
Expert report of Dr Gunnar Niels

In the matter between

Commissioner of Competition
and
Vancouver Airport Authority

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1 Introduction

1.1 I, Dr Gunnar Niels, Partner, Oxera Consulting LLP, Park Central, 40/41 Park End Street, Oxford, UK, say as follows.

1A Qualifications

1.2 I am a professional economist with nearly 25 years of experience working in the field of competition analysis and policy. I am a Partner at Oxera, an independent economics consultancy based in Europe specialising in competition, regulation and finance. My work at Oxera has involved providing economic analysis and expert testimony across a range of jurisdictions, including the EU, the UK, the Netherlands, Austria, Germany, Spain, South Africa and New Zealand. I have acted for companies, courts and competition authorities, and for both defendants and claimants, in a variety of matters and across different industries.

1.3 I am currently a non-governmental adviser to the UK for the International Competition Network Working Group on Unilateral Conduct. I am on the editorial boards of *Oxford Competition Law* and *Markt & Mededinging* (a Dutch journal), have been a guest editor for the *Antitrust Bulletin*, and have published in many other journals. I am co-author of *Economics for Competition Lawyers* (second edition, Oxford University Press, 2016). I have a Masters and PhD in Economics from the Erasmus University Rotterdam, the Netherlands. Before joining Oxera in 1999, I was deputy head of the Economics Directorate at Mexico's Federal Competition Commission. During my time there I took part in cooperation programmes with the US and Canadian competition agencies in the context of the North American Free Trade Agreement.

1.4 I have extensive experience in competition and regulatory cases in the aviation industry. At different times I have provided advice to British Airports Authority (BAA), Gatwick Airport, Dublin Airport Authority, Schiphol Airport Group, Macquarie Airports, Manchester Airports Group and the Airports Council International on regulatory and policy matters. I acted as expert for easyJet in a competition law action against Liverpool Airport (2007), and for car park operators in competition cases against Glasgow Prestwick Airport (2006) and Leeds Bradford International Airport (2012). I also acted as an expert for a bus company, Arriva, in an abuse of dominance case against Luton Airport (2013–14).

- 1.5 I acted as expert for the New Zealand Commerce Commission in its case against various airlines relating to an international air cargo cartel (2011), and for groups of claimants against air cargo cartels in Australia (2013–14), the UK (2009 to date), and the Netherlands (2016 to date). I advised Flybe in an abuse of dominance inquiry by the UK competition authorities (2010), and Ryanair during the European Commission and UK inquiries into its proposed acquisition of Aer Lingus (2011–15). I have also worked on a ground-handling merger in Singapore (2008). I have advised Ryanair in relation to several ongoing state aid investigations by the European Commission into deals with regional airports (2004 to present).
- 1.6 Further details of my experience and publications are included in Appendix A1.
- 1.7 In undertaking the analysis for this expert report, I have been assisted by my colleagues Michele Granatstein, Principal, Rebecca Gu, Consultant, Tamrat Shone, Consultant, Michael Horn, Consultant, Shiv Patel, Analyst, and Sean Duckers, Analyst. All analysis has been carried out under my supervision.
- 1B Instructions and economic questions of relevance to the case**
- 1.8 I have been instructed by the Commissioner of Competition (“the Commissioner”) to provide an expert analysis relating to his abuse of dominance case against the Vancouver Airport Authority (“VAA”), as articulated in the Notice of Application (“the Notice”) that the Commissioner filed on 29 September 2016.¹
- 1.9 I previously submitted an expert report on 15 November 2017.² Pursuant to the Scheduling Order, the hearing dates were then amended and delayed by approximately eight months.³ As a result, I have updated the analysis from my expert report to take account of events occurring or matters arising from information or documents that have become available to me since 15 November 2017.⁴
- 1.10 This type of case is not uncommon under competition law. As a matter of economics, the refusal to grant access to providers of in-flight catering services

¹ Notice of Application of the Commissioner of Competition, *Commissioner of Competition v. Vancouver Airport Authority*, CT-2016-15.

² ‘Expert report of Dr Gunnar Niels’, 14 November 2017, Public version, available at http://www.ct-tc.gc.ca/CMFiles/CT-2016-015_Expert%20Report%20of%20Dr.%20Gunnar%20Niels_137_67_11-15-2017_6407.pdf.

³ Competition Tribunal (2018), ‘Order Amending the Scheduling Order’, 21 March.

⁴ I have also made updates in relation to Gate Gourmet’s 2015 and 2016 management account data—see footnote 68.

(i.e. catering and/or galley-handling providers), or granting such access discriminatorily, can constitute an anticompetitive act or conduct in the airside access market, the competitive detriment of which arises in related downstream markets. In competition law terms, a firm can abuse its dominant position in one market with the object and/or effect of preventing or lessening competition in another, related market.

1.11 In the present case, the markets in question are related vertically (in terms of forming part of the same vertical supply chain): airside access is an upstream input into the provision of in-flight catering services downstream. The potential effect of this refusal to grant access upstream is the foreclosure of competition downstream between providers of in-flight catering services, which is a recognised theory of harm in competition policy that can be addressed under the abuse of dominance rules.

1.12 Section 79 of the Competition Act sets out a three-part test for the establishment of abuse of dominance:⁵

- 79(1)(a) requires that one or more persons substantially or completely controls, throughout Canada or any area thereof, a class or species of business;
- 79(1)(b) requires that the person or those persons have engaged in or are engaging in a practice of anticompetitive acts;
- 79(1)(c) requires that the practice has had, is having or is likely to have the effect of preventing or lessening competition substantially in a market.

1.13 The Commissioner has asked me to address a number of economic questions that are relevant for the application of this three-part test for abuse of dominance, as follows.

1. Whether VAA substantially or completely controls (i.e. is dominant) in one or more markets relating to the supply of one or more components of in-flight catering at Vancouver International Airport ('YVR') and, more specifically:

- whether VAA is dominant in a market for access to the airside at YVR for the supply of one or more components of in-flight catering and, in this regard, whether any market power held by VAA in such a market is or

⁵ Competition Act, R.S.C. 1985, c. C-34.

would likely to be constrained as a result of competition between YVR and other airports, or otherwise.

2. Whether there exist any justifications from an economic perspective that could apply to a decision by VAA to refuse to permit additional competition at YVR in respect of one or more components of in-flight catering and, more specifically:
 - whether only two providers of in-flight catering services can operate profitably at YVR.
3. Whether VAA's refusal to permit additional competition at YVR in respect of one or more components of in-flight catering, or VAA's practice of tying authorisation to access the airside at YVR to provide one or more components of in-flight catering to a firm locating its in-flight catering facility on YVR property, has had, is having or is likely to have the effect of preventing or lessening competition substantially in a relevant market.

1.14 Subsequent to submitting my expert report on 15 November 2017, the Commissioner has asked me to address two additional questions, as follows.

1. Whether additional providers of in-flight catering services can operate profitably at YVR; and
2. Whether VAA's continuing policy to restrict entry at YVR in respect of one or more components of in-flight catering, is having or is likely to have the effect of preventing or lessening competition substantially in a relevant market.

1.15 In this report I present several pieces of economic analysis that address these questions, and hence ultimately inform on the legal analysis of the case.

1.16 I acknowledge that I comply with the Competition Tribunal's code of conduct for expert witnesses, as described below.⁶

- An expert witness who provides a report for use as evidence has a duty to assist the Tribunal impartially on matters relevant to his or her area of expertise.

⁶ Competition Tribunal, December 2010, Re: Acknowledgement of Expert Witness, available at <http://www.ct-ct.gc.ca/Procedures/AcknowledgementForm-eng.asp>.

- This duty overrides any duty to a party to the proceeding, including the person retaining the expert witness. An expert is to be independent and objective. An expert is not an advocate for a party.

1C Structure of the report

- 1.17 The first set of economic analyses—presented in **section 2**—addresses the question of whether VAA is dominant. The first step in the analysis of dominance is to delineate the relevant markets.
- 1.18 The economics of airport operations means that it is often relevant to consider the broader competitive environment in which the airport operates, as this may affect its incentives with respect to organising access to its facilities for downstream service providers. I therefore analyse the extent to which VAA faces competitive constraints from other airports, and whether, as VAA states, any such constraints would also limit the market power of VAA in the provision of airside access at the airport.⁷
- 1.19 For the question of dominance it is also relevant to consider whether airside access is very important (or even essential) in order for providers of in-flight catering services to compete effectively downstream. (In this report I use the term ‘in-flight catering services’ to include the activities of galley handling and catering.) This includes an assessment of whether there are alternatives that can substitute for access to the airport airside.
- 1.20 VAA is not itself active in the provision of galley-handling and catering services. However, I do analyse how these downstream markets may be delineated for the purpose of the present case. I understand that Canada’s Federal Court of Appeal has established that, even if a firm does not participate directly in a particular market, it may still have dominance in that market:

The Commissioner takes the position that a person that is not a competitor in a particular market nevertheless may control that market substantially within the meaning of paragraph 79(1)(a) by, for example, controlling a significant input to competitors in the market, or by making rules that effectively control the business conduct of those competitors. In my view, the Commissioner’s position

⁷ See, for example, Response of Vancouver Airport Authority, *Commissioner of Competition v. Vancouver Airport Authority*, CT-2016-15, para 65.

reflects an interpretation of paragraph 79(1)(a) that its words can reasonably bear, given the statutory context.⁸

- 1.21 The second set of economic analyses—presented in **section 3**—explores whether, from an economic perspective, there is any objective justification for the refusal to grant access. For example, as VAA states, if there is only limited physical capacity, or economies of scale are large relative to total market demand, then granting access to all in-flight catering operators may not be feasible or efficient.⁹
- 1.22 Nevertheless, in these circumstances the available capacity could, in principle, still be allocated among operators in such a way that competition downstream is maintained as much as possible; or competition itself (rather than the airport) could be relied on to determine which operators are best suited to serve the market. These are questions I also turn to in section 3.
- 1.23 Based on financial data made available to me, I have carried out an analysis of the profitability of the operations of the current providers at YVR, Gate Gourmet and CLS. This allows me to assess how many providers of in-flight catering services can viably operate at YVR. This question can be asked for the period from around 2014 when Newrest and Strategic Aviation requested access. It can also be asked today (from 2018) now that data has been allowed to commence operations as a third caterer.
- 1.24 The third set of economic analyses—presented in **section 4**—explores whether competition in the downstream market was or is substantially lessened or prevented by VAA's refusal to grant access to the in-flight catering market.
- 1.25 The available price and sales data has allowed me to look at the effects of entry on switching and prices in the in-flight catering market at Canadian airports other than YVR. This is informative for understanding the competitive dynamics that could arise at YVR if entry were no longer restricted. Another way of putting this is whether the competitive dynamics and outcomes would be substantially improved if a new entrant were allowed into the in-flight

⁸ Federal Court of Appeal (2014), 'Commissioner of Competition v. Toronto Real Estate Board', 2014 FCA 29, para 14.

⁹ See, for example, Response of Vancouver Airport Authority, *Commissioner of Competition v. Vancouver Airport Authority*, CT-2016-15, paras 3 and 75, and Schedule A – Concise Statement of Economic Theory, para 11.

catering market at YVR. I present the results of this data and econometric analysis in section 4.

1.26 In **section 5** I present my overall conclusions. Section 1E at the end of the present section provides a summary of my conclusions.

1.27 Appendix A1 provides my CV and list of publications. Appendix A2 sets out the questions that the Commissioner has asked me to address. Appendix A3 provides a list of airports referred to in my analysis, for ease of reference.¹⁰ Appendix A4 provides more detail about the data used in my analysis in section 4. My detailed workings and data for all sections are provided separately in an electronic file.

1D List of documents reviewed and data received

1.28 I have been given access to the documents and data received by the Commissioner in his filing of the Notice, including:

- pleadings by the Commissioner and VAA, including the Notice of Application of the Commissioner of Competition and the Response of Vancouver Airport Authority;
- transcripts arising from the examination of VAA as well as responses to undertakings, and information from any subsequent examination and discovery;
- datasets of [REDACTED] for [REDACTED] which the document identification numbers are provided in a separate file;
- the OAG database of flight information for Canadian and international airports;
- information and records that have been disclosed to the Commissioner voluntarily and/or pursuant to court order by VAA and by third parties;
- witness statements from airlines and in-flight catering firms;
- [REDACTED].

¹⁰ This Appendix is as presented in my expert report of 15 November 2017. The airport information has been updated to 2017 data. As noted in section 2, I have used OAG data rather than airport websites for this 2017 update. The list of airports referred to in my updated analysis can therefore be found in my datapack, rather than in this Appendix.

1.29 All documents that I have relied upon are referenced in the footnotes of this report.

1E Summary of conclusions

1E.1 Conclusions on market definition and dominance (section 2)

1.30 There are a number of relevant markets in this case:

- the **airports market**, in which airports compete for airlines and passengers;
- the **airside access market** at an airport, which involves access to infrastructure at the airport to provide catering and galley-handling services;
- the **catering and galley-handling market(s)**, which are the downstream markets where competition is potentially prevented or lessened as a result of VAA's conduct.

1.31 I find that VAA faces limited competitive constraints from other airports. For origin and destination ('O&D') passengers, Bellingham is the only airport within YVR's catchment area, but has no overlap in Canadian or international destinations. Additionally, there are surface access constraints associated with Bellingham and the two other airports nearest to YVR—i.e. Seattle and Victoria. As regards transfer passengers, I find that competition from other airports for Pacific Rim (transfer) traffic does not pose a significant constraint on YVR.

1.32 As the operator of YVR, VAA has responsibility for controlling access to the airport's facilities. I find that self-supply and double catering are to some extent (for certain types of flight and routes) alternatives to procuring in-flight catering services at VAA, but not by a sufficient degree for them to pose a significant competitive constraint on VAA when providing airside access. These alternatives therefore do not change my conclusion that VAA is dominant in the market for airside access at the airport.

1.33 The precise delineation of the downstream markets—in particular, whether galley-handling and catering services at YVR are separate markets or a single market—can be left open. What matters is that the refusal to grant airside access has an impact on the activity of galley handling, which relies on airside access.

1.34 Finally, I note that a theory of harm of lessening downstream competition through a refusal to grant access to an upstream input requires the firm in

question to be dominant upstream, but does not require it to be dominant downstream, or even to be directly active downstream. Even if the firm is not vertically integrated, as is the case for VAA, it may have a financial stake in the outcome of competition in the downstream market.

1E.2 Conclusions on the scope for entry at YVR (section 3)

- 1.35 My assessment of whether the in-flight catering market at YVR can sustain entry is rooted in profitability analysis, using the earnings before interest, taxes, depreciation and amortisation (EBITDA) margin as a profitability measure. I find that a [REDACTED] % EBITDA margin is a reasonable benchmark range for the market to be able to sustain entry. Gate Gourmet's and CLS's current margins at YVR are [REDACTED]. I also assess whether the market for in-flight catering at YVR would have been able to sustain a third firm from 2014 (when Newrest and Strategic Aviation requested access), and whether it could sustain additional entry after dnata commences its operations at YVR in 2018.
- 1.36 My analysis (both static and dynamic) indicates that, from 2014, the market was able to sustain a third entrant that either requires or does not require on-airport kitchen space—i.e. the combined profit margin in this case would be within the indicative benchmark range.
- 1.37 I also carry out a forward-looking analysis following the commencement of operations of dnata in 2018—where prices, demand and costs may all change going forward. My results suggest that profitability in the market as a whole would remain sufficient for four viable operators if another provider similar in size to [REDACTED] were to enter the market from 2018. If the entry of firms to the market caused a reduction in market-wide variable costs then it is possible that the market could also sustain larger entrants than [REDACTED].
- 1.38 My conclusion on the viability of entry from 2014 is supported by [REDACTED]
[REDACTED]
[REDACTED], which finds that a new entrant would be profitable. My conclusion is also consistent with [REDACTED]
[REDACTED] it offered dnata a licence to operate at YVR.
- 1.39 Finally, I note that the competitive process itself can and should determine how many competitors can operate viably. Even if, contrary to my conclusion, there were room for only two providers at YVR from 2014 onwards, or for three following dnata's entry in 2018, the competitive process would be well placed to determine which two, or which three, providers they should be. Competition
-

ensures that firms that are the most efficient, innovative and/or responsive to customers are the ones that survive.

1E.3 Conclusions on the effects of restricting entry at YVR (section 4)

- 1.40 The available data has allowed me to look at the effects of entry on switching and prices in the in-flight catering market at airports other than YVR. This is informative for understanding the competitive dynamics that would be likely to arise at YVR if entry were no longer restricted, and hence for assessing whether VAA's conduct has substantially prevented or lessened competition.
- 1.41 I find only one instance of an airline switching in-flight catering firms at YVR between 2013 and 2017—American Airlines switched from CLS to Gate Gourmet in August 2013. In contrast, I find substantially more switching at other airports in Canada. That switching typically involves a new entrant. A significant proportion of switches occurred within one month of entry, indicating that switching and entry may be linked; sometimes entry is directly encouraged by airlines that are willing to switch. This indicates that, absent VAA's refusal to grant airside access, there would be enhanced competitive dynamics in the provision of in-flight catering services at YVR.
- 1.42 I analyse the gains from switching in-flight catering firms accruing to Jazz Aviation LP ('Jazz'), a Canadian-based airline. These switches were to Newrest and Strategic Aviation, the two firms that sought to enter the in-flight catering market at YVR in 2014. I find that Jazz saved approximately \$ [REDACTED] across the airports where it switched provider in the year after the switch occurred. This saving is largely attributable to [REDACTED]. It represents a cost saving of approximately [REDACTED] % for Jazz.
- 1.43 Finally, I find robust evidence of a reduction in [REDACTED] galley-handling prices for [REDACTED] airlines in response to the entry of [REDACTED], despite these airlines not actually switching themselves. I estimate that [REDACTED] galley-handling prices to [REDACTED] airlines that do not switch provider decrease by an average of [REDACTED] % to [REDACTED] % after Strategic Aviation enters. These smaller airlines in aggregate represent approximately [REDACTED] of the flights at YVR. This suggests that entry can also benefit airlines that do not switch. For [REDACTED] airlines the result is not clear-cut. There are a number of reasons why the [REDACTED] [REDACTED] [REDACTED]. In all, I interpret these results to be a further

indication of the enhanced competition and customer benefits that would arise if there were no airside access restrictions at YVR.

2 Analysis of the relevant markets and dominance

2A Main principles of market definition

- 2.1 Market definition is a useful first step in determining dominance. The relevant market delineates the group of products and geographic areas from which the firm in question faces significant competitive constraints. In this case, to assess whether VAA has a dominant position, one must delineate the markets in which VAA operates.
- 2.2 Market definition also helps to identify related markets where the conduct in question may have anticompetitive effects, even if they are not the markets in which the conduct takes place or where the firm in question is dominant. For example, a firm may have a dominant position in an upstream market, but the lessening of competition could arise in a downstream market. In this case the alleged lessening of competition arises in the downstream galley-handling market at YVR.
- 2.3 Markets are usually defined with reference to demand-side substitution: which other products or geographic areas would customers switch to if there were an increase in the price of the product or geographic area in question (known as the candidate product and candidate area)? If switching after a small price increase were significant, those other products and/or areas should be included in the relevant market.¹¹
- 2.4 This demand-side substitution may be influenced by direct customers, but may also be influenced by demand from indirect customers (commonly referred to as 'derived demand'). For example, demand by airlines at an airport may be influenced by passenger demand—if passengers consider two airports to be close substitutes, then so, normally, would airlines. Likewise, demand for access to an airport's facilities by providers of in-flight catering may be influenced by the preferences of airlines.
- 2.5 In any given case there may be more than one relevant market. There may be different relevant markets determined by:

¹¹ Competition authorities around the world often refer to the hypothetical monopolist test for market definition: would a hypothetical monopolist of a product and geographic area be able to impose a small but significant and non-transitory increase in price (SSNIP)? If the answer is yes, that product and area constitutes a relevant market. If the answer is no, the relevant market must be extended to include the closest substitute products and areas. The SSNIP test is a useful way of framing the market definition questions, even if in practice the test is not often fully quantified, and other tests are available to assess the substitutability between products.

- where the firm in question has a dominant position, or where it derives its dominant position from; and/or
- where the alleged anticompetitive conduct takes place; and/or
- where the conduct potentially has a negative effect on competition.

- 2.6 Identifying these markets in a specific case can help in assessing the existence of dominance and competitive effects, and depends on the particular conduct at hand. Market definition is not an end in itself, and is not carried out in the abstract.
- 2.7 In this case the relevant question is whether VAA faces competitive constraints in granting airside access to providers of in-flight catering services. Such competitive constraints can come from a number of sources.
- 2.8 The primary activity of an airport is to service airlines and their passengers. It earns aeronautical revenue by charging airlines for use of the airport. Airports also earn non-aeronautical revenue through commercial activities performed (often by third parties) at the airport's premises, such as duty-free and food outlets. A third category is non-aeronautical revenue from third parties that provide services that in part make use of the airport's premises, such as surface transport, and catering and galley handling. These different revenue streams of an airport interact with one another.¹²
- 2.9 An airport that competes with other airports to attract airlines and passengers has incentives to facilitate attractive service offerings at the airport—including convenient retail and public transport services to passengers, and efficient ground-handling and in-flight catering services to airlines. In theory, if the airport sets prices for these services too high or does not maintain quality, this could lead to switching by airlines or passengers to alternative competing airports.
- 2.10 However, regardless of its competitive position vis-à-vis other airports, VAA controls the airside and landside facilities at YVR by virtue of its position as the operator of the airport. Providers of in-flight catering services typically require

¹² That is to say, airports offer services to multiple types of customer (airlines, passengers, service providers), and there are demand interactions between these types which airports must take into account when determining quality and setting prices (for example, the more airlines and passengers make use of an airport, the more attractive it is for service providers such as shops and restaurants to offer services at the airport). In economic terms, an airport can be considered a two-sided or multi-sided market. I do not discuss this economic concept further in this report, but in this section I do consider the importance of the airline and passenger side at YVR when determining dominance on the airside access side.

physical access to the airside, at least for the galley-handling part of their activities. It is therefore relevant to consider whether there are any substitutes for airside access at YVR. For instance, airlines may in theory be able to substitute for airside access at YVR by sourcing in-flight catering services at other (origin or destination) airports.

2.11 There are a number of markets that are relevant to consider as part of this case:

- the **airports market**, in which airports compete for airlines and passengers;
- the **airside access market** at an airport, which involves access to certain infrastructure at the airport to provide catering and galley-handling services to airlines;
- the **catering and galley-handling market(s)**, which are the downstream markets where competition is potentially lessened as a result of the refusal to grant airside access to new providers.¹³

2.12 Figure 2.1 illustrates how these markets relate to one another. Each of the markets is considered in the following sub-sections: section 2B considers the airports market; section 2C the airside access market at YVR; and section 2D the provision of catering and galley-handling services at YVR.

¹³ The distinction between catering and galley-handling providers is discussed in more detail in section 2C. In some cases, suppliers provide both galley-handling and catering services, but in other cases firms provide only one of these two services.

Figure 2.1 Overview of relevant markets in the current case**2B The airports market****2B.1 Overall approach to assessing competition between airports**

- 2.13 It is first relevant to consider the airports market and the competitive constraints faced by YVR at the airport level. If YVR is strongly constrained by other airports, it will face greater pressure to organise access to the airside in a manner that most benefits airlines (and passengers), as airlines (and passengers) could otherwise switch to another airport.
- 2.14 VAA has stated that it has been successful in attracting major international airlines to YVR, that the airport is an important gateway to the Pacific Rim, and that, from this perspective, there is a degree of competition between YVR and certain large airports on the US West Coast.¹⁴ Such competition between hub airports also exists in other regions and continents.
- 2.15 However, for the current purposes the question is whether any such competition with other airports is sufficiently strong to constrain VAA with regard to its conduct in the provision of airside access at YVR. In the analysis below, I therefore apply commonly used market definition methods to assess

¹⁴ See, for example, Response of Vancouver Airport Authority, *Commissioner of Competition v. Vancouver Airport Authority*, CT-2016-15, paras 2 and 4.

the degree of competition faced by VAA from other airports, and whether this competition translates into a competitive constraint on VAA with regard to airside access.

2.16 I carry out two types of analysis:

- **catchment area analysis**—this is frequently used to determine the geographic area to/from which an airport's passengers travel. The size of the catchment area and the extent of overlap of catchment areas between airports can then be used as part of an assessment of the extent of competition, since passengers in these overlapping areas may view the two airports as substitutes;
- **route overlap analysis**—the extent to which airlines offer overlapping routes from different airports is informative in determining whether passengers consider these airports to be substitutable.

2.17 Catchment area and route overlap analysis are commonly used in competition cases around the world involving airports or airlines. Each of these analyses may generate different results depending on the type of passenger. I therefore consider the analyses for two distinct groups of passengers: O&D passengers (sub-section 2B.2), and transfer passengers (sub-section 2B.3).

2B.2 Analysis of competition for origin and destination passengers

Catchment area analysis

2.18 In terms of O&D passengers, catchment area analysis determines whether, based on access distance or time, other airports are sufficiently close to YVR that they may serve as substitutes.

2.19 There are no definitive tests for the boundaries of catchment areas, but a pragmatic approach can often be sufficiently informative. Catchment areas tend to be defined differently depending on the context.

2.20 Various public domain reports have cited a catchment area based on distances ranging from 200km to 250km with reference to Canadian airports.¹⁵ The European Commission has used a catchment area of 100km around regional

¹⁵ See, for example, Transport Canada (2004), 'Regional and Small Airports Study' (TP 14283B) in Postorino, M.N. (2010), 'Development of regional airports', WIT Press, p. 82; and Council of Ministers Responsible for Transportation and Highway Safety (2006), 'Report of the air issues task force on small airport viability', September, section 5.2.5.

airports, and 300km around international airports,¹⁶ or a 60-minute drive time.¹⁷ However, the Commission ultimately defines catchment areas on a case-by-case basis. A 60-minute drive time is also used in the Commission's 2014 aviation state aid guidelines.¹⁸ The UK Civil Aviation Authority ('CAA') used 60-, 90- and 120-minute drive times in its market power assessments for Gatwick, Stansted and Heathrow airports.¹⁹

- 2.21 Passengers may vary in their willingness to travel by surface transport to their departure airport. For instance, passengers going on holiday are often more price-sensitive, and therefore willing to travel further distances to a departure airport, whereas business passengers are often more time-sensitive and likely to travel to the closest airport, regardless of the price differential. Preferences for travel time may also differ according to the flight distance (for example, long-haul passengers are often willing to travel longer distances to an airport) and whether they are domestic or foreign residents.
- 2.22 While there are several small regional airports near YVR, for practical reasons I use the National Airport System ('NAS') list, which is an authoritative source, but which within Canada restricts its designation to airports in provincial capitals and airports with at least 200,000 passengers per annum. Appendix A3 lists the airports included in the NAS list. YVR self-reported over 24m enplaned and deplaned passengers in 2017, so it is unlikely that airports with fewer than 200,000 passengers would represent a competitive constraint on YVR.²⁰ I therefore consider only airports on the NAS list for airports within Canada in my analysis.
- 2.23 Based on the NAS list, and my own review of airports in the USA near YVR, the closest airports to YVR by travel time or distance are those listed in Table 2.1. For ease of reference I also present 2016 passenger numbers, which were included in my expert report of 15 November 2017.

¹⁶ European Commission (2005), 'Commission Decision of 08.08.2005 referring case No COMP/M.3823 – MAG/Ferrovial Aeropuertos/Exeter Airport to the competent authorities of the United Kingdom pursuant to Article 9 of Regulation (EC) No 139/2004', C(2005)3144, 8 August, para 18.

¹⁷ European Commission (2013), 'Case No COMP/M.6663 – RYANAIR/ AER LINGUS III, Regulation (EC) No 139/2004 Merger Procedure', C(2013) 1106 final, 27 February, para 80.

¹⁸ European Commission (2014), 'Guidelines on State aid to airports and airlines', *Official Journal of the European Union*, 2014/C 99/03, para 25(12).

¹⁹ Civil Aviation Authority (2012), 'Heathrow: Market Power Assessment - Non-confidential Version', The CAA's Initial Views', February.

²⁰ YVR (2018), 'Facts and Stats', available at <http://www.yvr.ca/en/about-yvr/facts-and-stats>.

Table 2.1 Travel (drive) time between YVR and other airports

| Airport | Approximate drive time | Distance (km) | Passengers, 2016 | Passengers, 2017 |
|--|------------------------|---------------|------------------|------------------|
| Bellingham International Airport (BLI) | 55 m | 77 | 868,394 | 745,539 |
| Victoria International Airport (YYJ) | 2 h 36 m ¹ | 85 | 2,641,288 | 2,110,051 |
| Seattle Tacoma International Airport (SEA) | 2 h 52 m | 245 | 31,664,866 | 44,899,051 |
| Prince George International Airport (YXS) | 8 h 27 m | 793 | 563,772 | 562,422 |
| Calgary International Airport (YYC) | 10 h 15 m | 999 | 11,565,758 | 15,940,214 |
| Edmonton International Airport (YEG) | 11 h 49 m | 1,196 | 6,797,529 | 7,499,133 |
| San Francisco International Airport (SFO) | 15 h 14 m | 1,538 | 40,820,555 | 52,520,866 |

Note: ¹ Requires ferry transport across the Strait of Georgia. Passengers include enplaned and deplaned passengers.

The passenger estimates provided by the OAG database are not equivalent to the passenger numbers reported by the airport websites themselves. The airport websites do not appear to consistently report passenger numbers for 2017. I find the OAG estimates to be consistently slightly understated for these airports relative to that data on the airport websites, but I use OAG data for 2017 as this allows me to ensure the data is consistently reported in my analysis.

Source: NAS, Google Maps and OAG.

- 2.24 The only airports that appear to be in (or close to) YVR's catchment area are Bellingham International Airport (BLI), based on both travel time and distance, and Victoria International Airport (YYJ) and Seattle Tacoma International Airport (SEA), based on distance only.
- 2.25 However, there are a number of significant surface access constraints for passengers in reaching these airports, depending on where they are originating from. Travel between YVR and both BLI and SEA requires a Canada–USA border crossing, which may increase travel time. Travel between YVR and YYJ involves ferry transport, which results in a journey time that is comparable to that between YVR and SEA, despite the YVR–SEA journey being 160km longer.
- 2.26 Catchment area analysis is conceptually based on isochrones of travel time or distance around an airport to establish whether other airports are within the same catchment area. This analysis takes no account of where passengers actually reside, or variation in passenger density around an airport. Where survey data is available, it is often useful to consider the origin/final destination

of passengers who use an airport. I am not aware of this data being available for YVR.²¹

- 2.27 Therefore, on the basis of the data available to me on both drive time and distance, I consider BLI to be the only other airport in YVR's catchment area. However, I adopt a conservative approach in the route overlap analysis below by also considering YYJ and SEA. Their journey times from YVR are under three hours, and some passengers located in between the airports may therefore potentially consider them as substitutes. I do not consider the other airports listed in Table 2.1 above, as the travel time between YVR and these airports is over eight hours and 700km.

Route overlap analysis

- 2.28 Although an airport may be located in YVR's catchment area, this does not necessarily imply that passengers view the airports as substitutable. Airports may be distinguished according to a number of factors, including the destinations offered. An airport in YVR's catchment area may therefore not be considered substitutable if the destinations offered are not those demanded by YVR passengers.
- 2.29 Table 2.2 sets out an overview of the destinations, by region, served by YVR, YYJ and SEA. I consider Canadian, US and international (excluding US) destinations separately.

Table 2.2 Destinations offered from YVR and nearest airports, by region, 2017

| Origin airport | Canadian destinations | US destinations | International destinations | Total destinations |
|--|------------------------------|------------------------|-----------------------------------|---------------------------|
| Vancouver International Airport (YVR) | 42 | 42 | 46 | 130 |
| Bellingham International Airport (BLI) | 0 | 14 | 0 | 14 |
| Victoria International Airport (YYJ) | 9 | 3 | 4 | 16 |
| Seattle Tacoma International Airport (SEA) | 6 | 122 | 27 | 155 |

Note: BLI destination includes IWA, which I have included as a US destination based on the FAA code for Phoenix-Mesa Gateway Airport in the USA, rather than as the IATA code for Ivanovo Yuzhny Airport in the Russian Federation.

²¹ I understand that OAG data, which I use in my analysis elsewhere in this report, includes information about where bookings are made for passenger journeys. The information is limited to the country in which a booking is made, and is therefore not sufficiently detailed for me to undertake analysis of the ultimate origin or destination points from/to which passengers are travelling.

The numbers of destinations in this table and the tables that follow have changed compared with my previous report. As noted above, for internal consistency, I have updated the information based on OAG data from 2017 rather than the data on airport websites from 2015/16.

Source: OAG based on O+D passenger bookings data, 2017.

- 2.30 I have used OAG data to undertake this analysis, based on all direct (O+D) passenger bookings between each airport and other airports in 2017, to determine the total number of direct routes offered.²² The OAG database records information on all passenger flight bookings by airport, the location where the booking was made, and other information such as seat class.
- 2.31 While Table 2.2 above lists the number of destinations by region for each of the airports, in Table 2.3 below I summarise the overlap that each of the three airports shares with YVR across the three destination categories.

Table 2.3 Overview of destination overlap with YVR

| Airport | Overlap of Canadian destinations | Overlap of US destinations | Overlap of international destinations |
|---------|--|--|---------------------------------------|
| BLI | 0/42 (0%) of YVR destinations | 8/42 (19%) of YVR destinations | 0/46 (0%) of YVR destinations |
| SEA | 5/42 (12%) of YVR destinations | 39/42 (93%) of YVR destinations *(1 of the 42 is SEA) | 19/46 (41%) of YVR destinations |
| YYJ | 8/42 (19%) of YVR destinations* *(1 of the 42 is YYJ) | 3/42 (7%) of YVR destinations | 4/46 (9%) of YVR destinations |

Note: BLI destination includes IWA, which I have included as a US destination based on the FAA code for Phoenix-Mesa Gateway Airport in the USA, rather than as the IATA code for Ivanovo Yuzhny Airport in the Russian Federation.

Source: OAG based on O+D passenger bookings data, 2017.

- 2.32 When comparing YVR with BLI, it is apparent that the two airports serve different mixes of destinations. BLI and YVR share no common international or Canadian destinations. There is relatively limited overlap in destinations between YVR and YYJ. SEA and YVR have a high degree of overlap on US destinations, but less overlap on Canadian and international destinations.
- 2.33 I also consider the degree of overlap in destinations offered between YVR and BLI, YYJ and SEA by region. Table 2.4 compares the unique destinations offered by YVR with those offered by BLI. All of YVR's Canadian and international destinations, and the majority of its US destinations, are not shared with BLI.

²² The OAG (available at <https://www.oag.com/>) is a comprehensive global database with records of flight information schedules, passenger bookings and journeys.

Table 2.4 Common destinations: YVR and BLI

| | YVR total | Destinations unique to YVR | BLI total | Destinations unique to BLI |
|----------------------------|-----------|-------------------------------|-----------|-------------------------------|
| Canadian destinations | 42 | 42 | 0 | 0 |
| US destinations | 42 | 34 | 14 | 6 |
| International destinations | 46 | 46 | 0 | 0 |
| Total | 130 | 122 | 14 | 6 |

Note: BLI destination includes IWA, which I have included as a US destination based on the FAA code for Phoenix-Mesa Gateway Airport in the USA, rather than as the IATA code for Ivanovo Yuzhny Airport in the Russian Federation.

Source: OAG based on O+D passenger bookings data, 2017.

- 2.34 Table 2.5 compares the unique destinations offered by YVR and YYJ. As with BLI, the majority of Canadian, US and international destinations offered by YVR are not offered by YYJ. Excluding YVR itself, YYJ does not offer any destinations that are not offered by YVR.

Table 2.5 Common destinations: YVR and YYJ

| | YVR total | Destinations unique to YVR | YYJ total | Destinations unique to YYJ |
|----------------------------|-----------|-------------------------------|-----------|-------------------------------|
| Canadian destinations | 42 | 34 (including YYJ) | 9 | 1 (including YVR) |
| US destinations | 42 | 39 | 3 | 0 |
| International destinations | 46 | 42 | 4 | 0 |
| Total | 130 | 115 | 16 | 1 |

Source: OAG based on O+D passenger bookings data, 2017.

- 2.35 Table 2.6 compares the unique destinations offered by YVR and SEA. While SEA offers more unique US destinations, YVR offers more unique Canadian and international destinations, the majority of which are not shared with SEA.

Table 2.6 Common destinations: YVR and SEA

| | YVR total | Destinations unique to YVR | SEA total | Destinations unique to SEA |
|----------------------------|-----------|-------------------------------|-----------|-------------------------------|
| Canadian destinations | 42 | 37 | 6 | 1 (including YVR) |
| US destinations | 42 | 3 (including SEA) | 122 | 83 |
| International destinations | 46 | 27 | 27 | 8 |
| Total | 130 | 67 | 155 | 92 |

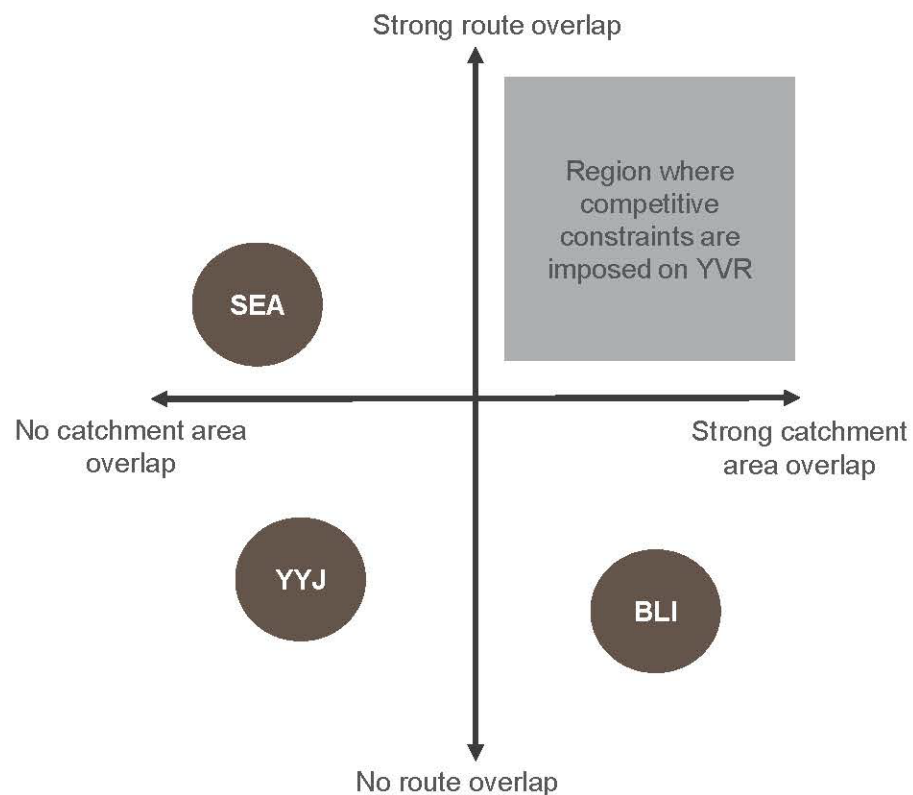
Source: OAG based on O+D passenger bookings data, 2017.

- 2.36 According to the route overlap analysis, BLI does not share common destinations with YVR in Canada or internationally, and only eight US destinations are shared between the two airports. I consider this level of overlap, as a proportion of the 130 destinations offered by YVR in total, to be too low for YVR to be meaningfully constrained by BLI.

2.37 Route overlap and geographic catchment analysis are aspects of market definition that must be considered in tandem. If passengers were faced with the option of travelling through an alternative airport to YVR that offered many of the same destinations and required minimal additional travel time, they would be likely to consider this airport to be more substitutable with YVR than an alternative airport requiring greater additional travel time. While YYJ and SEA both have a greater level of destination overlap with YVR, they are sufficiently outside of the geographic catchment area that, even for customers travelling on these overlapping routes, they are not likely to be considered as close substitutes to YVR.

2.38 My overall conclusion on the basis of both the catchment area and route overlap analyses is that YVR does not face a significant level of competition for O&D passengers from other airports. I illustrate this concept in Figure 2.2.

Figure 2.2 Summary of O&D analysis of competitive constraint on YVR



2B.3 Analysis of competition for transfer passengers

2.39 I understand that VAA states that it has been successful in attracting major international airlines to YVR, and that it faces competitive constraints from

airports that are not within its local catchment area.²³ In particular, it states that it faces competitive constraints from international hub airports located on the west coast of the USA for transfer passengers on long-haul flights between North America and the Pacific Rim. The airports cited by VAA in its Response are San Francisco International Airport (SFO) and SEA.²⁴ VAA does not identify the specific countries in the Pacific Rim for which it considers YVR to face competition.

- 2.40 For the current purposes, the question is whether any such competition is sufficiently strong to constrain VAA with regard to its conduct in the provision of airside access at YVR. I assess this question below. For the purposes of this analysis I adopt the broadest possible definition of the Pacific Rim, so as to be conservative.²⁵
- 2.41 To assess whether YVR faces competitive constraints from SEA and SFO, I consider a number of factors. I first consider the total transfer traffic at YVR that has an origin or destination in the Pacific Rim, using passenger booking data from the OAG database. The OAG database includes bookings with up to two transfer airports listed.²⁶ I then look at the proportion of YVR's traffic that is composed of passengers who start/end their journeys in other cities in North America, but travel through YVR to/from the Pacific Rim. If a significant proportion of Pacific Rim traffic has a stopover on the West Coast, then this

²³ See, for example, Response of Vancouver Airport Authority, *Commissioner of Competition v. Vancouver Airport Authority*, CT-2016-15, paras 2 and 4; and Vancouver Airport Authority, Chart of Undertakings, Questions Taken Under Advisement and Refusals Provided at the Examination for Discovery of Craig Richmond Held May 25–26, 2017.

²⁴ See, for example, Response of Vancouver Airport Authority, *Commissioner of Competition v. Vancouver Airport Authority*, CT-2016-15, paras 2 and 4. In Vancouver Airport Authority, Chart of Undertakings, Questions Taken Under Advisement and Refusals Provided at the Examination for Discovery of Craig Richmond Held May 25–26, 2017, VAA cites a much broader range of airports, including Detroit and Chicago. I have not considered these airports further here, as they are unlikely to be meaningful competitors to YVR for hub business, given that they are located quite far from YVR. Competition authorities also usually do not consider remote airports to be in competition for transfer passengers. For example, in its assessment of the geographic market for Berlin Airport in 1999, the European Commission found that airports that lay within a two-hour flight time could be considered part of the same geographic market for hub functions. European Commission (1999), 'Decision regarding regulation number 4064/89, M.1255 Case M.1255 Flughafen Berlin', 21 May.

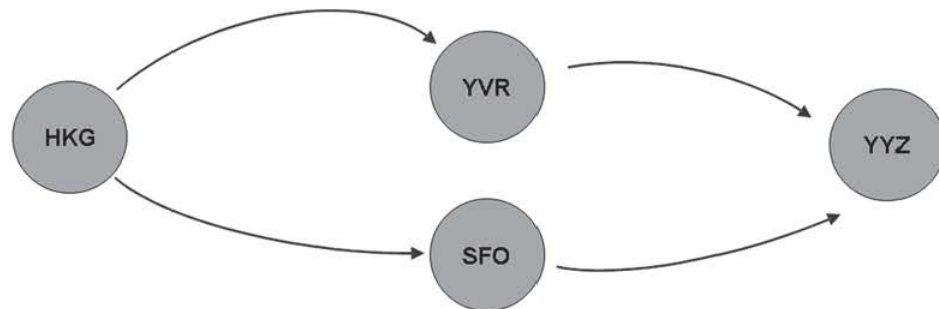
²⁵ This covers the following countries in the OAG database: Nepal, China, American Samoa, Brunei Darussalam, Ecuador, Fiji, Malaysia, Australia, Samoa, Korea Democratic People's Republic of, Solomon Islands, Singapore, Guam, Papua New Guinea, Northern Mariana Islands, Guatemala, Colombia, French Polynesia, Norfolk Island, Micronesia Federated States of, Cook Islands, Peru, Panama, New Zealand, Hong Kong (sar) China, Nicaragua, Wallis and Futuna Islands, Bhutan, Honduras, Palau, Vanuatu, Philippines, Myanmar, Macao (sar) China, Chinese Taipei, Timor-leste, Lao People's Democratic Republic, Tonga, Falkland Islands, Mongolia, Thailand, Mexico, Japan, Kiribati, Korea Republic of, Russian Federation, Chile, Marshall Islands, New Caledonia, Vietnam, El Salvador, Cambodia, Indonesia, Northern Mariana Islands (except Guam). I exclude Canada and the USA from this definition as these countries include the airports under analysis.

²⁶ While there is a small distinction between bookings and passengers, throughout the remainder of my analysis of OAG bookings data, I refer to OAG bookings as passengers.

may exert a competitive constraint on YVR. I focus on Pacific Rim passengers, as VAA specifically cites this group in its statement, as referred to above.

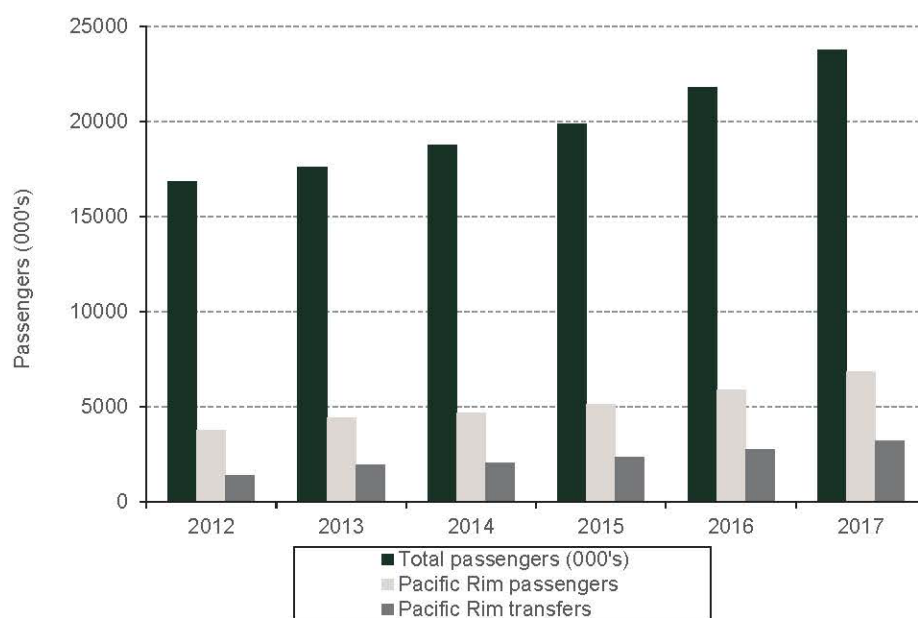
- 2.42 I illustrate this approach in Figure 2.3 below with a hypothetical journey between Hong Kong International Airport (HKG) and Toronto Pearson International Airport (YYZ). In this example, a passenger may consider a route that includes a stopover in YVR to be comparable to a route with a stopover in SFO.²⁷

Figure 2.3 Illustration of the hypothetical constraint imposed by US West Coast hubs on YVR



- 2.43 In Figure 2.4 I summarise total passengers, total Pacific Rim passengers, and Pacific Rim transfer passengers at YVR, between 2012 and 2017.

²⁷ In the airports field, the OAG database reports two intermediate gateways, Gateway 1 and Gateway 2 (although this data does not exist when there are fewer legs in a journey). This allows up to two stopover points on a journey to be identified.

Figure 2.4 Passengers at YVR, 2012–17

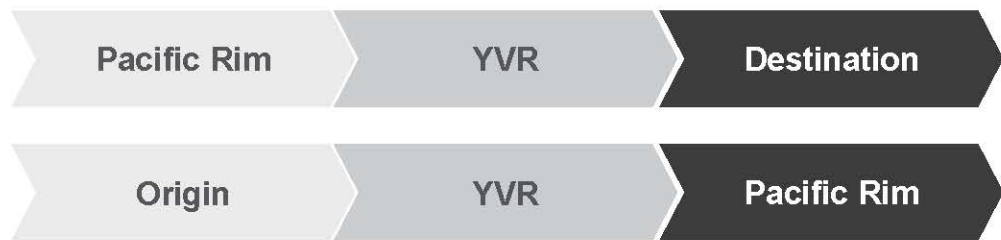
Note: Pacific Rim passengers include all bookings in which YVR and a Pacific Rim country are present, in any order, in the journey. Pacific Rim transfer passengers include all bookings where a Pacific Rim country is the origin/destination, and YVR is an intermediate gateway airport in the journey; or the Pacific Rim is a gateway, and YVR is another gateway in the booking.

Source: Analysis based on OAG database.

- 2.44 The OAG database reports that 23.8m passengers travelled through YVR in 2017.²⁸ Passenger journeys that involved travel between a Pacific Rim airport and YVR accounted for 28.8% of all YVR traffic in that year. I refer to this subset of YVR traffic as 'Pacific Rim traffic' for the remainder of this analysis. More than half (approximately 53%) of this Pacific Rim traffic had YVR as either an origin or a destination airport, with the remainder of Pacific Rim traffic using YVR as a transfer airport (referred to as either Gateway 1 or Gateway 2 in the OAG data).
- 2.45 Within the subset of Pacific Rim passengers, I analyse the total number of passenger journeys where YVR is a transfer airport, and a Pacific Rim country is either an origin or a destination airport—see Figure 2.5 below. I refer to these passengers as the 'Pacific Rim transfer traffic'.

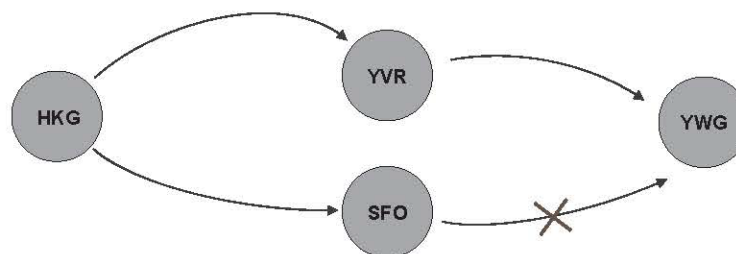
²⁸ YVR's website reports over 24m enplaned and deplaned passengers travelling through YVR in 2017. I am unable to determine the reason for the discrepancy. I do not believe, however, that the magnitude of the discrepancy raises any concerns about the conclusions that can be drawn from my analysis.

Figure 2.5 Illustrative example of Pacific Rim transfer traffic at YVR



- 2.46 This assessment includes journeys in which the origin and destination airports are both in the Pacific Rim (a 'return journey'), which may result in overstating the number of true indirect journeys.²⁹ I consider this to be a conservative approach.
- 2.47 Based on the above criteria, Pacific Rim transfer passengers account for only 8.4% to 13.6% of YVR's overall passenger traffic between 2012 and 2017.
- 2.48 In order for these passengers to consider SEA and/or SFO as substitutable for YVR, the airports would need to offer flights between the same origin and destination airports. For example, a passenger may be seeking to travel from HKG to Winnipeg (YWG). If SFO does not offer a flight from HKG and to YWG, the passenger is unlikely to consider transferring through SFO as an alternative to transferring through YVR where YVR offers both the HKG and YWG flights. This is shown in Figure 2.6.

Figure 2.6 Transfer journeys where YVR does not face a competitive constraint



- 2.49 I have reviewed bookings data from OAG for SEA and SFO to determine whether there are direct flights between these hub airports and the origin/destination airports listed for the Pacific Rim transfer traffic. For example, the above illustration of a HKG–YVR–YWG journey would be considered

²⁹ For example, this might be a journey from HKG to YVR and back to HKG. In this journey, YVR is likely to be a destination rather than an intermediate airport. My analysis would consider such passengers to be transfer passengers rather than O&D passengers. This would attribute these journeys as indirect rather than direct, which would understate the true number of Pacific Rim journeys to/from YVR that are direct.

Pacific Rim transfer traffic, and in this case I would record YWG as the destination airport of interest in this journey and HKG as the origin airport.

- 2.50 Based on a review of all relevant origin/destination airports, in Table 2.7 I estimate the percentage of transfer passengers at YVR for whom there are potentially competing services from SEA or SFO, by verifying whether these origins/destinations are available from SEA and/or SFO.
- 2.51 The proportion of Pacific Rim transfer traffic for which an alternative intermediate airport to YVR exists is the contestable market, or the proportion of the market for which an alternative hub airport would feasibly provide a competitive constraint on YVR.³⁰

Table 2.7 Potentially contestable Pacific Rim transfer traffic at YVR

| Year | YVR total number of passengers | Pacific Rim transfer traffic at YVR | | Contestable market SEA | Contestable market SFO | Contestable market (SEA or SFO) |
|------|--------------------------------|-------------------------------------|---|------------------------|------------------------|---------------------------------|
| | | Number of passengers | Passengers as a percentage of YVR total traffic | | | |
| 2012 | 16,844,668 | 1,414,664 | 8.4% | 6.2% | 6.5% | 6.7% |
| 2013 | 17,632,644 | 1,957,453 | 11.1% | 7.9% | 8.5% | 8.9% |
| 2014 | 18,771,476 | 2,054,985 | 10.9% | 7.8% | 8.5% | 8.5% |
| 2015 | 19,887,488 | 2,371,399 | 11.9% | 8.6% | 9.3% | 9.3% |
| 2016 | 21,792,786 | 2,776,696 | 12.7% | 9.4% | 9.7% | 10.2% |
| 2017 | 23,779,356 | 3,224,207 | 13.6% | 10.1% | 8.1% | 10.8% |

Note: The contestable market is calculated as a proportion of the total number of passengers at YVR.

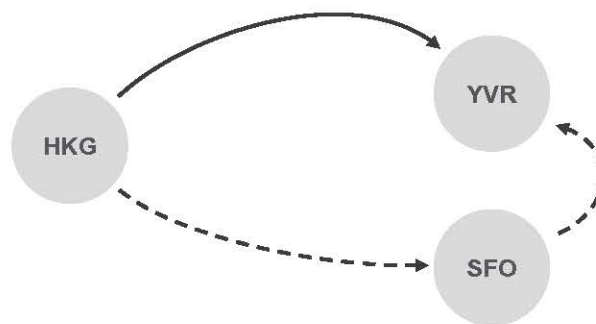
Source: Analysis based on OAG database.

- 2.52 The cumulative effect of (a) transfer passengers to/from the Pacific Rim being a small percentage of YVR's overall traffic; and (b) the fact that only a portion of these transfer passengers are able to travel to their origin/final destination through one of SFO or SEA; indicates that the competitive constraint on YVR for transfer traffic to/from the Pacific Rim is likely to be low. The percentage of potentially contestable transfer passengers ranges from 6.7% to 10.8% of YVR's overall traffic.

³⁰ As OAG data records up to two Gateway airports, it does not list bookings in which more than four airports are involved. It therefore excludes journeys which involve three or more transfers. However, the number of bookings in the OAG data is similar to the total reported passenger numbers by YVR. I would therefore not expect the number of excluded journeys to be significant.

- 2.53 In the UK, the CAA assessed the competitive constraint faced by Gatwick Airport arising from transfer traffic. In that case, the conclusion was that 8% of total passengers were either self-connecting or inter-/intra-lining between flights at Gatwick. The CAA considered that this proportion of passengers was too low to act as a constraint on Gatwick.³¹
- 2.54 Given that the contestable market for SEA/SFO is between 6.7% and 10.8%, I do not consider that US West Coast hub airports are imposing a significant competitive constraint on YVR.
- 2.55 A further potential constraint may come from US West Coast hub airports if a passenger considers an indirect journey from the Pacific Rim to YVR through SFO or SEA to be substitutable for a direct journey (see Figure 2.7).

Figure 2.7 Illustration of the hypothetical constraint for O&D passengers from US West Coast hubs



- 2.56 I have assessed Pacific Rim traffic travelling through US West Coast hub airports (SEA or SFO) to YVR. If there are a significant number of indirect bookings that treat YVR as an origin or destination airport, but travel through another US West Coast hub airport, then this may be evidence that these airports compete for certain long-haul routes to/from the Pacific Rim (although in such instances, YVR would still benefit from this passenger traffic). I consider bookings that fit the following criteria:

- YVR is the origin airport, SEA/SFO is a gateway airport, and the destination is in the Pacific Rim;³² or

³¹ Civil Aviation Authority (2014), 'CAP1134 - Market power determination in relation to Gatwick Airport – statement of reasons', January, Appendix F, 'Evidence and analysis on competitive constraint by passenger switching', F21–F24.

³² In terms of the nomenclature of the OAG database, this includes cases where SEA/SFO is the Gateway 1 airport, and cases where Gateway 1 is an empty field in the database but SEA/SFO is the Gateway 2 airport. In practice, both journeys involve a direct flight from YVR to SEA/SFO with a final destination in the Pacific Rim.

- YVR is the destination airport, SEA/SFO is a gateway airport, and the origin is in the Pacific Rim.³³

I present the results of this analysis in Table 2.8 below.

Table 2.8 Indirect Pacific Rim bookings through SEA/SFO, 2012–17

| | SEA to YVR | YVR to SEA | SFO to YVR | YVR to SFO | Total YVR passengers |
|------|------------|------------|------------|------------|----------------------|
| 2012 | 8,885 | 11,513 | 15,161 | 15,485 | 16,844,668 |
| 2013 | 11,006 | 11,706 | 17,658 | 24,168 | 17,632,644 |
| 2014 | 15,430 | 15,284 | 19,686 | 25,537 | 18,771,476 |
| 2015 | 18,973 | 19,775 | 16,186 | 22,763 | 19,887,488 |
| 2016 | 15,677 | 15,287 | 20,189 | 22,757 | 21,792,786 |
| 2017 | 12,946 | 14,852 | 25,601 | 25,339 | 23,779,356 |

Source: Analysis based on OAG database.

- 2.57 Total indirect journeys through SEA and SFO do not represent a significant proportion of YVR's passenger traffic—traffic through these two hubs combined represents less than 1% of YVR's 2017 passengers. This indicates that these airports do not meaningfully constrain YVR by offering indirect routes between the Pacific Rim and YVR.

2B.4 Conclusions on competitive constraints from other airports

- 2.58 The analysis in this section has considered the competitive constraints imposed on YVR by other airports. I have assessed the airports market based on two passenger groups: O&D passengers and transfer passengers.
- 2.59 For O&D passengers, the results indicate that BLI is the only airport within YVR's catchment area. However, it offers only eight US destinations in common with YVR, and there is no overlap in Canadian or international destinations. Additionally, there are surface access constraints associated with BLI and the two other nearest airports to YVR (YYJ and SEA), involving the need for either ferry transport or a Canada–USA border crossing.
- 2.60 My assessment of transfer passengers is focused on the Pacific Rim, as VAA has stated that YVR faces significant competition from US West Coast hub airports for this customer segment.³⁴ I conclude that competition from other

³³ This includes cases where SEA/SFO is the Gateway 2 airport, and cases where Gateway 2 is an empty field in the OAG database but SEA/SFO is the Gateway 1 airport. In practice, both journeys involve a flight the Pacific Rim, with a direct flight from SEA/SFO to YVR as a final destination.

³⁴ Response of Vancouver Airport Authority, *Commissioner of Competition v. Vancouver Airport Authority*, CT-2016-15, paras 2, 4 and 74.

airports for Pacific Rim transfer traffic does not pose a significant constraint on YVR, because the size of the contestable market is small.

2.61 I therefore conclude that YVR faces limited competitive constraints from other airports. I discuss the market for airside access at YVR in the next section.

2C The market for airside access at YVR

2C.1 Airside access market definition depends on the downstream service in question

2.62 As the operator of YVR, VAA has responsibility for controlling access for commercial services to the airport's facilities. This includes airside access for providers of in-flight catering services. VAA also controls the land on the airport's premises where the current providers of in-flight catering services (Gate Gourmet and CLS) have their production facilities.

2.63 The Commissioner's case against VAA concerns the refusal to grant access to the airside. Another allegation made by the Commissioner is that VAA refused airside access to new entrants that did not wish to operate facilities on the airport's premises (the tying abuse). The question of market definition in this case therefore relates to airside access at YVR.

2.64 This question of market definition can be rephrased as follows: is airside access at YVR a very important (or even essential) input for the provision of in-flight catering services at YVR? If it is, there is a separate relevant market for airside access at YVR. By virtue of its ability to restrict access, VAA has monopoly control over that market, and can therefore be considered dominant.

2.65 When answering this question, it is important to distinguish among a number of different activities that form in-flight catering services. This is because these activities depend in different degrees on airside access, and hence the answer to the market definition question may be different in each case. I therefore discuss these in-flight catering services here as part of the airside access market definition, although I do not consider the actual market definition for these downstream services until later, in section 2D below.

2.66 At this stage in the report, it is also important to highlight the differences between the parties in terms of terminology used to describe galley handling and catering (which are separate from any differences in market definition, discussed in section 2D).

- 2.67 The Commissioner uses the terms ‘catering’ and ‘galley handling’ in a specific way.³⁵ Catering consists primarily of the preparation of meals for distribution, consumption or use on board a commercial aircraft by passengers and crew. Galley handling consists primarily of the services involving loading and unloading onto/from aircraft of catering products, commissary products (non-food items and non-perishable food items) and ancillary products (duty-free, linen and newspapers).³⁶ This terminology is broadly consistent with the terminology often used by in-flight catering providers themselves and by airlines.³⁷
- 2.68 VAA uses a different terminology for these activities. It includes under catering the preparation and loading onto aircraft of fresh meals and other perishable food offerings. It describes galley handling as the provision and loading onto aircraft of non-perishable food items, drinks, and other items such as duty-free products.
- 2.69 There is therefore some scope for confusion about terminology between the parties. The Commissioner’s terminology emphasises the difference between the activity of loading and unloading onto and off the aircraft of products (galley handling), and the products themselves (catering). In contrast, VAA’s terminology places emphasis on the distinction between fresh/perishable items (catering) and other items (galley handling), both of which involve the activity of loading and unloading.
- 2.70 For the purposes of my analysis in this report I follow the Commissioner’s terminology, as I consider this to be more insightful for the analysis of market definition for airside access.
- 2.71 Galley handling, described by the Commissioner as the loading and unloading of the various types of product onto and from the aircraft, clearly requires airside access.³⁸ Catering services do not require airside access as such. The question of whether airside access is an important or essential input is

³⁵ Notice of Application, *Commissioner of Competition v. Vancouver Airport Authority*, CT-2016-15, para 7.

³⁶ Similarly, the European ground-handling directive states that catering services comprise liaison with suppliers and administrative management, storage of food and beverages and of the equipment needed for their preparation, cleaning of this equipment, and preparation and delivery of equipment as well as of bar and food supplies. It defines the transport, loading onto, and unloading of, food and beverages from the aircraft separately as a ramp-handling service. Council Directive 96/67/EC of 15 October 1996 on access to the groundhandling market at Community airports.

³⁷ For example, see Witness Statement of Mark Brown, Strategic Aviation Holdings Ltd., para 18.

³⁸ A hypothetical substitute would require catering services to be loaded/unloaded from an aircraft at an off-airport location, which would imply the transport of the aircraft out of the airport’s premises. For logistical and financial (and probably legal) reasons, this would not be possible.

therefore more relevant in the context of galley-handling services. (In section 2D I discuss further whether catering and galley handling are themselves separate relevant downstream markets.)

- 2.72 For the avoidance of doubt, my overall conclusions do not depend on this discrepancy in terminology for catering and galley handling. If I were to follow VAA's terminology, the market definition question would simply have to be answered from the perspective of both catering and galley handling, as in that terminology both services include the activity of loading and unloading products onto and off the aircraft, and both would therefore require airside access.
- 2.73 The provision of galley-handling services (in the Commissioner's terminology) at YVR requires airside access, since it involves the loading and unloading of products onto aircraft. Without airside access, the galley-handling service could not be provided at YVR. From this perspective, airside access at YVR is a separate relevant market, controlled by VAA, thus rendering VAA dominant.

2C.2 Self-supply and double catering as potential substitutes

- 2.74 In theory, airlines may have other options for sourcing in-flight catering services on flights to and from YVR. These potential substitutes for galley handling at YVR are self-supply and double catering. Below, I assess the extent to which these substitutes pose a competitive constraint on galley handling at YVR.
- 2.75 I understand that, for most airlines, self-supply is not a feasible option and does not represent a competitive constraint on galley handlers. For example, Air Canada notes that it used to self-supply, but it switched to outsourcing in the 1990s for cost reasons, [REDACTED]
[REDACTED]³⁹
- 2.76 I understand that, in the past, WestJet sourced catering products directly and self-supplied galley handling at five airports in Canada—Vancouver, Calgary, Edmonton, Toronto and Winnipeg. WestJet [REDACTED]
[REDACTED], and in these cases it contracted out the handling, using Gate Gourmet at most airports in

³⁹ See Witness Statement of Mark McVittie, Air Canada, para 45.

Canada.⁴⁰ [REDACTED]
[REDACTED]. It has recently determined that it will stop self-supply.⁴¹ I am therefore not aware of any major airline operating from YVR that self-supplies.

- 2.77 I understand that some airlines use double catering, which involves loading catering for the outbound and the inbound flight at the origin airport, eliminating the need to access catering services at the destination airport. I understand that in most cases this is used for relatively short-haul journeys,⁴² although in some cases airlines may use double catering on medium- or long-haul journeys.⁴³
- 2.78 Double catering may be feasible for non-perishable products. However, it is likely to be less so for perishable items. WestJet notes that it sometimes double caters perishables to southern destinations, but there are also certain limitations and it may not always be feasible or suitable for WestJet flights.⁴⁴ It may also not be operationally possible to double cater in all circumstances; for example, if an aircraft lands late at night and leaves in the morning, it will need to be served at that airport in the morning.⁴⁵
- 2.79 I have undertaken an analysis of the extent to which airlines that operate at YVR double cater, to determine whether double catering is a sufficiently close substitute for procuring catering and galley-handling services at YVR. I have matched data on flight distance and time from the OAG database to the caterer data for Gate Gourmet and CLS at YVR between 2013 and 2017.⁴⁶
- 2.80 I have looked at the relationship between the proportion of flights that are not catered at YVR and the duration of the flights. I focus my analysis on flights that are not catered at YVR, as this is a reasonable proxy for the number of flights that are being double catered from another airport or self-supplied. Figure 2.8 below depicts this relationship, both for all airlines that operate at

⁴⁰ See Witness Statement of Colin Murphy, WestJet, paras 25 and 26.

⁴¹ See Witness Statement of Colin Murphy, WestJet, para 36.

⁴² See Witness Statement of Ken Colangelo, Gate Gourmet Canada Inc., paras 37 to 40.

⁴³ See Witness Statement of Ken Colangelo, Gate Gourmet Canada Inc., para 40.

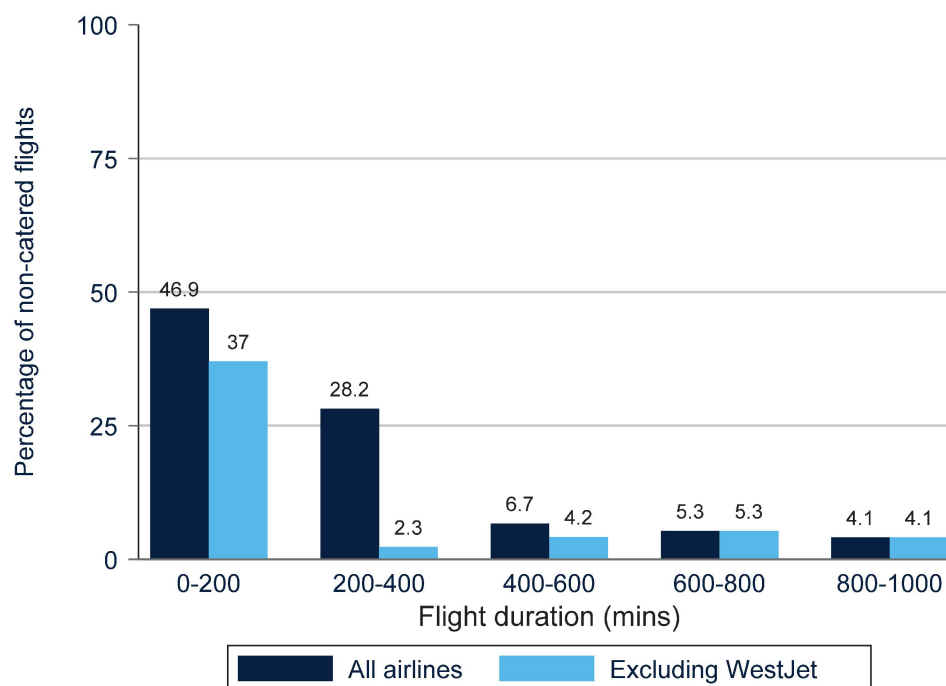
⁴⁴ These limitations include space constraints in the aircraft, maintaining appropriate food safety temperatures, and ensuring that fresh products remain fit for consumption.

⁴⁵ See [REDACTED]

⁴⁶ I have matched data based on airline, destination and flight date. I therefore, if there are multiple flights on the same airline with the same destination on the same day, these are collapsed into one observation. I do not consider that this distorts my analysis materially, as if an airline uses Gate Gourmet to cater the morning flight—for example, YVR to YYZ—it is likely to use Gate Gourmet for the evening flight at YVR as well.

YVR, and after excluding WestJet, which engaged in self-supply at YVR until recently.

Figure 2.8 Relationship between flight duration and extent of catering at YVR



Source: Analysis based on caterer datasets and OAG database.

- 2.81 As can be seen in Figure 2.8, for flight durations of over 400 minutes on all airlines, only a small proportion of flights departing from YVR (around 15%) are not catered at YVR, indicating that catering at YVR is necessary for a large proportion of these longer flights. For flights under 400 minutes, the proportion of flights not catered at YVR is higher. These flights may be double catered at other airports, self-supplied, or not catered at all. Many of these flights are between YVR and small airports in British Columbia, including Williams Lake (YWL) and Campbell River (YBL).
- 2.82 Excluding WestJet, which I understand self-supplied at YVR during the period under consideration, significantly reduces the proportion of flights not catered at YVR. These results indicate that double catering is only really feasible on flight durations of less than 200 minutes—the vast majority of flights (excluding WestJet) that run for more than 200 minutes are catered from YVR, indicating that double catering may not be feasible for such longer flights.
- 2.83 Overall, I conclude that self-supply and double catering are to some extent (for certain types of flight and routes) alternatives to procuring in-flight catering

services at YVR, but not by a sufficient degree for them to pose a significant competitive constraint on VAA when providing airside access. These alternatives therefore do not change my conclusion that VAA is dominant in the market for airside access at the airport.

2D The markets for catering and galley handling at YVR

2D.1 Are there different downstream markets for catering and galley handling?

- 2.84 As noted above, it is useful to bear in mind that there is a difference between catering and galley-handling services, in that their reliance on airside access is different. In the Commissioner's terminology, galley handling consists of the loading and unloading of catering and other products onto/from aircraft (which also covers related activities such as inventory management, transportation of products between the aircraft and various facilities including kitchens, and trash removal). Catering involves the preparation of meals for distribution and consumption on board the aircraft, and does not involve airside access as such, as that is through handling.
- 2.85 One question that arises in relation to market definition is whether catering and galley handling form a single downstream market or separate downstream markets. I address this question here.
- 2.86 Both Gate Gourmet and CLS are 'full-service' providers that offer both catering and galley handling at YVR.⁴⁷ I understand that both firms traditionally sell these services together to airlines—i.e. in bundles.
- 2.87 However, I understand that the market for in-flight catering services is evolving, with a trend towards separating catering from the galley-handling function. Meals may be prepared on-airport, but they may also be transported to the airport from an off-airport kitchen or from local restaurants. Indeed, of the two firms that requested entry at YVR in 2014, Newrest was planning to operate an off-airport kitchen, while Strategic Aviation was planning to operate only galley-handling services.⁴⁸ The new provider of in-flight catering services at YVR, dnata, which received its licence from VAA in 2018, also operates an off-airport kitchen facility. This means that companies specialising in catering services only do not need to provide galley-handling services themselves, but will

⁴⁷ I also understand that dnata will be a 'full-service' provider offering both catering and galley handling at YVR.

⁴⁸ Response of Vancouver Airport Authority, *Commissioner of Competition v. Vancouver Airport Authority*, CT-2016-15, paras 52 and 53.

require an agreement or partnership with a galley-handling firm with airside access in order to deliver products to/from the aircraft. Hence, catering and galley handling are complementary services in this regard.

- 2.88 What does this mean for market definition? There are two possibilities. There could be separate markets for catering and for galley-handling services at YVR. Alternatively, catering and galley handling could form a combined or 'bundled' market.
- 2.89 In cases involving complementary products, whether to define separate product markets or a market for bundles depends on a number of factors. How common is it for suppliers in the market to offer bundles as opposed to individual products? How common is it for customers to purchase bundles as opposed to individual products?
- 2.90 Nevertheless, in the current case the precise delineation of the downstream markets can be left open. This is because VAA's refusal to grant airside access can be considered capable of lessening downstream competition regardless of the precise downstream market definition.
- 2.91 Specifically, the refusal to grant airside access has an impact on the activity of galley handling, which relies on airside access. Therefore, if there were separate downstream catering and galley-handling markets, there would be a potential lessening of competition in galley handling because new entry is prevented. That would be sufficient for an economic theory of harm from the refusal to grant access, and it would be less important to consider the effect on the downstream catering market in detail.
- 2.92 Equally, if instead there were a combined catering and galley-handling market, competition in this market would be lessened because new entrants would be unable to provide the galley-handling activity (because of VAA's refusal) and hence could not enter this combined market. Again, this would be sufficient for having a coherent economic theory of harm.
- 2.93 For this reason, I consider it unnecessary to conclude on the exact boundaries of the downstream market—i.e. whether galley handling and catering are separate markets or form a combined downstream market—as my conclusions are the same in both scenarios.
- 2.94 I note that the Commissioner considers galley handling to be a separate relevant product market, and his theory of harm is that VAA's refusal prevents
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or lessens competition in the market for galley handling (i.e. the Commissioner does not focus on the downstream catering market as such).⁴⁹ This position is consistent with my own analysis, even if I leave open the delineation of downstream market boundaries.

2.95 In sections 3 and 4 of this report—when analysing, respectively, the scope for downstream competition and the effects of VAA's conduct on downstream competition—I consider the provision of in-flight catering services as a whole, in part because much of the data refers to both catering and galley handling (for example, the financial data from Gate Gourmet and CLS analysed in section 3). Where the data allows it I also consider galley handling separately (for example, when determining the price effects for airlines that do not switch in-flight catering providers in section 4E).

2D.2 What is the position of VAA in the downstream markets?

2.96 It is uncontroversial that VAA itself is not active in the provision of catering or galley-handling services.

2.97 The Commissioner's position is that VAA has considerable ability to determine and influence price and non-price dimensions in the galley-handling market by virtue of its control over airside access at YVR, and that this translates into VAA having market power in the galley-handling market.⁵⁰ VAA disagrees with this position.⁵¹

2.98 From an economics perspective, a theory of harm of foreclosure of downstream competition through a refusal to grant access to an upstream input requires the firm in question to be dominant upstream, but does not require it to be dominant downstream, or even to be directly active downstream.

2.99 Where the dominant upstream firm is vertically integrated into the downstream activity it may have a clear economic motive to prevent downstream competition—i.e. it may wish to favour its own downstream operations at the expense of downstream competitors. However, even if the firm is not vertically integrated, it may have a financial stake in the outcome of competition in the

⁴⁹ Notice of Application, *Commissioner of Competition v. Vancouver Airport Authority*, CT-2016-15, paras 12–18 and section III C.

⁵⁰ Notice of Application, *Commissioner of Competition v. Vancouver Airport Authority*, CT-2016-15, paras 34–35.

⁵¹ Response of Vancouver Airport Authority, *Commissioner of Competition v. Vancouver Airport Authority*, CT-2016-15, paras 66–68.

downstream market, and therefore an economic motive to influence this competition.

- 2.100 This principle was recognised by the English High Court in a case in 2014 involving access to the bus station at Luton Airport, which the airport had granted exclusively to one bus operator. Luton Airport was not itself active in the provision of bus services to and from the airport. However, through the award of an exclusive concession the airport raised its commercial stake in the downstream market: it derived commercial benefit from the terms of the concession, since the fee it received was related to the expected revenue of the bus operator on the route, and was much higher than in the previous, non-exclusive arrangement. With such a stake in the downstream service, Luton Airport would have sufficient incentive to favour one downstream provider over another. As the High Court put it, Luton Airport was ‘not a neutral or indifferent upstream provider of facilities’.⁵²
- 2.101 In my opinion, the current case is comparable to the Luton Airport situation in this regard, since VAA can extract revenues from Gate Gourmet and CLS through the licence and lease agreements that are in place. I understand that VAA charges both Gate Gourmet and CLS a fee based on a percentage of their respective revenues at the airport (currently 5% of revenues).⁵³ VAA therefore does have a financial interest in the revenues earned by Gate Gourmet and CLS at YVR.
- 2.102 VAA points out that the revenues thus generated by VAA are ‘*de minimis*’ as they represent approximately 1% of VAA’s total revenues.⁵⁴ In my opinion, this is relevant only in so far as it indicates that VAA has more significant revenue sources, and it does not detract from the fact that VAA does have a financial interest in the outcome of competition in the galley-handling market.
- 2.103 VAA—in its Concise Statement of Economic Theory—also seems to make a more theoretical argument as to why it would have no incentives to exploit any market power in the market for galley handling. I quote the VAA argument below:

⁵² *Arriva The Shires Ltd vs London Luton Airport Operations Ltd*, [2014] EWHC 64 (Ch), para 100. I acted as the economic expert for the claimant in this case.

⁵³ For on-airport sales. Response of Vancouver Airport Authority, *Commissioner of Competition v. Vancouver Airport Authority*, CT-2016-15, paras 38 and 39. [REDACTED]

⁵⁴ Response of Vancouver Airport Authority, *Commissioner of Competition v. Vancouver Airport Authority*, CT-2016-15, para 43.

The Authority derives no benefit from restricting competition among firms providing Catering and Galley Handling, if the resulting market structure is inefficient. On the contrary, even if one assumes that the Authority was acting as a sole profit-maximizing monopolist with respect to control over airside access to the Airport as alleged by the Commissioner, such a monopoly supplier to the Airport airside for the purpose of supplying Galley Handling would have an interest in ensuring the most efficient market structure for the provision of Galley Handling at the Airport, as that would enable such a monopolist to maximize the revenues it earns from complementary service providers, including Catering and Galley Handling providers.⁵⁵

- 2.104 This reasoning by VAA seems to refer to a particular economic theory describing a situation where there is a monopolist that controls infrastructure (here, the airport), and a number of complementary downstream services that make use of the infrastructure (here, catering and galley handling). In a situation in which the complementary services are perfectly competitive, economic theory indicates that the monopolist has nothing to gain from trying to control the downstream services, as this would not increase its profits. In such a situation, I would agree that, as a matter of economic theory, VAA would not be able to make higher profits by blocking competition in the downstream markets.
- 2.105 However, I do not consider this theoretical situation to reflect the economic reality at YVR. Galley handling and catering are not perfectly competitive activities. Rather, there are economies of scale and fixed costs that mean that the number of competitors that can viably operate in these markets is necessarily limited (see my analysis in section 3).
- 2.106 Hence, the relevant downstream markets are imperfectly competitive due to economies of scale (as are most real-world markets). In such a situation, economic theory indicates that the infrastructure monopolist may have the ability to raise its profits by influencing competition in the downstream market. In particular, restricting the number of service providers in the downstream market to two (or three) may enable those providers to achieve higher revenues than they would otherwise, and this in turn increases the profitability of the airport through the licence fee arrangement.

⁵⁵ Response of Vancouver Airport Authority, *Commissioner of Competition v. Vancouver Airport Authority*, CT-2016-15 Schedule A – Concise Statement of Economic Theory, para 2.

2.107 Therefore, from a theoretical perspective, it cannot be said that VAA has no incentives to restrict competition downstream.

2E Conclusions on market definition and dominance

2.108 A number of markets are relevant to consider as part of this case:

- the **airports market**, in which airports compete for airlines and passengers;
- the **airside access market** at an airport, which involves access to certain infrastructure at the airport to provide catering and galley-handling services to airlines;
- the **catering and galley-handling market(s)**, which are the downstream markets where competition is potentially prevented or lessened as a result of the refusal to grant airside access to new providers.

2.109 I have considered whether YVR is dominant in the airports market by looking at the competitive constraint imposed on YVR by other airports. I have assessed the airports market based on two passenger groups: O&D passengers and transfer passengers.

2.110 For O&D passengers, the results indicate that BLI is the only other airport within YVR's catchment area. However, it offers only eight US destinations in common with YVR, and there is no overlap in Canadian or international destinations. Additionally, there are surface access constraints associated with BLI and the two other nearest airports (YYJ and SEA), involving the need for either ferry transport or a Canada–USA border crossing.

2.111 My assessment of transfer passengers is focused on the Pacific Rim, as VAA has stated that YVR faces significant competition from US West Coast hub airports for this customer segment. I conclude that competition from other airports for Pacific Rim (transfer) traffic does not pose a significant constraint on YVR.

2.112 I therefore conclude that YVR faces limited competitive constraints in the airports market.

2.113 As the operator of YVR, VAA has responsibility for controlling access to the airport's facilities. This includes airside access for providers of in-flight catering services. VAA also controls the land on the airport's premises where the current providers of in-flight catering services (Gate Gourmet and CLS) have their production facilities.

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- 2.114 I find that self-supply and double catering are to some extent (for certain types of flight and routes) alternatives to procuring in-flight catering services at YVR, but not by a sufficient degree for them to pose a significant competitive constraint on VAA when providing airside access. These alternatives therefore do not change my conclusion that VAA is dominant in the market for airside access at the airport.
- 2.115 The precise delineation of the downstream markets—in particular, whether galley-handling and catering services at YVR are separate markets or a single market—can be left open. This is because VAA's refusal to grant airside access can be considered capable of lessening downstream competition regardless of the precise downstream market definition.
- 2.116 Specifically, the refusal to grant airside access has an impact on the activity of galley handling, which relies on airside access. Therefore, if there were separate downstream catering and galley-handling markets, there would be a potential lessening of competition in galley handling because new entry would be prevented. That would be sufficient for an economic theory of harm from the refusal to grant access, and it would be less important to consider the effect on the downstream catering market in detail.
- 2.117 Finally, I note that a theory of harm of foreclosure of downstream competition through a refusal to grant access to an upstream input requires the firm in question to be dominant upstream, but does not require it to be dominant downstream, or even to be directly active downstream.
- 2.118 Where the dominant upstream firm is vertically integrated into the downstream activity, it may have a clear economic interest to distort downstream competition—i.e. it may wish to favour its own downstream operations at the expense of those of downstream competitors. However, even if the firm is not vertically integrated, as is the case for VAA, it may have a financial stake in the outcome of competition in the downstream market, and therefore an economic motive to influence this competition.
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3 Analysis of the scope for entry in the in-flight catering market at YVR

3A Relevance of the scope for entry in this case

3.1 In 2014 two new providers, Newrest and Strategic Aviation, requested access to the airside at YVR in order to provide galley-handling services. VAA refused both requests for access. [REDACTED]

[REDACTED].⁵⁶

3.2 One of the main arguments that VAA put forward initially to justify its refusal to grant airside access was that demand for catering and related services was not sufficient to support additional entry.⁵⁷ VAA indicated that such entry would imperil the continued viability of the two existing providers of in-flight catering services, Gate Gourmet and CLS, which would result in a risk of service disruption and negative effects on quality and service levels.

3.3 I understand that this view has changed more recently, as VAA [REDACTED]
[REDACTED].⁵⁸ VAA published a request for proposals for an additional in-flight catering licence, and awarded a licence to the in-flight catering firm dnata in 2018.⁵⁹ I understand that dnata has not yet started operating at YVR.⁶⁰

3.4 In any event, an important question to ask in this matter is how many providers of in-flight catering services can viably operate at YVR. This question can be asked for the period from around 2014 when Strategic and Newrest requested access. It can also be asked today (from 2018), now that dnata has been allowed to commence operations as a third caterer.

3.5 One factor that may determine the maximum number of providers is the availability of physical capacity at YVR for a new provider to operate. This is not a matter for economic expertise, although I do not understand VAA to be

⁵⁶ For example, see [REDACTED].

⁵⁷ See, for example, Response of Vancouver Airport Authority, *Commissioner of Competition v. Vancouver Airport Authority*, CT-2016-15, paras 3 and 75, and Schedule A – Concise Statement of Economic Theory, para 11.

⁵⁸ Vancouver Airport Authority (2017), 'Request for Expression of Interest – In-Flight Catering Licence', RFE01 # CBD-2017-001, 3 August, YVR00016816. [REDACTED]

⁵⁹ In-Flight Catering Licence between Vancouver Airport Authority and dnata Catering services Ltd, YVR00034311.

⁶⁰ [REDACTED]

making this capacity argument.⁶¹ I do not address this point further in this report.

- 3.6 Another factor that determines the maximum number of providers is economic profitability. In any market, the number of competitors that can viably operate is often determined by a combination of total market size (a demand factor) and economies of scale in the costs of production (a supply factor). If fixed costs in an industry are high relative to total market demand, the number of viable competitors will be relatively small.
- 3.7 The extreme case of this is natural monopoly: fixed costs are so high that only one supplier can operate profitably. VAA is effectively arguing that the provision of in-flight catering services at YVR was until recently a 'natural duopoly'—i.e. that there was room for only two providers.
- 3.8 In this section I carry out two pieces of economic analysis, based on financial data from Gate Gourmet and CLS. First, I explore whether levels of profitability in the market in the past were such that there was room for a third competitor. Second, I consider how many providers could viably operate going forward. I consider this both in terms of whether there is room for three firms and in terms of whether there is room for four firms, as VAA has now granted access to a third provider of in-flight catering services (dnata).
- 3.9 Before doing so I make some observations on this matter from an economic perspective.
- 3.10 First, as a matter of economic theory, the competitive process itself—as distinct from a 'central planner'—is usually well placed to determine how many competitors can operate viably. The competitive process involves periodic entry and exit: when profits are high, new competitors come in, and when profits are low or negative, competitors exit. Over time the market will settle on a specific number (or range) of competitors, until demand or cost shocks change this again.
- 3.11 Second, even if there had been room for only two providers at YVR in the past, or three providers going forward, the competitive process—again as distinct from a 'central planner'—would be well placed to determine which providers

⁶¹ I also note that, in the VAA's Request for Expression of Interest, it states that a new entrant would be able to set up a facility on Sea Island. Vancouver Airport Authority (2017), 'Request for Expression of Interest', RFEOI # CBD-2017-001, 3 August.

they should be. Competition means that those competitors that are most efficient, innovative and/or responsive to customer demand are usually the ones that survive. It is not necessarily the incumbent providers that survive.

3.12 In this regard, while VAA—acting here as a kind of ‘central planner’—no doubt has significant understanding of the various services provided at its airport, there is also an important role for the providers themselves and for the purchasers of in-flight catering services—i.e. the airlines—to make the market work effectively. In my opinion, it is noteworthy that [REDACTED]

[REDACTED]
[REDACTED]
[REDACTED].⁶²

3.13 I would expect airlines to be well placed to deal with any temporary disruption should one caterer struggle in the competitive process following entry.⁶³ Airlines would also be in a good position to make a commercial choice between catering services provided off-airport (as proposed by the firms that requested entry⁶⁴) and on-airport (as provided by Gate Gourmet and CLS). It does not have to be VAA that decides what is best for the market.

3.14 Third, and related to the above points, VAA argues that new entry into the in-flight catering market at YVR may not be ‘socially efficient’. VAA refers to the economics literature in its ‘Concise Statement of Economic Theory’.⁶⁵ I make a number of observations here.

- The theory dealing with ‘socially efficient’ entry has not been generally accepted as a policy guide in competition law and regulation. The rule of thumb that more competition is generally better is still the accepted norm, and, in my opinion, this is for good economic policy reasons.⁶⁶

⁶² For example, see [REDACTED]

⁶³ For example, I understand that Gate Gourmet assisted in the transition to a new catering provider at Quebec Airport in 2012. See PAAMC00002_00004030, p. 129.

⁶⁴ I note that dnata also plans to operate an off-site kitchen.

⁶⁵ Response of Vancouver Airport Authority, *Commissioner of Competition v. Vancouver Airport Authority*, CT-2016-15, Schedule A – Concise Statement of Economic Theory, para 10.

⁶⁶ The notion that entry is normally good for competition, efficiency and economic welfare is also supported by the theoretical and empirical economics literature. For example, in a widely cited paper discussing the literature, Shapiro (2012) states that: ‘There is a very substantial body of empirical evidence supporting the general proposition that “more competition,” meaning greater contestability of sales, spurs firms to be more efficient and to invest more in R&D. For our purposes, “innovation” encompasses a wide range of improvements in efficiency, not just the development of entirely novel processes or products. Detailed case studies of businesses operating in diverse settings almost invariably conclude that companies insulated from competition—that is, firms operating in environments in which relatively few sales are contestable—are rarely at the cutting edge in terms of efficiency and can be woefully inefficient.’ Shapiro, C. (2012), ‘Competition and innovation: Did Arrow hit the bull’s eye?’, in Lerner, J. and Stern, S. (eds), *The Rate and Direction of Inventive Activity Revisited*, University of Chicago Press, pp. 376–7.

- The theory of socially efficient entry builds on a seminal paper by Mankiw and Whinston, which sets out the theoretical conditions under which entry may be inefficient.⁶⁷ One of these conditions is that products are undifferentiated: if there are too many suppliers, they may each produce inefficiently low volumes. Where products are differentiated, entry is less likely to be 'socially inefficient' in this theoretical framework, since new entry means greater product variety and choice. The latter theoretical outcome seems applicable to the markets for catering and galley handling: products are diverse, and suppliers are exploring new business models, such as off-airport catering. Free competition and entry means that such market dynamics and innovation are given a chance to prevail.

3.15 In the remainder of this section I consider whether the profitability in the in-flight catering market at YVR is such that it would have been able to sustain more than two service providers from around 2014, and whether it could sustain more than three service providers going forward.

3B Data and profitability measures used in my analysis

3.16 From the Commissioner's disclosure, I have had access to the following data that is relevant for conducting a profitability analysis.

- Gate Gourmet: [REDACTED]
[REDACTED].⁶⁸
- CLS: [REDACTED]
[REDACTED].

3.17 The accounting measure that I can robustly estimate based on this data, and which I rely on in my profitability assessment, is the EBITDA margin (earnings before interest, taxes, depreciation and amortisation, divided by revenues). The EBITDA margin is the measure for which most data points were available for Gate Gourmet and CLS at YVR and across other airports. It is also [REDACTED]

⁶⁷ Mankiw, G. and Whinston, M. (1986), 'Free Entry and Social Inefficiency', *The RAND Journal of Economics*, 17:1, pp. 48–58.

⁶⁸ In my previous analysis for the expert report dated 15 November 2017, I used [REDACTED], which was the only data made available to me at the time. Subsequent to filing my expert report, I was advised by the Commissioner that he had inadvertently not provided me with a document that contains [REDACTED]. Now that I have this data available to me (see PAAH01424-00000795), I have incorporated it into my updated analysis. I note that the [REDACTED]. The updated data has resulted in a change in most figures presented in this section.

[REDACTED]

[REDACTED]⁶⁹

- 3.18 As set out in more detail in a report by Oxera (2003) on profitability analysis in competition law,⁷⁰ ideally I would use either the internal rate of return ('IRR') or the net present value ('NPV') as the appropriate profitability measure. These are both based on cash flow figures in relation to an economic activity, taking into account the cash outflows and inflows, and the timing of these cash flows, and they allow for an assessment of profitability relative to the risk and capital investment in the activity.
- 3.19 However, in the current case it is not possible to estimate the IRR or NPV of Gate Gourmet and CLS at YVR, since [REDACTED]
[REDACTED]
[REDACTED]. I therefore calculate EBITDA margins to measure profitability. The EBITDA margin does not capture an activity's risk and capital investment, but can nonetheless be informative about economic profitability when considered over a number of years and benchmarked against EBITDA margins in other markets.⁷¹ It is therefore a useful profitability measure for my analysis below.

3C Profitability of the in-flight catering market at YVR

- 3.20 I start by considering the actual profitability of the two incumbent firms at YVR.⁷² This provides the basis of the analysis of the scope for entry in the in-flight catering market both in 2014 and going forward.

- 3.21 Over the period from 2012 to 2017, Gate Gourmet's and CLS's revenues [REDACTED]. This means that overall [REDACTED]
[REDACTED].

⁶⁹ For example, see PAMC00002_00000706.

⁷⁰ Oxera (2003), 'Assessing profitability in competition policy analysis', Economic Discussion Paper 6, A report prepared for the Office of Fair Trading, July.

⁷¹ The usefulness of EBITDA (or variants of profit margins more generally) in these circumstances is also recognised in the Oxera (2003) study referred to above. The Competition and Markets Authority in the UK has used EBITDA margins in a number of cases. See, for example, Competition Commission (2013), 'Cineworld Group plc and City Screen Limited', A report on the complete acquisition by Cineworld Group plc of City Screen Limited, 8 October; Competition Commission (2013), 'AEG Facilities (UK) Limited and Wembley Arena', A report on the completed acquisition by AEG Facilities (UK) Limited, a subsidiary of Anschutz Entertainment Group Inc, of the contract to manage Wembley Arena, 2 September; or Competition Commission (2005), 'Arriva plc and Sovereign Bus & Coach Company Ltd', A report on the acquisition by Arriva plc of Sovereign Bus & Coach Company Ltd, January.

⁷² I note that, at the time of writing this report, dnata had not started operating at YVR.

3.22 Revenue for each of CLS and Gate Gourmet [REDACTED]. The combined revenue of the two providers at YVR amounted to approximately \$ [REDACTED] in 2017, as shown in Figure 3.1.

Figure 3.1 Revenues and market shares of Gate Gourmet and CLS at YVR, 2012–17



Note: I exclude airside access fee income from the caterers' revenues. Gate Gourmet and CLS [REDACTED]. I look only at the period from 2012, as [REDACTED].

Source: Analysis based on data from Gate Gourmet and CLS, and from YVR (2017), 'Facts and Stats', available at <http://www.yvr.ca/en/about-yvr/facts-and-stats>.

3.23 Total revenue in the market grew by [REDACTED] % between 2012 and 2017. [REDACTED] growth was [REDACTED] its market share from [REDACTED] % to [REDACTED] % over this period. The market share of [REDACTED] correspondingly (from [REDACTED] % to [REDACTED] %), although its revenue [REDACTED].

3.24 Figure 3.2 below sets out the profitability of Gate Gourmet and CLS at YVR between 2011 (2012 for CLS) and 2017 as measured by the EBITDA margin. The average EBITDA margins over the period are [REDACTED]. The weighted average of the margins of Gate Gourmet and CLS combined over the same period is [REDACTED] %.

Figure 3.2 EBITDA margins of Gate Gourmet and CLS at YVR, 2011–17



Source: Analysis based on data from Gate Gourmet and CLS.

- 3.25 The margins of both Gate Gourmet and CLS [REDACTED], followed by [REDACTED]. This is consistent with [REDACTED] [REDACTED] illustrated in Figure 3.1 above.
- 3.26 [REDACTED]
[REDACTED]
[REDACTED].⁷³ It is not of critical importance to my analysis to understand the detailed reasons behind this difference.
- 3.27 Overall, the EBITDA margins for each of Gate Gourmet and CLS in the in-flight catering market at YVR were [REDACTED] over the period for which data is available. The combined margin, which averaged [REDACTED]%, was [REDACTED].
- 3.28 Before being able to assess whether the joint [REDACTED] [REDACTED] of a third firm, and whether more than three firms could viably operate going forward, I undertake two further steps.

⁷³ Based on analysis of [REDACTED]

- I consider whether the observed margins of the in-flight catering firms are influenced by VAA's charges. In particular, I consider whether VAA charges disproportionately high fees for airside access or land leasing, with the effect of lowering the profitability of the incumbent providers. If that is the case, it might be more appropriate to use an 'adjusted profitability' measure for Gate Gourmet and CLS in my analysis. This is discussed in section 3D.
- I establish a benchmark EBITDA margin that a provider (whether incumbent or entrant) of in-flight catering services at YVR would expect to earn at a minimum for it to be considered viable. This allows me to assess whether the current margins of the incumbent firms, and the potential margins in the market after entry by a third or fourth operator, are sufficiently high to sustain an additional competitor. This is discussed in section 3E.

3D Effect of VAA's charges on the profitability of in-flight catering firms at YVR

3.29 The two main charges set by VAA for in-flight catering firms that operate at YVR are:⁷⁴

- the airside access fee, which is required in order for a firm to gain access to the airport's premises to operate galley-handling services;
- the leasing rate for renting land at the airport in order to operate an on-airport kitchen facility.

3.30 In this section I consider how the airside access fee and land leasing rate charged to Gate Gourmet and CLS at YVR compare with those at other Canadian airports, and those charged to other types of firm that operate at YVR. This will provide an indication of whether VAA is currently charging high fees to CLS and Gate Gourmet. If it is, the observed profit margins for Gate Gourmet and CLS (set out in section 3C) may be correspondingly lower, and it might be appropriate to make an adjustment to the observed profitability measures and to take this into account in my analysis of the scope for entry in section 3F and 3G.

3D.1 Benchmarking airside access fees

3.31 I understand that airside access fees at YVR are charged as a percentage of the in-flight catering firm's sales. [REDACTED]

⁷⁴ Notice of Application, *Commissioner of Competition v. Vancouver Airport Authority*, CT-2016-15, para 46.

[REDACTED]. In this section I focus on the on-airport sales, as I understand that [REDACTED]

[REDACTED]⁷⁵

3.32 The licence agreement that VAA signed with Gate Gourmet in [REDACTED] set an airside access fee at a rate [REDACTED].

According to the terms of the agreement, [REDACTED]

[REDACTED]⁷⁶ The agreement between VAA and CLS, which was signed [REDACTED]

[REDACTED]. VAA increased the airside access fee for each of CLS and Gate Gourmet to 4.5% in January 2010, and to 5% in January 2011.⁷⁷ I note that [REDACTED].⁷⁸

3.33 In this section I consider the airside access fees paid by each of CLS and Gate Gourmet at YVR, and whether these are consistent with the fees paid at other Canadian airports. Based on the data provided to me, and as noted above, I look at the period from 2011 to 2014⁷⁹ for Gate Gourmet and the period from 2012 to 2017 for CLS.

3.34 Figure 3.3 below shows that the average airside access fee paid by CLS at YVR was [REDACTED] % between 2012 and 2017. This is [REDACTED].⁸⁰ As noted above, VAA states that the airside access fee at YVR for on-airport sales has been 5% since 2011, which is

[REDACTED]⁸¹

⁷⁵ YVR00012219.

⁷⁶ A supplemental agreement was also entered into on [REDACTED]

[REDACTED]
MLHE00001_00000014.

⁷⁷ Response of Vancouver Airport Authority, *Commissioner of Competition v. Vancouver Airport Authority*, CT-2016-15, para 38.

⁷⁸ In-Flight Catering Licence between Vancouver Airport Authority and dnata Catering services Ltd, YVR00034311, p. 4.

⁷⁹ Note that from 2015 onwards, the structure of [REDACTED]

[REDACTED] As a result, these years are excluded from my analysis.

⁸⁰ I note that CLS started operations at Calgary Airport in May 2016. However, I have excluded its results from my analysis because [REDACTED]

⁸¹ YVR00012219.

Figure 3.3 CLS: airside access fee paid as a percentage of revenue



Source: Analysis based on data from CLS.

3.35 The average airside access fee paid by Gate Gourmet at YVR over the period from 2011 to 2014⁸² was █%. This is █
█
█. It is also █
█
█. This is shown in Figure 3.4.

⁸² For 2015 onwards, it appears that █ I therefore do not consider the 2015 to 2017 airside access fees from Gate Gourmet in my analysis.

Figure 3.4 Gate Gourmet: airside access fee paid as a percentage of revenue



Source: Analysis based on data from Gate Gourmet.

3.36 I have also looked at the airside access fee paid by Strategic Aviation, and find that the fee that it pays [REDACTED]

[REDACTED]
[REDACTED]
[REDACTED].⁸³

3.37 The above evidence therefore suggests that the airside access fees paid by CLS and Gate Gourmet at YVR are [REDACTED]

[REDACTED]. As a result, I conclude that [REDACTED]
[REDACTED] is necessary in relation to the airside access fees that these firms pay to VAA.

3D.2 Benchmarking the land leasing rates paid to VAA

3.38 Both Gate Gourmet and CLS also rent land from VAA for on-airport kitchens in order to operate their catering businesses. The Commissioner alleges that VAA has tied access to the in-flight catering market at YVR to leasing land at the airport for kitchen facilities.⁸⁴ The lease rates could have an impact on the profitability of the in-flight catering firms at YVR, estimated in section 3C. I

⁸³ PDJF00003_00000015.

⁸⁴ Notice of Application, *Commissioner of Competition v. Vancouver Airport Authority*, CT-2016-15.

therefore consider how the land leasing rates for in-flight catering firms at YVR compare with those paid by other types of firm that lease land from VAA, and with the fees paid by Gate Gourmet and CLS at other airports in Canada.

- 3.39 Figure 3.5 shows that the land lease rate paid by CLS at YVR (as a percentage of revenue) is [REDACTED].

Figure 3.5 CLS: lease payments to the airport as a percentage of revenue



Source: Analysis based on data from CLS.

- 3.40 I also find that the land lease payment as a proportion of revenue for Gate Gourmet is [REDACTED]. On [REDACTED]. On average over the years 2011–17, Gate Gourmet’s lease payments as a percentage of revenue were [REDACTED]% at YVR. The average across other airports at which Gate Gourmet operates was [REDACTED]%. This is shown in Figure 3.6.
-

Figure 3.6 Gate Gourmet: lease payments to the airport as a percentage of revenue



Source: Analysis based on data from Gate Gourmet.

- 3.41 There are therefore some indications that leasing rates for [REDACTED]
[REDACTED].
- 3.42 This is confirmed when considering the leasing rates paid by other types of firm operating at YVR. Figure 3.7 indicates that the leasing rate paid by Gate Gourmet is [REDACTED]. The leasing rate paid by CLS is [REDACTED]
[REDACTED].

Figure 3.7 Land lease rates charged to various operators at YVR relative to area leased



Note: [redacted]
[redacted] The dotted line is a linear regression line; it is a [redacted]
[redacted]

Source: Analysis based on data from VAA.

3.43 Based on this evidence, I conclude that [redacted]
[redacted]
[redacted].
However, the magnitude of the land lease rate is [redacted]
[redacted]. Adjusting for
the lease rate in the calculation of the in-flight catering firms' profitability at
YVR therefore has little impact on the observed EBITDA margin. Assuming, for
example, that [redacted]
this would increase the joint EBITDA margin by only [redacted] percentage points on
average—as shown in Figure 3.8.

Figure 3.8 Combined EBITDA margins for caterers at YVR, actual (unadjusted) and adjusted for lease rates, 2012–17



Source: Analysis based on data from Gate Gourmet and CLS.

3D.3 Overall findings on the benchmarking of VAA's rates

3.44 Overall, I conclude the following in relation to the effect of VAA's charges on caterer profitability.

- [Redacted]
- [Redacted]
- The magnitude of the leasing rate is [Redacted]. Therefore, adjusting the land lease rates has [Redacted] effect on the EBITDA margins of Gate Gourmet and CLS. For this reason I use [Redacted] EBITDA margins in the remainder of my analysis below.

3E Profitability benchmarks

- 3.45 In order to assess whether the observed EBITDA margins in section 3C are high enough to sustain a hypothetical entrant, a benchmark is needed for what is 'high enough'.
- 3.46 To establish an indicative benchmark range for the EBITDA margin, I consider evidence on EBITDA margins from:
- Gate Gourmet and CLS across their airport operations in Canada;
 - Gate Group globally;⁸⁵
 - LSG Group globally.⁸⁶
- 3.47 I focus on Gate Gourmet, CLS, Gate Group and LSG Group as I did not have access to data on [REDACTED], and the data for [REDACTED] proved too volatile to be informative for this exercise.⁸⁷
- 3.48 CLS's average EBITDA margin at YVR was [REDACTED] % between 2012 and 2017. It was [REDACTED] [REDACTED] (see Figure 3.9 below). EBITDA margins at Toronto Airport [REDACTED] [REDACTED] %. Across the two airports, CLS's average EBITDA margin ranged between [REDACTED] % and [REDACTED] %, with an average of [REDACTED] % between 2012 and 2017.

⁸⁵ Gate Group is an umbrella organisation of ten companies that provide in-flight catering services as well as hospitality, provisioning and logistics. See <http://www.gategroup.com/about/our-group-of-companies>.

⁸⁶ The LSG Group is the collection of companies under LSG Lufthansa Service Holding AG, a 100% subsidiary of Deutsche Lufthansa AG. It provides services such as catering and logistics to airlines, train operators and retailers. LSG Sky Chefs is consolidated into LSG Group and has held a 70% stake in CLS since 2008. See <http://www.lsgskycheffs.com/us/facts-figures/>.

⁸⁷ This may be because [REDACTED]

Figure 3.9 CLS EBITDA margins across airports in Canada



Source: Analysis based on data from CLS.

3.49 Figure 3.10 shows Gate Gourmet's EBITDA margins across Canadian airports between 2012 and 2017. Gate Gourmet's operations at YVR are [REDACTED]
[REDACTED]
[REDACTED]. The average margin of [REDACTED]
[REDACTED]
[REDACTED]

Figure 3.10 Gate Gourmet EBITDA margins across airports in Canada



Source: Analysis based on data from Gate Gourmet.

- 3.50 The range of EBITDA margins observed across Gate Gourmet's operations in Canada [REDACTED]. In 2017, Gate Gourmet's operations at [REDACTED] exhibited EBITDA margins greater than [REDACTED] %.
- 3.51 Gate Gourmet's parent company, Gate Group, operates catering, galley-handling and other businesses (such as equipment sale, aircraft cleaning, and security services) around the world. Catering and galley handling make up more than 80% of Gate Group's total revenues.⁸⁸ Globally, Gate Group's margins are also above [REDACTED] % across all geographies except for North America (see Figure 3.11). The highest EBITDA margins are achieved in Latin America and EMEA (Europe, the Middle East and Africa), averaging 11.0% and 6.7%, respectively.

⁸⁸ Gate Group (2017), 'Annual Report 2017', p. 63.

Figure 3.11 Gate Group EBITDA margins globally

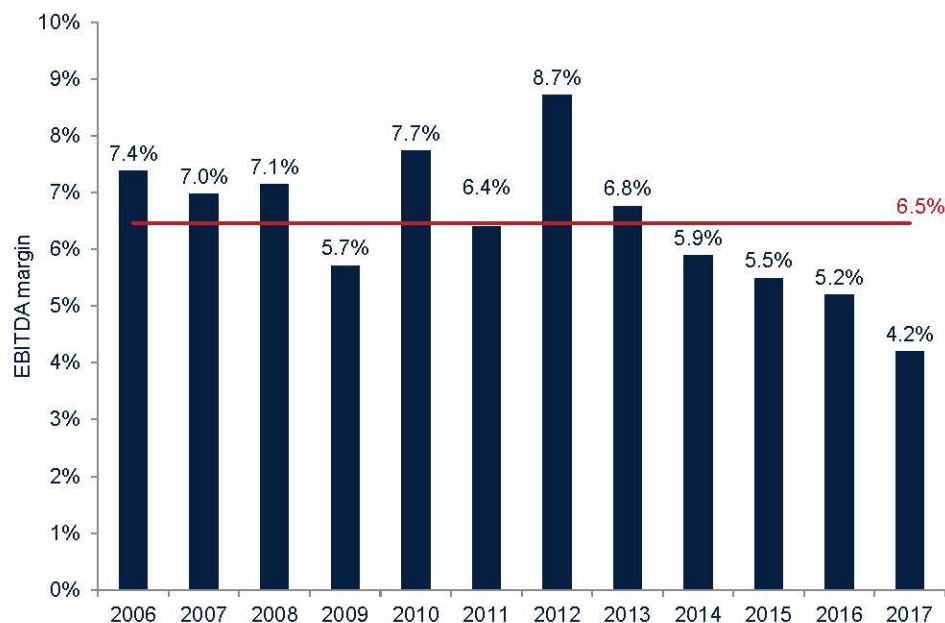


Source: Analysis based on data from Gate Gourmet and Gate Group annual reports.

Note: Gate Gourmet acquired Servair, a French catering firm, in January 2017. Servair's results have been consolidated into Gate Gourmet's for 2017. Servair has a strong presence in the African and European airline catering markets. Gate Gourmet did not report revenue by geography prior to 2014.

- 3.52** Since its acquisition of a majority stake in CLS in 2008,⁸⁹ LSG Sky Chefs has held a 70% stake in CLS. LSG Sky Chefs is in turn a wholly owned subsidiary of Lufthansa Group and is consolidated into LSG Group, the catering business segment of Lufthansa Group. Globally, LSG Group has earned EBITDA margins of between 4% and 9% over the past 12 years, with an average of 6.5% over the same period (see Figure 3.12).

⁸⁹ LSG Sky Chefs (2008), 'LSG Sky Chefs acquires CLS Catering Services, Canada', Press Release, 23 July, available at <http://www.lsgskycheffs.com/media/news/lsg-sky-chefs-acquires-cls-catering-services-canada/>.

Figure 3.12 LSG Group EBITDA margins globally

Source: Analysis based on Lufthansa Group annual reports.

3.53 Figure 3.13 summarises the evidence reviewed in this section and compares it with the average EBITDA margins of Gate Gourmet and CLS, and their combined margin at YVR, from section 3C.

Figure 3.13 Profitability of Gate Gourmet and CLS at YVR relative to benchmarks

Note: GG refers to Gate Gourmet. The averaging periods are 2011–17 for Gate Gourmet Canada and Gate Gourmet globally, and 2012–17 for CLS Canada.

[REDACTED]. For LSG globally, the EBITDA margin is only available for the consolidated business and not by airport or region. The EBITDA margin of 5.9% is the average of the consolidated EBITDA margin over the years 2012–17.

Source: Analysis based on data from Gate Gourmet and CLS and annual reports of Gate Group and Lufthansa Group.

- 3.54 Based on this information, I consider a range of [REDACTED] % to be a reasonable benchmark range for the required EBITDA margin for sustainable operations. The lower bound of this range is conservative, given that Gate Group's North American operations suggest that even margins below 5% may be viable. The upper bound of [REDACTED] % captures a large part of the comparator data points, although I note that Gate Gourmet's margin at YVR is [REDACTED] this level.
- 3.55 The combined EBITDA margins observed in the in-flight catering market at YVR, presented in section 3C, which average [REDACTED] %, are slightly higher than [REDACTED] of the indicative range, suggesting that purely on the basis of past and current levels of profitability there [REDACTED] over the period 2012–17. This is investigated in further detail in the following section, where I simulate the effect of a new entrant.
- 3F Can the in-flight catering market sustain more than two operators?**
- 3.56 In this section, I assess whether the in-flight catering market at YVR could have sustained more than two operators from the period around 2014 in which in-flight catering firms requested, and were refused, access to YVR. I also carry out a forward-looking analysis following the commencement of operations of dnata in 2018. This assessment is based on:

- [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED],⁹⁰
- my own analysis of the effect of entry on profitability in the in-flight catering market at YVR, building on the steps of the analysis presented in sections 3C to 3E above.

- 3.57 [REDACTED]
[REDACTED].⁹¹ This study follows a different methodology from mine, but in essence also considers the past

⁹⁰ PAMC00002_00000706.pdf.

⁹¹ Vancouver International Airport (undated), 'Flight Kitchens at YVR Airport: Market Analysis Report', YVR00024996.

- [REDACTED]
[REDACTED].
- [REDACTED]
[REDACTED]
[REDACTED].

3.62 [REDACTED], under these assumptions, [REDACTED]
[REDACTED], suggesting that new entry into the in-flight catering market at
YVR would be viable. [REDACTED]
[REDACTED]
[REDACTED].

3.63 At the same time, it can be inferred [REDACTED]
[REDACTED], [REDACTED] Given
that [REDACTED]
[REDACTED]
[REDACTED].

3.64 Thus, [REDACTED] that a new entrant at YVR would be
viable.

3F.2 My analysis of the viability of a third entrant: methodology and data

3.65 I use the combined profitability of Gate Gourmet and CLS at YVR, based on
their management accounts (discussed in section 3C), as the starting point for
my analysis.

3.66 The next step is to estimate the fixed costs of a hypothetical entrant. These
fixed costs are the costs that a hypothetical entrant would need to incur in
order to operate and maintain the required facilities, regardless of the level of
its output.

3.67 I assume that variable costs in the in-flight catering market remain unchanged
from the situation in which there are two firms operating. This assumption is
conservative, as one would expect that a new entrant would put pressure on
the incumbents' operating costs, or that the new entrant might have lower
operating costs itself. Indeed, as outlined above, [REDACTED]
[REDACTED]
[REDACTED].

- 3.68 I focus on profitability in a 'steady state' once the new entrant has established itself in the market, and I therefore do not include any 'start-up' costs in my analysis. This allows me to compare the combined profitability after entry with the profitability benchmarks in section 3E, and to use the current profitability of the market from section 3C.
- 3.69 I undertake both a static and a dynamic analysis. The difference between the two is as follows.
- The *static analysis* takes the existing market situation in terms of market size and price levels (i.e. it is a backward-looking analysis that takes the market as it was over the past five years). It then assumes that the only effect of entry is the addition of the fixed costs of the hypothetical entrant. How market shares are then divided across the three providers (the two incumbents plus the entrant) does not matter for my analysis; what matters is whether overall the three providers combined would still be sufficiently profitable for the new market structure to be viable.
 - The *dynamic analysis* is the same as the static analysis, except that it also considers a number of dynamic price and volume effects that could arise in the future after entry (i.e. it is a forward-looking analysis that projects the market over the next four years). In particular, I assume that entry leads to an overall reduction in prices in the market, in line with the analysis of price effects as presented in section 4 of this report. I also assume an increase in demand in the in-flight catering market, in line with YVR's passenger forecasts for the period from 2018 to 2021.⁹³ It is worth noting that the demand growth in this scenario is externally driven, and I do not take account of any second-order effect of the reduction in price on demand (total demand for catering services at the airport may increase if prices go down). I consider that this is a reasonable approach, as the total demand for in-flight catering is likely to be fairly inelastic (i.e. not very responsive to price).
- 3.70 The logic behind both the static and dynamic analyses is as follows. In sections 3C and 3E, I established that the profitability of the in-flight catering market at YVR with two providers was [REDACTED] of the benchmark range for the EBITDA margin. In this section, I determine whether the

⁹³ This is the central case scenario. Vancouver Airport Authority, 'YVR 2037 Master Plan Phase 2: Check-in to the Future of YVR', p. 9.

combined profitability of the in-flight catering firms that operate at YVR is [REDACTED] the benchmark range once a third provider enters the market.

- 3.71 The entrant will add fixed costs (i.e. costs that do not vary with the level of output) to the market, as it needs its own production facilities. In the new situation there are therefore three providers, each with their own fixed costs of production facilities. The entrant will gain some market share from the two incumbents,⁹⁴ and as a result the incumbents will reduce their output and corresponding variable production costs, but cannot save on the fixed costs. The question is whether overall profits in the market will remain sufficient to cover the three sets of fixed costs.
- 3.72 I estimate the fixed costs of an entrant based on the management accounts from Gate Gourmet and CLS, and on the information from [REDACTED] [REDACTED] described above.⁹⁵
- 3.73 Figure 3.14 sets out my approach to identifying the fixed costs of a new entrant. Starting from the total operating expenses (Figure 3.14 uses the total operating expenses of [REDACTED] for illustration), I consider each cost item in order to identify the costs that a hypothetical entrant would need to incur each year in order to operate and maintain the required facilities, regardless of the level of output.

Figure 3.14 Analysis of fixed costs of a new entrant



Note: GG refers to Gate Gourmet

⁹⁴ As noted before, it is not critical to this analysis to determine precisely what market share the entrant gains from the incumbents.

⁹⁵ PAMC00002_00000706.

Source: Analysis based on data from Gate Gourmet.

- 3.74 Food and other material costs, vehicle costs, and bad debt expenses, for example, are variable costs that are directly related to producing output, and should not be considered fixed costs.⁹⁶ Some of the personnel, insurance, legal, and advertising and marketing costs, on the other hand, are partly fixed. A new entrant would need to incur some of these costs even if no output is produced.
- 3.75 Similarly, a new entrant might need to incur building costs and some property and utility expenses. The extent to which these costs need to be taken into account depends on the business model of the entrant (in particular, whether it has a kitchen on-airport). This is reflected in the two scenarios considered below.
- 3.76 Personnel costs accounted for almost █% of Gate Gourmet's operating costs in 2017. Most of these costs are likely to have been variable. Direct labour is likely to vary directly with output, whereas indirect labour may have some fixed component. Accounting or marketing roles, for example, may fall under indirect labour and might not be directly related to output.
- 3.77 Figure 3.15 provides an indication of the extent to which direct and indirect labour costs vary with output. It shows a scatter plot of direct and indirect labour against revenues, based on the data provided in █.

⁹⁶ These costs are already included in the market-wide variable costs (which are captured in the sum of the total operating expenses of █).

Figure 3.15 Relationship between direct labour costs, indirect labour costs and output



Note:

[Redacted text]

Source: Analysis based on data from Gate Gourmet.

3.78 As expected, Figure 3.15 confirms that there is a [Redacted].
[Redacted]. There is therefore a case for treating some indirect labour costs as variable costs.

3.79 I thus base my estimates for personnel costs on [Redacted].
Figure 3.16 shows that [Redacted].
[Redacted]

Figure 3.16 Assessment of the variability of indirect labour costs



Source: PAMC00002_00000706, slide 22.

- 3.80 I also use the incremental recurring costs for [REDACTED] [REDACTED] from Figure 3.16 in my analysis.
- 3.81 Two firms requested entry at YVR in 2014: Newrest and Strategic Aviation. I understand that Newrest wanted to operate in the catering and galley-handling markets, but with an off-airport kitchen, while Strategic Aviation wished to operate in the galley-handling market only. Therefore, in order to consider the different business models of potential entrants into the in-flight catering market at YVR, I consider two scenarios for the fixed costs of a hypothetical entrant.
- *'No kitchen' scenario*: this assumes that the new entrant would not require kitchen space on-airport. [REDACTED] [REDACTED] [REDACTED]. I therefore adopt a conservative assumption and include some costs for rent, property and utility expenses in my analysis under the assumption that the entrant would still require a logistics facility close to the airport (but not necessarily on the airport's premises).
 - *'Kitchen' scenario*: this assumes that the business model of the new entrant would be similar to that of CLS and Gate Gourmet at YVR, and therefore that it requires on-airport kitchen space. For my analysis, I assume that the kitchen is on-airport, but, as noted earlier, Newrest was intending to operate a kitchen off-airport. Therefore, the costs estimated in this scenario may overstate the costs for the new entrant if it were able to obtain lower rent for an off-airport kitchen than the rent paid by CLS and Gate Gourmet for their on-airport facilities at YVR.

- 3.82 The two scenarios and the underlying assumptions are summarised in Figure 3.17. For each scenario, I estimate a lower bound ('low costs') and an upper bound ('high costs') for the fixed costs, making four scenarios in total.

Figure 3.17 Fixed costs of a hypothetical entrant: overview of scenarios



Note: GG refers to Gate Gourmet. SA refers to Strategic Aviation.

Source: Analysis based on data from Gate Gourmet, CLS and Strategic Aviation.

- 3.83 The rationale behind the assumptions in Figure 3.17 is as follows.
- **Personnel costs** are based on the information from [REDACTED] presented in Figure 3.16. The upper bound ('high costs') for the 'kitchen' case assumes that [REDACTED] listed in Figure 3.16 are fixed costs. The lower bound ('low costs') assumes that [REDACTED]. [REDACTED] The difference between the 'no kitchen' and 'kitchen' scenarios is that for the former I also remove the chef from the fixed costs (since no kitchen is needed).
 - **Rent:** this is the first of the two categories where the 'kitchen' and 'no kitchen' scenarios differ significantly. In the 'kitchen low costs' scenario, I assume that the rent that the new entrant pays for kitchen space equals [REDACTED]. [REDACTED]. In the 'kitchen high costs' scenario I assume that the rent that the new entrant pays is equal

to [REDACTED].⁹⁷ In the 'no kitchen' scenario, I assume that the new entrant would still require some form of logistics facility. The lower and upper bound are the same, and are based on the maximum of the respective line items that [REDACTED] pays across its operations at Canadian airports.

- **Utility and property expenses:** this is the second of the two categories where the 'kitchen' and 'no kitchen' scenarios differ significantly. For the 'no kitchen' scenario, I use the maximum of the respective line items that [REDACTED] for both the upper and lower bound.⁹⁸ For the 'kitchen' scenario, I use the minimum of the utility and property expenses from [REDACTED]. In all scenarios I implicitly assume that all these expenses observed in the management accounts are fixed. In reality, I would expect a proportion of them (especially utility expenses) to vary with output.
- **Incremental OPEX:** this line item consists of legal and consulting expenses, IT/ICT systems and telecommunications expenses. Incremental OPEX are the same in both scenarios. The lower bound is based on [REDACTED] (shown in Figure 3.16), while the upper bound equals [REDACTED] over the period for which data is available. The upper bound is therefore likely to be conservative as I do not attempt to separate out the fixed component.
- **Insurance and advertising and marketing** are the same in both scenarios. They are not considered in [REDACTED] but may nevertheless be relevant (buildings insurance would probably be required even if the kitchen does not produce any output). Since these line items are more variable over time, I use averages of the numbers observed in the management accounts. The lower bound is the average insurance and advertising and marketing expenses from [REDACTED], while the upper bound is based on [REDACTED]

⁹⁷ I use the rent from [REDACTED], because I found that [REDACTED] (see section 3D.2) and [REDACTED]

⁹⁸ This is likely to be conservative, but given the magnitude of these items, it is unlikely to have a significant impact on my conclusions.

3.84 Taking all assumptions together allows me to derive estimates of the fixed costs for a new entrant. For a new entrant that does not require kitchen space, the estimated fixed costs are between \$ [REDACTED] and \$ [REDACTED]. For an entrant requiring kitchen space on-airport, the estimated fixed costs are \$ [REDACTED]–\$ [REDACTED].

3F.3 My analysis of the viability of a third entrant: results

Static analysis

3.85 Figure 3.18 and Figure 3.19 below show the range (based on the 'low costs' and 'high costs' scenarios) for the combined EBITDA margin after entry in the market for in-flight catering at YVR, for the 'no kitchen' and 'kitchen' scenarios respectively.

3.86 The average combined EBITDA margin over the period of the in-flight-catering market with three firms—Gate Gourmet, CLS, and a new entrant without kitchen space—is [REDACTED] % for the high cost scenario and [REDACTED] % for the low cost scenario. This is [REDACTED] the benchmark range for the EBITDA margin of [REDACTED] %.

Figure 3.18 Static analysis of effects of a new entrant without kitchen



Source: Analysis based on data from Gate Gourmet and CLS.

3.87 In the scenario where the entrant requires kitchen space, the average joint EBITDA margin over the period is [REDACTED] % for the high cost scenario and [REDACTED] % for the low cost scenario. This is [REDACTED] my benchmark range. I also note that the

yearly margins are [REDACTED] the benchmark range for [REDACTED] [REDACTED] in all years since [REDACTED] (see Figure 3.19).

Figure 3.19 Static analysis of effects of a new entrant with kitchen



Source: Analysis based on data from Gate Gourmet and CLS.

- 3.88 Overall, this static analysis indicates that, based on levels of profitability in recent years, the market at YVR could sustain a third provider of in-flight catering services, either with or without on-airport kitchen space.

Dynamic analysis

- 3.89 Figure 3.20 and Figure 3.21 show the results from the dynamic analysis. This analysis is forward-looking and takes account of a price effect of entry and future growth in demand for in-flight catering services. These assumptions about price and volume effects are inherently uncertain, and the dynamic analysis is therefore indicative only. For the price effect, it is assumed that overall prices fall by [REDACTED]%. This is roughly in line with my estimated price effects following entry, as presented in section 4 of this report.⁹⁹ Volume

⁹⁹ In section 4 I find a price effect of [REDACTED]% for one airline (Jazz) that switched to the new entrant, and price effects of [REDACTED]% to [REDACTED]% for [REDACTED] airlines that did not switch. I find no price effects for [REDACTED] airlines that did not switch. My preferred estimates are the revenue-weighted estimates, as these are likely to take account of both the price and quantity effects caused by entry. These estimates provide a range of [REDACTED]% to [REDACTED]%. All things considered, an overall price effect of [REDACTED]% therefore seems reasonable as an assumption. It should also be borne in mind that my results in section 4 are predominantly for galley handling, not in-flight catering services as a whole.

growth is assumed to be 2% per year, in line with the central case of VAA's passenger forecasts.¹⁰⁰

- 3.90 The dynamic analysis indicates that the market could sustain an entrant that did not require kitchen space. Figure 3.20 shows that the estimated range for the combined EBITDA margin is between █ % and █ %, which is █ my benchmark range. This suggests that entry of a third firm without a kitchen would be viable.

Figure 3.20 Dynamic analysis of effects of a new entrant without kitchen



Source: Oxera.

- 3.91 In the case where the entrant requires on-airport kitchen space (see Figure 3.21), the average combined EBITDA margin is between █ % and █ %, which is █ the benchmark range for the EBITDA margin. This suggests that entry of a third firm with a kitchen would also be viable.

¹⁰⁰ Vancouver Airport Authority (2016), 'YVR 2037 Master Plan Phase 2: Check-in to the Future of YVR', p. 9.

Figure 3.21 Dynamic analysis of effects of a new entrant with kitchen



Source: Oxera.

3.92 The assumptions in the dynamic analysis are conservative, for the following reasons.

- I assume that the costs of the kitchen for an entrant would be the same as the costs for [REDACTED], which has a kitchen on-airport. However, a new entrant might be able to operate an off-airport kitchen at a lower cost. I note that neither of the firms that requested entry at YVR proposed operating a kitchen on-airport—Newrest proposed operating an off-airport kitchen, while Strategic Aviation proposed operating only galley-handling services (and would therefore not require a kitchen).
- The cost structure is assumed to remain unchanged in my analysis, but the increase in competition may well place downward pressure on the incumbents' variable costs. Furthermore, the new entrant might be more efficient, as is also assumed in [REDACTED]

101

¹⁰¹ This is consistent with a Witness Statement from Air Canada that was made available to me after I submitted my 15 November 2017 report: 'The presence, or potential presence, of alternative in-flight catering providers has been shown to create an environment of greater cost efficiency evaluation by caterers. [REDACTED] thus helping Air Canada to continue to innovate and offer its customers a superior onboard experience.' Supplemental Witness Statement of Mark Macvittie, 20 June 2018.

- 3.93 The potential impact of a reduction in market-wide variable costs (i.e. across all operators in the in-flight catering market at YVR) on the results from the dynamic analysis is illustrated in Figure 3.22. Starting from the 2018 values from Figure 3.22, if entry by a competitor that requires kitchen space leads to a decrease in total variable costs in the in-flight catering market at YVR of █% or more, the combined EBITDA margin would █ my benchmark range for both the 'high costs' and 'low costs' scenarios.¹⁰²

Figure 3.22 Dynamic analysis of effects of a new entrant with kitchen: EBITDA margin after reduction in variable costs



Source: Analysis based on data from Gate Gourmet and CLS.

3G Can the in-flight catering market sustain additional operators after dnata's entry in 2018?

- 3.94 As I noted above, following its analysis of the scope for entry, █
█
█¹⁰³ █
granted dnata a licence to operate at YVR. As a result, a relevant question

¹⁰² The results hold regardless of how the decrease in total variable costs is distributed across the three operators.

¹⁰³ Vancouver International Airport (undated), 'Flight Kitchens at YVR Airport-Market Analysis Report', p. 21, YVR00024996. VAA's analysis considered the EBITDA margin of 5.2% from the 'Catering' business segment of Lufthansa Group from its 2016 annual report as a benchmark for YVR, █. From its breakeven analysis, VAA concludes that 'CLS and Gate Gourmet could withstand a 29% decrease from their 2016 sales levels and still achieve a breakeven profitability,' and that this demonstrates 'a reasonable level of resiliency of each operator to withstand a potential downturn but also their ability to contend with another entrant to the market'.

going forward is whether the market could sustain more than three firms after dnata's entry.

- 3.95 My forward-looking analysis projects the market over the next four years. It is similar to the dynamic analysis above in that it considers passenger forecasts, price effects and cost effects. Volume growth is assumed to be 2% per year, in line with the central case of VAA's passenger forecasts.¹⁰⁴ I also take account of a price effect of entry and consider the effect of a cost reduction. For the price effect, I assume that overall prices fall by █% relative to the situation with just Gate Gourmet and CLS in the market.¹⁰⁵
- 3.96 In the forward-looking analysis below, I assume that the market initially contains three firms: Gate Gourmet, CLS and dnata. As dnata has not yet started operating, I add █¹⁰⁶ to the fixed costs of CLS and Gate Gourmet to obtain a market-wide fixed costs figure. I take █.█¹⁰⁷ As in the analysis above, I make no assumption about market shares or quantity produced by each firm.
- 3.97 I consider three potential scenarios for the hypothetical fourth firm. In the first two scenarios, I estimate the fixed costs of the new entrant based on the two incumbents using the with and without kitchen scenarios, as I did for the dynamic analysis. This implicitly assumes that the new entrant is of a similar scale to the two incumbents. In the third scenario, I consider that the hypothetical entrant would operate a business model similar to █.

¹⁰⁴ Vancouver Airport Authority (2016), 'YVR 2037 Master Plan Phase 2: Check-in to the Future of YVR', p. 9. I note that VAA has significantly outperformed its 'most likely' scenario forecast over the past two years is now more than five years ahead of the original forecast made in 2017. I also note that, for the period 2017–22, █ in passengers at YVR in its business case.

¹⁰⁵ In the dynamic analysis I used a █% price change following entry of a third provider. The █% reflects the entry of a third and fourth provider. This is the estimate of the price effect when going from two firms in the market to four firms. This is likely to be an overestimate as it would be expected (based on standard economic models) that the price effect of a fourth entrant would be lower than the price effect of a third entrant. However, to simplify my analysis I double the price effect observed when going from two firms to three, which is therefore a conservative approach.

¹⁰⁶ █.
¹⁰⁷ █. Therefore I estimate █. The only adjustment I have made to █. I also assume that all other costs that occurred in 2018 are fixed costs.

3.98 If the fourth firm did not require an on-airport kitchen, as illustrated in Figure 3.23, the average combined EBITDA margin for the period is █% for the high costs scenario and █% for my low costs scenario. This lies █ of the benchmark range.

Figure 3.23 Forward-looking analysis of effects of a new entrant without kitchen



Source: Analysis based on data from █.

3.99 If the fourth firm required an on-airport kitchen, as illustrated in Figure 3.24 below, the average combined EBITDA margin for the period would be █% for the high costs scenario and █% for the low costs scenario, which is █ my benchmark range.

Figure 3.24 Forward-looking analysis of effects of a new entrant with kitchen



Source: Analysis based on data from [REDACTED].

3.100 As I noted above, it is to be expected that an additional entrant would place pressure on the variable costs of both the entrant and the incumbent firms in the market.¹⁰⁸ To illustrate the importance of such an effect, I estimate that if entry by a firm requiring kitchen space leads to a decrease in total variable costs in the in-flight catering market at YVR of 2.5% or more, the combined EBITDA margin will [REDACTED] the benchmark range for both the high costs and low costs scenarios.¹⁰⁹ See Figure 3.25.

¹⁰⁸ I have assumed that [REDACTED]

¹⁰⁹ The results hold regardless of how the decrease in total variable costs is distributed across the three operators.

Figure 3.25 Forward-looking analysis of effects of a new entrant with kitchen: EBITDA margin after reduction in variable costs



Source: Analysis based on data from [REDACTED].

3.101 Next I consider a scenario where a hypothetical entrant is targeting a similar scale to [REDACTED]. This scale is [REDACTED] than the hypothetical entrant that I modelled above, and incorporates an off-airport kitchen. Using [REDACTED] [REDACTED], I have adjusted [REDACTED] [REDACTED] [REDACTED].¹¹⁰

3.102 The results are shown in Figure 3.26. For the forward-looking analysis with an entrant the size of dnata, the combined EBITDA margin over the period is [REDACTED]%. This is [REDACTED] the lower bound of my benchmark range and suggests that there is room for a fourth entrant of a similar size to [REDACTED].

¹¹⁰ The only adjustment I have made to [REDACTED] [REDACTED] I also assume that all other costs occurred in 2018 are fixed costs, which is likely to be conservative as there will be some variable costs incurred in year 1 of operation.

Figure 3.26 Forward-looking analysis of the effects of a new entrant without kitchen and an entrant of a similar size to [REDACTED]



Source: Analysis based on data from Gate Gourmet, CLS and dnata.

3.103 I note that, in its [REDACTED] [REDACTED].¹¹¹ It is therefore possible that a fourth firm may produce at [REDACTED] [REDACTED]

3.104 Such a market structure would be comparable to those at other Canadian airports where there are four in-flight catering firms. For example, at Toronto Airport market shares for the four in-flight catering firms range from [REDACTED] % to [REDACTED] %, while at Calgary Airport market shares range from [REDACTED] % to [REDACTED] %.¹¹² Therefore, having some large and some smaller providers of in-flight catering services would be consistent with the observed competitive dynamic at other airports.

3H Conclusions on the scope for entry at YVR

3.105 In this section I have assessed whether the market for in-flight catering at YVR would have been able to sustain a third firm in the past, and whether it could sustain additional entry going forward. I find that an additional firm can be

¹¹¹ [REDACTED] %, [REDACTED] %. This is based on my analysis of PGMH00001_00000011.

¹¹² Based on my analysis of invoice data used in Section 4. At Toronto, I combine Optimum and Strategic Aviation's market shares as Optimum outsources some of its contracted services to Strategic Aviation.

sustained in most scenarios. My assessment is rooted in profitability analysis using the EBITDA margin as a profitability measure.

- 3.106 I started by considering the EBITDA margins earned by Gate Gourmet and CLS at YVR over the last six years. I then established a benchmark based on information on the profitability of Gate Gourmet and CLS across their operations in Canada, and on the profitability of Gate Group and LSG Group globally. I concluded that a range of [REDACTED] % is a reasonable benchmark for the EBITDA margin to indicate the viability of entry.
- 3.107 The comparison shows that Gate Gourmet's current EBITDA margin at YVR ([REDACTED] % on average over the period for which data is available) is [REDACTED] the benchmark range, and that both CLS's margin ([REDACTED] % on average) and the combined EBITDA margin of both incumbents at YVR ([REDACTED] % on average) are [REDACTED] the benchmark range. Thus, current profitability levels with two providers in the market themselves suggest that entry would be possible.
- 3.108 I then assessed the effect of a new entrant on profitability, determining whether the combined profitability of the in-flight catering firms that operate at YVR would [REDACTED] the benchmark range once a third provider enters the market. The entrant would add fixed costs to the market (i.e. costs that do not vary with the level of output), as it would need its own production facilities. Therefore, in the new situation there would be three providers, each with their own fixed costs of production facilities. The question is whether overall profit margins in the market would remain sufficient to cover the three sets of fixed costs.
- 3.109 My analysis (both static and dynamic) suggests that from around 2014 the market was able to sustain an entrant that either requires or does not require on-airport kitchen space—i.e. the combined profit margin in this case would be within the indicative benchmark range.
- 3.110 My conclusion, that overall there would seem to be scope for viable entry at YVR, is supported by [REDACTED]
[REDACTED]
[REDACTED].
- 3.111 My conclusion is also consistent with [REDACTED] of the scope for entry, which concludes that [REDACTED]
-

[REDACTED]¹¹³ [REDACTED]
[REDACTED]
[REDACTED] also considered [REDACTED]
[REDACTED]
[REDACTED]¹¹⁴ This is in line with the lower bound
of my [REDACTED] % indicative benchmark range. [REDACTED]
concludes that [REDACTED]
[REDACTED] and that this
demonstrates [REDACTED]
[REDACTED]
[REDACTED]¹¹⁵

- 3.112 Indeed, [REDACTED], in 2018 VAA awarded an in-flight catering licence to dnata. Therefore, a relevant question going forward is whether the market can sustain a fourth firm.
- 3.113 My forward-looking analysis (following the commencement of operations of dnata in 2018) suggests that profitability in the market as a whole would remain sufficient for four viable operators if another provider that was similar in size to [REDACTED] were to enter the market from 2018. If a firm operating at a scale similar to [REDACTED] were to enter, the market-wide profitability would remain [REDACTED] my benchmark range. However, if the new entrant led to a small reduction in variable costs, the market would be able to sustain an additional entrant the size of CLS or Gate Gourmet.
- 3.114 My overall conclusion is that there would seem to be scope for viable entry at YVR, both from 2014 and going forward after dnata's entry in 2018.
- 3.115 Finally, it is worth noting that the competitive process itself is usually well placed to determine how many competitors can operate viably. The competitive process involves periodic entry and exit and, over time, the market will settle on a specific number (or range) of competitors, until demand or cost shocks change this again.

¹¹³ [REDACTED]

¹¹⁴ [REDACTED]

¹¹⁵ [REDACTED]

3.116 Even if, contrary to my conclusions in this section, there were room for only two providers in the market in the past, or three providers going forward, the competitive process would be well placed to determine which providers should be present in the market. Competition means that those competitors that are most efficient, innovative and/or responsive to customer demand are usually the ones that survive. It is not necessarily the incumbent providers that survive.

-
- 4 Analysis of the competition effects of restricting entry in the in-flight catering market**
- 4A Overview of the three analyses of effects**
- 4.1 An important question in this case is whether the downstream in-flight catering market at YVR has been substantially affected by VAA's refusal to grant airside access to Newrest and Strategic Aviation. Another way of putting this is whether the competitive dynamics and outcomes would have been improved to a significant degree if a new entrant had been allowed into the in-flight catering market at YVR.
- 4.2 The available data has allowed me to look in some detail at the effects of entry on switching and prices in the in-flight catering market at airports other than YVR. Specifically, the detailed price and sales data on catering and galley-handling services at various Canadian airports has allowed me to carry out empirical analyses to determine the effects of new entry. This is informative for understanding the competitive dynamics that would be likely to arise at YVR if entry were no longer restricted. I present the results in this section.
- 4.3 Determining the effects of VAA's actions on competition in the downstream market requires a comparison of the actual market situation that results from these actions on the one hand, and the situation that would be likely to arise absent the actions on the other—i.e. the counterfactual or 'but for' situation.
- 4.4 The actual market situation at the time of writing this report is that only two firms, Gate Gourmet and CLS, operate in the in-flight catering market at YVR. In the counterfactual situation, in the absence of VAA's actions, there would have been new entry from at least 2014 when other providers requested (but were refused) access to YVR, and competition would determine the number, and identity, of the firms operating in the market. The analyses presented in this section are therefore aimed at assessing what is likely to have happened had entry occurred at YVR.
- 4.5 I note that in 2018, one new firm, dnata, was awarded a licence for operating in-flight catering services at YVR.¹¹⁶ Dnata is expected to commence operations at YVR in [REDACTED] 2018.¹¹⁷ However, VAA still does not permit entry of any other providers of in-flight catering services seeking access to the

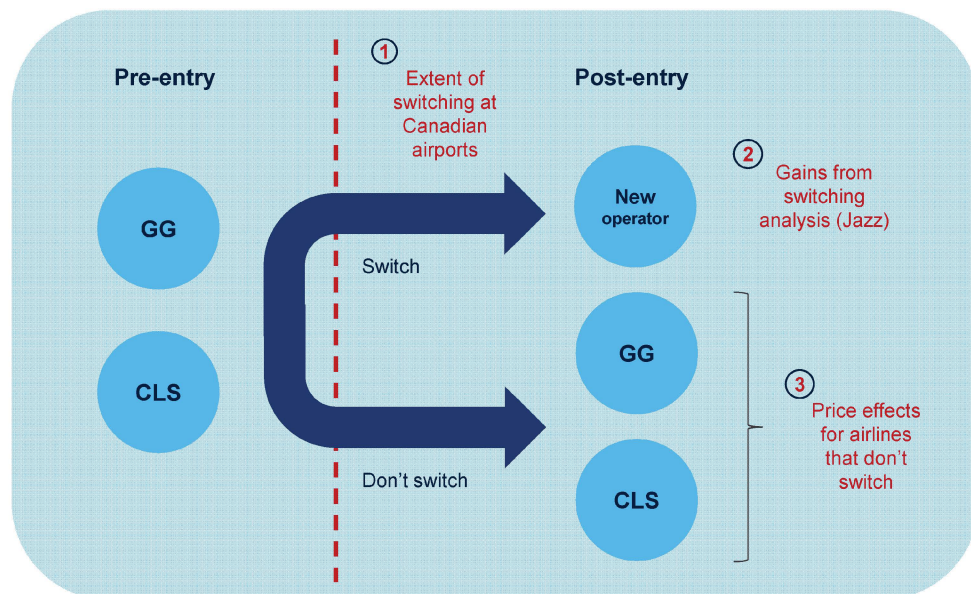
¹¹⁶ VAA (2018), 'YVR Awards In-Flight Catering License to dnata', February, available at <http://www.yvr.ca/en/media/news-releases/2018/dnata>, accessed 14 June 2018.

¹¹⁷ [REDACTED]

airport. The analyses in this section are therefore relevant both for considering what would be likely to have happened if entry had occurred in the period from 2014 (when new entrants sought access at YVR), and for considering what would happen if further entry were permitted at YVR in addition to dnata.

- 4.6 The analyses of effects presented in this section focus in part on in-flight catering services as a whole (galley handling and catering), and in part on galley handling only. This is driven mainly by data availability. My conclusion in section 2 was that the precise delineation of the downstream market (galley handling and catering separately, or in a combined market) could be left open, because VAA's refusal to grant airside access could negatively affect downstream competition regardless of the precise market definition. The activity of galley handling relies on airside access, so the harm to competition would be most likely to be felt there, as discussed in section 2. Therefore, in analysing the effects on downstream competition in this section, it does not make a difference to the conclusions whether I consider only galley handling, or catering and galley handling together.
- 4.7 I undertake three pieces of analysis, which are set out in Figure 4.1 and further explained below. Each piece of analysis considers the effect of entry at airports other than YVR, to determine the potential effect of entry at YVR in the counterfactual situation without VAA's refusal to grant access.

Figure 4.1 Overview of the three analyses of effects of new entry



Note: GG refers to Gate Gourmet.

- 4.8 As a first step, I consider whether (as VAA argues) there has been vigorous competition between Gate Gourmet and CLS at YVR, with shifts in the share of the galley-handling and catering business between them.¹¹⁸ I agree with VAA that airlines can and do change between existing galley-handling and catering providers at an airport in response to price and service competition. However, the analysis of the rates of switching that I present in section 4C below, and which is the first strand of analysis in Figure 4.1 above, indicates that [REDACTED]
- 4.9 This contrasts with [REDACTED] switching between catering and/or galley-handling providers at other airports in Canada. This switching has been driven primarily by [REDACTED], and in some cases [REDACTED]
- 4.10 The next step—and the second strand of analysis in Figure 4.1 above—is to consider whether airlines that change in-flight catering providers gain from switching in the form of lower prices. This would be consistent with [REDACTED].¹¹⁹ It would also be consistent with the commercial logic that airlines are unlikely to switch provider unless there are some benefits, potentially in the form of lower prices or higher service quality.
- 4.11 In undertaking this analysis I focus on Jazz. Jazz has switched providers at multiple airports across Canada over the years, which comprise a significant proportion of its operations, and I have sufficient data available to approximate the gains that Jazz has obtained from these switches. Jazz has also made public statements about the extent to which it has made savings from switching providers. For reasons explained below, for other airlines I am unable to draw meaningful conclusions from such an analysis. This analysis of the gains from switching for Jazz is presented in section 4D.
- 4.12 The two pieces of analysis described above focus on airlines that switch provider. However, many airlines do not switch, either because they choose not to or because they are unable to do so in the short term (for example, due

¹¹⁸ Response of Vancouver Airport Authority, *Commissioner of Competition v. Vancouver Airport Authority*, CT-2016-15, paras 12 and 89.

¹¹⁹ For example, see [REDACTED]

to existing contracts). In a competitive market, however, one would expect that some of the benefits of competition would also flow to firms that do not switch provider (for example, they might negotiate better terms with their existing provider by threatening to switch). In section 4E I therefore consider whether there are any effects on the prices charged in the galley-handling market for airlines that do not switch provider. I do this by comparing the evolution of prices for galley handling before and after entry has occurred at an airport.

- 4.13 I first provide an overview, in section 4B, of the data that was made available for the three analyses (with more detail being provided in Appendix A4, and the full dataset and my workings being included in an electronic file accompanying this report).

4B Overview of data

- 4.14 In analysing the effects of entry in the in-flight catering market, I use data disclosed in these proceedings by five caterers: Gate Gourmet, CLS, Strategic Aviation, Newrest and Optimum.
- 4.15 Each caterer dataset includes [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
- 4.16 Table 4.1 summarises the data provided. Further detail on each of the data sources is set out below.
-

Table 4.1 Overview of caterer data



Note: [redacted], ¹ For a list of airports and their corresponding IATA codes, see Appendix A4.

Source: Caterer data.

4.17 I include further details on the data in Appendix A4, and provide, alongside this report, my electronic data files that contain the data used in my analysis as well as my underlying workings.

4.18 The data provided by Gate Gourmet is in [redacted]
[redacted]
[redacted]
[redacted]
[redacted]

4.19 [redacted]
[redacted]
[redacted]
[redacted]
[redacted]
[redacted]
[redacted]

[REDACTED]
[REDACTED] 120

4.20 I imported all of the data provided by Gate Gourmet and [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

4.21 CLS provided [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

4.22 Newrest provided [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

4.23 Optimum provided [REDACTED]. Optimum holds the contract with Air Transat for the provision of catering and galley-handling services, while sub-contracting the galley handling to Strategic Aviation. The Optimum data [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

4.24 Strategic Aviation provided [REDACTED]
[REDACTED]

120 [REDACTED]
121 [REDACTED]
122 [REDACTED]

[REDACTED]

4.25 I have also used data on airline traffic across various airports from the OAG airline schedules database.

4.26 Before conducting any analysis, I performed a number of standard reliability checks on the data provided by the caterers, as is normally performed in such data analysis. For example, I started with around 40m observations [REDACTED], and excluded 1m observations [REDACTED], and which preserves a sufficiently large sample before and after entry by Strategic Aviation and Newrest at various airports.¹²⁴ I excluded approximately 1m duplicate observations. For each of the analyses presented in this section I then carried out a number of further data checks specific to that analysis. I provide further detail on this below and in Appendix A4.

4C Analysis of switching by airlines among providers of in-flight catering services

4C.1 Determining switching rates

4.27 Rates of switching are one indicator of the extent of competition in a market, and of customers exercising choice. High rates of switching usually indicate a healthy degree of competition. If consumers rarely switch between providers, this could indicate that providers are not competing effectively.

4.28 However, there are a number of other reasons why customers might not regularly switch, and that do not necessarily point to ineffective competition. For example, in the current case, some airlines may have [REDACTED]

¹²³ Although Strategic Aviation provides galley-handling services only, it also partners with caterers to provide a suite of catering and galley-handling services to airlines. [REDACTED]

¹²⁴ I am missing data on [REDACTED]. Some of the missing data appears to coincide with [REDACTED]. I am missing data for: [REDACTED]

[REDACTED]

[REDACTED].¹²⁵ In addition, airlines may seek to use the same catering provider across all airports at which they operate.¹²⁶ Therefore, if only a small number of in-flight catering firms operate at all airports where an airline operates, that airline has more limited options to switch provider at any of the individual airports. I discuss this further in section 4E.

- 4.29 In this section I investigate the extent of switching at various Canadian airports over the period 2013–17, and the proportion of sales at a given airport that switches provider in a given year.
- 4.30 In order to identify airlines that have switched provider at a given airport I first combine the datasets of the five caterers described in section 4B. My analysis identifies a caterer switch as being in either catering, galley handling, or both. I calculate each airline's total expenditure on in-flight catering for each airport, month and caterer, based on the data that was provided to me. This allows me to identify instances where an airline used more than one provider at a given airport over the sample period. There are [REDACTED] such instances, of which I classify [REDACTED] as actual switches.¹²⁷
- 4.31 I have received data for the five largest in-flight catering firms operating in the Canadian market. I have complete billings for the providers in the in-flight catering market at YVR (i.e. Gate Gourmet and CLS), which enables me to determine all switches that have occurred between providers at YVR. For other airports, there may be providers for which I have not received a transactions dataset. My analysis would therefore not be able to identify switches to or from these providers, as I consider a switch to be an instance where an airline appears in the datasets of more than one of the five firms for which I have been provided with data. However, this is unlikely to affect my overall conclusions, as I understand that I have received data for the caterers that

¹²⁵ I understand that airlines typically have contracts with in-flight catering firms of between [REDACTED] years, although in some cases contract durations may be shorter or longer than this. For example, see [REDACTED]

¹²⁶ For example, see [REDACTED]

¹²⁷ I have classified as a switch only those instances where there is an overlap of no more than one month between the two caterers being used at an airport. Thus, I have excluded [REDACTED] instances where an airline appears to be using two caterers at an airport over a longer period: [REDACTED]

make up approximately █% of the Canadian in-flight catering market, based on sales figures.¹²⁸

4C.2 Extent of switching

4.32 I first present a summary of the number of switches. Table 4.2 provides the details of the █ switches that I have identified based on the available data.

Table 4.2 Identified caterer switches by airlines at Canadian airports over the period 2013–17



Note: ¹ GG refers to Gate Gourmet. ² n.a. indicates that I do not have information about the exact date of entry for █ so I am unable to determine whether the switch occurred within one

¹²⁸ █, PAMC0002_00008842. █

month of entry.¹²⁹ For data-related reasons, this switch has been identified by manual inspection of [REDACTED] invoice data. For further details, see PEHK00004_00000064.

Source: Analysis based on data from Gate Gourmet, CLS, Newrest, Strategic Aviation and Optimum.

- 4.33 As indicated above, I find [REDACTED] instance of an airline switching in-flight catering firms at YVR in the sample period— [REDACTED] [REDACTED]. This suggests a lack of vigorous competition between Gate Gourmet and CLS at YVR, as would have been shown by significant shifts in the share of the galley-handling and catering business between them.¹²⁹
- 4.34 Further, across the airports considered, I find that switches are often [REDACTED] [REDACTED]. Of the [REDACTED] switches outside YVR, [REDACTED] were to [REDACTED] [REDACTED], and [REDACTED] were to [REDACTED]. Of the [REDACTED] switches to [REDACTED], [REDACTED] were from [REDACTED] [REDACTED]. Interestingly, at both of these airports there were also switches from [REDACTED] [REDACTED], indicating a healthy degree of competition between these providers.
- 4.35 As set out in Table 4.2 above, in the cases for which I have information on when a caterer entered at a particular airport, I find that [REDACTED] [REDACTED]. In particular, of the [REDACTED] switches that took place at airports other than YVR and to caterers other than [REDACTED],¹³⁰ [REDACTED] took place within [REDACTED] [REDACTED]. This indicates that [REDACTED] [REDACTED]. On the one hand, [REDACTED] [REDACTED]. On the other hand, the wider evidence also indicates that [REDACTED] [REDACTED].¹³¹
- 4.36 In all, regardless of whether there is strong competition between CLS and Gate Gourmet at YVR, my analysis indicates that there would be higher rates of

¹²⁹ VAA has expressed the view that competition between the two caterers at YVR has been vigorous. Response of Vancouver Airport Authority, *Commissioner of Competition v. Vancouver Airport Authority*, CT-2016-15, paras 12 and 89.

¹³⁰ I have not been able to conduct this analysis for switches to [REDACTED], as I am unable to determine [REDACTED] entry dates based on the Optimum invoice data.

¹³¹ For example, [REDACTED] YVR00005312.

switching and greater competitive dynamics if VAA did not refuse to grant airside access to new providers.

4C.3 Proportion of in-flight catering sales switched

- 4.37 I use the results set out above on the number of switches across airports to calculate the proportion of the in-flight catering market at an airport that switched providers in each year. This controls for the possibility that many of the switches are by airlines with small operations at the airport.
- 4.38 I focus on the four largest airports (i.e. airports with over 10m passengers per annum)—Vancouver, Toronto, Montreal and Calgary. I also present the results for five smaller airports for which data is available—Winnipeg, Regina, Ottawa, Halifax, and Edmonton.
- 4.39 In order to determine the percentage of the total in-flight catering business that has switched in any one year, I calculate the total value of all sales for each year at each airport. I then calculate the total value of sales from airlines that I previously identified as having switched, and divide this by the total sales at an airport.
- 4.40 Figure 4.2 shows the average percentage of total airline spend on in-flight catering services that switched over the five years of the sample period. It can be seen that the level of switching at YVR is lower than that at other Canadian airports.
-

Figure 4.2 Average yearly percentage of total airline spend on in-flight catering services that switched between providers in the period 2013–17



Note: I account only for the percentage of sales switched in the year immediately after the switch occurred. In other words, if an airline switched provider in 2014, I include only the proportions of sales switched in 2014 and do not also account for the proportions in 2015, 2016 or 2017.

Source: Analysis based on data from Gate Gourmet, CLS, Newrest, Strategic Aviation and Optimum.

- 4.41 Figure 4.3 shows the percentage of in-flight catering sales that switched in-flight catering firms between 2013 and 2017 at Vancouver, Toronto, Montreal and Calgary airports. This similarly indicates that the percentage of total expenditure on in-flight catering that switched providers was much lower at YVR than at the other large Canadian airports.

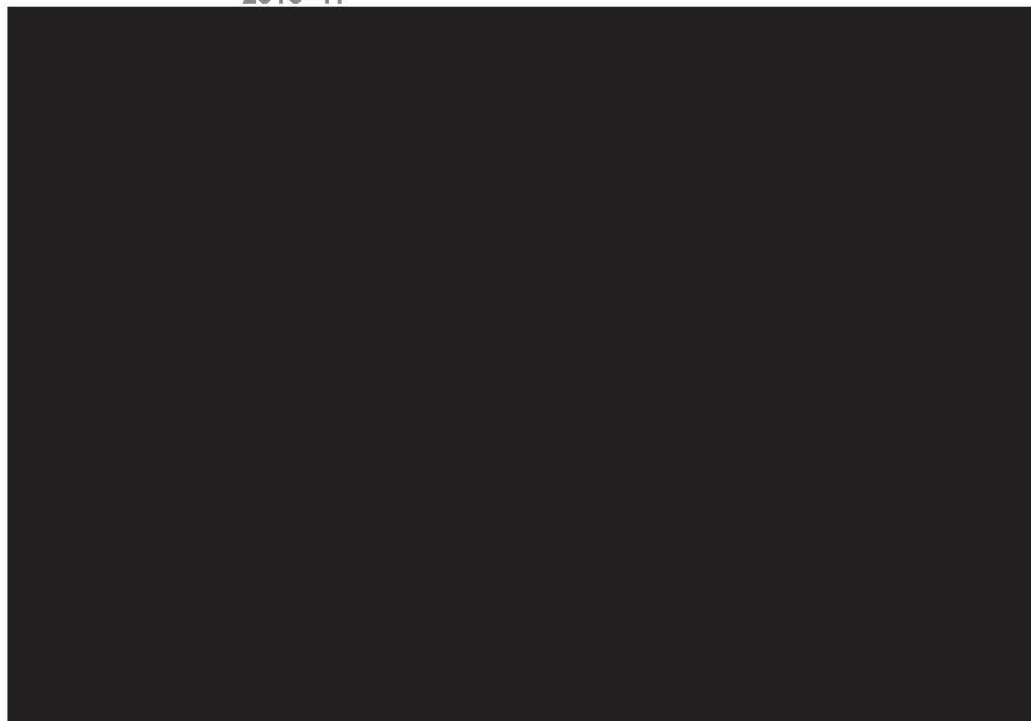
Figure 4.3 Percentage of total airline spend on in-flight catering services that switched between providers at large airports: 2013–17



Source: Analysis based on data from Gate Gourmet, CLS, Newrest, Strategic Aviation and Optimum.

- 4.42 Figure 4.4 sets out the results for the smaller Canadian airports. Similar to the results in Figure 4.3, the percentage of sales that switches caterers at these airports is higher than that at YVR. These results are driven by [REDACTED], [REDACTED], and [REDACTED], as also indicated in Figure 4.3 above. [REDACTED].

Figure 4.4 Percentage of total airline spend on in-flight catering services that switched between providers at small airports: 2013–17



Note: [REDACTED]. For data-related reasons, the [REDACTED] is not presented in this figure. This is because it has not been possible to accurately identify the value of [REDACTED].

Source: Analysis based on data from Gate Gourmet, CLS, Newrest, Strategic Aviation and Optimum.

4.43 Based on the analysis set out above, I conclude that the extent of switching by airlines between in-flight catering firms at YVR is significantly lower than that at other airports. The total proportion of sales that switches between caterers is lower at YVR than at all other Canadian airports for each year considered in the analysis.

4.44 I also find evidence that there is not a significant degree of switching between [REDACTED] at airports, and that the majority of switching is [REDACTED]. This last point strongly suggests that, to choose an in-flight catering firm that best fits their needs, airlines require that airports permit entry.

4D Gains from switching: analysis of Jazz

4D.1 Focus on Jazz

4.45 As outlined in section 4C above, switching rates, and the proportion of sales that switch between providers at YVR, are lower than those at other Canadian

airports. Furthermore, many switches are associated with [REDACTED]
[REDACTED]—a large proportion of switches are [REDACTED]
[REDACTED]. In this section, I assess whether those airlines that did
switch spent less on in-flight catering as a result.

- 4.46 It would be reasonable to assume that airlines that switch gain some benefits from doing so, potentially in the form of lower prices. Indeed, airlines at YVR have stated that they choose to procure services from new entrant firms in order to realise substantial cost savings (and other benefits).¹³²
- 4.47 With the data made available to me I can quantify the gains from switching for Jazz. As shown in Table 4.2 above, in late 2014 and early 2015, Jazz switched from Gate Gourmet to Newrest at Toronto, Montreal and Calgary airports, and from Gate Gourmet to Strategic Aviation at Edmonton, Halifax, Ottawa, Regina and Winnipeg airports. Switching at multiple airports helps in assessing whether there are any patterns in the gains from switching across airports. Flights to and from these airports constitute [REDACTED]
[REDACTED]. In addition, the two providers that Jazz switched to at the other airports—Newrest and Strategic Aviation—are also the ones that sought access at YVR (Newrest for galley handling with an off-airport kitchen, and Strategic Aviation for galley handling only). This analysis therefore gives an indication of the gains from switching that could be made if new entry were allowed at YVR.
- 4.48 A similar analysis cannot be sensibly conducted for the international airlines that switched in-flight catering provider in Canada shown in Table 4.2 above—in particular, [REDACTED]
[REDACTED]
[REDACTED]. For these airlines, the Canadian airports represent only a small proportion of total operations and therefore catering expenditure.¹³³ Often when airlines look for potential in-flight catering providers, they consider the savings that they would make in aggregate across all of the airports at which they operate.¹³⁴ The savings that they make at these specific Canadian airports where they switched may therefore not be representative of the savings they

¹³² For example, Jazz wrote a letter to [REDACTED]
[REDACTED]. See [REDACTED], YVR00005312.

¹³³ To illustrate, flights to and from Canada accounted for [REDACTED]% and [REDACTED]% of global traffic for [REDACTED]
[REDACTED] in 2015, respectively (Analysis, based on OAG data).

¹³⁴ Witness Statement of Barbara Steward, on behalf of Air Transat A.T. Inc., paras 29 and [REDACTED]; and Witness Statement of Rhonda Bishop, Jazz Aviation LP, paras 42 and 50.

make in total from switching provider, or may not be the main driver behind the decision to switch.

- 4.49 As also shown in Table 4.2 above, Air Transat switched its in-flight catering provider across a number of airports [REDACTED]. Air Transat is comparable to Jazz in the sense that it does significant business in Canada. One significant difference, however, is that Air Transat switched to Optimum Strategies, which provides catering services only, and partners with other providers for galley handling—this is a different service offering from what Newrest and Strategic Aviation were intending to offer at YVR.¹³⁵
- 4.50 I have not been able to conduct a meaningful analysis of the gains that Air Transat made from these switches to Optimum, due to data-related issues. As in my analysis for Jazz, at airports where Air Transat switched, I can compare its total spend with Gate Gourmet prior to the switch to its total spend with Optimum after the switch. In the nine months following its switch to Optimum [REDACTED] at various airports, Air Transat spent approximately [REDACTED], when compared with aggregate spending with Gate Gourmet in the nine months prior to the switch.
- 4.51 However, it is then not possible to reliably determine a consistent measure of Air Transat's spend per flight across the entrant and incumbent, because of issues around the comparability of the Gate Gourmet and Optimum data.
- 4.52 Air Transat's previous arrangement with Gate Gourmet included [REDACTED]. The Gate Gourmet and Optimum data account for Air Transat's [REDACTED] in different ways. While Gate Gourmet's [REDACTED], Optimum's data [REDACTED]. This means that it is difficult to ensure that any analysis of the gains from switching is comparing like with like.
- 4.53 I therefore cannot carry out an analysis of the gains from switching for Air Transat similar to the one for Jazz.

¹³⁵ Optimum uses Sky Café to provide the galley-handling services at a number of airports at which it operates. See Witness Statement of Geoff Lineham, Optimum Strategies Inc., para 16.

4D.2 Methodology for analysing the gains from switching

4.54 I estimate the gains from switching by comparing the costs incurred in the situation where a switch occurred to the costs that would have been incurred in a hypothetical situation in which Jazz stayed with Gate Gourmet. Specifically, I adopt the following approach:

- I calculate the cost per departure for each aircraft type flown (also referred to as a 'rating');¹³⁶
- I then calculate savings by taking the difference in ratings between the old provider (Gate Gourmet) and the new provider, and multiply this by the number of departures served by the new provider.

4.55 This approach compares outturn costs with the new provider against historical costs with the old provider, controlling for differences in traffic between years. In particular, it calculates the savings that Jazz made relative to a hypothetical situation in which Jazz remained with its old provider, while purchasing services for the same number of flights served by the new provider. The approach therefore identifies an effect on savings through prices. Below I set out the details of the methodology that I adopt in terms of the airports, time period and markets considered.

- **Airports.** I consider gains at all eight airports at which Jazz switched providers.¹³⁷
- **Time period.** Jazz switches occurred in late 2014 and early 2015. I calculate savings per departure in 2015 by taking the difference in ratings between Jazz's 2014 provider (Gate Gourmet) and the 2015 provider (Gate Gourmet at YVR, and Strategic Aviation or Newrest elsewhere), and multiplying these by the number of departures served by the 2015 provider.
- **Services.** I calculate all-in ratings including both catering and galley handling. I also look at galley handling only, since that is the service that relies on airside access and is therefore potentially most affected by the refusal to

¹³⁶ When airlines consider the costs of in-flight catering providers (and when in-flight catering firms provide quotes to airlines), they tend to consider costs in terms of price per aircraft, which is consistent with the approach that I use in this analysis. For example, see [REDACTED]; and [REDACTED].

¹³⁷ Jazz began purchasing catering services at [REDACTED]. However, it did not purchase catering services at this airport beforehand with any of the other providers for which I have data. As a result, I cannot ascertain whether a switch took place, and if one did, I cannot calculate any gains from switching at this airport as no information on counterfactual prices is available. Therefore, I do not consider [REDACTED] in my analysis.

grant airside access (as discussed in section 2). How to [REDACTED]
[REDACTED] and therefore the galley-handling-only result should be interpreted with care.

4.56 I present further details on the methodology for the gains from switching analysis in Appendix A4.

4D.3 Results for gains from switching

4.57 I present the results of my analysis below. All savings are expressed as the difference between the dollars paid in the situation where a switch occurred and the dollars that would have been paid in a situation in which Jazz stayed with Gate Gourmet at each respective airport.

4.58 I find that, across the eight airports where Jazz switched providers, it saved approximately \$ [REDACTED] in the year following the switch. As indicated in Figure 4.5 below, the majority of gains from switching are at [REDACTED] [REDACTED], although there are also significant gains at [REDACTED] and small savings at [REDACTED]. The majority of the savings are also driven by a particular aircraft type, the [REDACTED]. The [REDACTED] makes up approximately [REDACTED] % of Jazz's fleet, [REDACTED].¹³⁸

Figure 4.5 Jazz gains from switching analysis



¹³⁸ Based on Jazz's website. For further details, see <http://www.flyjazz.ca/en/home/aircanadaexpress/fleet.aspx>, accessed 6 June 2018.

Source: Analysis based on caterer data.

- 4.59 When I consider the savings made by Jazz for galley handling only, I find that [REDACTED]
[REDACTED]. This result needs to be interpreted with some care because I cannot be certain that [REDACTED]
[REDACTED]. The cost saving [REDACTED] represents approximately [REDACTED]% of what Jazz would have paid to Gate Gourmet in the absence of a switch.
- 4.60 Out of the eight switches made by Jazz, six of these were to a new entrant.¹³⁹ In these cases, the cost saving at the airport can be said to reflect an effect of both switching and entry, as these switches would not have occurred in the absence of entry.
- 4.61 As a sensitivity test, I assess whether Gate Gourmet's prices would have been likely to have fallen had switching not occurred, by conducting a similar exercise with reference to YVR, where Jazz remained with Gate Gourmet throughout the period while switching at other Canadian airports at which it operates. This analysis gives an indication of what would have been likely to happen to Jazz's prices at the other airports had Jazz remained with Gate Gourmet instead of switching. For example, if Jazz's prices at YVR decreased significantly from 2014 to 2015, the results I describe above could have been plausibly driven by an industry-wide decline in prices. [REDACTED]
[REDACTED].
- 4E Price effects for airlines that do not switch providers**
- 4.62 The above analysis sets out the price effects for Jazz, an airline that switched in-flight catering provider. However, there could also be price effects for airlines that do not switch providers. If some of an in-flight catering firm's clients switch away, this may encourage the incumbent firm to reduce its prices to other airlines in order to prevent further switching.
- 4.63 I therefore compare the prices of galley handling before and after entry by Strategic Aviation and Newrest, for airlines that did not switch to the new entrants. I consider airlines using Gate Gourmet and CLS, as these are the two

¹³⁹ Switches to a new entrant occurred at YYZ, YEG, YHZ, YOW, YQR, and YWG.

firms that operate at YVR. I also focus on [REDACTED]. The focus of this analysis is on galley handling, since that is the service that relies on airside access and is therefore potentially most affected by the refusal to grant airside access (as discussed in section 2).

4E.1 Methodology for the price effects analysis

4.64 I use item codes to uniquely identify products and to consider the variation in the prices of those products over time and across airports. This allows me to compare prices at airports before entry with prices at airports after entry.

4.65 I focus my analysis on galley handling. I use the [REDACTED] in the Gate Gourmet [REDACTED] dataset to exclude entries that do not relate to galley-handling products. [REDACTED], which are not informative for the purposes of this analysis as entry takes place from late 2014 onwards.

4.66 In the CLS data, there are [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

4.67 I aggregate the [REDACTED] galley-handling data [REDACTED]. In order to obtain a monthly average price for a product, I divide the [REDACTED]. The prices at airports prior to entry can then be compared with the prices at airports after entry, in order to estimate a price effect associated with entry.

4.68 I treat each product as distinct, observed at different points in time and across different airports. I can therefore exploit (i.e. make use of for the modelling) the

¹⁴⁰ As an example, the description [REDACTED] that is specified for certain line items does not provide enough information for me [REDACTED].

variation in prices of products over time and across airports, accounting for inherent differences in the products.

- 4.69 Figure 4.6 sets out an example of the data, aggregated at the monthly level. It shows how the price level for a particular handling product at YVR varies over time.

Figure 4.6 Example of Gate Gourmet data used in the price effects analysis



Note: ¹ [redacted] is the IATA code for [redacted]. ² The material code is associated with the following description: [redacted].

Source: Analysis based on Gate Gourmet data.

- 4.70 Approximately [redacted] unique products are included in my analysis. Approximately [redacted] of these products exhibit changes in price over the sample period, while [redacted] do not exhibit variation in price.¹⁴¹
- 4.71 I identify entry dates at each airport for both Newrest and Strategic Aviation by taking the first month in which that airport appears in the caterer's dataset. Figure 4.7 below shows the dates of Strategic Aviation's entry at [redacted] [redacted] data, where 0 indicates that Strategic has not yet entered, and 1 indicates entry. Figure 4.7 does not include the entry dates for Newrest, as there is only a single Newrest entry in my sample [redacted]. As illustrated below, Strategic Aviation entry occurs at [redacted]. There is no entry at YVR in the period under consideration.

¹⁴¹ This excludes the observations for [redacted] for reasons explained below.

Figure 4.7 Strategic Aviation's entry dates at airports at which Gate Gourmet operates



Note: [REDACTED]

Source: Analysis based on data from Strategic Aviation and Optimum.

4E.2 Model specification for the price effects analysis

- 4.72 I investigate the effect on galley-handling prices for airlines that do not switch providers by running a regression of the (logged) price against indicators for the entry of Strategic Aviation and Newrest, while controlling for various other factors that influence price.
- 4.73 The baseline specification of my model is as follows, where a denotes the airport, c denotes the client, p denotes the product, and t denotes the month:

$$\ln(\text{price})_{acpt} = \alpha_{acp} + \beta_t + \delta_a t + \gamma SA_{at} + \mu NR_{at} + \varepsilon_{acpt}$$

- α is an airport-client-product fixed effect, as described above. This prevents the model from attributing changes in price that are due to a shifting product portfolio to entry instead.
- β represents month fixed effects, which capture common shocks to prices across airports.

- δ_{at} represent airport-specific time trends. These ensure that the estimated impact of entry is not due to a pre-existing trend at the airport (such as general price reductions at a given airport over time).
- γ is the coefficient on a dummy variable representing Strategic Aviation's entry at the airport. This variable captures how prices respond to Strategic Aviation's entry.¹⁴²
- μ is the coefficient on a dummy variable representing Newrest's entry at the airport. This variable captures how prices respond to Newrest's entry.

4.74 I have used the logged value of prices as the dependent variable. This allows me to calculate an unbiased estimate of the price effect of entry in percentage terms.¹⁴³ The log transformation also attenuates the impact that any outliers might have on the estimates, which is a standard approach in this kind of analysis.

4.75 The econometric analysis that I conduct aims to measure the impact of entry on the price charged by [REDACTED]. This requires a comparison of prices before and after entry. As there are factors that affect the pricing decisions of [REDACTED] that cannot be properly controlled for (such as changes in local regulations over time or city-specific cost shocks), this comparison may not be appropriate when undertaken over too long a time period, where the environment in which the firm operates may have substantially changed.

4.76 Therefore, to analyse the effect of entry on price in 'like-for-like' situations, I restrict my analysis at each airport to a four-year window around the point of entry. This means that, for each airport, I compare prices two years before entry occurred against prices two years after entry occurred, thereby ensuring a reliable measure of the price effect.¹⁴⁴

4E.3 Results of the price effects analysis

4.77 As a first step, as [REDACTED] [REDACTED] largest airline customers ([REDACTED] [REDACTED]) make up [REDACTED] proportion of

¹⁴² This dummy variable is an indicator variable that takes the value 0 prior to Strategic Aviation's entry at the airport, and 1 following Strategic Aviation's entry, corresponding to Figure 4.7 above.

¹⁴³ Subject to a Kennedy correction. The Kennedy correction is a technical adjustment in regressions of this form (with a logged dependent variable) that yields an unbiased estimate of the percentage effect on the dependent variable (i.e. the price). For further details, see Garderen, K.J. van, and Shah, C. (2002), 'Exact interpretation of dummy variables in semilogarithmic equations', *Econometrics Journal*, 5, pp. 149–159.

¹⁴⁴ Within event study analysis, it is common practice to consider data within a defined window around the date that an event took place.

revenues, I consider whether these airlines experience a reduction in price as a result of entry. I find [REDACTED] largest customers in revenue terms over the period 2013–17.

4.78 However, when excluding these [REDACTED] airlines and focusing on [REDACTED] smaller airline customers, I estimate that [REDACTED] galley-handling prices to airlines that do not switch provider [REDACTED].¹⁴⁵ This result is statistically significant.¹⁴⁶ [REDACTED] is statistically insignificant, suggesting that [REDACTED].

4.79 Therefore, although [REDACTED] [REDACTED]. The latter, in aggregate, represent approximately [REDACTED] of the traffic (in terms of the number of flights) at YVR.¹⁴⁷ There are various reasons why this might be the case.

- [REDACTED]
[REDACTED]
[REDACTED].¹⁴⁸ [REDACTED]
[REDACTED]
[REDACTED].¹⁴⁹
- [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

¹⁴⁵ I also exclude a further two airlines from the analysis at this point—[REDACTED]. These airlines face [REDACTED] in price on a number of items throughout the sample period. These [REDACTED] appear to be driven by data-related issues. For example, the [REDACTED] are driven by [REDACTED]. This [REDACTED]. As a result, I exclude [REDACTED] from my analysis. Although the price effects for [REDACTED] are [REDACTED], I also exclude this airline from my analysis.

¹⁴⁶ It is significant at the 5% level. Statistical significance means that the results are highly unlikely to have occurred by chance.

¹⁴⁷ Analysis, based on caterer datasets and OAG data.

¹⁴⁸ See [REDACTED], PAMC00002_00000969; [REDACTED]. See: Air France-KLM Group Request for Proposal—Inflight Catering Tender, July 2014, MMFF00003_00000442.

¹⁴⁹ See letter from Newrest to British Airways, February 2015, MMFF00004_00000002. [REDACTED]

- Jazz and Air Transat switched at various non-YVR airports in the course of my sample, so they may not provide good examples of price effects on airlines that do not switch, considering that these airlines no longer figure in the [REDACTED] dataset after switching away.

4.80

[REDACTED]
[REDACTED]
[REDACTED]. This is because this estimate gives equal weight to price changes for products that are purchased in large quantities and price changes for products that are purchased in small quantities. Furthermore, the estimate also gives equal weight to price changes for different products, irrespective of the value of sales that each product accounts for. In order to account for these issues, as a sensitivity, I carry out a weighted regression analysis. This analysis assigns more importance to the prices of products that are purchased in large quantities, or products that represent a high value of sales. I consider two sensitivities.

- **Quantity-weighting:** price series (i.e. product-airport-client combinations) are assigned a weighting that is proportional to the average quantity of that product purchased each month. This weighting assigns more importance to the prices for products that are purchased in larger quantities.
- **Revenue-weighting:** price series (i.e. product-airport-client combinations) are assigned a weighting that is proportional to the average sales of that product each month. This weighting assigns more importance to the prices for products that make up a large proportion of sales.

4.81 Further details on the weighted analyses are presented in Appendix A4.

4.82 The results of these sensitivities are presented in Table 4.3 below. As shown in the table, [REDACTED]
[REDACTED]
[REDACTED], with both results being statistically significant. [REDACTED] remains statistically insignificant. Detailed regression results are presented in Appendix A4.

Table 4.3 Results of regression analysis for small airlines

Note: A positive number indicates a price decrease post entry. A negative number indicates a price increase post entry. * denotes statistical significance at the 10% level, ** denotes statistical significance at the 5% level, and *** denotes statistical significance at the 1% level.

Source: Analysis based on caterer datasets and OAG.

4.83 I have undertaken a number of additional sensitivity analyses, as follows.

- Accounting for the fact that prices may be 'sticky', [REDACTED]
[REDACTED]
[REDACTED]. For this sensitivity test I look for a month after entry where the proportion of prices that change from the previous month is unusually high, and if there is such a month, I adjust the analysis by assessing changes in prices before and after this [REDACTED]
[REDACTED]
- Ensuring that the [REDACTED] correctly identify unique products, by using the [REDACTED] to identify unique products over time and across airports rather than the [REDACTED].¹⁵⁰
- Adding a control for the number of flights (expressed in logs for modelling reasons) for a given airline from a given airport each month, taken from OAG flight data. The number of flights controls for a demand effect on prices, and for potential quantity discounts offered by caterers. For example, if an airline increases traffic significantly at an airport over time, one might expect this to affect galley-handling prices. I also test the sensitivity of my results to inflation and wage controls. In particular, I consider the inclusion of a city-specific CPI price index (in logs) and a province-specific Labour Force Survey ('LFS') wage index.

4.84 My results presented above are robust to these sensitivity tests, and therefore do not require adjustment.¹⁵¹ I present the results of various sensitivity tests in Appendix A4.

¹⁵⁰ This analysis makes use of string-matching techniques to group products that appear to be the same product, but are named slightly differently.

¹⁵¹ As noted above in para 4.76, I use a four-year window for my analysis. I also test the sensitivity of my results to using a six-year window, with three years of pre- and post-entry data. In this sensitivity, the effect

4.85 Overall, I therefore find robust evidence of [REDACTED]

[REDACTED]
[REDACTED]

[REDACTED] I do not place particular weight
on [REDACTED]

[REDACTED]
[REDACTED]

[REDACTED]. Based on Table 4.3 above, [REDACTED]

[REDACTED]

4.86 These results provide evidence that [REDACTED]
[REDACTED]. This is consistent with [REDACTED], discussed in section 3,
in which [REDACTED]

[REDACTED].

4.87 [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

4F Conclusions on the competition effects of restricting entry into the in-flight catering market at YVR

4.88 The available data has allowed me to look in detail at the effects of entry on switching and prices in the in-flight catering market at airports other than YVR. This is informative for understanding the competitive dynamics that could arise at YVR if entry were no longer restricted.

4.89 I find [REDACTED] instance of an airline switching in-flight catering firms at YVR between 2013 and 2017—[REDACTED]
[REDACTED]. In contrast, I find [REDACTED] switches at non-YVR airports. Moreover, these switches are often [REDACTED]. Of the [REDACTED] switches

on price of [REDACTED] but is not statistically significant. I note, however, that if I were to conduct a one-sided t-test, an alternative method to test for statistical significance, the estimated coefficient would be significant at the 10% level. It is standard in econometrics to test whether an estimated effect is different from zero (two-sided test). However, in cases where one has a strong prior belief regarding the direction of a relationship, it is appropriate to test whether the effect runs in the expected direction (one-sided test). When analysing the impact of entry on prices, there is a strong presumption that entry places downward pressure on incumbent prices. Therefore, the use of a one-sided test—which tests whether entry results in price reductions—is appropriate in this case.

outside YVR, [REDACTED] were to either [REDACTED]. [REDACTED] of the remaining switches are from [REDACTED] [REDACTED] (at both of these airports there were also switches from Gate Gourmet to Newrest, indicating a healthy degree of competition between these providers). A significant proportion of switches occurred [REDACTED] [REDACTED], indicating that [REDACTED] [REDACTED]

- 4.90 These results suggest [REDACTED] [REDACTED]. Specifically, I conclude that there would be [REDACTED] [REDACTED] at YVR if VAA did not refuse airside access to new providers.
- 4.91 I also analysed the gains from switching at airports accruing to Jazz. These switches were to Newrest and Strategic Aviation, the two firms that sought to provide in-flight catering services at YVR. Due to data limitations I could not undertake this analysis for the other airlines. I find that Jazz saved approximately \$ [REDACTED] across the airports where it switched providers, in the year following these switches. This saving is largely attributable to [REDACTED] [REDACTED]. It represents approximately [REDACTED] % of what Jazz would have paid [REDACTED] had it remained with Gate Gourmet at the various airports. This result suggests that airlines that switch to new-entrant in-flight catering firms could achieve significant savings.
- 4.92 Finally, I find robust evidence of [REDACTED] [REDACTED] [REDACTED]. I estimate that [REDACTED] [REDACTED] airlines that do not switch provider [REDACTED]. This suggests that entry can also benefit airlines that do not switch. [REDACTED] [REDACTED] [REDACTED] [REDACTED]. In all, these results are a further indication of the enhanced competition and customer benefits that would arise if new entry were allowed at YVR.

5 Overall conclusions

5A Conclusions on relevant markets and dominance

5.1 It is relevant to consider a number of markets in this case.

- The **airports market**, in which airports compete for airlines and passengers.
- The **airside access market** at an airport, which involves access to certain infrastructure at the airport to provide catering and galley-handling services to airlines.
- The **catering and galley-handling market(s)**, which are the downstream markets where competition is potentially prevented or lessened as a result of a refusal to grant airside access to new providers.

5.2 I have considered whether YVR is dominant in the airports market by looking at the competitive constraint imposed on YVR by other airports. I have assessed the airports market based on two passenger groups: O&D passengers, and transfer passengers.

5.3 For O&D passengers, the results indicate that BLI is the only other airport within YVR's catchment area. However, it offers only eight US destinations in common with YVR, and there is no overlap in Canadian or international destinations. Additionally, there are surface access constraints associated with BLI and the two other nearest airports (YYJ and SEA), involving either the need for ferry transport or a Canada–USA border crossing.

5.4 My assessment of transfer passengers is focused on transfer traffic from the Pacific Rim, as VAA has stated that YVR faces significant competition from US West Coast hub airports for this customer segment. I conclude that competition from other airports for Pacific Rim (transfer) traffic does not pose a significant constraint on YVR.

5.5 I therefore conclude that YVR faces limited competitive constraints in the airports market.

5.6 As the operator of YVR, VAA has responsibility for controlling access to the airport's facilities. This includes airside access for providers of in-flight catering services. VAA also controls the land on the airport's premises where the current providers of in-flight catering services (Gate Gourmet and CLS) have their production facilities.

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- 5.7 I find that self-supply and double catering are to some extent (for certain types of flight and routes) alternatives to procuring in-flight catering services at VAA, but not by a sufficient degree for them to pose a significant competitive constraint on VAA when providing airside access. These alternatives therefore do not change my conclusion that VAA is dominant in the market for airside access at the airport.
- 5.8 The precise delineation of the downstream markets—in particular, whether galley-handling and catering services at YVR are separate markets or a single market—can be left open. This is because VAA's refusal to grant airside access may lessen downstream competition regardless of the precise downstream market definition.
- 5.9 Specifically, the refusal to grant airside access has an impact on the activity of galley handling, which relies on airside access. Therefore, if there were separate downstream catering and galley-handling markets, there would be a potential lessening of competition in galley handling because new entry is prevented. That would be sufficient for an economic theory of harm from the refusal to grant access, and it would be less important to consider the effect on the downstream catering market in detail.
- 5.10 Finally, I note that a theory of harm of foreclosure of downstream competition through a refusal to grant access to an upstream input requires the firm in question to be dominant upstream, but does not require it to be dominant downstream, or even to be directly active downstream.
- 5.11 Where the dominant upstream firm is vertically integrated into the downstream activity, it may have a clear economic interest to distort downstream competition—i.e. it may wish to favour its own downstream operations at the expense of downstream competitors. However, even if the firm is not vertically integrated, as is the case for VAA, it may have a financial stake in the outcome of competition in the downstream market, and therefore an economic motive to influence this competition.
- 5B Conclusions on the scope for entry in the in-flight catering market at YVR**
- 5.12 In this section I have assessed whether the market for in-flight catering at YVR would have been able to sustain a third firm in the past, and whether it could sustain additional entry going forward. I find that an additional firm can be sustained in most scenarios. My assessment is rooted in profitability analysis using the EBITDA margin as a profitability measure.
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- 5.13 I started by considering the EBITDA margins earned by Gate Gourmet and CLS at YVR over the last six years. I then established a benchmark based on information on the profitability of Gate Gourmet and CLS across their operations in Canada, and on the profitability of Gate Group and LSG Group globally. I concluded that a range of [REDACTED] % is a reasonable benchmark for the EBITDA margin to indicate the viability of entry.
- 5.14 The comparison shows that Gate Gourmet's current EBITDA margin at YVR ([REDACTED] % on average over the period for which data is available) is [REDACTED] the benchmark range, and that both CLS's margin ([REDACTED] % on average) and the combined EBITDA margin of both incumbents at YVR ([REDACTED] % on average) are [REDACTED] the benchmark range. Thus, current profitability levels with two providers in the market themselves suggest that entry would be possible.
- 5.15 I then assessed the effect of a new entrant on profitability, determining whether the combined profitability of the in-flight catering firms that operate at YVR would [REDACTED] the benchmark range once a third provider enters the market. The entrant would add fixed costs to the market (i.e. costs that do not vary with the level of output), as it would need its own production facilities. Therefore, in the new situation there would be three providers, each with its own fixed costs of production facilities. The question is whether overall profit margins in the market would remain sufficient to cover the three sets of fixed costs.
- 5.16 My analysis (both static and dynamic) suggests that from around 2014 the market was able to sustain an entrant that either requires or does not require on-airport kitchen space—i.e. the combined profit margin in this case would be within the indicative benchmark range.
- 5.17 My conclusion, that overall there would seem to be scope for viable entry at YVR, is supported by [REDACTED]
[REDACTED]
[REDACTED]
- 5.18 My conclusion is also consistent with [REDACTED] of the scope for entry, which concludes that [REDACTED]
[REDACTED] 152 [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]¹⁵³ This is in line with the lower bound of my [REDACTED] % indicative benchmark range. [REDACTED] concludes that [REDACTED] and that this demonstrates [REDACTED]

[REDACTED]¹⁵⁴

- 5.19 Indeed, [REDACTED], in 2018 VAA awarded an in-flight catering licence to dnata. Therefore, a relevant question going forward is whether the market can sustain a fourth firm.
- 5.20 My forward-looking analysis (following the commencement of operations of dnata in 2018) suggests that profitability in the market as a whole would remain sufficient for four viable operators if another provider that was similar in size to [REDACTED] were to enter the market from 2018. If a firm operating at a scale similar to [REDACTED] were to enter, the market-wide profitability would remain [REDACTED] my benchmark range. However, if the new entrant led to a small reduction in variable costs, the market would be able to sustain an additional entrant the size of CLS or Gate Gourmet.
- 5.21 My overall conclusion is that there would seem to be scope for viable entry at YVR, both from 2014 and going forward after dnata's entry in 2018.
- 5.22 Finally, it is worth noting that the competitive process itself is usually well placed to determine how many competitors can operate viably. The competitive process involves periodic entry and exit and, over time, the market will settle on a specific number (or range) of competitors, until demand or cost shocks change this again.
- 5.23 Even if, contrary to my conclusions in this section, there were room for only two providers in the market in the past, or three providers going forward, the competitive process would be well placed to determine which providers should

¹⁵³ [REDACTED]

¹⁵⁴ [REDACTED]

be present in the market. Competition means that those competitors that are most efficient, innovative and/or responsive to customer demand are usually the ones that survive. It is not necessarily the incumbent providers that survive.

5C Conclusions on the competition effects of restricting entry in the in-flight catering market

5.24 The available data has allowed me to look in detail at the effects of entry on switching and prices in the in-flight catering market at airports other than YVR. This is informative for understanding the competitive dynamics that could arise at YVR if entry were no longer restricted.

5.25 I find [REDACTED] instance of an airline switching in-flight catering firms at YVR in the sample period— [REDACTED]

5.26 I also find that switches at other airports are [REDACTED]. Of the [REDACTED] switches outside YVR, [REDACTED] were to [REDACTED]. [REDACTED] other switches from [REDACTED] (at both of these airports there were also switches from [REDACTED], indicating a healthy degree of competition between these providers). A significant proportion of switches occurred [REDACTED], indicating that [REDACTED].

5.27 In all, I conclude that there would be [REDACTED]

5.28 I analysed the gains from switching at airports accruing to Jazz. These switches were to Newrest and Strategic Aviation, the two firms that sought to provide galley-handling services at YVR. Due to data limitations I could not undertake this analysis for the other airlines. I find that Jazz saved approximately \$ [REDACTED] across the airports where it switched provider. This saving is largely attributable to [REDACTED]. It represents approximately [REDACTED] % of what Jazz would have paid on [REDACTED] had it remained with Gate Gourmet at the various airports.

5.29 Finally, I find robust evidence of [REDACTED]

[REDACTED]

[REDACTED]. This suggests that entry can also benefit airlines that do not switch. [REDACTED]

[REDACTED]

[REDACTED]. In all, these results are a further indication of the enhanced competition and customer benefits that would arise if new entry were allowed at YVR.

A1 CV and list of publications of Dr Gunnar Niels

Dr Niels leads Oxera's work in competition policy and litigation, with 25 years' experience in the field covering mergers, agreements, abuse of dominance, damages and state aid. He has advised companies such as Deutsche Bahn, Liberty Global, Mars, ConocoPhillips and Mastercard, as well as government bodies and the European Commission. Dr Niels has provided expert testimony before courts in a range of jurisdictions, including the UK, the Netherlands, Austria, Finland, Spain, South Africa and New Zealand, and has presented at oral hearings in European Commission inquiries.

Dr Niels is currently a non-governmental adviser ('NGA') to the International Competition Network ('ICN') Working Group on Unilateral Conduct. He is author of *Economics for Competition Lawyers* (Oxford University Press, second edition, 2016). He is on the boards of the *Competition Law Journal*, *Oxford Competition Law* and *Markt en Mededinging*, has been guest editor for the *Antitrust Bulletin*, and has published in many leading journals. Before joining Oxera in 1999, Dr Niels was deputy head of the Economics Directorate at Mexico's Federal Competition Commission. He is listed in *The International Who's Who of Competition Lawyers & Economists 2017*, and was among the five nominees for Economist of the Year in the *Global Competition Review Awards* in 2011, 2013, 2015 and 2017.

Selected project experience

- Advice to AMP Capital on its acquisitions of Leeds Bradford Airport and Luton Airport (2017–18)
 - Expert testimony for the Commission for Communications Regulation (Ireland) in dispute with Eir on methodologies for setting fines (2016–18)
 - Advice to a US pharmaceutical company on a tax state aid investigation (2018)
 - Expert testimony for Mastercard in the interchange fees damages claims in UK courts by various retailers (2014–17)
 - Expert testimony for Unwired Planet in IP litigation with Samsung and Huawei in the UK and Germany (2015–17)
 - Advice to Liberty Global on a European Commission inquiry into its joint venture with Vodafone (2016)
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- Court-appointed expert in an abuse of dominance case before the Court of Amsterdam involving property search websites (2015–17)
 - Advice to Liberty Global on the European Commission phase two inquiries into its acquisitions of Ziggo and De Vijver Media (2014–15)
 - Advice to Skyscanner in its successful appeal before the UK Competition Appeal Tribunal in the online hotel bookings case (2014)
 - Economic advice to Royal Bank of Scotland in the European Commission Article 101 investigation into the credit default swaps ('CDS') market (2013–15)
 - Court-appointed expert in an abuse of dominance case before the Austrian Cartel Court involving long-term 'take-or-pay' gas contracts (2013–15)
 - Advice to a major retailer in relation to a UK Office of Fair Trading investigation into retail price maintenance in sports bras (2013–14)
 - Expert testimony for Arriva in the UK High Court for an abuse of dominance case against Luton Airport (2013)
 - Directed Oxera's study on behavioural economics and competition policy for the Netherlands Authority for Consumers and Markets (2013)
 - Advice to Ryanair on Aer Lingus phase two takeover inquiries by the European Commission and UK Competition Commission (2012–13)
 - Expert in an arbitration case in Spain for a German manufacturing company (2012)
 - Economic expert for Cardiff Bus in a damages claim before the UK Competition Appeal Tribunal, following an abuse of dominance finding (2011–12)
 - Advice to the UK Office of Fair Trading on private healthcare (2011)
 - Expert testimony before the New Zealand High Court for the Commerce Commission's prosecution of the air cargo cartel (2011)
 - Economic expert for Mars in an abuse of dominance claim by Nestlé before a Dutch court (2011–12)
 - Advice to Belgacom in its phase two merger with The Phone House (2011)
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- Economic advice to a defendant in a damages claim in the UK and the Netherlands following a European Commission cartel finding (2010–12)
 - Economic expert in an international arbitration case in the IT and mobile telephony sector (2010)
 - Led the work on Oxera's influential report for the European Commission on quantifying damages (2008–10)
 - Advice to Telefónica during an inquiry by the Spanish Competition Commission into agreements in the broadband and pay-TV market (2009)
 - Expert testimony for the liquidators of Nationwide Airlines in an abuse-of-dominance case before the Competition Tribunal in South Africa (2009)
 - Advice and testimony for Angel Trains during the UK Competition Commission market investigation into rolling stock leasing (2007–09)

Qualifications

- PhD Economics, Erasmus University Rotterdam, Netherlands
- MSc Economics, Erasmus University Rotterdam, Netherlands

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Referee and editorial roles

Referee for:

- Journal of Antitrust Enforcement
 - Journal of Regulatory Economics
 - Review of Industrial Organization
 - Journal of International Trade and Economic Development
 - Investigación Económica
-

Editorial roles:

- Review Board of Oxford Competition Law (Oxford University Press; 2012 to date)
 - Editor of Agenda (Oxera's monthly electronic publication; 2005 to date)
 - Editorial Board of Markt en Mededinging (2014 to date)
 - Advisory Board of Competition Law Journal (2002 to 2015)
 - Guest Editor of Antitrust Bulletin (2004)
-

A2 My instructions



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Cote de sécurité – Security classification

PROTÉGÉ B – PROTECTED B
Notre référence – Our file

No. : CA-2215-200

Date : 17-10-23 (AA/YY-MM-JJDD)

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PRIVILEGED AND CONFIDENTIAL

Dr. Gunnar Niels
Oxera Consulting LLP
40/41 Park End Street
Oxford, UK
OX1 1JD

VIA EMAIL

Re: Commissioner of Competition v Vancouver Airport Authority (CT-2016-015)

Dear Dr. Niels:

As you know, the Commissioner of Competition (the “Commissioner”) has retained you and your firm, Oxera Consulting LLP (collectively, “you”), to provide independent expert economic opinion and analysis in connection with the above-referenced matter. Further to our discussions, the following are the specific questions in respect of which the Commissioner seeks your opinion:

- Whether Vancouver Airport Authority (“VAA”) substantially or completely controls (i.e., is dominant) in one or more markets relating to the supply of one or more components of in-flight catering at Vancouver International Airport (“YVR”) and, more specifically:
 - Whether VAA is dominant in a market for access to the airside at YVR for the supply of one or more components of in-flight catering and, in this regard, whether any market power by VAA in such a market is or would likely be constrained as a result of competition between YVR and other airports, or otherwise.

- Whether there exist any justifications from an economic perspective that could apply to a decision by VAA to refuse to permit additional competition at YVR in respect of one or more components of in-flight catering and, more specifically:
 - Whether only two providers of in-flight catering services can operate profitably at YVR.
- Whether VAA's refusal to permit additional competition at YVR in respect of one or more components of in-flight catering, or VAA's practice of tying authorization to access the airside at YVR to provide one or more components of in-flight catering to a firm locating its in-flight catering facility on YVR property, has had, is having or is likely to have the effect of preventing or lessening competition substantially in a relevant market.

Regards,

A handwritten signature in black ink that reads "Jonathan Hood". The signature is written in a cursive, slightly slanted style.

Jonathan Hood

cc.: Alicia Foster, Competition Bureau
Antonio Di Domenico, Fasken Martineau DuMoulin LLP
Katherine Rydel, Competition Bureau Legal Services
Ryan Caron, Competition Bureau Legal Services



**Department of Justice
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OX1 1JD

VIA EMAIL

Re: Commissioner of Competition v Vancouver Airport Authority (CT-2016-015)

Dear Dr. Niels:

Further to my letter to you dated October 23, 2017, and because of the Competition Tribunal's Order Amending the Scheduling Order dated March 21, 2018, please provide the Commissioner of Competition with an update to your expert report dated November 15, 2017 that incorporates information provided to you after November 15, 2017.

In addition, as VAA has entered a licence agreement with dnata Catering Services Ltd. to provide in-flight catering services at YVR, please provide your opinion on:

- (1) whether additional providers of in-flight catering services can operate profitably at YVR; and
- (2) whether VAA's continuing policy to restrict entry at YVR in respect of one or more components of in-flight catering, is having or is likely to have the effect of preventing or lessening competition substantially in a relevant market.

Regards,

A handwritten signature in black ink that reads "Jonathan Hood". The signature is written in a cursive style with a large, prominent 'J' and 'H'.

Jonathan Hood

cc.: Alicia Foster, Competition Bureau
Antonio Di Domenico, Fasken Martineau DuMoulin LLP
Katherine Rydel, Competition Bureau Legal Services
Ryan Caron, Competition Bureau Legal Services

A3 List of airports referred to in my analysis

This Appendix is as presented in my expert report of 15 November 2017. The airport information has been updated to 2017 data. As noted in section 2, I have used OAG data rather than airport websites for this 2017 update. The list of airports referred to in my updated analysis can therefore be found in my datapack, rather than in this Appendix.

National Airports System ('NAS') airports

| Airport name (as listed) | Airport code | Total passengers, enplaned and deplaned, 2015 |
|---|--------------|---|
| Calgary International Airport | YYC | 14,578,929 |
| Charlottetown Airport | YYG | 310,823 |
| Edmonton International Airport | YEG | 7,466,141 |
| Greater Fredericton Airport | YFC | 337,289 |
| Gander International Airport | YQX | 171,898 |
| Halifax-Robert L. Stanfield International Airport | YHZ | 3,601,850 |
| Iqaluit Airport | YFB | 156,633 |
| Kelowna International Airport | YLW | 1,550,649 |
| London International Airport | YXU | 477,584 |
| Greater Moncton International Airport | YQM | 628,054 |
| (Montréal) Mirabel International Airport | YMX | (not listed in top 50 airports) |
| Montréal Pierre Elliott Trudeau International Airport | YUL | 14,753,247 |
| Ottawa International Airport | YOW | 4,428,542 |
| Prince George International Airport | YXS | 431,851 |
| (Québec City) Jean Lesage International Airport | YQB | 1,489,384 |
| Regina International Airport | YQR | 1,241,818 |
| St. John's International Airport | YYT | (not listed in top 50 airports) |
| Saint John Airport | YSJ | 1,444,479 |
| Saskatoon John G. Diefenbaker International Airport | YXE | 1,422,350 |
| Thunder Bay International Airport | YQT | 732,136 |
| (Toronto) Lester B. Pearson International Airport | YYZ | 39,638,841 |
| Vancouver International Airport | YVR | 19,690,515 |
| Victoria International Airport | YYJ | 1,661,789 |
| Whitehorse International Airport | YXY | 286,407 |
| Winnipeg James Armstrong Richardson International Airport | YWG | 3,572,907 |
| Yellowknife International Airport | YZF | 392,130 |

Source: Accessed 23 October 2017 from http://www.cacairports.ca/canadas_airports; and Statistics Canada (2015), 'Air carrier traffic at Canadian airports', Table 1-1.

List of YVR destinations, 2015/16

| Airport name (as listed by YVR) | Airport code | Country |
|---------------------------------|--------------|---------|
| Calgary | YYC | CA |
| Edmonton | YEG | CA |
| Fort McMurray | YMM | CA |

| | | |
|---------------------|----------------|----|
| Montreal | YUL | CA |
| Ottawa | YOW | CA |
| Regina | YQR | CA |
| Saskatoon | YXE | CA |
| Toronto | YYZ | CA |
| Whitehorse | YXY | CA |
| Winnipeg | YWG | CA |
| Anchorage | ANC | US |
| Atlanta | ATL | US |
| Chicago | ORD | US |
| Dallas | DFW | US |
| Denver | DEN | US |
| Detroit | DTW | US |
| Honolulu | HNL | US |
| Houston | IAH | US |
| Kahului (Maui) | OGG | US |
| Kona (Hawaii) | KOA | US |
| Las Vegas | LAS | US |
| Lihue | LIH | US |
| Los Angeles | LAX | US |
| Minneapolis | MSP | US |
| New York | JFK | US |
| Newark | EWR | US |
| Orange County | SNA | US |
| Orlando (new) | MCO | US |
| Orlando (new) | SFB | US |
| Palm Springs | PSP | US |
| Phoenix | PHX | US |
| Portland | PDX | US |
| Salt Lake City | SLC | US |
| San Diego (new) | SAN | US |
| San Francisco | SFO | US |
| San Jose (new) | SJC | US |
| Seattle | SEA | US |
| Washington DC | IAD | US |
| Abbotsford | YXX | CA |
| Anahim Lake | YAA | CA |
| Bella Bella / Coola | QBC | CA |
| Campbell River | YBL | CA |
| Castlegar | YCG | CA |
| Comox | YQQ | CA |
| Cranbrook | YXC | CA |
| Dawson Creek | YDQ | CA |
| Fort Nelson | YYE | CA |
| Fort St. John | YXJ | CA |
| Gulf Islands | (Gulf Islands) | CA |
| Kamloops | YKA | CA |

| | | |
|--------------------|-----|-----|
| Kelowna | YLW | CA |
| Masset | ZMT | CA |
| Nanaimo | YCD | CA |
| Nanaimo Harbour | ZNA | CA |
| Penticton | YYF | CA |
| Port Hardy | YZT | CA |
| Powell River | YPW | CA |
| Prince George | YXS | CA |
| Prince Rupert | YPR | CA |
| Qualicum Beach | YQU | CA |
| Quesnel | YQZ | CA |
| Sandspit | YZP | CA |
| Sechelt | YHS | CA |
| Smithers | YYD | CA |
| Terrace | YXT | CA |
| Tofino | YAZ | CA |
| Trail | YZZ | CA |
| Victoria | YYJ | CA |
| Victoria Harbour | YWH | CA |
| Williams Lake | YWL | CA |
| Cancun | CUN | INT |
| Huatulco | HUX | INT |
| Ixtapa/Zihuatanejo | ZIH | INT |
| Manzanillo | ZLO | INT |
| Mazatlan | MZT | INT |
| Mexico City | MEX | INT |
| Puerto Vallarta | PVR | INT |
| San Jose Del Cabo | SJD | INT |
| Beijing | PEK | INT |
| Guangzhou | CAN | INT |
| Hong Kong | HKG | INT |
| Manila | MNL | INT |
| Osaka | KIX | INT |
| Seoul | ICN | INT |
| Shanghai/Kunming | PVG | INT |
| Shenyang/Chengdu | SHE | INT |
| Taipei | TPE | INT |
| Tokyo (Haneda) | HND | INT |
| Tokyo (Narita) | NRT | INT |
| Auckland | AKL | INT |
| Brisbane (new) | BNE | INT |
| Sydney | SYD | INT |
| Amsterdam | AMS | INT |
| Dublin (new) | DUB | INT |
| Frankfurt | FRA | INT |
| Glasgow | GLA | INT |
| London (Gatwick) | LGW | INT |

| | | |
|-------------------|------|-----|
| London (Heathrow) | LHR | INT |
| Manchester | MAN | INT |
| Munich | MUC | INT |
| Paris | CDG | INT |
| Reykjavik | KEF | INT |
| Rome (new) | CFCO | INT |
| Zurich | ZRH | INT |
| Santa Clara, Cuba | SNU | INT |
| Varadero, Cuba | VRA | INT |

Source: YVR, 'Non-stop destinations 2015/16', accessed 10 August 2016 from http://www.yvr.ca/-/media/yvr/documents/air-services/destinations-brochure_2016.pdf?la=en.

BLI destinations, 2016

| Airport name (as listed by BLI) | Airport code | Country |
|---------------------------------|--|---------|
| Honolulu | HNL | US |
| Las Vegas | LAS | US |
| Maui | OGG | US |
| Portland | PDX | US |
| Seattle | SEA | US |
| Palm Springs | PSP | US |
| Los Angeles | LAX | US |
| Oakland | OAK | US |
| Phoenix-Mesa | PHX | US |
| Reno | RNO | US |
| San Diego | SAN | US |
| British Columbia | YVR | CA |
| Olympia | OLM | US |
| Point Roberts | 1RL | US |
| Point Angeles | CLM | US |
| Port Townsend | TWD | US |
| San Juan Islands | San Juan islands (no airport code found) | US |
| Tacoma | SEA | US |

Source: Accessed 10 August 2016 from <https://www.portofbellinham.com/84/Commercial-Aviation>.

List of SEA destinations, 2015

| Airport name (as listed by SEA) | Airport code | Country |
|---------------------------------|--------------|---------|
| Vancouver, BC, British Columbia | YVR | CA |
| Calgary, Alberta | YYC | CA |
| Victoria, British Columbia | YYJ | CA |
| Edmonton, Alberta | YEG | CA |
| Seoul | ICN | INT |
| London | LHR | INT |
| Kelowna, British Columbia | YLW | CA |
| Tokyo | NRT | INT |

| | | |
|----------------------------|-----|-----|
| Beijing | PEK | INT |
| Toronto, Ontario | YYZ | CA |
| Dubai | DXB | INT |
| Amsterdam | AMS | INT |
| Shanghai | PVG | INT |
| Frankfurt | FRA | INT |
| Reykjavik | KEF | INT |
| Taipei | TPE | INT |
| Paris | CDG | INT |
| Hong Kong | HKG | INT |
| San Jose del Cabo | SJD | INT |
| Puerto Vallarta | PVR | INT |
| Tokyo | HND | INT |
| Cancun | CUN | INT |
| San Francisco Bay area, CA | SFO | US |
| San Francisco Bay area, CA | OAK | US |
| San Francisco Bay area, CA | SJC | US |
| Los Angeles area, CA | LAX | US |
| Los Angeles area, CA | SNA | US |
| Los Angeles area, CA | LGB | US |
| Los Angeles area, CA | BUR | US |
| Los Angeles area, CA | ONT | US |
| Portland, OR | PDX | US |
| Spokane, WA | GEG | US |
| Anchorage, AK | ANC | US |
| Denver, CO | DEN | US |
| Phoenix, AZ | PHX | US |
| Las Vegas, NV | LAS | US |
| Chicago, IL | ORD | US |
| Chicago, IL | MDW | US |
| San Diego, CA | SAN | US |
| Sacramento, CA | SMF | US |
| Boise, ID | BOI | US |
| New York City area, NY | EWR | US |
| New York City area, NY | JFK | US |
| Salt Lake City, UT | SLC | US |
| Dallas/Ft Worth, TX | DFW | US |
| Minneapolis, MN | MSP | US |
| Atlanta, GA | ATL | US |
| Houston, TX | IAH | US |
| Houston, TX | HOU | US |
| Pasco, WA | PSC | US |
| Detroit, MI | DTW | US |
| Washington, DC | IAD | US |
| Washington, DC | DCA | US |
| Honolulu, HI | HNL | US |
| Bellingham, WA | BLI | US |

| | | |
|----------------------|-----|----|
| Reno, NV | RNO | US |
| Boston, MA | BOS | US |
| Albuquerque, NM | ABQ | US |
| Austin, TX | AUS | US |
| Baltimore, MD | BWI | US |
| Billings, MT | BIL | US |
| Bozeman, MT | BZN | US |
| Charleston, SC | CHS | US |
| Charlotte, NC | CLT | US |
| Cincinnati, OH | CVG | US |
| Cleveland, OH | CLE | US |
| Colorado Springs, CO | COS | US |
| Dallas, TX | DAL | US |
| Eugene, OR | EUG | US |
| Fairbanks, AK | FAI | US |
| Fresno, CA | FAT | US |
| Ft Lauderdale, FL | FLL | US |
| Great Falls, MT | GTF | US |
| Hayden, CO | HDN | US |
| Helena, MT | HLN | US |
| Jackson Hole, WY | JAC | US |
| Juneau, AK | JNU | US |
| Kahului, HI | OGG | US |
| Kalispell, MT | FCA | US |
| Kansas City, MO | MCI | US |
| Ketchikan, AK | KTN | US |
| Kona, HI | KOA | US |
| Lewiston, ID | LWS | US |
| Lihue, HI | LIH | US |
| Medford, OR | MFR | US |
| Miami, FL | MIA | US |
| Milwaukee, WI | MKE | US |
| Missoula, MT | MSO | US |
| Nashville, TN | BNA | US |
| New Orleans, LA | MSY | US |
| Oklahoma City, OK | OKC | US |
| Omaha, NE | OMA | US |
| Orlando, FL | MCO | US |
| Palm Springs, CA | PSP | US |
| Philadelphia, PA | PHL | US |
| Pullman, WA | PUW | US |
| Raleigh/Durham, NC | RDU | US |
| Redmond, OR | RDM | US |
| San Antonio, TX | SAT | US |
| Santa Barbara, CA | SBA | US |
| Santa Rosa, CA | STS | US |
| Sitka, AK | SIT | US |

| | | |
|-----------------------|-----|----|
| St Louis, MO | STL | US |
| Sun Valley/Hailey, ID | SUN | US |
| Tampa, FL | TPA | US |
| Tucson, AZ | TUS | US |
| Walla Walla, WA | ALW | US |
| Wenatchee, WA | EAT | US |
| Yakima, WA | YKM | US |

Source: OAG (2015), 'Domestic destinations from SEA-TAC airport', OAG (2015), 'Top 25 domestic destinations from SEA-TAC airport'; OAG (2015), 'International destinations from SEA-TAC airport', accessed 10 August 2016 from <http://www.portseattle.org/Sea-Tac/Pages/default.aspx>.

List of YYJ destinations, 2016

| Airport name (as listed by YYJ) | Airport code | Country |
|---------------------------------|--------------|---------|
| Abbotsford | YXX | CA |
| Calgary | YYC | CA |
| Cancun | CUN | INT |
| Edmonton | YEG | CA |
| Kamloops | YKA | CA |
| Kelowna | YLW | CA |
| Las Vegas | LAS | US |
| Los Cabos | SJD | INT |
| Nanaimo | YCD | CA |
| Prince George | YXS | CA |
| Puerto Vallarta | PVR | INT |
| San Francisco | SFO | US |
| Seattle | SEA | US |
| Tofino | YAZ | CA |
| Toronto | YYZ | CA |
| Vancouver | YVR | CA |
| Winnipeg | YWG | CA |

Source: Accessed 10 August 2016 from <http://www.victoriaairport.com/non-stop-destinations>.

A4 Appendix to section 4: analysis of the competition effects of restricting entry in the in-flight catering market

A4A Introduction

A4.1 This appendix sets out additional details of the methodology adopted in the gains from switching analysis in section 4D, and the analysis of price effects for airlines that do not switch in section 4E. It also presents the detailed outputs of my regression analysis, including the results of various sensitivity analyses.

A4B Gains from switching analysis

A4B.1 Overall approach

A4.2 I estimate the gains from switching by comparing the costs incurred in the situation where a switch occurred with the costs that would have been incurred in a situation in which Jazz remained with Gate Gourmet at the respective airports. Specifically, I adopt the following approach:

- I first calculate the cost per departure for each aircraft type flown (also referred to as a 'rating');
- I then calculate savings by taking the difference in ratings between the old provider (Gate Gourmet) and the new provider, and multiplying this by the number of departures served by the new provider.

A4.3 This approach compares outturn costs with the new provider against historical costs with the old provider, controlling for differences in traffic between years. In particular, it calculates the savings that Jazz made relative to a hypothetical situation in which Jazz remained with its old provider, while purchasing services for the same number of flights served by the new provider. The approach therefore identifies an effect on savings through prices.

A4.4 The approach is illustrated in Figure A4.1 below, which sets out my calculation of the savings that Jazz made on [REDACTED]. As shown in the figure, I first estimate that Jazz was saving approximately \$ [REDACTED] by switching to Newrest. This is calculated as the difference between the amount that Gate Gourmet charged at [REDACTED], and the corresponding Newrest charge in [REDACTED]. I then multiply this saving per flight by the number of [REDACTED] flights actually served by Newrest in [REDACTED], in order to estimate the savings that Jazz made.

A4B.3 Imputation required to complete the gains from switching analysis

A4.6 In a few cases, the aircraft used at a particular airport differed before and after Jazz switched provider. For example, [REDACTED]

[REDACTED]

[REDACTED]. Therefore, the rating for the aircraft served by the new provider in 2015 does not always exist in the Gate Gourmet data for 2014.

A4.7 As shown in Figure A4.1 above, I compare ratings at an airport for the same month across different years. In that example, I compared the rating for June 2015 with that for June 2014. If the rating for a given aircraft is missing in the 2014 data for a particular month, but is available for other months in 2014, I impute the missing data by using the average rating for months in which the ratings are available (i.e. months in which Jazz used that aircraft type at the airport in 2014).

A4.8 In cases in which Jazz did not use the aircraft type at the airport throughout 2014, I impute the rating by using the most similar aircraft type (in terms of seat capacity) for which 2014 ratings are available.¹⁵⁵ In particular, [REDACTED]

[REDACTED]

[REDACTED]. I do the same for the [REDACTED] aircraft types. I make an additional adjustment to reflect the fact that there is generally a difference in ratings between these aircraft types.¹⁵⁶

A4C Price effects for airlines that do not switch providers

A4C.1 Weighted sensitivity analysis

A4.9 As explained in section 4E, I carry out a sensitivity analysis that places additional weight on the prices of products that are purchased according to quantity or value.

A4.10 The weighted analysis that I carry out does not change the regression specification used, but amends the underlying data. In the case of quantity weights, for each product that I consider, this analysis creates duplicate observations of the price series associated with this product, such that the number of duplicates created is equal to the average quantity of that product that is sold in a given month. In this way, the number of observations

¹⁵⁵ [REDACTED]

¹⁵⁶ This adjustment is calculated as the percentage difference in average ratings between the matched aircraft types [REDACTED] in the [REDACTED].

associated with a product is proportional to the quantity sold. As an example, if a product is purchased relatively often and is subject to a large price decrease post entry, the regression analysis takes into account the fact that a significant number of duplicated price series show a price decrease post entry. If another product is purchased only once a month and is subject to a price increase after entry, the regression analysis considers this price increase only once, and so does not place as much weight on it. In this way, products purchased in larger quantities are given additional importance by the regression analysis.

A4.11 In contrast to the quantity-weighted analysis, the revenue-weighted analysis takes into account both differences in quantities and differences in prices across products. For illustrative purposes, further sensitivity testing that I carry out is based on the revenue-weighted analysis.

A4C.2 Detailed results of my econometric analysis

A4.12 In this section, I present the detailed results of my econometric analysis. In particular, I show the results for the analysis of the price effects on handling services purchased by [REDACTED].

Table A4.1 Regression estimates for small clients and galley-handling services

Note: Month fixed effects and airport-specific time trends are also included in all specifications, but are omitted here for presentation purposes. Two-sided p-values are given in square brackets. R^2 is known as the 'goodness of fit' of a statistical model, and represents how much of the variation in prices is explained by the explanatory variables in the model. For example, an R^2 of 100% indicates that the statistical model perfectly predicts all of the data. * denotes statistical significance at the 10% level, ** denotes statistical significance at the 5% level, and *** denotes statistical significance at the 1% level. ¹The price effect is calculated using the Kennedy adjustment. As an example, under the revenue-weighted regression, the coefficient estimate on the [REDACTED] dummy is [REDACTED]. Applying the Kennedy adjustment, this translates into a price decrease of [REDACTED]%. The price effect is calculated using the formula $PE = e^{\beta - \frac{1}{2}\sigma^2} - 1$, where β is the coefficient estimate on the [REDACTED] dummy. A negative price effect indicates that prices fell on average after entry.

A4.13 The first three columns of Table A4.1 are discussed in section 4E, so I focus here on a discussion of the last three columns of the table, which include the results of further sensitivity analysis. I test the following three main sensitivities.

- **Demand control:** this is a control for the number of flights (expressed in log terms) for a given airline from a given airport in each month. This data has been extracted from the OAG database. The number of flights controls for a demand effect on prices. It can also capture the effect of any quantity discounts associated with a larger number of flights.

- **City-specific CPI index:** I include a control for the city-level Consumer Price Index ('CPI'). I match this data to airports based on the city in which the airport is located. This index is published by Statistics Canada. This variable controls for general inflation within each city.
- **Province-specific wage rates:** I include a control for the provincial average hourly wage rate for employees in the services sector (also expressed in log terms). These are estimates from the Labour Force Survey ('LFS') published by Statistics Canada. As this is province-level data, this information is assigned to airports based on the province in which the airport is located. This variable controls for changes in the labour costs faced by caterers in each province.

A4.14 As shown in Table A4.1 above, the estimate associated with [REDACTED]

[REDACTED]

A4.15 I undertake one further sensitivity test, in which I assess the robustness of the results to the exclusion of individual airline customers from the analysis. I run multiple regressions, each time excluding one customer from the regression analysis. Across all these regressions, [REDACTED]

[REDACTED]

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