PUBLIC

In the matter between

COMMISSIONER OF COMPETITION

and

VANCOUVER AIRPORT AUTHORITY

CT-2016-015

EXPERT REPORT OF DR. DAVID REITMAN

January 12, 2018

TABLE OF CONTENTS

I. INTRODUCTION

A. MANDATE

1. Counsel to Vancouver Airport Authority ("VAA") have retained me to conduct an economic analysis relating to an allegation made by the Commissioner of Competition that the activities of VAA have resulted in, or are likely to result in, an abuse of a dominant position in the flight catering market at Vancouver Airport ("YVR"). In undertaking this analysis, I have been asked to define the relevant antitrust markets for flight catering, to determine whether VAA had an incentive to restrict competition in those markets, and to determine whether there has been, or in the future is likely to be, a substantial lessening of competition in those markets. I have also been asked to review and respond to the report submitted by Dr. Gunnar Niels in this proceeding.[1]

B. QUALIFICATIONS

2. My qualifications are detailed in Exhibit 1, which contains my curriculum vitae. I am a Vice President at Charles River Associates ("CRA"), an economics and business consulting firm. Prior to joining CRA, I was an economist with the Antitrust Division of the US Department of Justice. Prior to that, I served on the faculty in the economics department at Ohio State University and the Graduate School of Management at UCLA. My areas of expertise are industrial organisation and antitrust economics. I have published papers within this field in a variety of economics and competition journals, including such leading journals as *The American Economic Review*, *The Journal of Law and Economics,* and *The Antitrust Law Journal*. I have previously testified as an economic expert in Ontario Superior Court and before the Copyright Board of Canada as well as in US Federal District Courts. I received my Ph.D. from the Stanford Graduate School of Business in 1987.

3. In the course of my work both at the US Department of Justice and at CRA I have often worked on cases involving allegations of abuse of dominance, including several in the airline industry. I testified on behalf of the Department of Justice in its lawsuit alleging that Denstply monopolized the market for denture teeth in the US through the use of exclusive

[1] Competition Tribunal, Expert Report of Dr. Gunnar Niels, *Commissioner of Competition v. Vancouver Airport Authority*, CT-2016-015 (November 14, 2017) ("*Niels Report*").

dealers.[2] I have also been an expert witness in several other cases involving exclusive dealing or similar restrictions in complementary markets. In addition to monopolization cases involving airlines, I have also worked on many airline mergers, most notably as an expert witness for the Department of Justice regarding the merger between American Airlines and US Airways.[3]

4. I offer my testimony in accordance with the Competition Tribunal's Acknowledgement of Expert Witnesses, a signed copy of which is provided in Exhibit 2. Although retained in this proceeding by VAA, my report is provided impartially to assist the Tribunal. In preparing this report, I was assisted by colleagues at CRA, who performed their analyses under my direction.

C. MATERIALS RELIED ON

5. The materials relied on in this report are listed in Exhibit 3.

D. SUMMARY

6. The focus of my report is two-fold: first, whether the revenues that VAA earns from port fees and rents from caterers provide an economic incentive to restrict competition in the flight catering market at YVR; and, second, whether limiting entry has led to higher prices in that market.

7. My main conclusions are:

    a. The revenues that VAA earns from flight caterers do not provide it with an economic incentive to restrict competition because, as long as the flight catering market can sustain additional competitors, having a more competitive market is better for VAA as well as for customers.

    b. Evidence on flight caterer profitability indicates that the market likely could not have sustained a third competitor in 2014, nor can it sustain more than three competitors at the present time.

    c. A direct test of pricing at airports across Canada shows that flight catering prices have not been higher at YVR than at other airports. Therefore, VAA's

[2] *United States v. Dentsply International, Inc.*, 277 F. Supp. 2d 387 (D. Del. 2003).
[3] *United States* v. *US Airways Group, Inc.,* Civil No. 1:13-cv-01236 (D. D.C. 2013).

decision to limit the number of flight catering firms operating at YVR has not led to higher flight catering prices.

8. In the remainder of this section, I provide a full summary of the analysis and conclusions in the report.

9. Flight caterers provide a range of products and services to airlines at YVR that enable airlines to offer in-flight meals, snacks, beverages, and related services to passengers and crew. Among these products and services is what I refer to as premium flight catering, which is the production and delivery of freshly prepared meals. Premium flight catering products are predominantly provided to first or business class passengers as well as to some international passengers. The provision of premium flight catering products and services at YVR is a relevant product and geographic market.

10. In addition to premium flight catering products, flight caterers also supply a number of other products and services that I refer to collectively as standard flight catering products. Standard flight catering products at YVR do not appear to be a relevant product and geographic market because of the opportunity for airlines to substitute to self-supply, double catering, and a less expensive mix of flight catering products.

11. I will refer to premium flight catering and standard flight catering collectively as flight catering. Since flight catering contains premium flight catering products, and since premium flight catering products at YVR are a relevant product and geographic market, it follows that flight catering at YVR is a relevant product and geographic market.

12. VAA does not compete in the flight catering market, nor does it have any interest in firms that do compete in that market. I further understand that VAA has the sole authority to grant airside access to flight caterers for the provision of flight catering services to airlines at YVR. I assume for purposes of this report that VAA's control over airside access constitutes control over a significant input into the flight catering market at YVR.

13. I also show that the explanation given by Dr. Niels as to why VAA might have an incentive to restrict competition in the flight catering market is inconsistent with rational economic behaviour on the part of VAA. If VAA were trying to maximize the rents and fees it collects from flight catering services, as Dr. Niels' theory requires us to assume, then it would raise port fees until the market price charged by the caterers is on the elastic portion of the demand curve. However, if demand is elastic, then revenues would not increase by

restricting entry. In short, as long as VAA exercises control over flight caterers by setting the port fee rate, it derives no benefit by exercising further control through limiting entry.

14. Moreover, if one assumes (as Dr. Niels' theory requires) that VAA is trying to maximize the rents and fees it collects from caterers, then, far from providing an incentive to limit competition, such a motivation would actually lead VAA to allow the maximum sustainable number of caterers and, if necessary, raise the port fee rate to preserve revenues earned from caterers. Thus, a desire to maximize revenues would not provide VAA with an incentive to limit competition in the flight catering market at YVR.

15. Using Dr. Niels' analysis of flight caterer profits, I also consider VAA's sequence of decisions with respect to authorizing additional flight catering providers and find that:

    - Based on the information available in 2014, it was reasonable for VAA to conclude that authorizing a new flight caterer could cause the exit of an incumbent provider, potentially leading to diminished competition for premium flight catering products and other adverse disruption effects that might occur following exit of a flight caterer from the airport.
    - Dr. Niels' analysis is consistent with VAA's decision in 2017 to issue an RFP for a third flight catering provider at YVR.
    - Authorizing more than one additional flight caterer at the present time would again raise the prospect of exit of an incumbent provider.

16. I find that prices for flight catering at YVR are similar to prices at other major Canadian airports and hence there is no evidence that VAA's decision not to authorize a third flight caterer at YVR in 2014 substantially lessened competition in respect of prices. My analysis of flight catering prices across airports is a direct test of whether a substantial lessening of competition has occurred, a test Dr. Niels does not perform.

17. With respect to Dr. Niels' indirect tests of whether a substantial lessening of competition has occurred:

    a. his estimates of the cost savings from switching are based on an incorrect benchmark for the prices that would have been paid without switching and do not show a price decrease following entry;

b. his regression analysis of prices paid by airlines that did not switch following entry combines multiple entry events without distinguishing entry events that change the local market structure from one to two caterers versus those entry events where there were already multiple flight caterers prior to entry, and does not properly distinguish airports with entry from airports without entry.

18. When these corrections are made, I do not find evidence that prices fell substantially following entry of a third flight caterer. In any event, when looking forward, VAA's decision to add a third caterer this year would eliminate any residual price effects from restricting entry in prior years if any negative price effects were to be found by the Tribunal to have occurred.

19. The next section introduces some basic information about VAA: its mission, its recent performance based on airline traffic and financial metrics, and a brief description of the conduct at issue in this proceeding. I then address the three elements of an abuse of dominance claim under section 79: (i) control of a class of business, which involves defining relevant antitrust markets and determining whether VAA has substantial market power in the defined relevant markets; (ii) a practice of anticompetitive acts; and (iii) whether those acts have substantially lessened or prevented competition or are likely to in the future.

II. THE VANCOUVER AIRPORT AUTHORITY

A. MISSION

20. I am advised by counsel that VAA is a not-for-profit corporation tasked with operating the Vancouver airport and its associated land for the general benefit of the public. Part of this mission is to operate the airport to foster economic growth and development for the region. This mandate encompasses a variety of economic activities, including the day-to-day operations of the airport, overseeing the operations of a number of firms that provide products and services to airlines, passengers, and other airport users, and developing the airport's lands and capital facilities. VAA has a "community-based" Board of Directors that, among other things, is certified annually to have "no real or perceived conflicts" that could influence Board decisions.[4]

[4] Vancouver Airport Authority, "2016 Annual & Sustainability Report" (2017) at 27–28 ("*VAA 2016 Annual Report*").

21. VAA funds its operating and capital expenditures at YVR through various fees and rents collected from its operations. The source of revenues by category as well as several expense categories for YVR in 2015 and 2016 are shown in Table 1.

Table 1: YVR Revenues and Expenses, 2015 and 2016
Thousands of Dollars

	2015	2016
Total Revenues	[redacted]	[redacted]
Landing Fees	$ 36,556	$ 42,346
Concession	$ 102,477	$ 115,204
Terminal Fees	$ 91,741	$ 84,883
Airport Improvement fees	$ 136,916	$ 150,447
Car Parking	$ 31,430	$ 33,484
Total Rentals	$ 36,782	$ 36,336
[redacted] *Rent*	[redacted]	
Total Fees and Miscellaneous	$ 37,524	$ 21,410
[redacted] *Airside Access Fees*	[redacted]	
Contributions	$ 12,078	$ 6,348
Total Expenses (incl. Other Expenses)	***$ 396,190***	***$ 410,641***
Operating Expenses	$ 147,128	$ 160,719
Cash Used in Investing Activities	***$ 150,059***	***$ 160,267***

Sources: *VAA 2016 Annual Report* at 156, 158. Gate Gourmet ("GG") and CLS Airside Access Fees are from [redacted]

"Total Expenses (incl. Other Expenses)" comprise "Salaries, wages and benefits," "Materials, supplies and services," "Payments in lieu of taxes, insurance and other," "Amortization of capital assets," Ground lease," and "Interest and financing charges."

"Operating Expenses" comprise "Salaries, wages and benefits" and "Materials, supplies and services."

22. Some of the fees set by VAA, including fees for airport parking, are paid directly by airport users. Other fees and rents are paid by companies that sell directly to customers, such as car rental firms or airport restaurants. One would expect these charges largely to be passed through to customers via retail prices. Some fees, such as the landing fee, are paid by airlines that operate at the airport. Still other rents and fees, including those relating to flight catering as well as other services used by airlines like ground handling and fuel service, are paid by those service providers. As with firms selling directly to customers, these fees levied on services used by airlines can be expected to be largely passed on to airlines through the price of the services. Airline fees, both direct and indirect, would then to a large extent be passed on to passengers flying in and out of YVR through ticket prices.

23. At a very high level, VAA's task is to provide appropriate levels of services and facilities throughout the airport, and to fund its activities through a range of fees that ultimately are paid by people who use the airport. Given its mandate to operate for the benefit of the public, VAA's goal is to maximize the value derived from use of the airport taking into account the impact of fees on prices and usage of the whole range of products and services sold at the airport. Framed from this economics perspective, VAA is engaged in a classic welfare maximization problem whose solution is referred to as Ramsey pricing.[5] Under Ramsey pricing, welfare is maximized when a fee is charged on each service provided at the airport, with relatively higher fees associated with products and services that have relatively inelastic demand (products for which the quantity demand is not very sensitive to price changes). The reason is that each fee causes a reduction in quantity demanded (i.e., output) and corresponding deadweight loss (loss in welfare), but the deadweight loss is smaller for products that have relatively inelastic demand, causing less output reduction. Assessing small fees on all products, but relatively larger fees on products with relatively inelastic demand, minimizes total deadweight loss and maximizes welfare. This resembles the approach taken by VAA and other airport authorities, with small (but not necessarily uniform) fees across a wide range of products and services.

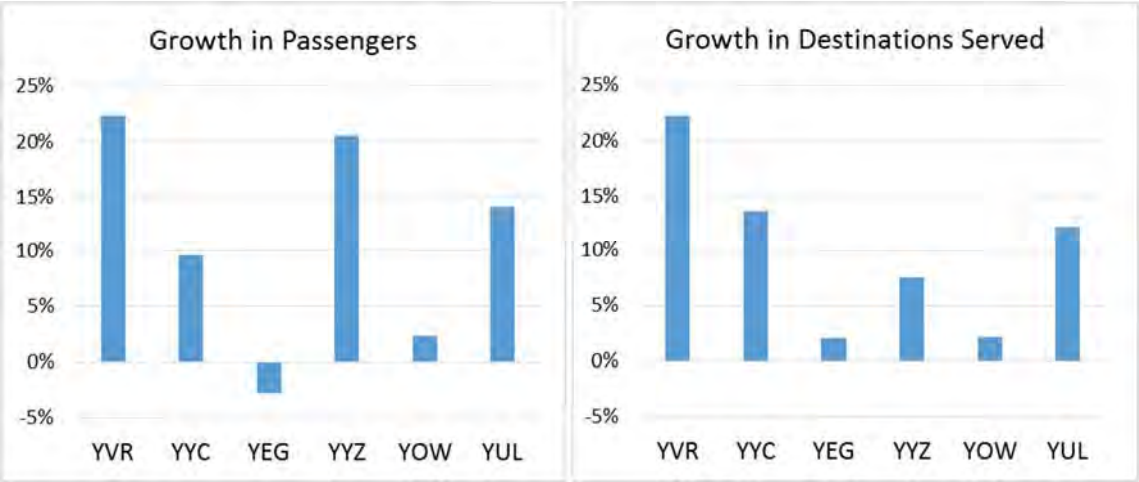
B. PERFORMANCE

24. VAA appears to have been remarkably successful at managing operations at YVR for the benefit of the community that it serves. VAA's 2016 Annual Report states that Skytrax has rated YVR as the best airport in North America for eight consecutive years.[6] VAA's Annual Report also discusses the growth in passengers, carriers, and destinations at YVR.[7] To put these growth figures in a broader context, Figure 1 compares the rates of growth in passengers and destinations served between 2013 and 2016 for YVR and major airports in Calgary ("YYC"), Edmonton ("YEG"), Toronto ("YYZ"), Ottawa ("YOW") and Montreal ("YUL"). As the figure makes evident, VAA has been very successful in growing demand for

[5] Frank P. Ramsey, "A Contribution to the Theory of Taxation." 37 *The Economic Journal* 47 (March 1927).
[6] *VAA 2016 Annual Report* at 4; Skytrax, Background to Skytrax, http://airlinequality.com/skytrax-research (last visited Jan. 9, 2018) ("The Skytrax name is associated with Quality Excellence throughout the world by the air transport industry, and is recognised for it's Airline and Airport Star Rating, the World Airline Awards and Airport Awards….Skytrax created the Air Travel review website (www.airlinequality.com) as an independent customer forum, which has become the leading review site for airline, airport and associated air travel traveller reviews. This website has no financial association or affiliation with any airline or airport featured.")
[7] *VAA 2016 Annual Report* at 48, 52.

air travel at YVR, which has had the highest rates of passenger and destination growth among major Canadian airports in the last three years.

Figure 1: Airports' Growth in Passengers and Destinations Served, 2013-2016



Airports are ordered by geography, from Western Canada to Eastern Canada

Sources: Data on passengers are from Transport Canada, "Transportation in Canada 2016 Statistical Addendum" (2017) at Table A14 ("*2016 Transport Canada Addendum*"). Data on flights are from OAG Aviation Worldwide Limited, OAG Analytics: Schedules Analyser, Schedules Capacity Report [data extract] (retrieved on Sep. 18, 2017) ("*OAG Data*"). The OAG series used in my analysis are from the OAG data files processed by Dr. Niels.

25. A particular focus of VAA has been in growing trans-Pacific international traffic at YVR. Here again, VAA has had marked success in the last several years. As shown in Figure 1, overall passenger growth at YVR from 2013 to 2016 was about 22%. Over the same time period, the number of Pacific Rim passengers grew by 32%, and the number of Pacific Rim transfer passengers (those who fly across the Pacific and connect at YVR to or from another destination) grew by 42%.[8] The growth in the number of these transfer passengers, and the fact that transfer passengers are growing faster than overall Pacific Rim traffic, indicates that VAA has had success at establishing YVR as a gateway airport for trans-Pacific traffic.

26. Turning to financial performance, VAA has been able to provide this growing, award-winning service while keeping its fees and operating costs low. Figure 2 compares airport revenues at YVR to those at other major Canadian airports in 2016. Total airport revenues per passenger at VAA are the lowest among all major airports. Figure 2 also shows total

[8] See *OAG Data*. The series used in my calculation are from the OAG data files processed by Dr. Niels. Dr. Niels defines and depicts Pacific Rim passengers and Pacific Rim transfer passengers (those who fly across the Pacific and connect at YVR to or from another destination) in Figure 2.4 of his report. See *Niels Report* at ¶2.43.

airport revenues per flight, which are lower at YVR than at Toronto and Montreal, and comparable to Calgary and Edmonton.[9]

Figure 2: Airport Revenues per Passenger and per Flight in 2016

Airports are displayed by geography, from Western Canada to Eastern Canada.

Sources: *2016 Transport Canada Addendum* at Tables A6, A14 (providing counts of passengers and flights). Airport revenues are from airports' annual reports. *VAA 2016 Annual Report* at 156; Calgary Airport Authority, "2016 Annual Report" (2017) at 20 ("*YYC 2016 Annual Report*"); Edmonton Airports, "Annual Report 2016" (2017) at 61 ("*YEG 2016 Annual Report*"); Greater Toronto Airports Authority, "Annual Report 2016" (2017) at F24 ("*YYZ 2016 Annual Report*"); Ottawa Macdonald-Cartier International Airport Authority, "2016 Annual Report" (2017) at 55 ("*YOW 2016 Annual Report*"); Aéroports de Montréal, "2016 Annual Report" (2017) at 2 ("*YUL 2016 Annual Report*").

27. I will return to these operating revenue results when discussing whether the fees and rents collected from caterers provided VAA with an incentive to restrict competition in the flight catering market in Section IV. For now, to put these revenues into context, I note that in 2016 the total fees and rents that VAA collected from [redacted] of total revenues across its entire operations.[10] I am advised that rents at YVR are set with reference to a market rent mechanism.[11] Thus, the Commissioner's allegation that VAA was attempting to extract additional revenue from fees and rents in the flight catering market by restricting competition requires assuming

[9] The lower revenue per flight at smaller airports reflects the fact that, on average, airlines fly smaller planes at those airports. In 2016, the average number of passengers per plane at YVR was about 66, whereas the average was about 50 at YEG and 29 at YOW. See *2016 Transport Canada Addendum* at Tables A6, A14.

[10] As shown in Table 1, [redacted] paid rent of [redacted] in 2016, while their port fees (airside access fees) were [redacted], so VAA received [redacted] in revenues from flight caterers in 2016. Meanwhile total VAA revenues in 2016 were $490.458 million, so the share of total revenues derived from flight caterer rents and fees is [redacted]

[11] See, e.g., [redacted] YVR00010050 at -85–86, -111.

one of two things about VAA's objective: either (i) VAA was trying to extract additional revenue throughout the entirety of its operations, and doing a remarkably bad job of it compared to other airports in Canada (as Figure 2 indicates), or (ii) VAA was trying to extract additional revenues solely from its flight catering operations while leaving other operations to operate efficiently, even though I am unaware of any basis for why flight catering would be singled out.

28. Since airport authority revenues are used to fund capital expenditures as well as operating expenses, and since different airports may be at different stages in their investments in capital-intensive facilities, it is also instructive to look at operating expenses across the different airports.[12] Figure 3 shows the operating expenses per passenger and per flight for VAA compared to airports in Calgary, Edmonton, Toronto, Ottawa and Montreal in 2016. Airport operating expenses are low at YVR compared to Canada's other major airports whether measured per passenger or per flight.

Figure 3: Airport Operating Expenses per Passenger and per Flight in 2016

Airports are ordered by geography, from Western Canada to Eastern Canada.

Operating Expenses include Salaries, Wages, and Benefits, and Goods and Services expenses.

Sources: *2016 Transport Canada Addendum* at Tables A6, A14 (providing counts of passengers and flights). Airport expenses are from airports' annual reports. *VAA 2016 Annual Report* at 156; *YYC 2016 Annual Report* at 20; *YEG 2016 Annual Report* at 62; *YYZ 2016 Annual Report* at F8; *YOW 2016 Annual Report* at 55; *YUL 2016 Annual Report* at 34.

[12] To the extent that airport authorities deviate from their public interest mandate by funding expenditures that primarily benefit airport management (such as additional staff, higher salaries, or executive perks) those expenditures would generally show up in operating expenses, which are lower at YVR than at other major Canadian airports.

29. Whether looking at operating expenses or total revenues, YVR appears to be efficiently run in comparison to other Canadian airports. Meanwhile, compared to other airports, VAA appears to have been very successful in growing traffic and positioning YVR as a regional gateway to the rest of the world, in accordance with VAA's operating mission. These results are significant because they are consistent with VAA operating in the public interest, and not deviating from that mandate by extracting excessive revenue from airport users or suppliers. As I discuss in Section IV, VAA's objective, as revealed by its actions, is an important element in determining whether the rents and fees paid by caterers provide VAA with an incentive to restrict competition among flight caterers at YVR.

C. FLIGHT CATERING POLICY AT YVR

30. It is useful to briefly review the history of VAA's actions toward flight caterers at YVR as I will be referring to it throughout my report. I am advised by counsel that, as of 2003, there were three flight caterers operating at YVR: the two incumbents, Gate Gourmet (or more precisely, its predecessor company), CLS, as well as a third firm, LSG Sky Chefs. LSG Sky Chefs exited YVR in 2003 following the acquisition of its primary customer, Canadian Airlines, by Air Canada and the subsequent redirection of that catering business to Cara (which was Air Canada's preferred caterer at the time). That shift occurred at a time when the flight catering industry was in the midst of a long period of declining demand for in-flight meals, driven by a shift to buy-on-board and other changes in airline meal service. As discussed more fully in Section V, demand for flight catering services dropped and then remained stagnant at YVR for the next decade, but has been increasing over the last several years.

31. I am further advised by counsel that, in late 2013 and early 2014, VAA received requests for airside access from two companies that wanted to start supplying flight catering at YVR: Newrest Group Holding S.A. ("Newrest") first requested airside access in December 2013 and then renewed its request to a higher level of management at VAA in April 2014, and the collective of Strategic Aviation Holdings Ltd., Strategic Aviation Services Ltd., and Sky Café ("Strategic") requested airside access in April 2014. VAA considered and rejected both of these applications. When explaining its decision not to authorize new flight caterers at that time, VAA noted that, if conditions changed and flight catering demand grew sufficiently to sustain a third provider, then VAA would identify a new provider using a [redacted] Newrest and Strategic applied again to VAA in 2015. VAA declined these

requests, and YVR has continued to be served by the two incumbent flight caterers through the present time.

32. I am further advised by counsel that, in 2017, VAA re-examined the flight catering market, assessing whether demand had grown sufficiently so that it would be viable to have three providers. [redacted] Accordingly, VAA conducted an RFP and has identified a third firm to supply flight catering at YVR.

III. RELEVANT MARKETS

33. In the *Notice of Application*, the Commissioner identifies two relevant product markets: the market for "Galley Handling", and the market for "airside access for the supply of Galley Handling."[14] Dr. Niels discusses these two product markets and, in addition, a third relevant market, which is for airports. Dr. Niels also discusses whether there are distinct product markets for Catering and Galley Handling.[15] I will focus on the relevant market(s) for the flight catering products and services that are provided to airlines at YVR, which is the market where substantial lessening of competition allegedly occurred, and turn only briefly to the airside access and airport markets at the end of this section.

A. THE MARKET(S) FOR FLIGHT CATERING PRODUCTS AND SERVICES

34. The market in which I understand the Commissioner to be alleging that VAA has exercised substantial control and created a substantial lessening of competition is the market for Galley Handling at YVR. Dr. Niels discusses that market, and also addresses whether it is appropriate to define separate product markets for subsets of the bundle of products and services provided by flight catering firms. As Dr. Niels notes, this second exercise is

[13] [redacted]

[14] Competition Tribunal, Notice of Application, *Commissioner of Competition v. Vancouver Airport Authority*, CT-2016-015 (September 29, 2016) at ¶11 ("*Notice of Application*").

[15] *Niels Report* at ¶¶2.84–94.

complicated by the different ways that the Commissioner and VAA propose dividing the relevant product market in their filings, and the fact that they use overlapping terminology to mean different things.

35. The Commissioner defines Galley Handling to mean the delivery of food and non-food products to airlines, along with keeping inventory and other related functions and services.[16] Catering is defined as the preparation of food for in-flight use by airlines.[17]

36. I will discuss the relevant markets identified by VAA in the *VAA Response*,[18] but, in an attempt to lessen confusion, I will use new terminology that does not reuse the names used by the Commissioner and Dr. Niels. I will use the following terminology throughout this report:

> ***Flight Catering*** refers to the full range of products and services provided by firms that offer in-flight catering and galley handling
>
> ***Premium Flight Catering*** includes the preparation and delivery of freshly prepared meals to airlines for in-flight use; these products are primarily offered to "front cabin" (first and business class) passengers and international passengers[19]
>
> ***Standard Flight Catering*** includes delivery to airlines of pre-packaged food (including frozen meals, sandwiches and salads prepared off-site, and non-perishable food and beverages) and non-food products[20]
>
> ***Full-Service Catering Firms*** are firms that supply both premium flight catering and standard flight catering products to airlines

37. The various products provided by flight caterers, and the different ways that the parties divide the products into smaller categories, are shown in Figure 4.

---

[16] "**Galley Handling** consists primarily of the loading and unloading of Catering, commissary products (typically non-food items and non–perishable food items) and ancillary products (such as duty-free products, linen and newspapers) on a commercial aircraft, including in relation thereto: warehousing; inventory management; assembly of meal trays and aircraft trolley cards (including bar and boutique assembly); transportation of Catering, commissary and ancillary products between aircraft and warehouse or Catering kitchen facilities; equipment cleaning; handheld point-of-sale device management; and trash removal." *Notice of Application* at ¶12, emphasis original.

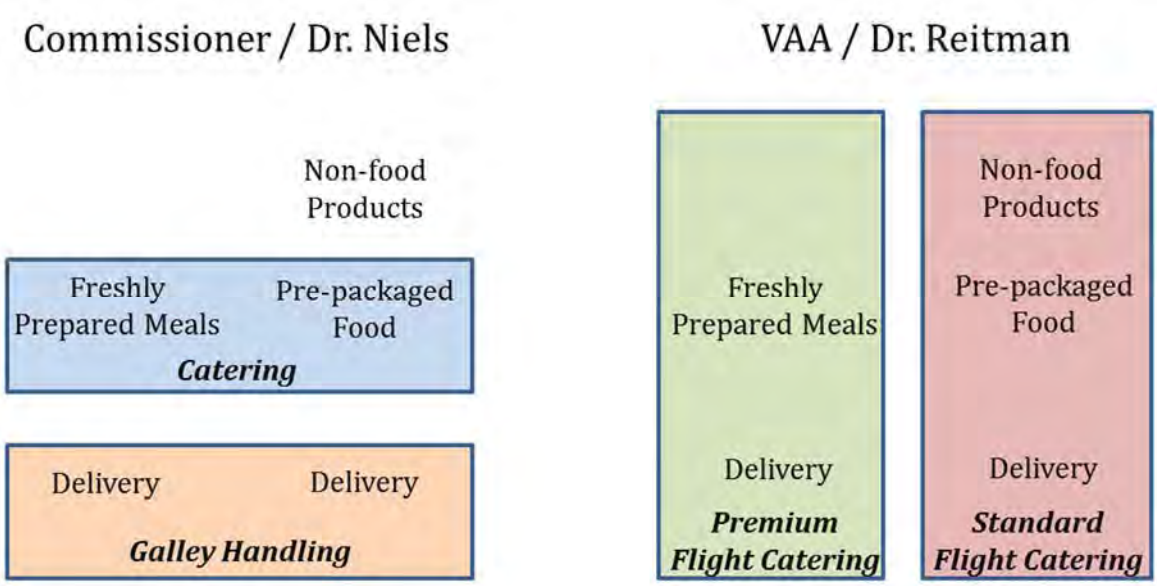
[17] "**Catering** consists primarily of the preparation of meals for distribution, consumption or use on-board a commercial aircraft by passengers and crew, and includes buy-on-board offerings and snacks." *Notice of Application* at ¶12, emphasis original.

[18] See Competition Tribunal, Response of Vancouver Airport Authority, *Commissioner of Competition v. Vancouver Airport Authority*, CT-2016-015 (November 14, 2016) at ¶29 ("*VAA Response*").

[19] This market was called "Catering" in the *VAA Response*. *VAA Response* at ¶29.

[20] This market was called "Galley Handling" in the *VAA Response*. *VAA Response* at ¶29.

Figure 4: Flight Catering Products and Services



38. The left panel of Figure 4 divides the various products and services "horizontally" into two vertically related activities: Catering and Galley Handling. This is what I understand to be the Commissioner's manner of defining the markets, and is the one analyzed by Dr. Niels. Ultimately, Dr. Niels does not reach a definite conclusion about whether Catering and Galley Handling are separate relevant product markets, explaining that it is not necessary to do so for the purposes of his analysis.[21]

39. Alternatively, the set of products and services can be divided "vertically" by separating the products and services into two horizontally differentiated groups, as shown in the right panel of Figure 4: premium flight catering and standard flight catering, both as defined above. The advantage of the vertical division of products is that it highlights important differences in the alternatives available to customers, since customer alternatives are key for defining relevant antitrust markets.

40. It is useful to recall that the purpose of the market definition exercise is to highlight patterns of customer substitution in response to price changes that are relevant for

[21] *Niels Report* at ¶2.93.

assessing market power.[22] Given this specific purpose, the resulting antitrust markets do not necessarily correspond with product categorizations as used by people in the industry.[23] From this perspective, as I will show, VAA's approach to dividing the bundle of flight catering products into separate product markets "vertically" highlights substitution issues that are relevant for understanding the effects of VAA's policy toward flight catering suppliers at YVR.[24]

1. Premium flight catering at YVR is a relevant antitrust market

41. To determine whether premium flight catering at YVR is a separate product market from standard flight catering, the question framed by the hypothetical monopolist test is whether a small, significant, and non-transitory increase in price ("SSNIP") for premium flight catering products would be constrained by substitution to other products, and in particular to standard flight catering products.[25] One possible dimension of substitution is that airlines, for at least some passengers and flights, would stop offering freshly prepared meals to front cabin and international passengers and would instead offer pre-packaged alternatives. However, I am advised by counsel that this response is unlikely, as fresh meals are considered very important to first class and business class passengers. In that regard, I note that VAA's *Flight Kitchen Market Report* states that catering is considered part of an airline [redacted] and that travelers in the Asia-Pacific and Middle Eastern regions [redacted].[26] For example, it would appear that, in a call with members of the Competition Bureau in June 2015, [redacted]

[22] Jonathan B. Baker, "Market Definition: An Analytical Overview," 74 *Antitrust Law Journal* 129 (2007) at 138–39 ("Market definition for antitrust purposes requires, first and foremost, an assessment of the magnitude of the economic force of buyer substitution….[B]uyer substitution patterns in the event of an increase in price [is] the central economic issue at stake in market definition." Brackets added).

[23] Baker, *supra* note 22 at 139 ("Accordingly, there is no reason to expect that the concept of market employed by business executives when discussing issues of business strategy or marketing, whether in testimony or documents prepared for business purposes, would be the same as the concept of an 'antitrust market' or 'relevant market' defined for the purpose of antitrust analysis….[T]he specifications of markets they adopt for business purposes unrelated to antitrust analysis should not control the definition of the market for antitrust purposes." Brackets added).

[24] I will at times refer to the collection of delivery and loading services associated with flight catering as galley handling (without capitalization). However, I do not make use of the Galley Handling product market definition or analyze whether galley handling services form a distinct antitrust product market.

[25] Baker, *supra* note 22 at 144.

[26] [redacted]

[redacted].[27] In addition, the *Flight Kitchen Market Report* indicates that business class is important for airlines as it [redacted]

42. It would appear that airlines already pay [redacted] more for freshly prepared meals (as compared to frozen meals) to serve to front cabin and international passengers, and so are unlikely to switch to pre-packaged or frozen meals from firms supplying only standard flight catering products following a SSNIP for premium flight catering products.[29]

43. Table 2 provides an example of the prices for [redacted] catered products sold to [redacted] and [redacted] catered products sold to [redacted] for international flights leaving [redacted] in November 2016.[30] This Table illustrates that premium flight catering products provided to front cabin passengers are [redacted] than standard flight catering products provided to economy passengers. The contrast between the descriptions of premium class foods (e.g., [redacted] etc.) and economy class foods (e.g., [redacted] etc.) provides a further indication that [redacted] and that airlines are unlikely to switch from freshly prepared meals to standard flight catering products following a SSNIP for premium flight catering products.[31]

---

[27] [redacted]

[28] [redacted]

[29] The cost of freshly prepared meals [redacted] the cost of frozen meals. Competition Tribunal, Witness Statement of Mark MacVittie, Air Canada, *Commissioner of Competition v. Vancouver Airport Authority*, CT-2016-015 (November 8, 2017) at ¶21 ("*MacVittie Statement*").

[30] I present expenditures [redacted] in Table 2 [redacted].

[31] [redacted]

Table 2: An Example of Catering Prices per Passenger from [redacted]

one possible dimension of substitution. Another possibility is that there could be a supply response at YVR from either a firm that only supplied standard catering products or from airlines choosing to self-supply. The question is whether firms that do not currently serve the premium flight catering market (but may be actively supplying standard catering products at YVR) could readily start supplying premium flight catering products to airlines following a SSNIP from existing catering providers.

45. Flight caterers already contract with off-airport caterers to provide pre-packaged foods, [redacted], at many airports [redacted].[32] [redacted] provision of premium flight catering products at YVR is a more complicated proposition because of congestion issues travelling to and from the airport. YVR is located near downtown Vancouver, which has been rated the fourth most congested city in North America, and the

[32] Competition Tribunal, Witness Statement of Ken Colangelo, Gate Gourmet Canada Inc., *Commissioner of Competition v. Vancouver Airport Authority,* CT-2016-015 (November 6, 2017) at ¶¶31, 33 ("*Colangelo Statement*"); *MacVittie Statement* at ¶28; Competition Tribunal, Witness Statement of Colin Murphy, WestJet, *Commissioner of Competition v. Vancouver Airport Authority*, CT-2016-015 (November 10, 2017) at ¶¶30, 41 ("*Murphy Statement*"); Competition Tribunal, Witness Statement of Geoffrey Lineham, Optimum Strategies Inc., *Commissioner of Competition v. Vancouver Airport Authority*, CT-2016-015 (November 12, 2017) at ¶27 ("*Lineham Statement*"). See also *Niels Report* at ¶2.87.

most congested city in Canada.[33] As described in [redacted], in order to respond to last-minute changes in passenger meal needs, which could impact YVR's ability to ensure on-time departures [redacted].[34] I am advised that, [redacted] to subcontracting with outside (and often not proximate) catering firms for pre-packaged or frozen food products, for a firm to successfully supply premium flight catering products it must procure a location for a flight kitchen [redacted] and then make all the investments necessary to start up and operate the kitchen.[35] It is unlikely that a SSNIP for premium flight catering products would induce a firm supplying only standard flight catering products to make these investments; as already noted, there is already a [redacted] premium in the prices of premium flight catering products versus standard flight catering product prices even before a SSNIP for premium flight catering products. Similarly, an airline, even one that self-supplies standard galley handling products, is unlikely to make the investments necessary to self-supply premium flight catering products

[33] Tom Tom Traffic Index, available at https://www.tomtom.com/en_gb/trafficindex/list (last visited Dec. 5, 2017).

[34] [redacted]

[35] See, e.g., Competition Tribunal, Witness Statement of Jonathan Stent-Torriani, Newrest Group Holding S.A., *Commissioner of Competition v. Vancouver Airport Authority*, CT-2016-015 (November 10, 2017) at ¶¶34–35 ("*Stent-Torriani Statement*") ("Newrest has not encountered any significant logistical, operational or other difficulties in satisfying airline expectations for providers of inflight catering services as a result of Newrest's facilities in Canada being located off-airport, or otherwise.... Newrest conducts a rigorous analysis to ensure that a prospective off-airport facility location will allow Newrest to meet airline requirements. This includes, for example, timed drives from the facility to the airport's airside access gate at various times of the day, on various days of the week and in a range of traffic situations. As a result of this due diligence, Newrest consistently meets the rigorous level-of-service requirements set out in its contracts with airline customers in Canada." Ellipses added). [redacted]

in response to a SSNIP.[36] The cost of establishing flight kitchen facilities [redacted] to self-supply premium flight catering products would be substantial.[37]

46. One last potential avenue for substitution in response to a SSNIP for premium flight catering products at YVR is that airlines might engage in more double catering. The Commissioner defines double catering as "transporting extra meals and ancillary supplies from one airport for service during a flight departing a second airport."[38] While double catering is feasible for some standard flight catering products on some flights, it is unlikely to be an option for the freshly prepared meals that characterize premium flight catering.[39]

47. Considering all of these dimensions of substitution together, there is unlikely to be enough substitution away from premium catering products in response to a price increase to constrain a hypothetical monopolist over premium catering products at YVR from profitably raising prices by a SSNIP. Consequently, I conclude that premium flight catering at YVR is a relevant market.

48. This question of whether premium flight catering is a separate product market from standard flight catering at YVR is not merely hypothetical. When VAA was evaluating whether to authorize a third firm to provide flight catering in 2014, I am advised by counsel that VAA considered the likelihood that one of the existing full-service, on-airport flight caterers would no longer be profitable and would exit the market if a third caterer providing only standard catering services was authorized. Part of the concern was that exit might reduce the number of firms supplying premium flight catering products at YVR from two to one, eliminating direct competition between premium flight catering suppliers, while not increasing competition at YVR for standard flight catering products.[40] If premium flight

---

[36] For instance, when WestJet identified the opportunity to expand their food and snack offerings after the acquisition of Boeing 737 MAX aircrafts, it recognized that it would need to make capital investment at their Air Supply facilities to serve these needs. *Murphy Statement* at ¶34. [redacted]

[37] Competition Tribunal, Witness Statement of Rhonda Bishop, Jazz Aviation LP, *Commissioner of Competition v. Vancouver Airport Authority*, CT-2016-015 (November 10, 2017) [redacted]

[38] *Notice of Application* at ¶17.

[39] I note that Dr. Niels seems to come to the same conclusion. *Niels Report* at ¶2.78.

[40] Responding to a second-round request for flight catering access from Newrest, Craig Richmond of VAA noted that [redacted]

catering is a separate product market at YVR, then the remaining premium flight catering supplier would be able to raise prices to its customers by at least a SSNIP if exit were to occur. The fact that this was a concern to VAA indicates that it did not believe there would be sufficient substitution to restrain the sole remaining full-service flight caterer (i.e., which provided both standard and premium flight catering) from raising prices for premium flight catering services, which provides a further indication that premium flight catering is a separate relevant product market.

49. This discussion highlights the value of choosing appropriate relevant product markets that reflect important issues of substitution among the products and services at issue. Because Dr. Niels puts all firms that provide delivery and loading of flight catering products into a single product market, he does not focus on distinctions between those firms. In particular, he says repeatedly in his report that if it were true that the market can only support two firms, then the market should determine which two firms.[41] But Dr. Niels does not discuss the fact that not all firms that provide flight catering services are similarly situated with respect to offering premium flight catering products, and that VAA had a concern that entry of a firm that only intended to supply standard flight catering products might eliminate competition for premium flight catering products.

2. Standard flight catering at YVR may not be a relevant antitrust market

50. Next, I consider whether a hypothetical monopolist of standard flight catering products at YVR would be able to profitably maintain prices above competitive levels. In particular, would self-supply, reduction in purchases, and double catering constrain a hypothetical monopolist from raising prices for standard flight catering products at YVR? I conclude that the substitution opportunities are greater for standard catering products than for premium catering products, and may be sufficient to constrain an exercise of market power for standard flight catering products at YVR.

[redacted] Letter from Craig Richmond (August 21, 2015), YVR00005230–5231. Moreover, Strategic said in its catering licence proposal to the VAA that [redacted] This statement suggests that [redacted]

[41] *Niels Report* at ¶¶1.20, 1.36, 3.11, 3.101.

51. Looking first at double catering, this can be thought of as an airline substituting delivery, loading, and related services at one airport with services at airports at the other end of route segments. Thus the question about the ability of double catering to constrain an exercise of market power is a question of geographic market definition: should the relevant geographic market for flight catering be limited to YVR, or can airlines substitute to flight catering at other airports via double catering in response to a SSNIP? The extent of substitution differs between products, as Dr. Niels acknowledges: "Double catering may be feasible for non-perishable products. However, it is likely to be less so for perishable items."[42] Hence the threat of increasing the use of double catering is more likely to constrain pricing of standard flight catering products than the prices of premium flight catering products.

52. Turning to self-supply, the question is whether airlines participate in the market for flight catering products through a supply response.[43] Firms that can enter without significant sunk investments can constrain a price increase by entering the market and diverting sales away from existing suppliers.[44] Here, an airline could choose to self-supply rather than paying higher prices to a firm that supplies standard flight catering products. The question is whether they would do so in response to a SSNIP.

53. Perhaps the best evidence on this point is the fact that airlines have chosen to self-supply at YVR in recent years; past buyer choices are one of the key pieces of evidence used to inform buyer substitution.[45] The fact that airlines have done self-supply at YVR, and in particular that WestJet did until recently, [redacted]

[42] *Niels Report* at ¶2.78.

[43] Competition Bureau, *Merger Enforcement Guidelines* (October 6, 2011) at ¶¶5.1, 5.7 ("When engaged in a market definition exercise, the Bureau identifies participants in a relevant market to determine market shares and concentration levels. Such participants include (1) current sellers of the relevant products in the relevant geographic markets and (2) sellers that would begin selling the relevant products in the relevant geographic markets if the price were to rise by a SSNIP. In the latter case, the Bureau considers a firm to be a participant in a relevant market when it does not require significant sunk investments to enter or exit the market and would be able to rapidly and profitably divert existing sales or capacity to begin supplying the market in response to a SSNIP (a 'supply response').").

[44] As referenced earlier, participation in the provision of premium flight catering products would require significant sunk investments in [redacted] flight kitchen.

[45] Baker, *supra* note 22 at 139. See also Competition Bureau, *The Abuse of Dominance Provisions: Sections 78 and 79 of the Competition Act Enforcement Guidelines* (September 20, 2012) at §2.1A ("Whether buyers substituted between products in the past, and whether they plan to do so in the future, can provide an indication of whether a price increase is sustainable.").

[redacted],[46] suggest that self-supply would be a credible threat to constrain a price increase for standard flight catering products. Once again, the supply alternatives available to airlines for standard flight catering products are more likely to constrain a price increase for those products than for premium flight catering products.

54. As a more limited form of self-supply, airlines are able to source food products themselves by dealing directly with catering or food service suppliers, then have those items delivered to a firm that provides galley handling services to the airline. By dealing with catering firms themselves, airlines can save on flight catering expenditures as well as port fees.[47] This flexibility constrains the ability to raise prices for standard catering products, since an increase in catering prices will induce airlines to buy only galley handling services rather than food products combined with galley handling, thus reducing flight caterer demand. Note that this option is feasible for pre-packaged foods, but is less likely to be so for premium flight catering products given the need for a nearby flight kitchen to prepare premium flight catering products.

55. With respect to standard flight catering, there appears to be sufficient opportunities for substitution that a hypothetical monopolist over standard catering products at YVR may not be able to profitably raise prices by a SSNIP. That is, the demand that would switch to various forms of self-supply, double catering, or reduced purchases of flight catering generally could be sufficient to make a SSNIP unprofitable. Accordingly, standard flight catering at YVR is unlikely to be a relevant antitrust market.

---

[46] WestJet self-supplied standard flight catering products—including the sourcing, warehousing, preparation, and delivery of these products—at many airports across Canada until a decision to contract Optimum Solutions for [redacted] in 2013. *Murphy Statement* at ¶¶27–30. Since then, WestJet also outsourced all of the Galley Handling components of this market to Gate Gourmet [redacted] *Murphy Statement* at ¶¶33–36. Note that airlines can self-supply galley handling functions that require airside access, while contracting with catering firms to provide pre-packaged food, as WestJet did with Optimum Solutions. See *Murphy Statement* at ¶24; [redacted]

[47] [redacted] *Brown Statement* at ¶13.

56. To support this, it is helpful to draw upon critical loss analysis. Assume that firms earn a [redacted] variable cost margin on standard flight catering products and services.[48] Then a 5% SSNIP would be unprofitable with a loss of [redacted] of demand.[49] One large airline choosing to self-supply in response to a SSNIP would provide much of that [redacted] loss in demand. For example, [redacted] carried [redacted] of passengers at YVR in 2016.[50] As noted above, airlines can also reduce standard flight catering purchases in response to a price increase by procuring food directly and using flight caterers only for loading, delivery, and related services. With respect to double catering and reducing demand, Figure 2.8 in the *Niels Report* indicates that for airlines other than WestJet, 36.2% of YVR flights lasting no more than 200 minutes (3⅓ hours) use either double catering or no flight catering.[51] While not all flights can be double catered due to airplane routing, time of day, and other considerations, a suhstantial number can: for example, [redacted] estimates that [redacted] of its domestic flights out of YVR can be double catered.[52] These numbers suggest that there is room for double catering to increase in response to a SSNIP at YVR. Altogether there appears to be enough opportunity for substitution between these various forms of self-supply, demand reduction, and double catering to make a SSNIP unprofitable.

3. Market participants and VAA's position in the flight catering market

57. As Dr. Niels states, it is uncontroversial that VAA is not a market participant in the Catering and Galley Handling markets at YVR.[53] It is also uncontroversial that provision of flight catering products and services at YVR, other than by airlines themselves, requires authorization for airside access that can only be provided by VAA. In that sense, VAA can be thought of as the supplier of a significant input needed by third-party suppliers of flight

---

[48] As noted by Dr. Niels, the flight kitchen financial data is insufficient to separately compute variable cost margins for catering and galley handling. See *Niels Report* at ¶2.95. The [redacted] variable cost margin [redacted]

[49] If M is the margin, then the formula is (Critical Loss %) = $0.05/(M + 0.05)$. With $M =$ [redacted], this is $0.05/$[redacted] $+ 0.05) =$ [redacted]. See Michael L. Katz and Carl Shapiro, "Critical Loss Analysis: Let's Tell the Whole Story," *Antitrust* 49 (Spring 2003) at 50.

[50] [redacted]

[51] *Niels Report* at Figure 2.8. WestJet is excluded because it used self-supply in the timeframe reflected in these data.

[52] [redacted]

[53] *Niels Report* at ¶2.96.

catering products at YVR. While VAA is a supplier of a significant input for firms providing flight catering services, VAA does not set the prices for flight catering products. Moreover, as acknowledged by Dr. Niels, [redacted][55] In Section VI, I discuss whether VAA's control over airside access at YVR has resulted in any substantial lessening of competition, and conclude that there has not been any substantial lessening of competition at YVR.

58. In the end, whether or not VAA has control in the Catering and Galley Handling markets (as defined by the Commissioner) by virtue of its control over airside access at YVR is of no moment if VAA is not engaged in a practice of anticompetitive acts, and its actions have not substantially lessened competition. As my conclusions do not hinge on resolving this issue, for argument's sake, in the remainder of my report I will assume that a firm that supplies a significant input can substantially control a market in which it does not compete, in the sense required for section 79 of the *Competition Act*.[56]

59. With this assumption, as I have concluded that premium flight catering at YVR is a relevant antitrust market, then VAA would be considered to have "control" over the provision of premium flight catering services at YVR by virtue of its control over a key input required to provide premium flight catering services at YVR. However, standard catering services at YVR appear unlikely to be a relevant antitrust market, in which case VAA would not have control over standard flight catering services. However, even if the Tribunal were to conclude that VAA's control over airside access at YVR provides it with control over the provision of standard catering services at YVR (in addition to having control over the provision of premium flight catering services at YVR), this would not change my opinion that VAA's actions are not anticompetitive acts and they have not lessened or prevented competition in either premium flight catering services or standard flight catering services at YVR.

[54] *Niels Report* at ¶¶3.34–37.
[55] *Niels Report* at ¶3.43.
[56] *TREB* at ¶179.

B. OTHER MARKETS DISCUSSED BY DR. NIELS

60. Dr. Niels discusses two other purported relevant markets in his report. One, which is also identified in the *Notice of Application*, is the market for airside access for providers of in-flight catering. However, it is not necessary to define such a market in order to analyze whether control of airside access gives VAA substantial control in the downstream market for flight catering; no corresponding upstream relevant market was defined in *TREB*. Accordingly, I do not analyze the market for airside access.

61. Dr. Niels also analyzes the airports market in which YVR participates. As he states, the goal is to determine, "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."[57] The answer to the question of whether airport competition would constrain VAA's decisions about providing airside access to firms in the flight catering market depends on VAA's alleged purpose in controlling flight catering markets. I discuss VAA's purpose extensively in the next section. For now, I note that, based on the *Niels Report* and the allegations made by the Commissioner in the *Notice of Application*, it would appear that the Commissioner is alleging that the purpose behind VAA's actions was to increase the revenues collected from fees and rents charged to Galley Handling providers. Assuming this is the purpose behind VAA's actions, then as a matter of economics, competition between airports for airline service cannot constrain VAA's behaviour in the flight catering market. The reason is that, if it is assumed that VAA's purpose is to extract revenue from the flight catering market, VAA can do this while simultaneously reducing other fees paid by airlines such that airlines are no worse off and airport competition is unaffected. For example, suppose that VAA wanted to increase flight catering fees and rents by 10%, and that this increase was fully passed on to airlines through higher flight catering prices. Given that VAA's flight catering revenues in 2016 were about [redacted], this would amount to an increase of [redacted] per year. Meanwhile, as shown in Table 1, the terminal and landing fees paid by airlines to VAA in 2016 were [redacted]. Thus a [redacted] decrease in terminal and landing fees would fully compensate airlines for the hypothetical 10% increase in flight catering fees.[58] By way of

[57] *Niels Report* at ¶2.15.

[58] A decrease in terminal and landing fees of [redacted] would save airlines [redacted] per year, more than the [redacted] per year cost of a hypothetical 10% increase in flight catering fees and rents.

comparison, in 2016 VAA introduced the ConnectYVR program, which as described by VAA's 2016 *Annual Report* lowered airline rates for terminal and landing fees by 15%.[59]

62. To the extent that competition between airports is an issue, I note that the analysis that Dr. Niels has done is not informative about that competition as it pertains to VAA. Dr. Niels describes VAA's arguments about airport competition as follows: "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."[60] Thus, VAA alleges that it is engaged in competition with other airports for airline routes, or for destinations. Dr. Niels instead studies the potential for substitution by international connecting passengers.[61] Not only does this ignore the competition for airline service, but it tends to give the wrong answer about that competition.

63. To illustrate this point, consider Sichuan Airlines, which launched new service between YVR and Zhengzhou on November 11, 2016.[62] As far as I am aware, neither Sichuan Airlines nor any other carrier flies directly between Zhengzhou and Seattle. While I do not have any information on the alternatives considered by Sichuan Airlines, for the purposes of this illustration one can think of Sichuan Airlines as making a choice between North American gateway airports, and choosing to fly to YVR rather than to Seattle or another airport. Because Sichuan Airlines chose Vancouver *instead* of Seattle, a Pacific Rim transfer passenger (as defined by Dr. Niels) flying from Zhengzhou to destinations beyond Vancouver would not have the alternative of flying through Seattle on Sichuan Airlines. Dr. Niels treats this as an example of a lack of competition between Vancouver and Seattle, despite the fact that Vancouver and Seattle had indeed competed to gain Sichuan Airlines' business.

64. Now suppose instead that Sichuan Airlines had decided to launch service to *both* Seattle and Vancouver. Sichuan's choice to launch service to both Seattle and Vancouver necessarily means that there was no competition between the airports for Sichuan's flights to and from Zhengzhou. In that case, Pacific Rim transfer passengers would be able to fly to either hub. Dr. Niels would measure that as potential substitution (and therefore competition) between

[59] *VAA 2016 Annual Report* at 12.
[60] *Niels Report* at ¶2.14.
[61] *Niels Report* at ¶¶2.39–2.57.
[62] *VAA 2016 Annual Report* at 52.

Vancouver and Seattle, when in fact there had been no competition between the airports for Sichuan Airlines' new route. In short, Dr. Niels' analysis of transfer passenger substitution records as potential competition instances when there was, in fact, no competition for airline service and, conversely, records as lack of competition instances when there was, indeed, competition for airline service.

65. Thus, by focussing his analysis on whether a passenger can substitute flights to other airports in place of flying to Vancouver, Dr. Niels is measuring the wrong thing and, as a result, his analysis produces the wrong answer. A proper analysis of the type of competition to attract major international airlines described by VAA would analyze network expansion decisions made by airlines, not customer choices given a fixed route structure.

C. SUMMARY

66. The relevant market in which VAA is alleged to have "the purpose and effect of an intended negative effect on competitors that is exclusionary" is the market for the supply of Galley Handling at YVR.[63] Accordingly, I focus my analysis in this section on the various products and services offered by flight caterers that supply galley handling services. Based on considerations of demand substitution, which is the central element of market definition, I conclude that it is appropriate to divide the products and services provided by flight caterers into premium flight catering and standard flight catering, as defined in this section.[64] Because airlines have limited substitution possibilities for premium flight catering products, premium flight catering at YVR is a relevant antitrust market. The greater substitution opportunities for standard flight catering (including self-supply, contracting separately for pre-packaged food and non-food products, reduced demand and/or shifting to less expensive alternatives, and double catering) make it questionable whether standard flight catering at YVR is a relevant antitrust market.

[63] *Notice of Application*, Schedule "A" Concise Statement of Economic Theory at ¶¶2–3.

[64] In contrast, Dr. Niels raises, though does not answer, the question of whether Galley Handling and Catering are separate relevant product markets. Since there is no demand substitution between galley handling and food, this question is not particularly interesting for assessing competitive effects (and Dr. Niels appears to agree with that point) although I would add that, because there is no demand substitution, it seems clear to me that if defined in the manner suggested by the Commissioner in his *Notice of Application*, Galley Handling and Catering would be in separate relevant product markets. See *Niels Report* at ¶¶2.84–2.95.

67. In my analysis of whether VAA has engaged in a practice of anticompetitive acts and whether those actions have led to a substantial lessening of competition, I have assumed that a firm that supplies a significant input can substantially control a market in which it does not compete, in the sense required for section 79 of the *Competition Act*. Since VAA controls airside access at YVR, and since premium flight catering at YVR is a relevant antitrust market, VAA would have control over the premium flight catering market. However, it is far less clear that standard flight catering at YVR is a relevant antitrust product and geographic market, and therefore it is unclear whether control over airside access at YVR gives VAA substantial control over standard flight catering products and services.

IV. THE REVENUES COLLECTED FROM CATERERS DO NOT PROVIDE VAA WITH AN INCENTIVE TO LIMIT COMPETITION IN THE FLIGHT CATERING MARKET

A. INTRODUCTION

68. In the *TREB* decision, the Competition Tribunal recognized that the typical interest of a supplier is in cultivating downstream competition for its goods or services.[65] In light of this, in order to establish that a supplier that does not compete in a downstream market has engaged in anti-competitive acts in the downstream market, the *TREB* decision states that "the Commissioner will be required to satisfy the Tribunal that the respondent has a plausible *competitive interest* in the market."[66]

69. The *Notice of Application* asserts that VAA has a plausible competitive interest in the Galley Handling market by virtue of the fact that it shares in the revenues earned by Catering and Galley Handling firms through the rents and airside access fees (sometimes called "port fees" or "concession fees") that they pay to VAA.[67] Similarly, the *Niels Report* suggests that VAA may have an incentive to restrict competition in the Galley Handling market, because that may enable the existing service providers to "achieve higher revenues than they would

[65] *TREB* at ¶281.
[66] *TREB* at ¶279 (emphasis in original).
[67] *Notice of Application* at ¶¶45–47.

otherwise," which in turn "increases the profitability of the airport through the licence fee arrangement."[68]

70. However, as I show in this section, VAA does not benefit from protecting incumbent flight catering firms from competition despite the fact that it receives a share of flight catering revenues.

71. In order to consider whether the revenues it collects from flight caterers provide it with an incentive to restrict competition in the flight catering market, it is necessary to take into account VAA's objectives. Ordinarily in abuse of dominance cases the alleged dominant firm is a for-profit entity that competes in the market where the substantial lessening of competition occurs, and its objective is not an issue: a for-profit firm is assumed to maximize profits. However, in this proceeding, the alleged dominant firm is a not-for-profit entity which does not compete or have any connections with flight caterers within the market where the alleged substantial lessening of competition occurs. VAA's mandate is to operate in the public interest. Since operating in the public interest would appear to be inconsistent with committing an abuse of dominance contrary to section 79 of the *Competition Act*, I consider whether VAA may have departed from its public interest objectives. Since neither the Commissioner nor Dr. Niels addresses this question, I will explore three possible objectives for VAA to see which appears to be most consistent with the allegations in this case.

72. One possibility is that VAA, instead of acting in the public interest, is acting on behalf of incumbent downstream firms, in the same way that the Toronto Real Estate Board was alleged to be acting on behalf of some of its members in *TREB*. However, I am advised by counsel that the Commissioner has not challenged VAA's contention that it has no connection to, or interest in, flight catering firms.[69] Moreover, there are a multitude of incumbent suppliers of all sorts of products and services at YVR from which VAA earns rents and fees, yet to the best of my knowledge, the Commissioner has not alleged that VAA has an interest in restricting competition on behalf of incumbent suppliers for any of those other services. Thus, it does not appear that the Commissioner is alleging that VAA is acting on behalf of incumbent flight caterers.

[68] *Niels Report* at ¶¶2.106–2.107.
[69] *VAA Response* at ¶23 and ¶83.

73. The remaining two possibilities are variations on the theme that VAA has abandoned its public interest mandate to instead extract additional revenues through the various fees and rents it charges to airport participants.

74. One version of this theme is that VAA's objective is to extract additional revenues wherever it can throughout its operations. However, this possible objective is manifestly at odds with the measures of airport revenues and growth discussed in Section II. If VAA's objective is to extract additional revenues wherever it can throughout its operations, then it does a remarkably bad job of it, since other major airports in Canada earn more from fees and rents on either a per passenger or per flight basis, as shown in Figure 2. Recall the example of the ConnectYVR program,[70] in which VAA cut airline fees by 15% in order to foster airport growth and which appears to have cost VAA at least $7 million in terminal fees in 2016.[71] That does not sound like the kind of program that would be adopted if VAA's objectives were to increase revenues wherever possible.

75. Moreover, as just discussed, there are a number of complementary markets in which VAA controls either airside access, land on airport property, or space in the terminal. VAA could potentially exercise control in each of these markets by limiting competition in an attempt to raise revenues and fees. However, my understanding is that the Commissioner has not alleged an exercise of control in any of these other markets. On the contrary, when arguing that the alleged restriction of competition lacks business justification in the *Notice of Application*, the Commissioner contrasts the Galley Handling market with ground handling, in which "VAA places no restriction on the number of firms it permits to access the airside."[72]

76. Accordingly, it does not seem plausible that VAA's objective is extract additional revenues wherever it can throughout its operations.

77. The second variation on the theme of VAA departing from its public interest mandate in order to extract additional revenues is that VAA operates in the public interest throughout its operations except when it comes to flight catering, where it seeks to increase the revenues it earns from fees and rents. I am not aware of any reason as to why VAA should

[70] *VAA 2016 Annual Report* at 12.
[71] *VAA 2016 Annual Report* at 156. From Table 1, Terminal Fees decreased from $91.741 million in 2015 to $84.883 million in 2016 despite increased airport usage.
[72] *Notice of Application* at ¶49.

single out this one corner of its operations in which to extract additional revenues through an exercise of dominance. That VAA should have such a motivation seems particularly hard to believe in light of the fact that the fees and rents from flight catering suppliers comprise only about [redacted] of VAA's total revenues.[73]

78. Nonetheless, despite the arbitrariness of supposing that VAA has abandoned its public interest mandate only with respect to flight catering fees and rents, that appears to be the objective that is most consistent with the Commissioner's allegations, as I understand them. Accordingly, throughout this report I have presumed that VAA is acting in order to extract additional revenues from flight caterers, while still trying to keep fees to airlines and customers low across the rest of its operations at YVR.

B. THE ALLEGED ANTICOMPETITIVE CONDUCT IS INCONSISTENT WITH RATIONAL ECONOMIC BEHAVIOUR

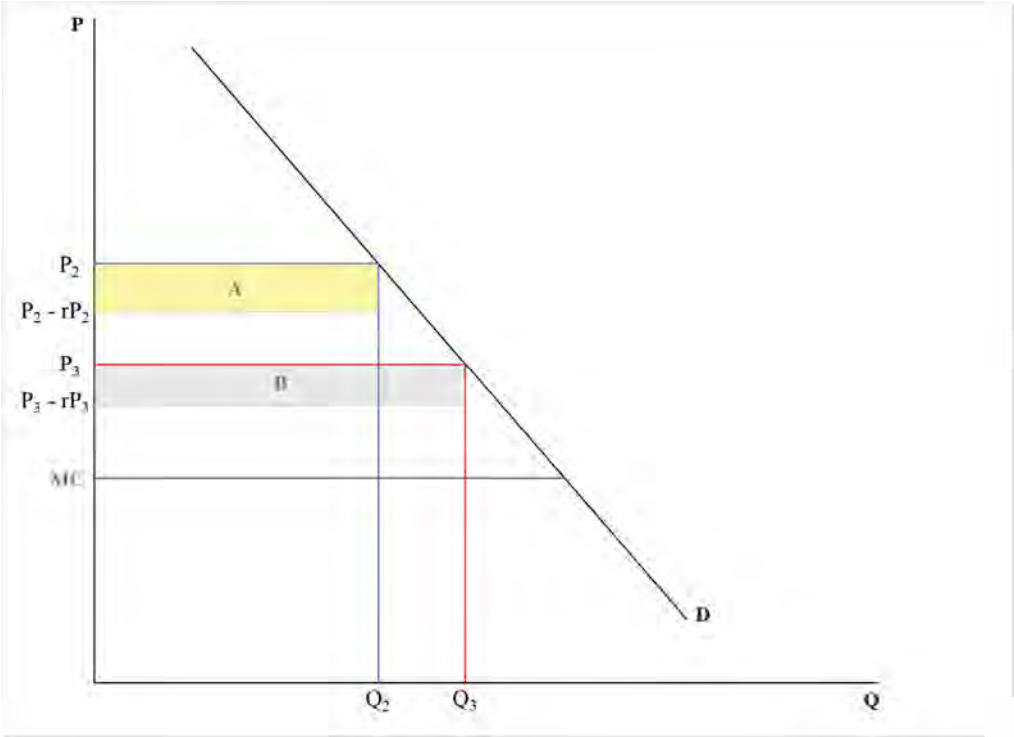
79. The Commissioner alleges that VAA has substantial control over the market for Galley Handling through its control of airside access, including the ability to restrict entry, to increase port fees, to require catering firms to lease land from VAA for the operation of kitchens and to charge rent for those facilities.[74] The question I turn to next is whether VAA, operating as a rational economic agent,[75] with the goal of maximizing the rents and fees it collects from flight catering services, and with the asserted degree of control over flight catering providers, would have any incentive to limit flight catering competition at YVR. For the reasons discussed below, the answer to that question is, No.[76]

80. The reason that Dr. Niels presents to explain why VAA might restrict entry is that total flight catering revenues could be higher with fewer suppliers than with additional suppliers, with the higher revenues leading to higher total fees being paid by the suppliers to VAA.[77] I

[73] See *supra* note 10.
[74] *Notice of Application* at ¶¶32–34.
[75] See Herbert Hovenkamp, *The Antitrust Enterprise: Principles and Execution* (Harvard University Press 2008) at 134, 310 ("The entire antitrust enterprise is dedicated to the proposition that business firms behave rationally." This proposition is applied to the irrationality of monopolizing aftermarket repairs if third party repair technicians are more efficient.) This presumption of rationality has been adapted generally as the basis for the "no economic sense" test for abuse of dominance. See Gregory J. Werden, "Identifying Exclusionary Conduct Under Section 2: The 'No Economic Sense' Test," 73 *Antitrust Law Journal* 413 (2006).
[76] While the question is framed in terms of VAA and the flight catering market, the result applies generally to any monopolistic supplier of an essential input for a downstream market in which it does not compete, where the supplier charges two-part tariffs, such as those charged by VAA, to its downstream customers.
[77] *Niels Report* at ¶2.106.

depict this situation in Figure 5. With three flight catering firms in the market, the market price for a representative good is P_3 and market output is Q_3. VAA charges a percentage port fee of r and collects total port fees of rP_3Q_3, which is the grey-shaded area "B". Suppose that with only two flight catering firms in the market, there is less intense competition, resulting in a higher price, P_2, for the representative good and a corresponding lower market output, Q_2. If the port fee is unchanged, VAA would earn total port fees of rP_2Q_2, which is the yellow-shaded area "A." With two firms, port fees will increase if market revenues are higher at (P_2, Q_2) than at (P_3, Q_3). If market revenues were higher at (P_2, Q_2) than at (P_3, Q_3), that means that the quantity demanded does not decrease much in response to the increase in price. This lack of response to a price change is equivalent to saying that demand is "inelastic" on the portion of the market demand curve between (P_2, Q_2) and (P_3, Q_3).[78]

Figure 5: Market Prices and Port Fee Revenues



81. In other words, an essential assumption in Dr. Niels' rationale for plausible competitive interest is that total flight revenues would increase via a higher price from having fewer suppliers. This assumption requires that flight catering demand at YVR be inelastic.

[78] Jeffery Perloff, *Microeconomics* (Addison Wesley 2012, 6th edition) at 49, 357.

However, as I explain next, flight catering demand at YVR would never be inelastic at the current price if the goal of VAA were to maximize port fee revenues.

82. To see this, note first that, under Dr. Niels' assumption, VAA could get a double benefit from raising the port fee rate, since a higher port fee rate would also result in higher market prices.[79] Both of these factors (the higher port fee rate and higher prices) would increase VAA's total port fee revenues as long as market demand were inelastic. In other words, if consumers' demand for flight catering were relatively non-responsive to changes in price, VAA could increase its port fee revenues by simply charging higher port fee rates.

83. Accordingly, if VAA is a rational economic agent and if (as I have presumed) its objective is to maximize port fee revenues, then VAA would increase its port fee rate until market demand is sufficiently elastic to make any further port fee rate increases unprofitable. At that point, economic theory indicates that the profit-maximizing quantity would be on an *elastic* portion of the demand curve.[80]

84. But if demand is elastic, then revenues would not increase by restricting entry. With elastic demand, the exercise of additional market power (i.e., the imposition of higher prices) by flight catering incumbents would decrease VAA's port fee revenues because demand would drop in response to the higher prices. Accordingly, restricting entry would be of no benefit to VAA. In short, as long as VAA exercises control over flight caterers by setting the port fee rate, it derives no benefit by exercising further control through limiting entry of flight caterers.

85. Another element of Dr. Niels' theory is that there is room for additional entry, i.e., that a third flight catering supplier could enter the market without causing the exit of an incumbent firm.[81] However, under the assumptions that VAA seeks to maximize its revenues from the flight catering market, that it controls the market through fees and rents along with limiting entry, and that VAA is a rational economic agent, then a third firm could *not* successfully enter without causing the exit of an incumbent firm. The reason is that, for there to be room for a third firm, it would have to be the case that VAA was leaving money on the table, i.e., that it could be charging the incumbent firms higher rents and fees without

[79] To the extent that catering firms do not pass along the entire increase in port fees that would be even better for VAA since it would get the benefit of higher fees without as large a decrease in market output.
[80] This reflects the same logic as the familiar statement in economics textbooks that a monopolist always produces on the elastic portion of its demand curve.
[81] *Niels Report* at ¶1.34.

causing exit. Under the assumption that VAA is trying to extract as much revenue as possible from the flight catering market, it would achieve that by increasing rents and fees to the point that suppliers only make enough return to keep them in the market, but without sufficient margin such that they could weather entry by a third firm without becoming unprofitable.[82] Thus, presuming that VAA is motivated by a desire to maximize revenues from flight catering fees and rents (which is consistent with the Commissioner's assertion that VAA has an interest in restricting competition so that it can benefit from the greater revenues earned by the incumbent caterers), and presuming (consistent with standard economic analysis) that VAA is a rational economic actor, then it cannot follow that there is room for entry of a third caterer at the airport: there could only be room for entry of a third caterer if the incumbent firms were earning excess profits, but the incumbent firms could not have been earning excess profits, if VAA were maximizing its revenues from those firms by charging them the highest possible fees and rents. Accordingly, either Dr. Niels' opinion that there is room for a third caterer at the airport is incorrect, or VAA is not motivated by a desire to maximize revenues from flight caterers.

86. Moreover, Dr. Niels argues that even if the market could only support two catering firms, the market is "well placed" to determine which two firms survive. (This presumes that disruption costs from the exit of one supplier when it is displaced by an entrant are minimal, as Dr. Niels asserts.)[83]

87. However, if one operates with the same set of assumptions – i.e., that VAA controls the Galley Handling market through airside access, port fees, and rents; that VAA is seeking to maximize its revenues in that market; that VAA is a rational economic actor; and that there would be minimal disruption costs from new entry – then VAA would have no incentive to limit entry. Rather, based on those assumptions, VAA should be content to do just as Dr. Niels suggests – i.e., allow unlimited entry and allow the "competitive process" to determine which two providers survive.

88. To explain, entry by a more efficient provider that displaces a less efficient provider would, based upon the above-noted assumptions, benefit VAA, since VAA could then extract additional revenues from the new, more efficient competitor, since that more efficient entrant would earn higher profits, which would allow VAA to raise rents and fees for that

[82] More precisely, the least profitable incumbent would become unprofitable following entry.
[83] *Niels Report* at ¶¶3.11, 3.13.

entrant, capturing a share of these additional profits, without driving the entrant out of the market.[84]

89. Once again, the market conditions that are presumed in Dr. Niels' analysis are inconsistent with VAA having an objective of maximizing the revenues it gets from the catering market and having various dimensions of control over that market.

90. This analysis can be taken one step further. Suppose it were the case that VAA seeks to increase the revenues it receives from flight caterers but, for whatever reason and despite its own assumed economic interests, VAA charges port fees and rents that are low enough that the flight catering market operates on the inelastic portion of the market demand curve (so that market revenues would decrease with lower prices) and incumbent firms are sufficiently profitable that they would continue to be profitable even with entry of a new competitor. Under those conditions, would VAA have an incentive to restrict entry of new flight caterers in order to increase revenue?

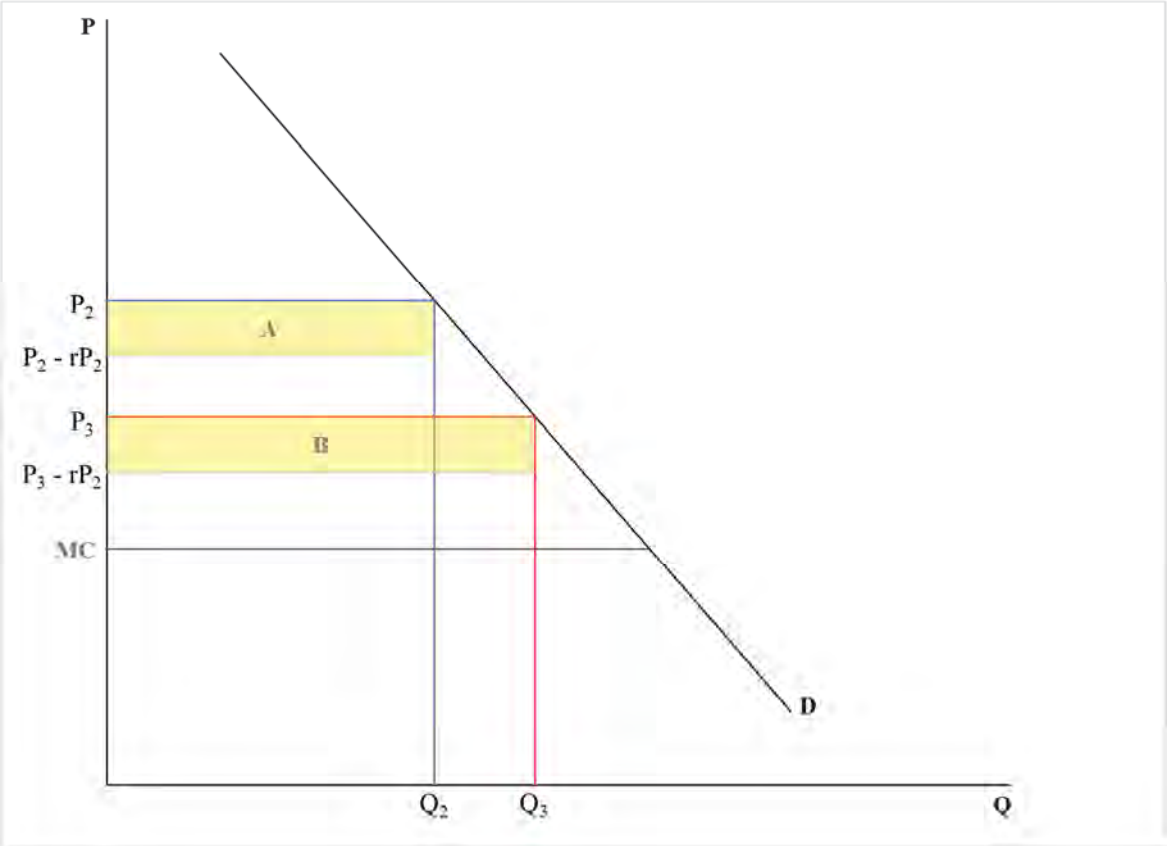
91. Once again, the answer is no. It still would not be in VAA's interest to limit competition in the flight catering market. The reason is that there is a simple, superior strategy that would generate at least as much revenue for VAA while being better for airlines and consumers – namely, as I explain below, VAA would allow additional entry and increase port fee rates slightly to make up for any loss in revenue that could arise from new entry.

92. To see this, consider Figure 6. This depicts the same market as in Figure 5, but reflects a modified port fee following entry. Prior to entry, VAA was receiving rP_2 on every unit of the representative good sold, and earned total port fees equal to the area of rectangle A. Now suppose that after entry the market price falls to P_3, and VAA adjusts the port fee rate to r^* so it receives the same amount of money for each unit of the representative good sold: $r^*P_3 = rP_2$, or $r^* = rP_2 / P_3$.[85]

[84] See Hovenkamp, *supra* note 75 at 310. The logic applies regardless of whether the entrant operates from [redacted] as long as VAA can charge a [redacted]

[85] For example, if the port fee rate is 5%, and market prices fall by on average [redacted] following entry, then the port fee rate would be increased to [redacted]

Figure 6: Port Fee Revenues with Adjusted Port Fee Rates



93. Figure 6 shows the port fee revenues following entry with the adjusted port fee rate. Since the height of rectangle B is, by construction, the same as the height of rectangle A, but the length of rectangle B is Q_3 rather than Q_2, the total port fees are higher following entry.[86] Meanwhile, the price to airlines for catering services falls, from P_2 to P_3.[87] Not only is this in the public interest, but to the extent that VAA is trying to increase its own revenues it is also good for VAA, since lowering prices to airlines will, on the margin, increase demand for flights at YVR, which leads to increased revenues through the various airport and complementary service fees. Thus VAA would never choose to restrict entry as an alternative to raising port fees. Accordingly, the revenues that it collects from caterers do not provide VAA with an incentive to limit competition in the flight catering market.

[86] If demand is completely inelastic, then as constructed the port fee revenues would be the same with or without entry. But with a slight further increase in the port fee rate, port fee revenues would increase following entry.

[87] The higher port fees post entry will tend to raise the post-entry price, but this effect is slight. In the example noted above, with market prices falling by [redacted] and the port fee rising from a 5% to [redacted] if flight caterers pass on the entire [redacted] increase then market prices will still fall by [redacted]

94. I note that the *Concise Statement of Economic Theory* included in the *VAA Response* states as follows:

> 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 at the Airport as alleged by the Commissioner, such a monopoly supplier of access 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 service providers.[88]

95. Dr. Niels addressed this point in his report.[89] He asserts that this general result, which is indicated by the economics literature, only applies if the downstream market is perfectly competitive. However, Dr. Niels' assertion is wrong; the interest of an upstream firm in ensuring a competitive and efficient downstream market applies whether the downstream market is perfectly or imperfectly competitive, as is shown in the economics literature and as I have just demonstrated.[90]

96. Although this conclusion that VAA is better off not excluding competitors follows as a matter of economic theory, it is useful to illustrate the analysis by using the approximate size of the flight catering market at YVR and the entry effect on prices discussed in the *Niels Report*.

97. Flight catering revenues from sales to [redacted] at YVR in 2014 were approximately [redacted].[91] With a 5% port fee, the port fee revenues received by VAA would be about [redacted], leaving [redacted] in net revenues for flight catering incumbents.[92] These pre-entry, base market revenues are shown in column 1 of Table 3. Now suppose that if

---

[88] *VAA Response*, Schedule A - Concise Statement of Economic Theory at ¶¶2.

[89] *Niels Report* at ¶¶2.103–2.105.

[90] See Michael L. Katz, "Vertical Contractual Relations," in *Handbook of Industrial Organization, Volume I*, (Richard Schmalensee and Robert D. Willig, eds., Elsevier Science Publishers 1989) at 677–89.

[91] These airline catering revenues are roughly consistent with 2014 catering revenues listed in the [redacted] as well as with [redacted], after applying VAA's port fee rate schedule. See [redacted]; PAMG00003_00000004 (Tab "DL_YVR"); PAMC00002_00000196 (Tab "2014"). In 2014, airline sales were assessed at the port fee rate of 5%. *VAA Response* at ¶38. Port fee rates on [redacted]. See MLHE00001_00000213 at -234; MLHE00001_00000001 at -4.

[92] Again, only revenues from [redacted] sales subject to the 5% port fee rate are included.

entry occurs, market prices on average would fall by [redacted] which is the number that Dr. Niels takes as the approximate implication of his empirical analysis.[93] The effect of this price reduction on revenues and port fees depends on the market demand elasticity; the more elastic is demand, the smaller the decline in revenues and port fees, as the loss from a price decrease is mitigated by an increase in the amount of flight catering products and services purchased at VAA. Column 2 of Table 3 shows the effects of entry, assuming that market demand is completely inelastic. In that case, the impact of entry is that, while airlines save [redacted] in catering costs, VAA loses [redacted] in port fees. Thus, the entire annual benefit to VAA from the alleged anticompetitive conduct, using what Dr. Niels estimates to be the impact on prices from entry, is at most a little less than [redacted], and even less if market demand is not completely inelastic.

Table 3: Impact of Flight Caterer Entry

	Base Market, Pre-entry	Post-entry Base fees	Post-entry Increased revenues	Post-entry Constant revenues
	(1)	(2)	(3)	(4)
Port fee rate	5%	5%	[redacted]	[redacted]
Catering revenues	[redacted]			
Port fee revenues				
Net revenues to caterers				
Change relative to base market:				
Savings to airlines		[redacted]		
Increase in port fee revenues				

98. The remaining columns calculate the impact on airlines and on VAA from alternative responses to entry by VAA.

[93] *Niels Report* at ¶3.87.

99. One alternative response to entry by VAA, the effects of which are shown in Column 3, would be for VAA to raise its port fee rate. As noted by Dr. Niels, the flight catering port fee rate currently charged by VAA is [redacted] range of rates charged by airport authorities across Canada.[94] Column 3 shows the impact of increasing the port fee rate to the midpoint of that range, [redacted] while allowing entry. The computation assumes that the entire impact of the increased fee is passed on in higher prices to airlines. (If flight caterers do not pass on the entire increase in port fees, then the outcome is even better for both airlines and VAA than what is shown in the table.) Relative to the pre-entry market, port fee revenues to VAA would increase by [redacted]. Meanwhile, airlines would save [redacted] in flight catering expenditures. Obviously this outcome is far better for VAA than limiting entry and not getting the benefit from increased competition.

100. Column 4 shows one further possible response by VAA, which would be for VAA to increase the port fee rate, but only just enough so that it earns the same flight catering port fee revenues that it earned prior to entry. The port fee rate that preserves port fee revenues at [redacted] is [redacted] which is a relatively [redacted] from the previous rate of 5%. Meanwhile, airlines would save close to [redacted] in flight catering expenditures.[95]

101. What these calculations show is that, under the Commissioner's theory and using the competitive effects estimated by Dr. Niels, VAA would be foregoing savings to airlines of [redacted] dollars in catering expenditures, as well as depriving them of the choice of an additional catering vendor, in order to get the same small increase in port fee revenues that could be collected by a small increase in the port fee rate. Such a course of conduct is not one that I would expect from a rational economic actor. Accordingly, the revenues earned from flight caterers do not provide VAA with an incentive to limit competition among flight caterers.

102. To summarize, Dr. Niels does no economic analysis or modeling to establish that the revenues that VAA earns from flight caterers function as an incentive to restrict competition in the flight catering market at YVR. All he says is that VAA gets a share of flight catering revenues through its port fee, which might give VAA an incentive to restrict competition in the flight catering market. However, I have shown that Dr. Niels' suggestion that VAA might

[94] *Niels Report* at ¶¶3.34–3.37 [redacted]

[95] Alternatively, VAA could allow entry, raise the port fee rate enough so that prices to airlines are the same as if entry did not occur, and retain the [redacted] for itself as incremental port fees. The port fee rate that accomplishes this is [redacted]

have an incentive to restrict competition in the flight catering market is unfounded for three primary reasons:

- Assuming VAA to be acting rationally and to be seeking to maximize fees and rents from flight catering (as Dr. Niels' theory requires), VAA would set port fee rates at a level such that restricting flight catering competition would reduce, rather than increase, flight catering revenues and port fees.
- Assuming VAA to be acting rationally and to be seeking to maximize fees and rents from flight catering (as Dr. Niels' theory requires), VAA would set rents and fees such that the incumbents would not be sufficiently profitable to withstand further entry. And, if Dr. Niels' assumption that disruption costs from the exit of a flight caterer are minimal is correct, then VAA would have an incentive to allow entry and allow the "competitive process" to determine which two providers survive.
- Even if VAA has set concession fees and land rents at a low enough level such that incumbents could survive an additional flight caterer entering the market, and even if such entry would decrease total flight catering revenues, VAA would always be better off allowing that entry (i.e., not restricting competition in the flight catering market) and making up for any resulting drop in revenues by raising the port fee rate.

103. Finally, applying the conclusion reached by Dr. Niels as to the price effects of restricted entry, and assuming that three flight caterers were viable at YVR in 2014, I show that limiting entry would have increased VAA's port fee revenues by less than [redacted] in 2014. In contrast, allowing entry would have generated an additional surplus of about [redacted], which VAA could have either retained through higher fees and rents or allowed to flow through to airlines in the form of lower flight catering prices. Consequently, there is no economic rationale for limiting entry to increase port fee revenues and, accordingly, in my opinion, the revenues earned from caterers did not provide VAA with an incentive to restrict competition in the flight catering market

V. EFFECTS OF PERMITTING ADDITIONAL ENTRY AT YVR

104. I understand that, in 2014, VAA rejected the applications of Newrest and Strategic to begin providing flight catering services at YVR. The reason that VAA gave at the time was that the YVR flight catering market was not big enough to support more than two full-service flight kitchens.[96]

[96] Letter from Craig Richmond (May 12, 2014), YVR00000176.

105. The *Flight Kitchen Market Report* indicates that VAA was concerned that the entry of an additional caterer would "[redacted]," which were still trying to recover from "major events such as 9-11 and SARS" and the adoption by the airline industry of a "Buy on Board format that immediately introduced competition from major outside food manufacturers." The *Report* describes VAA's reasoning as follows:

> The Airport Authority was concerned that the addition of a further in-flight catering operation during this period of declining or stagnant revenue growth would not generate more in-flight catering business at YVR, but rather would only serve to further destabilize the existing Flight Kitchen operations. A loss of Flight Kitchen operations at YVR would not only impact the competitive options to YVR's airline customers but also likely impact the efficiency and service levels.[97]

106. I understand that, in early 2017, VAA re-examined the flight catering market to consider, in particular, whether the market had grown sufficiently that it would be viable to have three competitors. I understand that VAA employees prepared [redacted] I am further advised that, as a result, VAA has conducted an RFP and has identified a third firm to supply flight catering at YVR.

107. In his expert report, Dr. Niels conducts an extensive analysis to determine whether, "levels of profitability are such that there may be room for a third competitor."[98] He concludes that, at least under some conditions, the market should now be able to sustain three operators.[99] In this regard, Dr. Niels' conclusions are more measured than those of VAA, which is already proceeding on the basis that three competitors would be viable and has identified the company that will be authorized to begin supplying flight catering at YVR.

108. Given that the parties are in agreement that the market can now support three competitors going forward, there is little reason to discuss that issue any further. Nevertheless, there are two related questions that I have been asked to consider. First, given the information

---

[97] [redacted]

[98] *Niels Report* at ¶3.8.

[99] *Niels Report* at ¶¶3.96–3.97.

available in 2014, was there a plausible concern that three competitors would not be viable and that the provision of flight catering services might suffer if entry was allowed? Second, looking at the market in 2018, is there a legitimate business justification for allowing entry by one, but not more than one, new entrant? I address these two questions in the remainder of this section, using the profitability analysis provided by Dr. Niels in his report.

A. DR. NIELS' ANALYSIS OF ENTRY PROFITABILITY

109. The *Niels Report* contains an extensive examination of historical Gate Gourmet and CLS profitability data through 2016.[100] Dr. Niels focuses on the EBITDA measure of profitability.[101] In addition to analysing the historical data, he also conducts an empirical analysis of what would be the range of EBITDA margins for sustainable operations, concluding that a range of [redacted] is "a reasonable benchmark range for the required EBITDA margin for sustainable operations", and that the lower bound of that range is conservative, in that sense that EBITDA margins somewhat below [redacted] may still be viable.[102]

110. Dr. Niels then uses flight catering accounting data to estimate fixed costs for a new entrant in the market and what those additional fixed costs imply for the average EBITDA margin for flight catering firms following entry.[103] He performs this analysis both for the historical period through 2016, using what he refers to as his "static analysis," and also projecting forward for the 2017-2020 period using what he refers to as his "dynamic analysis."[104]

111. I will use Dr. Niels' results to address the two questions raised above about the viability of flight catering competitors following entry. However, I must first discuss three important issues with Dr. Niels' methodology.

1. EBITDA margin of the least profitable supplier

112. First, *average* EBITDA margin is the wrong measure of profitability to use when looking at the impact of entry. If entry causes one firm to exit the market, the firm that exits the market would generally be the one that is the *least* profitable – i.e., that has the lowest EBITDA margin. Accordingly, VAA, as a rational economic actor, would not be concerned

[100] [redacted] The Gate Gourmet data start in 2011, while the CLS data start in 2012. *Niels Report* at ¶3.16.
[101] *Niels Report* at ¶3.17.
[102] *Niels Report* at ¶3.54.
[103] *Niels Report* at ¶3.70–3.91.
[104] *Niels Report* at ¶3.67.

about the profitability of the average firm, but of the least profitable firm, to see if it will remain viable following entry.

113. Looking at average profitability is in a sense the best case scenario for preserving all competitors because it implicitly assumes that no firm is below average. However, the reality in Vancouver is that the incumbent firms [redacted] profitability, and this [redacted] As shown in Figure 3.2 of the *Niels Report*, CLS has been [redacted] at YVR than Gate Gourmet. The average EBITDA margin for CLS over the 2012–2016 period, as reported by Dr. Niels has been about [redacted] while the average EBITDA margin for Gate Gourmet over the same period has been [redacted].[105] Moreover, the margin [redacted] over this period even though, as Dr. Niels notes, CLS' share of flight catering revenues has [redacted] with a corresponding [redacted] in share for Gate Gourmet.[106] In 2012 the EBITDA margin for Gate Gourmet [redacted] for CLS by [redacted] percentage points, while by 2016 the [redacted] percentage points.

114. Dr. Niels notes that his analysis of average margins does not require an assumption about how share divides among the incumbent firms and the entrant following entry.[107] However, this ignores the fact that the proper measure for examining survivability is not the effect of entry on average margins, but rather the effect of entry on the least profitable firm's margins. Such an analysis does indeed require taking into account the manner in which the share will divide among the incumbents and the new entrant and, specifically, the share that the less profitable incumbent firm will achieve.

115. In examining the impact of entry on the less profitable incumbent, I will adapt the results shown by Dr. Niels by assuming that entry has a similar impact on the profit margins of both incumbents. For example, if Dr. Niels concludes that entry would drive average profit margins down by four percentage points, then I will assume that both incumbent firms experience a four percentage point decline in their respective profit margins. This

[105] *Niels Report* at ¶3.24 (reporting CLS' average EBITDA margin). Using Dr. Niels' numbers, I calculate [redacted] See *Niels Report* at Figure 3.2. Moreover, [redacted] PAAH00031_00000464 at -469.

[106] *Niels Report* at ¶3.23 [redacted]

[107] *Niels Report* at ¶3.67.

corresponds to an assumption that the entrant captures a fair share of the total market by drawing share proportionately from each of the two incumbents.

2. Price effects of entry

116. The second issue concerns Dr. Niels' assumptions about price effects. He makes two different and seemingly inconsistent assumptions for his forward looking and backward looking analyses. When projecting future margins following entry, Dr. Niels applies a reduction in average flight catering prices of [redacted] resulting from entry, as noted above. But when examining but-for margins if entry had occurred in 2012 to 2016, Dr. Niels assumes there would have been no change in prices. Dr. Niels does not provide any explanation for this discrepancy, and I am not aware of any. The discrepancy in Dr. Niels' approach is all the more striking given the fact that, when estimating the future reduction in average flight catering prices, Dr. Niels uses historic data (from YVR and other airports) for the 2013-2016 period. Since he is projecting price effects based on historic data, that price effect should also be applied to the but-for market for 2012-2016. By assuming no price lowering effect in the historic but-for market, Dr. Niels is assuming a best case scenario for EBITDA margins and survivability of the incumbent caterers (and a worst case scenario for customers).

117. If there is a price effect from entry, the decrease in revenues would flow directly to the EBITDA margin: a [redacted] decline in prices and revenues would decrease the EBITDA margin by approximately [redacted] percentage points. This can be seen in the *Niels Report* by comparing the projected average margins for the year 2016 based on the "with kitchen" static model (which assumes no change in prices), with the projected average margins for the year 2017 based on the "with kitchen" dynamic model (which assumes that prices fall by [redacted] The projected range of average EBITDA margin for 2016 is between [redacted] while the projected range of average EBITDA margin for 2017 is [redacted] The difference between 2016 and 2017 margins is [redacted] percentage points, which is almost entirely attributed to the assumption that prices fall by [redacted] in the dynamic model, but do not fall in the static model.

118. In my discussion of the but-for EBITDA margins, I will use the results of Dr. Niels' static analysis, which assumes no price decrease.

[108] *Niels Report* at Figure 3.19, Figure 3.21. The results are comparable for an entrant [redacted]. See *id.* at Figure 3.18, Figure 3.20.

3. Costs for an entrant with no flight kitchen

119. The third issue concerns the approach that Dr. Niels takes to account for whether or not the entrant operates a flight kitchen. An entrant can choose whether or not to build its own flight kitchen. If it does not build a flight kitchen, then the food that would have been prepared in its own kitchen will instead be sourced from an external caterer that prepares food using its own facilities. The costs for an entrant with and without a flight kitchen reflect the trade-off between these two options. Not building and operating a flight kitchen saves some fixed costs. However, the variable cost of food sourced externally will be higher, since the price paid to the external caterer will cover not only the costs of material and labour, but also the markup that the caterer charges to cover its own facilities, overhead, and profit margin. Thus a flight caterer operating without a flight kitchen will have lower fixed costs but higher variable costs.

120. Dr. Niels takes account of the lower fixed costs for a flight caterer without a kitchen, but does not account for the resulting higher variable costs. Rather than accounting for this trade-off, Dr. Niels treats the entrant that does not build its own flight kitchen as if it has the best of both worlds—it saves fixed costs without any commensurate increase in variable costs. Under the cost assumption embedded in Dr. Niels' analysis, there is no reason for a flight caterer to ever build a flight kitchen, since the only impact of having a kitchen in-house is to add costs. As a consequence of this assumption, the projected EBITDA margins are too high in the "without flight kitchen" case.

121. The cost data underlying Dr. Niels' computations are from Gate Gourmet and CLS, which both operate flight kitchens at YVR. Thus the data reflect variable costs for a flight caterer that has a kitchen, but are uninformative about the variable costs of a flight caterer that does not have its own flight kitchen. There is no particular reason to think that the EBITDA margin for a firm without a flight kitchen is higher. In fact, the opposite is true: a firm that builds a flight kitchen needs to invest additional capital for those additional facilities, and would expect to get some return on that capital through a higher EBITDA margin.[109] Accordingly I find that Dr. Niels' projections based on purported costs of a flight caterer with no flight kitchen to be uninformative and unreliable.

[109] Meanwhile, a flight caterer without a flight kitchen pays some margin on each purchase to its caterer for the caterer's capital investments, which will tend to drive the EBITDA margin for the outsourcing flight caterer below that for a firm that prepares food in-house.

122. The effect of entry on incumbent firms need not depend on whether or not the entrant builds its own flight kitchen, particularly if the flight kitchen would be located off-airport. The competitive alternative provided by the entrant is only impacted by that make-or-buy decision to the extent that it affects the value of the entrant's product, and value could be higher or lower either way—nothing in the entrant's cost structure makes it inherently more or less competitive depending on whether or not it builds a flight kitchen. As long as the focus is on the effect of entry on the profitability of the incumbent firms rather than the profitability of the entrant, then it is not necessary to know the difference in costs and EBITDA margins for an entrant with or without a flight kitchen. Consequently, I only refer to Dr. Niels' results based on an entrant with a flight kitchen.

B. WAS ENTRY VIABLE IN 2014?

123. VAA originally considered a request to authorize an additional flight caterer in early 2014.[110] The primary information available to VAA would have been the revenues received by incumbent suppliers, since VAA receives port fees that are directly proportional to revenues. I understand that VAA does not have access to the flight caterers' accounting data. The analysis in the *Niels Report* can be used to determine what conclusions VAA would have drawn had it known the caterers' actual 2013 profits. But it is useful to first look at the information that VAA unquestionably had, which is flight caterer revenues.

124. The trends in flight caterer revenues in the decade prior to 2013 are shown in the [redacted] Thus flight caterer revenues dropped and then were essentially flat for about a decade.[112] This stagnation in flight catering revenues occurred amidst substantial growth in traffic at YVR. VAA revenues, which reflects overall airport activity, [redacted] Over the same time period, passenger volume at YVR increased by 9.4%, from 16.421 million to 17.972 million.[114] During this entire period YVR had two flight caterers, after a third flight caterer, LSG Sky Chefs, had exited the market in 2003, following the acquisition of its primary customer, Canadian

[110] Letter from Craig Richmond (May 12, 2014), YVR00000176.
[111] [redacted]
[112] Given inflation, revenues were declining in real terms.
[113] [redacted]
[114] *Id.*

Airlines, by Air Canada and the redirection of that catering business to CLS (which was Air Canada's preferred caterer at the time). That shift occurred during a period of declining demand for in-flight meals.

125. As of early 2014, the trends in flight caterer revenues seem consistent with VAA's understanding of flight caterers' difficulties in the past decade in staying profitable at YVR, [redacted]

126. Turning to profits, the EBITDA margin reported by Dr. Niels for CLS in 2013 was [redacted].[116] Dr. Niels notes that [redacted] However, if we are considering the justifiability of a decision made in early 2014, then it would seem reasonable to consider that decision based on the information that was in existence as at that time. Accordingly, I have evaluated the decision that was made in 2014 based on what was known at the time, using data through 2013.

127. Dr. Niels estimates that average EBITDA margins would have fallen from [redacted] to between [redacted] following entry by a flight caterer with a flight kitchen.[118] Using the midpoint of that range, average EBITDA margins would have fallen by about [redacted] Assuming that profit margins for both incumbents would fall by that amount, and given that [redacted] in 2013 was [redacted] entry would have reduced [redacted] to [redacted] even assuming (as Dr. Niels does) that entry would have no impact on market prices. If entry drove down average market prices by [redacted], the [redacted] would have [redacted].[119]

---

[115] [redacted]

[116] *Niels Report* at Figure 3.2.

[117] *Niels Report* at ¶3.25.

[118] *Niels Report* at Figure 3.19.

[119] Dr. Niels notes that the EBITDA margin for both Gate Gourmet and CLS [redacted]. *Niels Report* at ¶3.25. The average of the EBITDA margins [redacted] as reported by Dr. Niels was [redacted] Thus a [redacted] would have taken the average margin to [redacted] without any market price decease, and [redacted] any decrease in market prices following entry. This average post-entry margin is also [redacted] the viable range identified by Dr. Niels, so an inference based on a longer track record of profitability would also indicate that [redacted]

128. Accordingly, Dr. Niels' own analysis indicates that, in early 2014, there would have been good reason to question whether the incumbent caterers – and, in particular, the least profitable, CLS – would have remained viable had entry been permitted.

C. COSTS OF DISRUPTION

129. Dr. Niels asserts that, even if entry of one supplier led to the exit of another, it should be the market and not VAA that determines which firm remains in the market. However, there are two problems with this assertion. First, in saying this Dr. Niels dismisses out of hand the possibility that there would be substantial disruption costs when a flight caterer exited the market,[120] and does not provide any explanation as to the basis for his statement that "airlines would be well placed" to deal with the disruption resulting from the exit of a caterer.

130. Moreover, I am advised that this is contrary to what VAA believed at the time and continues to believe even now.

131. In addition, consider the transition costs experienced by airline [redacted] following their voluntary switch [redacted] for flight catering. It appears that the transition [redacted] led to a substantial increase in flight delays arising from catering delays at [redacted].[121] The transition costs and additional flight delays [redacted] impose upon itself parallel some of the disruption costs that would be imposed upon airlines at YVR if authorizing a new entrant led to exit of an incumbent flight caterer. The difference is that [redacted]. Other carriers that did not switch would experience disruption costs that they did not cause or choose. These disruption cost externalities imposed on other airlines also would not be taken into account by the airlines that switch or the new flight caterer(s) that enter the market.

---

[120] *Niels Report* at ¶3.13.

[121] [redacted] See also PDJF00007_00000987 and PDJF00007_00001189 (Noting disruption costs when Air Transat switched flight caterers at YYZ in 2016).

132. More generally, it has long been recognized in the economics literature that entry imposes an externality on existing firms, since entry decisions are based only on the gains received by the new entrant and its customers, and do not take into account the costs and losses imposed on other firms and customers.[122] Because VAA is operating under a public interest mandate, I would expect these costs imposed on other firms to be relevant for VAA's determination of the most effective mix of flight catering suppliers.

133. In addition to the costs of disruption from entry and subsequent exit, I am advised that VAA had a specific concern about the loss of competition in premium flight catering should entry by a firm offering only standard flight catering products displace one of the incumbent full-service flight caterers. Full-service flight caterers fund their overhead costs and much of their operating costs (such as the costs of the resources necessary for making deliveries to airplanes) through revenues earned on both premium flight catering products and standard flight catering products. Entry of a firm that only provides standard flight catering would reduce incumbent firm revenues and, given the joint cost structure, could be enough to make one of the incumbent full-service flight caterers unable to cover the costs of supplying the full range of products with an adequate return, leading to exit.

134. Should a firm that supplies only standard flight catering products displace a full-service flight caterer at YVR, only one premium flight catering supplier would remain in the market. As discussed in the previous section, I have determined that premium flight catering at YVR is a separate relevant antitrust market. Accordingly, the elimination of competition for premium flight catering products would likely enable the remaining supplier to raise prices by at least a SSNIP, to the detriment of customers. This is an externality to entry by a standard flight catering provider that would not factor into the entrant's decisions or those of its potential customers, but would have adverse consequences on other customers in the market.

135. I would expect this externality from entry by a standard catering firm to disproportionately harm the Pacific Rim airlines, which, I am advised, place a high value on offering premium

[122] Discussion of this externality from entry dates back at least to Vickrey (1964). See William S. Vickrey, *Microstatics* (Harcourt, Brace and World 1964) at 334–35. The tendency of this business stealing externality to produce excess entry has been studied under a variety of market structures and competitive dynamics. See Steven Salop, "Monopolistic Competition with Outside Goods," 10 *Bell Journal of Economics* 141 (1979) at 151; Michael Spence, "Product Selection, Fixed Costs, and Monopolistic Competition," 43 *The Review of Economic Studies* 217 (June 1976) at 230.

flight catering products.[123] These are airlines that I understand VAA actively seeks to attract. In fact, the loss of a premium flight caterer could incentivize these premium Pacific Rim airlines to launch future services at airports better suited to provide competitive premium flight catering products rather than launching service at YVR. I am advised by counsel that VAA considered this potential consequence of entry in 2014 when determining whether to allow entry by a firm providing only standard flight catering products.

D. [redacted]

136. [redacted]

137. Dr. Niels notes, without providing further analysis, that "it can be inferred [redacted] However, it is unclear on what basis Dr. Niels makes this inference. Taking [redacted] Thus, the proper inference from [redacted] More generally, [redacted] show that, based on information available in 2014, successful entry by a third flight caterer would likely have endangered

---

123 [redacted].

124 [redacted] PAMC00002_00000706 at -707; *Niels Report* at ¶3.58.

125 *Niels Report* at ¶3.61.

126 [redacted]

one of the incumbents, whether CLS or Gate Gourmet, depending on which airline customer(s) migrated to the entrant.[127]

E. EBITDA IMPACT OF TWO ENTRANTS

138. In light of VAA's decision to allow one further entrant, it is also of interest to determine whether the market is large enough to support further entry – i.e., whether the market is large enough now (or will be large enough in the near future) to support four or more competitors. This can be addressed using Dr. Niels' model of EBITDA margins following entry in the 2017-2020 period, but adjusting the calculations to allow for two entrants. The results are predictable, given that Dr. Niels finds that the evidence is inconclusive about whether the market could sustain even one entrant that operates its own flight kitchen.[128]

139. Intuitively, the effect of expanding from three to four suppliers can be seen by looking at Figure 3.19 in the *Niels Report*, which depicts the static analysis results for entry by a flight caterer with a flight kitchen for the years 2012–2016. (As discussed above, the results for entry by a flight caterer without a flight kitchen are erroneous, and I do not use them here.) The impact of entry is to add fixed costs to the market, which lowers the average EBITDA margin. Dr. Niels computes a low and a high estimate of the fixed entry costs. Using the low costs estimate, the average EBITDA margin for the year 2016 decreases from [redacted] a decrease of [redacted] percentage points. When using the high costs estimate, the average EBITDA margin decreases from [redacted] a decrease of [redacted] percentage points. Adding a fourth caterer adds additional fixed costs of the same magnitude, which, as shown below, lowers the average EBITDA margin across all four caterers by approximately the same percentage amount.

140. The impact of adding a fourth caterer on average EBITDA margins over the next several years can be computed by taking Dr. Niels' dynamic model, which forecasts average EBIDTA margins for 2017-2020 assuming there are three flight caterers in the market, and subtracting the incremental fixed costs of a fourth caterer.[129] With one entrant, Dr. Niels estimates an average 2017 EBITDA margin of between [redacted] (given the high estimate of

[127] [redacted]

[128] *Niels Report* at ¶¶3.89, 3.97.

[129] See *Niels Report* at Figure 3.21. I assume that the costs for the fourth caterer are identical to the costs for the new entrant in Dr. Niels' dynamic model with one entrant.

entry costs) and [redacted] (for the low estimate of entry costs). With high entry costs, entry of a second entrant lowers the average EBITDA margin for 2017 by about [redacted] percentage points, from [redacted] to (after rounding) [redacted] With low entry costs, entry of a second entrant lowers the average EBITDA margin for 2017 by about [redacted] percentage points, from [redacted] to (after rounding) [redacted]

141. The impact of entry by a second flight caterer on each year of Dr. Niels' dynamic model for 2017-2020 is shown in Figure 7. While Dr. Niels' own dynamic model is inconclusive about sustaining one new entrant with a kitchen, extending his model to analyzing two new entrants indicates clearly that permitting a second entrant would not be sustainable, with average EBITDA margins of [redacted] over the 2017-2020 period. This is well below Dr. Niels' benchmark range of [redacted] for sustainability.

Figure 7: Dynamic Analysis of Effects of Two New Entrants with Kitchens

[redacted]

142. Note two further things about this [redacted] range. First of all, it assumes that there is no further reduction in prices when going from three to four competitors; the only impact of

entry is to add costs to the market and to allocate share across four competitors rather than three. Conversely, if entry of a fourth caterer does lower prices, that would lead to a corresponding further reduction in EBITDA margins. Moreover, as discussed above, average EBITDA margin is the wrong measure to determine the impact of entry; VAA would have reasons to be concerned about exit of the least profitable competitor, not the average competitor. Given the [redacted], VAA would have good reason to be concerned that entry by two additional firms would drive down profits for the least profitable firm to the point where its participation in the YVR market is no longer sustainable.[130]

F. SUMMARY

143. In this section, using Dr. Niels' own analysis of flight caterer profitability, I have shown that there was a legitimate basis to be concerned that allowing entry in 2014 would have led to exit by one of the existing full-service flight caterers, resulting in market disruption and potentially a lack of competition for premium flight catering products. I have also shown (again using Dr. Niels' analysis of flight caterer profitability) that, while VAA has recently decided to allow additional entry, the market is not large enough to support a second additional entrant.

VI. VAA'S ACTIONS DID NOT RESULT IN A SUBSTANTIAL LESSENING OF COMPETITION FOR FLIGHT CATERING OR GALLEY HANDLING

144. The *Notice of Application* alleges that restricting entry in the flight catering market at YVR led to, among other things, higher prices and reduced innovation, while at other airports the entry of new competitors has led to lower prices.[131] With regard to prices, this allegation can be tested directly by comparing the prices for flight catering products at YVR and at other airports after controlling for product, airline, and other differences across airports, to determine whether prices at YVR are higher. Dr. Niels does not discuss or perform this direct test in his report, even though he has the data to do so and even though he uses these data to perform other studies that purport to provide indirect evidence that VAA's decision has led to substantially higher prices at YVR. In this section, I implement the direct test of

[130] As discussed above, the least profitable incumbent depends on how much share each loses to entrants.
[131] *Notice of Application* at ¶¶54–55.

prices that corresponds to the Commissioner's allegations, and show that [redacted] I then discuss the indirect measures that Dr. Niels presents in his report and show that they also provide no evidence of a substantial lessening of competition at YVR. Finally, I discuss the evolution in flight caterer business models that has taken place at YVR despite restrictions on entry.

A. COMPARING FLIGHT CATERING AND GALLEY HANDLING PRICES AT YVR TO PRICES AT OTHER AIRPORTS

1. Data and methodology

145. Dr. Niels was provided [redacted] data [redacted] from five suppliers.[132] However, for various reasons that he describes in his report, in his regression analyses that compare prices following entry, he uses [redacted].[133] I make use of [redacted] data assembled by Dr. Niels to directly examine pricing across airports.

146. In working with [redacted], Dr. Niels processed the data to, [redacted].[134] In my analysis, I use the same dataset that Dr. Niels obtains after this preliminary processing, with a minor adjustment.[135] These data [redacted]

147. I follow Dr. Niels' approach in [redacted].[136] Analogous to Dr. Niels' monthly level of analysis, I [redacted] obtain the average monthly price for each product and airline pair at each airport.[137]

148. I use data on all flight catering and galley handling products for all airline customers in the [redacted] data initially processed by Dr. Niels.[138]

---

[132] *Niels Report* at ¶4.14.
[133] *Niels Report* at ¶¶4.14–24, 4.64–66.
[134] *Niels Report* at ¶4.20. See also Appendix at ¶A3.
[135] For each airport I exclude mouths where the data are incomplete. See Appendix at ¶A4.
[136] *Niels Report* at ¶4.64.
[137] *Niels Report* at ¶4.67.
[138] Dr. Niels constructs this dataset, but then limits his analysis to only galley handling products and [redacted] *Niels Report* at ¶4.67, 4.76.

149. My baseline regression model tests for price differences between each of the other airports and YVR by comparing the average monthly prices of products across the airports using the following regression specification:

$$\ln(Price)_{acpt} = \alpha_{cpt} + \sum \beta_a Airport_a + \varepsilon_{acpt}$$

where a indexes the airport, c indexes the airline customer, p indexes the product, and t indexes the month. In essence, this model allows me to hold equal other explanatory factors that influence prices but are not related to VAA's conduct while assessing whether prices on average differ across airports.

150. The dependent variable $\ln(Price)_{acpt}$ is the natural log of the average monthly price of product p at airport a for airline c in month t.[139]

151. The airline-product-month fixed effects α_{cpt} allow me to compare prices within the same airline, product, and month. These fixed effects account for different movements in prices over time that are product- and airline-specific. For example, updates to product prices for one airline may vary depending on the airline contract or the timing of [redacted]

152. The $Airport_a$ indicators are the variables on which I will focus my discussion. The coefficients β on these Airport variables show relative pricing across airports, after controlling for the other factors that affect prices and are not related to VAA's conduct. Each Airport indicator takes the value 1 if airport a is the designated airport, and 0 otherwise. Indicators for all airports are included except for the reference airport, YVR.[140] As a result, the coefficients β measure the average percentage difference in the price at a particular airport ([redacted]) relative to the price at Vancouver, after controlling for the other included explanatory factors.[141] A positive estimated coefficient indicates that on average, the airport had higher prices than

[139] The use of a logarithm transformation of prices is discussed in the *Niels Report* at ¶4.74.

[140] Since the airport variables indicate relative prices, the airport indicator variables are included for all but one airport (that airport is referred to as the omitted case) and measure price differences relative to the omitted airport. The regression results do not depend on which airport is omitted, in the sense that the relative prices measured by the regression model will be the same regardless of which airport is omitted. For general explanation for how to interpret coefficients of indicator variables, see Michael A. Bailey, *Real Econometrics* (Oxford University Press 2017) at 181–190.

[141] I use the same Kennedy correction that Dr. Niels uses to interpret estimated coefficients as percentage differences. See Appendix at ¶A12.

YVR did across the range of airline customers and products. In my discussion, a coefficient estimate that is "statistically significant" means that the data are sufficient for the model to be precisely estimated and thus there is strong enough statistical evidence to conclude that the airport's prices differ from prices at YVR.[142] On the contrary, an estimated coefficient that is not statistically significant (or "statistically insignificant") means that the variability in the data do not provide enough statistical evidence to conclude that the airport's prices differ from prices at YVR. If VAA's actions have led to higher average prices at YVR, then the coefficients on other airports should be negative and statistically significant, indicating that prices at other airports are lower than at YVR.

153. ε_{acpt} is the error term which embodies all determinants of the monthly price of product p for airline c at airport a at time t that are not otherwise accounted for in the regression model.

2. Prices at YVR [redacted] *prices at other airports*

154. I compare prices across airports for all flight catering and galley handling products and for all airline customers from 2013-2016, beginning with the baseline regression specification described above and proceeding through various alternative specifications and sensitivity checks. Across nearly all variations, I find that YVR prices are [redacted] than average prices across other airports in the data. In other words, the regression results [redacted] coefficients on the variables for other airports.

155. The main specification adds to the baseline regression specification additional explanatory variables to control for regional wage and cost differences and [redacted] economies of scale at each airport. The wage and cost explanatory variables address the possibility that local labour and material costs at an individual airport may contribute to price differences across airports that are not related to VAA's actions. Similarly, [redacted] may have larger economies of scale at airports where it has a larger volume that could be correlated with price differences across airports.

156. For wages, I use the log of provincial average hourly wage rates in the services sector from Statistics Canada's Labour Force Survey. For inflation controls, I use the log of Statistics Canada's city-specific Consumer Price Index. These are the same data series that Dr. Niels

[142] For a general explanation of statistical significance in regression models, see Bailey (2017) at 91-97.

uses in his sensitivity analyses, as described in his Appendix.[143] For scale effects, I use the [redacted].

157. The main specification gives equal weight to the price within each unit of observation (defined by airline, product, month, and airport). Equal weights, however, do not account for differences in the amount sold of each product. Like Dr. Niels, I consider two alternative weighting specifications: quantity weights and revenue weights.[144] Quantity weights give greater weight to products sold in higher quantities. Revenue weights give greater weight to products with higher revenues (whether due to higher quantities, higher prices, or both).

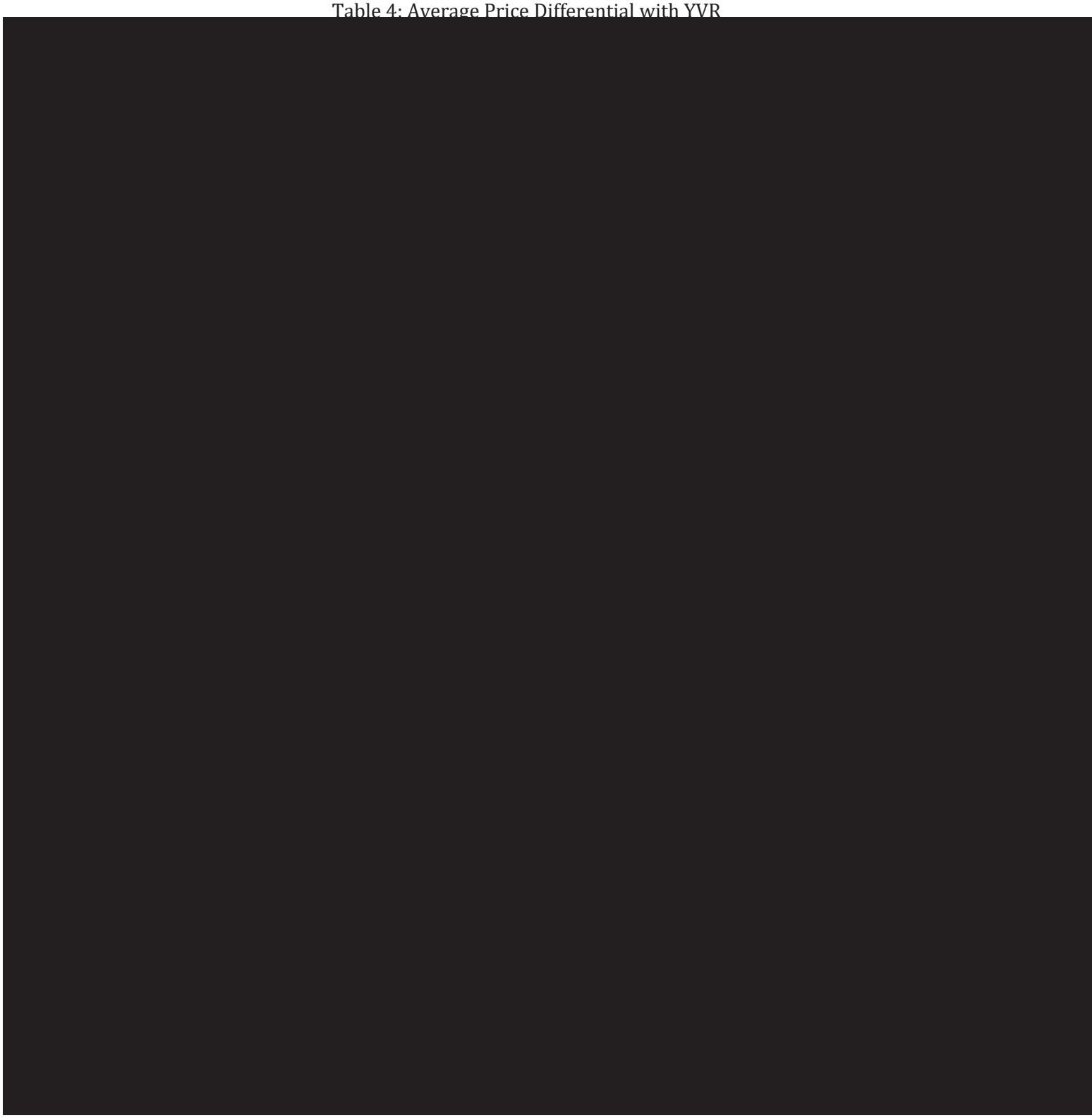
158. Table 4 reports the estimated average price differential for each airport compared to YVR when the sample includes all products (i.e., all flight catering and galley handling products) for all airline customers. Column 1 reports the baseline model, column 2 reports the equally weighted main specification, and columns 3 and 4 report the main specification when either quantity or revenue weights are applied.[145]

[143] *Niels Report* at ¶A4.13. See Statistics Canada, Table 282-0071: Labour Force Survey estimates (LFS), wages of employees by type of work, North American Industry Classification System (NAICS), sex and age group, unadjusted for seasonality [CANSIM database] (retrieved on Jun. 18, 2017); Statistics Canada, Table 326-0020: Consumer Price Index (CPI) [CANSIM database] (retrieved on Jun. 18, 2017). The series used in my analysis are from the data files processed by Dr. Niels.

[144] *Niels Report* at ¶4.78.

[145] In all tables reporting regression results, I indicate the statistical significance level of each estimate as follows: *** statistical significance at the 1% level; ** statistical significance at the 5% level; * statistical significance at the 10% level. An estimate without any star (*) indicates that it is not statistically significant. An estimate that is statistically significant at the 5% level implies that, at most, in one in 20 draws of a data sample, the estimate would give a false positive (i.e., suggesting that prices at an airport differ from prices at YVR while they are not in reality). A lower significance level implies that an estimate is obtained with higher precision. Economic researchers typically rely on 5% or lower significance levels when drawing conclusions about the economic effects.

Table 4: Average Price Differential with YVR



159. Figure 8 plots the estimated results of the main specification and shows that Vancouver prices are [redacted] other airports' prices, based on Table 4.[146] Each bar indicates the average price differential between an airport and YVR, with YVR at the 0% horizontal line; the 95% confidence intervals are depicted by the dotted grey lines and show whether the differential between pricing at each airport compared to YVR is statistically significantly different from zero.[147] For example, the bar on the far left shows that flight catering prices [redacted] are estimated to be on average about [redacted] than at YVR.[148] The 95% confidence interval shows that average prices [redacted] prices at YVR. As the bars show, [redacted]

[146] The percentage point results plotted in Figure 8 are derived from the estimates shown in column 2 of Table 4, using the same "Kennedy correction" described by Dr. Niels. *Niels Report* at n. 116.

[147] A 95% confidence interval contains the true value of the coefficient 95% of the time if it is estimated with a random sample. If the value zero is contained in this interval, the data cannot reject the possibility that the true coefficient is zero and the estimated value differs from zero merely by chance.

[148] This corresponds to the estimated [redacted] in column 2 of Table 4.

Figure 8: Average Price Differentials at Airports Relative to YVR

160. As shown in columns 3 and 4 of Table 4, the various weighting alternatives also indicate that prices at YVR [redacted] prices at other airports. With weights, the magnitudes of the original price differentials [redacted] at other airports relative to YVR, but these estimates are also less precisely estimated (i.e., they have larger estimated standard errors).

161. I also test whether there is a price differential between YVR and other airports when restricting the model to the galley handling [redacted] aspects of flight catering [redacted] and run the same equally weighted, quantity weighted and revenue weighted model specifications using the

subsample of galley handling products [redacted] Note that Dr. Niels [redacted] in the regression modeling in his report.[149] These estimates are shown in Table 5. [redacted] galley handling at YVR compared to other airports. This result is consistent whether observations are equally weighted or weighted by quantity or revenue. To visually depict this finding, I plot the coefficient estimates of the main specification along with their 95% confidence intervals in Figure 9. The interpretation of this figure is similar to that reported in Figure 8, but applied to data for galley handling only. Average prices for galley handling at each of the other airports [redacted] percentage points. [redacted]

[149] Dr. Niels estimates his model using only galley handling products. *Niels Report* at ¶4.65.

Table 5: Average Price Differential with YVR

Figure 9: Average Price Differentials at Airports Relative to YVR

162. Table A1 and Table A2 in the Appendix show that results are robust to additional sensitivity tests: I restrict the data to prices for [redacted] and then I re-estimate the model using (1) the full sample of all products and (2) the sample restricted to galley handling only. In his empirical analysis of entry effects on prices, Dr. Niels used the latter sample, which has only galley handling products sold to [redacted]. I find that the results for [redacted], whether for all products or for galley handling products only, are the same as [redacted] The Appendix reports additional robustness checks.

163. The tests discussed thus far use the full dataset of pricing information for the entirety of the 2013-2016 period. The next several variations of the model test whether there were price differences between YVR and other airports for flight catering products and services at certain time periods. Specifically, I test whether there were price differences between YVR and other airports for flight catering products and services in the period before those other airports experienced additional entry by flight caterers. And I also test whether there were price differences between YVR and other airports in the period after the last of those additional entries. I define the pre-entry period in the data to be [redacted] which precedes the first entry events by [redacted]. I define the post-entry period to be [redacted], after the last entry event [redacted][150]

164. The results from these additional variations of the model are consistent with the results for the full time period. First, t[redacted] Those estimates are plotted in Figure 10 and shown in Table 6. [redacted]

165. Likewise, the price comparisons during the post-entry period (i.e., in [redacted] are plotted in Figure 11 and shown in Table 7. Again, [redacted]. Across time periods and specifications, the results therefore support the conclusion that there was no substantial lessening of competition by any actions taken by VAA with respect to flight catering at YVR.

[150] See *Niels Report* at ¶4.71, Figure 4.7. Table 8 below shows the full list of entry episodes and dates. CLS [redacted] reveals there was also a [redacted]

Figure 10: Average Price Differentials at Airports Relative to YVR, Pre-Entry Period, 2014

Table 6: Price Differentials in Pre-Entry Period, 2014

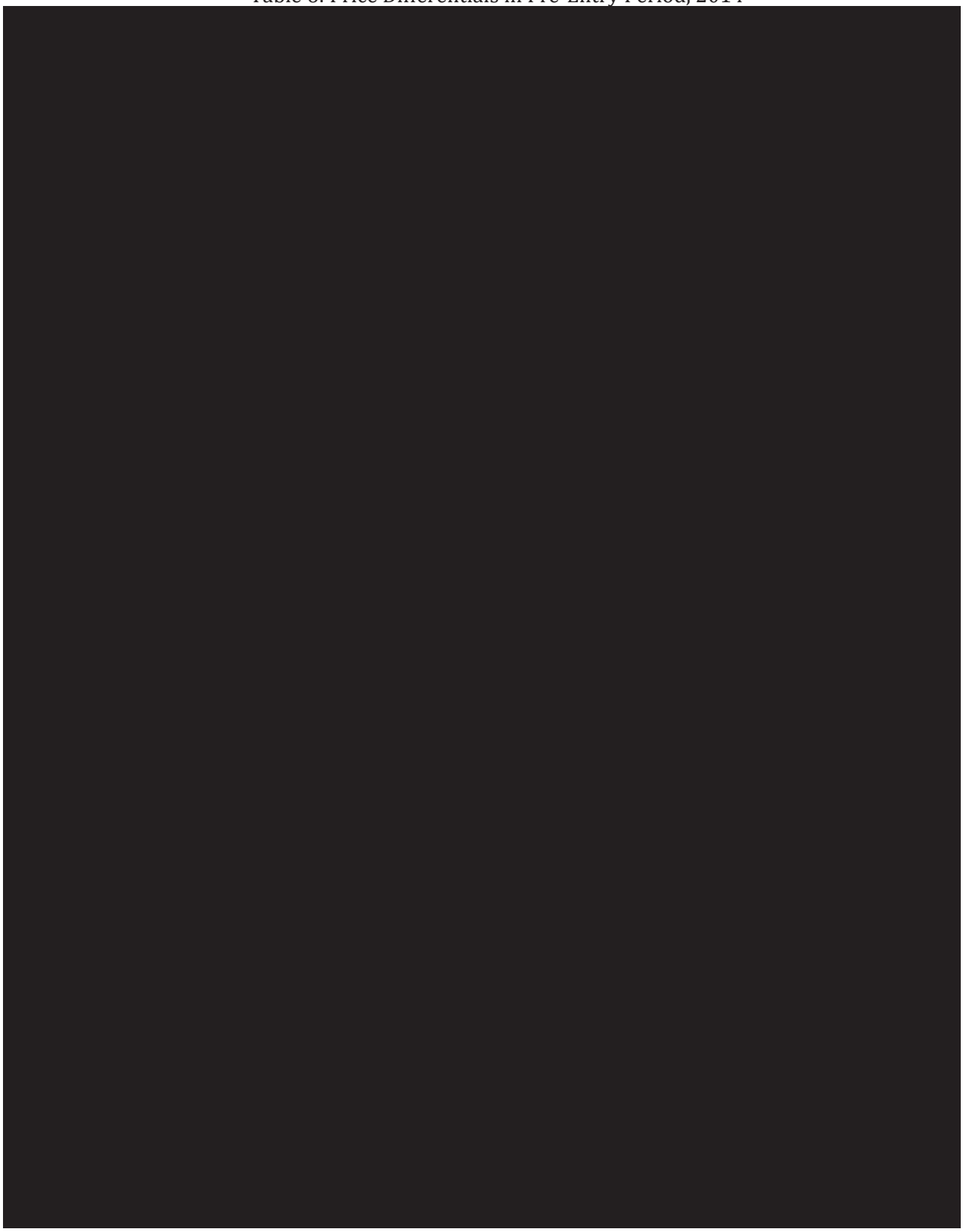


Figure 11: Average Price Differentials at Airports Relative to YVR, Post-Entry Period, 2016

Table 7: Price Differentials in Post-Entry Period, 2016

166. In summary, my direct tests of pricing across airports show that flight catering prices were [redacted] at YVR than at other Canadian airports. Therefore, I conclude that there were no

adverse price effects from VAA's decision not to allow entry of additional flight caterers at YVR.

B. DR. NIELS' STUDIES OF INDIRECT PRICE EFFECTS AT YVR ARE FLAWED

167. Rather than conducting a direct test of whether VAA's practice led to higher prices for catering and/or galley handling, Dr. Niels instead carries out certain analyses that, at best, would provide indirect evidence on that question. Specifically, Dr. Niels presents three studies that look at:

    a. the incidence of switching between flight catering suppliers at YVR and at other airports;

    b. the reduction in galley handling expenditures for Jazz from switching suppliers at airports other than YVR; and

    c. the impact of entry on prices at other airports for carriers that did not switch galley handling providers.[151]

I discuss each of these studies in turn.

1. Dr. Niels' study of switching between flight caterers at YVR and other Canadian airports

168. In his first study, Dr. Niels tallies up the number of instances in which an airline has switched from one flight catering provider to another, and makes two related findings: first, most switching is associated with entry of new flight catering providers; and second, there is very little switching by airlines among incumbent flight catering providers at any of the airports studied.[152]

169. That there is switching associated with flight caterer entry is hardly surprising: a flight caterer cannot enter the market unless it attracts some customers, most of whom would have been served by another flight caterer previously.[153] As I show below, the empirical evidence offered by Dr. Niels, when compared to the correct but-for alternative, shows no effect on pricing for customers who switch.

---

[151] *Niels Report* at ¶¶4.6–4.12.

[152] *Niels Report* at ¶4.44 ("[T]here is not a significant degree of switching between incumbent in-flight catering firms at airports").

[153] In fact, it appears that [redacted]

170. The observation that there is very little switching apart from entry is significant because it indicates that there is no real difference between the competitive dynamics between the incumbent firms at YVR and those at other airports.

171. Accordingly, Dr. Niels' first study does not provide any indication as to whether VAA's practice led to a lessening of competition.

2. The reduction in flight catering expenditures for Jazz from switching

172. Dr. Niels' second study is a calculation of the savings received by Jazz when it switched from Gate Gourmet to other flight catering suppliers at eight airports other than YVR around the end of 2014. Dr. Niels finds that "across the eight airports where Jazz switched providers, it [redacted] in the year following the switch."[154] However, this calculation is not indicative of the actual savings relative to choosing Gate Gourmet, and in any case is not indicative of potential savings at YVR.[155]

173. To explain, when Dr. Niels computes cost savings, he compares what Jazz paid to its new providers in 2015 with what Jazz paid to Gate Gourmet in 2014.[156] But this is the wrong comparison. If Jazz had continued with Gate Gourmet in 2015, then it would have paid according to the proposed contract renewal terms offered by Gate Gourmet, [redacted][157] The proposal and the emails exchanged between Gate Gourmet and Jazz indicate that Jazz would have [redacted] relative to Gate Gourmet 2014 prices, [redacted] had it not switched flight caterer providers.

---

[154] *Niels Report* at ¶4.58. Dr. Niels also examines expenditures by Air Transat when it switched flight catering providers from Gate Gourmet to Strategic and Optimum in 2016, and finds that expenditures for flight catering [redacted]. However, Dr. Niels does not conduct further analysis of [redacted] from switching for Air Transat due to data issues. *Niels Report* at ¶¶4.49-53; [redacted].

[155] [redacted] Neither estimate accounts for potential changes in quality, or within aircraft type product and service mix, in their calculation. [redacted].

[156] *Niels Report* at ¶4.55.

[157] [redacted]

174. More specifically, based on exhibits in the *Bishop Statement*, Gate Gourmet [redacted]

175. Before comparing these numbers to Dr. Niels' calculations, it is notable that Gate Gourmet's pricing at [redacted], while Jazz considered Gate Gourmet's pricing at most of the other [redacted]. The airports that were considered to be [redacted] above market pricing [redacted] There simply appears to be no correlation between the competitiveness of Gate Gourmet pricing, as perceived by Jazz, and [redacted] in each market.

158 [redacted]
159 [redacted]
160 *Id.*

176. These market assessments by Jazz are [redacted] with the cost savings found by Dr. Niels relative to historic prices, [redacted]. Dr. Niels computes the largest cost savings [redacted]. Dr. Niels' estimated savings are more [redacted] Meanwhile, [redacted].[161] As the pricing relative to market bears [redacted] the same is true for Dr. Niels' assessment of cost savings across airports. Perhaps more importantly, the relationship between Dr. Niels' calculations at each airport and the [redacted] shows that the cost savings computed at other airports cannot be extrapolated to YVR. [redacted].

177. Once again, the right question to ask is not about cost savings relative to what Jazz paid in 2014, but cost savings relative to what Jazz would have paid in 2015 had they remained with Gate Gourmet. [redacted] that Gate Gourmet was charging Jazz in 2014.[162] Since Jazz estimated that Gate Gourmet's original proposal, which included a [redacted] would produce savings of [redacted] from 2014 prices, that indicates that Gate Gourmet's second proposal (had it been accepted by Jazz) would have produced savings of [redacted] from the prices that Gate Gourmet charged to Jazz in 2014. This is [redacted] what Dr. Niels calculates as the savings from switching from Gate Gourmet to other providers. In other words, the savings anticipated by Jazz from remaining with Gate Gourmet under a newly negotiated contract [redacted] the savings calculated by Dr. Niels from switching.

[161] [redacted]

[162] [redacted]

178. [redacted] with a [redacted] proposal with [redacted] pricing than its [redacted] proposal. This reflects the [redacted], which is a primary theme found in the witness statements of firms that sought entry at YVR, who describe how they have [redacted].[163] As such, the actual Gate Gourmet prices in 2015 cannot be compared to prices in 2014 without taking into account the change in the scope of the agreement.[164]

179. In summary, the documents associated with Jazz switching from Gate Gourmet to Newrest and Strategic at the end of 2014 indicate that Jazz viewed Gate Gourmet's pricing [redacted] at YVR than at [redacted] airports served by Gate Gourmet. That assessment of pricing at other airports showed [redacted] at those airports. Therefore, the savings computed by Dr. Niels at other airports cannot be extrapolated to YVR. Moreover and in any event, the savings computed by Dr. Niels in 2015 are relative to 2014 prices, and are [redacted] than the savings that Jazz thought it would have obtained by staying with Gate Gourmet [redacted]. Accordingly, using a proper comparison to but-for pricing (i.e., pricing that would have been in effect if there had been no switching), there [redacted]

180. Finally, it is important to note the deficiency in this kind of indirect evidence of price effects. Rather than comparing pricing for the same item from the same provider at different airports, as I did earlier in this section, Dr. Niels is comparing pricing for the product offerings from one provider to the offerings of another—Gate Gourmet versus either Strategic or Newrest. However, the mix of products and services offered by different providers will generally be different. Gate Gourmet, [redacted]

[163] For example, see [redacted]

[164] Dr. Niels performs what he calls a sensitivity test that compares [redacted] However, it is inappropriate to compare pricing under a [redacted] and pricing under a [redacted] to gauge anything about how pricing would have changed [redacted]. See *Niels Report* at ¶4.61.

[redacted]

181. These [redacted] were not priced separately, implying that their value was incorporated into the pricing for other products and services. If Jazz made a choice to contract with a different supplier not offering these services but which instead offered a lower price, then that reflects a different point in the price/quality spectrum, and not lower prices from allegedly anticompetitive conduct. The type of indirect evidence of lower expenditures offered by Dr. Niels, even if credible, cannot be used to assess whether the conduct has impacted prices without undertaking the difficult task of comparing the value of services provided by two different suppliers.[166]

3. The impact on prices at airports from entry for carriers that did not switch

182. The final study undertaken by Dr. Niels looks at pricing to airlines that did not switch flight caterers when a new provider entered the market, and tests whether pricing for those customers declined following entry of the new flight caterer.

183. Dr. Niels reports that Gate Gourmet's galley handling prices for [redacted] fell by between [redacted] in response to [redacted] entry at [redacted] airports.[167] He finds [redacted] in prices for [redacted] from [redacted] entry.[168] He also finds [redacted] effect on [redacted] galley handling prices from [redacted] entry.[169] On their face, the benefits reported by Dr. Niels from entry are [redacted]

[165] [redacted]

[166] Similarly, statements from airlines about changes in expenditures from switching flight catering providers are difficult to interpret without taking account of any differences in the quality of products and services offered as well as the mix of products and services purchased. As far as I am aware, there is insufficient information in the statements [redacted] to control for these differences in their estimates of costs savings from switching flight caterers. [redacted]

[167] *Niels Report* at ¶4.83. [redacted]

[168] *Niels Report* at ¶4.85.

[169] *Niels Report* at ¶4.80. Only the unweighted regression (which is not indicative of overall changes in expenditures) is [redacted]; both weighted regressions show [redacted] with one point estimate [redacted] and the other [redacted]

[redacted] that Dr. Niels claims experienced [redacted].[170] However, as I discuss below, even [redacted]

184. There are two main deficiencies in Dr. Niels' analysis. First, he does not perform a properly designed study that tests the impact of entry in markets where entry occurred against a control group where entry did not occur. (I explain the importance of a control group in more detail below.) Instead, he conflates entry effects in multiple markets and periods without a valid control sample. Second, Dr. Niels does not differentiate between entry episodes that reflect the competitive situation at YVR and those that do not. Specifically, many of the entry episodes that drive his results are ones in which [redacted].[171] Those situations, which lack any competition between flight catering providers prior to entry, are not indicative of the competitive situation at YVR today where a new entrant would be entering a market that already has head-to-head competition between two incumbent suppliers.

185. Table 8 identifies the flight caterers operating at each airport over time. The table lists only the flight catering firms that have airside access and do galley handling themselves. The table lists companies that operate nationally at multiple airports, but may omit some flight caterers that operate at a single airport.[172]

---

[170] Of relevance to the analysis conducted in Section IV of this report, the magnitude of the impact on VAA's revenues would be extremely small. Suppose, taking the midpoint of Dr. Niels' estimates for Strategic (SA) (*Niels Report* at ¶4.76), that YVR were to experience a [redacted] in galley handling prices of [redacted] customers. VAA currently derives about [redacted] of its total revenues from flight catering, or [redacted] in 2016. Of total flight catering revenues for [redacted] at YVR, revenues [redacted] comprised [redacted] and revenues from [redacted]' galley handling services (Dr. Niels' sample) comprised [redacted]. Assuming total market demand stayed constant, and assuming Niels' estimates apply [redacted], entry would be correlated with VAA [redacted] of VAA's total revenues in 2016. VAA's revenue from CLS and Gate Gourmet is calculated based on Table 1. Revenue shares for Gate Gourmet at YVR are calculated from [redacted].

[171] When [redacted] entered in [redacted] at [redacted] it was the only competitor to [redacted] at these airports. See Table 8.

[172] For example, I understand there is a [redacted] flight caterer, Culinair, that operates in Montreal (YUL). See Culinair, http://www.culinair.ca/eng/culinair_business.php (last visited Dec. 21, 2017).

Table 8: Entry Dates for National Flight Caterers at Canadian Airports

[redacted]

186. When [redacted] entered in [redacted] at [redacted], it was the only competitor to [redacted] at these airports. It would not be surprising that introducing some competition to [redacted] at these airports could lead to lower prices being charged by [redacted], but this is not the right comparison for YVR where there are already [redacted] flight caterers at the airport and additional entry will move the airport from [redacted] to [redacted] flight caterers.

187. I adapt the regression model used by Dr. Niels to isolate the impact of each entry episode. I use a "differences-in-differences" technique, which is a common empirical method that compares a "treatment group" experiencing an entry event with a "control group" that does not have a new entrant but otherwise is similar to the "treatment group." As with a lab experiment or a clinical drug trial, the control group is used to account for any concurrent changes across all airports that are unrelated to the entry event. Such "differences-in-

[173] There was also a [redacted].

differences" models are widely used in the economics literature to estimate the impact of an event (such as entry into a market).[174]

188. In my differences-in-differences model, for each entry episode, I identify a control group of airports where no entry occurred in the time frame around entry. I then run a model that compares pricing at the airport with entry to the set of airports without entry. The resulting model is a properly specified example of a differences-in-differences model. Other elements of the model are similar to the model estimated by Dr. Niels: it includes controls to capture airline-product effects, month fixed effects to control for common shocks to prices across airports over time, and airport specific time trends to control for general upward or downward price trend at each airport. Each model is estimated using equal weights across observations, quantity weights, and revenue weights.[175]

189. The time period and control set of airports included in each model depend on the entry episode being examined:[176]

- When studying [redacted] entry at [redacted] the control airports (which did not experience entry) are [redacted] The pre-entry period begins in [redacted] and ends in [redacted], and the post-entry period begins in [redacted] and ends in [redacted] before [redacted] enters at [redacted] and [redacted].[177]
- When studying [redacted] entry at [redacted] in [redacted], the control airports are [redacted] The pre-entry period begins in [redacted] and ends in [redacted], and the post-entry period begins in [redacted] and ends in [redacted] before [redacted] enters at [redacted].

[174] For an example of the differences-in-differences technique as applied to a merger case study, see Orley C. Ashenfelter, Daniel S. Hosken, and Matthew C. Weinberg, "The Price Effects of a Large Merger of Manufacturers: A Case Study of Maytag-Whirlpool," 5 *American Economic Journal: Economic Policy* 239 (February 2013). For the description of this technique in general, see Joshua D. Angrist and Jörn-Steffen Pischke, *Mostly Harmless Econometrics* (Princeton University Press 2009) at 221–47.

[175] These are the same observation weighting variations used in the earlier regression models testing whether there is a difference in pricing between YVR and other airports, and also the same three specifications used by Dr. Niels. *Niels Report* at ¶4.78.

[176] The month of entry in each event is excluded from the sample. As the entry occurs in the middle of the month, observations in the entry month are mixture of pre-entry observations and post-entry observations.

[177] Note [redacted]

- When studying [redacted] entry in [redacted] the control airport is [redacted]. The pre-entry period begins in [redacted] and ends in [redacted] for [redacted] it begins in [redacted] and ends in [redacted] avoid the influence of [redacted] entry in [redacted]. The post-entry period in each case begins in [redacted] and ends in [redacted].

190. With each studied entry event, the regression compares the change in [redacted] prices resulting from entry at the affected airport to prices over time at other airports that did not experience entry. In this way, other airports in Canada where entry did not occur act as "controls" or "benchmarks." One way to conceptualize the difference-in-differences analysis is to think of the data as being divided into the following four groups, using the [redacted] entry example (Figure 12).

Figure 12: Differences-In-Differences ([redacted] Entry)

	Before Entry Date	*After Entry Date*
Treatment Group: [redacted]	A. Prices at [redacted] before [redacted] entry occurs in [redacted]	B. Prices at [redacted] after [redacted] entry occurs in [redacted]
Control Groups: [redacted]	C. Prices at [redacted] before [redacted] enters [redacted] in [redacted]	D. Prices at [redacted] after [redacted] enters [redacted] in [redacted]

191. The comparison is between prices across airports and over time. To the extent that the entry of [redacted] lowers prices at [redacted] then I should find lower prices at [redacted] relative to the prices at [redacted] after [redacted] enters at [redacted] when compared against the corresponding difference in prices between [redacted] and those at [redacted] prior to [redacted] entry. This corresponds to the comparison between (A-C) and (B-D) in Figure 12.

192. A difference-in-differences regression model does not require prices to be identical across airports prior to entry. To the extent that differences in prices exist across airports prior to entry, the regression measures if these differences in relative prices change after entry

[178] I examined if estimated entry effects are sensitive to the [redacted] The estimates are not materially different from what are reported here [redacted]

occurs. If, for example, prices at [redacted] were lower than at [redacted] before [redacted] entered, and if prices at [redacted] remain lower in similar proportion to those at [redacted] after [redacted] enters, then the regression will attribute no change in prices at [redacted] to [redacted] entry. The regression specification is provided below.

$$\ln(Price)_{acpt} = \alpha_{acp} + \beta_t + \gamma_a t + [redacted] + \theta_2 [redacted]_t + [redacted] \times [redacted])_t + \varepsilon_{acpt}$$

where a indexes airport, c indexes Airlines, p indexes product, and t indexes month. The description of variables and some coefficients are given below:

- The dependent variable $\ln(Price)_{acpt}$ is the average monthly price of product p at airport a for airline c in month t, in natural logarithm.
- The fixed effects α_{acp} captures inherent difference across airport, airline an, and product combinations. The time fixed effects β_t capture flexible time trends, that are common across airports, airlines and products. The terms $\gamma_a t$ are airport specific linear time trends.
- [redacted] is an indicator for [redacted] which takes the value 1 if airport a is [redacted] and 0 otherwise.[179]
- ([redacted])$_t$ is an indicator for the period between [redacted] which takes the value 1 if month t is between this period (inclusive), and 0 otherwise.
- Term $YYZ_a \times$ [redacted]$_t$ takes value 1 if airport a is [redacted] and month t falls in the period between [redacted] The coefficient of this term θ_3 measures the effect of interest, a change in prices in the airport where the entry occurred relative to the change in prices in the control airports.
- ε_{acpt} is an error term that is the error term which embodies all determinants of monthly price of product p for airline c at airport a at time t that are not otherwise accounted for in the regression model.

193. I use the same dataset that Dr. Niels used in his analysis of the entry effect and that I use in Section VI.A with the further restrictions discussed above. Details of the coefficient

[179] This term is not separately identified from airport-airline- product fixed effects (α_{acp}).

estimates for each regression are provided in Tables A3 and A4 in the Appendix. Table 9 shows the estimated entry effect for each studied event when the sample include[redacted]. Column 1 reports the estimates when all observations are equally weighted, columns 2 and 3 report the estimates when each observation is weighted by average quantity and average revenue, respectively.

194. The[redacted] airports that[redacted] entered in[redacted] had previously had[redacted] competition between flight catering providers. Following entry, the results in column 1 of Table 9 suggest that prices[redacted] in the[redacted] airports but were only statistically significant at the[redacted] level. When quantity weights are applied, the[redacted] effect is not statistically significant, as shown in column 2. When revenue weights are applied, the estimated price effect of entry is[redacted] which is even[redacted] than what I found in column 1.[redacted]; taking a simple average of the point estimate of the entry effect across the three models shown in Table 9, suggests[redacted]

Table 9: Percentage Price Effects of Entry on Galley Handling Prices

[redacted]

195. The results for the two entry episodes that occurred at airports where there were already at least [redacted] incumbent flight caterers [redacted] – which are the only results that are informative with respect to what would have happened at YVR – [redacted] The simple average of the point estimate of the entry effect across the three models is [redacted]

196. Table 10 reports the price effect estimates upon entry when the sample is restricted to [redacted], which is equivalent to the sample Dr. Niels used in his analysis. For the entry event of [redacted] where the [redacted] switched from [redacted] when quantity weights are applied. The other two weight specifications generate estimates that [redacted]. The average of the point estimate of the entry effect across the three models in Table 10, suggests that [redacted]

180 [redacted] See Table 8.

Table 10: Percentage Price Effect of Entry on Galley Handling Prices

197. For the entry event of [redacted] .[181] For the entry event of [redacted] the revenue weighted estimate indicates that [redacted] while the other two estimates are [redacted] These results [redacted]

198. Even if [redacted], three points should be highlighted. First, if there is any such

[181] Note that statistical significance is a measure of precision of an estimate while economic significance is a measure of magnitude and economic importance. If an estimate is statistically significant, it does not necessarily imply economic significance. For example, suppose an estimate of the price effect is 0.000001% and statistically significant at the 1% level. The estimated price effect is quite precise in statistical sense but not economically significant or meaningful.

price decrease for smaller airlines, then VAA's recent authorization of a new flight caterer should lead to such a decrease at YVR.

199. Second, recall that this indirect evidence of a price effect at other airports is not necessarily indicative of what would be the pricing experience at YVR. As noted above, when Jazz reviewed [redacted] pricing at the various airports it served prior to entry by [redacted], Jazz found that [redacted].[182] Thus, even if entry [redacted] led to price decreases for [redacted] that continued to be served by [redacted], that would not necessarily be the case for entry at YVR where, according to Jazz, airlines [redacted]

200. Third, it is important to consider this indirect evidence of entry effects at other airports for some airlines in light of the direct evidence discussed earlier in this section [redacted] There is little reason to try to speculate about entry effects at YVR based upon entry effects at other airports, when there is direct evidence that there has been no price effect resulting from VAA's actions at YVR.

201. In summary, Dr. Niels' study of pricing following entry provides [redacted]. The results he obtains for pricing to airlines that do not switch providers following entry conflate entry effects at airports where there was no flight caterer competition prior to entry and those where there was already competition. [redacted]. And in any case, Dr. Niels offers no evidence that the [redacted] he estimates for [redacted] at other airports would carry over to YVR. And in any event, this indirect evidence on entry effects does not weaken my principal finding with regard to price effects, which is that VAA's actions [redacted] prices at YVR.

[182] [redacted].

C. THERE IS NO SUBSTANTIAL LOSS OF INNOVATION AT YVR

202. The Commissioner's Notice of Application states that "enhanced innovation and/or more efficient business models" were stifled by VAA's decision to restrict entry in 2014.[183] The type of innovation offered by the prospective flight catering entrants at YVR is most apparent in Strategic's proposal to VAA. [redacted]

203. The Strategic business model is different from Gate Gourmet and CLS because outsources all catering functions, and focuses on supplying galley handling service.[185] In order to provide standard flight catering, Strategic partners with a third party or an airline's self-supply network to offer any catering services.

204. However, this does not appear to be innovative – at least not [redacted] Consider Gate Gourmet's relationship with WestJet. [redacted]

[183] *Notice of Application*, at ¶5.
[184] [redacted]
[185] [redacted]
[186] For example, see PAAH00031_00000478-0484 at -0479. [redacted] Brackets added.").

[redacted][188]

205. Although Gate Gourmet is equipped to offer premium flight catering, many airlines choose not to provide premium flight catering to their customers and instead only provide standard flight catering by procuring frozen meals and buy on board meals, and having them delivered to Gate Gourmet for galley handling. For instance, [redacted] despite having the capacity to provide the full range of flight catering products and services. To the extent that this can be said to be "innovative," it was already occurring at YVR.

206. Accordingly, I do not see any evidence indicating that there has been any loss of innovation at YVR as a result of the decision made by VAA to refuse entry to a third flight caterer.

207. Moreover, the value of any innovation introduced by a new entrant needs to be weighed against the potential disruption costs from entry, including the loss of current dimensions of competition, as discussed in the previous section. Strategic highlighted [redacted] Therefore, Strategic's presentation makes it apparent [redacted]

VII. CONCLUSIONS

208. My analysis has focused on three questions:

---

187 [redacted]

188 [redacted]

189 *Niels Report* at Table 4.2.

190 [redacted]

(1) Did the revenues earned by VAA from flight caterers provide it with an incentive to limit entry by flight caterers at YVR?

(2) What would have been the likely effects on incumbents had VAA allowed entry of an additional flight caterer in 2014? What would the likely effects be if more than one additional flight caterer were permitted entry now?

(3) Did VAA's actions cause substantially higher prices for flight catering or galley handling?

209. I conclude that the revenues earned by VAA from flight caterers did not provide it with any incentive to limit competition in the flight catering market. I further conclude that, had VAA allowed entry of an additional flight caterer in 2014, there is good reason to question whether both incumbent caterers – [redacted] – would have remained viable. And I conclude that VAA's actions did not cause substantially higher prices for flight catering or galley handling.

210. More specifically, I find that the Commissioner's (and Dr. Niels') suggestion that VAA had an incentive to limit competition in the in-flight catering market as a result of the revenues that it received from the in-flight caterers does not stand up to economic scrutiny. The Commissioner's (and Dr. Niels') theory is that entry by additional flight catering suppliers might lower flight catering revenues, leading to lower revenues being earned by VAA. However, economic analysis shows that, if VAA were trying to maximize the revenues it derives from flight catering port fees and rents, it would charge fees and rents such that entry would not lower flight catering revenues. Moreover, even if it were true that flight catering revenues would decrease with entry, VAA would be able to extract more port fee revenues, while at the same time lowering prices to airlines, by allowing entry and increasing port fee rates. Therefore, there is simply no economic incentive for VAA to use control of entry for the anticompetitive purpose of increasing port fee revenues.

211. In addition, VAA's stated concern in 2014 that further entry endanger the viability of one of the incumbent full-service flight caterers at YVR appears well-founded. I show that this belief is consistent with the profitability analysis performed by Dr. Niels, and is also consistent with the analysis performed by [redacted] at approximately the same time that VAA was reviewing the entry applications by Newrest and Strategic. If entry led to exit by an incumbent full-service flight caterer, that would create disruption costs for airlines, while replacing a full-service incumbent with an entrant that only offers standard flight

catering products would lead to less competitive pricing for premium flight catering products.

212. With growth in flight catering demand at YVR in the last few years, there is likely room for three viable firms in the market (which is consistent with VAA's recent RFP process to identify a third flight caterer to serve the market) but not for a fourth caterer, given Dr. Niels' projection of growth in the flight catering market through 2020.

213. I conduct a direct test of whether VAA's actions have led to substantially higher prices using an econometric study that compares prices at YVR with prices at other Canadian airports. I find [redacted] at YVR. I also review the analyses performed by Dr. Niels, which provide only indirect evidence about pricing at YVR by looking at the effect of entry of new flight catering firms at other airports. I show that the [redacted] Finally, even if Dr. Niels' studies did provide some evidence (however weak and however flawed) that VAA's decision to prohibit entry by a third caterer had led to higher prices at YVR, that price effect will be negated by the entry of a third caterer, which I am advised is expected relatively shortly, following the completion of VAA's recent RFP.

APPENDIX: ADDITIONAL DETAILS ON REGRESSION ANALYSES

A1. This appendix provides additional details on the data used and the results of a number of sensitivity tests for the regression analyses reported in Sections VI.A and VI.B.

A. DATA DESCRIPTION

A2. As described in Section VI, I use the [redacted] data of [redacted] that Dr. Niels processed and used in his analysis. As described in Dr. Niels' report, [redacted].[191] I followed Dr. Niels' approach and use the [redacted]

A3. Dr. Niels processed the raw data as follows.[193] [redacted]

[191] *Niels Report* at ¶4.18.

[192] [redacted] *Niels Report* at Table 4.1.

[193] *Niels Report* at ¶¶4.14-26, ¶4.64-71. Some procedures are not reported in the *Niels Report* but are identified in Dr. Niels' programming code.

[194] *Niels Report* at n.117.

[redacted]

A4. Using Dr. Niels' base dataset[redacted]

A5. In Section VI.B, I exclude observations occurring in the same month as the flight caterer's entry in order to ensure that the "post-entry" and "pre-entry" months of data do not include any months where entry occurred part-way through the month. Dr. Niels does not make this adjustment.

A6. Dr. Niels defines[redacted]

A7. Dr. Niels further restricts his analysis to "galley handling" products by selecting observations for which[redacted] In my regression analyses in Section VI.A, I include analyses that use data for all types of products, and I separately undertake analyses limited to galley handling products only ([redacted]).

A8. My complete dataset with all airlines and all types of products includes[redacted] unique products and covers[redacted] airline customers. Out of[redacted] airline customer codes,[redacted]

[195] *Niels Report* at ¶¶4.75–76.

All [redacted] airline customer codes are included in my analyses that use all airlines. [redacted]

A9. In addition to variables provided in [redacted], I use variables that are obtained from other data sources, which Dr. Niels also uses. As a control for inflation, I use data sourced from Statistics Canada for the city-specific Consumer Price Index.[196] As a control for wage costs, I use data on provincial average hourly wage rates in the services sector sourced from Statistics Canada's Labour Force Survey.[197] I control for potential scale economies by using data on the monthly number of flights for each airline at each airport based on information sourced from OAG.[198] In the main regression specification that I discuss in Section VI.A, I include the natural logarithm value of the city-specific Consumer Price Index, the natural logarithm value of the provincial hourly wage rate, and the natural logarithm value of the number of flights that were served by [redacted] at each airport.[199] In the regression analyses that I discuss in Section VI.B, I use the natural logarithm value of the city-specific Consumer Price Index, the natural logarithm value of the provincial hourly wage rate and the natural logarithm value of the monthly number of flights for each airline at each airport based on the OAG data.

B. TECHNICAL DETAILS

A10. In Sections VI.A and VI.B, I estimate each of the reported regressions using two standard econometric procedures, either the Ordinary Least Square (OLS) method or Weighted Least Square (WLS) method. With each method, I cluster standard errors at the level of the airport, airline, and product combination. Dr. Niels uses the same level of clustering of standard errors

[196] Statistics Canada, Table 326-0020: Consumer Price Index (CPI) [CANSIM database] (retrieved on Jun. 18, 2017). The series used in my analysis is from the data file processed by Dr. Niels.

[197] Statistics Canada, Table 282-0071: Labour Force Survey estimates (LFS), wages of employees by type of work, North American Industry Classification System (NAICS), sex and age group, unadjusted for seasonality [CANSIM database] (retrieved on Jun. 18, 2017). The series used in my analysis is from the data file processed by Dr. Niels.

[198] OAG Aviation Worldwide Limited, OAG Analytics: Schedules Analyser, Schedules Capacity Report [data extract] (retrieved on Sep. 18, 2017). The series used in my analysis are from the data files processed by Dr. Niels.

[199] [redacted].

in his analyses. This clustering adjusts for the fact that prices of a given product for a given airline at a given airport are repeatedly observed over time.[200] Prices within each airport-airline-product combination are likely to be serially correlated with each other, meaning that they share common movements over time. When not correcting for price co-movements, standard errors (or measures of statistical imprecision), tend to be understated with OLS or WLS, which treats each observation as unrelated to other observations in the sample. Intuitively, OLS or WLS estimates with serially correlated observations are not as informative regarding the relationship between monthly prices and some explanatory variables when compared to estimates from an otherwise similar sample whose observations are completely independent to each other. In addition to common movements over time, prices of a given product for a given airline might also be correlated across different airports, suggesting that observations may need to be clustered more broadly. In view of this possibility, I report the results of a sensitivity check below in which I cluster the monthly price observations to calculate standard errors at the level of each airline-product combination.

A11. With most of the regression results, I report regression coefficient estimates using three different types of "weighting". These different ways of weighting test the robustness of the regression results. The first reported results are referred to as "equal weighting", which treats each observation in the data as equally weighted with any other observation in the data, i.e., equal importance is given to the monthly average price of each product, airline, and airport combination.[201] The second reported results are referred to as "quantity weighting", which places greater weight (or "importance") on the observations that have higher quantities sold. The third reported results are referred to as "revenue weighting", which places greater weight or importance on the observations that have higher revenues.[202] I construct quantity weights by taking the mean quantity of each product, airline, and airport combination throughout the sample period. I construct revenue weights by taking the mean revenue of each product, airline, and airport combination throughout the sample period. Quantity and revenue weights are rounded up to the nearest whole unit or dollar. I apply either quantity or revenue weights in the WLS method. Note that Dr. Niels constructed the weights in the same manner that I have

[200] See generally Joshua D. Angrist and Jörn-Steffen Pischke, *Mostly Harmless Econometrics* (Princeton University Press 2009) at 308–19.
[201] This specification implies the use of the ordinary least squares (OLS) method.
[202] The second and the third types of weight specification uses the weighted least squares (WLS) method of estimating the regression.

done, but when applying these weights, he duplicated a given observation by the number of times of its weight.[203] Dr. Niels' approach to applying weights does not affect the estimated regression coefficients but it does artificially decrease the estimated standard errors compared to using WLS methods as I have done.[204]

A12. In Sections VI.A and VI.B, my model specifications are such that the dependent variable is in natural logarithm form while the key independent variables of interest are "indicator variables". For example, in the model in Section VI.A, the coefficient of the indicator for [redacted] shows the percentage difference in the average monthly prices between [redacted] and YVR, since YVR is the airport of reference.[205] As Dr. Niels explains, obtaining the exact expected percentage difference in the prices requires a mathematical adjustment to the regression coefficient. This mathematical adjustment is referred to as the Kennedy adjustment.[206] The formula for the Kennedy adjustment is:

$$\hat{p} = \exp\left(\hat{\beta} - \frac{1}{2}\hat{\sigma}^2\right) - 1$$

where $\hat{\beta}$ is the coefficient estimate for the indicator from the regression and $\hat{\sigma}$ is the standard error of $\hat{\beta}$.[207]

The standard error of $\hat{p}$ is given by:[208]

$$SE(\hat{p}) = \sqrt{\exp(2\beta) \times \{\exp(-\hat{\sigma}^2) - \exp(-2\hat{\sigma}^2)\}} \ .$$

I apply this calculation to generate Figures 8 to 11, as well as Tables 9 and 10. All other tables reporting regression results show unadjusted estimates.

[203] *Niels Report* at ¶¶A4.10-11.

[204] *Niels Report* at ¶A4C.1. More specifically, Dr. Niels uses the "fweight" option in STATA while I use "aweight" option in STATA. The option "fweights" necessarily deflates standard errors or a measure of noise by simply increasing the number of observations, while the "aweight" option allows adjustments of standard errors by weights, keeping the number of observation unchanged. For technical details on the difference in these commands, see StataCorp, *STATA User's Guide: Release 14* (Stata Press 2015) at 91–92 and 337–39.

[205] In the regression, YVR is the "omitted" indicator variable, and hence all other indicator variables are compared against YVR.

[206] *Niels Report* at n. 116.

[207] See Peter E. Kennedy, "Estimation with Correctly Interpreted Dummy Variables in Semilogarithmic Equations," 71 *American Economic Review* 801 (1981).

[208] See Kees Jan van Garderen and Chandra Shah, "Exact Interpretation of Dummy Variables in Semilogarithmic Equations," 5 *Econometrics Journal* 149 (2002).

C. Additional sensitivity checks for Section VI.A

A13. This subsection provides the results of a number of sensitivity tests on the main regression analysis reported in Section VI.A. In the main regression specification in Section VI.A, I compared prices across airports for all flight catering and galley handing products and for all airline customers. I found prices at YVR were not higher than prices at other airports.

A14. In the additional sensitivity checks, first, I restrict the data sample to only [redacted] while continuing to include all products. The [redacted] regression results are reported in Table A1 below. Column 1 reports estimates of the baseline model. Estimates of the main specification, which includes the cost and demand controls, are reported in columns 2, 3, and 4. Column 2 reports the results with each observation equally weighted and shows that, for small airlines, [redacted] YVR, while [redacted] at YVR. Columns 3 and 4 report the small airline results weighting observations by either quantity or revenue, respectively. When any weighting is applied, [redacted] the airports have statistically significant [redacted] prices than those at YVR for small airlines. Indeed, when revenue weights are applied, the prices [redacted] are [redacted] those at YVR for small airlines.

A15. Second, I limit the sample to galley handling products for [redacted]. The results are reported in Table A2 below. As before, column 2 reports estimates using observations that are equally weighted, with cost and demand controls included, while columns 3 and 4 report the results when using quantity or revenue weights, respectively. The results show that prices for galley handling products sold [redacted] at YVR compared to prices at other airports. The coefficients reported in Table A2 for [redacted] indicators are [redacted].

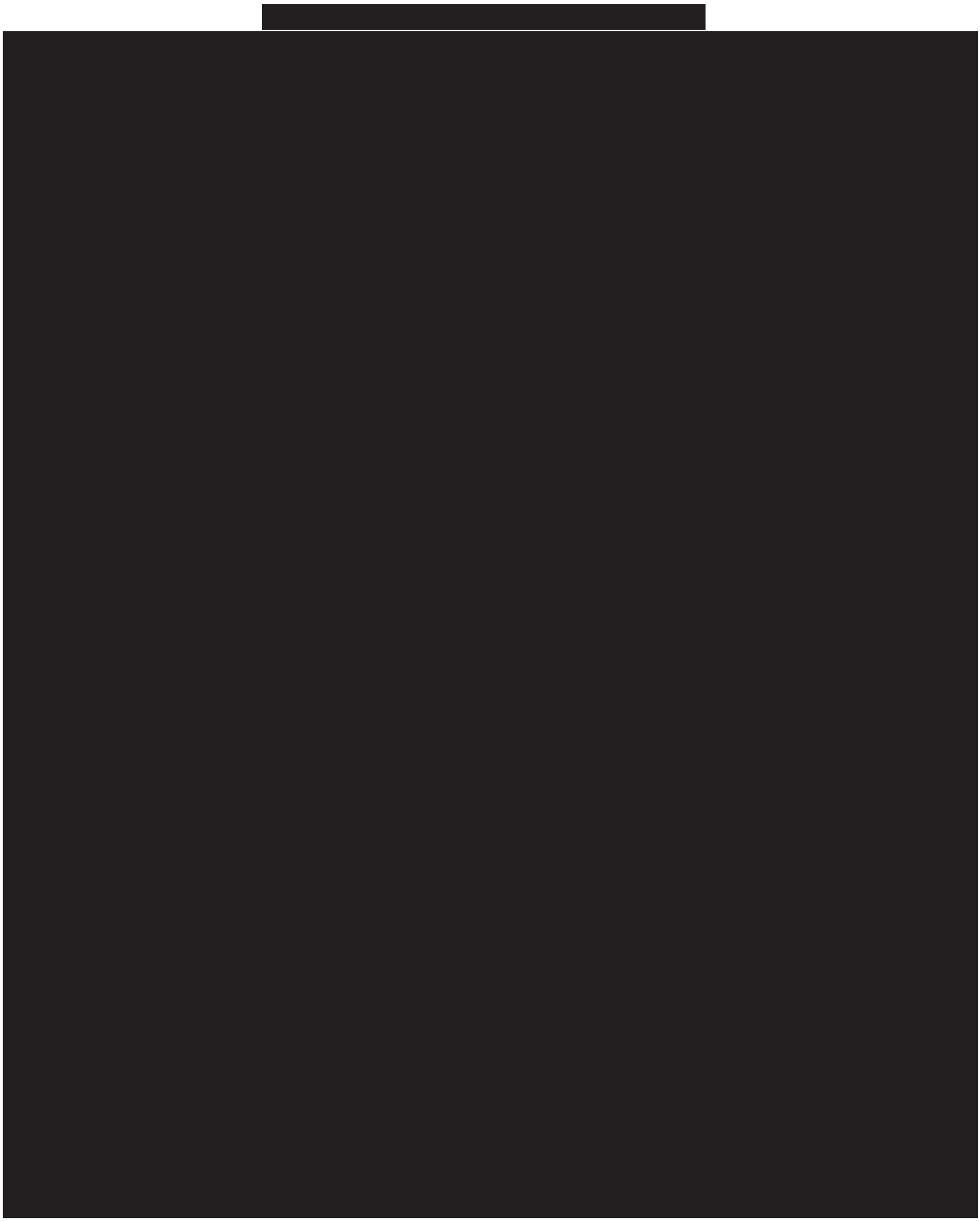
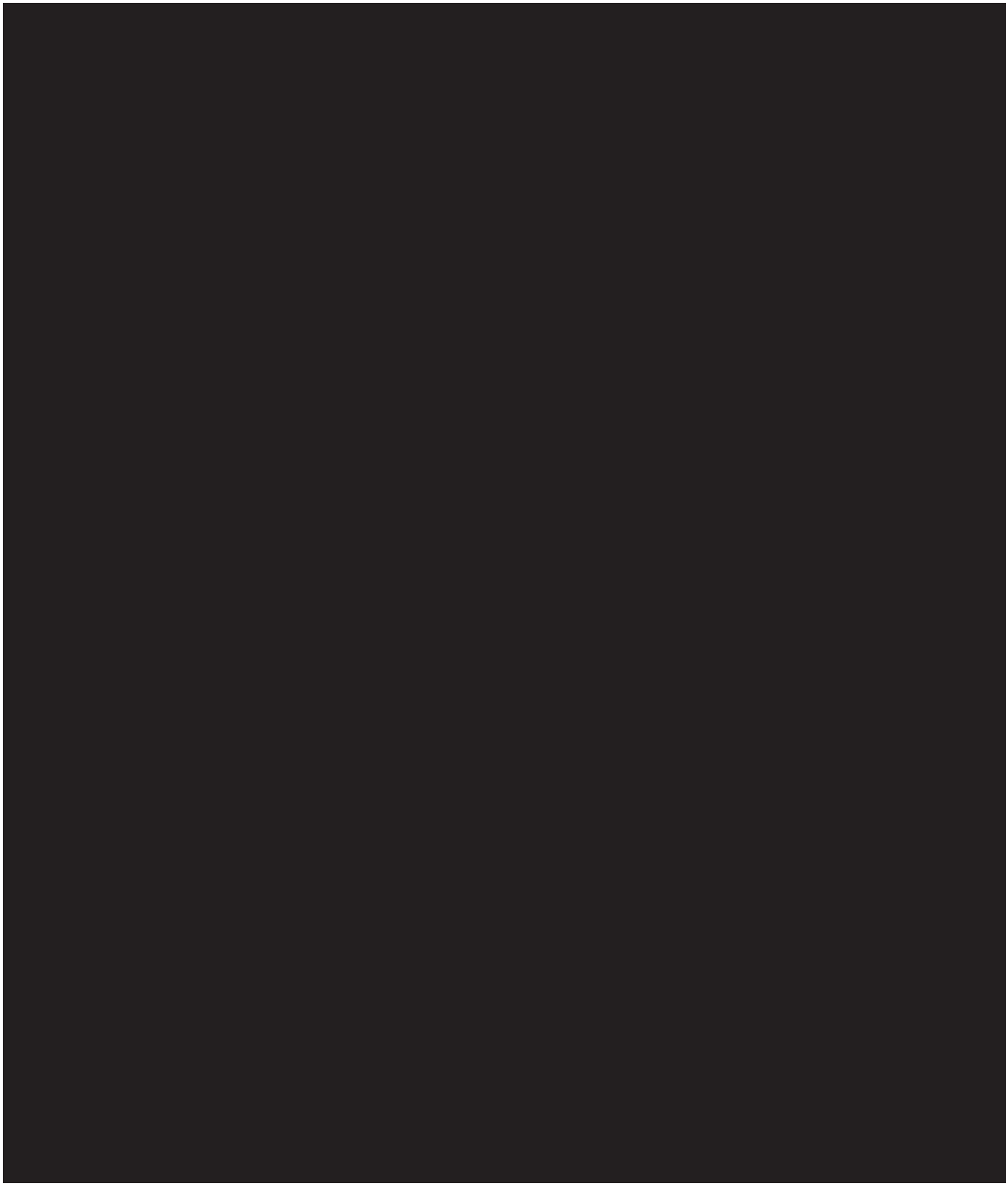


Table A2



A16. As additional robustness tests of the results in Section VI.A, I include separate, airport-specific time trend variables and product-airline pair fixed effect variables in the regression specification instead of airline-product-month fixed effect variables. I also re-estimate the regressions while clustering the standard errors at the product-airline level, which is wider than the clustering reported for the base and main specifications. None of these sensitivity checks yield materially different results from those reported in Section VI.A using the main regression specification. I continue to find [redacted] the prices in YVR were [redacted] between 2013 and 2016.

D. Additional Sensitivity Checks for Section VI.B

A17. This subsection presents details of the coefficient estimates for the regression analyses summarized in Tables 9 and 10 reported in Section VI.B as well as results from additional sensitivity checks of the main results. Section VI.B provided the results based on using a sample similar to that used by Dr. Niels, which is limited to [redacted] but which includes [redacted]. Here, I also provide results when the sample is limited to galley handling products for [redacted] only.

A18. Tables A3, A4, and A5 provide the full set of coefficient estimates for the regressions that test whether any of [redacted]. In each table, columns 1 to 3 report the estimates of the specification that does not include cost and demand controls, with observations either equally weighted (column 1), weighted by quantity (column 2), or weighted by revenue (column 3). Columns 4 to 6 report the results of the specification when cost and demand controls are included, with observations either equally weighted (column 4), quantity weighted (column 5), or revenue weighted (column 6). Note that the summary of results reported in Table 9 of Section VI.B provide the percentage differences in prices after applying the Kennedy adjustment to the coefficient estimates found in columns 1 to 3 of Tables A3, A4, and A5.

A19. The "Entry Effect" variable reported in Tables A3, A4, and A5 below corresponds to the estimated coefficient on the variable identified as [redacted] in the regression specification. As noted above, the values reported in Table 9 in Section VI.B are calculated by applying the Kennedy adjustment to the estimated regression coefficients.

A20. Table A3 below reports the results using the sample that includes galley handling products of all airlines, testing whether [redacted] led to [redacted] for galley handling products. The results show that moving from [redacted] average prices across [redacted]. In the specification without cost and demand controls, the estimated effect from [redacted] is only weakly statistically significant [redacted] When cost and demand controls are included, [redacted]

A21. Table A4 below provides the results for [redacted] for the sample of galley handling products for all airlines. There is [redacted] with or without including the demand and cost controls. Table A5 below reports the estimates of the effect of [redacted] The estimated entry effects are [redacted], with or without including the demand and cost controls and under any form of weighting. As such, there is no evidence to suggest that [redacted] given the lack of any observed reduction in [redacted] prices to all airlines from either [redacted]

A22. Tables A6, A7, and A8 below report the coefficient results when the sample of [redacted] is restricted to [redacted] The coefficient estimates presented in Tables A6, A7, and A8 use the same reporting structure as the previous tables. Note that Table 10 in Section VI.B reports the percentage price effects after applying the Kennedy adjustments to the coefficient estimates in columns 1 to 3 of Tables A6, A7, and A8.

A23. Table A6 below provides the coefficient estimates of the effect on [redacted] to [redacted] for galley handling products following [redacted]. As seen in columns 2 and 5, the entry effect coefficients are [redacted]

A24. Table A7 below reports the coefficient estimates of the effect on [redacted] to [redacted] for galley handling products following [redacted]. Table A8 below reports the coefficient estimates of the effect on [redacted] for galley handling products following [redacted] The estimated entry effects are [redacted], with or without including the demand and cost controls.[209]

A25. In an additional sensitivity check, I re-estimate the regressions testing for the effects from these individual entry events excluding the full month before and full month after the month of entry. I do this in case [redacted] changed in anticipation of the expected entry or its price changes occurred with delay. Making this change has no effect on my conclusions, as the results of the regressions remain qualitatively the same as those reported herein.

A26. In a final sensitivity check, I test whether the regression results change if I alter the sample period used in the regressions testing for the effects of entry at YYZ. I do this because there are two entry events at YYZ: (i) Newrest enters in February 2015; and (ii) Strategic enters in March-April 2016. The [redacted] Tables A5 and A8 [redacted] Tables 9 and 10 [redacted]

[209] The estimate in column (3) is marginally significant at the 10% level after applying the Kennedy adjustment, as shown in Table 10.

[redacted]

Exhibit 1

CRA Charles River Associates

David Reitman
Vice President

PhD, Decision Sciences
Stanford University

MA, Economics
Stanford University

AB, Applied Mathematics
Harvard University

David Reitman is a vice president in the Competition Practice of Charles River Associates and is based in Washington, DC. Dr. Reitman specializes in antitrust and industrial organization economics and has extensive experience in economic analysis, having previously worked in academia at several universities and at the Antitrust Division of the US Department of Justice. He has published numerous papers in leading economic and competition journals. Dr. Reitman has conducted analysis and provided testimony in a broad range of merger, unilateral conduct, and copyright cases, including in the airline, telecommunication, and music industries.

Professional history

2009–Present	*Vice President,* Charles River Associates
2006–2009	*Principal,* Charles River Associates
1995–2006	*Economist*, Economic Analysis Group, Antitrust Division, US Department of Justice
1986–1995	*Assistant Professor of Economics*, Ohio State University
1991–1992	*Visiting Assistant Professor,* Anderson Graduate School of Management, University of California-Los Angeles
1981–1982	*Research Assistant,* Stanford University
1983–1986	*Research Assistant,* Stanford University
1984	*Teaching Assistant,* Stanford University
1982–1983	*Junior Staff Economist,* Council of Economic Advisers
1978–1982	*Research Assistant,* National Bureau of Economic Research

Awards

2015	*Who's Who of Competition Lawyers and Economists*
2002	Assistant Attorney General's Distinguished Service Award
1989	Mershon Center Research Grant, Ohio State University
1981–1985	National Science Foundation Doctoral Fellowship
1979	Phi Beta Kappa

Publications

"Bundling." In *Antitrust Economics for Lawyers*, LexisNexis, forthcoming.

"Research Topics in Unilateral Effects Analysis." With J. B. Baker. In *Research Handbook on the Economics of Antitrust Law,* E. Elhauge (ed.); Edward Elgar, 2012.

"Comment on Muris and Smith, 'Antitrust and Bundled Discounts: An Experimental Analysis.'" With P. Greenlee and D.S. Sibley. *Antitrust Law Journal*, Vol. 77, pp. 669-681, 2011.

"An Antitrust Analysis of Bundled Loyalty Discounts." With P. Greenlee and D.S. Sibley. *International Journal of Industrial Organization*, Vol. 26, pp. 1132-1152, September 2008.

"When Standards Collide: Bundled Discounts under Different Conduct Standards." *Competition and Consumer Law Journal*, Vol. 15, pp. 183-198, October 2007.

"Distinguishing Competitive and Exclusionary Uses of Loyalty Discounts." With P. Greenlee. *The Antitrust Bulletin*, Vol. 50, pp. 441-463, Fall 2005.

"Why Are Some Products Branded and Others Not?" With I.P.L. Png. *Journal of Law and Economics*, Vol. 38, pp. 207–224. April 1995.

"Service Time Competition." With I.P.L. Png. *Rand Journal of Economics*, Vol. 25, pp. 619–634, winter 1994.

"Partial Ownership Arrangements and the Potential for Collusion." *Journal of Industrial Economics*, Vol. 42, pp. 313–322, September 1994.

"Stock Options and the Strategic Use of Managerial Incentives." *American Economic Review*, Vol. 83, pp. 513–524, June 1993.

"Simultaneous Signalling Through Investment in an R&D Game with Private Information." With R. Aoki. *Games and Economic Behavior*, Vol. 4, pp. 327–346, July 1992.

"Endogenous Quality Differentiation in Congested Markets." *Journal of Industrial Economics*, Vol. 39, pp. 621–648, December 1991.

Working papers

"Gauging Parallel Accommodating Conduct Concerns with the CPPI." With S. Moresi, S. Salop, and Y. Sarafidis. September 2011.

"Demand Side Merger Efficiencies." With D. Ghosh. December 2009.

"Competing with Loyalty Discounts." With P. Greenlee. Economic Analysis Group Discussion Paper 04–2, February 2004.

"Mergers in Durable Goods Markets with Rational Customers." Economic Analysis Group Discussion Paper 01–8, September 2001.

"Wholesale Volume Discounts and Retail Competition." June 1996.

"Price and Congestion Signals of Quality." March 1995.

"Announcement Effects in R&D Races." With R. Aoki. July 1994.

"Competitive Priority Service Mechanisms." December 1988.

Testimony

Expert witness to the Copyright Board of Canada, regarding SODRAC v. CBC (2008-2012) (2008-2012, 2012-2018). Prepared on behalf of CBC. September 2017 (written and trial testimony).

In the matter of *The Fanshawe College of Applied Arts and Technology et al. v. Hitachi Ltd. et al.* Ontario Superior Court of Justice. Court File No. 59044CP. Prepared on behalf of defendants. October 2015 (written and oral testimony).

In the matter of *United States of America v. US Airways Group, Inc. and AMR Corporation.* US District Court, District of Columbia. Prepared on behalf of the plaintiff. November 2013 (written testimony).

Expert witness to the Copyright Board of Canada, regarding SOCAN Tariffs 22.A Online Music Services (2011-2013). Prepared on behalf of the Canadian Association of Broadcasters. November 2013 (written and trial testimony).

Expert witness to the Copyright Board of Canada, regarding Commercial Radio Tariff - SOCAN (2011-2013), Re:Sound (2012-2014), CSI (2012-2013), ARTISTI (2012-2014), AVLA/SOPROQ (2012-2017). Prepared on behalf of the Canadian Association of Broadcasters. October 2013 (written and trial testimony).

Broadcasting Notice of Consultation CRTC 2013-106, *Call for comments on a change in effective control of Astral Media Inc. to BCE Inc.* Prepared on behalf of Bell Canada Enterprises, Inc. (joint with Margaret Sanderson). April 2013 (written testimony).

Expert witness to the Copyright Board of Canada, regarding Re:Sound Tariffs 8.A and 8.B. Prepared on behalf of Pandora Media and the Canadian Association of Broadcasters. October 2012 (written and trial testimony).

In the matter of *Graco, Inc. v. PMC Global, Inc. et al*, US District Court, District of New Jersey. Prepared on behalf of the defendant. September 2012 (written and deposition testimony).

Expert witness to the Copyright Board of Canada, regarding NRCC Tariff 6 (2008-2012). Prepared on behalf of Goodlife Fitness Centres and the Fitness Industry Counsel. May 2010 (written and trial testimony).

In the matter of *Race Tires America, Inc. v. Hoosier Racing Tire Corp. and Dirt Motor Sports, Inc.*, US District Court, Western District of Pennsylvania. Prepared on behalf of the plaintiff. April 2009 (affidavit).

Expert witness to the Copyright Board of Canada, regarding SOCAN Tariff 25 (2005-2007), NRCC Tariff 4 (2007-2010), CMRRA/SODRAC Inc.—Multi-Channel Subscription Radio Services (2006-2009). Prepared on behalf of Sirius Canada and Canadian Satellite Radio. December 2007 (written and trial testimony).

In the matter of *United States of America v. Dentsply International, Inc.*, US District Court, District of Delaware, Civil Action No. 99-005. Prepared on behalf of the plaintiff. April-May 2002 (written, deposition, and trial testimony).

Presentations

"Analyzing Loyalty Discount Programs," Panelist, ABA Antitrust Section, Transportation & Energy and Distribution & Franchising Committee Program, February 2014.

"4-3 Mergers and their Competitive Effects – Do We Have a Better Understanding?" Panelist, GCR Live 3rd Annual Antitrust Law Leaders Forum, February 2014.

"Exclusive Dealing and IDEXX Laboratories, Inc." Panelist, ABA Antitrust Section, Health Care & Pharmaceuticals, Unilateral Conduct and Federal Enforcement Committee Program, March 2013.

"Gauging Parallel Accommodating Conduct Concerns with the CPPI," International Industrial Organization Society, March 2012.

"The Consumer Welfare Effects of Bundled Discounts," Competition Bureau of Canada, February 2011.

"Market Definitions at the FCC—Theory and Practice," FCBA Wireline Practice Committee, May 2009.

"Mock Trial 2009: Defining the Relevant Market for Satellite Radio," ABA Antitrust Law Spring Meeting, March 2009.

"When Standards Collide: Bundled Discounts Under Different Conduct Standards," Blake Dawson Waldron Competition Insights Conference, Sydney, Australia, March 2007.

"Empirical Perspectives in Understanding Single-Firm Behavior: A Practitioner's View," Antitrust Division and FTC Hearings on Single-Firm Conduct and Antitrust Law, September 2006.

"Distinguishing Competitive and Exclusionary Uses of Loyalty Discounts," Oberlin College, September 2005.

"Distinguishing Competitive and Exclusionary Uses of Loyalty Discounts," Ohio State University, September 2005.

"Understanding Loyalty Discounts," Charles River Associates conference on current topics in Antitrust Economics and Competition Policy, February 2005.

"Distinguishing Competitive and Exclusionary Uses of Loyalty Discounts," United States Department of Justice Antitrust Division Symposium on Developments in the Law and Economics of Exclusionary Pricing Practices, March 2004.

"Mergers in Durable Goods Markets with Rational Customers," University of Virginia, October 2001.

"Wholesale Volume Discounts and Retail Competition," Econometric Society Winter Meetings, January 1995.

"Service Time Competition," Conference on Pricing Decision Models, Boston, MA, April 1994.

“Wholesale Volume Discounts and Retail Competition,” Mid-West Mathematical Economics Conference, April 1993.

“Service Time Competition,” Econometric Society Winter Meetings, January 1993.

“Announcement Effects in R&D Races,” Summer Institute on Game Theory and Economics, SUNY Stony Brook, July 1990.

“Joint Production Ventures without Complementary Technology,” Mid-West Mathematical Economics Conference, May 1990.

“Joint Production Ventures without Complementary Technology,” SUNY Stony Brook, April 1990.

“R&D Competition with Incomplete Information,” L. Edwin Smart Symposium on Games and Economic Behavior, July 1989.

Competition Tribunal / Tribunal de la concurrence

Canada

Acknowledgement of Expert Witness

COMPETITION TRIBUNAL

December 2010

RE: ACKNOWLEDGEMENT OF EXPERT WITNESSES

Expert witnesses who provide a report for use as evidence are required to sign the Tribunal's "Acknowledgement of Expert Witness" form which is attached to this Notice. In signing they acknowledge that they will comply with the Tribunal's code of conduct for expert witnesses. It is described in the form. A signed copy of the form is to be included in all expert reports filed with the Tribunal.

Sandra Simpson
Chair

APPENDIX: ACKNOWLEDGEMENT OF EXPERT WITNESS

I, *(name of expert)*, acknowledge that I will comply with the Competition Tribunal's code of conduct for expert witnesses which is described below:

1. 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.

2. 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.

1/10/18 — *(Date)*

Dan Rit — *(Signature of expert witness)*

Date Modified:2010-12-23

EXHIBIT 3

Materials Relied On

Expert Reports and Accompanying Data

- Competition Tribunal, Expert Report of Dr. Gunnar Niels, *Commissioner of Competition v. Vancouver Airport Authority*, CT-2016-015 (November 14, 2017).
- Data and Documents accompanying Expert Report of Dr. Gunnar Niels.

VAA Submissions

- Competition Tribunal, Response of Vancouver Airport Authority, *Commissioner of Competition v. Vancouver Airport Authority*, CT-2016-015 (November 14, 2016).

Competition Bureau Submissions

- Competition Tribunal, Notice of Application, *Commissioner of Competition v. Vancouver Airport Authority*, CT-2016-015 (September 29, 2016).

Witness Statements

[redacted]

Other VAA Productions

- Vancouver Airport Authority, "Flight Kitchen Market Analysis Report" (2017).

Competition Tribunal Decisions

- Competition Tribunal, *Commissioner of Competition v. Toronto Real Estate Board and Canadian Real Estate Association*, CT-2011-003 (April 27, 2016).

Competition Bureau Documents

- Competition Bureau, *Merger Enforcement Guidelines* (October 6, 2011).
- Competition Bureau, *The Abuse of Dominance Provisions: Sections 78 and 79 of the Competition Act Enforcement Guidelines* (September 20, 2012).

Academic Articles and Books

- Joshua D. Angrist and Jörn-Steffen Pischke, *Mostly Harmless Econometrics* (Princeton University Press 2009).
- Orley C. Ashenfelter, Daniel S. Hosken, and Matthew C. Weinberg, "The Price Effects of a Large Merger of Manufacturers: A Case Study of Maytag-Whirlpool," 5 *American Economic Journal: Economic Policy* 239 (February 2013).
- Michael A. Bailey, *Real Econometrics* (Oxford University Press 2017).
- Jonathan B. Baker, "Market Definition: An Analytical Overview," 74 *Antitrust Law Journal* 129 (2007).
- Herbert Hovenkamp, *The Antitrust Enterprise: Principles and Execution* (Harvard University Press 2008).
- Michael L. Katz, "Vertical Contractual Relations," in *Handbook of Industrial Organization, Volume I*, (Richard Schmalensee and Robert D. Willig, eds., Elsevier Science Publishers 1989).
- Michael L. Katz and Carl Shapiro, "Critical Loss Analysis: Let's Tell the Whole Story," *Antitrust* 49 (Spring 2003).
- Peter E. Kennedy, "Estimation with Correctly Interpreted Dummy Variables in Semilogarithmic Equations," 71 *American Economic Review* 801 (1981).
- Jeffery Perloff, *Microeconomics* (Addison Wesley 2012, 6th edition).
- Frank P. Ramsey, "A Contribution to the Theory of Taxation." 37 *The Economic Journal* 47 (March 1927).
- Steven Salop, "Monopolistic Competition with Outside Goods," 10 *Bell Journal of Economics* 141 (1979).

- Michael Spence, "Product Selection, Fixed Costs, and Monopolistic Competition," 43 *The Review of Economic Studies* 217 (June 1976).
- StataCorp, *STATA User's Guide: Release 14* (Stata Press 2015).
- Kees Jan van Garderen and Chandra Shah, "Exact Interpretation of Dummy Variables in Semilogarithmic Equations," 5 *Econometrics Journal* 149 (2002).
- William S. Vickrey, *Microstatics* (Harcourt, Brace and World 1964).
- Gregory J. Werden, "Identifying Exclusionary Conduct Under Section 2: The 'No Economic Sense' Test," 73 *Antitrust Law Journal* 413 (2006).

Public Documents

- Aéroports de Montréal, "2016 Annual Report" (2017).
- British Airways website, https://www.britishairways.com/en-us/executive-club/collecting-avios/flights (accessed on January 5, 2018).
- Calgary Airport Authority, "2016 Annual Report" (2017).
- Cathay Pacific Catering Services, FOOD for THOUGHT: A newsletter for partners and friends of CPCS we cherish (December, 2005), http://www.cpcs.com.hk/press/issue17.pdf (accessed on January 11, 2018).
- Culinair, http://www.culinair.ca/eng/culinair_business.php (last visited Dec. 21, 2017).
- Edmonton Airports, "Annual Report 2016" (2017).
- gategroup, "gategroup to acquire leading Canadian airline caterer, Cara Airline Solutions" (September 15, 2010), http://www.gategroup.com/press-center/news/press-releases/2010/agreement-to-acquire-cara (accessed on January 11, 2018).
- Greater Toronto Airports Authority, "Annual Report 2016" (2017).
- OAG Aviation Worldwide Limited, OAG Analytics: Schedules Analyser, Schedules Capacity Report [data extract] (retrieved on Sep. 18, 2017).
- Ottawa Macdonald-Cartier International Airport Authority, "2016 Annual Report" (2017).
- Skytrax, Background to Skytrax, http://airlinequality.com/skytrax-research (last visited Jan. 9, 2018).
- Statistics Canada, Table 282-0071: Labour Force Survey estimates (LFS), wages of employees by type of work, North American Industry Classification System (NAICS), sex and age group, unadjusted for seasonality [CANSIM database] (retrieved on Jun. 18, 2017) .
- Statistics Canada, Table 326-0020: Consumer Price Index (CPI) [CANSIM database] (retrieved on Jun. 18, 2017).
- Tom Tom Traffic Index, available at https://www.tomtom.com/en_gb/trafficindex/list (last visited Dec. 5, 2017).
- Transport Canada, "Transportation in Canada 2016 Statistical Addendum" (2017).
- Vancouver Airport Authority, "2016 Annual & Sustainability Report" (2017).

Production Files

- MLHE00001_00000001.
- MLHE00001_00000213.
- PAAH00031_00000478.
- PAAH00031_00000603.
- PAAH00031_00000968.
- PAMC00002_00000196.
- PAMC00002_00009820.
- PAMG00003_00000004.
- PDJF00007_00000987.
- PDJF00007_00001189.
- PEHL00002_00000304.
- PEHL00002_00000305.