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THL/Apollo: review of certain aspects of the Commerce Commission's Statement of Unresolved Issues

A report for MinterEllisonRuddWatts

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Public version: confidential information has been redacted

1. Introduction

1. The New Zealand Commerce Commission (**"NZCC"**) is assessing the proposed merger of Tourism Holdings Limited (**"THL"**) and Apollo Tourism and Leisure Limited (**"Apollo"**), and has issued a Statement of Unresolved Issues (**"SoUI"**) dated 28 April 2022. We have been asked by MinterEllisonRuddWatts, counsel to THL, to review certain aspects of the SoUI. We have also provided some additional evidence related to the critical loss analysis that we have previously filed with the NZCC.
2. In particular, in this report we:
   a. Set out analysis to demonstrate the implausibility of a belief that the actual volume loss would be less than the critical loss (section 2);
   b. Update how our critical volume loss translates into a loss of fleet, in light of updated fleet size estimates (section 3);
   c. Comment on the NZCC's statement in the SoUI that Apollo is seen as a "disrupter"; and
   d. Comment on the NZCC's analysis in the SoUI of the peak price difference between motorhomes and no toilet/shower (**"NTS"**) campervans.
3. In the SoUI ([46]), the NZCC's proposed market definition is for motorhome rentals only, excluding campervans and peer-to-peer rentals from the relevant market. To be conservative, throughout this report we adopt this proposed market definition and focus only on motorhome rentals. However, to be clear, our views on market definition have not changed – for the reasons set out in our 24 March 2022 report to the NZCC and 14 April 2022 report to the ACCC, we remain of the view that the merged entity's motorhome rentals face a competitive constraint from campervan rental operators and peer-to-peer rentals.
4. Confidential information in this report is identified in square brackets and shading as follows:
   a. Purple shading is information confidential to THL;
   b. Blue shading is information confidential to Apollo; and
   c. Yellow shading is counsel-only information that should not be seen by either THL or Apollo.

2. Evidence relevant to the actual loss of the merged entity

2.1. Introduction and conclusion

5. We have previously filed a report with the NZCC dated 18 February 2022, in which we calculated the critical volume loss of the proposed merged entity in New Zealand.
6. At our meeting with NZCC staff on 9 May 2022, NZCC staff noted that we have not provided any evidence of the *actual* volume loss (to enable a comparison with the critical loss). While we agree we have not explicitly calculated the actual volume loss, as we noted at our meeting with NZCC staff we have presented evidence to show that rivals could easily expand their fleets in the relevant timeframe by an amount sufficient to exceed the critical volume – see our 22 April 2022 Addendum memo filed with the NZCC.
7. (In light of updated fleet size data, we update that analysis in section 3 of this report.)

8. In addition, in this report we set out an approach that provides an explicit calculation to demonstrate the implausibility of a belief that the actual volume loss would be less than the critical loss.

9. Our finding is that, for the actual volume loss to be less than the critical volume loss, the market demand elasticity for motorhome rentals would need to be similar to that for electricity, water, fuel, or various foods. In our view this is implausible, given that electricity, water, fuel and food are necessities; motorhome rentals are not.

10. Accordingly, we conclude that if the merged THL/Apollo attempted to raise price by 5%, the actual volume loss would exceed the critical volume loss, and the price rise would be unprofitable.

2.2. Methodology

11. In our 18 February 2022 report, we calculated the critical volume loss for the proposed merged entity in New Zealand to be 6%, based on a gross margin of approximately 79% and a 5% price rise. The gross margin was estimated across motorhomes and campervans combined, as well as for sales and rentals combined. We do not have the data to estimate a gross margin for motorhome rentals only, although we have no reason to expect that it would be materially different from that for motorhomes and campervans combined. As also noted in our 18 February 2022 report (at [20]), as many of the costs relate to sales (rather than rentals), a rental-only gross margin is likely to be higher, so our analysis is conservative (in the sense of giving a higher critical volume loss than would otherwise be the case).

12. We therefore use the same gross margin (of approximately 79%) for motorhome rentals, and with a 5% price rise we can also calculate the "critical elasticity", which is -1.19.[1] If the actual (residual demand) elasticity facing the proposed merged entity would be greater (in absolute terms) than the critical elasticity, then the merged entity could not profitably exercise market power (as this would imply the actual loss would exceed the critical loss following a 5% price increase).[2]

13. The residual demand elasticity can be estimated econometrically, but as is often the case we do not have sufficient data to undertake a rigorous econometric analysis. However, an alternative approach is to use a formula developed in the economics literature that calculates the residual demand elasticity (e_r^d) as follows:[3]

$$e_r^d = \frac{e_m^d}{s} - e^s \frac{1-s}{s} \quad (1)$$

where e_m^d is the market demand elasticity, s is the proposed merged entity's market share, and e^s is the supply elasticity.

14. The market elasticity of demand measures, across all firms in the relevant market, the sensitivity of demand to a price change. It is a negative number, because if price rises (for example), we would expect consumers to demand less of the product (i.e., demand curves slope downwards). A demand elasticity that is greater (in absolute terms) is said to be more elastic than a lower elasticity. For example, -1.5 is more elastic than -0.5.

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[1] We use the breakeven critical loss approach and a linear demand curve. The relevant formula for the critical elasticity for gross margin *m* and price rise *t* is given by $-1/(m+t)$. See Gregory Werden (2005), "Beyond Critical Loss: Tailored Application of the Hypothetical Monopolist Test", *Competition Law Journal*, 4(1), 69-78.

[2] Assuming no ability to price discriminate.

[3] See equation (2) of William M. Landes and Richard A. Posner (1981), "Market Power in Antitrust Cases", *Harvard Law Review*, 5, 937-996. Note that the two terms on the right-hand side of this equation are added together in Landes and Posner's version of the equation (rather than subtracted as shown here). However, this is because the demand elasticity terms are positive numbers in the Landes and Posner version of the equation, but negative here.

15. The supply elasticity measures the sensitivity of the quantity supplied to a price change: it is a positive number, because if price rises (for example), we would expect firms to supply more (i.e., supply curves slope upwards).

16. We first consider the appropriate supply elasticity to use in equation (1). We have not been able to find any estimates in the economics literature for the elasticity of supply for motorhomes (or similar markets, such as rental cars). The closest comparator that we have come across is an estimate of the short-run supply elasticity for hotels and Airbnb properties by Farronato and Fradkin (2022).[4] These authors use data from the US hotel industry and Airbnb to econometrically estimate a short-run supply elasticity for hotels of 1.3 and for Airbnb of 3.9. In explaining these results, Farronato and Fradkin note that hotels have a fixed supply, so it is difficult to increase hotel bookings in response to increases in demand when demand is sufficiently high. In contrast, Airbnb hosts are more willing to rent their rooms out in response to increases in price, which is why supply is considerably more elastic for Airbnb.

17. We would expect the short-run supply for motorhomes to be more elastic than that of hotels. This is because, as we have set out in our 24 March 2022 report filed with the NZCC,[5] the supply of motorhomes is characterized by fluidity in capacity, with operators able to shift vehicles around the country and/or purchase new vehicles (the costs of which are not sunk). Doing so is likely to be easier than expanding hotel capacity, as this would require adding new hotel rooms or building a new hotel. However, to be conservative we assume that the supply elasticity for motorhomes is equal to the Farronato and Fradkin (2022) estimate for hotels, of 1.3, although we also sensitivity test a more elastic supply (of 2).

18. The market share input in equation (1) is that of the proposed merged entity, and depends on how the relevant market is defined. As previously noted, to be conservative, we use the NZCC's proposed market definition in the SoUI (at [46]) which is for motorhome rentals only and excludes peer-to-peer rentals from the relevant market. In the SoUI, the NZCC estimates the market share of the merged entity in this market as follows:

    a. [ ]; and

    b. [ ].

19. In our view, it is not appropriate to use pre-pandemic market shares when there is current or post-pandemic data available, as the former is backward looking and is unlikely to reflect the post-merger market share. We understand also that THL's submission will explain why the NZCC's estimates of the merging parties' fleet sizes (using the THL motorhome definition) are out of date, and that the NZCC has [ ] for the purposes of estimating market shares. Using the adjustments set out in THL's submission, the market share of the merged entity would be [ ] on current fleet sizes and [ ] using post-pandemic fleet sizes. To be conservative, we use the latter, post-pandemic, market share in equation (1).

20. The last input in equation (1) is the market demand elasticity. We have not come across any estimates in the economics literature of the market demand elasticity for motorhome rental operators. Our approach is therefore to rearrange the above equation to back-out a market demand elasticity that would result in the actual (residual) elasticity of the proposed merged entity being equal to the critical demand elasticity of -1.19. The rearranged equation is:

$$e_m^{d*} = -1.19s + e^s(1 - s) \quad (2)$$

[4] Chiara Farronato and Andrey Fradkin (2022), "The Welfare Effects of Peer Entry: The Case of Airbnb and the Accommodation Industry", forthcoming in *American Economic Review*.

[5] See section 2.2. See also section 2.1 of our 14 April 2022 report to the ACCC.

21. The above equation gives us a market demand elasticity "threshold" (e_m^{d*}) at which the actual (residual) elasticity is equal to the critical elasticity of -1.19. If the market demand elasticity is more elastic than this threshold elasticity, then it follows from equation (1) that the actual residual elasticity would be more elastic than the critical elasticity, and the proposed merged entity could not profitably exercise market power.

2.3. Results

22. The results of calculating equation (2), for the various scenarios we test, are shown in Table 1 below. To give an example of the calculation results, consider a supply elasticity of 1.3 and market share of [ ]. Using equation (2), the threshold elasticity at which actual residual demand elasticity is equal to the critical elasticity is [ ]. So if the market elasticity is less elastic than [ ], say [ ], then the proposed merged entity could profitably increase price by 5%. However, if the market elasticity was more elastic than [ ], say [ ], then a 5% price increase would not be profitable.

Table 1: Estimation of threshold elasticity that sets actual elasticity equal to critical elasticity of -1.19

Description of scenario	Supply elasticity	Market share of merged entity	Threshold elasticity	Result
THL market shares and supply elasticity of 1.3	1.3	[ ]	[ ]	Actual elasticity more elastic than critical elasticity [ ]
THL market shares and supply elasticity of 2.0	2.0	[ ]	[ ]	Actual elasticity more elastic than critical elasticity [ ]

23. The results in Table 1 show that, using a supply elasticity of 2.0, the proposed merged entity could not impose a 5% price increase [ ]. Using the lower supply elasticity of 1.3 (which for the reasons described above is unlikely to be realistic for motorhomes) implies the market elasticity [ ] for a 5% price rise to be profitable.

24. To put these threshold elasticities in context, in Table 2 below we set out a number of market demand elasticities across a range of industries (albeit that some of these studies are now quite dated), ranked from most inelastic to most elastic. Of note is that many of the products that have relatively inelastic demand might be considered "necessities", such as fuel, electricity and various food products. In contrast, other more "luxury" goods (such as leisure air travel and restaurant meals) are considerably more elastic.[6] It is hard to see how motorhome rentals could be regarded as necessities such as fuel, electricity and various food products.

25. We note that the goods with an elasticity less elastic than [ ] include products such as electricity, rental housing, fuel, water, telephone, and some foods. It is implausible that motorhome rentals would have a market elasticity around this level – it is likely to be materially more elastic. For example, the estimate for short-run leisure air travel is -0.7877. If, for interest, we plug this

[6] Parkin (1996, p.103, emphasis in original) states "In everyday language we call some goods, such a food and housing, *necessities* and other goods, such as exotic vacations, *luxuries*. Necessities are goods that have poor substitutes and that are crucial for our well-being, so generally, they have inelastic demands. Luxuries are goods that usually have many substitutes and so have elastic demands". Michael Parkin (1996), *Microeconomics*, Addison-Wesley.

market demand elasticity into equation (1), with a supply elasticity of 1.3 and a market share of [ ], the residual demand elasticity would be [ ] (compared with the critical elasticity of -1.19).

Table 2: Market demand elasticities across various industries

Industry	Market demand elasticity	Source
Electricity	-0.0014 (linear specification), -0.0043 (log-linear specification)	Lijesen (2007)[7]
Electricity (short-run)	-0.1	Burke and Abayasekara (2018)[8]
Electricity	-0.13	Katz and Rosen (1994)[9]
Dry onions	-0.16	Carlton and Perloff (2005)[10]
Rental housing	-0.18	Katz and Rosen (1994)
Fuel (short-run)	-0.2	Kennedy and Wallis (2007)[11]
Water	-0.2	Katz and Rosen (1994)
Apples	-0.2	Carlton and Perloff (2005)
Sweet peppers	-0.25	Carlton and Perloff (2005)
Telephone	-0.26	Katz and Rosen (1994)
Eggs	-0.27	Andreyeva, Long and Brownell (2010)[12]
Cucumbers	-0.3	Carlton and Perloff (2005)
Bus transport	-0.3	Holmgren (2007)[13]
Sweets	-0.34	Andreyeva, Long and Brownell (2010)
Legal services	-0.37	Katz and Rosen (1994)
Tomatoes	-0.38	Carlton and Perloff (2005)
Jewelry and watches	-0.41	Katz and Rosen (1994)
Cheese	-0.44	Andreyeva, Long and Brownell (2010)
Tobacco products	-0.46	Katz and Rosen (1994)
Fats/oils	-0.48	Andreyeva, Long and Brownell (2010)
Fish	-0.5	Andreyeva, Long and Brownell (2010)

[7] Mark G. Lijesen (2007), "The real-time price elasticity of electricity", *Energy Economics*, 29(2), 249-258.

[8] Paul J. Burke and Ashani Abayasekara (2018), "The Price Elasticity of Electricity Demand in the United States: A Three-Dimensional Analysis", *The Energy Journal*, 39(2), 123-145.

[9] Michael L Katz and Harvey S Rosen (1994) *Microeconomics*, Irwin, 2ed, page 81.

[10] Dennis W. Carlton and Jeffrey M. Perloff (2005), *Modern Industrial Organization*, Pearson-Addison Wesley, p.69.

[11] David Kennedy and Ian Wallis (2007), "Impacts of fuel price changes on New Zealand transport", Land Transport New Zealand Research Report 331.

[12] Tatiana Andreyeva, Michael W. Long and Kelly D. Brownell (2010), "The Impact of Food Prices on Consumption: A Systematic Review of Research on the Price Elasticity of Demand for Food", *American Journal of Public Health*, 100, 216-222.

[13] Johan Holmgren (2007), "Meta-analysis of public transport demand", *Transportation Research Part A: Policy and Practice*, 41(10), 1021-1035.

Structural timber	-0.54	Westwood and Whittle (2018)[14]
Vegetables	-0.58	Andreyeva, Long and Brownell (2010)
Business air travel (short run)	-0.5817	Kopsch (2012)[15]
Milk	-0.59	Andreyeva, Long and Brownell (2010)
Cereals	-0.6	Andreyeva, Long and Brownell (2010)
Alcohol	-0.6	Selvanathan (2006)[16]
Asparagus	-0.65	Carlton and Perloff (2005)
Dairy	-0.65	Andreyeva, Long and Brownell (2010)
Kitchen appliances	-0.67	Katz and Rosen (1994)
Poultry	-0.68	Andreyeva, Long and Brownell (2010)
Fruit	-0.70	Andreyeva, Long and Brownell (2010)
Pork	-0.72	Andreyeva, Long and Brownell (2010)
Shoes and footwear	-0.73	Katz and Rosen (1994)
Beef	-0.75	Andreyeva, Long and Brownell (2010)
Juice	-0.76	Andreyeva, Long and Brownell (2010)
Leisure air travel (short run)	-0.7877	Kopsch (2012)
Soft drinks	-0.79	Andreyeva, Long and Brownell (2010)
Food away from home	-0.81	Andreyeva, Long and Brownell (2010)
Peaches	-0.82	Carlton and Perloff (2005)
Business air travel (long run)	-1	Kopsch (2012)
Grapes	-1.03	Carlton and Perloff (2005)
Leisure air travel (long run)	-1.2	Kopsch (2012)
Air travel	-1.146	Brons, Pels, Nijkamp and Rietveld (2002)[17]
Restaurant meals	-2.27	Katz and Rosen (1994)

[14] Tim Westwood and Linden Whittle (2018), "Responsiveness of demand for structural pine to changes in timber and steel prices: A study using the FWPA softwood data series", ABARES Technical Report 18.3, July.

[15] Fredrik Kopsch (2012), "A demand model for domestic air travel in Sweden", *Journal of Air Transport Management*, 20, 46-48.

[16] Saroja Selvanathan (2006)[16], "How similar are alcohol drinkers? International evidence", *Applied Economics*, 38(12), 1353-1362.

[17] Martijn Brons, Eric Pels, Peter Nijkamp and Piet Rietveld (2002), "Price elasticities of demand for passenger air travel: a meta-analysis", *Journal of Air Transport Management*, 8(3), 165-175.

3. Updated critical loss in terms of fleet size

26. In our 22 April 2022 memo filed with the NZCC, we put the 6% critical volume loss into perspective by calculating it in terms of the fleet size of the proposed merged entity. We used estimates of the FY22 fleet size of THL and Apollo, as filed in the *Clearance Application*, of [ ] vehicles for THL and [ ] vehicles for Apollo. Using these fleet sizes, we calculated that a 6% critical volume loss is equivalent to a loss of [ ] vehicles.

27. We have updated this calculation using THL's and Apollo's updated estimates of their post-pandemic fleet size, as set out in THL's submission on the SoUI, of [ ] and [ ] vehicles respectively. The total post-pandemic fleet size of the merged entity is therefore [ ] vehicles, and applying a 6% critical volume loss to this fleet size yields a loss of approximately [ ] vehicles. If rivals could expand by more than this critical volume loss (in the relevant timeframe) in response to a 5% price rise by the merged entity, then that price rise would not be profitable.

28. We note that the NZCC's own numbers of current (2022) and post-pandemic fleet sizes of rivals show that these rivals are planning to expand by materially more than the [ ] vehicle critical loss. In particular, the NZCC's numbers show current rival fleet size of [ ], expanding to [ ] post-pandemic – an expansion of [ ] vehicles.[18] It is unclear what time period lies between the NZCC's current and post-pandemic periods, although we note the NZCC uses [ ]. Therefore, over a [ ] year period, the [ ] vehicle expansion implies expansion by rivals of approximately [ ] vehicles per year. This is more than sufficient to undermine an attempt by the merged entity to raise prices by 5%.

4. Evidence that Apollo is not a disruptor

29. At [68] of the SoUI, the Commission states that (emphasis added):

    "Industry participants generally see the Parties, as the largest rental operators, as influencing prices in the market, ***with some seeing Apollo as more price aggressive or as a disrupter****. [ ]".*

30. To test the bolded part of this statement, we have compared and analysed THL's and Apollo's prices, using THL and Apollo yield data analysed in our 24 March 2022 report and filed with the NZCC.

31. Given the NZCC's focus on motorhomes compared to campervans, we have narrowed our analysis to THL's and Apollo's 4-6 berth RVs. This is consistent with the analysis in our 24 March 2022 report filed with the NZCC (at [10]), where we categorised 4-6 berth RVs as motorhomes, and 2-3 berth and NTS RVs as campervans.

32. We focus our analyses on the timeframe prior to the COVID-19 pandemic, being the timeframe of "normal" market dynamics. The time series thus runs from the start of the data in July 2017 through to March 2020.

33. We have carried out our analysis by comparable brand, based on the definitions set out by THL[19] and Apollo[20] (and consistent with the NZCC's classification in Figure 2 of the SoUI):

    a. The "value" range includes the Mighty 4-6 berth motorhomes for THL, and Cheapa 4 berth Euro Star and Cheapa 6 berth Euro Deluxe for Apollo;

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[18] [ ]

[19] See https://www.experiencethl.com/

[20] See https://www.apollocamper.co.nz/apollo/about-us

b. The “medium” range includes the Britz 4-6 berth motorhomes for THL, and Apollo 4 berth Euro Star and Apollo 6 berth Euro Deluxe for Apollo; and

c. The “premium” range includes the Maui 4-6 berth motorhomes for THL, and Star RV PANDORA 4 berth slider and Star RV HERCULES 6 berth Deluxe for Apollo.

34. THL provided us with the aggregate price data for 4 and 6 berth motorhomes while Apollo provided us with price data for its 4 berth and 6 berth motorhomes separately. Despite this difference in data format, the results we set out below are still informative.

35. Figure 1, Figure 2, and Figure 3 show the time series for the monthly average prices[21] of THL’s 4-6 berth, Apollo’s 4 berth, and Apollo’s 6 berth motorhomes for the medium, value and premium categories respectively. We have also calculated the average prices across different periods, as shown in Table 3, Table 4, and Table 5. There does not appear to be anything in these results to suggest any particular aggression or disruption by Apollo. Indeed:

a. [ ];

b. [ ]; and

c. [ ]

36. In conclusion, there is nothing in the pricing evidence to suggest that Apollo is particularly aggressive or disruptive.

Figure 1: [ ]

Figure 2: [ ]

Figure 3: [ ]

Table 3: [ ]

Table 4: [ ]

[21] The monthly average is the unweighted arithmetic average of the average daily yields in a given month.

Table 5: [ ]

5. Price differences between motorhomes and campervans

37. At paragraph [99] of the SoUI, the NZCC states:

> *"Data also indicates that there is a distinct price split between the pricing of motorhomes and campervans. Data provided by THL indicates that on average there is around a $[ ] per day peak period price difference between the pricing of its no toilet/shower vehicles and motorhomes."*

38. The first sentence of this paragraph is not correct. As we set out in our 24 March 2022 Report, at paragraphs [11] and [13] respectively, [ ]

39. Regarding the second sentence of this paragraph, it is unclear how the NZCC defines the "peak period". In any case, the approximately $[ ] difference is correct when comparing THL's 4-6 berth motorhomes with its NTS vehicles for a December to January peak (and the difference is slightly lower for a November to April peak) – we have set out these price differences in Table 6 below.

40. However, the NZCC's $[ ] difference is comparing two extremes in terms of product features and only in the peak period. The price differences between 4-6 berth and NTS vehicles are lower in off-peak periods, around approximately $[ ]. Moreover, we note that peak period price differences between 4-6 berth motorhomes and 2-3 berth campervans are around $[ ]. This is similar to peak period price differences for 2-3 berth and NTS campervans, of approximately $[ ]. This suggests that price differences may be driven by product features between the different vehicle types, rather than a clear cut motorhome/campervan distinction.

Table 6:[ ]

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