas estimated for CIAL and for the Commission's sample. Rather, Incenta says that its empirical results *"suggest"* this.

12. Again, with a modest amount of further work it would be possible to formally test whether CIAL is statistically different in the modelled relationship. This could be readily achieved by pooling all of the data and including a dummy variable to allow CIAL's proxy asset beta to differ from the others. The size and significance of that dummy variable would provide a more solid basis for assessing whether CIAL really does have greater systematic risk.