

Economic Impact

Business Aviation *Operations* and Business Aircraft *Manufacturing* in Canada, 2023

FINAL REPORT

December 2023



Sponsors:
BOMBARDIER
CAE

InterVISTAS

Forward

Dear Members,

As the President and CEO of the Canadian Business Aviation Association (CBAA), I am pleased to present the findings of our recent economic impact study. This study provides crucial insights into the significant contributions of business aviation operations and manufacturing to the Canadian economy.

The study clearly demonstrates that business aviation is not only an enabler of business efficiency but also a substantial economic driver. It contributes billions of dollars to Canada's GDP, supports a considerable number of high-skilled jobs, and is a catalyst for technological innovation. Additionally, business aviation plays a vital role in connecting remote and rural areas, filling gaps left by commercial aviation.

The implications of these findings are far-reaching. They provide us with solid data to engage effectively with policymakers, advocating for the support and growth of an industry that is integral to Canada's economic success. The study also highlights the sustainability initiatives and future readiness of our sector, emphasizing our commitment to environmental responsibility.

This economic impact study is instrumental in facilitating dialogue with various stakeholders. It underscores the importance of business aviation in the broader aviation ecosystem and serves as a foundation for advocating for favorable policies, infrastructure development, and investment in our sector.

The CBAA is dedicated to using this study to further the interests of Canadian business aviation, ensuring its continued contribution to the national economy.

Sincerely,



Anthony Norejko
President and CEO
Canadian Business Aviation Association



Executive Summary

Business aviation plays an integral role in facilitating the transportation of employees to further business initiatives and operations in Canada and abroad. Business aviation helps to improve worker productivity, customer service, and retention, while also enhancing supply chain performance in every province and territory. Canada is also home to several aerospace manufacturing firms that produce business aviation aircraft, parts, and equipment for use in Canada and abroad. Combined, business aviation operations along with business aircraft manufacturing in Canada are major contributors to direct employment and collectively generate \$11.7 billion in direct economic output nationwide. This study examines the current economic impacts of business aviation operations and business aircraft manufacturing in Canada.

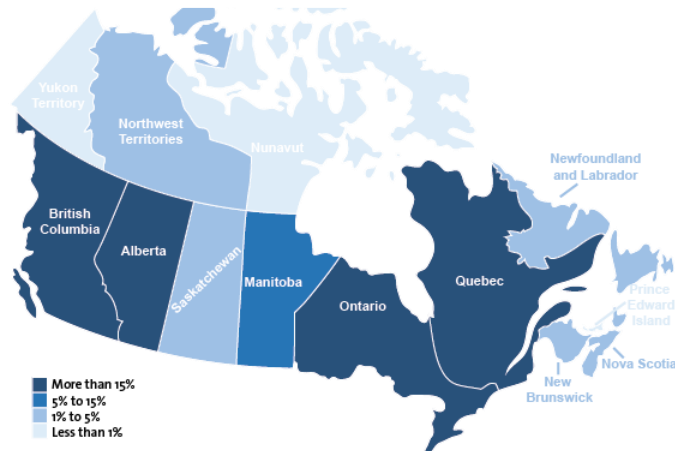
Business aviation operations and business aircraft manufacturing in Canada contribute an estimated \$11.7 billion in direct economic output nationally.

Business aviation in Canada is a key contributor to the nation's economy by enabling productivity improvements, efficiency gains, and business development while supporting the supply chain for many Canadian businesses. More specifically, business aviation:

- ...may be the only effective transportation option available for specialist technicians and other professionals to reach remote or distant customer locations.
- ...supports increased productivity by allowing colleagues to work together in secure, private spaces.
- ...enables employees to reach multiple destinations in a single day and return home to company headquarters or family. This saves time and money and improves quality of life.
- ...provides flexibility and reliability when commercial service cannot. During the pandemic, business aviation played a key role in keeping commerce and business progressing when commercial airline services were paused due to travel restrictions enacted by national governments.

There are an estimated 1,500 business aircraft in operation in Canada in 2022, this is down from approximately 1,900 in 2017. The current aircraft mix includes fixed-wing (88%) and rotor aircraft (12%). This amounts to roughly 4% of the more than 37,000 registered aircraft in Canada. These business aircraft are based across Canada in Ontario (423 based aircraft), Alberta (293 based aircraft), Québec (245 based aircraft), and British Columbia (235 based aircraft) with the remaining 327 aircraft based in other provinces and territories.

Figure ES-1: Distribution of Business Aircraft Based in Canada

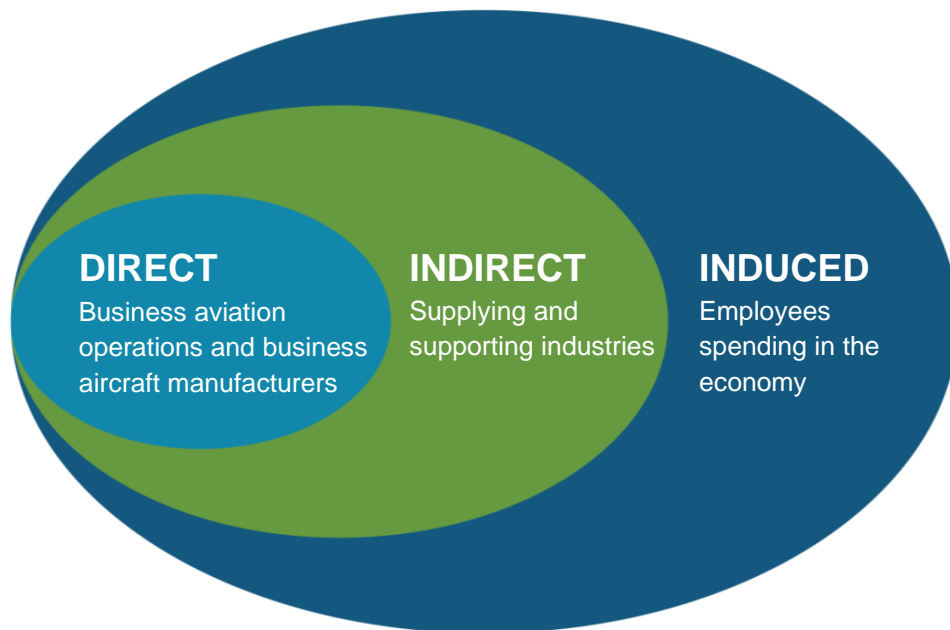


Source: InterVISTAS analysis of 2022 data provided by JetNet iQ, Helicopter Association of Canada, and CBAA

Canada also makes a strong contribution to business aircraft manufacturing which supports business aviation globally. It is home to Bombardier, a global leader in the design, manufacture, and support of business aircraft, Pratt & Whitney Canada, Bell Helicopter Textron Canada, CAE Inc., and De Havilland Aircraft of Canada Ltd., which are a few of the major players in the business aircraft manufacturing sector in Canada.

This study measures business aviation’s contribution to Canada’s employment base and the general economy. Economic impact is a measure of the spending and employment associated with a sector of the economy, a specific project, or a change in government policy or regulation. The three major components of economic impact are classified as direct, indirect, and induced impacts. These classifications are used as a basis for estimating the total economic impact of business aviation operations and business aircraft manufacturing in Canada.

Figure ES-2: Categories of Economic Impact



Ongoing Economic Impact of Business Aviation

Operations and Manufacturing

Direct economic impact measures the employment directly associated with business aviation operations and business aircraft manufacturing in Canada. This includes employment generated at Fixed-Base Operators (FBOs), company flight departments, engineers, designers, and fabricators at manufacturing facilities. **Indirect impacts** include employment in industries that supply or provide services to the business aviation and business aircraft manufacturing industry.

Induced employment is somewhat more complicated than indirect employment. Induced employment is employment that is generated in the general economy based on expenditures by individuals who are employed directly or indirectly, e.g., jobs in the food/beverage industry when a business jet pilot goes out for dinner with his or her family. Induced impacts are often referred to as the “household spending” impacts.

Business aviation operations and business aircraft manufacturing support 25,600 direct jobs across Canada, earning \$3 billion in wages.

The average wage per job is over \$116,000.





Total impacts are the sum of the direct, indirect, and induced impacts. Including indirect and induced multiplier impacts, annual economic impacts of business aviation operations and manufacturing in Canada amount to 53,600 jobs earning approximately \$4.8 billion in wages and salaries. Furthermore, business aviation in Canada (*including operations and manufacturing*) contributes an estimated \$9.2 billion in total gross domestic product (GDP) and \$17.9 billion in total economic output. The total economic impacts of business aviation in Canada are summarized in **Table ES-1**.

The industry generates an estimated 25,600 direct jobs, of which 10,900 jobs are associated with operations and 14,800 jobs are involved in business aircraft manufacturing in Canada. Together, these employees earn approximately \$3.0 billion in direct wages and salaries. The average wage for business aviation operations is \$108,100 per annum. Average wages in the business aircraft manufacturing sector are higher still at \$122,500. These compare to the national average wage of \$60,600.¹ Business aviation, whether supporting operations or business aircraft manufacturing, contributes high wages reflective of its highly skilled labour force.

The direct business aviation employment from operations and manufacturing combined produce \$5.3 billion in direct GDP and \$11.7 billion in direct economic output each year. See **Figure ES-3**. **Figure ES-4** shows the summary of *total* economic impact. **Figure ES-5** shows the geographic distribution of *direct* employment across Canada. The majority (75%) of direct employment is situated in Québec and Ontario that reflects the strong base of business aircraft manufacturing and business aviation operations activity in Canada.

¹ Statistics Canada, Table 14-10-0204-01, Average weekly earnings by industry, annual, 2022, calculated for annual earnings.

**Table ES-1:
Annual Total Economic Impacts of Business Aviation Operations and
Business Aircraft Manufacturing in Canada, 2022**

				
Impact	Employment (Jobs)	Wages (\$ Billions)	GDP (\$ Billions)	Output (\$ Billions)
Direct	25,600	\$3.0	\$5.3	\$11.7
<i>Operations</i>	10,900	\$1.2	\$1.5	\$3.7
<i>Manufacturing</i>	14,800	\$1.8	\$3.8	\$8.0
Indirect	17,100	\$1.2	\$2.4	\$4.1
<i>Operations</i>	7,800	\$0.5	\$0.9	\$1.8
<i>Manufacturing</i>	9,200	\$0.7	\$1.5	\$2.3
Induced	10,900	\$0.6	\$1.5	\$2.1
<i>Operations</i>	4,100	\$0.2	\$0.5	\$0.8
<i>Manufacturing</i>	6,800	\$0.4	\$1.0	\$1.3
Total	53,600	\$4.8	\$9.2	\$17.9
<i>Operations</i>	22,800	\$1.9	\$2.9	\$6.3
<i>Manufacturing</i>	30,800	\$2.9	\$6.3	\$11.6

Note: Dollar figures are presented in 2022 dollars. Totals may not sum due to rounding.

Note: Direct Manufacturing GDP incorporates estimates developed for Bombardier by the PwC study on 2021 operations.
(<https://bombardier.com/en/PWC-report-bombardier.pdf>)

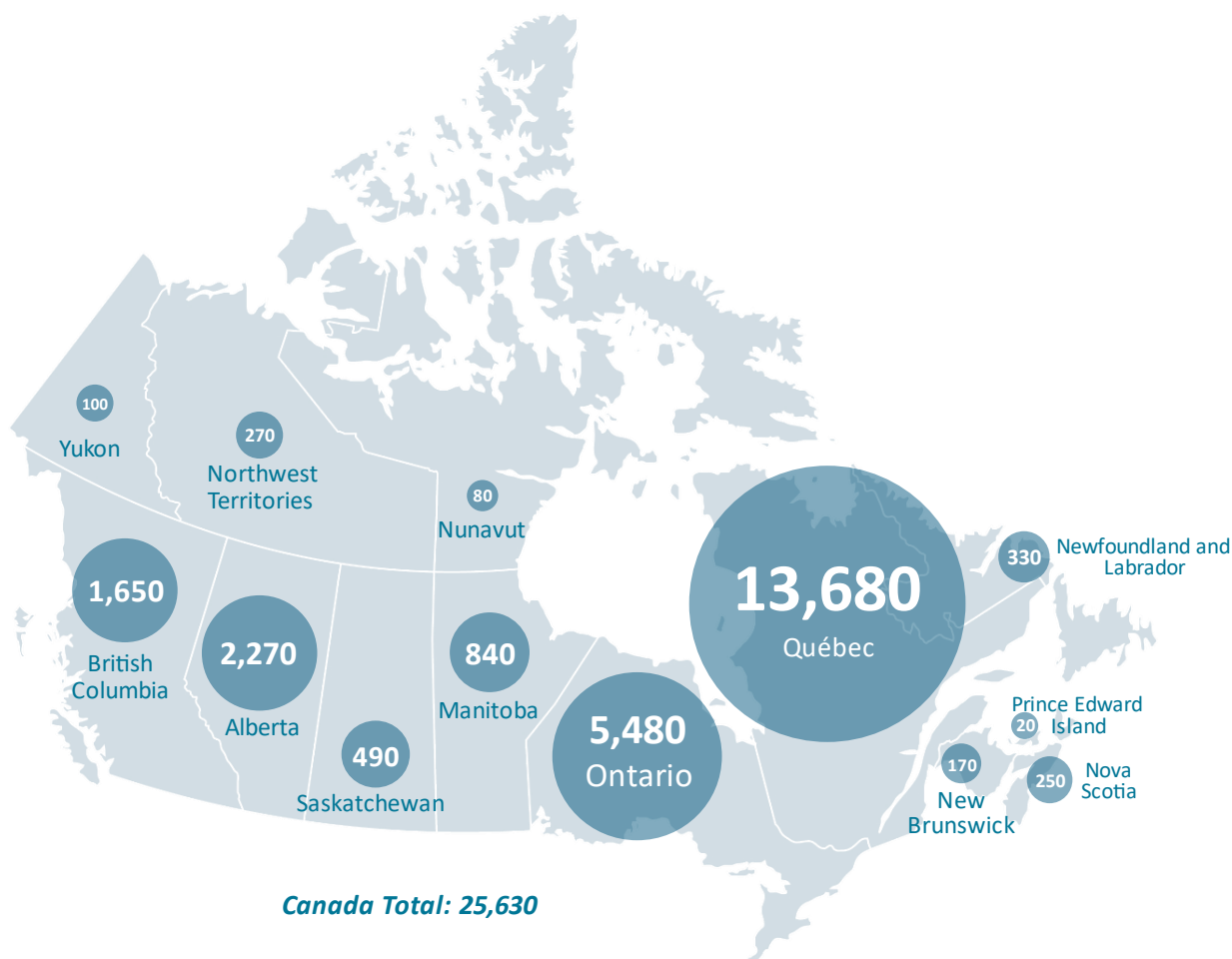
Figure ES-3:
Annual Direct Economic Impact of Business Aviation Operations and Business Aircraft Manufacturing in Canada, 2022



Figure ES-4:
Annual Total Economic Impact of Business Aviation Operations and Business Aircraft Manufacturing in Canada, 2022



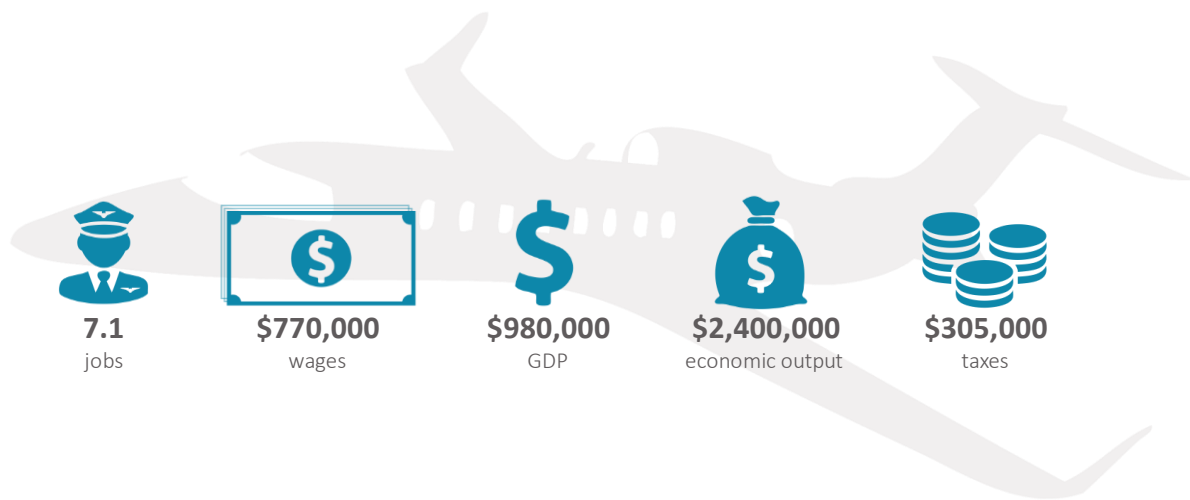
Figure ES-5:
Distribution of *Total Direct Business Aviation Operations and Business Aircraft Manufacturing Employment (Jobs)*



Economic Impacts per Business Aircraft *(Operations Only)*

The operation of each business aircraft contributes significantly to Canada’s economy each year. Each aircraft is estimated to *directly* generate 7.1 jobs, earning approximately \$770,000 in direct wages. This contributes \$980,000 in *direct* GDP and \$2.4 million in *direct* economic output to the Canadian economy. Including multiplier impacts, the annual operation of a single business aircraft supports labour hours amounting to a *total* of 15.0 jobs, earning nearly \$1.3 million in wages annually. Furthermore, the *total* GDP contribution of one business aviation aircraft is estimated at \$1.9 million in GDP, while *total* economic output is estimated at \$4.2 million. The direct and total economic impacts per business aviation aircraft are provided in **Figure ES-6** and **Figure ES-7**, respectively.

**Figure ES-6:
Direct Economic Impacts of 1 Business Aviation Aircraft's Ongoing Operations Per Annum**



**Figure ES-7:
Total Economic Impacts of 1 Business Aviation Aircraft's Ongoing Operations Per Annum**



Business aviation operations and business aircraft manufacturing are estimated to support \$1.2 billion in direct taxes to all levels of government.

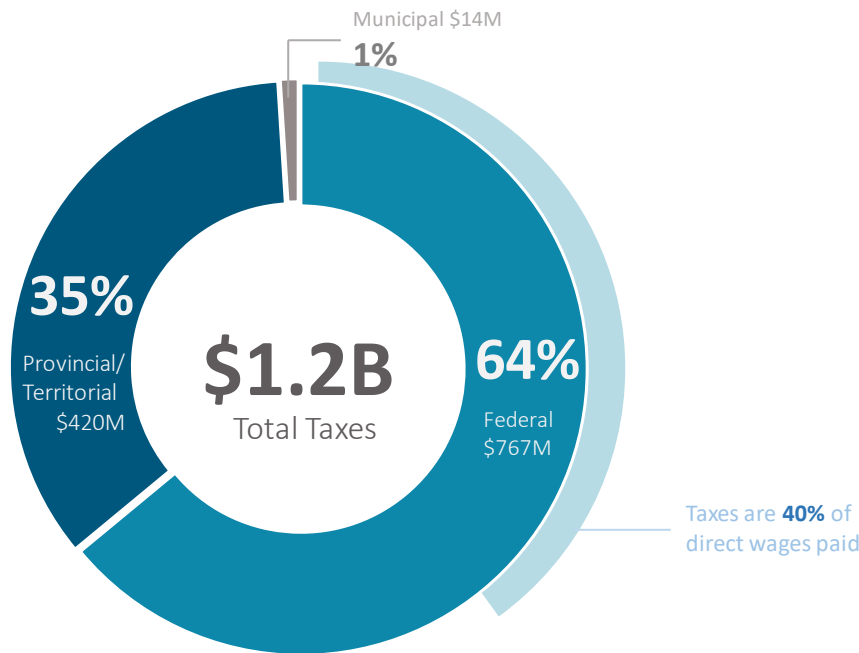
Annual Direct Tax Impacts

Business aviation operations and business aircraft manufacturing in Canada also contribute to government revenue that is received by the federal, provincial/territorial, and local governments. Direct taxes paid on an annual basis are estimated at \$1.2 billion in 2022.²

The majority of taxes collected accrue to the federal and provincial/territorial governments at 64% and 35%, respectively. Municipal taxes are also estimated to be nearly

\$14 million across Canada (1% of total taxes collected). **Figure ES-8** provides a summary of the taxes collected.

Figure ES-8: Breakdown of Direct Tax Revenues by Government Level



Note: InterVISTAS analysis. Figures include taxes paid by direct employees and employers including income and payroll taxes, corporate taxes, and social insurance contributions (such as the employment insurance premiums), among others. Figures do **not** include taxes on the final products made by manufacturers.

² Tax impacts are presented in 2022 dollars and based on 2022 tax rates.

Contents

Forward	i
Executive Summary	ii
1 Introduction	1
1.1 What is Business Aviation?	1
1.2 Business Aviation Uses	2
1.3 Types of Business Aircraft	5
1.4 Business Aviation Supports Canadian Aerospace and Aviation Activity	6
2 Canadian Business Aviation Outlook	8
2.1 Introduction	8
2.2 Business Aircraft in Canada	8
2.3 Canadian Business Aircraft Manufacturing Activity	11
2.4 Potential Impact of the Select Luxury Items Tax	14
3 Value of Business Aviation in Canada	15
3.1 Economic Impact of Business Aviation Operations & Business Aircraft Manufacturing in Canada	15
3.2 Annual Direct Tax Impacts.....	18
4 Economic Impact of Business Aviation Operations	20
4.1 Introduction	20
4.2 Direct, Indirect, and Induced Employment and Wages	20
4.3 GDP and Output	23
4.4 Economic Impact for Each Business Aviation Aircraft	24
4.5 Economic Impact by Province/Territory of Business Aircraft Operations	25
4.6 Direct Taxation Impact.....	27
4.7 Wider Economic Benefits or Catalytic Impact.....	29
5 Economic Impact of Business Aircraft Manufacturing in Canada	32
5.1 Introduction	32
5.2 GDP and Output	33
5.3 Economic Impacts by Province or Region	34
5.4 Direct Taxation Impact.....	34
6 Summary	36
Glossary of Terms	38

Case Studies

1	NovaJet Aviation Group	3-4
2	London Air Services	10
3	Bombardier	12-13
4	CAE	19
5	Innotech-Execaire Aviation Group	28
6	Aurora Jet Partners	31

1 Introduction

Business aircraft are flown by a broad cross-section of businesses and organizations, ranging in size from small to large. Business aviation in Canada plays critical roles in:

- keeping essential Canadian production and infrastructure facilities operational,
- marketing Canadian products and services of businesses scattered across a vast geography,
- improving the effectiveness of supply chains,
- improving the safety and security of employees, customers, and property,
- increasing company and national productivity,
- achieving higher customer service rates, thereby retaining existing and developing new customers, and
- lowering out-of-pocket transportation costs for many businesses.



Most business aviation trips are time-critical, often carrying middle management and technical personnel (e.g., engineers) needed to solve an immediate problem.

Business aviation is essential to all sorts of companies that need speed, flexibility, efficiency, and productivity. The use of business aircraft is not limited to large, multinational corporations. According to the National Business Aviation Association (NBAA), approximately 45% of companies that use business aviation have fewer than 500 employees.³ Many of those are based in communities where commercial airlines have reduced or eliminated service, or where there was no commercial service to begin with. Business aviation allows companies to stay in those communities while reaching suppliers, customers, or production facilities located anywhere in the country or world.

This study presents the economic impact of business aviation operations in Canada, business aircraft manufacturing in Canada, and the combined economic impacts of both sectors related to business aviation in Canada. This study is an update for the prior analysis, from 2017.

1.1 What is Business Aviation?

Within the Canadian civil aviation system, there are two primary subdivisions: commercial operations and private operations. The commercial category comprises airlines that operate scheduled air transportation, such as Air Canada, WestJet, Porter, Flair, and various regional carriers. Private operations include all other types of non-military aviation, including both business and personal operations.

The data relates to business aviation when the aircraft is flown for business purposes.

³ NBAA Business Aviation 2021 Factbook (<https://nbaa.org/business-aviation/nbaa-business-aviation-fact-book/>).

1.2 Business Aviation Uses

Business aviation serves a variety of uses, as outlined below. Business aviation may be considered a luxury for executives who want to avoid commercial airlines. This misconception, however, fails to recognize the many uses of aircraft for fast, flexible, safe, secure, and cost-effective access to a range of destinations, including remote locations that may be impossible to reach by commercial air and even ground transportation.

<h3>Transporting Employees</h3>	<h3>Improving Productivity</h3>	<h3>Improving Customer Service</h3>
<p>The most common use of business aircraft is transporting the company's own employees.</p> <ul style="list-style-type: none"> • Businesses may use their aircraft to facilitate strategic opportunities, explore new markets, extend management control, and improve relations with customers, investors, and the public. • Moving specialist management, legal, or financial teams may be necessary to close transactions. • Some companies may use their aircraft to move production, engineering, and operations teams between company facilities or to remote locations that cannot be reached by commercial airlines. 	<p>Efficient employee scheduling and employee time-savings are possible because business aircraft can fly on-demand and nonstop between smaller airfields that usually are closer to a traveler's destination than a major airport.</p> <p>Business aircraft can reach communities that may not be served by commercial air service. Employees gain considerable time savings in being able to directly access small and remote locations. In addition, business aviation gives passengers an ability to reach multiple remote locations in a single day.</p>	<p>Companies can use their aircraft to reach key customers in the most time-efficient manner for both parties. Business aviation also allows companies to deliver enhanced service. When a major piece of a customer's machinery breaks down, the company immediately begins to suffer losses of revenues, and, typically, workers begin to lose wages until the equipment is put back into service. Business aviation allows immediate dispatch of needed technicians and parts. This high level of customer service not only restores the customer's revenue stream, but also leads to loyalty to the vendor resulting in future sales.</p>
<h3>Enhancing Supply Chain</h3>	<h3>Privacy & Security</h3>	<h3>Transporting Cargo</h3>
<p>For businesses and organisations that are not located at major intercontinental gateways, business aviation allows time-sensitive products to reach overseas gateways for distribution. Business aviation also provides sales, finance, marketing, and technical personnel with access to intercontinental air services.</p> <p>Additionally, companies use business aviation to improve supply chain efficiency by transporting suppliers, improving a supplier's understanding of production facilities, or bringing multiple suppliers to customer meetings.</p>	<p>Business aviation enables privacy. With its own aircraft, a company can better ensure that proprietary and confidential information is protected rather than at risk of being overheard in an airline terminal or on a commercial flight. In certain situations, using a business aircraft allows key decision-makers to avoid visibility, which may be crucial for advancing mergers or sales.</p> <p>The use of business aviation can also help minimize missed flights and connections due to delays in airport screening.</p>	<p>Companies use their aircraft to move cargo, machine parts, and mail between internal facilities and externally between suppliers, customers, and potential customers. Companies can keep operations moving by shipping parts directly to remote locations.</p>

NOVAJET AVIATION GROUP

CASE STUDY

NovaJet Aviation Group (NovaJet) is a fee-for-service operator of business and private jet aircraft, offering full service for private jet charters, aircraft management and acquisition. The company has 150 full time employees and over 30 different aircraft at 10 bases across Canada located in Ontario, Newfoundland & Labrador, New Brunswick, Nova Scotia, and British Columbia, with plans to expand into Québec and further into BC. In terms of the mix of destinations served, NovaJet's expansion focus will be on the Canadian marketplace. Their fastest growing markets are southern Ontario and the Atlantic provinces, and they are looking to grow their BC operations, and eventually enter the Québec market.

NovaJet is a key player in the private aviation industry in Canada. In 2022, NovaJet flew 8,000 flight hours with roughly 30% of flights flown on domestic routes. Roughly 50% of their annual flights are for business aviation specifically, a segment that contributes to 40% of their annual revenues.

NovaJet supports business aviation through its private jet charters, aircraft management, and acquisition services. Beyond offering global flight charter service, NovaJet operates whole-management programs for clients who own aircraft. In these programs, NovaJet assists clients with acquiring and importing aircraft, provides pilots and crew to operate the aircraft, performs maintenance, and charts out the unused aircraft time to reduce costs. NovaJet has several corporate-use programs that are purely business use with no private/leisure use of these aircraft.

The company saw a dramatic increase in chartered flight demand following the COVID-19 pandemic lockdown periods. Passenger concern over contracting the virus on commercial flights had many would-be clients inquiring about private flights. More people were introduced to private aviation than any other time in NovaJet's 20+ year history due to COVID. The appeal of a private, sanitized aircraft and a shorter wait time at the airport for departures has resulted in new business and leisure passengers, particularly families, becoming returning customers. There was also an increase in inquiries about corporate ownership as a result of the pandemic. Many businesses new to private jet travel flew a significant number of hours due to the travel and in-person restrictions of the pandemic. NovaJet offers guidance on choosing to purchase an aircraft outright versus continuing to charter flights on an as-needed basis. As a result, there was also an increase during 2021 in conversions from on-demand charters to ownership.

(continued on next page)

NOVAJET AVIATION GROUP

CASE STUDY

The increase in customers chartering flights and owning aircraft has placed pressure on the existing aircraft supply and on manufacturers. More corporations are looking at business aircraft as a tool, and are keen to use this tool to its full potential. Prior to the pandemic, it was common for corporate clients to fly with two or three seats filled. Post-pandemic, NovaJet has seen its customers wanting to use aircraft more efficiently, looking to fill every seat. This efficiency extends to employees' time as well – corporate clients often use business aircraft to reach underserved or remote destinations not served by commercial carriers, but they also bypass the lengthy wait for check-in and security screening. A passenger flying with a commercial airline must be at the airport 2 and 3 hours ahead of departure; a private traveler can be off the ground within an hour of getting to the airport. This less-tangible benefit keeps employees productive and happy.

NovaJet is the first charter airline to offer carbon offsets in Canada. They consulted clients, received a positive response to the idea, and began offering a carbon offset option for purchase. They offer information on the amount of carbon created per flight leg and offer a path to offset it. The response from customers has been good. More FBOs and service providers are offering biofuels, and newer aircraft are built biofuel-ready. Older aircraft require conversion kits in order to use biofuels.

There is a bump in the road for the private aircraft market in Canada. The Select Luxury Items Tax was introduced by the federal government in September 2022 and requires buyers to pay a percentage of the sale price on the purchase of new aircraft. NovaJet notes the full impacts won't be felt by its customer base until after 2024 or 2025 when the first aircraft purchased under the tax rule are delivered. (Those taking possession in 2023 paid for their aircraft prior to the tax). However, customers have already been deterred from buying new and are choosing to purchase softly used aircraft, putting pressure on manufacturers.

1.3 Types of Business Aircraft

Business aircraft include turbine-powered turboprops, turbojets, and helicopters. Although the worldwide fleet includes ultra-long range business jets capable of flying 20 or more passengers nonstop between distant international business centers such as Toronto and Tokyo, many business aircraft seat fewer than 20 passengers in a cabin and fly average trips of less than 1,000 miles.

1. **Turboprop aircraft** have one or more gas-turbine engines that turn the propeller(s). Turboprop aircraft are frequently larger than piston-powered aircraft and can operate at higher altitudes. They also can carry more payload and passengers than piston-powered aircraft. It is not unusual for these aircraft to fly missions of between 600-1,000 miles of travel between smaller airports that may have runways too short to accommodate jets. Examples of common turboprop aircraft used for business applications include the Cessna Caravan, Pilatus PC-12, SOCATA TBM, and Beechcraft King Air.



Pilatus PC-12



Cessna Caravan



SOCATA TBM

2. **Jet aircraft** have one or more gas-turbine engines. Jet aircraft tend to fly faster than turboprop aircraft and are capable of flying at higher altitudes than pistons or turboprops. The size and flight range of jets varies widely - some have a single pilot and very small cabin, while others require two pilots and can carry a large number of passengers and operate across long international stages. Most seat between six and ten passengers and fly an average stage length of around 1,000 miles. Examples of jets used for business purposes include the Bombardier Challenger and Global aircraft, Gulfstream G700, Dassault Falcon 8X and Embraer Phenom 300 to name a few.



Bombardier Global 7500



Gulfstream G700



Dassault Falcon 8X



Embraer Phenom 300

3. **Helicopters** are powered either by a piston engine or a turbo engine. They are often used for flights of less than 100 miles, at altitudes of less than 1,000 feet. The interior of a business helicopter typically seats 4-6 people. Helicopters are often attractive because of their ability to land at a variety of heliports and outlying airports. Examples of helicopters used for business include the Eurocopter 130 and Bell 407, 429, and several other variants. Helicopter use for business aviation is used often as placement flights to connect with a jet aircraft at a regional airport, thus bypassing ground traffic and saving time.



Bell 429 helicopter



Eurocopter 130

All of these aircraft types have uses in business aviation. Turboprop aircraft, for example, are highly efficient for short to medium haul flight stages, while jets are the choice for longer stages. All of these aircraft types offer a range of sizes, dependent on the business mission.

1.4 Business Aviation Supports Canadian Aerospace and Aviation Activity

Business aviation activities are supported by numerous types of other businesses. These include companies that provide airport and regulatory service and support for the aircraft and their operators, those that maintain and repair the aircraft, and other companies that provide professional management services to aircraft owners.

- **Fixed Based Operators (FBOs)**. FBOs provide important support to the general and business aviation community with services geared towards maintenance, refueling, catering, and other support services. These private enterprises help to alleviate stress on other airport infrastructure to serve the business aviation industry.
- **Maintenance and Repair**. Aircraft must meet airworthiness standards and undergo regular maintenance schedules. Repair stations may be part of the original equipment manufacturer (e.g., Bombardier, Gulfstream, or Dassault) or independent shops. Some shops may specialize in certain aspects of maintenance and repair – airframe, powerplant, propeller, radio, instrument, or accessory. There are nearly 860 approved maintenance organizations in



Canada as of 2022, with a comprehensive range of capabilities.⁴ Aerospace MRO activities collectively employed some 29,800 skilled workers and generated \$3.7 billion in direct GDP to the Canadian economy in 2022.⁵

- **Professional management services.** Some companies offer aircraft management services that provide plane owners with flexibility and the comfort of knowing that their aircraft is being cared for in a professional manner. These companies can take care of all the non-operational, “back office” matters such as insurance, hangars, pilots, training, regulatory oversight, maintenance, and flight coordination. Clients can use their aircraft when they need to and let the company manage the rest. In some cases, these companies can work with the owner to help charter out the aircraft to other customers when the owner is not using the aircraft. Doing so helps defray the total cost of ownership, which is a key advantage for aircraft owners whose aircraft may otherwise sit idle.
- **Original Equipment Manufacturers.** The aircraft used for business aviation would not exist without the Original Equipment Manufacturers (OEMs). OEMs such as Bombardier, Gulfstream, Embraer, among many others, build the aircraft (or at least parts) used for business aviation aircraft. Many also provide repair services and customization of the aircraft for specific purposes.
- **Airports.** Airports provide support and services to business aviation, whether they are large NAS airports close to major business centres or smaller airports, allowing companies to access more remote locations. Airport infrastructure (e.g., runways) is instrumental in supporting business aviation.
- **NAV CANADA.** NAV CANADA is Canada’s Air Navigation Service Provider. It provides support and services to business aviation through air traffic control, flight information, and other aeronautical information (such as airspace and safety procedures). NAV CANADA reflects the importance of its stakeholders through their Board of Directors, which has one seat chosen by the CBAA to represent business aviation and general aviation.

⁴ Transport Canada (<https://tc.canada.ca/sites/default/files/2023-07/transportation-canada-2022.pdf>)

⁵ State of Canada’s Aerospace Industry Report, Summer 2023 (<https://ised-isde.canada.ca/site/aerospace-defence/en/state-canadian-aerospace-industry>)

2 Canadian Business Aviation Outlook

2.1 Introduction

Globally, the demand for business aircraft has generally grown over time. In 2013, JetNet iQ estimated that there were over 33,000 fixed-wing business aircraft around the world, the bulk of which (nearly 21,200) were based in North America.⁶ As of 2022, that estimate has grown to approximately 38,500 fixed-wing business aircraft.⁷ Business aviation worldwide has continued its recovery from the global pandemic in recent years, with 2022 marking the lowest inventory of pre-owned business aircraft, peak levels of flight hours, and continued orders for new business aircraft.⁸ Although the industry (like others) is facing short-term risks related to slowing economic growth, sustained levels of high inflation, and geopolitical uncertainty, the longer-term outlook for business aviation activity remains robust, with JetNet iQ's latest forecast estimating continued net growth in deliveries throughout the next decade towards 44,500 fixed-wing business aircraft in the global fleet by 2032.⁹

Globally, there are an estimated 38,500 fixed-wing business aircraft. In Canada, there are approximately 1,500 business aircraft (fixed-wing and rotary) as of 2022.

Data on current business aviation in Canada is limited when compared to the breadth of data available for counterparts in, for example, the United States and Europe. Because of limitations in the type, amount, and quality of data available from Transport Canada, it is not possible to give definitive time-series statistics on the number of business aircraft operated in Canada over the years, or the number of hours flown by Canadian business aircraft. Without dedicated government databases to business aviation in Canada, much of the data used in this report is estimated based on the latest insights from industry resources and consultation.

2.2 Business Aircraft in Canada

In Canada, the total number of registered aircraft as of year-end 2022 reached over 37,000.¹⁰ Of this total, it is estimated that approximately 1,500 are business aircraft, including both fixed-wing (88%) and rotor aircraft (12%).¹¹ This business fleet is spread across Canada, with the majority based in Ontario, Alberta, Québec, and British Columbia, as shown in **Figure 2-1**. This is mirrored in **Figure 2-2**, which shows the distribution of CBAA membership across Canada; membership is concentrated in the provinces/territories with the largest number of registered aircraft.

⁶ JetNet iQ is a leading provider of data, information and market intelligence on business and commercial aircraft worldwide. JetNet data cited by NEXA Advisors, *Business Aviation and the World's Top Performing Companies*, Part V, Fall 2013, p. 10.

⁷ JetNet iQ data cited by Aviation International News (<https://www.ainonline.com/aviation-news/business-aviation/2023-05-24/jetnet-iq-forecast-sees-13000-new-aircraft-2032>).

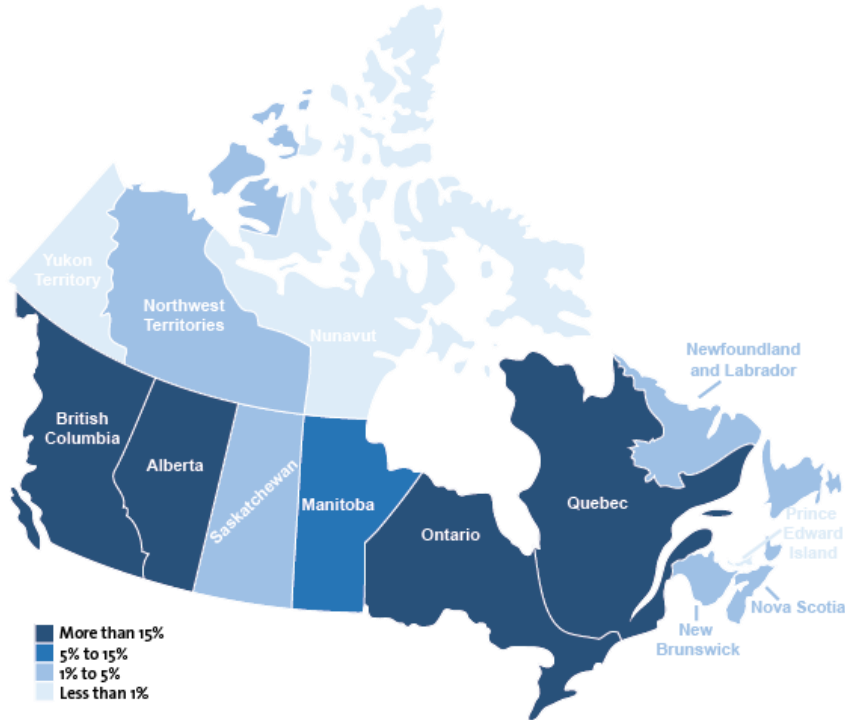
⁸ Bombardier 2022 Financial Report (<https://bombardier.com/system/files/financial-reports/2023-02/Bombardier-2022-Financial-Report-en.pdf>).

⁹ JetNet iQ data cited by Aviation International News (<https://www.ainonline.com/aviation-news/business-aviation/2023-05-24/jetnet-iq-forecast-sees-13000-new-aircraft-2032>).

¹⁰ Canadian Civil Aircraft Register, www.tc.gc.ca.

¹¹ The business aircraft fleet is estimated based on the JetNet iQ database for fixed-wing business aircraft based in Canada, along with estimates on business helicopters provided by the Helicopter Association of Canada and CBAA.

Figure 2-1: Distribution of Business Aircraft Across Canada



Source: InterVISTAS analysis of 2022 data provided by JetNet iQ, Helicopter Association of Canada, and CBAA.

Figure 2-2: Geographic Distribution of CBAA Membership



Source: Canadian Business Aviation Association, 2022.

LONDON AIR SERVICES

CASE STUDY

London Air Services offers private jet and helicopter charters as well as aircraft management services for a range of corporate and private clients across Canada. The company is based in Vancouver, British Columbia, where they operate the London Aviation Centre, a large facility with 64,000 square feet of hangar space. London Air Services has 139 full time employees and a fleet which includes Bombardier Global 6000 aircraft, Bombardier Challenger 605 aircraft, Bombardier Learjet 75 aircraft, and Augusta Wetland 139 helicopters.

London Air Services' charter operations are geared toward serving the specific needs of corporate travel. They provide flexibility by allowing businesses to schedule flights for whenever is most convenient, as well as time-savings from bypassing crowded hub airports, long security lines, delays, and other issues associated with commercial travel. The company's jet charter service offers a customizable experience for different business customers which includes pre-arranged customs clearance, ground transport, and enhanced in-flight amenities such as Wi-Fi and air-to-ground internet telephone service. This service allows employees to work collaboratively in-flight with fast Wi-Fi and air-to-ground internet telephone service.

London Air Service's helicopter charter service provides slightly different benefits to businesses. Because the AW139 helicopter only requires a small area to land and take off, it is possible for customers to be picked up and dropped off within metres of their destination. This allows for maximally efficient short-range travel and reduces long commutes into short flights. Like the jet charter service, flight times and routes are flexible.

In addition to charters, London Air Services offers aircraft management services for privately owned aircraft. These services include staffing aircraft with pilots, engineers, and cabin attendants, managing flight operations worldwide, maintaining and grooming aircraft, and accounting. London Air Services facilitates more cost-effective flight department operations with reduced insurance rates due to the company's 20-year safety track record with IS-BAO and Wingman Operator safety certifications, reduced fuel costs due to the company's buying power, and expert advice on buying new aircraft. Furthermore, London Air Service will sell charter flights on business aircraft that they manage when the aircraft are not otherwise being used. Revenue from these charter flights can be used to offset some costs of aircraft ownership for businesses. Collectively, these services make business aviation in Canada more accessible and efficient.

2.3 Canadian Business Aircraft Manufacturing Activity

The aerospace manufacturing industry is an economic powerhouse in Canada, with total economic impacts (direct, indirect, and induced) that include \$17.7 billion in total GDP and 133,300 total jobs nationwide in 2022.¹² The industry is supported by skilled employment involved in producing a diverse mix of aircraft, helicopters, engines and parts, avionics, flight simulators, and other related components. Aerospace manufacturing is also an innovation leader, ranking first in research and development (R&D) investment intensity among all manufacturing industries in Canada.¹³ Although the industry was not immune to the detrimental impacts of the COVID-19 pandemic – its revenues in 2022 remained approximately 74% of pre-COVID (2019) levels – rebounds in employment, revenues, and orders over the past year indicate that recovery is underway.¹⁴

Aerospace manufacturing activities in Canada contribute an estimated 133,300 total jobs to Canada's economy

As part of this broader aerospace manufacturing industry, Canada is among the global leaders in *business* aircraft, parts, and equipment manufacturing which supports business aviation worldwide. Canada is home to Bombardier, a global leader in the design, manufacture, and support of business jets as well as aerospace R&D, Pratt & Whitney Canada which has several operations in Canada, Bell Textron Helicopters, and De Havilland of Canada Ltd. to name a few of the major players. The sector also includes CAE Inc., a Canadian-grown manufacturer of flight simulation technologies and provider of related training services for business and other civil aviation operators, along with defence and healthcare customers. The pre-eminence of the Canadian business and civil aircraft manufacturing industry is exemplified in part by its ranking second in business jet production and first in civil flight simulator production worldwide.¹⁵

Business aircraft manufacturing in Canada and worldwide represents a resilient source of growth across national and global economies. According to Bombardier, the business aircraft manufacturing industry delivered approximately 523 new aircraft in 2022 (compared to the 15-year historical average rate of 574 deliveries per annum), amounting to an increase of 3.0% relative to 2021 with revenues increasing by 4.8% over the same time.¹⁶ While demand for aircraft continues to recover from the pandemic and other macroeconomic and socio-political factors in the short-term, the market for business aircraft faces numerous positive development which are likely to stimulate the sector in the long run. This includes growing wealth in developing nations, technological improvements in business aircraft resulting in products which are more accessible to a wider customer base, and growing overall demand for the connectivity and safety features offered by private flying.¹⁷

¹² State of Canada's Aerospace Industry Report, Summer 2023 (<https://ised-isde.canada.ca/site/aerospace-defence/en/state-canadian-aerospace-industry>)

¹³ Ibid.

¹⁴ Ibid.

¹⁵ Rankings are based on the dollar value of final production. Ibid.

¹⁶ Note: excludes certain aircraft types. Bombardier 2022 Financial Report (<https://bombardier.com/system/files/financial-reports/2023-02/Bombardier-2022-Financial-Report-en.pdf>).

¹⁷ Ibid.

BOMBARDIER

CASE STUDY

Introduction

Bombardier is Canada's foremost manufacturer of large and medium business jets and is a global supplier serving the private, chartered, corporate, and fractional ownership markets. The jets currently being offered include the Global 5000, Global 5500, Global 6000, Global 6500, Global 7500, Global 8000, Challenger 350, Challenger 3500, Challenger 650, and the Learjet 75. Bombardier has manufacturing facilities in Canada, the United States, and Mexico, as well as aftermarket service and manufacturing centres in Europe, Africa, South America, East and Southeast Asia, and Australia with a new facility being built in the U.A.E. The company also launched its defense business in 2022, headquartered in Wichita, KS.

Bombardier has focused its operations over the past five years solely on business jet manufacturing and development. In 2019 it sold the Dash-8 turboprop unit to Longview Aviation Capital. In 2020 it sold its CRJ unit to Mitsubishi, divested to Airbus its remaining stake in A220 production, formerly the C-series jets. One year later the manufacturer sold its rail unit, Bombardier Transportation, to Alstom, a French manufacturer of locomotives, passenger rail cars, and rail signaling equipment.

In 2022, its 80th year of operations, the manufacturer delivered 128 aircraft worldwide and their order backlog reached \$14.8 billion. Of the aircraft produced in 2022, 120 were manufactured in Canada. 2023 is expected to see 138 deliveries by year-end, and 150 deliveries has been forecast for 2025.

Locations & Employment

Bombardier's commitment to Canada is reflected in its employees – of the 15,000 staff worldwide, the 10,600 work in Canada alone with 2,000 of their Canadian staff working in Ontario and 8,600 working in Québec. Currently, 100% of the Ontario manufacturing produces business jets. Bombardier's Québec operations include 5% dedicated to defense and the remaining 95% to business jets.

Manufacturing

Bombardier is a global supplier of business jets, with the bulk of production (60-70%) carried out in Canada which generates \$6 billion in economic activity domestically. Since the pandemic, there have been changes in domestic production. Bombardier is insourcing to Canada some of its manufacturing from overseas locations to better control its supply chain. This move has created 500 jobs in St. Laurent, PQ as the company deals with distressed suppliers and the like. Bombardier conducts constant analysis of its supply chain to overcome issues with long lead times, rethinking how the company interacts, even reshoring or buying smaller suppliers.

Additionally, their current manufacturing site in North York is being sold and redeveloped as Bombardier is building a new manufacturing centre at Toronto Pearson International Airport (YYZ) which is green-certified, showing their commitment to lowering carbon emissions, and will open at the end of 2023.

(continued on next page)

BOMBARDIER

CASE STUDY

Revenue

Bombardier achieved \$6.9 billion in revenues in 2022 with \$5.3 billion coming from manufacturing, and \$1.5 billion from aftermarket services. Nearly every international market is surging with the exceptions of halted sales to Russia, which previously represented 5-6% of Bombardier's sales, and the domestic market which represents 4-5% of the company's total sales. Although the domestic market for business jets has softened due to the Luxury Vehicle Tax that came into effect in September 2022, Bombardier's revenue has grown overall due to the increased sales of the larger Global aircraft worldwide.

Market Segments & Primary Clientele

Bombardier's sales are a healthy mix of the Challenger and Global aircraft, each serving separate market segments. Their clientele is very diverse and includes resellers, charter operators, and private customers. Resellers acquire mainly large jets and use a fractional ownership model to fill seats. Charter operators typically include business jets which are purchased for either chartered flights or purchased and operated on behalf of an owner. Private customers are a mix of both aircraft types.

The pandemic accelerated the demand for business and private jets and increased the need for accessibility and higher security for social distancing. A recent large order by NetJets has been a boon for those wanting to travel using private jets, for example. While virtual calls and meetings have become more common-place, they haven't displaced in-person meetings and activities. Demand for business jets that have the range to connect continents is steadily increasing as the global economy grows.

The Longer-Term Outlook in Canada

The key long-term issue for Bombardier in Canada is whether demand will return to a normal landscape or will the luxury tax affect sales of new jets. However, Bombardier's markets are stable or growing outside of Canada and Russia. The company forecasts 150 deliveries for 2025 and adjusted its revenue objective for that year from \$7.5 billion to \$9 billion in March 2023.



Source: Bombardier

2.4 Potential Impact of the Select Luxury Items Tax

While the post-pandemic outlook for Canadian business aviation operators and aircraft manufacturers is largely positive, the recent enactment of the Select Luxury Items Tax by the federal government may hinder economic growth. Effective September 2022, the tax applies to a variety of items including the sale of Canadian produced aircraft as well as the importation of new aircraft valued at more than \$100,000.¹⁸ This introduces a competitive disadvantage for Canadian aircraft manufacturers, with added consequences to business aviation operators within Canada as well.

Although the federal Department of Finance Canada estimates only minor economic losses to the aerospace sector from the tax – annual losses of roughly 2 aircraft and between \$2 to \$4 million in GDP losses and 10 to 20 full-time jobs¹⁹ – a study circulated by the Aerospace Industries Association of Canada (AIAC) anticipates far worse consequences to the industry and, by effect, the national economy. This study estimated that if the tax resulted in the lost sales of 10 business jets in 2022, the impact would amount to roughly \$540 million in lost revenue.²⁰ Anecdotally, the CBAA has heard from just one manufacturer that it has had 18 orders for business aircraft cancelled.

The potential full-year consequences to the sector include losses to manufacturers of not only business jets but also other aircraft types, along with employment losses to the broader aerospace supply chain, business aviation operators (who may, for instance, opt to base their aircraft in the U.S. instead), and maintenance, repair, and overhaul businesses (MROs) in Canada. Across all these sub-sectors combined, the anticipated losses include at least 2,000 direct jobs with a conservative estimate of \$149 million in lost wages. These lost wages imply \$29.9 million in foregone annual income tax revenue to the federal government which would exceed the \$9 million in annual revenue expected to be collected from the Select Luxury Items Tax itself.²¹ The Canadian aerospace sector may face further financial constraints from foregone foreign direct investment (FDI) driven away by government regulation.

Beyond the impact to industry and economy, there may be unintended environment costs associated with operators retaining older and used aircraft with lower fuel efficiencies instead of buying new technologies.²²

The federal government estimates that the Select Luxury Items Tax will reduce industry sales by roughly 2 business aircraft each year. However, one manufacturer has indicated its own losses amounted to 18 business aircraft in 2022.

¹⁸ The tax applies on "the sale of new luxury vehicles and aircraft with a retail price of over \$100,000 and new vessels with a price of over \$250,000... and is calculated as the lesser of 20 per cent of the value above these price thresholds or 10 per cent of the full value." Department of Finance Canada, "A Study on the Potential Economic Impacts of the Select Luxury Items Tax Act," Mar 2023.

¹⁹ Ibid.

²⁰ Note that future full-year losses in business jet sales may be even larger than this estimate for 2022. Jacques Roy, Ph.D, Department of Logistics and Operations Management at HEC Montréal, "The Economic Impact of the Select Luxury Items Tax Act on the Canadian Aerospace Industry," November 2022.

²¹ Jacques Roy, Ph.D, Department of Logistics and Operations Management at HEC Montréal, "The Economic Impact of the Select Luxury Items Tax Act on the Canadian Aerospace Industry," November 2022.

²² Ibid.

3 Value of Business Aviation in Canada

Direct economic impact measures the employment directly associated with business aviation operations and business aircraft manufacturing in Canada. This includes employment generated at Fixed-Base Operators (FBOs), company flight departments, engineers, designers, and fabricators at manufacturing facilities. **Indirect impacts** include employment in industries that supply or provide services to the business aviation and business aircraft manufacturing industry. **Induced employment** is somewhat more complicated than indirect employment. Induced employment is employment that is generated in the general economy based on expenditures by individuals who are employed directly or indirectly, e.g., jobs in the food/beverage industry when a business jet pilot goes out for dinner with his or her family.

3.1 Economic Impact of Business Aviation Operations & Business Aircraft Manufacturing in Canada

The operations of business aviation (10,900 jobs) and business aircraft manufacturing (14,800 jobs) in Canada annually generate an estimated 25,600 direct jobs in total, with those employees earning approximately \$3.0 billion in wages and salaries. The direct employment of business aviation operations generates nearly \$1.5 billion in direct gross domestic product and \$3.7 billion in direct economic output in the nation annually, while business aircraft manufacturing contributes \$3.8 billion in direct gross domestic product (GDP) and \$8.0 billion in direct economic output to the national economy. See **Figure 3-1**.

Total impacts are the sum of the direct, indirect, and induced impacts. Including indirect and induced multiplier impacts, annual economic impacts of business aviation operations, and manufacturing in Canada estimate a total of 53,600 jobs. Total earnings of all employees amount to over \$4.8 billion in wages and salaries. The average annual salary per job is \$90,000, compared to the national average of \$60,600 (*across all industries*) per job, per annum, or roughly 48% higher than the national average. Furthermore, business aviation in Canada (including operations and manufacturing) contributes an estimated \$9.2 billion, in total GDP and \$17.9 billion in total economic output, respectively. The total economic impacts of business aviation in Canada are summarized in **Figure 3-2** and **Table 3-1**. **Figure 3-3** shows the distribution of direct employment across Canada.

Figure 3-1:
Annual Direct Economic Impact of Business Aviation Operations and Business Aircraft Manufacturing in Canada, 2022



Figure 3-23-1:
Annual Total Economic Impacts of Business Aviation Operations and Business Aircraft Manufacturing in Canada, 2022

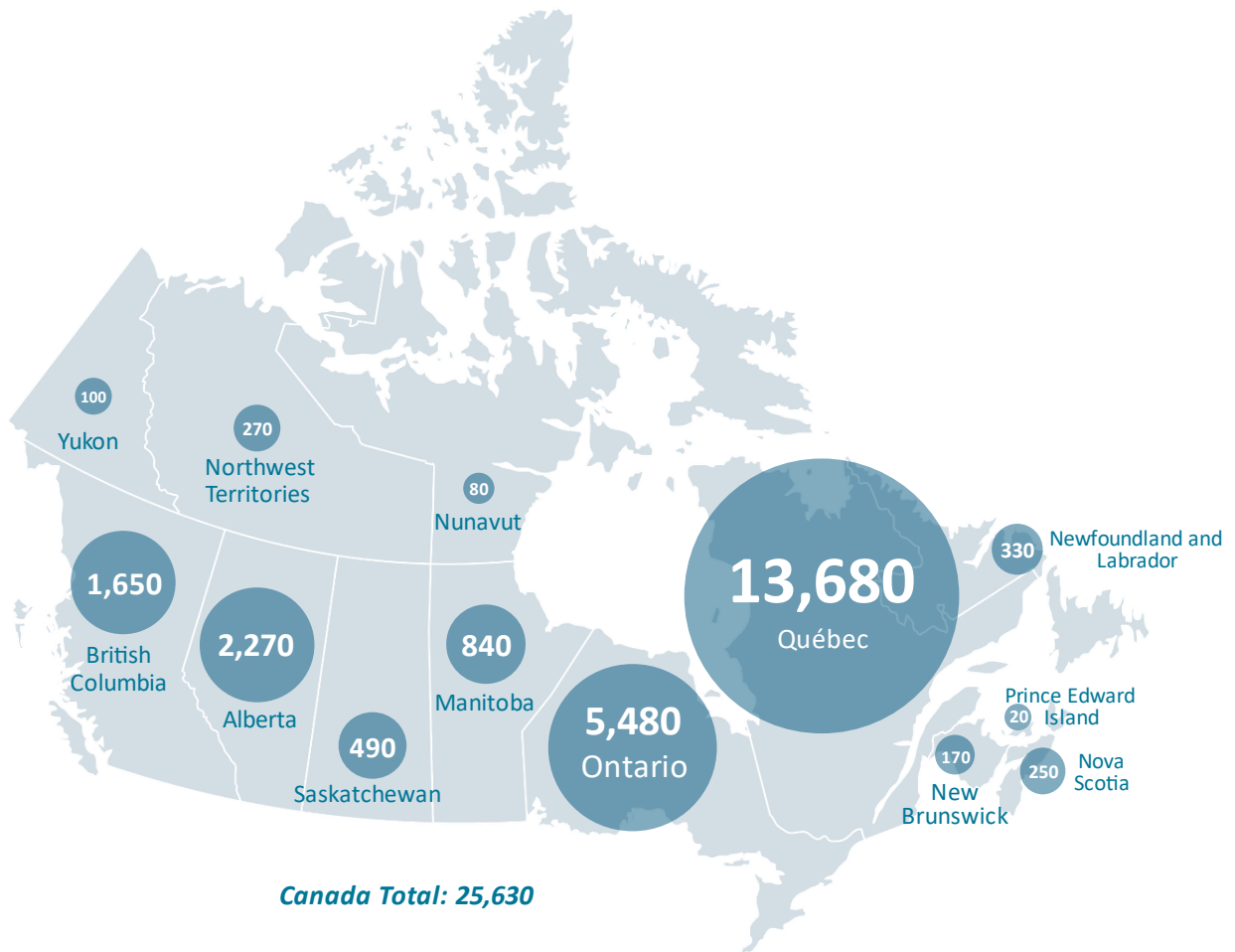


Table 3-13-1:
Annual Total Economic Impact of Business Aviation Operations and Business Aircraft Manufacturing in Canada, 2022

Impact	Employment (Jobs)	Wages (\$ Billions)	GDP (\$ Billions)	Output (\$ Billions)
Direct	25,600	\$3.0	\$5.3	\$11.7
<i>Operations</i>	10,900	\$1.2	\$1.5	\$3.7
<i>Manufacturing</i>	14,800	\$1.8	\$3.8	\$8.0
Indirect	17,100	\$1.2	\$2.4	\$4.1
<i>Operations</i>	7,800	\$0.5	\$0.9	\$1.8
<i>Manufacturing</i>	9,200	\$0.7	\$1.5	\$2.3
Induced	10,900	\$0.6	\$1.5	\$2.1
<i>Operations</i>	4,100	\$0.2	\$0.5	\$0.8
<i>Manufacturing</i>	6,800	\$0.4	\$1.0	\$1.3
Total	53,600	\$4.8	\$9.2	\$17.9
<i>Operations</i>	22,800	\$1.9	\$2.9	\$6.3
<i>Manufacturing</i>	30,800	\$2.9	\$6.3	\$11.6

Note: Figures may not add up due to rounding. Wages, GDP, and Economic Output are presented in 2022 dollars.
 Note: Direct Manufacturing GDP incorporates estimates developed for Bombardier by the PwC study on 2021 operations. (<https://bombardier.com/en/PWC-report-bombardier.pdf>)

**Figure 3-33-2:
Distribution of *Direct* Business Aviation Operations and Business Aircraft Manufacturing
Employment (Jobs), 2022**

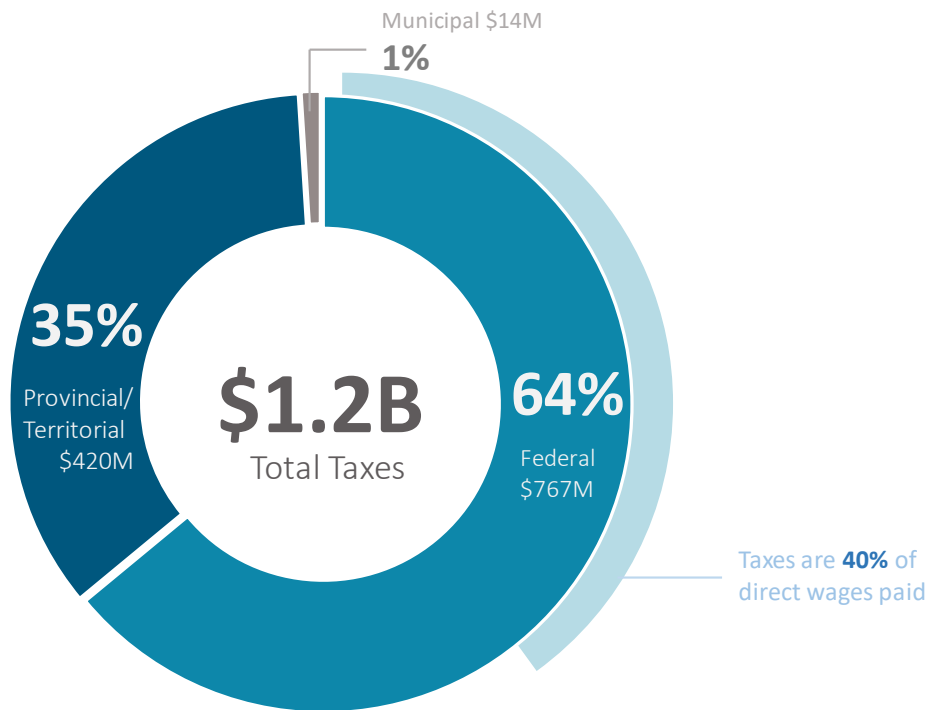


3.2 Annual Direct Tax Impacts

Business aviation operations and business aircraft manufacturing in Canada also contributes to government revenue, including revenues received by federal, provincial/territorial, and local governments. The taxes paid on an annual basis by the direct employees and employers in both sectors are estimated at \$1.2 billion per year.²³

The majority of taxes collected accrue to the federal and provincial/territorial governments at 64% and 35%, respectively. Municipal taxes are also estimated to be nearly \$14 million across Canada (1% of total taxes collected). **Figure 3-4** provides a summary of the taxes collected.

Figure 3-43-3: Breakdown of Direct Tax Revenues by Government Level, 2022



Source: InterVISTAS analysis. Figures include taxes paid by direct employees and employers including income and payroll taxes, corporate taxes, and social insurance contributions (such as the employment insurance premiums), among others. Figures do **not** include taxes on the final products made by manufacturers.

²³ Tax impacts are presented in 2022 dollars, using 2022 tax rates.

CAE

CASE STUDY

CAE is a Canadian high-technology company specializing in training and operations-support solutions and services that optimize learning to help people consistently perform their best. The company operates the largest civil aviation training network in the world. In addition to its Civil Aviation division, CAE operates in the Defence and Security and Healthcare sectors, with a combined team of more than 13,500 employees across 250 sites in 40 countries.

CAE was founded in 1947 by Mr. Ken Patrick, a former member of the Royal Canadian Air Force, to “create something Canadian and take advantage of a war-trained team that was extremely innovative and very technology-intensive”. The company grew with the help of contracts from the Canadian military before rapidly expanding to meet the high demand of commercial aviation in the 1970s. CAE used its momentum to expand globally and solidified itself as the world’s leading designer and manufacturer of civil aircraft full-flight simulators, flight training devices, visual systems, computer-based trainers, and computer-assisted training systems.

Today, in addition to its manufacturing capabilities, CAE’s Civil Aviation division operates training centres around the world and delivers immersive training for commercial and business aviation and helicopter pilots, maintenance technicians and cabin crew. CAE offers training programs and full-flight simulators for major business aircraft manufacturers including Beechcraft, Bombardier, Cessna, Dassault, Embraer, Gulfstream, Hawker, and Nextant. CAE’s hub for business aviation training in Canada is at its Montreal headquarters. The company also supports commercial pilot training for most major Canadian airlines in Montreal, Toronto, and Vancouver. The company’s St Johns, NL, base features the first civilian Level D helicopter simulator with night vision in Canada, is home to five research projects, and trains pilots to fly in and out of offshore facilities.

With over 75 years of industry firsts, CAE is an innovation powerhouse, playing a key role in the emerging eVTOL (Electric Vertical Take Off and Landing) sector and bringing operational efficiencies to airlines and business aviation operators with its suite of Flight Operations Solutions software.

CAE became the first carbon neutral aerospace company in 2020 and continues to lead the way in terms of sustainability with initiatives like the development of an electric conversion kit for its global Piper Archer training fleet to realize a potential of up to 45% reduction of its Scope 1 (fuel) emissions over the coming years.

CAE is an integral part of the global business aviation industry and uses its reach to help ensure Canada remains a key player in the sector. With specialized training programs and state-of-the art simulators, CAE trains the personnel required by industries that rely on business aviation. CAE has supported Canadian business aviation development by partnering with Bombardier and other manufacturers, and training hundreds of thousands of pilots internationally on Canadian-built aircraft.

In its 2023 [Aviation Talent Forecast](#), CAE predicts a need for 106K new business aviation professionals globally over the next two years, including 32K new pilots and 74K new maintenance technicians to ensure the vitality of the industry. To meet the growing demand for pilots, CAE opened a new training centre in Las Vegas, Nevada, the company’s first West Coast location, last March. The company will begin training later this year in a new location in Savannah, Georgia, and has announced plans to open a new business aviation training centre in Vienna Austria in 2024.

4 Economic Impact of Business Aviation Operations

4.1 Introduction

Business aviation operations across Canada support both the local economies where the aircraft are based, and the Canadian economy overall. The importance of the industry is highlighted by both the employment/wage impacts and the impacts on the greater economy (through both GDP and economic output). Economic impact analysis is a common tool used to quantify these types of impacts.

To calculate the direct impacts related to business aviation in Canada, InterVISTAS used a variety of sources to first compute the total size of the business aviation fleet in Canada, and then estimate the employment associated with operating a single business aircraft. The related employment was estimated using a piece-wise methodology, from the flight crew who work directly with the planes to the support staff at FBOs and other airport support.

A bottom-up approach was used to estimate the different types of employment associated with the operation of a single business jet.

4.2 Direct, Indirect, and Induced Employment and Wages

Every aircraft in Canada used for business purposes has associated employment to support its operations. The operation of the aircraft will require pilots, dispatchers, engineers, fueling services, and maintenance, among others. The direct employment related to business aviation will also include some support overhead labour (e.g., administrative and clerical staff). The direct impacts of business aviation are largely related to the operations and servicing of the business aircraft.

The methodology used to estimate the direct employment related to business aviation aircraft was to build the employment from the ground up by estimating the amount of employment that directly contribute to the operations and service of each aircraft. Based on data provided by the JetNet iQ database along with insights from the Helicopter Association of Canada (HAC), CBAA, and Transport Canada's Canadian Civil Aircraft Register, the volume of business aircraft in each Canadian Province and Territory was estimated. *It is estimated that there are approximately 1,500 business aircraft in Canada, of which 1,300 are fixed wing and 200 are rotary aircraft.* Next, the average employment involved in managing each of these business aircraft was derived as follows:

The estimated employment associated with the operation of one business jet was scaled up to the total universe of business jets operating in Canada to estimate the national level impacts.

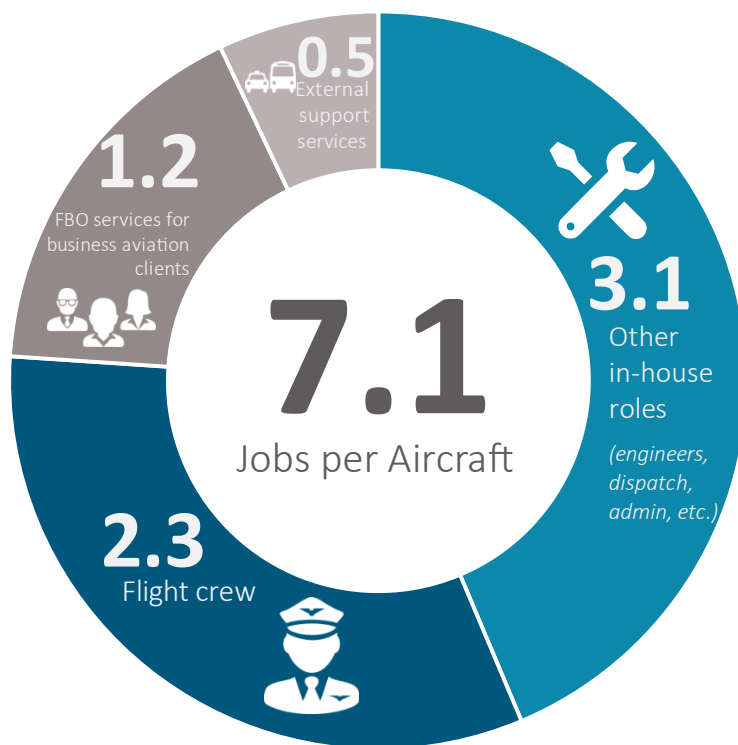
- First an estimate of the number of pilots, dispatchers, engineering, and other in-house roles by corporate operators and business aircraft charters were developed on a per business aircraft bases. This data was sourced using the 2023 CBAA Compensation Survey, which incorporated questions on corporate operators' and charter firms' business aircraft fleet and employment, supplemented by a 2016 study conducted for the Helicopter Association of Canada on the

economic footprint of the Canadian commercial helicopter industry. *Collectively, these findings estimated an average of 2.3 flight crew jobs plus 3.1 jobs in other in-house roles, per aircraft.*

- Second, using data that was collected via a survey of FBOs across Canada, we were able to gain a better understanding of the ratio of activity at FBOs related to business aviation versus other general aviation. *These findings determined that there are approximately 1.2 FBO jobs per business aircraft.*
- Finally, an estimate of other airport and related support for business aviation aircraft was also considered on a per aircraft basis. This includes airport overhead, regulatory, and other functions not already covered along with adjacent offsite services (e.g., hotel and taxi use by pilots while aircraft is away from its base). This employment ratio per business aviation aircraft is based on a review of past InterVISTAS studies as well as economic impact studies prepared by other consultants. *This results in approximately 0.5 jobs per aircraft.*
- In total, the estimated direct jobs per business aviation aircraft in Canada equals 7.1.

Figure 4-1 shows a visual representation of the direct employment associated with the operation of one business aviation aircraft.

Figure 4-1: Direct Employment per Business Aviation Aircraft, Ongoing Operations per Annum



As a result, direct employment related to business aviation in Canada amounts to approximately 10,900 jobs. These employees earn approximately \$1.2 billion in wages, yielding an annual average of \$108,100 per job. This is roughly 78% higher than the average annual wage in Canada of \$60,600 across all industries in 2022.²⁴ Employment figures are summarised in **Table 4-1** for wages as well as jobs.

Table 4-1: Direct Employment and Wages from Business Aviation Operations in Canada, 2022

Type of Impact	Employment (Jobs)	Wages (\$ Billions)
Direct Impacts	10,900	\$1.2
Indirect Impacts ²⁵	7,800	\$0.5
Induced Impacts ²⁶	4,100	\$0.2
Total Impacts	22,800	\$1.9

Source: InterVISTAS analysis using multipliers and ratios from Statistics Canada Interprovincial Input-Output Model. Totals may not sum due to rounding.

Indirect impacts include employment in industries that supply or provide services to the business aviation industry. Using employment impact multipliers, it is estimated that there are 7,800 jobs of indirect employment associated with business aviation operations in Canada. The source of the multipliers and ratios was Statistics Canada's Interprovincial Input-Output Model.²⁷ This total suggests that 7,800 jobs are indirectly generated in industries across Canada that supply the business aviation community. Labour income associated with the total indirect employment is estimated at \$0.5 billion per annum.

Indirect and induced impacts supporting business jet operations in Canada amount to 11,900 jobs.

Induced employment is somewhat more complicated than indirect employment. Induced employment is employment created because of expenditures by individuals employed both directly and indirectly by businesses directly related to Canada's business aviation industry. It represents the demand for goods and services generated by wage earnings from economic activity directly and indirectly related to business aviation in Canada. Using national employment impact multipliers, induced employment attributable to business aviation in Canada is estimated at 4,100 jobs. Induced employment is associated with wages amounting to \$0.2 billion per annum.

²⁴ Statistics Canada, Table 14-10-0204-01, Average weekly earnings by industry, annual, 2022, calculated for annual earnings.

²⁵ Multiplier impacts must be interpreted with caution since they may be illusory when the economy experiences high employment and output near industry capacity. When they are reported, it is recommended that the reader be reminded of the limitations on the use of multipliers. Mindful of these limitations, this study has undertaken multiplier analysis to estimate indirect and induced employment.

²⁶ Ibid.

²⁷ The multipliers used for the analysis are based on Statistics Canada economic multipliers and ratios from the 2019 Canada Interprovincial Input-Output Model, the most recent available. These multipliers were updated with Consumer Price Indices to account for inflation.

To put these impacts into context, the total impacts associated with business aviation in Canada are greater than some commercial airports such as Winnipeg Richardson International Airport and John C. Munro Hamilton International Airport.²⁸

4.3 GDP and Output

The direct employment from business aviation in Canada generates \$1.5 billion in direct GDP and \$3.7 billion in direct economic output in the economy. Including multiplier effects, the industry supports \$2.9 billion in total (direct, indirect, and induced) GDP and \$6.3 billion in total economic output across Canada. **Table 4-2** provides economic output and GDP impacts related to business aviation in Canada the national economy.

The two most common measures of economic contribution (in addition to employment) are *gross domestic product* (GDP) and *economic output*. Economic output roughly corresponds to the gross revenues of goods or services produced by an economic sector, while GDP measures only *value-added* revenues. As such, GDP removes the revenues to suppliers of *intermediate* goods and services and only includes the revenue from value-added production. Alternatively, economic output adds all revenues at each stage of production together as a measure of total production in the economy. Economic output will always be greater than GDP (also termed value-added).

To estimate economic output for a sector, one might add up the gross revenues of the various firms in that sector. However, to find GDP for a sector, care must be taken to avoid double-counting. The revenues of one firm providing service to another are not incremental GDP. For example, in the automobile sector, one cannot add the value (gross revenue) of a finished auto to the value of the tires. The tires are already included in the value of the automobile.

One approach to measuring economic output and value-added is to ask firms in a survey to provide information on their gross revenues, payments to suppliers, etc. However, there are several problems with the approach. First, it can be too expensive to capture all this information in a survey. Second, the double counting problem makes this approach impractical.

An alternative is to infer economic output and GDP for an economic sector from employment data using economic multipliers. Statistics Canada produces economic multipliers for Canada, and these are often more cost effective and more accurate than obtaining the data from surveys. This method, using Statistics Canada economic multipliers and ratios for Canada, is the approach adopted here.

²⁸ Sourced from airport websites.

Table 4-2: Direct and Total GDP and Economic Output from Business Aviation in Canada

Type of Impact	GDP (\$ Billions)	Economic Output (\$ Billions)
Direct Impacts	\$1.5	\$3.7
Indirect Impacts	\$0.9	\$1.8
Induced Impacts	\$0.5	\$0.8
Total Impacts	\$2.9	\$6.3

Source: InterVISTAS analysis using multipliers and ratios from Statistics Canada Interprovincial Input-Output Model

4.4 Economic Impact for Each Business Aviation Aircraft

The operation of each business aviation aircraft contributes significantly to the economy. As mentioned previously, each aircraft *directly* generates 7.1 jobs, earning approximately \$770,000 in wages. This contributes \$980,000 in *direct* GDP and \$2.4 million in *direct* economic output to the Canadian economy. Including multiplier impacts, operations of a single business aviation aircraft support labour hours for a *total* of 15.0 jobs, earning nearly \$1.3 million in wages annually. Furthermore, the *total* GDP contribution of one business aviation aircraft is estimated at \$1.9 million in GDP, while the *total economic output* is measured at nearly \$4.2 million. The direct and total economic impacts per business aviation aircraft are provided in **Figure 4-2** and **Figure 4-3**, respectively.

Figure 4-2:
Direct Economic Impacts of 1 Business Aviation Aircraft’s Ongoing Operations Per Annum

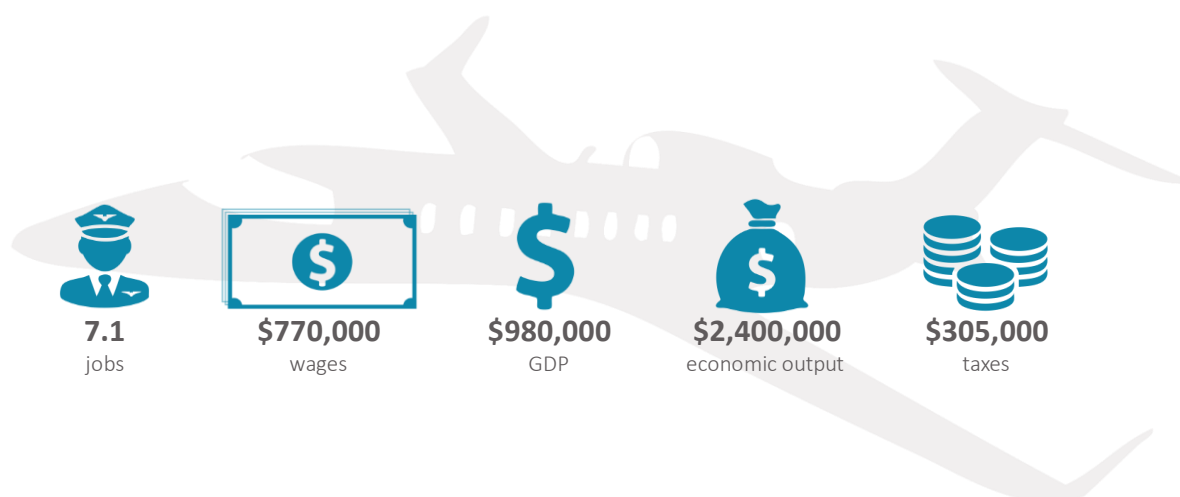
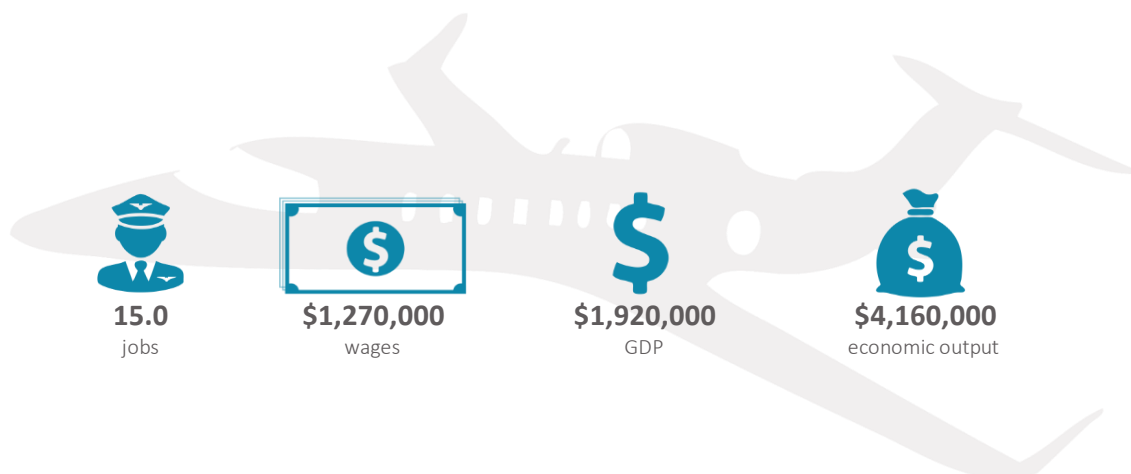


Figure 4-3:
Total Economic Impact of 1 Business Aviation Aircraft’s Ongoing Operations Per Annum



4.5 Economic Impact by Province/Territory of Business Aircraft Operations

The economic impact of business aviation is also calculated for each of the provinces/territories in Canada. **Table 4-3** provides the direct employment, wages, GDP, and economic output impacts by province/territory.

Table 4-3: Direct Employment, Wages, GDP, and Economic Output by Province/Territory

Province/Territory	Number of Based Aircraft	Employment (Jobs)	Wages (\$ Millions)	GDP (\$ Millions)	Economic Output (\$ Millions)
Ontario	423	3,160	\$340	\$410	\$1,120
Alberta	293	2,110	\$230	\$290	\$700
Québec	245	1,680	\$180	\$260	\$610
British Columbia	235	1,560	\$170	\$210	\$500
Manitoba	118	840	\$90	\$120	\$270
Saskatchewan	67	490	\$50	\$60	\$140

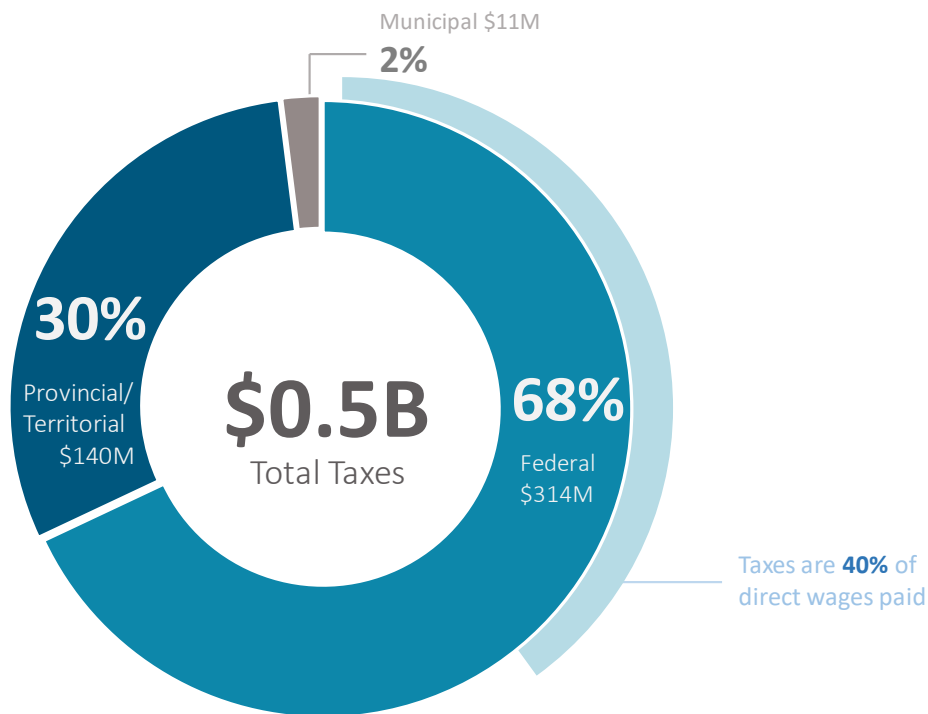
Province/Territory	Number of Based Aircraft	Employment (Jobs)	Wages (\$ Millions)	GDP (\$ Millions)	Economic Output (\$ Millions)
Northwest Territories	38	270	\$30	\$50	\$120
Newfoundland and Labrador	28	200	\$20	\$30	\$60
Nova Scotia	25	190	\$20	\$20	\$50
Yukon	15	100	\$20	\$20	\$50
New Brunswick	23	170	\$10	\$10	\$20
Nunavut	10	80	\$10	\$10	\$20
PEI	3	20	\$2	\$3	\$10
Total Canada	1,523	10,870	\$1,172	\$1,493	\$3,670

4.6 Direct Taxation Impact

Along with contributing to the greater economy, business aviation operations also contribute to government revenues via taxes. While the government does collect taxes on fuel and other operational fees, due to data availability the taxation impact calculated here focuses on the taxes paid by the direct employees and employers in the industry. An estimate of property taxes paid to municipal governments is also provided.

On-going economic activity from business aviation in Canada generated tax revenue contributions to various levels of government, estimated to be in the order of approximately \$0.5 billion. The federal government is the largest recipient of tax revenue, receiving \$0.3 billion, as seen in **Figure 4-4**. The provincial/territorial governments received a tax revenue contribution of over \$0.1 billion while the municipal governments received an estimated \$11 million.²⁹

Figure 4-4: Breakdown of Direct Tax Revenues by Government Level Associated with Business Aircraft Operations, 2022



Source: InterVISTAS analysis.

Note: Tax impacts are presented in 2022 dollars, using 2022 tax rates. Taxes paid by direct employees and employers include income and payroll taxes, corporate taxes, and social insurance contributions (such as the employment insurance premiums) among others.

²⁹ InterVISTAS' estimate based on previous airport economic impact studies.

Innotech-ExECAire Aviation Group

CASE STUDY

Innotech-ExECAire Aviation Group (IEAG) is a full-service aviation provider serving both business and commercial aviation across Canada. Their renowned leadership in the aviation industry has consistently demonstrated its commitment to elevating aviation excellence through unwavering expertise and dedication. As part of a diverse network of companies owned by IMP Group Ltd, a Halifax-based private investment company focused on global sustainable growth, and with over 3,500 experienced people delivering service, quality, and value to customers across diverse sectors, such as aerospace, aviation, healthcare, information technology, hospitality, and property development.

IEAG has set industry standards and earned the trust of clients worldwide by providing unparalleled service and solutions.

IEAG has a long history of serving Canadian aviation. In 1955, the company began as Timmins Aviation in Montreal and steadily expanded its portfolio and presence. Timmins grew to include parking, fuel, de-icing, hangarage, maintenance and pilot lounge facilities. In 1989, the IMP Group acquired Innotech Aviation, ushering in a new beginning for the company.

Today, Innotech-ExECAire offers a wide range of aviation services which include expertise in private and corporate flying specifically. Through its network of nine locations across Canada, the company's primary focus is on aircraft management services, charter services, and aircraft sales & acquisitions, FBO services through its network of 4 FBOs, and heavy maintenance and technical services. Their dedication to safety, reliability, and client satisfaction has made them a benchmark for aviation excellence.

The IMP Group is a Platinum member of Canada's Best Managed Companies and operates with their focus on 'Strength Through Diversity'. IEAG's widespread network of services, dedication to safety and excellence in operations has positioned the company as one of Canada's leaders in business aviation services.

4.7 Wider Economic Benefits or Catalytic Impact

As shown in the prior sections, business aviation is an economic generator in its own right – it takes labour and other inputs and spending to fly a corporate aircraft. However, the impact of business aviation extends beyond these measures alone. Business aviation is itself an input to companies' operations; it facilitates improved performance, success, and community engagement across many industries. These wider economic benefits are known as catalytic impacts and can materialize as follows:³⁰



TRADE

Air cargo accounts for less than 1% global trade shipments in terms of volume but over 35% in terms of value, meaning that air cargo is generally high-value and often perishable or time-sensitive relative to goods shipped by other modes. Aviation connects businesses to a range of global markets, especially high-tech and knowledge-based sectors.



LOCAL INVESTMENT

For many businesses, airport proximity is often an essential factor in determining the location of offices, manufacturing plants, and warehouses. Business aviation opens up more potential locations for operations, since businesses with their own aircraft are not beholden to cities with large commercial airports only.



PRODUCTIVITY

Business aviation offers access to more markets which enables businesses to achieve greater economies of scale and reduce unit costs. Business aviation helps companies transport their employees to multiple destinations in a single day, allows those employees to continue working while in transit, and still get home at night, thereby increasing productivity and preserving some work-life balance. This helps companies attract and retain talented employees. The aircraft can also quickly deliver equipment and specialized personnel to remote locations for repairs and maintenance in order to limit shutdown times.



ENHANCING SUPPLY CHAIN PERFORMANCE

Business aviation allows time-sensitive products to reach international gateways for distribution. It also allows sales, finance, marketing, and technology personnel to use intercontinental air services, which is particularly pertinent for companies with more dispersed and remote workforces that may not live close to commercial airports.



SUSTAINING SMALL AND REMOTE ECONOMIES

Business aviation brings business to smaller and more remote economies, which sustains local economic activity and quality of life including, for instance, providing vital connectivity for the delivery of health care. Businesses also invest in their communities through charitable and humanitarian engagement with partnerships such as Hope Air which provides free flights to medical appointments that cannot be done locally. Hope Air's corporate partners are examples of how business aviation also assists communities with health-related air transport. Business aircraft are also suited to providing a first response to natural disasters and other crises because they can operate on short notice into areas which may otherwise be inaccessible.

³⁰ Catalytic impacts can also be estimated for other modes of transport – rail, marine, road, etc.

Business Aviation Contributes to Improved Corporate Performance

According to the U.S.-based National Business Aviation Association (NBAA), the business aviation sector improves productivity and efficiency rates for business of all sizes located throughout many communities. In the U.S., approximately 45% of the companies that use business aviation have fewer than 500 employees, with 80% of their flights going to small towns and communities.³¹ Additionally, NBAA's research further indicates that:

- Business aircraft users outperform non-users by 23% in revenue growth.
- S&P 500 companies using business aviation outperform those that don't by 70%, measured by their ability to generate greater shareholder value, recover more quickly from recessions, and maintain better access to customers.
- Business aircraft flights help personnel across a variety of departments and functions in a company – not just top executives. 86% of flights carry staff in marketing, sales, technical and engineering trades, middle managers, and company customers.
- Business aviation serves the more than half of passengers on business aircraft flights who have found that their schedules could not be met efficiently using commercial airlines (even prior to the pandemic).³²



³¹ NBAA Business Aviation 2021 Factbook (<https://nbaa.org/business-aviation/nbaa-business-aviation-fact-book/>).

³² Ibid.

Aurora Jet Partners

CASE STUDY

Aurora Jet Partners (Aurora) operates, manages, maintains, charters, and brokers a variety of business aircraft within Canada. Headquartered at Edmonton International Airport, the company operates additional bases in Vancouver, Kelowna, and Toronto. Aurora's offerings prioritize a convenient, flexible, efficient, and safe experience for clients, with IS-BAO Stage 3 and Argus Platinum safety certifications. Although Aurora's workforce is based throughout Canada, the company's international network of partners allows it to provide services to clients across the globe. In the last decade, Aurora has expanded significantly, adding a base in Kelowna, building a 140,000 square foot facility at Edmonton International Airport, and purchasing a multitude of aircraft for its permanent fleet. Aurora supports business aviation through its three main branches of service: aircraft management, charter services, and aircraft brokerage.

Aircraft Management

Aurora's aircraft management service aims to handle the difficult responsibilities of owning a business aircraft so that businesses do not have to do so on their own. Aurora hires, trains, manages, books, and schedules pilots and crew. Additionally, the company arranges customs, catering, and ground transportation for traveling clients. Aurora also maintains their clients' aircraft. The company holds an AMO (Approved Maintenance Organization) designation from Transport Canada and employs in-house maintenance engineers. If a client's aircraft needs servicing anywhere away from Aurora's bases, they immediately dispatch an engineer or arrange for alternative on-site repairs. Additional aircraft management services include accounting and expense optimization, management of technical records, and hangar services.

Aurora also provides two non-traditional ways for businesses to own aircraft. First, if permitted, Aurora will sell charter flights on business aircraft when the aircraft are not otherwise being used. Revenue from these charter flights can be used to offset some costs of aircraft ownership. Second, Aurora facilitates shared ownership of aircraft between two or more businesses, which significantly reduces costs.

Charter Services

Aurora owns a diverse fleet of aircraft, including Bombardier Challenger and Global series jets and Bell 505 helicopters. These aircraft operate from each of Aurora's bases, though the company maintains connections with industry partners that offer charter services around the globe. Using this charter service, businesses can ensure convenient and safe travel for employees and clients without having to own an aircraft.

Aircraft Brokerage

Aurora facilitates business aircraft acquisitions and sales. The company matches businesses to aircraft that will best suit their needs and budget, conducts a worldwide search to find the best aircraft available, and completes regulatory work and importation documents for businesses. For businesses attempting to sell aircraft, Aurora conducts market analysis, advises on an appropriate listing price, conducts initial negotiations, assists in purchasing agreements, and delivers the aircraft to the customer.

5 Economic Impact of Business Aircraft Manufacturing in Canada

5.1 Introduction

Business aircraft manufacturing in Canada spans the nation and complements the operations associated with business aircraft which were highlighted in **Section 4**. As discussed in **Section 3**, the three major components of economic impact are direct, indirect, and induced impacts. These distinctions are used as a base for the estimation of total economic impact of an industry. Each of these three components requires different tools of analysis. Employment impact analysis determines the economic impact in terms of employment created and salaries and wages paid out. In this case, the direct, indirect, induced, and total number of jobs created from business aircraft manufacturing are examined to produce a snapshot of the industry.

Business aircraft manufacturing in Canada directly supports 14,800 jobs, earning an average wage of over \$122,000 per job.

To compute the direct impacts related to business aircraft manufacturing in Canada, InterVISTAS conducted surveys, interviews, and supplementary research on publicly available information for key business aircraft manufacturers in Canada including a study by PwC which estimated the economic impact of Bombardier's operations in 2021.³³ For manufacturers of aircraft and related equipment across a variety of uses and not just business aviation, only the estimated proportion of employment and operations related to business aircraft were used for this analysis.

Direct employment related to business aircraft manufacturing in Canada amounts to approximately 14,800 jobs. These employees earn approximately \$1.8 billion in wages, yielding an average of \$122,500 per job. This is roughly double the average annual wage in Canada of \$60,600 across all industries in 2022.³⁴ Employment figures are summarised in **Table 5-1** for wages as well as jobs.

Table 55-1: Direct Employment and Wages from Business Aircraft Manufacturing in Canada

Type of Impact	Employment (Jobs)	Wages (\$ Billions)
Direct Impacts	14,800	\$1.8
Indirect Impacts ³⁵	9,200	\$0.7
Induced Impacts ³⁶	6,800	\$0.4
Total Impacts	30,800	\$2.9

Source: InterVISTAS analysis using multipliers and ratios from Statistics Canada Interprovincial Input-Output Model.

³³ <https://bombardier.com/en/PWC-report-bombardier.pdf>

³⁴ Statistics Canada, Table 14-10-0204-01, Average weekly earnings by industry, annual, 2022, calculated for annual earnings.

³⁵ Multiplier impacts must be interpreted with caution since they may be illusory when the economy experiences high employment and output near industry capacity. When they are reported, it is recommended that the reader be reminded of the limitations on the use of multipliers. Mindful of these limitations, this study has undertaken multiplier analysis to estimate indirect and induced employment.

³⁶ Ibid.

Indirect impacts include employment in industries that supply or provide services to the business aircraft manufacturing industry. Using employment impact multipliers, it is estimated that there are 9,200 indirect jobs associated with business aircraft manufacturing in Canada. The source of the multipliers and ratios was Statistics Canada's Interprovincial Input-Output Model.³⁷ This total suggests that 9,200 jobs are indirectly generated in industries across Canada that supply the business aircraft manufacturing sector. Labour income associated with this indirect employment is estimated at \$0.7 billion per annum.

Induced employment is somewhat more complicated than indirect employment. Induced employment is employment created because of expenditures by individuals employed both directly and indirectly by businesses directly related to Canada's business aircraft manufacturing industry. Induced impacts are often referred to as the "household spending" effect. It represents the demand for goods and services generated by wage earnings from economic activity directly and indirectly related to business aircraft manufacturing in Canada. Using employment impact multipliers, induced employment attributable to business aircraft manufacturing in Canada is estimated at 6,800 jobs. Induced employment is associated with wages amounting to \$0.4 billion per annum.

5.2 GDP and Output

The business aircraft manufacturing activities in Canada generate \$3.8 billion in direct GDP and \$8.0 billion in direct economic output in the economy. Including multiplier effects, the industry supports \$6.3 billion in total (direct, indirect, and induced) GDP and \$11.6 billion in total economic output in Canada. **Table 5-2** provides economic output and GDP impacts related to business aircraft manufacturing in Canada.

Table 5-2:
Direct and Total GDP and Economic Output from Business Aircraft Manufacturing in Canada

Type of Impact	GDP (\$ Billions)	Economic Output (\$ Billions)
Direct Impacts	\$3.8	\$8.0
Indirect Impacts	\$1.5	\$2.3
Induced Impacts	\$1.0	\$1.3
Total Impacts	\$6.3	\$11.6

Source: InterVISTAS analysis using multipliers and ratios from Statistics Canada Interprovincial Input-Output Model.

Note: Direct GDP incorporates estimates developed for Bombardier by the PwC study on 2021 operations.

(<https://bombardier.com/en/PWC-report-bombardier.pdf>)

³⁷ The multipliers used for the analysis are based on Statistics Canada economic multipliers and ratios from the 2019 Canada Interprovincial Input-Output Model, the most recent available. These multipliers were updated with Consumer Price Indices to account for inflation.

5.3 Economic Impacts by Province or Region

The economic impact of business aircraft manufacturing is further broken down for each province or applicable region in Canada. **Table 5-3** provides the direct employment, wages, GDP, and economic output impacts by province or region.

Table 5-3: Direct Employment, Wages, GDP, and Economic Output by Province or Region

Province/Territory	Employment (Jobs)	Wages (\$ Millions)	GDP (\$ Millions)	Economic Output (\$ Millions)
Québec	12,000	\$1,480	\$3,110	\$6,820
Ontario	2,320	\$280	\$650	\$1,010
Western Canada	250	\$30	\$40	\$100
Atlantic Provinces	190	\$20	\$20	\$50
Total Canada	14,760	\$1,810	\$3,820	\$7,980

Source: InterVISTAS analysis using multipliers and ratios from Statistics Canada Interprovincial Input-Output Model.

Note: Direct GDP incorporates estimates developed for Bombardier by the PwC study on 2021 operations.

(<https://bombardier.com/en/PWC-report-bombardier.pdf>)

5.4 Direct Taxation Impact

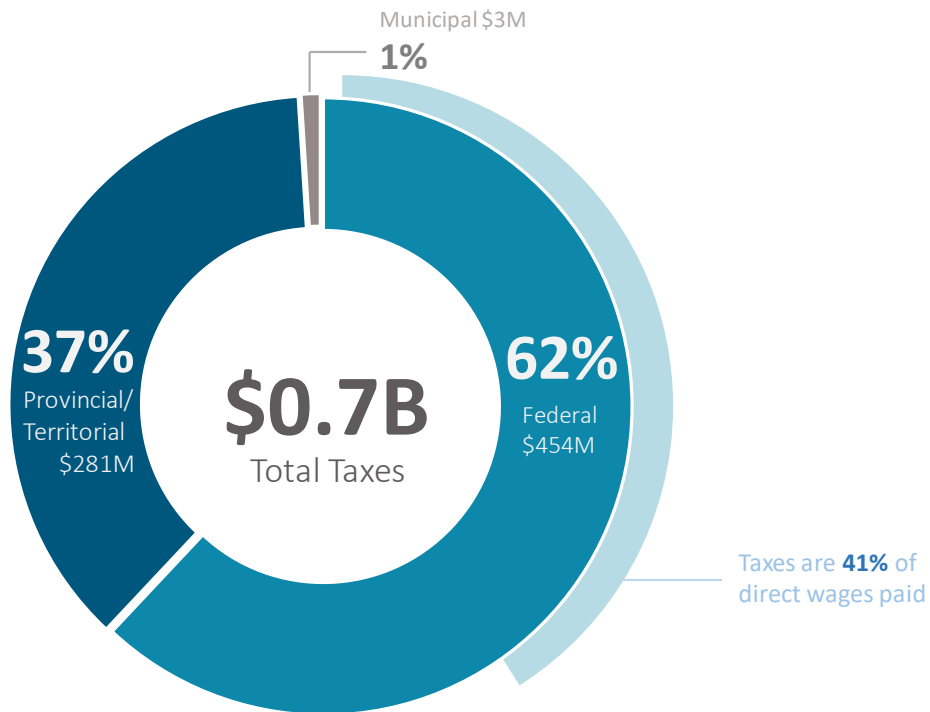
Along with contributing to the greater economy, business aircraft manufacturing also contributes to government revenues via taxes. While the government does collect taxes on the aircraft and other products sold as well as operational fees, due to data availability the taxation impact calculated here focuses on the taxes paid by direct employees and employers in the industry. An estimate of property taxes paid to municipal governments is also provided based on publicly available data for business' properties.

On-going economic activity from business aircraft manufacturing in Canada generated tax revenue contributions to various levels of government, estimated to be in the order of \$0.7 billion.³⁸ The federal government is the largest recipient of tax revenue, receiving nearly \$454 million. The provincial/territorial governments received a tax revenue contribution of nearly \$281 million while the municipal governments received an estimated \$3 million.³⁹ **Figure 5-1** shows the relative share of estimated taxes received by government level.

³⁸ Tax impacts are presented in 2022 dollars, using 2022 tax rates.

³⁹ InterVISTAS' estimate based on previous airport economic impact studies.

Figure 5-1: Breakdown of Direct Tax Revenues by Government Level Associated with Business Aircraft Manufacturing, 2022



Source: InterVISTAS analysis.

Note: Tax impacts are presented in 2022 dollars, using 2022 tax rates. Taxes paid by direct employees and employers include income and payroll taxes, corporate taxes, and social insurance contributions (such as the employment insurance premiums) among others. Municipal taxes include publicly available data on property taxes for business properties. Figures do **not** include taxes on the final products made by manufacturers.

6 Summary

The direct business aviation employment from operations and manufacturing combined produce \$5.3 billion in direct GDP and \$11.7 billion in direct economic output each year, as shown in **Table 6-1**. The majority (75%) of direct employment is situated in Québec and Ontario that reflects the strong base of business aircraft manufacturing and business aviation operations activity in Canada.

Table 6-1:
Annual Total Economic Impacts of Business Aviation Operations and Business Aircraft Manufacturing in Canada, 2022

Impact	Employment (Jobs)	Wages (\$ Billions)	GDP (\$ Billions)	Output (\$ Billions)
Direct	25,600	\$3.0	\$5.3	\$11.7
<i>Operations</i>	10,900	\$1.2	\$1.5	\$3.7
<i>Manufacturing</i>	14,800	\$1.8	\$3.8	\$8.0
Indirect	17,100	\$1.2	\$2.4	\$4.1
<i>Operations</i>	7,800	\$0.5	\$0.9	\$1.8
<i>Manufacturing</i>	9,200	\$0.7	\$1.5	\$2.3
Induced	10,900	\$0.6	\$1.5	\$2.1
<i>Operations</i>	4,100	\$0.2	\$0.5	\$0.8
<i>Manufacturing</i>	6,800	\$0.4	\$1.0	\$1.3
Total	53,600	\$4.8	\$9.2	\$17.9
<i>Operations</i>	22,800	\$1.9	\$2.9	\$6.3
<i>Manufacturing</i>	30,800	\$2.9	\$6.3	\$11.6

Note: Dollar figures are presented in 2022 dollars. Totals may not sum due to rounding.

Note: Direct Manufacturing GDP incorporates estimates developed for Bombardier by the PwC study on 2021 operations. (<https://bombardier.com/en/PWC-report-bombardier.pdf>)

Business aviation operations and business aircraft manufacturing are estimated to support \$1.2 billion in direct taxes to all levels of government.

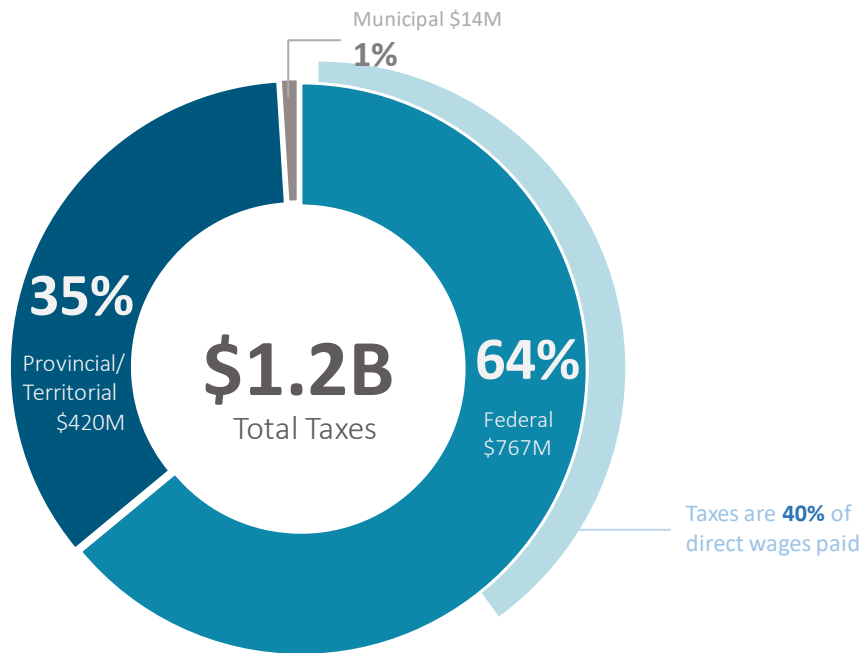
Annual Direct Tax Impacts

Business aviation operations and business aircraft manufacturing in Canada also contribute to government revenue that is received by the federal, provincial/territorial, and local governments. Direct taxes paid on an annual basis are estimated at \$1.2 billion in 2022.⁴⁰

The majority of taxes collected accrue to the federal and provincial/territorial governments at 64% and 35%, respectively. Municipal taxes are also estimated to be nearly

\$14 million across Canada (1% of total taxes collected). **Figure 6-1** provides a summary of the taxes collected.

Figure 6-1: Breakdown of Direct Tax Revenues by Government Level



Note: InterVISTAS analysis. Figures include taxes paid by direct employees and employers including income and payroll taxes, corporate taxes, and social insurance contributions (such as the employment insurance premiums), among others. Figures do **not** include taxes on the final products made by manufacturers.

⁴⁰ Tax impacts are presented in 2022 dollars and based on 2022 tax rates.

Glossary of Terms

Contract Work: Any work which is done for a company by an individual who is not on the payroll or work done for a company by another company. Generally speaking, firms will contract out work in areas in which they do not have expertise or when there are cost advantages to doing so.

Direct Employment: Direct employment is employment that can be directly attributable to the operations in an industry, firm, etc. It is literally a head count of those people who work in a sector of the economy. In the case of the aircraft manufacturing, all of those people who work in the development and build of an business jet would be considered direct employment.

Economic Activity: (also Output, Production) The end product of transforming inputs into goods. The end product does not necessarily have to be a tangible good (for example, knowledge), nor does it have to create utility (for example, pollution). Or, more generally, the process of transforming the factors of production into goods and services desired for consumption.

Economic Output: (also Economic Activity, Production) The end product of transforming inputs into goods. The end product does not necessarily have to be a tangible good (for example, knowledge), nor does it have to create utility (for example, pollution). Or, more generally, it is defined as the process of transforming the factors of production into goods and services desired for consumption.

Employment Impact: Employment impact analysis determines the economic impact of employment in terms of jobs created and salaries and wages paid out. In the case of FBOs, the direct, indirect, induced, and total number of jobs created at the FBO is examined to produce a snapshot of its operations.

Gross Domestic Product: (GDP, also value-added) A measure of the money value of final goods and services produced as a result of economic activity in the nation. This measure is net of the value of intermediate goods and services used up to produce the final goods and services.

Indirect Employment: Indirect employment is employment which results because of direct employment. For the FBO, it would include that portion of employment in supplier industries which are dependent on sales to the air transport sector. In some cases, contract work would be considered indirect employment.

Induced Employment: Induced employment is employment created because of expenditures by direct and indirect employees.

Multiplier Analysis: Analysis using economic multipliers in which indirect and induced economic impacts is quantified. Essentially, a multiplier number is applied to the "directly traceable economic impact" to produce indirect, induced, and total effects (see Multiplier.)

Multiplier: Economic multipliers are used to infer indirect and induced effects from a particular sector of the economy. They come in a variety of forms and differ in definition and application. A multiplier is a number which would be multiplied by direct effects in order to calculate indirect or induced effects. In the case of the airport, as in many other cases, multipliers can lead to illusory results.

Value-Added: (also GDP) A measure of the money value of final goods and services produced as a result of economic activity in the nation. This measure is net of the value of intermediate goods and services used up to produce the final goods and service.



Prepared by

InterVISTAS Consulting Inc.

450 Southwest Marine Drive
18th Floor
Vancouver, BC V5X 0C3

Telephone: +1-604-717-1800
www.intervistas.com