

## **Canada's Fiscal Policy for Aviation: *What are the True Costs?***



Prepared for  
**Alberta Tourism, Parks and Recreation**

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## Executive Summary

The tourism industry has long been a key stakeholder in Canadian aviation and has been a strong advocate of improvements in Canada's aviation policies in support of enhanced international inbound tourism from new and growing markets. In order to strengthen the case for further change, Alberta Tourism, Parks and Recreation commissioned this examination of the impact of certain federal fiscal policies on the cost competitiveness of the Canadian aviation industry. In this report we refer to these impacts as the "fiscal challenges" facing aviation.

To undertake this analysis InterVISTAS reviewed and synthesised existing research analysis, as well as conducted a number of additional analyses to update the information, fill in gaps, link policies to impacts, and fully explain the many ways in which Canada's aviation system is taxed.

### Why This Matters for Tourism

- While Canada's overall travel and tourism ranking is still high, it has fallen from 8<sup>th</sup> in the world in terms of international visitor arrivals in 1998 to 16<sup>th</sup> in 2012.
- In the 2013 World Economic Forum Travel and Tourism Competitiveness Report, Canada ranked 124<sup>th</sup> in cost competitiveness and 106<sup>th</sup> in visa requirements out of 140 nations. High aviation costs are an important reason why Canada has low cost competitiveness.
- Canada has a new Canadian Tourism Strategy. For this to be effective all parts of the government must work together. This especially includes policy toward aviation, including Canada's fiscal policy (taxes and rents assessed on airports, airlines and travellers).

### The Impacts of the Current Aviation Fiscal Challenge

- *Aviation.* If the fiscal challenges were eliminated, air carriers would serve an additional 3.7 million passengers (2.1 million domestic, 0.9 million transborder, and 0.7 million other international). Based on average fares, air carriers are currently foregoing \$1.5 billion in revenues, a sum which would have helped alleviated the severity of the recent financial challenges faced by the airlines.
- *Tourism.* Inbound tourism expenditure could increase by \$3.8 billion if the aviation fiscal challenges were eliminated. This increase comes from spending by an estimated 1.6 million additional inbound passengers attracted by lower costs, as well as increased tourism spending in Canada by Canadian residents. Considering direct, indirect and induced impacts of this spending, we are currently foregoing almost 65,000 person years of tourism employment and \$4.8 billion in GDP.
- *Catalytic Impacts on National Economic Productivity.* International air connectivity affects more than tourism. It is inextricably linked to Canada's trade, investment and national productivity. Air transport is key to enabling contacts between suppliers and buyers to support trade as well as moving high value exports. Policies to promote aviation can help address Canada's declining competitiveness in the world economy. Empirical studies

suggest that affordable transport and market access costs are essential to maintaining a high level of wages in an economy.

Improved air service has a catalytic impact on the economy. That is, it facilitates the success of other sectors of the economy. We estimate that eliminating the aviation fiscal challenges would increase national productivity and GDP by \$0.65 billion in the first year. Over 10 years, the impact could reach over \$7 billion.

- *Treasury Receipts.* The fiscal challenges generate \$1.2 billion of 2011 government revenues. However, had the fiscal challenges not been present in 2011, treasury receipts would have been higher. There are three key offsets that would arise from a lower cost burden on aviation:
  - Because traffic would have increased, there would be offsetting tax revenues in the order of \$70 million from sales tax on additional air tickets.
  - Because of increased inbound tourism expenditure and increased resident spending on tourism, government would have collected an additional \$600 million in revenue from tourism spending.
  - Because of the increased connectivity arising from higher levels of air service, national productivity would have increased GDP by \$7.4 billion by the 10<sup>th</sup> year. This would have generated about \$2.7 billion in additional government revenues.

As a result, instead of the \$1.2 billion collected by government tax revenues from existing sources, government would have collected \$3.4 billion in incremental tax revenues from additional aviation ticket sales, a larger tourism sector and from general taxes from a larger GDP base.

- *GDP and Employment.* Adding the aviation, tourism and catalytic impacts of the fiscal challenges for aviation, they have resulted in a total loss of \$13.5 billion in GDP in 2011. This is a loss of 48,000 direct jobs and a total of 158,000 jobs.

Total Economic Impacts				
	GDP \$billion		Employment (FTEs)	
	Direct	Total	Direct	Total
Aviation	\$0.6	\$1.3	9,000	20,000
Tourism	\$2.2	\$4.8	39,000	65,000
Catalytic Impact	n/a	\$7.4	n/a	73,000
Total	\$2.8	\$13.5	48,000	158,000

The detailed findings presented in this report are as follows. While the individual impacts may seem modest, a report for the National Airlines Council of Canada notes that these add up and have a significant impact.

## The Taxes and Charges

- Canada has a fiscal regime that disproportionately affects the aviation sector. The monies raised from taxing the aviation industry are not reinvested back into the industry.
- *Fuel Tax.* Federal and provincial excise taxes on aviation fuel are an example of this. The contributions to federal and, in many cases, provincial coffers, are not reinvested back into the industry. This is in sharp contrast to the United States where aviation fuel tax proceeds are entirely reinvested into the industry, being used there to support airport infrastructure and the development and modernisation of the air navigation system. Federal and provincial excise taxes on aviation fuel amount to \$231 million per year, or \$4.08 per enplaned passenger (\$10.20 per round trip).<sup>1</sup>
- *Airport Rent.* Airport ground rent payments to the federal government are \$275 million per year. This amounts to \$5.15 per enplaned passenger (\$12.87 per round trip). Rents are based on airport revenues, including Airport Improvement Fee (AIF) revenues. But these are collected only for financing airport capital, not for covering operating costs. Thus the airport rent formula penalises airports with major capital programs. The federal government receives higher rents when an airport's passengers pay higher AIF to finance capital improvement, even though the landlord (the federal government) made none of the investment.
- *ATSC.* The Air Traveller Security Charge (ATSC) ranges from \$7.12 to \$25.91 per enplaned passenger, depending on the flight itinerary (and up to \$51.82 per round trip). Federal policy is that the ATSC rate is set so that passengers pay 100% of aviation security costs. (In several years more than 100% was collected.) But aviation security is a benefit to all Canadians and should be supported by funding from the general treasury. To underscore this, we point out that on 9/11 more Americans died in office buildings than on aircraft. Discouraging air travel with a tax for security does not remove the risk to Canadians, but it does undermine the economic potential of aviation dependent sectors of our economy, like tourism and trade, as well as social connectivity. The ATSC fiscal challenge amounts to over \$450 million per year.<sup>2</sup> This works out, on average, to \$7.96 per enplaned passenger (\$15.93 per round trip).
- *PILT/GILT.* In addition to ground rents, airports make Payments or Grants in Lieu of Taxes (PILT/GILT) to municipal governments. PILT/GILT payments totalled \$121 million for the

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<sup>1</sup> Statistics Canada counts *enplaned* passengers. An itinerary with two flights in each direction constitutes one round trip and four enplaned passengers. To make the results more intuitive for passenger decisions, we express our results both 'per enplaned passenger' and 'per round trip.' Some round trips have a single flight in each direction and some have two or more flights in each direction. Based on research we have conducted, our round trip figures are 2.5 times the figures per enplaned passenger.

<sup>2</sup> Our measure of the fiscal challenge from the ATSC factored down the \$631 million in actual ATSC revenue for 2011-2012 by 28%. In many countries, such as the U.S., the bulk of aviation security costs are paid by the federal treasury, with air travelers contributing a small amount to the costs. For the Canadian fiscal challenge from the ATSC, we used 72% of the ATSC tax rate.

largest airports, or an additional cost of \$2.26 per enplaned passenger (\$5.65 per average round trip itinerary). Almost without exception, U.S. airports make no PILT payments.

- *Air Navigation.* NAV CANADA, the not-for-profit provider of air navigation services in Canada, was required to pay \$1.5 billion for ANS assets previously paid for by passengers via the old Air Ticket Tax. This has resulted in an additional cost to current passengers, estimated at \$0.82 per enplaned passenger and \$2.05 per round-trip passenger.
- *GST/HST cascade.* The Goods and Services Tax (GST) and Harmonised Sales Tax are cascading taxes, where a tax is applied on other taxes. While international flights are not subject to GST,<sup>3</sup> the tax cascades on other taxes for domestic flights and on certain charges for transborder flights between Canada and the United States. The cascading tax effect occurs when GST/HST is applied on the provincial and federal fuel excise taxes, and on the Air Traveller Security Charge. The cascading impact amounts to \$1.34 per enplaned passenger (\$3.36 per round trip).
- In total, an air traveller in Canada faces an additional cost of \$22 per enplaned passenger (\$50 per average round-trip passenger) as a result of the fiscal challenges faced by Canadian aviation.

### The Impact on Passenger Traffic

- *Higher Fares.* The fiscal challenges of Canada's fiscal policy toward aviation result in higher airfares. The cost imposed on Canadian aviation by the fiscal challenges represents 8.7% of domestic fares, 9.5% of transborder fares and 6.4% of international fares.
- *Loss of Passengers.* These higher ticket prices reduce air travel. Had these costs been absent in 2011, there would have been roughly 3.7 million additional passengers (2.1 million domestic, 0.9 million transborder and 0.7 million other international).
- *Lower Airline Revenues.* Had airfares not included the additional costs caused by the fiscal challenges in 2011, air carriers would have earned an additional \$1.5 billion from this additional traffic.

### Case Studies

- Case studies were used to check the plausibility of our impact estimates. These are cases where governments in other countries imposed and/or removed taxes on aviation.
- The Netherlands: imposed and subsequently removed an Air Transport Tax
  - The Dutch government imposed a tax on air travel, in part to generate revenues for the treasury.

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<sup>3</sup> GST/HST is paid on AIFs for international flights.

- The tax immediately impacted origin/destination passenger volumes (tourism is part of O/D traffic, which is distinguished from connecting traffic).
  - Connecting traffic, which did not pay the tax, was unaffected.
  - The government felt the tax might only delay growth; instead, 2 million passengers were quickly lost.
  - The government thus removed the tax.
  - Traffic is not expected to fully rebound after the removal of the tax. Travellers that had good experiences using alternative airports are expected to be permanently lost.
  - The tax, which was to raise €350 million; only raised €267 million (due to the loss of traffic) and cost the industry €1.2 to €1.3 billion.
- Germany: imposed a tax and lost 2-5 million passengers
    - The German government imposed a tax on travel.
    - However, the tax lowered travel by 2 million passengers in 2011. (This is the government's estimate. The industry estimates the number is closer to 5 million.)
    - Major airports in Germany appear to be weathering the tax reasonably well. It is the small and medium sized airports that are feeling the greatest impact.
- The United Kingdom: the imposition of an aviation tax is expected to reduce national GDP by 1.5%
    - A recent study estimated that the UK economy would be roughly 0.5% larger today if the Air Passenger Duty (APD) were removed.
    - By 2020, the economy would be 1.5% larger, about \$40 billion CAD.
    - Some travellers minimise the amount of APD they pay by taking short-haul flights to nearby European gateways and commencing long-haul flights from these competing gateways.
    - The increase in GDP that would come with the elimination of the APD arises from stimulation in investment, increased productivity, growth in international business and trade, and increased household consumption.
- Belgium: The federal government imposed an aviation tax and cancelled it after 24 days
    - Belgium imposed a tax on aviation.
    - The outcry from industries and communities was so strong that the tax was cancelled within 24 days.

## Conclusion

Canada's current fiscal challenges on the aviation industry have resulted in air travel that costs more and have resulted in 3.7 million fewer travellers. This has resulted in a loss of tourism revenues of \$3.8 billion and even greater impacts on national economic productivity. In this report we estimate that total GDP would have been \$13.5 billion higher had the fiscal challenges been eliminated. As a result, instead of the \$1.2 billion collected by government tax revenues from the aviation fiscal challenge sources, governments would have collected \$3.4 billion in incremental tax revenues from taxes on additional aviation tickets, larger tourism expenditure and from general taxes from a larger GDP base.

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# 1 Introduction

## 1.1 Purpose

The tourism industry has long been a key stakeholder in Canadian aviation. It has been a strong advocate of improvements in Canada's aviation policies in support of enhanced international inbound tourism from new and growing markets.

Past areas of attention have included open skies and air bilateral negotiations, cost factors such as airport rent and the Air Travellers Security Charge, regional airport viability, domestic and global regulatory initiatives, and foreign ownership limitations. Progress has been made in some, but not all areas.

In order to strengthen the case for further change, Alberta Tourism, Parks and Recreation commissioned this examination into the high cost burden placed on the Canadian aviation industry and what those costs mean in foregone tourism, trade, investment, and productivity gains.

## 1.2 Approach

To undertake this analysis, InterVISTAS reviewed and synthesised existing research, as well as conducted a number of additional analyses to update the information, fill in gaps, link policies to impacts, and fully explain the many ways in which Canada's aviation system is taxed. Reviews completed and synthesized included policy papers, research on the economic impact of air transportation, assessments of the role of government policy in cost competitiveness, assessments of transborder leakage, academic and consulting reports on the effects of liberalisation, as well as other papers useful for background and for translating increased costs into travel impacts as well as catalytic impacts.

Canadian aviation is at a competitive disadvantage relative to the U.S. aviation industry from two perspectives. First, the Canadian aviation industry has costs imposed upon it that are above and beyond what their U.S. counterparts face. Second, the U.S. aviation industry also benefits from government financial support (i.e. subsidisation) that their Canadian counterparts do not enjoy.<sup>4</sup> This includes:

- the U.S. Airport Improvement Program, which subsidises airport capital investment;
- the Essential Air Service and Small Community Air Service Development programs, which support services at smaller airports;
- Tax free bond financing that dramatically reduces the cost of financing for aviation infrastructure providers;
- subsidization of the Federal Aviation Administration operations (including air navigation equipment and services);

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<sup>4</sup> Canada does provide some financial support to non-NAS airports via the Airports Capital Assistance Program (ACAP), but the amount Canada extracts from the industry from various taxes and charges far exceeds what it puts back into the industry to support its viability and growth.

- subsidisation of air transport security since it benefits all Americans, not merely air travellers;<sup>5</sup> and
- fully liberal air service agreements which allow: U.S. carriers to more fully exploit economies of scale, consumers to enjoy more competitive fares and services, and communities and aviation dependent industries to obtain air service from foreign carriers when domestic carriers do not find such service to be in their commercial interest.

Our approach was to measure the cost burden on air transportation arising from policy decisions made by Government of Canada. This is what is feasible for government to address. We do not measure the differential due to U.S. government subsidization of air transportation since it is highly unlikely governments in Canada would want to return to the days when air transportation was subsidised. Thus it is important to keep in mind that even if the additional cost burden we measure is addressed, Canadian aviation will still be at a competitive disadvantage with respect to the U.S. because of U.S. subsidies. That will simply remain a fact of life faced by Canadian industry.

There is some ambiguity around how a passenger is defined; passengers can be counted as enplaned/deplaned, by segments, or by itineraries for example. All are valid ways of counting passengers, but will lead to differing figures. An example is a flight from Edmonton to Halifax, with a stop in Montréal. This can be counted as: one round-trip itinerary, 4 enplaned segments (YEG-YUL, YUL-YHZ, YHZ-YUL and YUL-YEG), and 8 enplaned/deplaned segments (a passenger is counted as both enplaned and deplaned at each airport by the end of the trip, and twice at in YUL for the connection). Clearly any per passenger calculations will be dependent on which definition of passenger is used.

A passenger here is defined as a per enplaned segment passenger; this in line with the methodology that Statistics Canada uses to compute average fares.<sup>6</sup> Our cost per passenger will be per enplaned passenger, and then re-expressed as per average round trip itinerary. An average round trip itinerary is based on 1.25 segments<sup>7</sup> per one-way trip for a total of 2.5 segments per round trip.

### 1.3 Outline

**Chapter 2** sets the context for this report. While tourism to Canada may be growing in absolute numbers, Canada's share of global tourism is falling, and Canada's competitiveness in many key areas is well below what is required in an increasingly competitive tourism industry. Moreover, with a significant shift in where tourists are coming from, Canada is now competing for traffic in markets that have not traditionally travelled to Canada. Cost-effective and convenient air access is key to competing for this traffic.

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<sup>5</sup> On 9/11, more Americans died in office buildings than in aircraft. The benefits of increased aviation security, like national defence, are of general benefit to all citizens.

<sup>6</sup> Statistics Canada uses a passenger count of coupon origin and destination passengers to compute average fares. Source: Statistics Canada, Airfare, Canadian Carriers, Level I. <http://www.statcan.gc.ca/pub/51-004-x/2012002/part-partie2-eng.htm>

<sup>7</sup> The average of 1.25 segments per one-way trip is an InterVISTAS assumption based on a review of North American trends.

**Chapter 3** summarizes the findings about Canada's fiscal approach to aviation. In addition, it briefly summarizes the findings about the impact of other government policies -- such as infrastructure investment, air service liberalization, etc. -- on the competitiveness of Canada's aviation.

**Chapter 4** determines what costs the various policy decisions have placed on aviation, while

**Chapter 5** assesses the impact of this cost burden on travel, key industries such as tourism and manufacturing, and the catalytic impacts on productivity, tourism, trade and foreign investment.

**Chapter 6** turns the examination outwards and looks at case studies in other jurisdictions.

**Chapter 7** provides a summary of key report findings.

**Appendix A** provides a summary of the reports/papers reviewed, while **Appendix B** provides information on fare elasticities. **Appendix C** contains selected tables and computations.

## 1.4 A note on how the number of “passengers” is defined

Unfortunately, there is some ambiguity in how the numbers of passengers are counted in various types of aviation data.

“Passengers” can be counted by the number of round trip tickets purchased, by the number of one way trip itineraries, by the number of flight segments in a one way or round trip itinerary, or as enplaned/deplaned. All are valid ways of counting passengers, for different purposes, but the figures differ. To illustrate the differences in the counts, consider the example of a flight from Edmonton (YEG) to Halifax (YHZ), with a stop in Montréal (YUL) in each direction. This can be counted as:

- one round-trip itinerary (Edmonton to Halifax, return);
- two one-way itineraries (Edmonton to Halifax, Halifax to Edmonton);
- 4 enplaned segments (YEG-YUL, YUL-YHZ, YHZ-YUL and YUL-YEG); or
- 8 enplaned/deplaned (e/d) passengers.

Airlines tend to focus on the first three sets of numbers. Airports focus on e/d passengers. This is because a passenger getting off a flight uses airport services (e.g., use of restrooms) just as a person boarding a flight uses services.

Clearly any computations on a per passenger basis will be dependent on which definition of the number of “passengers” is used. In this report, we count the number of passengers as the number of enplaned passengers. One reason for doing so is that it is consistent line with the methodology that Statistics Canada uses when it computes average fares. In the report we attempt to be explicit in labeling results as being “per enplaned passengers). Sometimes it is useful to also express our results on the basis of “per round-trip itinerary”. An American family looking at costs of travel for a holiday in Drumheller Alberta is more likely to think in terms of the cost per ticket – meaning the cost per round trip itinerary. When we do so, we multiply the cost per enplaned passenger by 2.5. We must multiply the cost per enplaned passenger by two in order to convert to round trip. We also multiply by 1.25, as that is roughly the average number of flight segments per one-way itinerary. Some passengers will be able to use round trip flights while some will require two or more flight segments in each direction of their round trip.

## 2 Context for the Study

### 2.1 Canada's Declining Ranking as a Tourism Destination

The World Economic Forum offers the following assessment about Canada:

*"The country has several strengths, including its rich natural resources (10th) with numerous World Heritage sites (ranked 5th), excellent air transport infrastructure, highly qualified human resources (5th), and a strong policy environment (10th). Its cultural resources are also a strong point, with many international fairs and exhibitions in the country. Canada has lost some ground in terms of price competitiveness and environmental sustainability..."*<sup>8</sup>

We begin by looking at Canada's rank by the World Tourism Organisation in terms of numbers of international visitor arrivals. This is shown in **Figure 2-1**. In 1998, Canada's ranking was 8<sup>th</sup> while in 2011 it had declined to 16<sup>th</sup>. This decline is critical, since tourism is an important part of the Canadian economy. In 2011, tourism spending in Canada resulted in GDP of \$26.4 billion, tax revenues to all orders of government of \$22 billion, and over 600,000 jobs. Of the \$22 billion in tax revenue, about \$10 billion accrued to the federal government, another \$10 billion to provincial/territorial governments and about \$2 billion to municipal governments.<sup>9</sup>

**Figure 2-1**  
Ranking of U.S., Canada and Mexico on International Tourist Arrivals  
1998-2012



<sup>8</sup> World Economic Forum, *The Travel & Tourism Competitiveness Report 2013*, p. xix.

<sup>9</sup> HLT Advisory, TIAC/AITC, VISA, "The Canadian Tourism Industry: A Special Report", Fall 2012, pp. 8, 10.

Next, we looked at Canada's ranking by the World Economic Forum. While Canada's overall travel and tourism ranking in the annual WEF report is still high, at 9<sup>th</sup> in the world, it ranked as high as 5<sup>th</sup> as recently as 2009. In particular, there are some issues regarding key criteria. Canada ranks 124<sup>th</sup> in cost competitiveness in the 2013 report,<sup>10</sup> dropping from 110<sup>th</sup> in 2007, the first time the WEF undertook a competitiveness ranking. A key element of cost competitiveness is ticket taxes and airport charges, where Canada ranks 136<sup>th</sup> out of 140<sup>th</sup>.<sup>11</sup> Visa requirements (106<sup>th</sup> among the 140 nations ranked, down from 43<sup>rd</sup> in 2007) is another problematic area. Not only is Canada's ranking low, the direction is an issue.

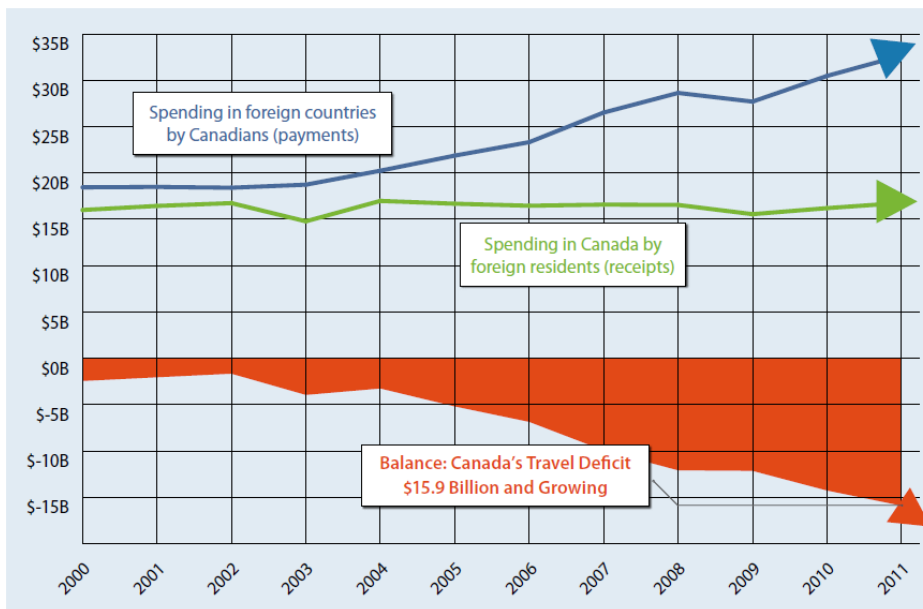
*The WEF indicates that Canada ranks 136<sup>th</sup> out of 140 nations on airline ticket taxes and airport charges.*

*For visa requirements, the WEF ranks Canada 106<sup>th</sup> out of 140.*

Another measure is the tourism deficit. This looks at the net balance between receipts from international tourists visiting Canada and expenditures by Canadian tourists travelling abroad.

A recent report by HLT Advisory, TIAC and VISA illustrated Canada's growing international travel deficit. There is an increase in Canadians spending abroad, but no growth in foreign tourist spending in Canada. Thus, an increasing tourism deficit has emerged. (**Figure 2-2**)

**Figure 2-2**  
**Canada's Tourism Deficit**  
**2000-2011**



Source: Statistics Canada

Source: HLT Advisory, TIAC/AITC, VISA, "The Canadian Tourism Industry: A Special Report", Fall 2012, p.27.

<sup>10</sup> Ibid.

<sup>11</sup> The only countries with higher ticket taxes and airport charges are the Dominican Republic, Senegal, the UK and Chad. We discuss the UK situation in Chapter 6, where assessments of the removal of the Air Passenger Duty would create 91,000 jobs and add £4.2 billion in GDP.

## 2.2 Canada's Aviation Fiscal Policy Poses Challenges for Achieving Canadian Tourism Policy Objectives

In October 2011, Canada launched a new tourism strategy with the objective of increasing awareness of Canada as a premier tourist destination, facilitating ease of access, encouraging product development and investment, and fostering an adequate supply of skills and labour.

An encouraging aspect of the development of the strategy was that more than 15 federal departments and agencies collaborated in the strategy. The goal was a "whole-of-government approach" that would improve the effectiveness of government as a partner with industry. This is critical as changes to tourism policy alone will not be able to maximise the beneficial impacts on employment, output and GDP contributed by tourism. The new strategy sets the stage for addressing Canada's decline in global tourism share.

Aviation plays one of the most critical roles in achieving tourism objectives. One critical element is the cost of air service. Government fiscal policy plays an important role in the cost of air service through taxes (security tax, fuel tax, GST tax cascading) and airport rents and Payments in Lieu of Taxes.

As indicated by the WEF low ranking of Canada on aviation taxes and charges, Canada's current fiscal approach makes it difficult for Canadian carriers to compete against foreign airlines and for Canadian tourism operators to compete against other destinations, especially the United States.

While a strong national tourism strategy is crucial, tourism policy alone cannot address the issues that Canada faces in competing for a larger share of global inbound tourism. Fiscal policy, visa policy, trade policy, foreign carrier access policy etc. all impact the ability of Canada's provinces and territories to attract foreign tourists.

Aviation cost competitiveness is a stumbling block to achieving Canada's goals and potential for tourism. Fiscal policy toward aviation poses a major challenge to achieving Canada's goals and potential for tourism. This report examines this issue by documenting the fiscal policy challenge faced by aviation and estimates the opportunity cost in terms of foregone tourism volumes and revenues.

*International air connectivity affects more than tourism.*

*It is inextricably linked to Canada's trade, investment and national productivity.*

## 2.3 Aviation Fiscal Policy Also Negatively Impacts Trade and Investment

While the focus of this paper is on tourism, we note that there are broader implications of the fiscal policy challenge for aviation. Air transport plays a major role in promoting and enabling global trade. Roughly 35% of the total value of goods traded around the world was transported

*Fiscal policy toward aviation poses a challenge to achieving Canada's goals and potential for tourism.*

by air in 2010.<sup>12</sup> The positive effect on trade is a spin-off effect of air transport, which is particularly important for countries that heavily rely on trade. For an open economy such as Canada, a sustainable and affordable air transportation system is critical in enabling Canadian businesses to deliver their products to foreign market quickly and efficiently. Likewise, air transportation enables Canadian consumers to tap into world markets and purchase foreign products they want or need in a timely and efficient manner. The speed of product delivery by air is especially important for businesses that supply or purchase time-sensitive products that have to be delivered on the same day or within a few days.

*Air transport is key to enabling contacts between suppliers and buyers to support trade as well as moving high value exports.*

*Policies to promote aviation cost competitiveness can help address Canada's declining competitiveness in the world economy.*

Air transport policies aimed at promoting cargo and passenger transportation contribute to trade development in two important ways:

- First, cargo transportation by air enables suppliers and buyers to exchange goods and services quickly and efficiently. These goods include not only finished goods, but also parts, subassemblies and warrantee shipments, which are vital to the facilitation of trade.
- Second, passenger transportation by air promotes trade by enabling personal contacts between suppliers and buyers. As a result, both suppliers and buyers are better able to seek new clients or business partners and expand market opportunities.

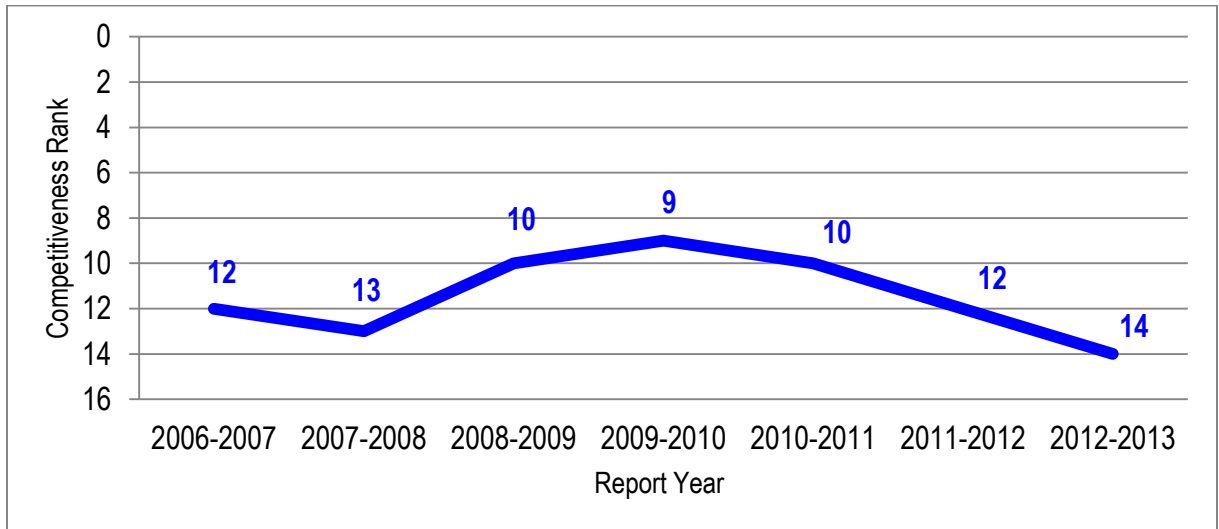
Examples showing a positive impact of air transportation on trade are numerous. Kenya's agricultural exports by air to Europe are one of the largest industries in the country. Many Caribbean economies depend on air transport to deliver to the market their main export commodities (e.g., produce and fish).<sup>13</sup>

Canada is not an exception to this general rule. Prudent aviation policies are critical to Canada's development and growth as a major trading power in the global market. **Figure 2-3** shows Canada's decline in competitiveness in the world economy since 2009.

<sup>12</sup> ATAG, "Aviation: Benefits Beyond Borders", March 2012. This 35% of the *value* of exports accounts for less than 1% of exports when measured by *weight*.

<sup>13</sup> ATAG, "Aviation: Benefits Beyond Borders", March 2012, p. 15.

**Figure 2-3**  
**Canada's Competitiveness in the World Economy Has Declined**



Source: World Economic Forum, The Global Competitiveness Index 2012-2013 data platform



### 3 A Growing Base of Empirical Research Shows that Canada's Aviation Policies are Impacting the Economy

There is a wide range of studies and papers that point out challenges posed by Canada's approach of heavily taxing and charging air transportation. This section of the report reviews some of the key findings of this body of research.

#### 3.1 Qualitative Evidence Points to Fundamental Differences in Canada's versus the United States' Aviation Policy

Air transport plays an important role in promoting global travel, trade and links between economies and societies. An extensive body of literature has been developed over the years documenting benefits brought about by the air transport industry. The literature emphasizes that air transport provides a major contribution to economic growth and prosperity in its own right through direct job creation and economic output. But perhaps of more importance are the broader effects of air transport that emerge as a result of better connection of individual economies to the global economic network. As IATA stated:

*Research consistently shows that aviation not only contributes to the economy in its own right, it also acts as a catalyst in enhancing the overall economy.*

*"The wider economic returns must not be ignored in debates about future aviation development and investment."<sup>14</sup>*

A reliable and affordable air transportation system has important benefits beyond quantifiable economic effects, particularly for a country of vast territory and sparse population such as Canada. E.g., according to a 2013 study by the Conference Board of Canada and SNC Lavalin, air transportation promotes the livelihood of Canadians in remote regions and economic growth in Canada's North; plays an important role in protecting natural resources and providing timely emergency response and humanitarian relief; enhances leisure and cultural experiences of Canadians and helps connect families and friends; and enhances business operations and efficiency.<sup>15</sup>

*Studies suggest that Canada's fiscal aviation policies have ignored or discounted the impact of aviation as a catalyst for tourism and general economic activity.*

A number of academic, government and business sources suggest that Canada's aviation policies have ignored or discounted the impact of aviation as a catalyst for general economic activity, focusing instead on its potential to generate tax

<sup>14</sup> IATA, "Aviation Economic Benefits", Economics Briefing No 8, July 2007, p. 3.

<sup>15</sup> Conference Board of Canada and SNC Lavalin, "The Economic Impact of the Air Transportation Industry in Canada", April 2013.

revenues for various levels of government. This approach contradicts sharply aviation policies in other jurisdictions, in particular in the United States where the government takes an active role in promoting aviation via government subsidies, funding programs and other favourable public policy initiatives. The net result of the diversion in policy approaches is a loss of competitive and cost advantage for Canadian aviation stakeholders compared to their counterparts in the United States.

In a 2008 study, InterVISTAS identified three main areas where Canadian government policies affect the cost competitiveness of Canadian aviation:<sup>16</sup>

- Canada's taxation policies impose a fiscal burden on the aviation sector in Canada, resulting in a net drain of resources from the sector to the general treasury. Unlike the U.S. and other jurisdictions, the tax and other dollars taken from air travellers, airports and air carriers are not reinvested back into the aviation sector. In contrast, in the United States, airports, airlines and air navigation providers all receive fiscal support from various levels of government.
- Canada's policies related to infrastructure investment and infrastructure operation in the aviation sector further reduce the cost competitiveness of the Canadian aviation sector. Such policies include underinvestment by the federal government in airports prior to airport privatization in the 1990s, which in turn necessitated greater investments in infrastructure by airport authorities in years following privatisation; the inclusion of airport improvement fee revenues (which are used to finance infrastructure investment) is computing airport rents, the requirement to provide airport space at no charge to government agencies; and other requirements that were imposed on airport authorities as part of the airport transfer process.
- Other differences in Canadian and U.S. government policies further contribute to a cost disadvantage gap between Canadian and U.S. airports. Those include the provision of government capital funding and subsidy to FAA air navigation; the provision of airline essential air service subsidies in the U.S.; partial funding of aviation security costs in the U.S., among other support programs. All of those are absent in Canada. In addition, the U.S. has a substantially more open air service regime with the rest of the world as a result of numerous open skies agreements.

Canada's fiscal policies toward aviation contrast sharply with approaches in other jurisdictions such as the United States. The next section summarizes quantitative research on the impacts of Canada's aviation policies.

*Canada's fiscal policies toward aviation contrast sharply with approaches in other jurisdictions such as the U.S.*

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<sup>16</sup> InterVISTAS Consulting, "The Role of Government Policy in the Cost Competitiveness of Canadian Aviation: Impacts on Airports and Airlines", January 2008.

## 3.2 Quantitative Evidence Establishes the Negative Impact of Canada's Aviation Policy on Tourism, Trade and Economic Growth

### 3.2.1 Aviation Plays an Important Role in Promoting Economic Growth and Increasing Productivity

Air transport is a major contributor to global economic growth and job creation. A number of studies have quantified the economic impact of the global air transport industry. While approaches and methodologies differ, the studies reviewed by InterVISTAS are uniform in their approach that in addition to the direct economic impact, researchers and policy makers should take into account the economic impact from indirect, induced and catalytic economic activity related to the air transport industry.

On a global scale, the economic impact of aviation was estimated at \$2.2 trillion or 3.5% of global GDP. This estimate includes direct, indirect, induced and tourism catalytic impacts. In addition, air transport is a major employer supporting 56.6 million jobs worldwide and it is forecast to support 82 million jobs by 2030. A large number of those jobs are enabled by tourism expenditure (34.4 million jobs or 61% of the total).<sup>17</sup>

The air transport industry is an important source of investment in vital infrastructure. The Air Transport Action Group (ATAG) is a coalition of aviation industry experts focused on sustainable development issues. It notes that the air transport industry, unlike other modes of transport, is largely self-financed and benefits little from public investment, subsidies or tax revenue.<sup>18</sup> Also according to ATAG, in 2010 airports alone invested \$26 billion in infrastructure projects (runways, airport terminals, etc.) worldwide.<sup>19</sup>

Beyond aviation's economic benefits, the air transport industry provides significant social benefits. By facilitating the movement of goods and people around the world, the air transport industry facilitates growth of social and economic networks between different countries and regions, leading to a greater social and economic integration. This is particularly important for regions with challenges on physical ground access.

On a national scale, the air transport industry entails similar benefits, although of smaller scale. In a joint study analysing the impact of air transport on the Canadian economy, the Conference Board of Canada and SNC Lavalin estimated that the air transport industry generated \$35 billion in GDP in 2012. In addition, it supported 400,000 jobs and contributed over \$12 billion to federal and provincial coffers, including over \$7 billion in taxes plus other revenues such as airport rents and PILT. These figures represent the total economic footprint of the air transport industry in Canada based on direct, indirect and induced effects, and do not reflect the catalytic impacts.<sup>20</sup>

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<sup>17</sup> ATAG, "Aviation: Benefits Beyond Borders", 2012.

<sup>18</sup> It should be noted that in Canada and the U.S., the rail freight carriers are self-financed. Road, transit and passenger rail users are subsidised.

<sup>19</sup> ATAG, "Aviation: Benefits Beyond Borders", 2012.

<sup>20</sup> Conference Board of Canada and SNC Lavalin, "The Economic Impact of the Air Transportation Industry in Canada", April 2013.

The development of air transport has important implications for national productivity. Past empirical research established a positive and statistically significant relationship between a country's integration into the global air transport network and its resource productivity levels. In a 2006 study prepared for IATA, InterVISTAS used statistical regression analysis to study this relationship and concluded that an increase in national air transport connectivity leads to an increase in national productivity (measured by labour productivity). In addition, the study quantified the rate of economic return on investment in aviation infrastructure (airports, aircraft and air navigation facilities). The rate of economic return ranged from 16% to 59%, indicating that investment in aviation infrastructure leads to tangible economic benefits.<sup>21</sup> These are rates of return that appear well above the cost of capital.

*Past empirical research established a positive relationship between a country's integration into the global air transport network and its national productivity level.*

A study prepared by IATA in partnership with InterVISTAS in 2007 produced similar results, showing that enhanced connections to the global air transport network lead to increased economic productivity and better economic performance for any given country. The study used statistical analysis to establish a relationship between a country's connectivity to the global air transport network and the country's level of productivity based on 48 developed and developing countries. It concluded that:

- there is a clear positive statistical relationship between levels of air connectivity and levels of labour productivity, and hence GDP and living standards;
- such productivity gains are higher for developing economies compared to developed economies;
- investment in aviation generates positive economic rates of return beyond direct returns earned by investors and users, and;
- the economic rate of return observed in developed and developing countries justifies investment in the aviation sector.

The findings in the 2007 IATA/InterVISTAS study are consistent with a previous IATA report on airline network benefits, which analysed EU economies and concluded that a 10% connectivity increase relative to a country's GDP increases total factor productivity by 0.9%.<sup>22</sup>

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<sup>21</sup> InterVISTAS for IATA, "Measuring the Economic Rate of Return on Investment in Aviation", December 2006.

<sup>22</sup> IATA, "Aviation Economic Benefits: Measuring the economic rate of return in investment in the aviation industry" July 2007

### 3.2.2 Liberalization of Aviation is an Important Catalyst of Economic Growth

Liberalization of the air transport industry is an important catalyst of growth for the industry and for the economy more generally. Research on the effects of liberalization of international and domestic air transportation points out that liberalization has a positive effect on market growth and service levels and leads to lower airfares. Conversely, restrictive air policies may stifle market growth, result in higher airfares through the suppression of competition and result in suboptimal service quality. Restrictive air policies may also have far reaching implications for a country's economic development, particularly for countries that are reliant on tourism and travel industries as a vital source of economic livelihood.

*Liberalization of international and domestic air transportation leads to market growth, improved service levels and lower airfares.*

InterVISTAS conducted a number of studies to measure the impact of liberalization of air transport service on the aviation industry, passengers and the economy in general. A 2009 study by InterVISTAS explored the impact of liberalization in Panama and predicted that greater market access would lead to an increase in traffic, an increase in service levels and lower airfares. This in turn would stimulate tourism and other aviation dependent economic sectors.<sup>23</sup>

### 3.2.3 Studies on Canada's Aviation Policies and their Impact on Economic Growth

In recent years, an increasing number of Canadian passengers have been travelling by car or bus to the United States to take advantage of cheaper fares for air travel to U.S. and international destinations. Termed "cross-border airfare shopping", this phenomenon was the focus of a number of empirical studies, which attempted to identify the main causes of the difference in transborder, Canadian and U.S. airfares on routes of comparable characteristics.

Researchers point out that Canada's aviation policies result in reduced cost effectiveness of Canadian aviation. This in turn hurts aviation dependent industries, such as tourism and trade. Among the main findings that explain the difference in airfares between Canada and the U.S. that surfaced in academic, government and industry research are the following:

*Researchers point out that Canada's aviation policies result in reduced cost effectiveness of Canadian aviation. This in turn hurts aviation dependent industries, such as tourism and trade.*

<sup>23</sup> InterVISTAS Consulting, "The Impact of International Air Service Liberalization on Panama", July 2009. Similar results were found for other countries including: Australia, Brazil, Chile, Singapore, Turkey and Vietnam among others. The study separately measured the impact of market access liberalization and liberalization of ownership and control rules, forecasting that the combined effect would be an increase in traffic by 51%, a reduction in fares by 38% and an increase in consumer surplus of \$182 million. In addition, market liberalization would lead to \$0.5 billion in incremental GDP and 28,700 additional full-time job equivalents for Panama.

**Senate Report: Toll Booth or Spark Plug?**

A multi-year inquiry by the Senate Standing Committee on Transport and Communications into emerging issues in Canada's aviation industry revealed that Canada's aviation industry suffers from a disproportionate tax burden compared to the United States. The Committee cited an example of a typical flight from Toronto to Orlando to demonstrate the difference in base fares and taxes. A typical Toronto-Orlando flight had a base fare of \$118 and taxes and charges totalling \$89.53. If that passenger were to drive to Buffalo and fly to Orlando, a typical base fare would have been \$124, but with taxes and charges totalling \$20.88. Even though the base fare was cheaper in Toronto, because of taxes and charges, it cost over \$60 less to fly from Buffalo.<sup>24</sup>

*A multi-year Senate inquiry pointed out a disproportionate tax burden on the aviation industry in Canada vis-à-vis the United States.*

**Conference Board of Canada Study: Sources of Airfare Differentials in Canada and the United States.**

The Conference Board of Canada (2012) examined cost structures of a number of carriers (both Canadian and U.S.) operating out of the Vancouver, Montréal and Toronto airports and competing airports located in the U.S. The Conference Board of Canada concluded that the U.S. carriers benefited from a 30% cost advantage compared to the Canadian carriers that were included in the study.

The study established a significant fare differential between airfares on flights to the U.S. from three Canadian airports and from their competitors in the U.S. The study also attempted to quantify the key contributing factors to the airfare differentials and provide an estimate for the number of Canadian passengers who cross the border to catch a U.S. domestic flight. No single major factor responsible for the fare differential was identified; the gap in airfares was determined to be the result of a large number of factors. While taxes and fees levied by Canada on transborder flights accounted for about 40% percent of the total airfare differential in the markets examined, fees imposed by the U.S. (such as the U.S. agriculture fee, the U.S. immigration fee and the U.S. customs fee) that apply only to transborder and international flights also contributed to the differential. By driving across the border and taking a domestic flight from a U.S. airport, Canadian passengers can avoid those fees and benefit from a cheaper overall airfare.

The study concluded that the fare gap leads to a loss of passengers for Canadian airports, loss of business revenues and loss of government tax revenues. A reduction of the fare differential caused by Canadian policies would lead to over 2 million more passengers for Canadian airports annually. Importantly, the study emphasized that the loss in traffic for hub airports such as YVR, YYZ and YUL leads to broader implications via poorer

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<sup>24</sup> The Standing Senate Committee on Transport and Communication, "The Future of Canadian Air Travel: Toll Booth or Spark Plug?" June 2012.

connectivity for all of Canada rather than only for the local catchment areas of the three airports concerned.<sup>25</sup>

**Canadian Airports Council: One of Our Airports is Missing.** In its 2010 submission to the federal government of Canada as part of the pre-budgetary consultation process, the Canadian Airports Council (CAC) identified three areas where Canada's aviation sector faces a competitive disadvantage compared to U.S. counterparts, the rest of the world and other modes of transport. Those included: ground rent, free trade zones and regulatory burden.

*Eliminating ground rent would roughly 600,000 travellers, increase spending by \$300 million and add over 5000 jobs.*

The CAC strongly advocated for the elimination of ground rent that airports pay to the federal government, citing the stifling effect of this tax component on the prosperity and competitiveness of Canada's aviation and tourism. The elimination of ground rent would lead to 590,000 additional travellers, additional spending of \$304 million and an additional 5,330 full-time job equivalents annually, based on a study prepared by InterVISTAS for the CAC. The resulting decrease in tax revenue estimated at \$280 million would be partially offset by \$50 million in tax revenues from new business activity. The CAC referred to a study by the World Economic Forum that ranked Canada 114<sup>th</sup> out of 130 countries in terms of cost competitiveness of the tourism and travel sectors.

In addition, the CAC argued that Canada's airports should be included in a foreign/free trade zone (FTZ) program. Canada is the only G8 country that does not offer a true FTZ program. Finally, the CAC recommended a re-examination of the regulatory system applicable to airports in Canada to remove a duplicative regulatory burden. Canada's high degree of regulatory burden due to security and environmental requirements unduly increase airport costs, placing Canadian airports at a competitive disadvantage compared to other modes of transport.

The CAC also released a study on the use of cross border airports by Canadians. In a press release from March 2012, the CAC highlights the main finding of the study, the loss of approximately 4.8 million passengers a year to U.S. border airports, which is equal to an airport about the same size as Ottawa International Airport. Also noted in the press release was that a contributing factor to the loss of passengers was the higher ticket costs in Canada, resulting from charges such as the ATSC, Harmonized Sales Tax, airport rent (a hidden fee), and AIF and navigation fees (which are used to fund infrastructure).<sup>26</sup>

**National Airlines Council of Canada: The Fiscal Burden.** In its 2012 study prepared by Dr. Fred Lazar of the Schulich School of Business, the economic impacts of its member carriers,

<sup>25</sup> The Conference Board of Canada, "Driven Away: Why More Canadians are Choosing Cross Border Airports" October 2012.

<sup>26</sup> The Canadian Airports Council, "Cross Border Shopping of Air Travel a National Phenomenon", Press Release, March 20, 2012.

the cost of Canada's aviation policies, as well as the future policies and possible changes are identified. The study focuses on quantifying three main taxes: airport ground lease, the Air Travellers Security Charge and excise taxes on jet fuel (both federally and provincially).

Dr. Lazar makes the point that the heavy taxation of the aviation industry is opposite of what the government should be doing from an economic view, as this policy does not promote investment and production. The federal government has earned \$8.6 billion in revenues from the aviation industry (both directly and indirectly) between 2002 and 2012, not including the \$550 million earned from taxes on jet fuel. The cost per passenger of ground rents at the 8 largest airports in Canada was estimated to be \$2.80 (\$5.60 per round trip). It is also noted that while in Canada the eight largest airports pay the government, the opposite is true for the United States (nine of their largest airports received massive subsidies). Canada's security tax is also one of the highest in the world, with a recent charge increase leading to an additional cost of \$1.50 per passenger, bringing the total with HST up to as high as \$25.91 *each way*. The main issue with the excise jet fuel tax is that it no longer is used to fund airport infrastructure, its original purpose.

*While on their own, each of these taxes have relatively small impacts ...*

*their sum, along with the other government charges (e.g., rent and PILT), have a significant impact.*

*Total taxes and fees are as high as 32% of the total fare.*

The main issue noted is that while on their own, each of these taxes have relatively small impacts, their sum, along with the other charges from government policies, have a significant impact. Total taxes and fees (the three main taxes studied as well as other taxes and fees) were calculated to be as high as 32% of the total fare for select domestic flights, a substantial percentage. It is recommended that the government refocus their policies to better aid connectivity, employment, income and trade and overall productivity.<sup>27</sup>

*Between 2002 and 2012, the federal government earned \$8.6 billion in revenues from the aviation industry.*

**Elwakil, Windle and Dresner: Airline alliances, lack of LCCs on transborder routes and the presence of LCCs at U.S. border cities may explain difference in fares.**

Elwakil, Windle and Dresner (2013) tested empirically anecdotal evidence that Canadians were driving to the United States for cheaper airfares to U.S. destinations. While anecdotes suggest that higher taxes and fees were the reason for such diversion, the authors hypothesized several other reasons for such leakage, including airline alliance activity suppressing competition, a lack of low-cost carrier (LCC) presence on transborder routes, and the presence of LCCs at U.S. border cities instead.

<sup>27</sup> Dr. Fred Lazar for the National Airlines Council of Canada, "The Economic Impacts of the Member Carriers of the National Airlines Council of Canada", December 2012.



The study found that 4.7 million passengers “leaked” to five U.S. border airports in 2008. Five Canada-U.S. border city substitute pairs were selected (Montréal versus Burlington, Toronto versus Buffalo, Ottawa versus Syracuse, Windsor versus Detroit and Vancouver versus Seattle) with driving time ranging between 0.05 and 3.75 hours between the selected city-pairs. The five U.S. border airports were empirically shown to have higher passenger traffic than other U.S. airports with similar characteristics, confirming that leakage was indeed occurring from Canada into bordering U.S. cities. Other empirical studies on transborder passenger leakage generally confirmed the finding of transborder passenger leakage due to higher airfares on transborder routes compared to U.S. domestic airfares (**Appendix A**).

*4.7 million passengers “leaked” to five U.S. border airports.*

*This is due to high taxes/fees on Canadian air travel.*

Airfare analysis and literature review determined that taxes and fees account for 17-37% of the fare differential in transborder fares versus similar domestic U.S. routes.

However, even before fees and taxes, transborder fares were shown to be 28.2% higher on average than comparable U.S. domestic fares after controlling for route-specific factors such as market concentration (number of airlines serving each market).

The study suggested that the difference in base fares on transborder and comparable domestic U.S. routes may be due to the following factors:

- there is little low-cost carrier (LCC) competition on transborder routes;
- LCCs have instead established service in U.S. towns close to major Canadian cities; and
- despite the liberalized air transport market between the U.S. and Canada, airline alliance activity has also suppressed competition, likely resulting in higher fares.<sup>28</sup>

A change in Canada's taxation policy in the aviation sector may result in tangible benefits for the Canadian economy and consumers. In particular, the elimination of airport ground rents would positively impact air passenger and cargo traffic, traveller and tourist expenditure and the economy more generally. While there is a concern over potential loss of government revenue, should airport rents be phased out, any such loss would be partially offset by increased tax revenue from the additional economic activity.

InterVISTAS (2009) estimated the impact of ground rent elimination on key economic indicators and concluded that, as a result, total air traffic in Canada would increase by 0.89% or by just under 600,000 passengers annually. In addition, it would generate an additional \$304 million in traveller expenditure annually. The total impact on GDP (including direct, indirect and induced effects) was estimated at \$350 million annually. Employment would increase by 5,550 full-time job equivalents per year. Finally, while the loss in annual revenue to the federal government was estimated at \$280 million (based on

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<sup>28</sup> Elwakil, O., R. Windle, and M. Dresner (2013) “Transborder demand leakage and the US-Canadian air passenger market”, *Transportation Research Part E* 57, pp. 45-57.

2007 airport ground rent receipts), it would be partially offset by \$50 million in additional tax revenues from the new economic activity.<sup>29</sup>

### **Tourism Industry Association of Canada: “Gateway to Growth: Our Global Competitiveness Requires a New Roadmap (M.A.P.)”**

In 2012, the Tourism Industry Association of Canada (TIAC) prepared an analysis of the challenges faced by Canada's tourism industry. It also provided an overview of federal and provincial initiatives aimed at addressing those challenges.

Tourism is an important contributor to economic growth in Canada. In 2011, tourism accounted for 603,400 direct jobs and supported 1.6 million jobs (or 9.2% of Canada's total employment), for \$78.8 billion of national GDP and for \$16.7 billion in export revenue.

The study established the following trends affecting Canada's tourism and travel industry:

- Canada's share of the world tourism market is declining, while total international tourism is growing.
- Canadians increasingly travel abroad and spend money outside of Canada. Spending by foreign tourists in Canada was static in the past decade. International arrivals in Canada have declined over time. Canada is falling behind in attracting tourists from growing international travel markets (the U.S. and emerging economies).
- As a result of the lack of revenue from foreign visitors, Canadians will face higher taxes.

The study identified three main policy challenges affecting the tourism and travel industry: marketing, access and product (M.A.P.).

**Marketing:** Canada is planning to reduce funding for the marketing of tourism and travel to \$58 million in 2013-14 (compared to \$72 million in 2010).

**Access:** The cost structure of Canada's aviation – in particular airport rents, fuel taxes and security fees – presents another barrier to growth in tourism and travel. The government collects \$850 million annually in aviation taxes and fees (airport rents, excise aviation fuel taxes, security charges, air navigation charges and GST levied on the Air Transport Security Charge and the Airport Improvement Fee). In addition, a restrictive visa regime for visitors and border issues further contribute to the problem.

**Product:** The study emphasized that investment in tourism products owned by federal and provincial governments is needed to promote growth in tourism.

According to the study, the new federal tourism strategy launched in October 2011 resulted in a number of initiatives, such as an air access agreement between Canada and Brazil, new 10-year multiple entry visas for visitors, federal support for parks and tourist

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<sup>29</sup> InterVISTAS Consulting, “The Elimination of Airport Rent: Return on Investment”, July 2009.

sights and other important projects. Those initiatives have been also complemented by tourism strategies developed by many provincial and territorial governments.

### **The Canadian Chamber of Commerce: “Restoring Canadian Tourism”**

In July 2013, the Canadian Chamber of Commerce issued a discussion paper which looked into the issue of Canada's declining attraction as a tourist destination. According to the study, Canada's share of international tourism has been declining. While Canada was in the top 10 destinations based on international arrivals a decade ago, today it may fail to make it to the top 20.

Tourism is the largest service export in Canada, accounting for \$17.3 billion per year in export revenue. Tourism is affected by factors that are beyond Canada's control and also factors that are within its control. Among the former are factors such as the rise of the Canadian dollar, the U.S. recession and policies that followed the terrorist attacks of 9/11. Among the latter are excessive regulation, fees and taxes, and a restrictive visitor visa regime.

Key findings presented in the study were as follows:

- In 2012, the contribution of the tourism industry to Canada's economy was \$84.8 billion and it was greater than from agriculture, fisheries and forestry combined.
- The tourism industry directly employs over 600,000 people in Canada, exceeding employment in the oil and gas industry.
- In 2011, the tourism industry contributed \$21.4 billion per year in taxation revenues for governments at various levels, of which \$10 billion was federal government revenue.
- While international arrivals globally continue to grow, Canada's share of international arrivals continues to decline. The number of international arrivals dropped from 20.1 million in 2002 to 16.3 million in 2012. Other countries experiencing a drop in international arrivals are Poland, Ireland, Tunisia and Brazil.
- The tourism industry in Canada primarily relies on domestic travellers, which accounted for 81% of total tourism expenditures in Canada in 2012 (compared to 65% in 2000). This is a worrisome trend, given that international tourism is more lucrative. International tourists stay longer, spend more and result in greater profit margins for Canadian businesses.
- In addition to the loss of spending from international visitors, Canada is also missing out on the opportunity to develop investment and business partnerships.

While Canada's brand as a destination for tourists and travellers is well established, Canada's ranking in travel and tourism competitiveness has fallen from 5<sup>th</sup> in 2009 to 8<sup>th</sup> in

2013. Canada ranked 124<sup>th</sup> out of 140 countries in terms of price competitiveness, according to the World Economic Forum.

The main cause for the decline in international tourist arrivals in Canada is “an outdated aviation policy that creates competitive barriers and an underfunded marketing strategy”. In addition, Canada does not exempt the tourism and travel industry from GST, while other export sectors are “zero-rated” for GST. Canada’s visa system for visitors is cumbersome and expensive. Excessive air travel costs as a result of layers of taxes, fees and surcharges applied to air travel further impede access to the country for international tourists. Finally, Canada reduced its marketing budget by 20% to \$58 million, which contradicts sharply with the aggressive marketing approaches in the U.S., Ireland, Mexico, Australia, New Zealand, and India.

The study recommended:

- an increase in Canada’s marketing budget to compete with rival countries;
- an examination by the federal government of the cost competitiveness of the travel sector with special attention to the high cost borne by aviation customers;
- a revision of the visa regime for visitors with the view to ease access to Canada; and
- an implementation of the strategies under the broad federal government’s tourism strategy, Welcoming the World. Care should be taken to ensure that there is no unnecessary competition between government and private sector enterprises.

### 3.3 Five Policy Areas Affecting Cost Competitiveness of Canada’s Aviation Sector

Key recommendations for changing public policy with the view to improve the competitiveness of Canada’s aviation can be divided into five broad areas: fiscal policy, operations and infrastructure development policy, economic policy, environmental policy, and international air service policy.

**Fiscal policy.** Several industry studies and government inquiries have called for the elimination of federal airport ground rents as well as municipal/provincial taxes on airports and payments in lieu of taxes. In addition, suggestions have been made to revisit and amend policies concerning excise taxes on aviation fuel and security charge for air travellers, among other policies. At the same time, some studies recommended increasing funding for aviation related projects by different levels of government.

**Operations and infrastructure development policy.** In developing or appraising aviation infrastructure development projects, policy makers should take into account the wider economic benefits of aviation infrastructure development. Investment in aviation can generate significant wider economic benefits, according to some studies (e.g., IATA/InterVISTAS 2007). Those wider economic benefits would help boost the competitiveness and productivity of Canada’s overall economy.

**Economic policy.** The Canadian Airports Council recommended that airports be able to develop foreign/free trade zones. Canada is the only G8 country that appears to not have a true foreign/free trade zone program, according to the Canadian Airports Council (2010).<sup>30</sup>

**Facilitation and Customs/Immigration policy.** Canada has more stringent visa requirements than the majority of nations, ranking 106<sup>th</sup> of 140 nations according to the World Economic Forum (WEF 2013). The high number of countries whose nationals require a visa to visit or transit Canada, and the general difficulty and length of time it takes to acquire a visa, encourages travellers to choose alternative destinations as well as alternative gateways. Canada should also improve connection processes to lower connection times to facilitate Canadian airports as effective connecting gateways.

**International air service policy.** Liberalisation of air service can help support and promote greater connectivity of air transport markets.

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<sup>30</sup> Canadian Airports Council, "Righting the Canadian Disadvantage, Pre-Budget 2010 Submission" (Submission to the House of Commons Standing Committee on Finance), 2010.

## 4 A Tally of Government Receipts from Aviation

### 4.1 Aviation is a Major Contributor to General Revenues

The air transportation industry is an important generator of tax revenues for the various levels of government in Canada. In 2011-2013, the federal government reported that it received at least \$932 million in taxes from air transportation.<sup>31</sup> This does not include other charges, such as rents. However, the tax burden placed on the aviation industry is disproportionate compared to other industries or other modes of transport.

The analysis of government receipts from aviation presented in this section builds on an earlier study by InterVISTAS conducted in 2008. At the time, InterVISTAS evaluated the impact of Canada's government policies on the cost competitiveness of Canadian aviation. The purpose of the 2008 study was to measure the impact of Canadian and U.S. government fiscal and other policies on the competitiveness of select airports, including three Canadian airports (Toronto, Montréal and Vancouver) and a number of comparable U.S. airports.

The study identified three main areas where Canada's policies contributed to increased costs for aviation users and broadened the gap between the cost competitiveness of aviation in Canada and the United States. The three areas were as follows:

- Canada's taxation policies impose an undue fiscal burden on the aviation sector in Canada, resulting in a net drain of resources from aviation into the general treasury rather, thus reducing the competitiveness of Canada's tourism and trade sectors. Airport ground rents paid by airport authorities to the federal government; Payments in Lieu of Taxes or Grants in Lieu of Taxes paid by airport authorities to municipal governments; federal and provincial taxes on the sale of air transportation services – all contribute to much higher costs for Canadian aviation. Fiscal challenges that result from differences in the tax systems of the United States and Canada ranged from \$12.91 to \$14.40 per enplaned passenger. On a round trip basis, the higher cost is roughly \$30-\$36.<sup>32</sup>
- Canada's policies related to infrastructure investment and infrastructure operation in the aviation sector further reduce the cost competitiveness of the Canadian aviation sector. Such policies include underinvestment by the federal government in airports prior to airport privatization in the 1990s, which in turn necessitated greater investments in infrastructure by

*Fiscal challenges that result from differences in the tax and rent systems of the United States and Canada ranged from*

*\$12.91 to \$14.40 per passenger, (\$32.28 to \$36 for the average round trip).*

<sup>31</sup> Transport Canada, *Transportation in Canada*, 2011, p. 28. The table refers to "Selected Revenues."

<sup>32</sup> Statistics Canada counts typically 'passengers' as enplaned passengers. A traveller with a one way ticket with two, connecting flight segments, will thus be counted as two enplaned 'passengers'. To add clarity, in this section we express figures both on an enplaned passenger basis and on a per round trip basis. The latter recognises that some travellers require more than one flight segment in each direction. Our analysis uses an average of 1.25 flight segments in each direction.

- airport authorities in years following privatisation; the inclusion of airport improvement fee revenues (which are used to finance infrastructure investment) in computing airport rents, the requirement to provide airport space at no charge to government agencies; and other requirements that were imposed on airport authorities as part of the airport transfer process. Investment and operating penalties that result from policy differences in the United States and Canada were estimated at between \$0.49 and \$4.72 per passenger (up to \$9.44 per round trip).
- Other government policy differences further contribute to a cost disadvantage gap between Canadian and U.S. airports. Those include the provision of government capital funding and subsidy to FAA air navigation; tax free bond financing of airport infrastructure; the provision of airline essential air service subsidies in the U.S.; and partial funding of aviation security costs in the U.S., among other support programs. All of these are absent in Canada. In addition, the U.S. has a substantially more open air service regime with the rest of the world as a result of numerous open skies agreements. Those additional cost disadvantages for Canadian air transport vis-à-vis the United States ranged from \$5.70 to \$7.33 per passenger.<sup>33</sup>

The 2008 study found that the total cost disadvantage faced by Canadian aviation resulting from different policy approaches in the United States and Canada ranged between \$21.11 and \$25.74 per passenger (up to \$65 per round trip). This section estimates contributions from the taxes and fees levied on airports, airlines or passengers to government coffers based on the most recent information available through public sources. The section estimates the total cost burden of Canada's aviation policies on a per passenger basis at the national and provincial levels. As the analysis will reveal, the cost gap faced by Canada's aviation compared to the United States due to government policies continues to persist.

*InterVISTAS study found that differing aviation policy approaches in Canada and the United States result in a cost disadvantage for Canada of \$21-26 per enplaned passenger (up to \$65 for the average round trip).*

## 4.2 Airport Rent

Airport rent is a major source of general treasury revenue from air transportation for the federal government in Canada. In the fiscal year of 2011-2012, airport rents generated a total of \$256 million, according to Transport Canada estimates.<sup>34</sup> Public Works and Government Services Canada estimates that in fiscal year 2012, airport authorities made lease payments in the amount of \$275 million.<sup>35</sup>

*Airport ground rent payments are \$275 million per year.*

<sup>33</sup> InterVISTAS Consulting, "The Role of Government Policy in the Cost Competitiveness of Canadian Aviation: Impacts on Airports and Airlines", January 2008.

<sup>34</sup> Transport Canada, Transportation in Canada 2011, p. 28.

<sup>35</sup> Public Works and Government Services Canada, Public Accounts of Canada, Revenues, "Airport authorities – Lease payments", FY2012.

In 1994, Canada implemented the National Airport Policy under which Canada's largest airports were transferred from Transport Canada to private airport authorities. Autonomous airport authorities took over the operation of 26 airports in Canada that together form the National Airport System (NAS).<sup>36</sup> The airport authorities lease land and airport property from the federal government and pay annual airport rent under long-term lease agreements. Prior to 2005, the amount of airport rent was computed differently for many airports. In 2005, the formula was revised by Transport Canada and is based on airport revenues, applying different rates to different airport revenue brackets.

Effectively, NAS airports with smaller revenues face lower tax rates compared to NAS airports with larger revenues. **Figure 4-1** provides total ground rent, enplaned passenger traffic,<sup>37</sup> per enplaned passenger ground rent and per average round trip ground rent for the eight largest NAS airports in 2011. The highest per enplaned passenger ground rent is observed at the largest Canadian airports. The per enplaned passenger ground rent is \$4.08 at Vancouver airport, \$4.22 at Calgary airport, \$6.35 at Montréal Trudeau airport and \$7.85 at Toronto Pearson airport. Annual passenger throughput at each of the four airports exceeds 10 million passengers. At Edmonton, which has a passenger throughput of less than 10 million passengers per year, ground rent per enplaned passenger is \$3.60. These costs per average round trip itinerary<sup>38</sup> would be \$10.21, \$10.55, \$19.63, \$15.87 and \$9.00 at Vancouver, Calgary, Toronto Pearson, Montréal Trudeau and Edmonton airports respectively.

Although Montréal is a smaller airport than Vancouver (approximately 3.4 million fewer passengers), Montréal pays higher ground rent since the current rent formula is based on revenue and not passenger volumes. Montréal Trudeau airport has a higher AIF than Vancouver airport, \$10 more in 2011, leading to higher revenue for Montréal Trudeau airport.<sup>39</sup>

The current ground rent formula penalises airports with major capital projects. Major capital projects are financed out of the Airport Improvement Fee, a direct charge on a passenger. But because AIF revenues form part of the revenue base used to calculate annual ground rent, airports with higher capital investment programs paradoxically pay higher rents. Effectively, airports are penalised for undertaking major capital investment projects and the current rent formula is a tax on airport financing costs rather than operating revenues.

*The airport rent formula penalises airports with major capital programs.*

*Rents are based, in part, on AIF revenues which are used only for financing airport capital, not for covering operating costs.*

A number of airport CEOs and CFOs have claimed that the federal policy of including AIF revenue in the rent computation is akin to a landlord telling a tenant, "If you make any improvements to your land, even though I am not contributing anything to the cost of the improvements, I will increase

<sup>36</sup> Whitehorse, Yellowknife and Iqaluit were transferred to their respective territorial governments.

<sup>37</sup> Passenger traffic refers to the total enplaned/deplaned passengers reported (either by Statistics Canada or the various airport authorities) divided by two. This is done to remain consistent with the Statistics Canada method of calculating average fares.

<sup>38</sup> The average of 1.25 segments per one-way trip is an InterVISTAS assumption based on a review of North American trends.

<sup>39</sup> Aéroports de Montreal and Vancouver International Airport Annual Reports, 2011.



your rents. Not only will your rent increase, but your rent increases even before the investment is completed and in productive use. I will not even defer the rent increase until after your new terminal or other improvements are finished and in use.”<sup>40</sup>

A number of airports dispute the current ground rent formula precisely for this reason.

**Figure 4-1**  
**Ground Rent, Passenger Traffic and Rent per Enplaned Passenger and Round Trip for**  
**Select NAS Airports**  
**2011**

<b>Airport</b>	<b>Rent (\$millions)</b>	<b>Enplaned Passengers<sup>41</sup> (millions)</b>	<b>Rent per Enplaned Passenger</b>	<b>Rent per Average Round Trip</b>
Toronto Pearson International Airport	\$131.05	16.70	\$7.85	\$19.62
Montréal Pierre Elliott Trudeau International Airport	\$43.39	6.83	\$6.35	\$15.87
Vancouver International Airport	\$34.77	8.52	\$4.08	\$10.21
Calgary International Airport	\$27.16	6.43	\$4.22	\$10.55
Edmonton International Airport	\$11.30	3.14	\$3.60	\$9.00
Ottawa International Airport	\$7.34	2.31	\$3.17	\$9.74
Winnipeg International Airport	\$5.48	1.69	\$3.24	\$8.09
Halifax International Airport	\$5.19	1.80	\$2.89	\$7.22

Source: Airport Authorities' Annual Reports.

<sup>40</sup> “And by the way, when your lease is up, I get the improved facility at no cost.”

<sup>41</sup> Airport reported passenger figures have been halved to create a per-segment passenger cost.

Per enplaned passenger lease payments are approximately equal to \$5.15 on average, based on \$275 million in total lease payments for the fiscal year 2011-2012 and 53 million in passenger traffic at the 26 NAS airports in 2011. This is equivalent to \$12.87 per average round-trip itinerary. **Figure 4-2** shows airport rent payments by province.

**Figure 4-2**  
**Airport Rent by Province for NAS Airports**  
**2011**

Province	Rent (\$millions)	Enplaned Passengers <sup>42</sup> (millions)	Rent per Enplaned Passenger	Rent per Average Round Trip
Alberta	\$38.46	9.57	\$4.02	\$10.05
British Columbia	\$35.50	10.16	\$3.49	\$8.73
Manitoba	\$5.48	1.69	\$3.24	\$8.09
New Brunswick	\$0.00	0.53	\$0.00	\$0.00
Newfoundland and Labrador	\$1.24	0.79	\$1.57	\$3.93
Nova Scotia	\$5.19	1.80	\$2.89	\$7.22
Ontario	\$138.49	19.60	\$7.07	\$17.67
Prince Edward Island	\$0.00	0.14	\$0.00	\$0.00
Quebec	\$45.43	7.49	\$6.06	\$15.16
Saskatchewan	\$1.16	1.19	\$0.97	\$2.42
All NAS airports	\$274.49	53.33	\$5.15	\$12.87

Source: Airport Authorities' Annual Reports; InterVISTAS' computations.

<sup>42</sup> At NAS airports only.

A final comment is appropriate regarding airport rents. If rents were cancelled or reduced, the Federal Treasury would have reduced income. However, the loss in tax revenue from phasing out airport ground rents would be partially offset by increased tax revenue from expanded economic activities in tourism and other sectors.

*The loss in tax revenue from phasing out airport ground rents would be partially offset by increased tax revenue from expanded economic activities in tourism and other sectors.*

### 4.3 PILT/GILT

Canada's airports that are located on federal government lands are exempt from property taxes. However, payments in lieu of taxes (PILTs) or grants in lieu of taxes (GILTs) are made by some airports. For the regional/local airports, those operated by Cities typically do not make any PILT/GILT payments, but some of those operated by independent airport societies do make payments. In contrast, airports in the United States, almost without exception, are not required to pay land taxes or grants in lieu of taxes to municipal governments.

We made a rough estimate of the fiscal burden of airport payments to municipalities.<sup>43</sup> In 2011, total PILT and GILT payments by the NAS airports were approximately \$120 million. With 53 million in passenger traffic at the 26 NAS airports in 2011, the fiscal burden of municipal taxes is approximately \$2.26 per enplaned passenger (\$5.65 per average round trip itinerary).

*In addition to ground rents, airports make PILT/GILT payments to municipal governments.*

*Nationally, PILT/GILT payments are an additional cost of \$2.26 per enplaned passenger (\$5.65 per average round trip).*

*Almost without exception, U.S. airports make no PILT payments.*

**Figure 4-3** provides a rough estimate of the fiscal burden of municipal taxation by province.

<sup>43</sup> It should be noted that several NAS airports are owned and operated by territorial governments (e.g. Yellowknife in the Northwest Territories, Whitehorse in Yukon and Iqaluit in Nunavut), and do not pay PILT or GILT to municipal governments. In addition, PILT/GILT payments for several airports were substantially reduced to zero as a result of airport property tax disputes and subsequent arbitration proceedings between the airport authority and the municipal government (e.g., Gander in Newfoundland and Labrador).

**Figure 4-3**  
**PILT/GILT for NAS Airports**  
**2011**

Province	PILT/GILT (\$millions)	Enplaned Passengers (millions) <sup>44</sup>	PILT/GILT per Enplaned Passenger	PILT/GILT per Average Round Trip
Alberta	\$16.77	9.57	\$1.75	\$4.38
British Columbia	\$20.93	10.16	\$2.06	\$5.15
Manitoba	\$1.68	1.69	\$0.99	\$2.48
New Brunswick	\$1.23	0.53	\$2.30	\$5.76
Newfoundland and Labrador	\$0.66	0.79	\$0.84	\$2.09
Nova Scotia	\$1.39	1.80	\$0.77	\$1.93
Ontario	\$33.33	19.60	\$1.70	\$4.25
Quebec	\$42.74	7.49	\$5.71	\$14.26
Prince Edward Island	\$0.30	0.14	\$2.13	\$5.32
Saskatchewan	\$1.57	1.19	\$1.31	\$3.29
<b>All NAS airports</b>	<b>\$120.58</b>	<b>53.33</b>	<b>\$2.26</b>	<b>\$5.65</b>

Source: Airport Authorities' Annual Reports; InterVISTAS computations

Note: Some local/regional airports also pay PILT/GILT but they are not included in the table.

We do not have data on PILT/GILT payments made by the smaller non-NAS airports, often referred to as Regional/Local airports. As indicated previously, such airports that are owned and operated by City governments do not make such payments, while some of those operated by independent airport societies do face PILT/GILT challenges. For these airports there is not only the issue of fiscal burden, there is also an issue of competitiveness vis a vis nearby city owned and operated airports.

<sup>44</sup> At NAS airports only.

## 4.4 Fuel Tax

Canada applies excise taxes on the sale of gasoline and diesel motor fuels, including aviation fuel.<sup>45</sup> These accrue to the general treasury, and unlike the U.S., are not reinvested to the aviation sector.

The federal government collects revenue from a fixed excise tax on gasoline and diesel fuel (\$0.10 and \$0.04 per litre respectively) for aviation fuels used in domestic air transport. Fuel taxes do not apply to international air services under the requirements of a multilateral treaty Canada has signed.<sup>46</sup> A general federal sales tax (GST) of 5% is also applied to the sale of fuel, resulting in a cascading tax effect on the excise tax (i.e., a tax on a tax).

In addition, some provincial and territorial governments in Canada apply excise taxes and provincial sales taxes (PST) on aviation fuels, including fuels used for international aviation. Several Canadian provinces have combined GST and PST into a single harmonized tax (HST), which cascades on the provincial excise taxes.<sup>47</sup>

Historically, aviation fuel taxes were first introduced as a source of indirect support for federal expenditure on airport and air navigation infrastructure and operations. Now, however, with the federal government no longer operating airports, revenues from the aviation fuel tax go to the General Treasury. **Figure 4-4** lists fuel taxes by province and for the federal government.<sup>48</sup> Aviation fuel taxes amount to approximately \$231 million. These taxes are not reinvested back in the industry.

*Canada's aviation fuel sales are subject to federal and provincial excise taxes.*

*These accrue to the general treasury, and unlike the U.S., are not reinvested to the aviation sector.*

*Aviation Fuel Taxes amount to approximately \$231 million.*

*Unlike the U.S., federal and provincial fuel excise taxes on aviation fuel are not reinvested back into the industry.*

*Further, fuel taxes are subject to tax cascading.*

<sup>45</sup> Fuels such as propane, natural gas, ethanol and biodiesel are exempt from taxes.

<sup>46</sup> Transport Canada, *Transportation in Canada 2011*, p. 28.

<sup>47</sup> The provinces of Ontario, Nova Scotia, Prince Edward Island, New Brunswick and Newfoundland and Labrador currently have a single harmonized sales tax (HST). British Columbia abandoned HST as a result of a provincial referendum in 2011.

<sup>48</sup> For clarity, we note that these figures do not include carbon taxes levied by some provinces.

**Figure 4-4**  
**Federal and Provincial Revenues from Aviation Fuel Tax**  
**2011**

Province	Aviation Fuel Tax Revenue <sup>49</sup> (\$millions)	Enplaned Passengers (millions)	Aviation Fuel Revenue per Enplaned Passenger	Aviation Fuel Revenue per Average Roundtrip
Alberta	\$10.06	9.75	\$1.03	\$2.58
British Columbia	\$30.02	11.24	\$2.67	\$6.67
Manitoba	\$6.51	1.89	\$3.44	\$8.59
New Brunswick	\$0.99	0.54	\$1.84	\$4.60
Newfoundland and Labrador	\$1.62	1.01	\$1.60	\$4.00
Nova Scotia	\$2.93	1.81	\$1.62	\$4.05
Ontario	\$36.88	20.67	\$1.78	\$4.46
Quebec	\$54.61	7.70	\$7.09	\$17.73
Prince Edward Island	\$0.03	0.14	\$0.18	\$0.45
Saskatchewan	\$2.30	1.19	\$1.93	\$4.83
Northwest Territories <sup>50</sup>	\$0.49	0.26	\$1.87	\$4.69
Nunavut <sup>51</sup>	\$0.21	0.20	\$1.02	\$2.55
Yukon <sup>52</sup>	\$0.11	0.12	\$0.86	\$2.14

<sup>49</sup> The provincial fuel tax revenues are rough estimates as neither the Provincial Agencies nor Statistics Canada had data on fuel tax revenue for all provinces. We estimated provincial government revenues from the tax on aviation fuel based on the total volume of aviation fuel sold in the province and the current fixed per-litre rate of the applicable provincial excise fuel tax. We then further adjusted this revenue for the provinces that do not apply fuel tax on international flights (Alberta, New Brunswick, Newfoundland, Quebec and Saskatchewan) based on the actual fuel tax revenues we were provided from a province. This province provided total aviation fuel tax rebate. Their actual estimated revenue from taxable aviation fuel (before rebate) was within 10% of InterVISTAS' estimate.

<sup>50</sup> There was no information available on exemptions from fuel tax on international flights. Total revenue may be overestimated.

<sup>51</sup> There was no information available on exemptions from fuel tax on international flights. Total revenue may be overestimated.

Province	Aviation Fuel Tax Revenue <sup>49</sup> (\$millions)	Enplaned Passengers (millions)	Aviation Fuel Revenue per Enplaned Passenger	Aviation Fuel Revenue per Average Roundtrip
Canada Federal	\$83.91	56.54	\$1.48	\$3.71
<b>Total Fuel Taxes</b>	<b>\$230.65</b>	<b>56.54</b>	<b>\$4.08</b>	<b>\$10.20</b>

Source: Fuel Sales- Statistics Canada, *The Supply and Disposition of Refined Petroleum Products in Canada, Domestic sales of refined petroleum products by province, December 2012*; Fuel tax rates- Provincial websites; InterVISTAS computations.

The fragmented system of aviation fuel taxes and exemptions in Canada has been criticised on a number of grounds. Higher fuel taxes in provinces that do not apply fuel tax exemptions make flights to those provinces less attractive for air carriers. The difference in effective provincial fuel tax rates leads to fuel arbitrage between provinces (the practice of tankering) or between U.S. destinations and those provinces. Effectively, a carrier has an incentive to fill up an aircraft with as much fuel as possible in a jurisdiction with a lower effective tax rate. The practice of filling up an aircraft with excessive fuel may lead to undesirable economic distortions and harmful impacts on the environment, as more fuel is spent due to the heavier weight of the aircraft.<sup>53</sup>

When Canada introduced the general sales tax on goods and services (GST) in 1991, the intention was to replace excise taxes applicable to individual categories of goods and services with a uniform value added tax. However, the excise tax on fuel, including aviation fuel, survived and thus fuel sales are subject to a double taxation regime (GST and federal/provincial fuel excise tax). This might be understandable if fuel taxes were reinvested in the aviation sector, as is done in the U.S.<sup>54</sup> But that is not the case in Canada. Fuel taxes go into the general treasury.

Importantly, Canadian tax revenues from the federal or provincial excise taxes on aviation fuel are contributed to the general treasury and are not reinvested back in the aviation industry. This fiscal policy approach in Canada contrasts other jurisdictions where excise taxes are used as a means to support an industry or an economic sector.

- In the United States, contributions from aviation fuel excise taxes are deposited into a trust fund and are reinvested back into the industry in the form of provision of grants to airports for infrastructure development, funding for the air navigation system or funding for aviation

<sup>52</sup> There was no information available on exemptions from fuel tax on international flights. Total revenue may be overestimated.

<sup>53</sup> C.D. Howe Institute, "Excess Baggage: Measuring Air Transportation's Fiscal Burden", No 242, February 2007, p. 7.

<sup>54</sup> US fuel taxes go into the highways or aviation trust funds, from where they are disbursed for specific projects or government operations (e.g., air traffic control services). All excise fuel taxes are reinvested in the industry.

technology modernisation.

- In Canada, revenues from provincial tourism levies (which take the form of excise taxes on the hotel industry) are used to finance tourism marketing projects.

In both these examples, revenues from taxing an industry are reinvested, in one form or another, back into the industry. Canada's aviation is an exception to the general rule.

The federal excise tax on aviation fuel leads to an additional cost of \$1.48 per enplaned passenger (\$3.71 per average round trip itinerary). This estimate is based on Canada's total federal excise fuel tax revenues of \$84 million in the fiscal year of 2011-2012<sup>55</sup> and the total passenger traffic of 57 million in 2011.<sup>56</sup>

*The federal excise tax on aviation fuel translates into an additional cost of \$1.48 per enplaned passenger (\$3.71 per average round trip itinerary).*

At the provincial level, we could not obtain information on revenues from provincial excise tax on aviation fuel as provincial governments do not commonly provide a breakdown of receipts from excise fuel and gasoline taxes by industry or mode of transport. Rather, we estimated provincial government revenues from the tax on aviation fuel based on the total volume of aviation fuel sold in the province and the current fixed per-litre rate of the applicable provincial excise fuel tax.<sup>57</sup>

## 4.5 Security Taxes

The Air Traveller Security Charge (ATSC) is the largest source of revenue from air transportation for the federal government of Canada. The federal government instituted the ATSC in 2002 with the objective of fully financing air travel security. The Canadian Air Transport Security Authority (CATSA) administers air travel security, Transport Canada regulates and oversees air transport security and the Royal Canadian Mounted Police (RCMP) provides officers to administer air travel security. The air travel security functions provided by the above-mentioned federal agencies are funded out of proceeds from the ATSC, a charge levied directly on air travellers departing from Canadian airports.<sup>58</sup>

<sup>55</sup> PWGSC, Revenues, Total Excise Tax – Aviation, FY2012.

<sup>56</sup> Total passenger traffic refers to all traffic in Canada, not only the NAS airports. Source: Statistics Canada, Air Carrier Traffic at Canadian Airports - 2011, Table1-2

<sup>57</sup> The provincial fuel tax revenues are rough estimates as neither the Provincial Agencies nor Statistics Canada had data on fuel tax revenue for all provinces. We estimated provincial government revenues from the tax on aviation fuel based on the total volume of aviation fuel sold in the province and the current fixed per-litre rate of the applicable provincial excise fuel tax. We then further adjusted this revenue for the provinces that do not apply fuel tax on international flights (Alberta, New Brunswick, Newfoundland, Quebec and Saskatchewan) based on the actual estimated revenue from taxable aviation fuel we were provided from a province. This province also provided total aviation fuel rebates. Their actual estimated revenue from taxable aviation fuel (before rebate) was within 10% of InterVISTAS' estimate.

<sup>58</sup> Other nations, such as the United States, view this as a national security issue rather than as a transportation issue. While U.S. passengers pay a fee, the bulk of security costs come from general revenues.



The amount of ATSC varies depending on whether the flight is domestic, transborder or international (**Figure 4-5**). For domestic flights, the pre-tax security charge ranges from \$7.12 to \$14.25, depending on the number of chargeable enplanements. For transborder flights between Canada and the U.S., the pre-tax security charge ranges from \$12.10 to \$24.21, depending on the number of chargeable enplanements. As international air travel is exempt from the application of sale taxes, the security charge on international flights outside the continental zone is \$25.91.<sup>59</sup> This would be roughly \$14.25 to \$52 for the average round trip.<sup>60</sup>

*The Air Traveller Security Charge ranges from \$7.12 to \$25.91 per enplaned passenger, depending on the flight itinerary. (roughly \$14.25 to \$52 per round trip)*

In the fiscal year of 2011-2012, revenue contributions from the ATSC were \$631 million or roughly 66% of the total federal revenue from the air transport industry.<sup>61</sup> Using total air passenger traffic of 57 million based on 2011<sup>62</sup> and adjusted revenue of \$450 million,<sup>63</sup> the estimated average per enplaned passenger fiscal penalty resulting from air travel security charges is \$7.96 (\$15.93 per average round trip).

**Figure 4-5**  
**Air Travellers Security Charge (ATSC) for Service Acquired in Canada<sup>64</sup>**  
**Effective April 1, 2010**

Flight	Charge per Enplanement
Domestic	\$7.12
Transborder	\$12.10
International	\$25.91

Source: Canada Revenue Agency Source: Canada Revenue Agency

<sup>59</sup> Canada Revenue Agency, Air Travellers Security Charge (ATSC) Rates, effective April 1, 2010. CRA defines "continental zone" to include Canada, the United States (except Hawaii) and the Islands of St. Pierre and Miquelon.

<sup>60</sup> Because the ATSC is only levied on the 1<sup>st</sup> flight segment of a multi-flight one way itinerary, our round trip estimate uses a factor of 2. There are some cases where the ATSC is levied twice on a passenger on a multi-flight itinerary, but for most travellers they only pay the ATSC once in each direction.

<sup>61</sup> PWGSC, Revenues, Other excise taxes and duties— Air travellers security charge, FY2012; InterVISTAS Computations.

<sup>62</sup> Statistics Canada, Air Carrier Traffic at Canadian Airports – 2011.

<sup>63</sup> In our computations we only use 71% of the amount of the ATSC as the fiscal burden. This is because the U.S. and other countries typically have a small charge for partial recovery of aviation security costs, with the general treasury contributing the rest. In this report, we thus only use the difference between the US and Canadian approaches, which we estimate as being on average, 71% of the ATSC.

<sup>64</sup> These are the charges per enplanement. For any given domestic or transborder ticket there is a maximum set of two chargeable enplanements per trip. There is only one charge for international trips.

It must be noted that the Federal policy is that air passengers pay 100% of aviation security costs. There is an assumption that aviation security is only of benefit to air travellers and they must bear the costs in full. The tax of course, like any charge, discourages travel. The rationalisation for this seems to be that if passengers did not travel, then there would be no security threat from terrorism. In our view this approach is incorrect. The threat from terrorism is a national threat, affecting all Canadians. To underscore this point, we observe that many more Americans perished in office buildings on 9/11 than perished in aircraft.

*Federal policy is that passengers must pay 100% of aviation security costs.*

*But more Americans died in office buildings on 9/11 than in aircraft. Aviation security is a benefit to all Canadians and should be supported from the General Treasury.*

For purposes of estimating the Canadian fiscal challenge from security taxes, we reduce the total security tax revenue paid by Canadian passengers by the percent of security costs borne by US passengers/airlines. In the U.S., 29% of security costs are paid by passengers/airlines, with 71% of the security costs covered by the U.S. General Fund.<sup>65</sup>

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<sup>65</sup> Department of Homeland Security, FY2012 Budget in Brief.

**Figure 4-6**  
**Air Travellers Security Charge (ATSC) Revenue by Province**  
**2011**

Province	Total ATSC Revenue (\$millions) <sup>66</sup>	Fiscal Challenge from ATSC (\$millions) <sup>67</sup>	Enplaned Passengers (millions)	ATSC Revenue per Enplaned Passenger	ATSC Revenue per Average Roundtrip
Alberta	\$108.82	\$77.66	9.75	\$7.96	\$15.93
British Columbia	\$125.47	\$89.55	11.24	\$7.96	\$15.93
Manitoba	\$21.14	\$15.09	1.89	\$7.96	\$15.93
New Brunswick	\$6.00	\$4.28	0.54	\$7.96	\$15.93
Newfoundland and Labrador	\$11.31	\$8.07	1.01	\$7.96	\$15.93
Nova Scotia	\$20.20	\$14.42	1.81	\$7.96	\$15.93
Ontario	\$230.68	\$164.63	20.67	\$7.96	\$15.93
Quebec	\$85.95	\$61.34	7.70	\$7.96	\$15.93
Prince Edward Island	\$1.60	\$1.14	0.14	\$7.96	\$15.93
Saskatchewan	\$13.27	\$9.47	1.19	\$7.96	\$15.93
Northwest Territories	\$2.89	\$2.06	0.26	\$7.96	\$15.93
Nunavut	\$2.27	\$1.62	0.20	\$7.96	\$15.93
Yukon	\$1.39	\$0.99	0.12	\$7.96	\$15.93
<b>Total</b>	<b>\$631.00</b>	<b>\$450.32</b>	<b>56.54</b>	<b>\$7.96</b>	<b>\$15.93</b>

<sup>66</sup> Public Works and Government Services Canada published total ATSC tax revenue on a national but not provincial level. We made a *rough* allocation of ATSC tax revenue to the provinces based on enplaned passengers

<sup>67</sup> In our computations we only use 71% of the amount of the ATSC as the fiscal burden. This is because the U.S. and other countries typically have a small charge for partial recovery of aviation security costs, with the general treasury contributing the rest. In this report, we thus only use the difference between the US and Canadian approaches, which we estimate as being on average, 71% of the ATSC.

Air travel security is of general benefit to all Canadians, and, like national defence, should be funded from the general treasury. Discouraging air travel by a 100% tax on aviation does not remove the risk to Canadians but it does undermine the economic potential of aviation dependent sectors of our economy, like tourism and trade, as well as social connectivity

*Discouraging air travel by a 100% tax on security does not remove the risk to Canadians ...*

*but it does undermine the economic potential of aviation dependent sectors of our economy, like tourism and trade, as well as social connectivity.*

## 4.6 Other Aviation Charges

The cost of financing air navigation services (ANS) differs substantially between Canada and the United States. While much of the difference can be attributed to the environmental requirements in the two countries, some of the difference is attributable to policy approaches.

In 1996, responsibility for air navigation services in Canada was transferred from Transport Canada to a not-for-profit entity, NAV CANADA. However, even though that air navigation infrastructure had already been paid by tax revenues, NAV CANADA was required to purchase these assets for \$1.5 billion. In order to finance the purchase of air navigation facilities, NAV CANADA issued long-term bonds for the amount of the purchase and raised a further \$547 million for working capital through a bank loan.<sup>68</sup>

It is important to appreciate that users of the air navigation infrastructure in Canada now bear the cost of purchasing the ANS assets as a result of this transfer scheme. Prior to transfer, the cost of financing and maintaining air navigation was paid for out of an Air Transportation Tax – a tax that applied to airfares on domestic and international flights. After transfer, NAV CANADA must assess charges not only to finance ongoing capital investment requirements, but also to cover the cost of past capital investments (already paid for by the users as a result of the previous Air Transportation Tax).

There are two sources of cost discrepancies as regards air navigation in Canada and the United States:

- The United States partially subsidises air navigation costs out of the general tax fund. Taxes and fees on passenger and cargo shippers in the United States only partially cover air navigation costs. There are a number of reasons for the subsidy, including payment for services used by military and other government flights, and provision of infrastructure for social reasons, such as national connectivity and preparedness for national disasters. Canada's air navigation service does not receive federal government funding.
- The United States does not levy fees or charges on passengers and air carriers in order to finance capital investment projects that took place in the 1980s and earlier. In contrast, Canada took a drastically different approach, requiring NAV CANADA to pay \$1.5 billion for the past government spending on capital projects paid for by past taxes.

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<sup>68</sup> InterVISTAS, "The Role of Government Policy in Cost Competitiveness of Canadian Aviation: Impacts on Airports and Airlines", 16 January 2008, p. 18.

This report should not be construed as suggesting that the decision to transfer the air navigation system in Canada was wrong. It merely points out that as a result of a policy choice by the federal government of Canada to sell rather than transfer air navigation assets to NAV CANADA, a not-for-profit operator, at a price of \$1.5 billion led to higher fees and charges assessed on air navigation users in Canada compared to their counterparts in the United States. This contributes to lower air travel in and to/from Canada, and thus a reduction in economic activity in tourism, trade and other aviation dependent industries.<sup>69</sup>

A portion of the \$1.5 billion that the not-for-profit entity, NAV CANADA, was required to pay the Federal government for previously funded existing air traffic control equipment was a diversion of financial resources from the aviation industry and contributes to a cost disadvantage of Canada's aviation vis-à-vis the United States. As of August 31, 2011, NAV CANADA had \$650 million in outstanding long-term debt, initially raised through the issuance of bonds under the Master Trust Indenture (**Figure 4-7**). This debt matures in 2027. Over the 14-year period remaining to maturity, the undiscounted stream of benefits is estimated at \$46 million annually. Using the total Canadian passenger traffic of 57 million based on 2011, we estimate the per enplaned passenger fiscal challenge due to a policy choice by the federal government of Canada relating to the sale of air navigation assets to be \$0.82 (\$2.05 per average round trip).

*The requirement that NAV CANADA, a not-for-profit entity, pay \$1.5 billion for ANS assets previously paid for by the old Air Ticket Tax results in an additional cost of \$0.82 per enplaned passenger (\$2.05 per average round trip).*

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<sup>69</sup> Some might argue that the ANS assets at time of commercialisation were not fully paid by the ATT. We know of no evidence from federal budget records pre-commercialisation of ANS that indicates there was any balance kept that had yet to be covered. Capital fund accounting was used and that method pays for investments out of current funds.

**Figure 4-7**  
**NAV CANADA Long-Term Outstanding Debt**  
**As of August 31, 2011**

Type	Yield	Series	Maturity	Amount (millions)
Issued under the Master Trust Indenture				
Bonds	7.400%	96-3	01-Jun-27	\$ 250
Bonds	7.560%	97-2	01-Mar-27	\$ 400
<b>Total</b>				<b>\$650</b>
Issued under the General Obligation Indenture				
Obligation notes	4.397%	MTN-2011-1	18-Feb-21	\$ 250
Obligation notes	5.304%	MTN-2009-1	17-Apr-19	\$ 350
Obligation notes	4.713%	MTN 2006-1	24-Feb-16	\$ 450
Obligation notes	floating rate	MTN 2010-1	29-Apr-13	\$ 250
Obligation notes	3.434%	MTN 2009-2	17-Apr-12	\$ 250
Obligation notes	4.428%	MTN 2006-2	24-Feb-11	N/A
<b>Total</b>				<b>\$ 1,550</b>
Total bonds and notes payable				\$ 2,200

Source: NAV CANADA 2011 Annual Report.

## 4.7 GST/HST Cascading

Currently, one of two general value added taxes can be applied to air transportation in Canada, the goods and services tax (GST) or the harmonized sales tax (HST). The former is a tax applicable to the sale of goods and services in Canada and is sometimes accompanied by a provincial sales tax. The latter includes both the federal and provincial tax components and is in effect in Ontario, New Brunswick, Nova Scotia, Newfoundland and Labrador and Prince Edward Island.<sup>70</sup> Generally, GST/HST is not applied on exports of goods or services.

The application of the GST or HST to aviation is complex. For domestic Canadian flights, the tax applied is the tax (GST or HST) prevailing tax of the province of origin of the first flight on an airline ticket.

<sup>70</sup> Canada Revenue Agency, GST/HST Rates, as of April 1, 2013.

For transborder flights from Canada to the continental United States, GST is applied to the base fare ticket for tickets sold where the first flight segment is a Canadian point, even if the province of origin has HST. No GST is charged on the base fare if the first city is a U.S. point. For the AIF portion of the total ticket cost, HST applies to any AIF charge by an airport in a province which has the HST.

**Figure 4-8** lists GST/HST cascade by province. The total GST/HST cascade, including taxes on security charges and fuel taxes amounts to approximately \$76 million for 2011. Based on 57 million passengers in 2011, the per-enplaned passenger cost of the cascade is \$1.34 (\$3.36 per average round trip).

**Figure 4-8**  
**GST/HST Cascade by Province**  
**2011**

Province	Total GST/HST Cascade (\$millions) <sup>71</sup>	Enplaned Passengers (millions)	GST/HST Cascade per Enplaned Passenger	GST/HST Cascade per Average Roundtrip
Alberta	\$5.05	9.75	\$0.52	\$1.29
British Columbia	\$16.77	11.24	\$1.49	\$3.73
Manitoba	\$1.31	1.89	\$0.69	\$1.73
New Brunswick	\$0.82	0.54	\$1.53	\$3.81
Newfoundland and Labrador	\$2.32	1.01	\$2.29	\$5.72
Nova Scotia	\$3.01	1.81	\$1.66	\$4.16
Ontario	\$27.80	20.67	\$1.34	\$3.36
Quebec	\$17.70	7.70	\$2.30	\$5.75
Prince Edward Island	\$0.06	0.14	\$0.44	\$1.09
Saskatchewan	\$0.77	1.19	\$0.65	\$1.63
Northwest Territories	\$0.21	0.26	\$0.82	\$2.05
Nunavut	\$0.13	0.20	\$0.63	\$1.57
Yukon	\$0.07	0.12	\$0.53	\$1.33
<b>Total</b>	<b>\$76.02</b>	<b>56.54</b>	<b>\$1.34</b>	<b>\$3.36</b>

<sup>71</sup> The GST/HST cascade is a *rough* estimate of the GST/HST applied to security and fuel taxes. InterVISTAS computed the cascade by applying the prevailing GST rate (HST rate in British Columbia, New Brunswick, Newfoundland, Nova Scotia, Ontario and Quebec's QST with GST) to the fiscal challenge portion of the ATSC revenues and both fuel taxes. There are subtleties as to how GST/HST applies, but due to data availability, we were not able to separate out all of the different cases for which the taxes apply/ do not apply. As such, these figures are likely overestimations of the cascade.



## 4.8 Total Cost Burden

Differing approaches to fiscal, infrastructure investment and other policies that affect the air transport industry in Canada and the United States have created a cost gap which undermines the competitiveness of Canada's aviation sector. This cost gap can be reduced substantially through major revisions in government policies. We are not suggesting that Canada's aviation policies should be modelled after the United States to subsidise the provision of air navigation services or airport infrastructure. However, Canada should consider major revisions to its policies respecting airport ground rent, municipal property taxes, aviation fuel taxes, security charges and general sales taxes in order to improve the cost competitiveness of Canadian aviation.

This study provided a detailed analysis of passenger overcharges attributable to certain federal, provincial and municipal policy initiatives. Nationally, based on estimates provided in Sections 4.2 - 4.7, we computed the fiscal challenge per enplaned passenger as \$22 per enplaned passenger. For the average round trip itinerary, this would be \$50.

Provincially, much variation in per enplaned passenger overcharges is attributable to the difference in provincial taxes on aviation fuel, provincial sales taxes (the provincial component of HST and PST), and variations in airport ground rent and PILT/GILT payments. Total revenues from each fiscal burden are summarized by portion attributable to each province and by total in **Figure 4-9**. The per-passenger charges are summarized in **Figure 4-10** and the charges per roundtrip are summarized in **Figure 4-11**.

*An air traveller in Canada faces an additional cost of \$22 per enplaned passenger (\$50 per average round trip passenger) as a result of policy burdens imposed on the aviation sector by the federal, provincial and municipal governments.*

**Figure 4-9**  
**Fiscal Challenge Total Revenues**  
**2011 (\$millions)**

	AB	BC	MB	NB	NL	NS	ON	PE	QC	SK	NT	NU	YK	Total
Airport Rent	\$38.46	\$35.50	\$5.48	\$0.00	\$1.24	\$5.19	\$138.49	\$0.00	\$45.43	\$1.16	\$0.00	\$0.00	\$0.00	\$274.49
PILT/GILT	\$16.77	\$20.93	\$1.68	\$1.23	\$0.66	\$1.39	\$33.33	\$0.30	\$42.74	\$1.57	\$0.00	\$0.00	\$0.00	\$120.58
Federal Fuel Tax <sup>72</sup>	\$13.18	\$20.23	\$4.66	\$1.04	\$8.15	\$2.74	\$12.33	\$0.09	\$15.15	\$3.72	\$1.70	\$0.72	\$0.23	\$83.91
Provincial Fuel Tax	\$10.06	\$30.02	\$6.51	\$0.99	\$1.62	\$2.93	\$36.88	\$0.03	\$54.61	\$2.30	\$0.49	\$0.21	\$0.11	\$146.74
Security <sup>73</sup>	\$77.66	\$89.55	\$15.09	\$4.28	\$8.07	\$14.42	\$164.63	\$1.14	\$61.34	\$9.47	\$2.06	\$1.62	\$0.99	\$450.32
Other	\$8.01	\$9.23	\$1.56	\$0.44	\$0.83	\$1.49	\$16.97	\$0.12	\$6.32	\$0.98	\$0.21	\$0.17	\$0.10	\$46.43
GST/HST Cascade <sup>74</sup>	\$5.05	\$16.77	\$1.31	\$0.82	\$2.32	\$3.01	\$27.80	\$0.06	\$17.70	\$0.77	\$0.21	\$0.13	\$0.07	\$76.02
<b>Total</b>	<b>\$169.18</b>	<b>\$222.22</b>	<b>\$36.29</b>	<b>\$8.80</b>	<b>\$22.88</b>	<b>\$31.17</b>	<b>\$430.42</b>	<b>\$1.74</b>	<b>\$243.30</b>	<b>\$19.96</b>	<b>\$4.67</b>	<b>\$2.84</b>	<b>\$1.49</b>	<b>\$1,198.50</b>

<sup>72</sup> This is a *rough* allocation of the total federal fuel tax revenue (as reported by Public Works and Government Services Canada) by province based on estimated domestic commercial fuel sales in each province.

<sup>73</sup> In our computations we only use 71% of the amount of the ATSC as the fiscal burden. This is because the U.S. and other countries typically have a small charge for partial recovery of aviation security costs, with the general treasury contributing the rest. In this report, we thus only use the difference between the US and Canadian approaches, which we estimate as being on average, 71% of the ATSC.

<sup>74</sup> We have applied the applicable tax rate of each province to security and both fuel taxes. Please be advised that this is likely an overestimate.

**Figure 4-10**  
**Fiscal Challenge per Enplaned Passenger**  
**2011**

	AB	BC	MB	NB	NL	NS	ON	PE	QC	SK	NT	NU	YK	Total
Airport Rent <sup>75</sup>	\$4.02	\$3.49	\$3.24	\$0.00	\$1.57	\$2.89	\$7.07	\$0.00	\$6.06	\$0.97	\$0.00	\$0.00	\$0.00	\$5.15
PILT/GILT <sup>76</sup>	\$1.75	\$2.06	\$0.99	\$2.30	\$0.84	\$0.77	\$1.70	\$2.13	\$5.71	\$1.31	\$0.00	\$0.00	\$0.00	\$2.26
Federal Fuel Tax	\$1.35	\$1.80	\$2.46	\$1.93	\$8.04	\$1.51	\$0.60	\$0.60	\$1.97	\$3.13	\$6.55	\$3.56	\$1.81	\$1.48
Provincial Fuel Tax	\$1.03	\$2.67	\$3.44	\$1.84	\$1.60	\$1.62	\$1.78	\$0.18	\$7.09	\$1.93	\$1.87	\$1.02	\$0.86	\$2.60
Security <sup>77</sup>	\$7.96	\$7.96	\$7.96	\$7.96	\$7.96	\$7.96	\$7.96	\$7.96	\$7.96	\$7.96	\$7.96	\$7.96	\$7.96	\$7.96
Other	\$0.82	\$0.82	\$0.82	\$0.82	\$0.82	\$0.82	\$0.82	\$0.82	\$0.82	\$0.82	\$0.82	\$0.82	\$0.82	\$0.82
GST/HST Cascade	\$0.52	\$1.49	\$0.69	\$1.53	\$2.29	\$1.66	\$1.34	\$0.44	\$2.30	\$0.65	\$0.82	\$0.63	\$0.53	\$1.34
<b>Total<sup>78</sup></b>	<b>\$17.46</b>	<b>\$20.30</b>	<b>\$19.60</b>	<b>\$16.38</b>	<b>\$23.12</b>	<b>\$17.24</b>	<b>\$21.28</b>	<b>\$12.13</b>	<b>\$31.91</b>	<b>\$16.78</b>	<b>\$18.03</b>	<b>\$13.99</b>	<b>\$11.99</b>	<b>\$21.62</b>

<sup>75</sup> Computed using enplaned passengers at only NAS airports.

<sup>76</sup> Computed using enplaned passengers at only NAS airports.

<sup>77</sup> In our computations we only use 71% of the amount of the ATSC as the fiscal burden. This is because the U.S. and other countries typically have a small charge for partial recovery of aviation security costs, with the general treasury contributing the rest. In this report, we thus only use the difference between the US and Canadian approaches, which we estimate as being on average, 71% of the ATSC.

<sup>78</sup> The total fiscal challenge per enplaned passenger is the sum of each fiscal challenge rather than total fiscal challenge revenue divided by total passengers. This is to take into account using only NAS airport enplaned passengers to compute airport rent and PILT/GILT per enplaned passenger.

**Figure 4-11**  
**Fiscal Challenge per Average Roundtrip**  
**2011**

	AB	BC	MB	NB	NL	NS	ON	PE	QC	SK	NT	NU	YK	Total
Airport Rent	\$10.05	\$8.73	\$8.09	\$0.00	\$3.93	\$7.22	\$17.67	\$0.00	\$15.16	\$2.42	\$0.00	\$0.00	\$0.00	\$12.87
PILT/GILT	\$4.38	\$5.15	\$2.48	\$5.76	\$2.09	\$1.93	\$4.25	\$5.32	\$14.26	\$3.29	\$0.00	\$0.00	\$0.00	\$5.65
Federal Fuel Tax	\$3.38	\$4.50	\$6.14	\$4.83	\$20.10	\$3.78	\$1.49	\$1.49	\$4.92	\$7.81	\$16.37	\$8.89	\$4.53	\$3.71
Provincial Fuel Tax	\$2.58	\$6.67	\$8.59	\$4.60	\$4.00	\$4.05	\$4.46	\$0.45	\$17.73	\$4.83	\$4.69	\$2.55	\$2.14	\$6.49
Security <sup>79</sup>	\$15.93	\$15.93	\$15.93	\$15.93	\$15.93	\$15.93	\$15.93	\$15.93	\$15.93	\$15.93	\$15.93	\$15.93	\$15.93	\$15.93
Other	\$2.05	\$2.05	\$2.05	\$2.05	\$2.05	\$2.05	\$2.05	\$2.05	\$2.05	\$2.05	\$2.05	\$2.05	\$2.05	\$2.05
GST/HST Cascade	\$1.29	\$3.73	\$1.73	\$3.81	\$5.72	\$4.16	\$3.36	\$1.09	\$5.75	\$1.63	\$2.05	\$1.57	\$1.33	\$3.36
<b>Total</b>	<b>\$43.64</b>	<b>\$50.75</b>	<b>\$49.00</b>	<b>\$40.96</b>	<b>\$57.80</b>	<b>\$43.11</b>	<b>\$53.20</b>	<b>\$30.31</b>	<b>\$79.78</b>	<b>\$41.94</b>	<b>\$45.07</b>	<b>\$34.97</b>	<b>\$29.97</b>	<b>\$50.06</b>

<sup>79</sup> Because the ATSC is only levied on the 1st flight segment of a multi-flight one way itinerary, our round trip estimate uses a factor of 2. There are some cases where the ATSC is levied twice on a passenger on a multi-flight itinerary, but for most travellers they only pay the ATSC once in each direction.

## 5 The Impact of Canada's Taxing Fiscal Aviation Policies:

### *What Have We Foregone in Tourism and Economic Sectors*

#### 5.1 Introduction

Higher costs reduce air travel demand. Chapter 4 documented the higher taxes and other charges imposed on air travel in Canada. This chapter documents the resulting reduction in passenger traffic and the impacts on tourism. We follow a well-established economics approach of

- Establishing the higher fares that result from Canada's fiscal policy.
- Applying an appropriate price elasticity of demand to determine the loss of air traffic (passengers).
- Converting this to a loss of airline industry revenues.

We then extend the analysis to determine the consequent impacts on tourism, and the general economy. The latter effects we refer to as *catalytic economic impacts*.

Changes in Canada's aviation fiscal policy (e.g., eliminating the GST on transborder services or reducing/eliminating airport rents) would reduce federal tax revenues. However, the reduction would be attenuated by increases taxes paid by an increase in visitors. Reduced air ticket GST taxation revenues would be offset, in part, by increased visitors paying GST/HST on restaurants, rental cars, tourism attractions, locally produced art, etc. This is documented in Section 5.4.

#### 5.2 Impact of the Higher Costs of Canada's Aviation Fiscal Policy on Air Travel Demand

This section provides a technical discussion of how we estimate the impact of Canada's high taxes and airport rents on air travel demand. We do this separately for each of the three air transport sectors: domestic, transborder and other international (referred to simply as *international*).

##### 5.2.1 Impact on Costs per Enplaned Passenger

As a first step, the percentage share of the fiscal challenges in the ticket price, average ticket price data and total fiscal challenges for 2011 have been analysed as summarized in **Figure 5-1** and **Figure 5-2**. **Figure 5-1** provides a summary of fiscal challenges in Canada for 2011 for all three market segments (domestic, transborder and international travel) based on our analysis detailed in Chapter 4. Total fiscal challenges are highest for international passengers, on average about \$31.6 per person on an enplaned passenger basis or \$78.9 per round trip.

The percentage share of fiscal challenges in the ticket price differs for the three segments, it accounts for 8.7%, 9.5% and 6.4% in the domestic, transborder and international segments, respectively – as shown in **Figure 5-**

**2**. Thus, it is actually highest in the transborder segment, which is a sector where tourism growth to

*The fiscal cost challenge imposed on Canadian aviation represents 8.7% of domestic fares, 9.5% of transborder fares and 6.4% of international fares.*

Canada has been lackluster. The average percentage share of fiscal challenges in the ticket price for international travel was somewhat lower compared to domestic and transborder, even though average ticket prices for international travellers are the highest. However, because the total fiscal challenges per international passenger are lower (not overall but in relative terms), it results in a lower proportion of fiscal challenges. This is due, in part, to the exemption of international services from the Federal fuel excise tax and the removal of GST. Security charges, however, are higher per passenger.

**Figure 5-1**  
**Total Fiscal challenges (Canada vs. the United States)**  
**Computed on a per enplaned passenger basis**  
**2011**

	Domestic	Transborder	International
Airport Rent	\$5.15	\$5.15	\$5.15
PILT/GILT	\$2.26	\$2.26	\$2.26
Fuel Tax <sup>80</sup>	\$1.48		
Provincial Fuel Tax	\$1.69	\$3.24	\$4.66
Security <sup>81</sup>	\$5.08	\$8.64	\$18.49
Other	\$0.82	\$0.82	\$0.82
GST/HST	\$1.72	\$0.34	\$0.19
Total per enplaned passenger	\$18.20	\$20.45	\$31.56
Total per average round trip	\$45.51	\$51.12	\$78.91

<sup>80</sup> This refers to the federal fuel tax of \$0.04/L only.

<sup>81</sup> In our computations we only use 71% of the amount of the ATSC as the fiscal burden. This is because the U.S. and other countries typically have a small charge for partial recovery of aviation security costs, with the general treasury contributing the rest. In this report, we thus only use the difference between the US and Canadian approaches, which we estimate as being on average, 71% of the ATSC.

**Figure 5-2**  
**Average Base Airfares per Enplanement and Percentage of Fiscal challenges**  
**2011**

	Domestic	Transborder	International
Average fare per enplanement	\$191	\$195	\$459
Total fiscal challenges	\$18	\$20	\$32
Total fare price per enplanement	\$209	\$215	\$490
% fiscal penalty	8.7%	9.5%	6.4%

Source: Statistics Canada: Table 2 Average fares, by sector and fare type group — Canadian air carriers, Level 1 (for international and transborder fares the ratio of international to transborder fares from scheduled services Dito Average Fare Estimates (converted into CAD using PACIFIC Exchange Rate Service) have been applied)

## 5.2.2 Price Elasticity and Impact on Reduced Air Traffic

### Price Elasticity.

To determine the potential passenger loss (or in other words to determine how many more passengers could have been counted had these fiscal challenges not been in place), an analysis of the price elasticity of air passenger traffic was conducted. We utilize a conventional approach in economics of using the passenger fare elasticity and reducing it by the share of the excess fees and charges in the total ticket price.

$$\text{Price Elasticity for Fiscal challenges} = \% \text{ Share of Fiscal challenges in the Ticket Price} \times \text{Air Passenger Fare Elasticity}$$

As an example, if fiscal challenges represent 5% of the ticket price, and the passenger fare elasticity is -1, then traffic would be expected to have been suppressed by 5% for every doubling of the total airfare. Details on the concept of price elasticity and a literature review of fare elasticity estimates are provided in **Appendix B**.<sup>82</sup>

As can be observed in **Figure 5-3**, for the domestic market, the fiscal challenge represents an 8.7% increase in the total airfare. With an estimated airfare price elasticity of -0.83, this means that

<sup>82</sup> Air passenger elasticities were derived taking a weighted average from an InterVISTAS conducted for IATA on air passenger fare elasticities, as well as elasticities from Transport Canada. Note, that as per guidance in the InterVISTAS report on airfare elasticities, we use a fare elasticity that is somewhat inelastic. This is because the fiscal policy penalties apply to all airlines and all markets. Higher elasticities of airfares are appropriate for cases of airlines competing with each other or destinations competing with each other.

traffic is lower by approximately 7.2%. A loss in traffic of 7.1% is estimated in the international market, whereas the traffic loss in the transborder market is 8.4%.

### Elasticity Pass Through

When considering the change in quantity in a market due to a change in taxes or other fees, one must look at the final market outcome, including producer response, and not merely at demand elasticities. The change in quantity is a function of both the demand elasticity and the supply elasticity. In the mathematics of economics:  $\% \Delta \text{Quantity} = \epsilon\text{-supply} / (\epsilon\text{-supply} - \epsilon\text{-demand})$ , where  $\epsilon$  denotes a price elasticity. If a market is perfectly competitive, then the supply elasticity will be infinite and the percent change in quantity will be determined solely by the demand elasticity. In this case, there is full pass through of the drop in taxes to the consumer and the largest possible increase in market quantity (i.e., the market quantity increases based solely on the demand elasticity). The other extreme is where market quantity is fixed, in which case there is no change in quantity and only the producer benefits from the drop in taxes, with the consumer facing the same price as before.

Our research indicates that much of the drops in taxes or other costs (e.g., fuel costs) tend to be passed on to consumers, but not in full. Accordingly, our computations in the table reduce the increase in air travel from elimination of taxes by the amount of the cost decrease not passed through to consumers. The computation of this uses the demand elasticity indicated in the table with supply elasticities of 5.0 for domestic (where there is less competition) and 10.0 for transborder and other international.

Applying this elasticity pass through factor to account for supply elasticity, this results in additional potential enplaned passengers in 2011 of 2.1 million, 0.9 million and 0.7 million in the domestic, transborder and international segment, respectively. In total, it was estimated that roughly 3.7 million additional enplaned passengers could have been counted without the fiscal challenges in place.

*The fiscal challenges of Canada's policy reduce air travel.*

*Had these costs been absent in 2011, there would have been roughly 2.1 million additional domestic travellers, 0.9 million transborder and 0.7 million international.*



**Figure 5-3**  
**Fare Price Elasticities and Potential Loss in Enplaned Passenger Traffic**  
**2011**

	Domestic	Trans-border	Int'l	Total
Fiscal penalty as % of total ticket price	8.7%	9.5%	6.4%	
Fare price elasticity (demand elasticity)	-0.83	-0.89	-1.11	
Decline in enplaned passenger traffic	-7.2%	-8.4%	-7.1%	6.5%
Base enplaned passenger traffic (in mil)	33.9	11.3	11.3	56.5
Additional potential enplaned passengers (in mil) if fiscal penalty is removed	2.4	1.0	0.8	4.2
Elasticity pass through factor	0.86	0.92	0.90	
Revised additional potential enplaned passengers (in mil)	2.1	0.9	0.7	3.7
Potential total enplaned passengers (in mil)	36.0	12.2	12.1	60.2

Source: Passenger Traffic from Statistics Canada, Air Carrier Traffic at Canadian Airports - 2011, Table 1-2.

Fare Price Elasticities are weighted averages of Transport Canada's discount model and InterVISTAS study "Estimating Air Travel Demand Elasticities" for IATA

### 5.3 Impact on Airline Revenues

The loss in traffic from the fiscal challenge results in a corresponding drop in airline revenues. In 2011, air passengers in Canada generated a total of \$23.6 billion in airline revenues. However, had the fiscal challenges not been in place, the additional passengers could have generated an additional \$1.5 billion in total airline revenues in 2011 as shown in **Figure 5-4**.<sup>83</sup> It should be pointed out that if the industry had been able to

*Had airfares not included the fiscal challenge costs in 2011, air carriers would have earned an additional \$1.5 billion*

<sup>83</sup> These figures somewhat underestimate the higher revenues that would result. Higher demand can be expected to support some increase in airline yields, which is not factored into our results.

reap even a portion of these higher revenues, many of the fiscal challenges the industry has faced in recent years would have been avoided, or at least abated.<sup>84</sup>

Further, it should be recognized that there would also likely be an increase in airport revenues related to air passenger traffic, such as retail concessions and parking.<sup>85</sup>

**Figure 5-4**  
**Potential Increase in Airline Traffic and Revenues**  
**2011**

	Domestic	Trans-border	Int'l	Total
Existing airline revenues (in \$bil)	\$16.2	\$2.2	\$5.2	\$23.6
Additional potential passengers (in mil)	2.1	0.9	0.7	3.7
Additional potential airline revenues (in \$bil)	\$1.0	\$0.2	\$0.3	\$1.5

## 5.4 Aviation Sales Tax Offset to Taxes, Airport Rent and Property Taxes if Policy Revised

The elimination of the fiscal cost burden of Canada's aviation policy would not have a dollar-for-dollar impact on Treasury receipts. Because traffic would increase, there would be offsetting tax increases from the additional economic activity that would take place.

Lower airfares stimulate demand for air travel demand and this would increase normal tax revenues from the higher air travel itself.

**Figure 5-5** estimates these impacts. It is estimated that there would be a total loss of \$1.2 billion in government revenues. However, these revenue losses would be partially offset by a total of almost \$70 million.

It should also be noted that eliminating fiscal challenges and thus stimulating traffic will also have a direct positive impact on employment

*The elimination of the fiscal challenge would not have a dollar-for-dollar impact on Treasury receipts.*

*Because traffic would increase, there would be offsetting tax increases from the additional air ticket sales that would take place,*

*This is in the order of \$70 million.*

<sup>84</sup> We would expect that part of the effect of increased potential airline revenue would accrue to passengers via the competitive process. However, except in the most extreme case, some of this revenue would need to be

<sup>85</sup> We have not posited an increase in airport landing/terminal revenues or NAV CANADA revenues, as these are generally based on cost recovery. Higher traffic would reduce these charges. However, this in turn would be expected to have a secondary traffic stimulation effect, which we have not included to be conservative.

required to support travel activities, especially in the travel and tourism industries. This is addressed below.

**Figure 5-5**  
**Government Losses and Offsets (in \$millions)**  
**2011**

	Domestic	Trans-border	Int'l	Total
<b>Revenue Loss</b>				
Airport rent lost revenue	-\$174	-\$58	-\$58	-\$291
PILT/GILT lost revenue	-\$77	-\$26	-\$26	-\$128
Fuel tax lost revenue	-\$50			-\$50
Provincial fuel tax lost revenue	-\$57	-\$37	-\$53	-\$147
Security lost revenue	-\$172	-\$98	-\$210	-\$480
Other lost revenue	-\$28	-\$9	-\$9	-\$46
GST/HST lost revenue	-\$58	-\$4	-\$2	-\$64
Total lost revenue	-\$617	-\$232	-\$358	-\$1,206
<b>Offsets</b>				
Additional airfare sales tax revenues	\$58	\$9	\$0	\$67
<b>Net Revenue Loss</b>				
Net lost revenue	-\$559	-\$223	-\$358	-\$1,139

*\* it was assumed that 10% of sales tax paid by international and transborder tourists will be claimed*

## 5.5 Impact on Tourism Expenditures

Tourism is one of Canada's major industries. It is a sector with a heavy dependence on air access, both the level of connectivity (routes, frequencies, seats) and the price paid for access (i.e., total airfare).

**Transborder and International.**

We have estimated the increase in tourism industry expenditures that would result if the fiscal challenges on aviation were to be eliminated. For transborder and international tourists to Canada arriving by air the estimate is \$1.5 billion in additional expenditures, as shown in **Figure 5-6**.

*Inbound tourism expenditures could increase by \$1.5 billion if the cost burden was eliminated.*

**Figure 5-6**  
**Potential Increase in Non-Resident Tourism Revenues**  
**2011**

	Trans-border	Int'l	Total
Additional potential inbound passengers (in millions)	0.9	0.7	1.6
Average expenditure per overnight trip	\$532	\$1,413	
Additional potential tourism expenditure (in \$billions)	\$0.5	\$1.0	\$1.5

Source: Tourism Expenditure data from Statistics Canada, International Travel Survey

**Domestic Tourism.**

On the domestic tourism side, it was initially estimated that an additional \$4.6 billion could have been generated without the fiscal challenges in place. However, we recognised that some of the increase in tourism expenditure may be displacing other domestic expenditure;<sup>86</sup> hence, an adjustment factor of 50% has been applied.<sup>87</sup> As a result, it was estimated that an additional \$2.3 billion could have been generated.

Overall, in total an additional \$3.8 billion in tourism expenditure in 2011 could have been generated from residents and non-residents had the fiscal challenges not been in place.

**Figure 5-7**  
**Potential Increase in Resident Tourism Revenues**  
**2011**

Total domestic tourism expenditures (in \$billions)	\$63.6
---	--------

<sup>86</sup> E.g., a family might forego some dining out as a consequence of a dream trip to Jasper, or may postpone purchase of a new auto for a trip to Gros Morne Park and the L'Anse aux Meadows historic site in Newfoundland.

<sup>87</sup> We were not able to find an econometric study to quantify the percentage - thus, an adjustment factor of 50% was posited.

Additional potential resident tourism expenditure (in \$bil)	\$4.6
Adjustment factor	50%
Adjusted additional potential resident tourism expenditure (in \$bil)	\$2.3

Source: Statistics Canada, Table 2 National Tourism Indicators - Seasonally Adjusted

Furthermore, Statistics Canada multipliers were used to estimate the direct employment generated by each dollar of the potential additional tourism expenditures, as well as wages and GDP. The employment and economic impacts associated with the additional tourism expenditures are estimated to be 38,812 direct person years of employment and \$2.2 billion in GDP in 2011 as summarized in **Figure 5-8**.

**Figure 5-8**

**Direct Tourism Expenditure Impact for Additional Potential Tourism Expenditures 2011**

Type of Impact	Total Additional Tourism Expenditure (in \$bil)	Employment Impact (Person Years)	Income (in \$bil)	GDP (in \$bil)
Direct	\$3.8	38,812	\$1.4	\$2.2

Source: InterVISTAS analysis using Statistics Canada national multipliers

## 5.6 Indirect and Induced Tourism Impacts

**Figure 5-9** summarizes the direct, indirect, induced and total employment attributable to the potential additional tourism expenditures, as well as wages and GDP. The additional tourism expenditures are estimated to lead to 14,526 indirect person years and 11,187 induced person years of employment. Indirect GDP sums up to \$1.4 billion in 2011, while induced GDP sums up to \$1.2 billion.

**Figure 5-9**  
**Indirect and Induced Tourism Expenditure Impact for Additional Potential Tourism Expenditures**  
**2011**

Type of Impact	Total Additional Tourism Expenditure (in \$bil)	Employment Impact (Person Years)	Income (in \$bil)	GDP (in \$bil)
Direct	\$3.8	38,812	\$1.4	\$2.2
Indirect	\$2.6	14,526	\$0.8	\$1.4
Induced	\$2.0	11,187	\$0.6	\$1.2
<b>Total</b>	<b>\$8.4</b>	<b>64,525</b>	<b>\$1.9</b>	<b>\$4.8</b>

Source: InterVISTAS analysis using Statistics Canada national multipliers

## 5.7 Catalytic Impacts

It is not just the air transport sector, its suppliers and employees that are impacted by the incremental cost burden. Nor are impacts confined only to aviation and tourism. Affordable air service with high connectivity facilitates many other sectors of the economy, including trade in goods and services. Affordable and effective air services contribute in a major way to Canada's attractiveness as a place to do business and to invest. Industries and activities that would otherwise not exist in the region can be attracted by improved air transport connectivity. Air service connectivity and affordability raises the productivity of the entire economy.

*Improved air service has a catalytic impact on the economy. That is, it facilitates the success of other sectors of the economy, increasing trade, foreign investment and productivity.*

The role of air transport in facilitating other parts of the economy is referred to as catalytic impacts (also known as wider economic benefits). For example, hotels, restaurants and entertainment places in Canada do not purchase services from airlines to any great extent but they do benefit from tourists arriving in Canada by air that spend money in their businesses. Similarly, a Canadian manufacturer with easy and affordable air access would be better able to service its existing customers and generate new sales. Its costs of doing business are lower and its effectiveness (productivity) is increased. In other words, catalytic impacts refer to air transport's role in facilitating the effective business of other sectors of the economy. Those impacts can include:

- **Tourism.** Air service facilitates the arrival of larger numbers of tourists to a region or country. This includes business as well as leisure tourists. The expenditure of these tourists can support a wide range of tourism-related businesses: hotels, restaurants,

theatres, car rentals, etc. Of course, air service also facilitates outbound tourism, which can be viewed as reducing the amount of money spent in an economy. However, even outbound tourism involves expenditure in the home economy, on travel agents, taxis, etc. In any case, it is not necessarily the case that money spent by tourists flying abroad would be spent on tourism at home if there were no air service.

- Trade and Investment.** Air cargo accounts for 35% of the value of global trade. It is critical to the modern economy striving to support high employment and high wages. Air transport connects businesses to a wide range of global markets, providing a significantly larger customer base for their products than would be accessible otherwise. It is particularly important for high-tech and knowledge-based sectors, and suppliers of time-sensitive goods. A key factor many companies take into account when making decisions about the location of offices, manufacturing plants or warehouses is proximity of an international airport.
- National Economic Productivity.** Air transportation offers access to new markets which in turn enables businesses to achieve greater economies of scale and to reduce unit costs. Air access also enables companies to attract and retain high quality employees.

*Eliminating the fiscal challenge on aviation would increase national productivity and GDP by \$0.65 billion in the first year. Over 20 years, the impact could reach almost \$22.4 billion.*

Here we estimate the catalytic impacts on national economic productivity.<sup>88</sup> **Figure 5-10** provides our computations of the catalytic effect on national productivity of removing the fiscal burden on aviation.<sup>89</sup>

The one year impact of increased passenger traffic on national GDP may seem small (“only” \$0.65 billion). But the productivity effect on GDP cumulates each year.<sup>90</sup> Over time, the national

<sup>88</sup> We utilise the results in InterVISTAS Consulting Inc., “Measuring the Economic Rate of Return on Investment in Aviation”, December 2006.

<sup>89</sup> In the catalytic effects study, regression analysis was conducted relating economic productivity to air connectivity (and other variables) using data from 48 countries over a time period of nine years. The coefficient estimate of connectivity/GDP is positive (+0.0068) and statistically significant, which indicates that increasing air connectivity will also increase labour productivity. In this study, we used the additional potential passengers as a proxy for connectivity, although it is reduced somewhat as some of the increased traffic would be accommodated on increased flights.

<sup>90</sup> Technical note: We provide some clarification of our computation of the catalytic effects. The catalytic effects analysis was based on a global analysis of the linkage between aviation connectivity and national productivity. It was not analysis of the linkage between GDP per se and connectivity. It was an analysis of the annual increase in GDP and connectivity. This means that the catalytic impact is cumulative. In the first year of a change in policy (i.e., when the Canadian government changed policy from financially supporting aviation through the airports and air navigation system to one of extracting new revenue from these entities plus passengers via the ATSC), our analysis finds that the national productivity impact caused GDP in that year to decline by roughly \$650 million. In the second year, the lower connectivity caused a further decline in national productivity of \$650 million. This means that GDP was now roughly \$1,300 million lower in year 2 of the policy than it would have been absent the policy. (In the parlance of economists, the catalytic impact was not a one time downward shift in the production frontier, but rather a pivoting of the frontier to

productivity impact can be large. Over 10 years, the effect would be to raise GDP by 0.4%, and over 20 years, by 1.3% (\$22 billion).

**Figure 5-10**  
**Potential Loss in National Gross Domestic Product**  
**2011 and cumulative**

Actual passenger traffic in 2011 (in mil)	56.5
Potential additional passengers (in mil) <sup>91</sup>	3.7
Potential additional passengers (in %)	6.5%
Estimated impact of passenger traffic on IATA measure of national air transport connectivity <sup>92</sup>	0.84
Coefficient estimate of increased connectivity on national GDP	0.0068
Impact on GDP (first year)	0.04%
Real GDP in 2011 (in \$bil)	\$1,762
Real GDP increase (first year) (in \$bil)	\$0.65
Cumulative GDP - 10 Years (in 2011\$bil)	0.4% \$7.4
Cumulative GDP - 20 Years (in 2011\$bil)	1.3% \$22.4

Source: Statistics Canada, Gross domestic product, current prices

a steadily lower level relative to the GDP that would have been realised in the 10<sup>th</sup> year if the fiscal challenges had not been present over the 10-year period.)

<sup>91</sup> Computed in Figure 5-3.

<sup>92</sup> The InterVISTAS study on catalytic impacts utilises a national air transport connectivity measure. We regressed national passenger traffic on the connectivity measure to translate increases in passenger traffic into the likely change in connectivity. This was 0.85. This means that a 10% increase in passenger traffic would be expected to increase connectivity by 8.5%. The higher traffic would in part be accommodated by increase load factors on existing flights, but in part it would be accommodated by an increased number of flights, and some of them would be to new non-stop destinations.



## 5.8 Total Economic Impacts

Traditional economic impact analysis adds up the direct, indirect and induced impacts on the economy as our analysis did in Section 5-7. The latter two multiplier impacts are based on the existing structure and productivity of the economy. Increasingly, economists are recognising that policies and investments also change the underlying productivity of an economy. The latter is the catalytic effects discussed in Section 5.7. To obtain the total impact of a policy on the economy, one adds the catalytic impacts to the direct, indirect and induced. This gives a better measure of the overall impact of a policy on what an economy has foregone. Not only is economic impact down in Tourism and related sectors, national productivity has not grown as much as it could.

**Figure 5-11** summarizes this overall impact. In terms of GDP, the overall (direct, indirect, induced, and catalytic) impact is estimated to be \$5.5 billion.

**Figure 5-11**  
**Total Economic Impact**  
**2011**

Type of Impact	GDP (in \$bil)
Direct	\$2.2
Indirect	\$1.4
Induced	\$1.2
Catalytic	\$0.65
<b>Total</b>	<b>\$5.45</b>

An additional comment should be made regarding the catalytic impacts. In our above computation we used the impact on reduced productivity for a single year. However, productivity growth is cumulative. We measured the national productivity impact of reduced aviation for a single year as roughly \$0.65 billion. That is the impact in terms of lost productivity growth in the overall economy in the first due to a smaller lower level of air service connectivity than could have been achieved. An impact of \$0.65 billion for a national economy of roughly \$1 trillion may seem small. But in the second year, there is an additional loss in national productivity growth, so in the second year the foregone national productivity is roughly \$1.3 billion. The effect cumulates as the years go by. Every year that air traffic is less than its potential, national productivity falls a bit further behind.

The air transport policy which moved from financially supporting aviation to using aviation as a source of revenue for the general treasury (over and above the taxes that an economic sector would normal pay) began in 1992. That was when the first four airports, three of which had been

partially supported by the federal treasury, were transferred to authorities and rents started to be paid. That was over 20 years ago. In 1995 the policy progressed further with additional airports transferred, plus NAV CANADA. By 2002, not only had most airports (and NAV CANADA) been transferred, but the ATSC was put in place. At the very least, we have had 10 years of the current policy with its fiscal challenge for aviation. This means that the catalytic effects had reduced national productivity by \$7.4 billion for 2012.

Total Economic Impacts (\$ billion)				
	GDP		Employment (FTEs)	
	Direct	Total	Direct	Total
Aviation	\$0.6	\$1.3	9,000	20,000
Tourism	\$2.2	\$4.8	39,000	65,000
Catalytic Impact	n/a	\$7.4	n/a	73,000
Total	\$2.8	\$13.5	48,000	158,000

## 5.9 Tax Impacts

In Section 4.8 we estimated that the fiscal challenges facing aviation generate \$1.2 billion per year in revenue for the federal, provincial and municipal governments. This includes \$275 million in airport rent, \$121 million in PILT/GILT payments, \$231 million in provincial and federal aviation fuel taxes that are not reinvested in aviation, \$450 million in aviation security charges due to the fact that no funding is provided from the general treasury for aviation security, \$76 million due to the cascading effect of GST or HST and \$46 million in other fiscal challenges. We estimated in Section 5.4 that if the fiscal challenges had been removed, then governments would have received an offset of about \$70 million in additional tax revenue from the aviation sector alone.

However, there is additional tax revenue offsets not accounted for in Section 5.4. First, the removal of the fiscal challenges would increase air travel demand by 3.7 million passengers per year. The additional 3.7 million passengers that would materialise absent the high cost of the aviation fiscal policy would generate additional tax revenues. Specifically, governments would raise additional tax revenues generated by tourism expenditure. If the fiscal challenges were removed, activity in the tourism sector would generate \$3.8 billion in additional expenditures. The total additional tourism expenditures are based on \$2.3 billion in additional expenditure by domestic tourists, \$1.0 billion by international tourists and \$0.5 billion by transborder tourists. The Tourism Industry Association of Canada estimates that in 2011 tourism in Canada generated \$78.8 billion in total expenditures and \$22.0 billion in government revenues (or 28% of total expenditures in the tourism sector).<sup>93</sup> We

<sup>93</sup> TIAC, "The Canadian Tourism Industry", 2012, p. 8. The report was prepared in partnership with HLT and VISA.

estimated that the additional tourist expenditures of \$3.8 billion, absent the fiscal challenges, would generate \$0.6 billion in additional government tax revenues.<sup>94</sup>

Second, the catalytic impact of increased national resource productivity would result in additional government tax revenues. The annual catalytic impact was estimated at \$650 million in Section 5.7. We apply a conservative factor of 37% to derive the tax impact from increased national productivity.<sup>95</sup> Thus the annual tax offset from catalytic effects would amount to \$244 million per year, and would cumulate to \$2.7 billion over a 10-year period.

Thus, had the fiscal challenge been addressed in 2001<sup>96</sup>, instead of the \$1.2 billion government collected from the industry in 2011, it would have collected \$3.37 billion: \$0.07 billion from incremental air ticket sales taxes, \$0.6 billion in incremental taxes from the tourism industry and \$2.7 billion from increased taxes from a higher level of economic activity generated by the improved productivity from increased aviation connectivity.

*If the fiscal challenge had been addressed in 2001, instead of collecting \$1.2 billion from the industry in 2011, government would have collected almost \$3.4 billion, with \$2.7 billion coming from taxes on a higher level of economic activity.*

<sup>94</sup> Of \$78.8 billion in total tourism expenditures, 15% or \$11.8 billion is expenditures by international tourists and 85% or \$67 billion is expenditures by domestic tourists. For the purpose of our analysis, we excluded half of the expenditures by domestic tourists in estimating the tax impact. Hence the total taxable base is reduced to 57.5% (15% + 85% / 2) of total expenditures in the tourism sector. The removal of the fiscal challenges would therefore result in additional tax revenues of \$1.1 billion (28% of the \$3.8 billion in additional expenditures) or \$0.6 billion in adjusted additional tax revenues (57.5% of \$1.1 billion).

<sup>95</sup> We estimate that the share of government revenue in national output is 37%, based on consolidated government revenues (less consolidated Canada and Quebec Pension Plan revenues) and gross domestic product in 2009 from Statistics Canada.

<sup>96</sup> The policy change towards aviation began in 1992 with the first airport transfers, was largely in place by 1996 with ANS commercialisation, and was virtually complete by 2001. To be conservative, we compute the productivity gain from 2001 rather than an earlier point.

## 6 Case Studies

### 6.1 We Examine Four Case Studies to Check on the Plausibility of our Impact Estimates

Section 5 provided our estimates of the beneficial impacts that are expected to occur if Canada's fiscal challenges on aviation were to be eliminated. As a check on the plausibility of our estimates, we looked at a number of case studies from elsewhere in the world, where taxes were imposed and/or eliminated, as well as other studies that looked at investment, trade and economic productivity.

### 6.2 The Netherlands: Imposition and Removal of an Air Transport Tax

The Dutch Air Passenger Tax was introduced on 1 July, 2008. The tax was intended in part to temper the growth of aviation (part of the "greening" of the Dutch tax system) and in part to generate revenue for the government.<sup>97</sup> The target amount of revenue to be raised from the tax was €350 million. The initial expectation by government was that it would potentially lead to a loss of 8-10% of the traffic at Amsterdam Schiphol airport, but that given the growth in the industry and anticipated delays in impact, the government felt it was possible there would be no actual decline in traffic, but merely a temporary delay in growth.<sup>98</sup>

The initial structure was a flat €25 per ticket, but this was changed to €11.25 for flights within the EU or that were less than 2,500 km and €45 for flights longer than 2,500 km. It was not charged for connecting passengers or cargo to temper the impact on Schiphol as a hub airport.

*The tax immediately impacted O/D volumes; connecting traffic, which did not pay the tax, was unaffected.*

In contrast to the expectation of no net decline in traffic, passenger volumes at Schiphol began to drop immediately after the tax was implemented. Some of this traffic loss was undoubtedly due to the onset of what was to become a recession. However, it is worth noting that the volume of connecting passengers was not impacted initially, at least until later on when the economic downturn was more pronounced.<sup>99</sup>

<sup>97</sup> EU legislation prohibits excise and sales taxes, but not air passenger taxes.

<sup>98</sup> Ministry of Infrastructure and the Environment, KIM Netherlands Institute for Transport Policy Analysis, *Effects of the Air Passenger Tax: Behavioural responses of passengers, airlines and airports*, p.16.

<sup>99</sup> Gordijn, Hugo, *The Dutch Aviation Tax; lessons for Germany?*, paper for presentation at Infraday-2010, Berlin 8-9 October, 5 October 2010, p. 2.

As air carriers reported steadily lower volumes, the media attention increased. Airport and airline staff began protesting the tax even more vigorously. In the face of declining tourism volumes, the industry commissioned a study to determine the loss of business for airlines, airports, tour operators and the tourism industry. The study estimated a loss of €1.2 to €1.3 billion directly attributable to the tax.<sup>100</sup> The amount of tax collected was lower than expected due to the lower traffic volumes. In the 12 months following implementation of the tax, €267 million was collected, only about three-quarters of the targeted amount.<sup>101</sup>

In the face of mounting evidence of negative impacts and opposition, the tax was set to zero as of 1 July 2009 – one year after implementation. In light of the difficult economic times, the government abolished the tax entirely on 1 January 2010 to give more certainty to a struggling industry.

While the impact of the tax was exacerbated by the start of the global downturn, the Ministry of Infrastructure and Environment determined:

*A conservative estimate of the air passenger tax's effects during that period is that the tax accounted for nearly two million fewer passengers from Amsterdam Airport Schiphol.<sup>102</sup>*

*The government felt the tax might only delay growth; instead, 2 million passengers were quickly lost.*

The loss of traffic stemmed from a reduction in travel, modal diversion and traffic diversion to airports outside the Netherlands, primarily Düsseldorf, Weeze and Brussels. Geography played a role in the magnitude of traffic lost. Dutch airports closest to competing Belgian and German airports were most affected. Even after the tax was removed, traffic did not rebound to previous levels. There is an expectation that some of the traffic lost to Belgian and German airports will be permanent losses. The tax incited people to look for other travel options, which raised awareness of these options. If their experience at competing airports was positive, it is likely that some of this traffic will continue to use these alternatives.<sup>103</sup>

*Traffic is not expected to fully rebound. Travellers that had good experiences using alternative airports are expected to be permanently lost.*

The report by the Netherlands Ministry of Infrastructure and Environment ironically notes that the repatriation of Dutch traffic likely will be assisted by the decision of the German government to introduce their own ticket tax on 1 January 2011.<sup>104</sup>

*The tax was to raise €350 million; it raised only €267 million and cost the industry €1.2 to €1.3 **billion**.*

<sup>100</sup> Op. Cit., Ministry of Infrastructure and the Environment, p.19.

<sup>101</sup> PricewaterhouseCoopers LLP, *The economic impact of Air Passenger Duty*, February 2013, p. 24.

<sup>102</sup> Ibid, p.9.

<sup>103</sup> There had already been a trend towards diversion to other airports by Dutch travellers. It is likely that the tax exacerbated the trend.

<sup>104</sup> Ministry of Infrastructure and the Environment, p.7.

### 6.3 Germany: Imposing a Tax and Losing 2-5 million Passengers

Following the failed attempt by the Netherlands, Germany implemented an air ticket tax on all passengers on flights departing Germany on 1 January 2011. The fee is €8 for short-haul flights (domestic, intra-European and three nations in northern Africa: Algeria, Tunisia and Libya), €25 for medium-haul flights (northern Africa, Arabia, central Asia) and €45 for long-haul flights (sub-Saharan Africa, Asia, Americas, Pacific). As of January 2012, the rates were lowered somewhat, to €7.50, €23.43 and €42.18 respectively.

According to IATA, Germany pressured Austria to do the same.<sup>105</sup> Presumably this was to mitigate the leakage impacts felt by the Netherlands when it alone implemented its tax. Austria implemented its tax on April 1, 2011. Austria differentiates only between short-haul and long-haul, and charges €8 for the former and €40 for the latter, somewhat lower than what Germany charges.

A government report estimated that 2011 passenger volumes were negatively impacted by the new tax. About two million passengers did not travel because of the tax. This is lower than the industry estimate of a loss of five million passengers, but still represents a significant impact.<sup>106</sup>

*The German government estimated the tax lowered travel by 2 million in 2011. The industry estimates the number is closer to 5 million.*

By October 2011, it was reported that Maastricht Airport, in the Netherlands, enjoyed a 70% increase in passenger volumes – a far cry from the 25% traffic loss during the period in which the Dutch tax was in place. Traffic that previously would have used Weeze shifted to Maastricht; Ryanair cancelled a number of services out of Weeze and added flights at Maastricht. Germanwings launched a 12 times weekly service from Maastricht to Berlin.<sup>107</sup> Weeze reported a drop in its share of Dutch traffic from 52% to 40%.<sup>108</sup>

The major airports and the full service carriers appear to be weathering the tax reasonably well. It is the small and medium sized airports that are feeling the most impact. These airports are relatively more reliant on low-cost carriers, who are adapting to the tax by shifting services to jurisdictions that do not charge the tax. The tax represents a large proportion of low-cost carrier

*It is the low-cost carriers, which most stimulate travel, that are responding by reallocating services to neighbouring jurisdictions. This impacts smaller airports the most.*

<sup>105</sup> IATA, *Taxation – Duty Bound*, June 2011. Can be found at <http://www.iata.org/publications/airlines-international/june-2011/Pages/taxation.aspx>.

<sup>106</sup> Flottau, Jens, "Germany's Air Passenger Tax is Damaging – And Will Remain," *Aviation Week*, 17 July 2012. Can be found on-line at <http://www.aviationweek.com/Blogs.aspx?plckBlogId=Blog:7a78f54e-b3dd-4fa6-ae6e-dff2ffd7bddd&plckPostId=Blog%3A7a78f54e-b3dd-4fa6-ae6e-dff2ffd7bdddPost%3Adeb05f98-4eba-4a87-b69c-85b6a38f1f5c>

<sup>107</sup> Deutsche Welle, "German aviation tax pushes travelers to cross-border airports," 12 October 2011. Can be found at <http://www.dw.de/german-aviation-tax-pushes-travelers-to-cross-border-airports/a-15374865>

<sup>108</sup> *Airlines Magazine*, "One year later: The German Ticket Tax," March 26, 2012.

fares, and thus incents these carriers to avoid the charges where possible to a greater extent than the full service carriers.

Although the German Transport Minister had been quoted as saying the tax needed to go, the Finance Ministry has made the tax part of its medium term forecast, relying on airlines to contribute €1 billion annually (and this is above what will arise from the EU Emissions Trading Scheme).

*Major airports appear to be weathering the tax reasonably well.*

*It is the small and medium sized airports that are feeling the impact.*

## 6.4 The United Kingdom: Duty Reduced National GDP by 1.5%

The Air Passenger Duty (APD) was first implemented in 1994, with a £5 charge to most European destinations and a £10 charge to other destinations. The duty has grown more complicated over time, and is currently comprised of four distance “bands” for two classes of travel. The distance bands are 0-2,000 miles, 2,000-4,000 miles, 4,000-6,000 miles and over 6,000 miles. The class of travel is split between lower and higher class of travel. The “reduced rate” applies to discount and economy seats while the “standard rate” applies to premium economy, business and first class seats. The reduced rate ranges from £13 to £94, while the standard rate ranges from £26 to £188. These rates are not only the highest in Europe, they are the highest rates charged anywhere in the world.<sup>109</sup> As noted earlier, the WEF Travel and Tourism Competitiveness Report had the UK ranked 139<sup>th</sup> out of 140 nations on ticket taxes and airport charges.

*It is estimated that the UK economy would be roughly 0.5% larger if the APD was removed.*

*By 2020, the economy would be 1.5% larger, about \$40 billion CAD.*

PricewaterhouseCoopers LLC modeled the impact that the *elimination* of the APD would have on the UK economy. In 2013 (the first year modelled) they estimate that in the absence of the tax, the UK GDP would be 0.46% higher. With the UK GDP being roughly €1,900 billion in 2012 (\$2,600 billion CAD) a 0.46% increase would amount to roughly €8.7 billion (\$12 billion CAD). The effect would be cascading, though at diminishing levels over time. PwC estimates that in the seven years to 2020, the economy would be 1.5% larger than it would be if the tax were kept. This would amount to an increase in GDP of €28.5 billion (\$40 billion CAD).<sup>110</sup>

PwC attributes the increase in GDP to a number of factors:

<sup>109</sup> PricewaterhouseCoopers LLC, pp. 17-19.

<sup>110</sup> Ibid, p.43.

- An initial stimulus that takes the form of increased investment, an increase in ticket purchases, and an increase in net tourism inflow;
- An increase in national productivity associated improved delivery;
- Growth in international business relationships and trade; and
- Increased household consumption.<sup>111</sup>

The report also points out that as the APD, as a tax on business inputs, distorts the economy and that its removal would be beneficial. PwC apply a dynamic policy costing approach and determine that the abolition of the APD could in fact be self-financing. In other words, the initial loss of revenue to the government would be more than offset by additional revenues generated by other existing taxes<sup>112</sup>.

*Some travellers minimise the amount of APD they pay by taking short-haul flights to nearby European gateways and commencing long-haul flights from these competing gateways.*

One interesting development that has arisen in response to the APD is passengers taking short-haul flights to nearby European hubs such as Amsterdam, Charles de Gaulle and Frankfurt to start their long-haul journey. That way, passengers only pay for Band A travel (the lowest rate) instead of one of the costly more distant bands. Thus, travellers bound for India would pay the £13 APD to get them to continental Europe instead of the £83 or £166 fee (depending on class of travel) if they flew direct from the UK. The PwC study estimates the number of travelers doing this to be in excess of 1.6 million.<sup>113</sup>

## 6.5 Belgium: Tax cancelled after 24 days

Belgium introduced an Air Travel Tax in 2008, charging €10 for short-haul and €50 for intercontinental routes. The genesis was not environmental concerns, but rather strictly as a revenue source for government. It was cancelled 24 days after its introduction due to a strong outpouring of opposition from carriers, airports, tour operators and passengers. An on-line petition against the tax gathered 36,000 names in two weeks.

Regional governments in Belgium were also strongly opposed to the tax. When it scrapped the tax, the federal government indicated to the regional governments that they would have to find another source of income, and that would likely entail a contribution from the aviation sector.

*The increase in GDP that would come with the elimination of the APD arises from stimulation in investment, increased productivity, growth in international business and trade and increased household consumption.*

The Wallonian government recently announced a €3 travel tax to be implemented on 1 January 2014. Ryanair has already announced that if the tax proceeds, it will reduce its level of activity at

<sup>111</sup> Ibid, pp.43-44.

<sup>112</sup> Ibid, p.50.

<sup>113</sup> Ibid, p.23



Brussels Charleroi by at least 17%. This would result in a loss of 1 million passengers and about 1,000 jobs at the airport. Ryanair noted that after the government scrapped the 2008 tax, it more than doubled its traffic at Charleroi. This growth would be reversed if the tax goes ahead.

## 6.6 Foreign Direct Investment and Locational Decision Making

The high cost of serving Canada due to the high level of taxes, fees and charges is acting as an impediment to new services connecting Canada with other nations. This clearly has an impact on trade and tourism, but it also has an impact on the amount of investment made in Canada. There have been a few studies of the impact on Foreign Direct Investment following improved the start of new international services.

A study of Italy showed that “inward FDIs increased overall by 33.7% in the two years after the opening of the new routes while, in the same period, FDIs in the control group decreased by 16.6%.<sup>114</sup> This study showed an impact on investment in secondary cities receiving new routes; the impact is not limited to major gateway cities.

A study of Japan showed “a statistical relationship between non-stop air service to Japan and the level of direct Japanese investment in the U.S.”<sup>115</sup> The study results also indicated that service by Japanese carriers had more of an impact on Japanese investment in the U.S. than did service by U.S. carriers. This may reflect a greater degree of confidence in the commitment to the service by their own national carriers.

*Ease of access – non-stop services – stimulates increased foreign direct investment and influences where corporations locate facilities.*

There is also evidence that the supply of direct intercontinental flights is a major determinant in site selection for corporate or institutional headquarters. Looking at Europe, one study shows a 10% increase in the supply of intercontinental flights involves a 4% increase in the number of headquarters located there. The effect is greater for knowledge-intensive sectors.<sup>116</sup>

## 6.7 National Productivity

A number of studies indicate a positive relationship between connectivity and productivity. Other studies show that productivity is also positively correlated with public non-military capital expenditure. Aschauer, in a series of studies, shows that public investment in infrastructure is a “vital ingredient in the recipe for economic growth and rising standards of living.”<sup>117</sup>

<sup>114</sup> Bannò, Mariasole, Marco Mutinelli and Renato Redoni, “Air Connectivity and Foreign Direct Investments: The economic effects of the introduction of new routes,” University of Brescia.

<sup>115</sup> Hansen, Mark and Richard Gerstein, “Capital in Flight: Japanese Investment and Japanese Air Service in the United States During the 1980s,” *Logistics and Transportation Review*, Volume 27, Number 3, p.272.

<sup>116</sup> Bel, Germà and Xavier Fageda, “Getting there fast: Globalization, intercontinental flights and location of headquarters,” September 2005, p.13.

<sup>117</sup> Aschauer, David A., “Public investment and productivity growth in the Group of Seven,” *Economic Perspectives*, Federal Reserve Bank of Chicago, p.24.

Canada's percentage of public investment as a share of gross domestic product has declined since 1967, when it represented over 3% of GDP. Both by limiting access and downplaying public investment in infrastructure, Canada is suppressing the productivity growth that is needed to support our high standard of living. To compete in global markets, high transportation costs need to be offset somehow – and in the absence of high productivity growth rates, that likely means lower wages. Infrastructure investment and tax policies that reduce transport/access costs are critical to supporting high wages.

*Infrastructure investment and tax policies that reduce transport/access costs are critical to supporting high wages.*

Aschauer also shows a linkage between public capital investment and corporate profits. He notes:

*"Indeed, this paper has presented evidence which suggests that while the overall level of government expenditure on goods and services may not affect the marginal product of capital (more specifically, the return to capital) the accumulation of capital goods by the public sector does have such an effect. The elasticity of the rate of return to capital – gross or net of physical depreciation – with respect to public capital is strongly positive and of comparable magnitude to the corresponding elasticity with respect to private capital. Furthermore, the decline in the public capital stock, relative to that of private capital, accounts for much of the apparent downward trend in the profit rate in the United States over recent years."<sup>118</sup>*

## 6.8 Michigan Warehousing Use Tax

Although not about aviation, it is useful to consider the case of the Michigan warehouse use tax. Facing a budget crisis, the State passed legislation in October 2007 that would impose a 6% tax on certain services. Included in this were a number of supply chain elements, including warehouse and storage services, courier and messenger services, and physical distribution and logistics consulting.

Amidst concern about what this would do to distribution activity in Michigan (none of the surrounding jurisdictions had a similar tax) the International Warehouse Logistics Association commissioned a study by the Michigan State University (MSU) on the likely impacts. MSU conducted surveys and interviews with parties that would be affected by the tax (including warehouse operators and their customers).

The researchers concluded that the tax would in fact strongly motivate distribution activity to move from Michigan to other states. It estimated that over 7,000 jobs (out of 17,000 in the sector) would be lost, with payroll dropping from \$733 million to \$313 million. Their findings showed a

*Michigan introduced a use tax that applied to warehousing. A study found this would drive distribution activity to neighbouring jurisdictions and would actually lower total tax receipts. The tax was repealed two months after implementation.*

<sup>118</sup> Aschauer, David Alan, "Government spending and the 'falling rate of profit,'" *Economic Perspectives*, Federal Reserve Bank of Chicago, p.15.

strong sensitivity – even a 1% tax rate would lead to a 10% decrease in activity (measured by revenue). The 6% tax rate was estimated to lead to a reduction in activity to less than 60% of the pre-tax level. After factoring in direct and indirect declines in income, sales, business and property taxes to the anticipated receipts from the use tax, Michigan would collect \$55 million less in total taxes.

One of the motivating factors that lead to the repeal of this use tax was that competing jurisdictions started using the Michigan use tax in their pitches to relocate distribution activity from Michigan. The tax was repealed two months after it was implemented.

## 6.9 Conclusions

The case studies found tangible evidence that taxes on aviation have real impacts on the level of air traffic.

These studies show that nations that have imposed taxes that raise the cost of air transportation relative to neighbouring jurisdictions have seen damage to their tourism industries and suffer significant traffic loss – sometimes permanent. In the worst case situation of the UK (with the highest air passenger duty of all) the negative impact of the APD is almost half a percent of total GDP – about \$12 billion CAD. Many nations that imposed such a tax have removed it, or are under pressure to do so from the many economic interests severely impacted by the tax.

Other studies show that cost-effective air services support trade, tourism, foreign direct investment, headquarters and other corporate facilities as well as boosts to national productivity. Taxes on other parts of the supply chain also have a significant and detrimental impact on economic activity.

## 7 Key Findings

This report analysed the impact of Canada's aviation policies, including fiscal, infrastructure development and other relevant policies of the federal, provincial and municipal governments. Key findings presented in this report are as follows:

### The Taxes and Charges

- Canada has a fiscal regime that disproportionately affects the aviation sector. The monies raised from taxing the aviation industry are not reinvested back into the industry.
- *Fuel Tax.* Federal and provincial excise taxes on aviation fuel are an example of this. The contributions to federal and, in many cases, provincial coffers, are not reinvested back into the industry. This is in sharp contrast to the United States where aviation fuel tax proceeds are entirely reinvested into the industry, being used there to support airport infrastructure and the development and modernisation of the air navigation system. Federal and provincial excise taxes on aviation fuel amount to \$231 million per year, or \$4.08 per enplaned passenger (\$10.20 per round trip).<sup>119</sup>
- *Airport Rent.* Airport ground rent payments to the federal government are \$275 million per year. This amounts to \$5.15 per enplaned passenger (\$12.87 per round trip). Rents are based on airport revenues, including Airport Improvement Fee (AIF) revenues. But these are collected only for financing airport capital, not for covering operating costs. Thus the airport rent formula penalises airports with major capital programs. The federal government receives higher rents when an airport's passengers pay higher AIF to finance capital improvement, even though the landlord (the federal government) made none of the investment.
- *ATSC.* The Air Traveller Security Charge (ATSC) ranges from \$7.12 to \$25.91 per enplaned passenger, depending on the flight itinerary ( and up to \$51.82 per round trip). Federal policy is that the ATSC rate is set so that passengers pay 100% of aviation security costs. (In several years more than 100% was collected.) But aviation security is a benefit to all Canadians and should be supported by funding from the general treasury. To underscore this, we point out that on 9/11 more Americans died in office buildings than on aircraft. Discouraging air travel with a tax for security does not remove the risk to Canadians, but it does undermine the economic potential of aviation dependent sectors of our economy, like tourism and trade, as well as social connectivity. The ATSC fiscal challenge amounts to over \$450 million per year.<sup>120</sup> This works out, on average, to \$7.96

<sup>119</sup> Statistics Canada counts *enplaned* passengers. An itinerary with two flights in each direction constitutes one round trip and four enplaned passengers. To make the results more intuitive for passenger decisions, we express our results both 'per enplaned passenger' and 'per round trip.' Some round trips have a single flight in each direction and some have two or more flights in each direction. Based on research we have conducted, our round trip figures are 2.5 times the figures per enplaned passenger.

<sup>120</sup> Our measure of the fiscal challenge from the ATSC factored down the \$631 million in actual ATSC revenue for 2011-2012 by 28%. In many countries, such as the U.S., the bulk of aviation security costs are paid by the federal

per enplaned passenger (\$15.93 per round trip).

- *PILT/GILT*. In addition to ground rents, airports make Payments or Grants in Lieu of Taxes (PILT/GILT) to municipal governments. PILT/GILT payments totalled \$121 million for the largest airports, or an additional cost of \$2.26 per enplaned passenger (\$5.65 per average round trip itinerary). Almost without exception, U.S. airports make no PILT payments.
- *Air Navigation*. NAV CANADA, the not-for-profit provider of air navigation services in Canada, was required to pay \$1.5 billion for ANS assets previously paid for by passengers via the old Air Ticket Tax. This has resulted in an additional cost to current passengers, estimated at \$0.82 per enplaned passenger and \$2.05 per round-trip passenger.
- *GST/HST cascade*. The Goods and Services Tax (GST) and Harmonised Sales Tax are cascading taxes, where a tax is applied on other taxes. While international flights are not subject to GST,<sup>121</sup> the tax cascades on other taxes for domestic flights and on certain charges for transborder flights between Canada and the United States. The cascading tax effect occurs when GST/HST is applied on the provincial and federal fuel excise taxes, and on the Air Traveller Security Charge. The cascading impact amounts to \$1.34 per enplaned passenger (\$3.36 per round trip).
- In total, an air traveller in Canada faces an additional cost of \$22 per enplaned passenger (\$50 per average round-trip passenger) as a result of the fiscal challenges faced by Canadian aviation.

### **The Impact on Passenger Traffic.**

- *Higher Fares*. The fiscal challenges of Canada's fiscal policy toward aviation result in higher airfares. The cost imposed on Canadian aviation by the fiscal challenges represents 8.7% of domestic fares, 9.5% of transborder fares and 6.4% of international fares.
- *Loss of Passengers*. These higher ticket prices reduce air travel. Had these costs been absent in 2011, there would have been roughly 3.7 million additional passengers (2.1 million domestic, 0.9 million transborder and 0.7 million other international).
- *Lower Airline Revenues*. Had airfares not included the additional costs caused by the fiscal challenges in 2011, air carriers would have earned an additional \$1.5 billion from this additional traffic.

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treasury, with air travelers contributing a small amount to the costs. For the Canadian fiscal challenge from the ATSC, we used 72% of the ATSC tax rate.

<sup>121</sup> GST/HST is paid on AIFs for international flights.

The tourism industry has long been a key stakeholder in Canadian aviation and has been a strong advocate of improvements in Canada's aviation policies in support of enhanced international inbound tourism from new and growing markets. In order to strengthen the case for further change, Alberta Tourism, Parks and Recreation commissioned this examination of the impact of certain federal fiscal policies on the cost competitiveness of the Canadian aviation industry. In this report we refer to these impacts as the "fiscal challenges" facing aviation.

To undertake this analysis InterVISTAS reviewed and synthesised existing research analysis, as well as conducted a number of additional analyses to update the information, fill in gaps, link policies to impacts, and fully explain the many ways in which Canada's aviation system is taxed.

### Other Impacts

- *Tourism.* Inbound tourism expenditure could increase by \$3.8 billion if the aviation fiscal challenges were eliminated. This increase comes from spending by an estimated 1.6 million additional inbound passengers attracted by lower costs, as well as increased tourism spending in Canada by Canadian residents. Considering direct, indirect and induced impacts of this spending, we are currently foregoing almost 65,000 person years of tourism employment and \$4.8 billion in GDP.
- *Catalytic Impacts on National Economic Productivity.* International air connectivity affects more than tourism. It is inextricably linked to Canada's trade, investment and national productivity. Air transport is key to enabling contacts between suppliers and buyers to support trade as well as moving high value exports. Policies to promote aviation can help address Canada's declining competitiveness in the world economy. Empirical studies suggest that affordable transport and market access costs are essential to maintaining a high level of wages in an economy.

Improved air service has a catalytic impact on the economy. That is, it facilitates the success of other sectors of the economy. We estimate that eliminating the aviation fiscal challenges would increase national productivity and GDP by \$0.65 billion in the first year. Over 10 years, the impact could reach over \$7 billion.

- *Treasury Receipts.* The fiscal challenges generate \$1.2 billion of 2011 government revenues. However, had the fiscal challenges not been present in 2001, treasury receipts would have been higher. There are three key offsets that would arise from a lower cost burden on aviation:
  - Because traffic would have increased, there would be offsetting tax revenues in the order of \$70 million from sales tax on additional air tickets.
  - Because of increased inbound tourism expenditure and increased resident spending on tourism, government would have collected an additional \$600 million in revenue from tourism spending.
  - Because of the increased connectivity arising from higher levels of air service, national productivity would have increased GDP by \$7.4 billion by the 10<sup>th</sup> year. This would have generated about \$2.7 billion in additional government revenues.

As a result, instead of the \$1.2 billion collected by government tax revenues from existing sources, government would have collected \$3.4 billion in incremental tax revenues from additional aviation ticket sales, a larger tourism sector and from general taxes from a larger GDP base.

- *GDP and Employment.* Adding the aviation, tourism and catalytic impacts of the fiscal challenges for aviation, they have resulted in a total loss of \$13.5 billion in GDP in 2011. This is a loss of 48,000 direct jobs and a total of 158,000 jobs.

Total Economic Impacts				
	GDP \$billion		Employment (FTEs)	
	Direct	Total	Direct	Total
Aviation	\$0.6	\$1.3	9,000	20,000
Tourism	\$2.2	\$4.8	39,000	65,000
Catalytic Impact	n/a	\$7.4	n/a	73,000
Total	\$2.8	\$13.5	48,000	158,000

### Why This Matters for Tourism

- While Canada's overall travel and tourism ranking is still high, it has fallen from 8<sup>th</sup> in the world in terms of international visitor arrivals in 1998 to 16<sup>th</sup> in 2012.
- In the 2013 World Economic Forum Travel and Tourism Competitiveness Report, Canada ranked 124<sup>th</sup> in cost competitiveness and 106<sup>th</sup> in visa requirements out of 140 nations. High aviation costs are an important reason why Canada has low cost competitiveness.
- Canada has a new Canadian Tourism Strategy. For this to be effective all parts of the government must work together. This especially includes policy toward aviation, including Canada's fiscal policy (taxes and rents assessed on airports, airlines and travellers).

### Case Studies

- Case studies were used to check the plausibility of our impact estimates. These are cases where governments in other countries imposed and/or removed taxes on aviation.
- The Netherlands: imposed and subsequently removed an Air Transport Tax
  - The Dutch government imposed a tax on air travel, in part to generate revenues for the treasury.
  - The tax immediately impacted origin/destination passenger volumes (tourism is part of O/D traffic, which is distinguished from connecting traffic).
  - Connecting traffic, which did not pay the tax, was unaffected.
  - The government felt the tax might only delay growth; instead, 2 million passengers were quickly lost.
  - The government thus removed the tax.

- Traffic is not expected to fully rebound after the removal of the tax. Travellers that had good experiences using alternative airports are expected to be permanently lost.
- The tax, which was to raise €350 million; only raised €267 million (due to the loss of traffic) and cost the industry €1.2 to €1.3 billion.
- Germany: imposed a tax and lost 2-5 million passengers
  - The German government imposed a tax on travel.
  - However, the tax lowered travel by 2 million passengers in 2011. (This is the government's estimate. The industry estimates the number is closer to 5 million.)
  - Major airports in Germany appear to be weathering the tax reasonably well. It is the small and medium sized airports that are feeling the greatest impact.
- The United Kingdom: the imposition of an aviation tax is expected to reduce national GDP by 1.5%
  - A recent study estimated that the UK economy would be roughly 0.5% larger today if the Air Passenger Duty (APD) were removed.
  - By 2020, the economy would be 1.5% larger, about \$40 billion CAD.
  - Some travellers minimise the amount of APD they pay by taking short-haul flights to nearby European gateways and commencing long-haul flights from these competing gateways.
  - The increase in GDP that would come with the elimination of the APD arises from stimulation in investment, increased productivity, growth in international business and trade, and increased household consumption.
- Belgium: The federal government imposed an aviation tax and cancelled it after 24 days
  - Belgium imposed a tax on aviation.
  - The outcry from industries and communities was so strong that the tax was cancelled within 24 days.

## Conclusion

Canada's current fiscal challenges on the aviation industry have resulted in air travel that costs more and have resulted in 3.7 million fewer travellers. This has resulted in a loss of tourism revenues of \$3.8 billion and even greater impacts on national economic productivity. In this report we estimate that total GDP would have been \$13.5 billion higher had the fiscal challenges been eliminated. As a result, instead of the \$1.2 billion collected by government tax revenues from the aviation fiscal challenge sources, governments would have collected \$3.4 billion in incremental tax revenues from taxes on additional aviation tickets, larger tourism expenditure and from general taxes from a larger GDP base.



## Appendix A: Summaries of Existing Reports

This appendix provides a review of a number of studies on the issues addressed in this report. We have organised our summaries/reviews into categories:

- Policy Papers
- Economic Impact of Air Transportation
- Catalytic Impacts of Aviation
- Trade, Investment and Business Location Decisions
- Overall Contribution to Economic Growth
- Role of Government Policy in Cost Competitiveness
- Transborder Leakage
- Effects of Liberalisation
- Other Papers

## Policy Papers

### Papers reviewed

- i. Standing Senate Committee on Transport and Communications, "One Size Doesn't Fit All: The Future Growth and Competitiveness of Canadian Air Travel", April 2013
- ii. Standing Senate Committee on Transport and Communications, "The Future of Canadian Air Travel: Toll Booth or Spark Plug?", June 2012
- iii. National Travel and Tourism Coalition Whitepaper: "Looking to 2020: The Future of Travel and Tourism in Canada", October 2010
- iv. Canadian Airports Council, "Righting the Canadian Disadvantage, Pre-Budget 2010 Submission"
- v. Canadian Airports Council, "A Level Playing Field: A Competitive Aviation Policy for a Competitive Canada" (Brief to the House of Commons Standing Committee on Finance), August 2008
- vi. Tourism Industry Association of Canada, "Gateway to Growth: Our Global Competitiveness Requires a New Roadmap (M.A.P.)", 2012
- vii. The Canadian Chamber of Commerce, "Restoring Canadian Tourism", July 2013
- viii. Aschauer, D.A., Federal Reserve Bank of Chicago, "Government spending and the 'falling rate of profit'", 1988
- ix. Aschauer, D.A., Federal Reserve Bank of Chicago, "Public investment and productivity growth in the Group of Seven", 1989

### **Standing Senate Committee on Transport and Communications, "One Size Doesn't Fit All: The Future Growth and Competitiveness of Canadian Air Travel", April 2013**

In June 2012, the Standing Senate Committee on Transport and Communications released an interim report entitled "The Future of Canadian Air Travel: Toll Booth or Spark Plug?" This report looked at the growth and competitiveness of Canadian air travel. This is the follow-up report on growth and competitiveness. The purpose of the two studies was to provide recommendations to create a stronger air transport industry and greater air access for Canada and Canadians.

#### Key Findings:

- The federal government does not have a distinct national air travel strategy and that the north and other regional airports should have a different focus due to the vastly different circumstances surrounding those airports. The government should also stop using airports as a source of public revenue.
- Recommendations from the previous report were:
  - Transport Canada, the Department of Finance and relevant stakeholders work together to develop a “National Air Travel Strategy”.
  - Transport Canada should phase out ground rents currently charged to NAS airports.
  - Transport Canada should also transfer federally owned NAS airports to their respective Airport Authorities.
- New recommendations put forth by the committee were:
  - The special circumstances of the north and other regions be considered when making future regulatory, policy or funding decisions.
  - Infrastructure improvements in the north and remote areas should be a key focus for increased growth in those regions.
  - Airport Authorities should be held accountable, and new review processes should be put in place allowing various stakeholders to better analyse the decisions of the Airport Authorities.

Canadian air carriers should better support training and development of Canadian pilots while foreign pilots should be fully screened by Transport Canada to ensure they meet all requirements.

### **Standing Senate Committee on Transport and Communications, “The Future of Canadian Air Travel: Toll Booth or Spark Plug?”, June 2012**

The Standing Senate Committee on Transport and Communications released an interim report entitled “The Future of Canadian Air Travel: Toll Booth or Spark Plug?”, which looked at the growth and competitiveness of Canadian air travel. The purpose of the study was to provide recommendations to help to create a stronger air transport industry and greater air access for Canada and Canadians. The information was gathered from studies and witness interviews.

#### **Key Findings:**

- Canada needs a new National Air Travel Strategy, for the government to stop using airports as a source of revenue (causing leakage to the United States), and to engage stakeholders to continually improve inefficiencies in the system.
- An example shows that a typical flight from Toronto to Orlando has a base fare of \$118 and taxes and charges totalling \$89.53. If that passenger were to drive to Buffalo and fly to Orlando, a typical base fare would be \$124, with taxes and charges totalling \$20.88. Even though the base fare is cheaper in Toronto, it costs travellers over \$60 less to fly from Buffalo.
- Recommendations from the report include:
  - Create a cohesive National Air Travel Strategy, with input from Transport Canada, the Department of Finance and other relevant stakeholders.

- Update the National Airports System (NAS). These updates should have the goal of increasing traffic, focusing on the needs of the industry and consumers, while maintaining an equitable treatment of airports.
- Transport Canada should phase out ground rents for NAS airports.
- Along with the ground rents phase out, federally owned NAS airports should be transferred to their operating authorities.
- Large volume airports need to better facilitate flight connections including streamlining luggage transfers and security and customs processes.

Citizenship and Immigration Canada and directors of the major Canadian airports should work together to create a “transit visa program for international travellers” to help improve the connection process through Canadian airports.

**National Travel and Tourism Coalition Whitepaper: “Looking to 2020: The Future of Travel and Tourism in Canada”, October 2010**

The National Travel and Tourism Coalition produced a whitepaper with policy change suggestions with the hope that full implementation of these changes will lead to economic growth and Canada regaining its position among the top ten most visited tourism destinations. The policy changes suggested are based on four suggested “pillars” to help Canada regain its previous competitive position and continue to be competitive in the future. Those pillars are: “a fair taxation regime”, “a level playing field with the United States”, “policies that enhance global competitiveness” and “access to a sufficiently large and skilled labour force.”

The key findings of the whitepaper relevant to aviation included:

- Travel and tourism GDP was \$29 billion in 2009 and the industry employed 650,000 directly.
- Canada’s tourism budget was well behind other similar areas and countries such as Australia (\$85 million core budget versus \$123 million).
- Canada’s largest impediment is its lack of cost competitiveness, especially with its U.S. competitors.
- The U.S. has structural cost advantages, such as American airports not paying any ground rents, security and air navigation are subsidized by the government and American airports can issue tax free bonds to pay for infrastructure.
- The report suggests that the Canadian government views transportation as a source of revenue, while the American government views transportation as an essential part of trade and development.

The key policy recommendations related to aviation included:

- The elimination of airport rents, municipal taxes on airports and payments in lieu of taxes.
- Excise taxes on aviation fuel should be used for aviation related infrastructure.

- Reduce or eliminate the Air Travelers Security Charge by increasing government funding for aviation security.
- The creation of a Tourism Infrastructure Bank, which would provide low cost financing.
- Improve the connectivity of Canadian airports with their surrounding cities and other modes of transportation.
- Ensure that policy choices take into account impacts on tourism.
- Increase funding for CBSA to minimize impacts of operations on traveller experience.
- Improve transparency of CATSA through changes to their current governance policies.

Other key policy recommendations included:

- Changing the Foreign Convention and Tour Incentive program.
- Increase funding for tourism marketing.
- Increase the available labour market by encouraging young and new Canadians to participate.

**Canadian Airports Council, "Righting the Canadian Disadvantage, Pre-Budget 2010 Submission," (Submission to the House of Commons Standing Committee on Finance)**

In its 2010 submission to the federal government of Canada as part of the pre-budgetary consultation process, the Canadian Airports Council identified three areas where Canada's aviation sector faces a competitive disadvantage compared to U.S. counterparts, the rest of the world and other modes of transport. Those included: ground rent, free trade zones and regulatory burden.

The CAC strongly advocated for the elimination of ground rent that airports pay to the federal government, citing the stifling effect of this tax component on the prosperity and competitiveness of Canada's aviation and tourism. The elimination of ground rent would lead to 590,000 additional travellers, an additional spending of \$304 million and additional 5,330 full-time job equivalents annually, based on a study prepared by InterVISTAS on the Canadian market. The resulting decrease in tax revenue estimated at \$280 million would be partially offset by \$50 million in tax revenues from new business activity. The CAC referred to a study by the World Economic Forum that ranked Canada 114<sup>th</sup> out of 130 countries in terms of cost competitiveness of the tourism and travel sectors.

In addition, the CAC argued that Canada's airports should be included in a foreign/free trade zone (FTZ) program. Canada is the only G8 country that does not offer a true FTZ program. Finally, the CAC recommended a re-examination of the regulatory system applicable to airports in Canada to remove a duplicative regulatory burden. Canada's high degree of regulatory burden due to security and environmental requirements unduly increase airport costs, placing Canadian airports at a competitive disadvantage compared to other modes of transport.

**Canadian Airports Council, "A Level Playing Field: A Competitive Aviation Policy for a Competitive Canada" (Brief to the House of Commons Standing Committee on Finance), August 2008**

In the 2008 submission to the House of Commons Standing Committee on Finance, the Canadian Airports Council recommended eliminating ground rents paid by Canadian airport authorities to the federal government. Key propositions by the CAC were:

- Aviation is important for Canadian trade and tourism;
- Canada has among the highest aviation taxes in the developed world;
- High aviation taxes have a negative impact on the competitiveness of Canadian trade and tourism;
- Canadian airports are losing traffic to U.S. airports as a result of an uncompetitive tax environment;
- *Airport rents are the highest government imposed cost on the aviation sector (circa \$300 million annually);*
- Lost revenue from phasing out airport ground rent would be offset by additional revenue from increased economic activity.

**Tourism Industry Association of Canada "Gateway to Growth: Our Global Competitiveness Requires a New Roadmap (M.A.P.)"**

In 2012, the Tourism Industry Association of Canada (TIAC) prepared an analysis of the challenges faced by Canada's tourism industry. It also provided an overview of federal and provincial initiatives aimed at addressing those challenges.

Tourism is an important contributor to economic growth in Canada. In 2011, tourism accounted for 603,400 direct jobs and supported 1.6 million jobs (or 9.2% of Canada's total employment), for \$78.8 billion of national GDP and for \$16.7 billion in export revenue.

The study established the following trends affecting Canada's tourism and travel industry:

- Canada's share of the world tourism market is declining, while total international tourism is growing.
- Canadians increasingly travel abroad and spend money outside of Canada. Spending by foreign tourists in Canada was static in the past decade. International arrivals in Canada have declined over time. Canada is falling behind in attracting tourists from growing international travel markets (the U.S. and emerging economies).
- As a result of the lack of revenue from foreign visitors, Canadians will face higher taxes.

The study identified three main policy challenges affecting the tourism and travel industry: marketing, access and product (M.A.P.).

**Marketing:** Canada is planning to reduce funding for the marketing of tourism and travel to \$58 million in 2013-14 (compared to \$72 million in 2010).

**Access:** The cost structure of Canada's aviation – in particular airport rents, fuel taxes and security fees – presents another barrier to growth in tourism and travel. The government collects \$850 million annually in aviation taxes and fees (airport rents, excise aviation fuel taxes, security charges, air navigation charges and GST levied on the Air Transport Security Charge and the Airport Improvement Fee). In addition, a restrictive visa regime for visitors and border issues further contribute to the problem.

**Product:** The study emphasized that investment in tourism products owned by federal and provincial governments is needed to promote growth in tourism.

According to the study, the new federal tourism strategy launched in October 2011 resulted in a number of initiatives, such as an air access agreement between Canada and Brazil, new 10-year multiple entry visas for visitors, federal support for parks and tourist sights and other important projects. Those initiatives have been also complemented by tourism strategies developed by many provincial and territorial governments.

### **The Canadian Chamber of Commerce “Restoring Canadian Tourism”**

In July 2013, the Canadian Chamber of Commerce issued a discussion paper which looked into the issue of Canada's declining attraction as a tourist destination. According to the study, Canada's share of international tourism has been declining. While Canada was in the top 10 destinations based on international arrivals a decade ago, today it may fail to make it to the top 20.

Tourism is the largest service export in Canada, accounting for \$17.3 billion per year in export revenue. Tourism is affected by factors that are beyond Canada's control and also factors that are within its control. Among the former are factors such as the rise of the Canadian dollar, the U.S. recession and policies that followed the terrorist attacks of 9/11. Among the latter are excessive regulation, fees and taxes, and a restrictive visitor visa regime.

Key findings presented in the study were as follows:

- In 2012, the contribution of the tourism industry to Canada's economy was \$84.8 billion and it was greater than from agriculture, fisheries and forestry combined.
- The tourism industry directly employs over 600,000 people in Canada, exceeding employment in the oil and gas industry.
- In 2011, the tourism industry contributed \$21.4 billion per year in taxation revenues for governments at various levels, of which \$10 billion was federal government revenue.
- While international arrivals globally continue to grow, Canada's share of international arrivals continues to decline. The number of international arrivals dropped from 20.1 million in 2002 to

16.3 million in 2012. Other countries experiencing a drop in international arrivals are Poland, Ireland, Tunisia and Brazil.

- The tourism industry in Canada primarily relies on domestic travellers, which accounted for 81% of total tourism expenditures in Canada in 2012 (compared to 65% in 2000). This is a worrisome trend, given that international tourism is more lucrative. International tourists stay longer, spend more and result in greater profit margins for Canadian businesses.
- In addition to the loss of spending from international visitors, Canada is also missing out on the opportunity to develop investment and business partnerships.

While Canada's brand as a destination for tourists and travellers is well established, Canada's ranking in travel and tourism competitiveness has fallen from 5<sup>th</sup> in 2009 to 8<sup>th</sup> in 2013. Canada ranked 124<sup>th</sup> out of 140 countries in terms of price competitiveness, according to the World Economic Forum.

The main cause for the decline in international tourist arrivals in Canada is "an outdated aviation policy that creates competitive barriers and an underfunded marketing strategy". In addition, Canada does not exempt the tourism and travel industry from GST, while other export sectors are "zero-rated" for GST. Canada's visa system for visitors is cumbersome and expensive. Excessive air travel costs as a result of layers of taxes, fees and surcharges applied to air travel further impede access to the country for international tourists. Finally, Canada reduced its marketing budget by 20% to \$58 million, which contradicts sharply with the aggressive marketing approaches in the U.S., Ireland, Mexico, Australia, New Zealand, and India.

The study recommended:

- an increase in Canada's marketing budget to compete with rival countries;
- an examination by the federal government of the cost competitiveness of the travel sector with special attention to the high cost borne by aviation customers;
- a revision of the visa regime for visitors with the view to ease access to Canada; and
- an implementation of the strategies under the broad federal government's tourism strategy, *Welcoming the World*. Care should be taken to ensure that there is no unnecessary competition between government and private sector enterprises.

### **Federal Reserve Bank of Chicago "Government spending and the 'falling rate of profit'"**

This paper looks at the issues of fiscal policy in the United States by studying the rate of return to private capital during the period 1953-1985. The ultimate aim of the study is to observe whether or not there is a relationship between public investment and productivity growth (in this case, the decline in U.S. public investment and productivity growth). The author began by reviewing the trends in the data and found that both the gross and net rate of return during the time period exhibited a downward trend. When regressions were ran to study the relationship between a higher level of capital and its effect on the rate of return, the results found that there is a positive relationship between the two variables of interest.



The authors found that a 1% increase in public capital would raise the rates of return (gross and net) by 19.1 and 21.4 basis points respectively. When variables related to the ratios of capital-labour and public-private capital were added to the regression the results were still positive, showing that cyclical factors also have a positive effect on capital.

The main finding of the study is that there is a strong and positive relationship between public capital and private rate of return, and as such, there is evidence that the decline private rate of return is related to the decline in the levels of public capital stock.

### **Federal Reserve Bank of Chicago “Public investment and productivity growth in the Group of Seven”**

Public policy aimed at creating economic growth is historically focused on savings and private investment as both are effective mechanisms for growth. This paper aims to look at public expenditure and its effect on productivity. The data studied covered the time period from 1966-1985. After reviewing the data on public expenditure between 1967 and 1985, Aschauer notes that for the Group of Seven countries, labour productivity fell during the time period. Public consumption during the time period though rose, with the exception of the United States.

To measure whether or not there is evidence of a relationship between public expenditure and productivity, Aschauer uses a regression equation in which labour productivity growth is dependent on private and public investment (non-military) and capacity utilization. The results showed that there is a strong relationship between public investment and labour productivity growth (a one percent increase in public investment lead to a 0.4% gain in productivity growth in a year). When government consumption is added to the equation, the results show a negative relationship between government consumption and productivity growth (specifically a one percent increase in government consumption leads to a reduction in labour productivity growth by 0.13 percentage points. Public consumption was also found to reduce national investment by 0.59 percentage points (based on a one percent rise in consumption based on gross output).

## **Economic Impact of Air Transportation**

### **Papers Reviewed**

- i. Conference Board of Canada and SNC Lavalin, “The Economic Impact of the Air Transportation Industry in Canada”, April 2013
- ii. Air Transport Action Group, “Aviation Benefits Beyond Borders”, March 2012
- iii. IATA, “Aviation Economic Benefits: Measuring the economic rate of return in investment in the aviation industry,” July 2007

- iv. InterVISTAS Consulting, "Measuring the Economic Rate of Return on Investment in Aviation", December 2006

### **Conference Board of Canada and SNC Lavalin, "The Economic Impact of the Air Transportation Industry in Canada", April 2013**

In 2013 a joint study by the Conference Board of Canada and SNC Lavalin, commissioned by the Canadian Airports Council, identified and quantified the contribution of air transportation to the Canadian economy. The main purpose of the study was to describe the nature of the air transport industry in Canada, describe its economic impact and outline the airports' share of the industry.

The air transport industry was defined as consisting of Canadian scheduled and charter carriers, Canadian general aviation operators, Canadian airports, aircraft service providers and airport infrastructure service providers, Canadian government agencies involved in the aviation sector, Canada's air navigation service provider and Canadian travel agents selling air travel services.

The methodology used to assess the economic footprint of the air transportation industry in Canada was to quantify the direct, indirect and induced demand generated by the industry. The total contribution or the total economic footprint combining the direct, indirect and induced effect was also assessed. The economic footprint of the industry was calculated in two steps: (1) base direct economic footprint was estimated based on data from Statistics Canada and (2) additional direct impact was estimated using other data sources. The catalytic effect was estimated separately.

The study assessed the base economic footprint of air transportation in Canada as follows:

- In 2012, the direct economic effect based on real GDP in the air transportation industry was estimated at \$8.8 billion (measured in 2002 dollars). An economic multiplier of 3.0, based on a Conference Board of Canada's estimate, was used to compute the direct, indirect and induced impact at \$26.6 billion, or 2% of Canada's real GDP.
- In 2012, the direct, indirect and induced economic effect of the air transport industry based on nominal GDP was estimated at \$30.9 billion.
- In 2012, the air transportation industry supported a total of 343,800 jobs.
- In 2012, the air transport industry and related economic activities generated \$7.3 billion in tax revenue for the federal government and \$4.9 billion in tax revenue for provincial governments in Canada.

The study estimated additional direct impacts based on supplementary sources as follows:

- 61,100 full-time equivalent jobs and \$4 billion in GDP.
- All of this additional economic impact was attributable to activities at Canadian airports.

The economic impact of the additional services was added to the base economic impact to estimate the total economic footprint of the air transportation industry:

- In 2012, after adjusting for the multiplier effects and inflation, the air transportation industry generated \$34.9 billion in GDP;
- In 2012, the air transportation industry supported 405,000 jobs;
- In 2012, the air transportation industry contributed over \$12 billion to federal and provincial coffers, including over \$7 billion in taxes.
- In 2012, the total economic impact of Canadian airports, including the multiplier effects and adjusting for inflation, was a contribution \$11.9 billion to national GDP;
- In 2012, Canadian airports supported 142,000 jobs.

The study separately estimated the total economic footprint (which included base economic footprint and additional impacts) of airports in Canada as follows:

- In 2012, the direct contribution of Canadian airports based on nominal GDP was estimated at \$11.9 billion.
- In 2012, Canadian airports supported 142,000 jobs.
- In 2012, Canadian airports and related economic activities generated \$2.0 billion in tax revenue for the federal government and \$1.0 billion in tax revenue for provincial governments in Canada. (Tax revenue figures are based on estimates for the base economic footprint only).

The catalytic effect on tourism and trade dependent industries was estimated separately and was not added to the total economic footprint. This is because in tourism related industries, expenditure by foreign tourists in Canada enabled by a better air transport system is partially offset by a loss in expenditure by Canadians who travel abroad. The study estimated that a 1% increase in flights between Canada and its trading partners is associated with 0.88% increase in trade, showing that flight connectivity acts as a catalyst for trade and business growth. Other empirically tested catalytic effects included increased foreign direct investment relative to a country's GDP and increased labour productivity. An increase in air transport connectivity by 10% was shown to increase labour productivity by 0.07%.

The study identified a number of other benefits enabled by the air transport industry that could not be quantified including:

- Livelihood of Canadians in remote regions;
- Promotion of economic growth in Canada's North;
- Protection of natural resources;
- Emergency response and humanitarian relief;
- Enhanced leisure and cultural experiences for Canadians;
- Enhanced business operations and efficiency.

**Air Transport Action Group, "Aviation Benefits Beyond Borders", March 2012**

In March 2012, a study by the Air Transport Action Group (ATAG) documented the economic impact of air transport in jobs, trade, connectivity, tourism, service to remote communities and disaster response. The economic and social benefits of global aviation were based on an analysis of over 50 individual countries, building on a previous two-year study by Oxford Economics.

Key findings of the 2012 ATAG study are:

- *"Air transport is a major contributor to global economic prosperity"*. It facilitates international trade and tourism, which are key engines of economic growth especially in developing countries. The global economic impact of aviation was estimated at \$2.2 trillion or 3.5% of global GDP. This estimate includes direct, indirect, induced and tourism catalytic impacts.
- *"Air transport is a major global employer"*. Globally, the air transport industry is responsible for 56.6 million jobs annually and is forecast to support 82 million jobs by 2030. This estimate includes direct, indirect, induced and tourism catalytic employment generated by the air transport industry. A high percentage of those jobs are enabled by tourism expenditure (34.4 million jobs or 61% of total).
- *"Air transport invests substantially in vital infrastructure"*. The aviation industry, unlike other modes of transport, is largely self-financed and benefits little from public investment, subsidies or tax revenue. In 2010, airports alone invested \$26 billion in infrastructure projects (runways, airport terminals, etc.).
- *"Air transport provides significant social benefits"*. By facilitating the movement of goods and people around the world, the air transport industry facilitates the growth of social and economic networks between different countries and regions, leading to a greater social and economic integration. This is particularly important for regions with restrictions on physical access.
- *"Air transport is working to mitigate its environmental impact"*. The air transport industry is responsible for fewer than 2% of total human carbon emissions (circa 34 billion tonnes annually). The industry is subject to sector-specific emission targets. It has committed to reducing its carbon footprint by 50% relative to the 2005 emission levels by 2050. The aviation industry has made substantial progress in the area of environmental sustainability as a result of improved fuel efficiency and lower noise impact of jet aircraft.

**IATA, "Aviation Economic Benefits: Measuring the economic rate of return in investment in the aviation industry," July 2007**

In 2007 IATA, in conjunction with InterVISTAS Consulting, issued a study which argued that enhanced connections to the global air transport network lead to increased economic productivity and better economic performance for any given country. The study used statistical analysis to establish a relationship between a country's connectivity to the global air transport network and the country's level of productivity based on 48 developed and developing countries. Thus, air transport

may have a broader impact on a country's productivity via better access to markets, better links between businesses and better access to resources and to international capital markets.

Key findings of the study were:

- There is a clear positive statistical relationship between levels of air connectivity and levels of labour productivity, and hence GDP and living standards. Productivity gains due to increased air connectivity are higher for developing economies compared to developed economies.
- Investment in aviation generates positive economic rates of return beyond direct returns earned by investors and users. For Canada, an investment of C\$1.8 billion at Vancouver airport generated an economic rate of return of 19.3%, based on the incremental effect on Canadian GDP of C\$348 million. For Kenya, the economic return resulting from enhanced air transport connectivity was estimated to be 59%. The economic rate of return observed in developed and developing countries justifies investment in the aviation sector.
- According to a statistical model that established and quantified the relationship between air service connectivity and labour productivity, controlling for other relevant factors, several key conclusions were made:
  - *"There is a positive link between connectivity and productivity."* A 10% rise in connectivity relative to a country's GDP leads to an increase in labour productivity by 0.07%.
  - *"A greater impact for developing countries."* the relationship between connectivity and productivity is non-linear – developing economies benefit from greater productivity gains compared to developed economies as a result of increased connectivity.
  - **"Capital investment has the greatest impact on productivity."** A 1% rise in capital spending per worker increases labour productivity by 0.37%.
  - **"A positive impact from R&D."** Higher spending on research and development results in productivity gains.
  - **"Other factors can constrain productivity in some countries."** In developed economies, productivity levels are explained by differences in capital spending, education, R&D and connectivity. In developing economies, other factors may contribute to differences in productivity levels such as institutional or social factors.

The findings in the 2007 IATA/InterVISTAS study are consistent with a previous IATA report on Airline Network Benefits, which analysed EU economies and concluded that a 10% connectivity increase relative to a country's GDP increases total (as opposed to labour) factor productivity by 0.9%.

The 2007 IATA/InterVISTAS study provided a number of recommendations and considerations for aviation policy makers:

- Investment in aviation can generate significant wider economic benefits.
- Wider economic benefits must be included in policy appraisals.
- Liberalisation can also help to support greater connectivity.
- The wider economic benefits help to boost competitiveness.

**InterVISTAS Consulting, "Measuring the Economic Rate of Return on Investment in Aviation", December 2006**

IATA commissioned InterVISTAS to study the contribution of aviation to productivity and economic growth nationally. The air transportation industry has grown significantly over the years, becoming an important part of the global tourism industry and has a significant portion of the value of world trade movements. InterVISTAS also estimated the economic rate of return on investments in the industry.

**Key Findings:**

- *"Previous research has found that aviation has a positive impact on economic growth"* Past research studied consistently found a positive and significant relationship between economic growth and the air travel industry. Some of the past studies also found that aviation was the cause of economic growth. Areas reviewed included impact on business locations, employment and economic development.
- The analysis done in this study looked at the relationship between labour productivity and aviation connectivity. The econometric analysis concluded that there is a significant and positive relationship between aviation connectivity and productivity. The study notes that: *"The coefficient estimate suggests that a 10% increase in connectivity (relative to GDP) increases labour productivity by 0.07%."*
- Regression work was also done to study whether or not causality could be determined, but the results were inconclusive. It was noted that other studies have found causality of aviation on growth in employment and on the economy.
- The estimation of the rate of return on aviation investments produced results ranging from 16% to 59%, indicating that increased connectivity from aviation investments have economic benefits. The investments included airports, aircraft and air navigation.
- Rate of Return was calculated for both developed and developing nations, both having positive returns above 10%.

The findings are important for policy-makers as they should consider the benefits (i.e., high rate of return on aviation investments) from increased aviation connectivity when conducting project appraisals.

## Catalytic Impacts of Aviation

- i. Bannò, M., M. Mutinelli and R. Redondi, "Air Connectivity and Foreign Direct Investments: The economic effects of the introduction of new routes", 2011
- ii. Hansen, M. and R. Gerstein, "Capital in Flight: Japanese Investment and Japanese Air Service in the United States During the 1980s", 1991
- iii. Other relevant research

### **Hansen, M. and R. Gerstein, "Capital in Flight: Japanese Investment and Japanese Air Service in the United States During the 1980s"**

In the 1980s, there was a strengthening in the relationship between the United States and Japan; particularly, an increase in the two countries trade relationship. This paper aimed to study the relationship between foreign direct investment (to the United States) and levels of air service between the two countries. Past research gives two possible relationships, one based on the idea that the main relationship between air service and foreign investment stems from the cost advantages of increased air services, especially in the high-tech industry. The other possible relationship is one related to the transfer of knowledge rather than using air service as an input in the production process. Past research has not looked at the direct relationship between air service and the locational choice of foreign direct investment, though past work does support the idea of a possible relationship between the two, whether it is related to cost reduction or knowledge transfer.

Using a number of different equation specifications, the authors examined whether or not the data showed a relationship between the two variables and the basis of that relationship (a cost input versus information transfer). The data used in the regressions covered all direct flights between the United States and Japan between 1981 and 1987. Also used was U.S. data on the value and location (state) of foreign investment in the time period.

The results of the regressions show that there is a statistical relationship between air service to Japan and Japanese foreign direct investment in the United States. The first model has statistical evidence in favour of the information biases as the relationship between the two variables, as well as larger states receiving more investment than smaller states. The second model used also produced evidence in favour of foreign carriers having a larger impact on the relationship than U.S. carriers. The authors note that while there is evidence of air service causing an increase in investment in states with direct air service, they cannot say that this relationship will hold in all states.

### **Bannò, M., M. Mutinelli and R. Redondi, "Air Connectivity and Foreign Direct Investments: The economic effects of the introduction of new routes"**

There have been many studies on the relationship between air traffic and foreign direct investment (FDI), though those studies have focused on the decisions of large companies, generally multinationals. The findings of those past studies were in agreement that multinationals seek access to international airports in main cities when making FDI decisions. The aim of this study

was to extend the past research to include medium and small businesses as well, and to analyse whether or not there is a relationship between the creation of new routes and FDI.

The authors looked at data from Italy from 2000-2010. The data used included data on all new scheduled flights to Italy during the time period as well as data on inward FDIs in Italy between 2001 and 2010. To measure the existence or not of the proposed relationship, the authors calculated the difference between the number of FDIs two years before and two years after the establishment of a new route. The authors' results show that areas with low numbers of routes also had low numbers of inward FDIs. The authors also found that two years after a new route would open there would be a 33.7% increase in inward FDIs.

The main result of the study was that there is a relationship between the creation of new routes and inward FDIs; specifically, the creation of new routes is responsible for 50.3% of the inward FDIs to Italy in the areas affected by the new route creation.

Provided below is a summary of research examining the catalytic impact of aviation, taken from academic and industry research.

### **Trade, Investment and Business Location Decisions**

A significant body of research has developed examining the impact of air transport on aspects of trade, investment and location decisions, which is summarised below:

- A study commissioned by IATA surveyed 625 businesses in five countries (China, Chile, United States, Czech Republic and France), and found that 25% of their sales were dependent on good air transport links.<sup>122</sup> This percentage rose to 40% for High-tech companies. In regards to access to effective air transport links, 63% of firms stated that it was vital or very important to investment decisions, while a further 24% said it was somewhat important. On average, 18% of firms reported that the lack of good air transport links had affected their past investment decisions, while 30% of Chinese firms reported that they had changed investment decisions because of constraints on air services.
- A study by York Aviation investigating the factors affecting individual company location decisions in Europe found that proximity to a major airport was the fourth most important factor when deciding the country of location of the European Headquarters of companies, and was the most important factor when deciding the region of location within the country.<sup>123</sup>
- An academic research paper published in 2008 analysed the relationship between international air service and the location of large firms' headquarters across major European urban areas.<sup>124</sup> The research found that the supply of non-stop intercontinental flights was a significant factor in determining headquarter locations (along with other economic, business, labour and tax

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<sup>122</sup> *Airline Network Benefits*, IATA Economic Briefing No. 3, 2006.

<sup>123</sup> *The Social and Economic Impacts of Airports in Europe*, York Aviation, January 2004.

<sup>124</sup> Bel, G. and Fageda, X. (2008), "Getting There Fast: Globalization, Intercontinental Flights and Location of Headquarters", *Journal of Economic Geography*, Vol. 8, No. 4.



factors). Empirical research indicated that a 10% increase in supply of intercontinental air service was associated with a 4% increase in the number of large firm headquarters located in the corresponding urban area.

- A study commissioned by EUROCONTROL examined the catalytic effects of air transportation in Europe.<sup>125</sup> The study examined the contribution of air transportation to tourism, trade, location/investment decisions and productivity. The study estimated the net contribution of air transportation to trade (i.e., export minus imports) to be €55.7 billion in 2003 across the 25 current EU members. The study analysed the relationship between air transportation and business investment, and found that a 10% increase in air transportation usage will tend to increase business investment by 1.6% in the long run (the impact takes approximately five years to fully manifest). The study authors estimate that between 1994 and 2003, air transportation increased business investment by 5.8% in the 25 EU member countries, worth €66 billion.

### Overall Contribution to Economic Growth

A number of studies have empirically investigated the link between air service and economic growth, summarised below.

- A study by Irwin and Kasarda (1991) examined the relationship between the structure of airline networks and employment growth at 104 metropolitan areas in the United States.<sup>126</sup> Using data for a 30-year period, the researchers conducted statistical analysis which found that expansion of the airline network serving a region had a significant positive impact on employment in that region, particularly in service sector employment.<sup>127</sup>
- A study by Button and Taylor (2000) examined the link between international air service and economic development.<sup>128</sup> Using data for 41 metropolitan areas in the U.S., the authors statistically analysed the link between “high-tech” employment and the number of direct routes to Europe offered by airports in the region. The analysis found that there was a strong and significant relationship between employment and air services to Europe, such that increasing the number of European routes served from three to four generated approximately 2,900 “high-tech” jobs.
- In a similar study, Brueckner (2002), also looked at the impact of air service on employment in the U.S.<sup>129</sup> The analysis found that a 10% increase in passenger enplanements in a

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<sup>125</sup> Cooper, A. and Smith, P. (2005), “The Economic Catalytic Effects of Air Transport in Europe,” Commissioned by EUROCONTROL. EUROCONTROL is a civil and military organisation established in 1963 to facilitate a safe, seamless pan-European Air Traffic Management (ATM) system.

<sup>126</sup> Irwin, M. and Kasarda, J. (1991), “Air Passenger Linkages and Employment Growth in U.S. Metropolitan Areas”, *American Sociological Review*, Vol. 56, No. 4, August 1991.

<sup>127</sup> The analysis was conducted using non-recursive models which confirmed that increases in the airline network were a cause rather than a consequence of this employment growth.

<sup>128</sup> Button, K. and Taylor, S. (2000), “International air transportation and economic development”, *Journal of Air Transport Management*, Vol. 6, Issue 4, October 2000.

<sup>129</sup> Brueckner, J. (2002), “Airline Traffic and Urban Economic Development”.

metropolitan area leads to an approximately one percent increase in employment in service-related industries. Frequent service to a variety of destinations, reflected in the high levels of passenger enplanements, was found to both attract new firms to the metro area and stimulate employment at established enterprises.

- A 2006 study by InterVISTAS Consulting Inc., commissioned by IATA, used data on 48 countries (including Singapore) over nine years to examine the relationship between air connectivity (a measure of international air service) and GDP productivity growth (measured as GDP per labour hour). The research found that a 1% increase in a nation's air connectivity increased GDP per labour hour by 0.0068%.<sup>130</sup> While the impact appears small, it can compound over time and result in a significant boost for economic growth.<sup>131</sup>

## Conclusions

A body of research has developed over the last 15 years or so which has examined and quantified the contribution of air transport to trade, investment and economic growth. Through the use of different empirical methods and data sets, this research has consistently found a significant and positive relationship between aviation and economic growth. Furthermore, much of the research has established that air transport growth has been the *cause* of economic growth, rather than simply economic growth leading to increased air transport levels.

## Role of Government Policy in Cost Competitiveness

### Papers Reviewed

- InterVISTAS Consulting Inc., "The Role of Government Policy in the Cost Competitiveness of Canadian Aviation: Impacts on Airports and Airlines", January 2008
- InterVISTAS Consulting Inc., "The Elimination of Airport Rent: Return on Investment", July 2009
- C.D. Howe Institute, "Excess Baggage: Measuring Air Transportation's Fiscal Burden", February 2007

### **InterVISTAS Consulting Inc., "The Role of Government Policy in the Cost Competitiveness of Canadian Aviation: Impacts on Airports and Airlines", January 2008**

In 2008 InterVISTAS issued a report evaluating the impact of Canada's government policies on the cost competitiveness of Canadian aviation. The report was commissioned by three Canadian airport authorities (Aéroports de Montréal, Greater Toronto Airport Authority and Vancouver Airport

<sup>130</sup> InterVISTAS Consulting Inc., "Measuring the Economic Rate of Return on Investment in Aviation", December 2006.

<sup>131</sup> The analysis controlled for other factors that contribute to productivity, including capital spending, research and development spending and education. The analysis also used country specific dummies to capture any remaining structural reasons for productivity differences between countries.

Authority) and the Air Transport Association of Canada. The purpose of the report was to measure the impact of Canadian and U.S. government fiscal and other policies on the competitiveness of select airports, including three Canadian airports (Toronto, Montreal and Vancouver) and a number of comparable U.S. airports.

At the time, several key policy initiatives of the Canadian federal government were aimed at greater liberalization of air transport: the Asia-Pacific Gateway and Corridor Initiative announced in 2005, the National Policy Framework for strategic Gateways announced in 2006 and the Blue Sky policy announced in 2006. These initiatives were aimed at promoting Canada's air service competitiveness in domestic and international markets, in particular to maximize opportunities for Canada's air transport sector in growing Asian markets.

Despite those important initiatives aimed at promoting air transport growth, the study by InterVISTAS identified several areas where government policies undermined the competitiveness of Canadian aviation, putting Canadian airports at a competitive disadvantage compared to their U.S. counterparts.

Key findings of the report were:

- Canada's taxation policies impose an undue fiscal burden on the aviation sector in Canada, resulting in a net drain of resources to the general treasury. The tax dollars are not reinvested back into the sector. By contrast, in the United States airports, airlines and air navigation providers all receive fiscal support from various levels of government. Fiscal challenges that result from differences in the tax systems of the United States and Canada ranged from \$12.91 to \$14.40 on a per passenger basis.
- Canada's policies related to infrastructure investment and infrastructure operation in the aviation sector further reduce the cost competitiveness of the Canadian aviation sectors. Such policies include underinvestment by the federal government in airports prior to airport privatization, which in turn necessitated greater investments in outdated infrastructure by airport authorities in years following privatization; more stringent safety standards for Canadian vis-à-vis U.S. airports; the provision of airport space for border inspection services and other requirements that were imposed on airport authorities as part of the privatization process. Investment and operating penalties that result from policy differences in the United States and Canada were estimated at between \$0.49 and \$4.72 per passenger.
- Other government policy differences further contribute to a cost disadvantage gap between Canadian and U.S. airports. Those include the provision of government capital funding and subsidy to FAA air navigation; the provision of airline essential air service subsidies in the U.S.; partial funding of aviation security costs in the U.S., among other support programs. All of those are absent in Canada. In addition, the U.S. has a substantially more open air service regime with the rest of the world as a result of numerous open skies agreements. Those additional cost disadvantages of Canadian air transport vis-à-vis the United States ranged from \$5.70 to \$7.33 per passenger.
- The total burden resulting from differing policy approaches in the United States and Canada was estimated between \$21.11 and \$25.74 in favour of the United States.

**InterVISTAS Consulting Inc., "The Elimination of Airport Rent: Return on Investment", July 2009**

InterVISTAS prepared a report on the return to the government if airport rents were eliminated for the Canadian Airports Council in 2009. In 2007, the government collected \$285 million in airport rent; the objective of the study was to show and quantify the impacts from eliminating the rents. This included the impacts on traffic, traveller expenditure, the economy, and fiscal impacts.

To calculate the estimated impact on traffic, the savings from the rents collected was calculated, demand elasticities were applied to these savings, divided by airfares and multiplied by the percent of the savings that would be passed to the consumer.

To calculate the estimate impact on traveller expenditures, the stimulated traffic numbers were multiplied by either average fare (for the aviation industry) or by average spend and the industry's share of tourism GDP (for other industries).

To measure the economic impacts, multipliers were applied to traveller expenditure, instead of economic output, which is usually used for economic impact quantification.

To measure the tax impacts, the tax rates are applied to the relevant values after stimulation (i.e., GST on ATSC would be calculated based on increased traffic).

The key results of the study included:

- 590,300 additional travellers annually,
- \$304 million would be generated by the new travellers in expenditures,
- 5,550 person years of employment (direct, indirect and induced) would be generated from the additional travellers, including 2,700 direct person years,
- \$210 million in wages (direct, indirect and induced) would be generated from the additional travellers,
- \$350 million in GDP growth (direct, indirect and induced) would be generated from the additional travellers, with \$140 million from direct impact,
- \$720 million in total economic output would be generated (\$300 million in direct impact),
- Total traffic increase would be **0.89%**,
- \$50.3 million would be recovered through tax impacts, covering close to a quarter of the \$280 million in airport rents eliminated.

The study concludes that the only downside of eliminating the airport rents is the loss of the rent income, but that is recovered via the greater benefits to traffic, traveller expenditures, economic impacts and tax recovery.

**C.D. Howe Institute, "Excess Baggage: Measuring Air Transportation's Fiscal Burden", February 2007**

The C.D. Howe study argued that air transportation in Canada is subject to heavy regulatory influence and is burdened with fees and taxes that may threaten survival of individual airlines and impede growth in this industry more generally. The main purpose of the study was to analyse effective tax rates on the air transport industry in Canada and compare them to other modes of transport and to the air transport industry in the United States.

The findings of the study confirmed that the effective tax rate for air transportation users in Canada is higher than for users of other transportation modes. It also confirmed that the effective tax rate on air transportation users in Canada is higher than in the United States.

Key highlights of the study are:

- The marginal effective tax rate on airline costs is 14.5% in Canada. In comparison, the marginal effective tax rate on passenger rail costs is 10.6%.
- The effective tax rate on airline costs for domestic flights in Canada is 16.8%. In comparison, the effective tax rate in the United States is 12%. For international flights, the effective tax rate is 11.2% in Canada, against 8.9% in the United States.

The study proposed that given the importance of air transportation in stimulating personal and commercial travel, several tax policy changes could be considered, including:

- Reforming fuel taxes;
- Balancing the revenue from the airport security charge with spending on security;
- Revising the ground rent formula to ensure that Canadian airport authorities do not pay more for the use of land and assets than the imputed rental value of the assets acquired from the federal government;
- Reducing the effective tax rate on air transportation relative to the levels prevailing in other sectors;
- Launching a review of airline ownership rules, considering their role in the global economic environment.

With respect to the application of general sales tax, the study noted that the GST should not bear on the non-benefit-related fees that government impose. It also argued against the levying of a tax on travel to finance development aid, claiming that it is unproductive and cannot be justified in economic terms.

In conclusion, the study recommended that the tax burden on the air transportation sector in Canada be reduced to bring it in line with the levels prevailing in other transportation sectors (rail or bus) in Canada or to its international counterparts (the air transportation industry in the United States). Reducing the fiscal burden on air transportation would increase the competitiveness of Canada's air transportation industry in the international arena and would promote a more efficient and affordable air transportation system for Canadian air travellers.

## Transborder Leakage

### Papers Reviewed

- i. Conference Board of Canada, "Driven Away: Why More Canadians are Choosing Cross Border Airports", October 2012
- ii. Omar Sherif Elwakil, Robert J. Windle, Martin E. Dresner "Transborder demand leakage and the US–Canadian air passenger market" *Transportation Research Part E: Logistics and Transportation Review*, Volume 57, October 2013, Pages 45–57
- iii. Elwakil, O. and Dresner, M. (2013) "Low-cost carriers and Canadian traffic generation at US border airports," *Journal of Air Transport Management*

### **Conference Board of Canada, "Driven Away: Why More Canadians are Choosing Cross Border Airports", October 2012**

In recent years, an increasing number of Canadian passengers have been travelling by car or bus to the United States to take advantage of cheaper fares for air travel. Termed "cross-border airfare shopping", this phenomenon was the focus of the 2012 study by the Conference Board of Canada. The main objective of the study was to identify and quantify the impact of the main factors that contribute to airfare differentials in the United States and on transborder flights originating or terminating in Canada. It also aimed to provide an estimate of the number of passengers who use U.S. airports instead of Canadian airports and the resulting loss in traffic for the three main airports in Canada (YVR, YYZ and YUL).

The study established a significant fare differential between airfares on flights to the U.S. from the three Canadian airports and from their competitors in the U.S. The study also attempted to quantify the key contributing factors to the airfare differentials and provide an estimate for the number of Canadian passengers who cross the border to catch a U.S. domestic flight. No single major factor responsible for the fare differential was identified; the gap in airfares was determined to be the result of a large number of factors. While taxes and fees levied by Canada on transborder flights accounted for about 40% percent of the total airfare differential in the markets examined, fees imposed by the U.S. (such as the U.S. agriculture fee, the U.S. immigration fee and the U.S. customs fee) that apply only to transborder and international flights also contributed to the differential. By driving across the border and taking a domestic flight from a U.S. airport, Canadian passengers can avoid those fees and benefit from a cheaper overall airfare.

The study concluded that the fare gap leads to loss of passengers for Canadian airports, loss of business revenues and loss of government tax revenues. A reduction of the fare differential caused by Canadian policies would lead to over 2 million more passengers for Canadian airports annually. Importantly, the study emphasized that the loss in traffic for hub airports such as YVR, YYZ and YUL leads to broader implications via poorer connectivity for all of Canada rather than only for the local catchment areas of the three airports concerned.

The Conference Board of Canada recommended considering the following changes in Canada's government policies and industry practices:

*Government policies*

- Revisit and alter the way in which taxes and fees are generated by, among other things, amending the ground rent formula and the air travellers security charge;
- Gain a better understanding of the causes of airfare differentials in the U.S. and Canada;
- Pursue opportunities to harmonize air travel policies with U.S. authorities.

*Industry practices*

- Pool per passenger charges and spread them more discriminately across passengers;
- Commit to passing through to passengers part of the savings that may result from a reduction in airport ground rent.

**Omar Sherif Elwakil, Robert J. Windle, Martin E. Dresner “Transborder demand leakage and the US–Canadian air passenger market” *Transportation Research Part E: Logistics and Transportation Review*, Volume 57, October 2013, Pages 45–57**

Elwakil, Windle and Dresner tested anecdotal evidence that Canadians were driving into the United States for cheaper airfares to U.S. destinations. While anecdotes suggest that higher taxes and fees were the reason for such diversion, the authors hypothesized several other reasons for such leakage, including: airline alliance activity suppressing competition, a lack of low-cost carrier (LCC) presence on transborder routes, and the presence of LCCs at U.S. border cities instead.

A model was created to first determine that this air passenger leakage existed and to determine its volume (Hypothesis 1). Airfares were then examined on both transborder and analogous U.S. domestic routes to determine whether the source of the fare differential was indeed solely in the taxes and fees (Hypothesis 2).

*The model confirmed that 4.7 million passengers “leaked” to five U.S. border airports in 2008. To test Hypothesis 1, passenger traffic was modeled for 13,650 city pair routes using a domestic U.S. traffic model. The results were compared to the U.S. DOT Origin-Destination data, which is a 10% sample of all tickets flown in the U.S., to determine the additional demand created by Canadian air passengers. The model successfully demonstrated that the five U.S. border cities chosen for the study had higher than expected U.S. domestic traffic.*

Five U.S. – Canada border city substitute pairs were selected:

- Montreal vs Burlington (2.50 hrs. drive time);
- Toronto vs Buffalo (2.33 hrs.);
- Ottawa vs Syracuse (3.75 hrs.);
- Windsor vs Detroit (0.05 hrs.); and
- Vancouver vs Seattle (3.00 hrs.).

Five analogous non-border cities were also chosen to confirm the validity of the model.

Demand equations were developed using MSA population data, per-capita income and the number of carriers serving each route. Dummy variables for tourist routes, border cities and other characteristics were used. The results were compared to actual passenger demand from the U.S. DOT origin-destination data.

The demand model showed that Hypothesis 1 is correct: U.S. border cities have higher passenger traffic than the U.S. Domestic model predicts. Non-border cities with similar population and income characteristics were also modeled to confirm that the model was sound and that leakage was indeed occurring into border cities.

*Airfare analysis and literature review determined that taxes and fees only account for 17-37% of the fare differential in transborder fares versus similar domestic U.S. routes.* The airfare analysis revealed that the differential between transborder and domestic U.S. airfares exists not just in the taxes and fees of a ticket, but also in the base fare. To determine this, the authors first reviewed prior literature on the topic, which demonstrated differentials in both tax/fee costs and the base fare cost. The authors also collected average fare data from the U.S. DOT data source for both U.S. Domestic and Canada-U.S. transborder routes with similar characteristics to determine whether there was a fare premium on transborder routes. As the DOT data excludes taxes and fees, the authors were able to examine the base fare differential.

The results of this second analysis show that Hypothesis 2 was also supported. Transborder fares, before fees and taxes, are 28.2% higher on average than comparable U.S. domestic fares after controlling for route-specific variables such as market concentration (number of airlines serving each market).

Other key points raised by the study were:

- A breakdown for each of the five U.S. border airports is provided of the 4.7 million passenger figure.
- The authors observe that there is little low-cost carrier (LCC) competition on transborder routes and that LCCs have instead established service in U.S. towns close to major Canadian cities.
- They also observe that despite the liberalized air transport market between the U.S. and Canada, airline alliance activity has also suppressed competition, likely resulting in higher fares.

**Elwakil, O. and M. Dresner, "Low-cost carriers and Canadian traffic generation at US border airports," *Journal of Air Transport Management*, July 2013**

A large number of Canadians (approximately 5 million) cross the border each year to fly from American airports rather than Canadian airports. There has been considerable research done on "leakage" to U.S. airports, and the reasons for it. The purpose of this paper is to study the effects of low-cost carriers (LCCs) on moving traffic to U.S. border airports over Canadian airports.

The authors began with a review of past work done on the effects of LCCs and their effects on traffic. Past research shows that passengers are willing to travel further if there is a lower airfare involved. LCCs charge lower airfares by design, and therefore are able to attract passengers from



farther distances. The presence of LCCs on routes was also shown to increase traffic on the route as well as lower fares. The authors use this past work to hypothesize the impact of LCCs on traffic diversion.

Using U.S. city pair origin and destination data from 2004-2008, the authors attempted to model whether or not LCCs contribute to the "leakage" of Canadian passengers to U.S. border airports. They did this based on three models:

- The first included a variable which represented whether or not the route included a U.S. border airport and had an LCC present;
- The second included two variables indicating whether or not the route included a U.S. border city, one with LCC presence, the other without an LCC.
- The third model replaced the two variables in the second model with dummy variables for each border city included in the regression.

The key results of the regression included:

- For the first model, the variable representing whether or not the route included a U.S. border airport and had an LCC present was both positive (0.587) and significant. The interpretation of this variable is that routes in the dataset that include a border city airport and an LCC are able to attract 58% more traffic than the other routes in the data.
- For the second model, the variable representing whether or not the route included a U.S. border airport and had an LCC present was both positive (0.590) and significant and the variable for a border city airport with no LCC was also positive (0.317) and significant. The second variable can be interpreted as routes to/from a border city bring in 32% more traffic on average than other routes. This model also shows that LCC presence at a border city airport attracts significantly more passengers over the average route.
- The third model looks at the effects on each border city in the sample, though the authors note that with the small sample size on each route, this model should be interpreted with caution. The results do show that LCC presence at the border cities were positive and statistically significant.
- Using the second model, the authors also estimated the number of Canadian passengers using border city airports because of LCCs to be approximately 1.7 million passengers.

The authors note that the major policy implications from their findings are that the Canadian government and airports need to work at attracting U.S. LCCs onto transborder routes through new policies to help stop the traffic diversion from Canadian airports.

## Effects of Liberalisation

### Papers Reviewed

- i. InterVISTAS Consulting Inc., "The Impact of International Air Service Liberalisation on Panama", July 2009
- ii. Jacobs Consultancy Report: "The Strategic Impact of the Canadian Aviation Based Travel and Tourism Industry on Canada's Economy", September 2010
- iii. Oum, Tae Hoon and Dresner, Martin, "The effect of liberalised air transport bilaterals on foreign traffic diversion: the case of Canada" Journal of Transport Economics and Policy, 1998, Volume 32, Issue 3
- iv. Dresner, M. and Tretheway, M. (1992). Modelling and testing the effect of market structure on price: the case of international air transport, Journal of Transportation Economic and Policy 26 (2)

### **InterVISTAS Consulting, "The Impact of International Air Service Liberalisation on Panama", July 2009**

IATA commissioned InterVISTAS to undertake a study on the impacts that air service agreement liberalisation has on the aviation industry, passengers, and the economy in general. The focus of this study was on two different forms of liberalisation: market access and foreign ownership and control. The impacts from combined liberalisation were also forecasted. This analysis was for the impacts on the country of Panama.

#### Key Findings:

- Past research on the impacts of liberalisation show that it leads to increased service levels and lower fares, as well as increased traffic. These changes can lead to both economic and employment growth.
- The forecasted impacts from market access liberalisation were a:
  - 27% increase in traffic;
  - \$86 million increase in consumer surplus;
  - employment impact of 14,300 full-time equivalent jobs;
  - 18% reduction in average fares; and
  - an incremental GDP increase of US\$227 million.
- The forecasted impacts from ownership and control liberalisation were a:
  - 24% increase in traffic;
  - \$96 million increase in consumer surplus;
  - employment impact of 14,400 full-time equivalent jobs;
  - 19% reduction in average fares; and
  - an incremental GDP increase of US\$226 million.

- The combined liberalisation (both access and ownership) had the greatest impact, with:
  - 51% growth in traffic;
  - \$182 million increase in consumer surplus;
  - employment impact of 28,700 full-time equivalent jobs;
  - 38% reduction in fares; and
  - almost \$0.5 billion dollars in incremental GDP.

The impacts of liberalisation on the home carriers can be positive or negative. If the carrier is poorly managed or does not use the advantages of liberalisation (i.e., new market capabilities, etc.), the carrier could suffer from liberalisation.

### **Jacobs Consultancy Report: “The Strategic Impact of the Canadian Aviation Based Travel and Tourism Industry on Canada’s Economy”, September 2010**

In 2010, Jacobs Consultancy created a report for the National Travel and Tourism Coalition. The objective of the study was to assess the aviation related travel and tourism impacts on the Canadian economy. The report includes both the monetary benefits and other socio-economic contributions from aviation related travel and tourism. The economic impacts were measured as direct, indirect and induced when quantified.

#### Key Findings:

- *“The net benefit to the federal government from air transportation during this eleven year period is therefore at least \$3.0 billion.”*  
Between 1999 and 2010, the Canadian government contributed \$720 million in subsidies and an additional \$3.4 billion to CATSA (though this was funded mainly by the ATSC) and received \$7.1 billion in revenue from the industry.
- *“Air transportation is the largest component of tourism demand”*  
\$13.8 billion was spent on air travel in 2009, 20% of total tourism expenditures and 53% of all transportation expenses.
- The supply of tourism commodities, some of which are not consumed by local residents was \$171.2 billion in 2009, while the demand was \$71.5 billion.
- Government revenue from air travel taxes include:
  - \$3.1 billion from ATSC between 2002 and 2010;
  - \$39.9 million from excise taxes on aviation related fuel;
  - \$257.3 million in ground lease rent in 2009; and
  - over \$25 million in PILT from GTAA alone, just one airport authority of many.

*“Every dollar spent by tourists generates approximately \$0.28 for all three levels of government.”*
- *“The aviation based travel and tourism industry is a major employer and generates significant economic impacts”*

Direct impacts include \$13.9 billion in salaries and wages, \$53 billion in economic output and \$26.8 billion in value-added benefits. Direct employment from air travel was over 370,000 jobs.

- Other socio-economic benefits of aviation include connectivity and global market access.

Key challenges faced by the aviation based travel and tourism industry include cost competitiveness, security and border control and infrastructure renewal.

**Oum, Tae Hoon and Martin Dresner, “The effect of liberalised air transport bilaterals on foreign traffic diversion: the case of Canada”**

The United States and Canada have very different views on air transport bilateral agreements; Whereas Canada is very stringent, and somewhat reluctant to sign such agreements, the United States had signed many, with the hope of stimulating greater competition internationally. The purpose of this article is to assess the impact of the United States' liberal bilateral agreements on traffic to Canada, and to assess the effects on traffic from Canada's limited liberal bilateral agreements. The authors explain that before liberal bilaterals, the agreements would generally state the allowed capacity on flights and a clause which allowed the governments to reject fares on routes between the two countries.

The data used to measure the effects of the bilateral agreements was panel data covering 22 countries from 1975 to 1994. The data included total passengers to Canada, direct passengers to Canada, data on the U.S./Canadian exchange rate, and data on the bilaterals that the U.S. and Canada had signed during the period.

The key results from the study are:

- The share of direct to total traffic was shown to increase by 2.3% when Canada had a facilitating agreement in place, which translates to 7,053 additional passengers per year.
- If the U.S. has a liberal bilateral agreement in place, direct traffic to Canada was shown to decrease by 3.9%, roughly 2,815 less passengers travelling direct to Canada.
- The model also found that if Canada were to sign a facilitating bilateral with a country that already had a U.S. liberal bilateral, the share of direct traffic from that country would increase by 2.51% for European countries and 2.94% for other countries.
- If the U.S. were to sign a liberal bilateral with a country and Canada does not have a facilitating bilateral with that country, the model shows that the share of direct traffic to Canada from that country would decrease by 4.12% or 4.89% for European countries and non-European countries respectively.

**Dresner, M. and M. Tretheway, “Modelling and testing the effect of market structure on price: the case of international air transport”**

In 1978, the United States created their first liberal bilateral agreement with the Netherlands; this was the first of its kind, as bilateral agreements between countries before then were restrictive in

nature. By 1982, the United States had 23 liberal bilateral agreements with countries around the world. The purpose of this paper was to assess whether or not the liberal bilateral agreements were able to increase price competition on international routes from the United States. This was also the government's policy goal with liberalising these agreements.

The authors estimated the effects on price using panel data on fares of various long-distance international routes between 1976 and 1981. The model was estimated for both the lowest fare and full fare on each route. The routes included both developed and developing nations, though due to data availability, there was less data for developing nations.

The key results of the estimations were:

- For discount fares, the effect of the liberal bilateral agreements was lowering discount fares, with an average 35% decrease, all other things equal. Using this result, the authors estimate that travellers could see a welfare gain of \$325 million for the year 1981.
- For full fares, there was not a statistically significant effect on fares from the liberalising policy.

## Other Papers

### Papers Reviewed

- i. World Economic Forum "Travel & Tourism Competitiveness Report 2013"
- ii. InterVISTAS Consulting Inc., "Estimating Air Travel Demand Elasticities", December 2007

### **World Economic Forum "Travel & Tourism Competitiveness Report 2013"**

The World Economic Forum released their 2013 report on the rankings of the competitive level of 140 countries around the world in travel and tourism (T&T). The rankings were created using an index based on subindexes of the country's travel and tourism regulatory framework, business environment and infrastructure and human, cultural and national resources. The data collected was applied to various variables within each of the subindexes.

#### Key Findings:

- Canada ranked 8th overall in the world for 2013, up one from 9th in 2011. Canada was ranked 5th in 2009 though. Canada falls behind countries such as Switzerland, Germany, the United Kingdom and the United States.
- Under the broad subindex T&T regulatory framework Canada ranks 27th, with health and hygiene and environmental sustainability lowering our rank (they were 53rd and 41st respectively). In policy rules and regulations, Canada ranked 10th. This ranking, however, masks an important element in this index. Canada ranks 106th in visa requirements. The large number of countries whose nationals require visas to visit or transit Canada, and the difficulty in getting such visas in a timely manner, greatly impacts Canada's attractiveness as a destination and as a gateway.

- Under the broad subindex business environment and infrastructure Canada ranks 8<sup>th</sup>, leading the way with air transport infrastructure (ranked 1<sup>st</sup>). Canada loses significant ground though in price competitiveness, ranking 124<sup>th</sup> out of 140.
- Under the broad subindex T&T human, cultural, and natural resources Canada ranks 5<sup>th</sup>, where human resources was their best component (ranking 5<sup>th</sup> as well). Canada ranked well for natural resources as well (10<sup>th</sup>) stemming from the number of world heritage natural sites and quality of the natural environment.

### **InterVISTAS Consulting Inc., “Estimating Air Travel Demand Elasticities”, December 2007**

In 2007, InterVISTAS conducted a study for IATA to measure elasticity of air travel demand – the degree of responsiveness of air passengers to fare increases or decreases. The main objective of the study was to provide robust elasticity estimates to address policy issues related to liberalization, airport charges, taxation, emission schemes, etc.

As part of the study, a review of existing research on price elasticity of air travel demand was conducted. The review established that the consensus among most aviation economists had been that demand for airline services is generally both price and income elastic. The latter suggested that air transport has the characteristics of a luxury good. This finding presented a dilemma and had to be reconciled with the finding that air transport is also a price elastic good.

The 2007 InterVISTAS study used statistical regression analysis and data from multiple data sources to cross-validate the findings. The study revealed that different groups of travellers have different price elasticities. When consumers are making choices between airlines on a route, destinations for holiday vacations, conference locations, etc., there is a degree of price elasticity for airline seats. However, if all competitors on a route or a wide range of routes experience the same proportionate price increase, the demand for air travel becomes less elastic.

Main quantitative findings of the study were:

- *Route/market level elasticity was estimated at -1.4.* This means that for an airline on a given route, increasing price is likely to result in a more than proportionate decrease in air travel. Conversely, lower fares will greatly stimulate traffic and raise revenues.
- *National level elasticity was estimated at -0.8.* This means that if all airlines on a given route increase fares by the same amount, the resulting decrease in air travel will be less than proportional to the fare increase and will be less compared to the case of a price increase implemented by one airline.
- *Pan-national level elasticity was estimated at -0.6.* This means that if all airlines on a wide set of routes increase fares by the same amount, the decrease in air travel will be much less than proportional to the increase in fares.

The main implication of the study is that the correct elasticity of air travel demand to be used in policy making depends on the problem at hand. The narrower the applicability of a price change, the more elastic air travel demand is. The broader the applicability of a price change (e.g., in response to the imposition of a tax), the less elastic air travel demand is.

## Appendix B: Price Elasticities

### Overview of Price Elasticity Concepts

Price elasticity is a measure economists use to capture consumers' sensitivity to price changes for a particular good or service. The price elasticity is defined as:

$$\text{Price Elasticity} = \frac{\% \text{ Change in Quantity Demanded}}{\% \text{ Change in Price}}$$

Since generally the quantity demanded decreases when the price increases, this ratio is usually expected to be negative. However, sometimes analysts report the *absolute* value and therefore the elasticity is usually quoted as a positive number.<sup>132</sup>

As an example, suppose a good has a price elasticity of -0.8; a 10% increase in the price will result in an 8% decline in the quantity demanded. For a good with a price elasticity of -1.6, a 10% increase in the price will result in a 16% decline in the quantity demanded.

Goods with elasticities less than one in absolute value are commonly referred to as having inelastic or price insensitive demand – the proportional change in quantity demanded will be less than the proportional change in price. In this situation, increasing the price will increase the revenue of the producer of the good, since the revenue lost by the relatively small decrease in quantity is less than the revenue gained from the higher price.

Goods with elasticities greater than one in absolute value are referred to as having elastic or price sensitive demand - the proportional change in quantity demanded will be greater than the proportional change in price. A price increase will result in a revenue decrease to the producer since the revenue lost from the resulting decrease in quantity sold is more than the revenue gained from the price increase.

A number of factors affect the price elasticity of a good or service:

- Availability of substitutes: the more possible substitutes, the greater the elasticity. Note that the number of substitutes depends on how broadly one defines the product. For example, Chevrolet cars have a high price elasticity as they can be substituted by other brands of car (Ford, BMW, Honda etc.). If one considers the market for cars as a whole, the elasticity for cars is lower as there are fewer substitutes (bus, taxi, cycling, etc.).
- Degree of necessity or luxury: luxury products tend to have greater elasticity. Some products that initially have a low degree of necessity are habit forming and can become "necessities" to some consumers. Bread has a low elasticity as it is considered a necessity, as does tobacco because it is habit forming.
- Proportion of the purchaser's budget consumed by the item: products that consume a large portion of the purchaser's budget tend to have greater elasticity.

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<sup>132</sup> As the calculation uses proportionate changes, the result is a unit-less number and does not depend on the units in which the price and quantity are expressed. Therefore, elasticities for different goods or markets can be directly compared.

- Time period considered: elasticity tends to be greater over the long run because consumers have more time to adjust their behaviour. For example, short-term demand for gasoline is very inelastic (approximately -0.2)<sup>133</sup> as consumers have little choice but to continue consuming in order that they can travel to work, school etc., although they can cut down on some leisure or discretionary trips or use other modes. The long-term elasticity is higher (about -0.7 – still inelastic) as consumers can purchase smaller cars, move nearer to work and other behavioural changes in order to reduce consumption.
- Whether the good or service is demanded as an input into a final product or whether it is the final product (e.g., fuel is demanded as an input into production processes, transportation, etc.). If the good or service is an input into a final product then the price elasticity for that good or service will depend on the price elasticity of the final product, its cost share in the production costs, and the availability of substitutes for that good or service.

A key purpose of this study is to assess whether the price elasticity faced by Halifax Airport is constant or whether, as a result of the increases of Halifax' AIF, the elasticity has changed (increased or decreased). This will depend on the general shape of the demand curve on the markets served by Halifax.

For example, consider the straight-line demand curve shown in **Figure B-1**. In this case, the elasticity is not constant along the demand curve – the price elasticity is relatively elastic in the upper portion of the demand curve and relatively inelastic on the bottom portion of the demand curve.<sup>134</sup> As a result, a price increase (e.g., from  $P_0$  to  $P_1$ ) will move the market to a more elastic part of the demand curve. Any further price increases will result in greater percentage decline in quantity.

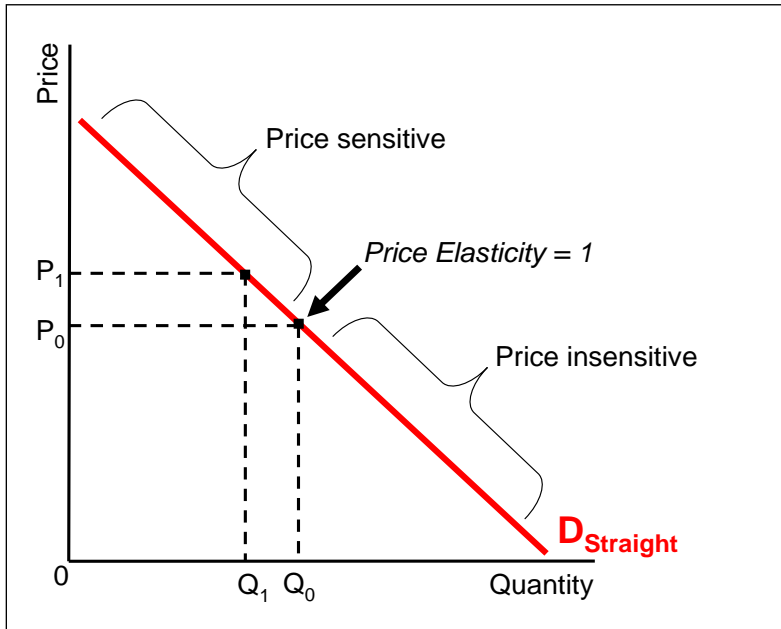
However, other shapes are also possible for the demand curve. **Figure B-2** shows an example of a demand curve where the elasticity is constant all along the demand curve ( $D_{\text{Constant}}$ ) and an example with a declining elasticity ( $D_{\text{Declining}}$ ) – the elasticity declines as the price increases. For reference, **Figure B-2** also shows a perfectly elastic demand curve (price elasticity = infinity) and a perfectly inelastic demand curve (price elasticity = 0).

<sup>133</sup> Source: *Economics: Private and Public Choice*, James D. Gwartney and Richard L. Stroup, 1997

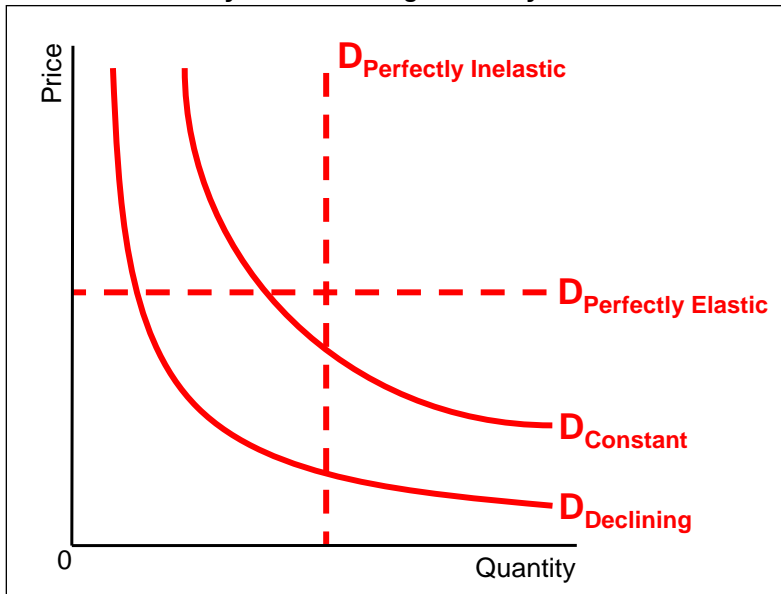
<sup>134</sup> This may seem counterintuitive given that the slope of the demand curve is constant. However, the elasticity is based on the *percentage* change in price and quantity. At the upper end of the demand curve a 1% change in the price will represent larger change in price in absolute terms than 1% price change at the bottom end. At the same time, a 1% change in quantity will be larger at the bottom end of the demand curve than at the top end. This results in an elasticity that increases as price increases.



**Figure B-1**  
**Straight-Line Demand Curve**



**Figure B-2**  
**Constant Elasticity and Declining Elasticity Demand Curves**



## Price Elasticities With Respect to Airport Fees and Charges

The demand response to changes in airport fees and charges will depend on the price elasticity of air carriers operating at Halifax. Since the air carriers' demand for airport services is derived from the demands of air passengers, the computation of price elasticities related to airport fees and charges is based on the price (fare) elasticities of air passengers.<sup>135</sup> Thus, the price elasticity related to airport fees and charges are sometimes estimated by the share of these fees/charges in the total ticket price:<sup>136</sup>

$$\text{Price Elasticity for Airport Fees and Charges} = \\ \% \text{ Share of Fees and Charges in the Ticket Price} \times \text{Air Passenger Fares Elasticity}$$

For example, if airport fees and charges represent 10% of the ticket price, then a 10% increase in airport fees and charges would represent a 1% increase in the overall ticket price (assuming the increase is passed onto the passenger). If the passenger fare elasticity is -1, then traffic would be expected to decline by 1%. Therefore, the elasticity with respect to airport fees and charges is  $-1\% / 10\% = -0.1$ .

## Literature Review

### General Airfare Price Elasticities

This section provides a short summary of findings in the literature on airfare elasticities in general which will offer some context to the later discussion.

The range of elasticities provided in the literature is fairly effectively summarised in a meta-study conducted in 2004 by Gillen, Morrison and Stewart, *Air Travel Demand Elasticities: Concepts Issues and Measurement*. The range of elasticities found by the authors is illustrated in **Figure B-3**. It shows the range of values estimated in the studies surveyed and the most-likely value (the black dot) determined by Gillen et al. This meta-study found elasticities ranging from -0.198 to -1.743, depending on the market. Although this meta study is several years old now, newer research we found was generally consistent with this summary.

Based on the literature review in general, the following conclusions can be drawn:

- All of the studies reviewed, spanning a period of over 25 years, found that there was a significant demand response to changes in airfares, such that increases in airfare lead to lower passenger traffic demand. The consistency of this result strongly indicates that any policy action that results in higher fares (e.g., taxes, increased landing fees, increased AIF) will result in a decline in demand.

<sup>135</sup> The elasticity reflects the underlying characteristics of market demand and is not generally impacted by airline decisions, which are a supply-side issue. Airline decisions are influenced by the demand elasticity and it is possible that airlines will change its operations in response to higher costs. There remains the possibility that airlines may choose to change their operations due to other reasons not related to the market demand elasticity.

<sup>136</sup> We are not aware of any research that has attempted to directly measure elasticities with respect to airport fees and charges. Studies examining this issue have generally used the approach described above.

- In general, the results show that, all else being equal, business travellers are less sensitive to fare changes (less elastic) than leisure travellers. Intuitively, this result is plausible – business travellers generally have less flexibility to postpone or cancel their travel than leisure travellers.
- Another fairly consistent finding was that fare elasticities on short-haul routes were generally higher than on long-haul routes. In part, this reflects the opportunity for inter-modal substitution on short haul routes (e.g., travellers can switch to rail or car in response to airfare increases).

**Figure B-3**  
**Own-Price Elasticities of Demand (Gillen et al., 2004)**



Note: Reproduced from *Air Travel Demand Elasticities: Concepts, Issues and Measurement*, D. Gillen, W.G. Morrison and C. Stewart, 2004.

It should be noted that the vast majority of the research is based on U.S. data. In large part, this is due to the high quality of data available, particularly the U.S. DB1A and DB1B datasets, a 10% random sampling of all tickets purchased in the U.S. for travel on U.S. airlines. Therefore, caution is advised in applying these results to jurisdictions outside the U.S., as the elasticities may not be appropriate due to market, industry, regulatory or cultural differences.

A 2007 study by InterVISTAS examined geographic differences in airfare elasticities.<sup>137</sup> It also examined level of aggregation effects: as noted previously, the elasticity can vary depending on the availability of substitutes. Therefore, the airfare elasticity can vary depending on its context. For example, the airfare elasticity facing individual carriers may be considerably higher than faced by the whole market, because the choice set is larger.<sup>138</sup>

The set of elasticities produced in that study are summarised in **Figure B-4**.

**Figure B-4**  
**Airfare Elasticities and the Level of Aggregation**

	Route/Market Level		National Level		Pan-National Level	
	Short-haul	Long-haul	Short-haul	Long-haul	Short-haul	Long-haul
Intra North America	-1.54	-1.40	-0.88	-0.80	-0.66	-0.60
Intra Europe	-1.96	-1.96	-1.23	-1.12	-0.92	-0.84
Intra Asia	-1.46	-1.33	-0.84	-0.76	-0.63	-0.57
Intra Sub-Saharan Africa	-0.92	-0.84	-0.53	-0.48	-0.40	-0.36
Intra South America	-1.93	-1.75	-1.10	-1.00	-0.83	-0.75
Trans Atlantic (North America – Europe)	-	-1.68	-	-0.96	-	-0.72
Trans Pacific (North America – Asia)	-	-0.84	-	-0.48	-	-0.36
Europe-Asia	-	-1.26	-	-0.72	-	-0.54

Source: InterVISTAS report for IATA, "Estimating Air Travel Demand Elasticities, December 2007.

<sup>137</sup> Estimating Air Travel Demand Elasticities, Prepared by InterVISTAS Consulting Inc. on behalf of IATA, December 2007.

<sup>138</sup> In the former case, the consumers are choosing between all the available carriers, other modes, other routes and the possibility of not travelling. In the latter case, the choice is between modes plus not traveling.

## Appendix C: Airport Rents: 2011 and 2010

**Figure C-1**  
**Annual Ground Rents and Passenger Traffic for the NAS Airports**  
**2011**

<b>Airport</b>	<b>2011 Rent (millions of dollars)</b>	<b>2011 Enplaned Passengers (millions)</b>	<b>2011 Rent per Enplaned Passenger</b>	<b>2011 Rent per Round Trip</b>
Toronto Pearson International Airport	\$131	16.70	\$7.85	\$19.62
Montréal Pierre Elliott Trudeau International Airport	\$43.4	6.83	\$6.35	\$15.87
Vancouver International Airport	\$34.8	8.52	\$4.08	\$10.21
Calgary International Airport	\$27.2	6.43	\$4.22	\$10.55
Edmonton International Airport	\$11.3	3.14	\$3.60	\$9.00
Ottawa International Airport	\$7.34	2.31	\$3.17	\$7.94
Winnipeg International Airport	\$5.48	1.69	\$3.24	\$8.09
Halifax International Airport	\$5.19	1.80	\$2.89	\$7.22
Québec City Jean Lesage International Airport	\$2.05	0.66	\$3.12	\$7.79
St. John's International Airport	\$1.24	0.70	\$1.76	\$4.41
Victoria International Airport	\$0.70	0.75	\$0.93	\$2.32

<b>Airport</b>	<b>2011 Rent (millions of dollars)</b>	<b>2011 Enplaned Passengers (millions)</b>	<b>2011 Rent per Enplaned Passenger</b>	<b>2011 Rent per Round Trip</b>
Saskatoon International Airport	\$0.62	0.62	\$1.00	\$2.50
Regina International Airport	\$0.53	0.57	\$0.93	\$2.33
London International Airport	\$0.06	0.22	\$0.25	\$0.61
Thunder Bay International Airport	\$0.04	0.36	\$0.12	\$0.30
Prince George Airport	\$0.04	0.20	\$0.19	\$0.47
Kelowna International Airport	\$0.00 <sup>139</sup>	0.70	\$0.00	\$0.00
Greater Moncton International Airport	\$0.00 <sup>140</sup>	0.29	\$0.00	\$0.00
Yellowknife Airport	\$0.00 <sup>141</sup>	0.16	\$0.00	\$0.00
Charlottetown Airport	\$0.00 <sup>142</sup>	0.14	\$0.00	\$0.00
Fredericton International Airport	\$0.00 <sup>143</sup>	0.14	\$0.00	\$0.00
Whitehorse International Airport	\$0.00 <sup>144</sup>	0.12	\$0.00	\$0.00
Saint John International Airport	\$0.00 <sup>145</sup>	0.10	\$0.00	\$0.00

<sup>139</sup> One dollar.

<sup>140</sup> Rent payments are deferred until 2016. Source: Greater Moncton International Airport Annual Report 2011, p. 17.

<sup>141</sup> The airport is owned by the territorial government and does not make rental payments to the federal crown. Source: Transport Canada, Airport Divestiture Status Report.

<sup>142</sup> Rent payments are deferred until 2016. Source: Charlottetown Airport Annual Report 2011, p. 29.

<sup>143</sup> Rent payments are deferred until 2016. Source: Fredericton International Airport Annual Report 2011, p. 33.

<sup>144</sup> The airport is owned by the territorial government and does not make rental payments to the federal crown. Source: Transport Canada, Airport Divestiture Status Report.

<sup>145</sup> Rent payments are deferred until 2016. Source: Saint John Airport Annual Report 2011, p. 10.

<b>Airport</b>	<b>2011 Rent (millions of dollars)</b>	<b>2011 Enplaned Passengers (millions)</b>	<b>2011 Rent per Enplaned Passenger</b>	<b>2011 Rent per Round Trip</b>
Gander International Airport	\$0.00 <sup>146</sup>	0.09	\$0.00	\$0.00
Iqaluit Airport	\$0.00 <sup>147</sup>	0.07	\$0.00	\$0.00

Source: Airport Annual Reports and Airport Divestiture Status Report

<sup>146</sup> Gander Airport does not current pay rent to the federal crown. Source: Gander Airport.

<sup>147</sup> The airport is owned by the territorial government and does not make rental payments to the federal crown. Source: Transport Canada, Airport Divestiture Status Report.

**Figure C-2**  
**Annual Ground Rents for the NAS Airports**  
**2010**

<b>Airport</b>	<b>Rent (millions of dollars)</b>
Toronto Pearson International Airport	\$120.0
Montréal Pierre Elliott Trudeau International Airport	\$36.9
Vancouver International Airport	\$33.2
Calgary International Airport	\$24.2
Edmonton International Airport	\$10.5
Ottawa International Airport	\$6.12
Winnipeg International Airport	\$5.27
Halifax International Airport	\$4.35
Québec City Jean Lesage International Airport	\$1.65
St. John's International Airport	\$0.90
Victoria International Airport	\$0.68
Saskatoon International Airport	\$0.58
Regina International Airport	\$0.49
London International Airport	\$0.00
Thunder Bay International Airport	\$0.04
Prince George Airport	\$0.00
Kelowna International Airport	\$0.00
Greater Moncton International Airport	\$0.00
Charlottetown Airport	\$0.00
Fredericton International Airport	\$0.00
Saint John International Airport	\$0.00



<b>Airport</b>	<b>Rent (millions of dollars)</b>
Gander International Airport	\$0.00
Whitehorse International Airport	\$0.00
Yellowknife Airport	\$0.00
Iqaluit Airport	\$0.00

Source: Transport Canada, Transportation in Canada 2011- Statistical Addendum Table A2

## Appendix D: List of Abbreviations

AB	Alberta
AIF	Airport Improvement Fee
ANS	Air Navigation Services
APD	Air Passenger Duty
ATAG	Air Transportation Action Group
ATSC	Air Travellers Security Charge
BC	British Columbia
bil	Billions
CAC	Canadian Airports Council
CAD	Canadian Dollars
CATSA	Canadian Air Transport Security Authority
DOT	Department of Transportation (U.S.)
E/D	Enplaned/Deplaned
EU	European Union
FAA	Federal Aviation Administration (U.S.)
FDI	Foreign Direct Investment
FTZ	Foreign/Free Trade Zone
GDP	Gross Domestic Product
GILT	Grants in Lieu of Taxes
GST	Goods and Services Tax
GTAA	Greater Toronto Airports Authority
HST	Harmonized Sales Tax
IATA	International Air Transport Association.
ICAO	International Civil Aviation Organisation
Int'l	International
km	Kilometres
LCC	Low Cost Carrier
M.A.P.	Marketing, Access and Product
MB	Manitoba
mil	Millions

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MSU	Michigan State University
NAS	National Airport System
NB	New Brunswick
NL	Newfoundland and Labrador
NS	Nova Scotia
NT	Northwest Territories
NU	Nunavut
O/D	Origin/Destination
ON	Ontario
PE	Prince Edward Island
PILT	Payments in Lieu of Taxes
PST	Provincial Sales Tax
QC	Quebec Province
RCMP	Royal Canadian Mounted Police
R&D	Research & Development
SK	Saskatchewan
TIAC	Tourism Industry Association of Canada
T&T	Travel and Tourism
UK	United Kingdom
UNWTO	World Tourism Organization
U.S.	United States
WEF	World Economic Forum
YEG	Edmonton International Airport
YHZ	Halifax Stanfield International Airport
YK	Yukon Territory
YUL	Montréal-Pierre Elliott Trudeau International Airport
YVR	Vancouver International Airport
YYZ	Toronto Pearson International Airport

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