ST JOHN'S INTERNATIONAL AIRPORT

Economic Impact Study 2017

Prepared for St John's International Airport Authority
Prepared by InterVISTAS Consulting Inc.
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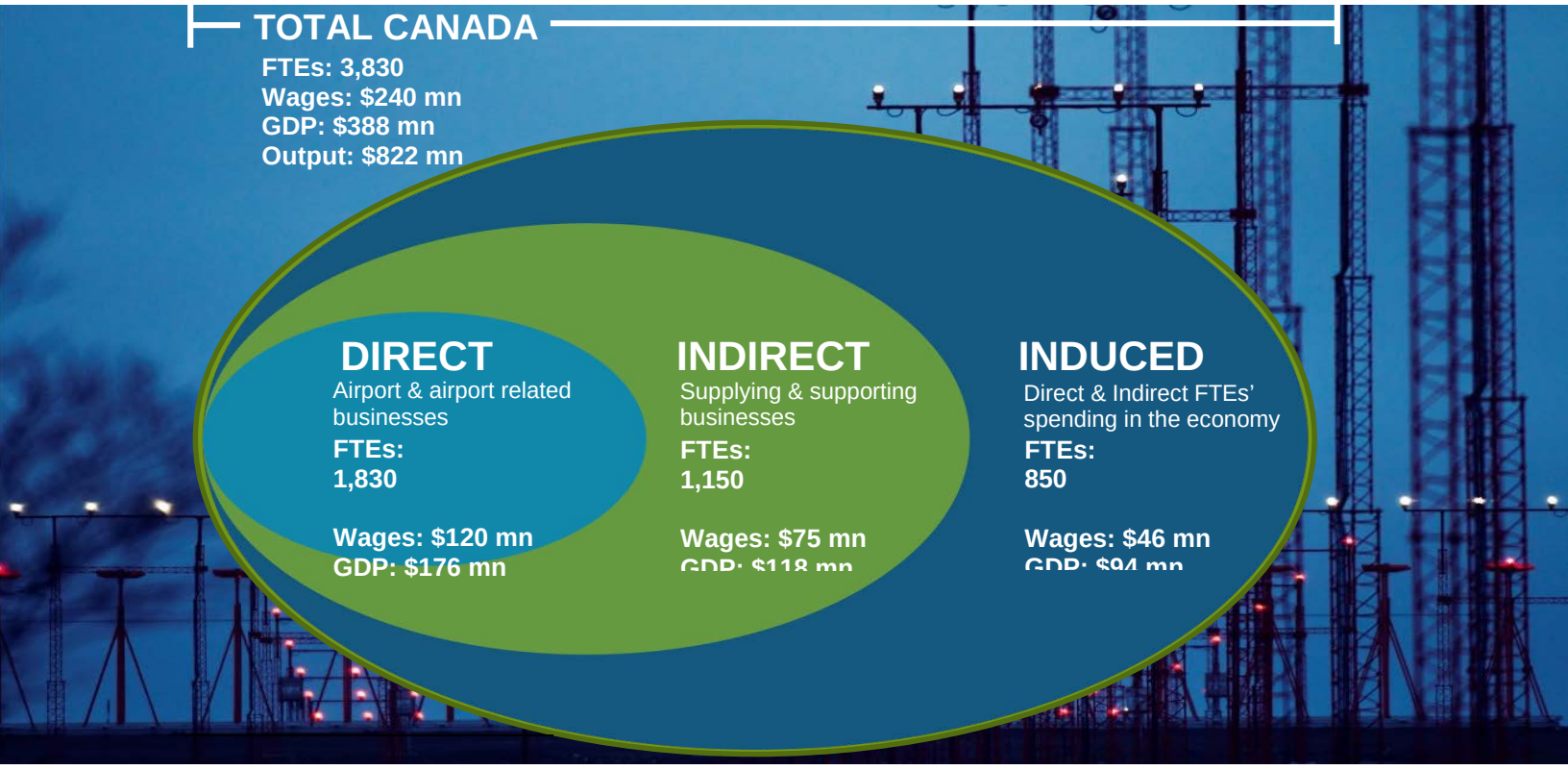
Executive Summary

St. John's International Airport plays an integral role in both supplying and facilitating economic prosperity in the province of Newfoundland and Labrador. This study examines the current economic impacts generated from the airport's operations and development activities, based on a review of the business in 2016. Aviation is a major economic generator and airports play a significant role within the industry. Air transportation also facilitates the business of other sectors of the economy. The industry facilitates employment and economic development in the national economy through a number of mechanisms, including trade in goods and services, investment, tourism and productivity.

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. In this case, economic impact refers to the economic contribution associated with the ongoing activities of St. John's International Airport. The three key components of economic impact are classified as *direct, indirect and induced impacts*. Together, they provide a snapshot of how the business of the airport impacts the broader economy at a local, provincial and/or national level.

St. John's International Airport Authority is a significant employer for the city and an important facilitator of economic development. A portion of its economic importance is reflected in the estimated 3,830 total full-time equivalents (FTEs)[1] of employment that is supported or facilitated by the airport and the $388 million and $822 million contributed to Canada's Gross Domestic Product (GDP) and economic output, respectively.



[1] FTE = full-time equivalent of employment. For purposes of this study, one full-time equivalent of employment corresponds to 1,832 hours of work annually.

Ongoing Economic Impact

The current economic impact of St. John's International Airport includes the impact related to the airport's ongoing operations, summarized in **Figure ES-1**.

Economic impact can be measured in a number of ways including:

- Employment (FTEs);
- Wages;
- Gross Domestic Product (GDP); and
- Economic output.

Direct economic impact measures the impact factors directly associated with the airport. This includes employment of all tenants located at St. John's International Airport. The *direct* impacts of St. John's International Airport in 2016 are estimated to be 1,830 *direct* FTEs or person years of employment, earning approximately $120 million in *direct* wages. Direct employment generates $176 million in *direct* GDP and $393 million in *direct* economic output annually.

Total impacts to the national economy are calculated by adding together the *direct, indirect* and *induced* impacts. Including indirect and induced multiplier impacts, current economic impacts of St. John's International Airport include a *total* of 3,830 FTEs in Canada. *Total Canada* income of all employees amounts to $240 million in wages. Furthermore, St. John's International Airport operations contribute an estimated $388 million and $822 million in *total* GDP and *total* economic output, respectively, to the national economy.

Ongoing Economic Impacts of St. John's International Airport Operations

Annual Direct Impacts:

- **1,830** FTEs or person years of employment
- **$120** million in wages
- **$176** million in gross domestic product (GDP)
- **$393** million in economic output

Annual Total Canada Impacts:

- **3,830** FTEs or person years of employment
- **$240** million in wages
- **$388** million in GDP
- **$822** million in economic output

2016 direct employment figures are higher than the figures from the study for 2009 operations.[2] Direct FTEs from ongoing operations rose over 21%, from about 1,510 to 1,830, between 2009 and 2016. **Figure ES-2** summarizes employment growth between 2009 and 2016.

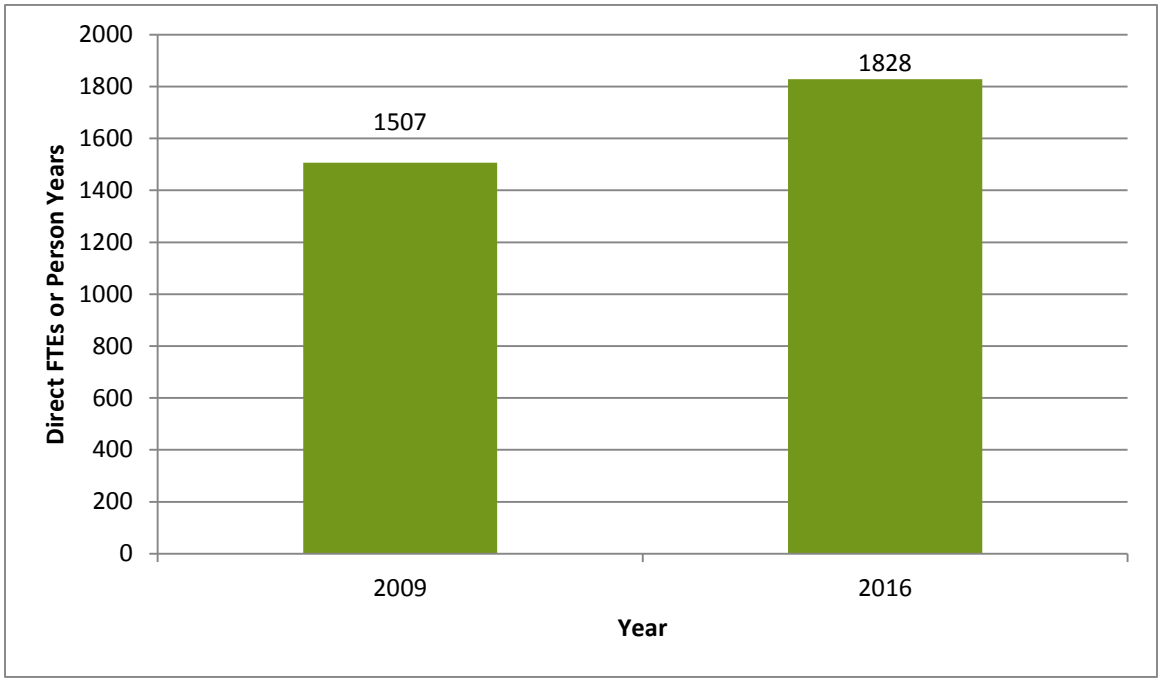
[2] The 2009 study was completed in 2011 by Strategic Concepts Inc. and Wade Locke.

Figure ES-1:
Annual Total Ongoing Economic Impact of St. John's International Airport Operations, 2016

Impact	Employment		Wages ($ Millions)	GDP ($ Millions)	Output ($ Millions)
	Jobs	FTEs (or Person Years)			
Provincial Impacts					
Direct	1,950	1,830	$120	$176	$393
Indirect	620	580	$39	$59	$139
Induced	430	410	$21	$48	$76
Total NL	*3,000*	*2,820*	*$180*	*$283*	*$608*
Rest of Canada Impacts					
Indirect	610	570	$36	$59	$126
Induced	460	440	$24	$46	$88
Total Rest of Canada	*1,070*	*1,010*	*$60*	*$105*	*$214*
Total Canada	**4,070**	**3,830**	**$240**	**$388**	**$822**

Note: Employment figures (Jobs and FTEs) are rounded to the nearest ten. Dollar figures (wages, GDP and output) are rounded to the nearest million.

Figure ES-2:
Direct Employment Levels from Ongoing Operations at St. John's International Airport, 2009 vs. 2016



Source: The 2009 study was completed in 2011 by Strategic Concepts Inc. and Wade Locke. The 2016 figure is from Inter*VISTAS* Consulting analysis.

Annual Tax Contributions

Ongoing operations at St. John's International Airport contribute to government revenue, including revenues received by federal, provincial and local governments. Total taxes paid on an annual basis, by airport employers and employees as well as passengers, are estimated at nearly $82 million per year.

The majority of taxes accrue to the federal government at 57% overall, while the provincial government receives 41% of the tax revenue generated by St. John's International Airport. The municipal government also benefits from the airport through the collection of property taxes amounting to nearly $2 million paid by St. John's International Airport and its tenants.

Figure ES-3 provides a summary of the taxes collected.

Annual Tax Impacts of St. John's International Airport

Total:

- $82 million

Federal Government:

- $47 million (57%)

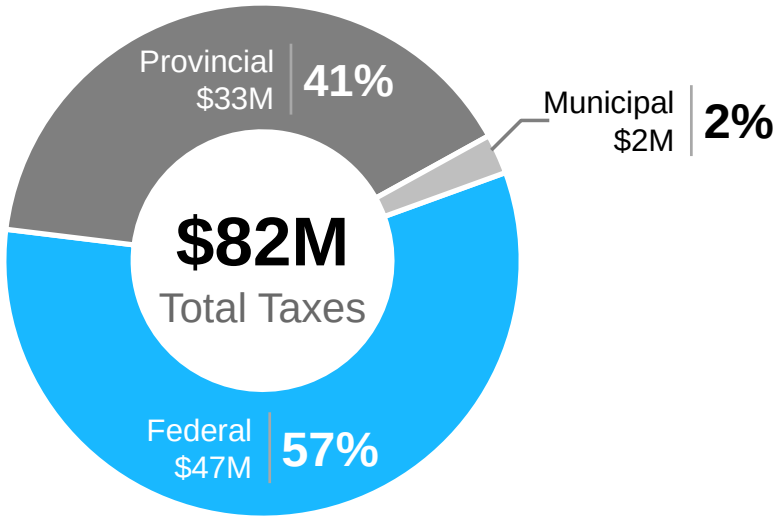
Provincial Government:

- $33 million (41%)

Municipal Government:

- $2 million (2%)

Figure ES-3: Estimated Annual Tax Revenues from St. John's International Airport, Ongoing Operations (2016)



Source: St. John's Airport (stjohnsairport.com)

Economic Impact of Non-Local Tourism Spending by *Air Travellers*

The estimate of the direct economic impact of non-local visitor spending in the city of St. John's is based on the amount of spending in the regional St. John's economy by same-day and overnight visitors that travelled to the area by air only. In order to avoid double-counting of impacts with the air transportation impacts, only the direct impacts are presented.

Non-local visitor spending in the St. John's area is based on statistics available that is collected by the Department of Business, Tourism, Culture and Rural Development of the Government of Newfoundland and Labrador. An extensive survey that began in 2003 has continued on a 5 year cycle, with the 2011 survey being the most recent one available at the time of this study.

In 2016, it was estimated that non-local visitors that travelled by air to St. John's spent approximately $185 million in the local area. The economic impact of non-local visitor spending, that travelled by air, to the St. John's area region is based on the expenditures made by visitors on accommodation, food and beverage, retail, and ground transportation. The $185 million in visitor spending generates roughly 1,740 FTEs of employment locally. See **Figure ES-4**.

Figure ES-4:
Direct Economic Impact of Non-Local Air Visitor Spending in the St. John's Area

Impact	Employment (FTEs or Person Years)	Wages ($ Millions)	GDP ($ Millions)	Output ($ Millions)
Direct	1,740	$65	$93	$185

Note: Employment figures (FTEs) are rounded to the nearest ten. Dollar figures (wages, GDP and output) are rounded to the nearest million. Only direct impacts of air visitor spending impacts are provided, to mitigate double-counting of potential impacts with air transportation.

Economic Impact of Capital Expenditures at St. John's International Airport

There are also economic impacts associated with the airport's capital expenditure program. The economic impact of capital development is considered separate from ongoing operations because capital spending can vary significantly over time and on a project-by-project basis.

Based on our survey of SJIAA, a total of $35 million in capital expenditures was incurred in 2016, with a total of $179 million in capital expenditures projected between 2017 and 2025. The 2016 capital budget was spent on a number of key projects such as terminal expansions, new roadways and parking facilities. Future capital spending between 2017 and 2025 will be directed towards continued terminal expansions, airside maintenance, fleet replacement and baggage-related equipment upgrades.

Projected Capital Expenditure Economic Impacts (2016-2025)

10-Year Capital Expenditure:

- Projected $214 million

10-Year Direct Impacts:

- 810 FTEs or Person Years
- $53 million in wages

Using economic multipliers, the economic impact of these capital expenditures can be estimated. Based on the analysis, St. John's International Airport capital expenditures in 2016 generated approximately 130 *direct* FTEs or person years of employment and $9 million in *direct* wages, as shown in **Figure ES-5**. The projected economic impact of the airport's capital expenditures from 2017 to 2025 is summarized in **Figure ES-6**.

Figure ES-5: Total Economic Impact of Capital Expenditure at St. John's International Airport, 2016

Impact	Employment (FTEs or Person Years)	Wages ($ Millions)	GDP ($ Millions)	Output ($ Millions)
Provincial Impacts				
Direct	130	$9	$11	$35
Indirect	60	$4	$6	$10
Induced	30	$2	$3	$5
Total NL	*220*	*$15*	*$20*	*$50*

Impact	Employment (FTEs or Person Years)	Wages ($ Millions)	GDP ($ Millions)	Output ($ Millions)
Rest of Canada Impacts				
Indirect	80	$5	$8	$17
Induced	40	$2	$5	$9
Total Rest of Canada	*120*	*$7*	*$13*	*$26*
Total Canada	***340***	***$22***	***$33***	***$76***

Note: Employment figures (FTEs) are rounded to the nearest ten. Dollar figures (wages, GDP and output) are rounded to the nearest million.

Figure ES-6: Total Economic Impact of Capital Expenditure at St. John's International Airport, 2017-2025 Projection

Impact	Employment (FTEs or Person Years)	Wages ($ Millions)	GDP ($ Millions)	Output ($ Millions)
Provincial Impacts				
Direct	680	$44	$55	$179
Indirect	280	$19	$29	$51
Induced	150	$8	$18	$28
Total NL	*1,110*	*$71*	*$102*	*$258*
Rest of Canada Impacts				
Indirect	430	$27	$43	$88
Induced	220	$12	$23	$44
Total Rest of Canada	*650*	*$39*	*$66*	*$132*
Total Canada	***1,760***	***$110***	***$168***	***$390***

Note: Employment figures (FTEs) are rounded to the nearest ten. Dollar figures (wages, GDP and output) are rounded to the nearest million.

Wider Economic Benefits

Beyond the direct, indirect, and induced economic impacts noted earlier, the air service provided by St. John's International Airport creates wider economic benefits to the region which can be more difficult to assess. These "catalytic effects" of air transport contribute in other ways to a local or regional economy. They are important, beneficial economic events or activities that occur in an area as a result of the presence of the airport or a particular type of air service. Catalytic effects from St. John's International Airport include facilitating local trade and investment and generally enhancing the productivity of other business sectors in the economy.

Contents

1 Introduction

St. John's International Airport (YYT) commissioned Inter*VISTAS* Consulting Inc. to conduct an economic impact study of its current operations on Newfoundland and Labrador. This study represents an update to a study that was conducted in 2011.[3]

Airports make substantial contributions to regional economies. They facilitate the movement of people, goods, and services throughout the nation and the world, allowing the economy to operate more efficiently. Airports provide vital links to economic opportunities locally and abroad. Aviation is also critical for local and regional tourism. Air transportation is a major means of bringing in tourists and their related spending on food, hotel, entertainment, and other items. Airports are also centers of significant economic activity themselves, as the locus of activity directly associated with passenger and cargo air travel. Given the geographical features of St. John's, located on the east coast of an island with limited efficient transportation options, each of these factors is particularly evident in the case of St. John's International Airport.

Economic impact studies are an important tool in communicating the significance and role of an airport to the community. St. John's International Airport enjoys continued growth and development, with passenger traffic growing by nearly 30% within the past seven years (CAGR of 3.6%). This study examines the current economic impacts of St. John's operations, while also noting the wider economic benefits provided by the airport that cannot be easily quantified. Beyond the direct, indirect and induced economic impacts presented in this study, St. John's International Airport also contributes other positive effects to the region including facilitating local trade and investment and enhancing the productivity of other business sectors.

[3] The 2011 study was conducted by Strategic Concepts and Wade Locke, which was based on 2009 operations.

1.1 St. John's International Airport[4]

Located less than six kilometres outside of the provincial capital (and its namesake city), St. John's International Airport serves as Canada's easternmost airport-of-entry. The property was originally established in 1941 as a World War II airbase for Canadian, British and U.S. military forces until its transformation into a civilian operation in 1946. The airport was transferred from Transport Canada in 1998 to St. John's International Airport Authority (SJIAA), a non-profit corporation that continues to manage St. John's operations and development.

Today, the airport ranks among one of the top 15 largest Canadian airports by passenger traffic levels.[5] In addition, St. John's serves as the main commercial air service provider in Newfoundland and Labrador, accounting for approximately 70% of all non-resident passenger air traffic to and from the province.[6] To better accommodate St. John's leading role in local and regional air transportation, SJIAA is currently implementing a 10-year development plan (2016-2025) that includes a $214 million capital investment in terminal expansions, new airfield technology and other improvements.

1.2 Passenger Traffic

Figure 1-1 illustrates passenger traffic at St. John's International Airport from 2005 to 2016. Passenger traffic remained stable between 2005 and 2009, at around 1.2 million enplaned/deplaned passengers. From 2009 to 2014, St. John's International Airport saw steady annual increases in passenger traffic, culminating in growth from 1.2 million to nearly 1.6 million; however, passenger traffic fell by approximately 72,000 passengers in 2015 and may have been the result of a variety of factors including low oil prices impacting the mobile workforce, as well as fewer convention travellers (the City's convention centre was closed for expansion construction).[7] Traffic numbers have since started recovering in 2016, surpassing 2015 totals and reaching nearly 1.6 million. Overall, passenger traffic has more than doubled since SJIAA began management of the airport in 1998, and the airport is expanding its Terminal Building to accommodate two million passengers anticipated by 2023.

Figure 1-2 shows the total number of aircraft movements from 2006 to 2016. The peak in passenger traffic during 2014 is reflected similarly by total aircraft movements in the same year. Aircraft movements have since recovered from a low of 35,000 in 2009, showing an overall growth of over 20% between 2009 and 2016 and now surpassing the totals that existed prior to the global financial crisis.

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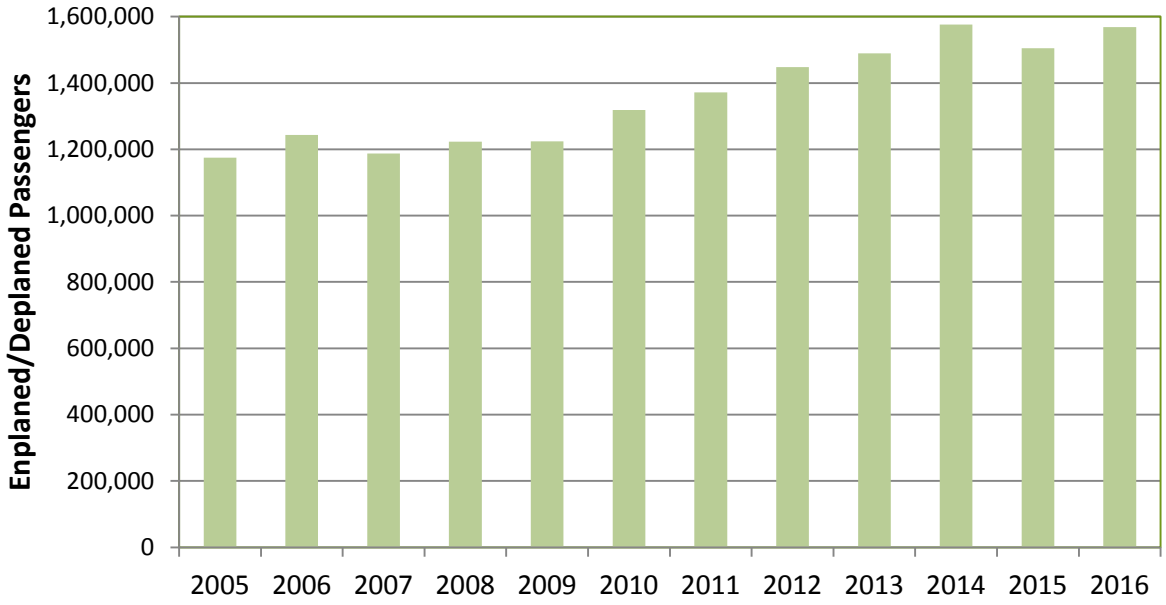
[4] St. John's International Airport, "About Us." (http://stjohnsairport.com/about/)

[5] Statistics Canada, CANSIM Table 401-0044 – Air passenger traffic and flights. Ranking refers to 2015 traffic levels. (http://www5.statcan.gc.ca/cansim/a47)

[6] Government of Newfoundland and Labrador, Economic Research and Analysis Division, "St. John's International Airport." (http://economics.gov.nl.ca/E2014/Airport.pdf); St. John's International Airport, "About Us." (http://stjohnsairport.com/about/)

[7] SJIAA 2015 Annual Report, "Message from our Chair and CEO". (http://stjohnsairport.com/about/corporate-information/annual-reports/)

Figure 1-1:
Total Enplaned/Deplaned Passenger Traffic at St. John's International Airport, 2005 – 2016



Source: St. John's International Airport Authority

Figure 1-2: Total Aircraft Movements at St. John's International Airport, 2006 – 2016

Source: St. John's International Airport Authority

1.3 Local and Provincial Industry and Economy

St. John's International Airport is located less than ten kilometres away from the core of St. John's, the capital city of Newfoundland and Labrador. As a "downtown airport" responsible for servicing the province's most populous city as well as most of the province's air travelers, St. John's International Airport serves as a gateway that facilitates economic growth and development for the St. John's region, and Newfoundland and Labrador as a whole.

St. John's, the second largest city in Atlantic Canada by population, is an economic hub for the region. The city is the support center for Canada's offshore petroleum industry and is a leader in ocean technology.[8] This vibrant city has seen significant growth in the tourism and convention business sector, supported by a strong tourism marketing campaign and an expansion in the number of hotels and convention facilities in recent years.

St. John's

- ***City of St. John's***
- Population (2011 Census): 106,000
- Average household total income: $78,000

- ***St. John's CMA***
- Population (2011 Census): 197,000
- Average household total income: $82,000

Source: Statistics Canada; City of St. John's – 2015 State of the Economy

The St. John's CMA comprises a significant portion of the entire population in Newfoundland and Labrador, the second smallest province in Canada with just over 500,000 residents as of July 2016 (CAGR of 0.2% over the last four years).[9] In 2015, Newfoundland and Labrador's real GDP was approximately $27.3 billion.[10] St. John's International Airport plays an integral role in serving the community's residents and visitors.

[8] City of St. John's. (http://www.stjohns.ca/doing-business/economy-and-statistics/strategic-sectors)
[9] Statistics Canada, "Population by year, by province and territory", 2016. (http://www.statcan.gc.ca/tables-tableaux/sum-som/l01/cst01/demo02a-eng.htm)
[10] Statistics Canada. "Real gross domestic product, expenditure-based, by province and territory", 2015 (http://www.statcan.gc.ca/tables-tableaux/sum-som/l01/cst01/econ50-eng.htm)
(http://www.gov.mb.ca/jec/invest/busfacts/economy/gdp_1.html), 2014.

1.4 What is Economic Impact?

Economic impact is a measure of the spending and employment associated with a particular source such as a sector of the economy, a specific project (e.g. the construction of new infrastructure), or a change in government policy or regulation. In this case, economic impact refers to the economic contribution associated with the ongoing operations and activities of St. John's International Airport.

Economic impact can be measured in several ways including employment, income, Gross Domestic Product (GDP) and economic output, as summarized in **Figure 1-3**. All of these measures help quantify the gross level of economic activity being generated by the source. As a result, they can be useful in developing an appreciation for projects, investments and economic sectors.[11]

Figure 1-3: Measures of Economic Impact

Employment (Full-time Equivalents)	• The number of full-time equivalents (FTEs) or person years generated by a particular source. Because certain jobs may only be part-time or seasonal, the number of jobs is generally greater than the number of FTEs.
Wages	• The income (i.e. wages, salaries, bonuses, benefits and other remuneration) earned by the associated workforce.
Gross Domestic Product (GDP)	• GDP is a measure of the **value added** by labour and capital used to produce final goods and services. This measure is **net** of the value (i.e. cost) of intermediate goods and services used in the production of the final goods and services. GDP can thus be thought of as economic output less intermediate inputs.
Economic Output	• The **gross** dollar value of industrial output produced. Sometimes referred to as "economic activity," it reflects the spending (i.e., capital improvement plus revenue) by firms, organizations and individuals.

[11] Economic impact is different from a cost-benefit analysis that weighs benefits against costs.

The two most common measures of economic contribution (in addition to employment) are gross domestic product (GDP) and economic output. GDP a measure of the value added by labour and capital services used to produce final goods and services, 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. Economic output is the dollar value of industrial output produced and roughly corresponds to the gross revenue of goods or services produced by an economic sector. As such, GDP removes the revenues to suppliers of intermediate goods and services and only includes the revenues 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). In service industries and the public sector, economic output is often simplified to equate to total wages paid.

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.

1.5 Categories of Economic Impact

The three major components of economic impact are *direct, indirect, and induced impacts*, as described in the sections below. These distinctions are used as a base for the estimation of the total economic impact of St. John's airport. Each of these three components requires different tools of analysis. Employment impact analysis determines the economic impact in terms of jobs created and salaries and wages paid out. In the case of the airport, the direct, indirect, induced, and total numbers of person years created at the airport are examined to produce a snapshot in time of airport operations.

Direct Impact

Direct impacts account for the economic activity of the target sector itself. For instance, all employment that is directly related to the operation and management of St. John's International Airport, including businesses located onsite at the airport as well as airport-dependent businesses located offsite, would be considered direct employment. Thus, the direct employment base includes airline employees, fixed base operators, aircraft maintenance, ground handling, customer service, and airport authority staff etc.

Indirect Impact

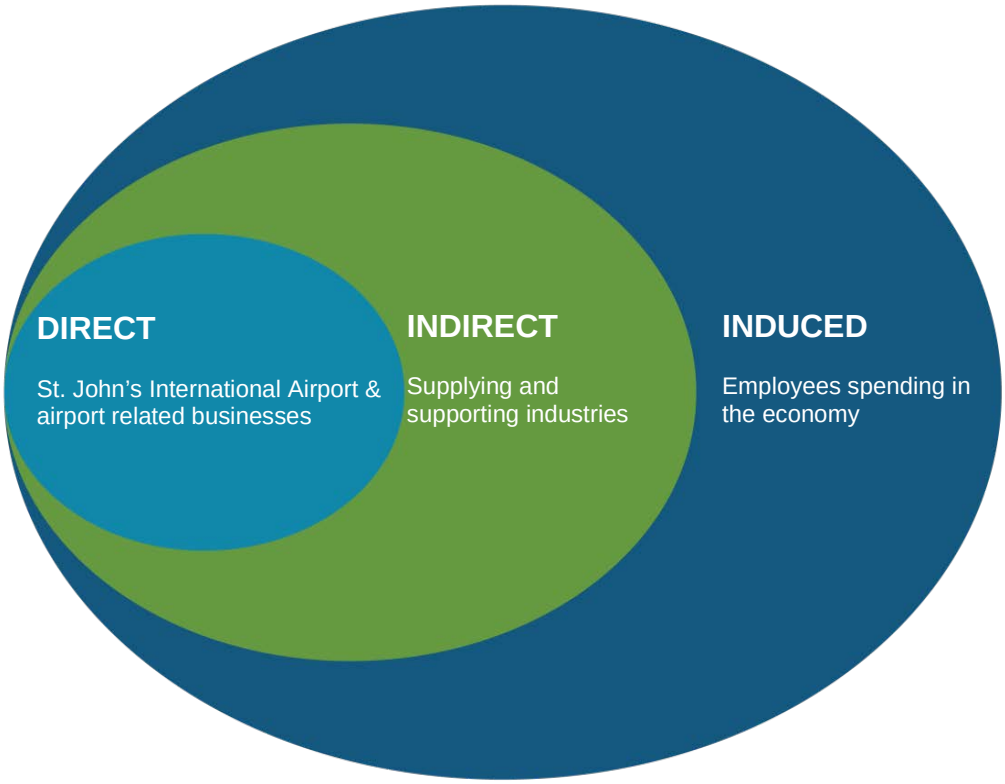
Indirect impacts are those that result because of the direct impacts. This involves employment in downstream industries that arise from the presence of St. John's International Airport. For instance, indirect employment includes the portion of employment in supplier industries which are dependent on sales to the air transport sector, e.g. food wholesalers that supply food for catering on flights.

Induced Impact

Induced employment is generated from expenditures by individuals employed directly or indirectly by the airport. For instance, if an airline employee at St. John's decides to renovate her home, this would result in induced employment hours in the general economy as the renovation would support hours of employment in the construction industry, the construction materials industry, etc. Induced impact is often called the "household-spending effect".

Total impacts are the sum of direct, indirect, and induced effects. These three categories of impacts are summarised in **Figure 1-4**.

Figure 1-4: Categories of Economic Impact Generated and Facilitated by St. John's International Airport



2 Methodology

2.1 Introduction

Inter*VISTAS* conducted this economic impact study during the fall and winter of 2016. The study estimates the economic impact of St. John's International Airport's operations in 2016.

The study is based on data collected from an employment survey of all employers associated with the operation of St. John's International Airport (e.g. airlines, ground transport firms, accommodations, etc.) which is used as an input to assess the direct impacts of the airport's operations. The survey produced estimates of the number of people employed in directly-related occupations, as well as the total amount of earnings paid to these employees. The firms surveyed as part of this study are located both on the airport (on-site) and off the airport site (off-site). The employment survey was used to classify the total employment and average wages paid by business type.

Inter*VISTAS* estimates the indirect and induced effects using economic multipliers developed by Statistics Canada that are derived from models of how the Canadian national and provincial economies operate. Inter*VISTAS* utilizes a proprietary economic model in order to conduct multiplier analysis and estimate indirect and induced impacts.

Data collected from the employment survey is also used to calculate the associated tax impacts (government revenue) generated by the airport's operations.

To derive estimates of the impact of non-local visitor spending of visitors travelling by air, Inter*VISTAS* used available data and statistics collected by the Province of Newfoundland and Labrador's Tourism Division on levels of visitation, expenditures by air travellers to St. John's and their allocation of expenditures to different categories, such as accommodations, food/beverage, retail and ground transportation. Statistics Canada economic multipliers were applied to estimate the impact of non-local visitor spending in the St. John's area by those travelling by air.

Survey Response Rate

- **95%** of tenants responded to the survey
- **99.9%** of total direct full-time equivalents covered by the survey

Study Time Frame

- 2016 operations

Economic Multiplier Source

- Statistics Canada (Industry Accounts Division): Input-Output Multipliers for Newfoundland and Labrador and Canada, 2010

Non-Local Visitor Spending Impacts Sources

- Government of Newfoundland and Labrador (Department of Business, Tourism, Culture and Rural Development): 2011 Provincial Visitor Exit Survey and 2015 Provincial Tourism Performance Report

2.2 Estimating Current Economic Impact of Airport Operations

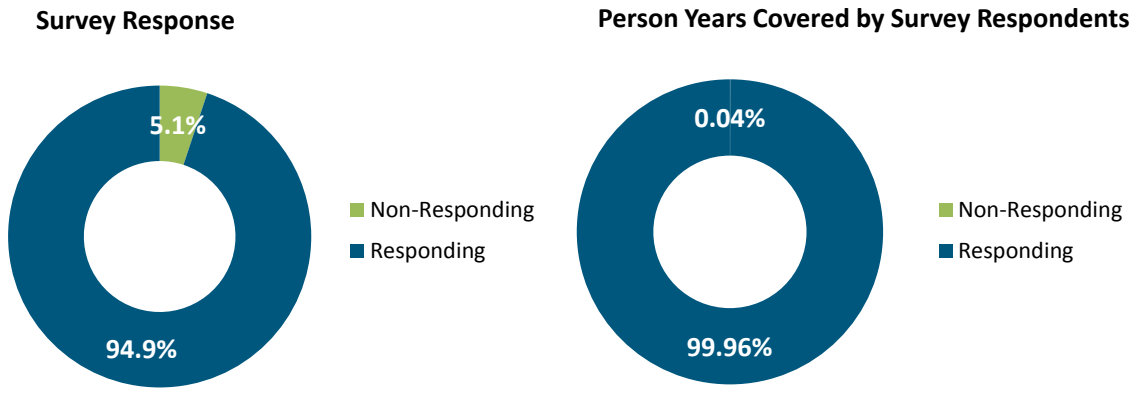
The direct employment base related to ongoing operations at St. John's International Airport is measured first. Employment figures are generally more understandable by the public than more abstract measures, such as economic output or GDP. Employment figures also have the advantage of being a more accurate measure, both because the firms are more likely to provide data on employment, as opposed to information on revenues, wages and other monetary amounts, and because there is less chance of double counting economic activity.

The economic impact study then assesses the indirect and induced (or "multiplier") employment supported by St. John's International Airport's operations, as well as economic activity in terms of economic output and GDP using Statistics Canada multipliers. The tax revenue generated annually by operations at St. John's International Airport is also estimated.

2.3 Surveying Direct Employment

Employment attributable to ongoing St. John's International Airport operations was measured by surveying all tenants and also other related businesses and organizations economically linked to the airport that may be located off airport. Specifics of the survey methodology, including questions and a description of the sampling techniques, are contained in **Appendix A**. E-mail and telephone follow-ups were conducted to ensure a strong response rate. In total, 95% of the businesses and organizations contacted responded to the survey, representing over 99.9% of total FTEs or person years of employment covered by the survey. A summary is provided in **Figure 2-1**.

Figure 2-1:
Response Rate for St. John's International Airport Economic Impact Employment Survey



2.4 Inferring Employment

For non-responding firms, employment was conservatively estimated using a proven and accepted methodology.[12] This includes referencing the survey results for firms of similar business types, or using past employment surveys, if available.

There may be firms that were not surveyed because their existence was not known. Employment for these non-surveyed firms was not estimated because there was no basis for assessment. We expect that the volume of missed employment would be minimal.

2.5 Estimating Indirect and Induced Impacts using Economic Multipliers

Measurement of indirect and induced economic activity is difficult. While it might be possible to conduct a survey of downstream employers, the survey would need to cover thousands of firms in order to completely measure indirect employment. For induced employment, the entire economy would need to be scrutinised. In addition to the time and financial resources needed to conduct such surveys, the quality of responses would be suspect.

As an alternative to costly and inaccurate surveys, indirect and induced effects are typically measured by the use of *economic multipliers*.[13] Multipliers are derived from economic/statistical/accounting models of the general economy. They come in a variety of forms and differ greatly in definition and application. Thus, great care must be exercised in choosing the appropriate set of multipliers to use. In addition, the use of multiplier analysis is limited by a number of factors, these being:

- the accuracy of the structure and parameters of the underlying model;
- the level of unemployment in the economy;
- the assumption of constant returns to scale in production;
- the assumption that the economy's structure is static over time; and
- the assumption that there are no displacement effects.

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, with emphasis nonetheless placed on the direct economic impacts as these are based on data from the employer survey and are clearly identifiable.

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[12] The methodology employed in this study to infer for non-respondents is similar to that used by the federal government for estimating the national income and product accounts.

[13] The multipliers used for the analysis are based on Statistics Canada economic multipliers for Newfoundland and Labrador as well as Canada-wide from the 2010 Interprovincial Input-Output model, the most recent data available. These multipliers were updated with Consumer Price Indices to account for inflation.

2.6 Study Time Frame

The employment survey was conducted between October 2016 and January 2017. The results reflect employment and operations from 2016.

2.7 Jobs versus Full-Time Equivalents or Person Years

Traditionally, one measures employment by the number of jobs. However, when part-time and/or seasonal workers are used, this can be a misleading measure resulting in an overstatement of economic impact. Whenever possible, employment impacts are measured both in terms of the number of jobs and the number of full-time (FTE) equivalents, also called person years.[14] In our model, hours worked by part-time and/or seasonal employees are converted into FTEs.

2.8 Estimating Capital Expenditure Impacts

The airport's capital expenditure program also generates significant impacts to the regional economy. The capital expenditures include spending on construction, which supports employment, earnings, GDP, and economic output. Using the Statistics Canada multipliers, the economic impacts of the airport's capital expenditures in 2016 and future years (2017-2025, inclusive) are estimated. The one-time economic effects of an airport's capital development are considered separate from an airport's ongoing operations because the capital spending can vary significantly over time and on a project-by-project basis.

2.9 Estimating Tax Revenue Impacts

The tax revenue contributions to the federal, provincial, and municipal levels of government that are associated with airport operations are also estimated. This includes taxes paid by employers and employees (such as payroll taxes), passengers (such as sales taxes on expenditures), and St. John's International Airport (property tax and the federal airport ground lease).

2.10 Estimating Non-Local Visitor Spending by Air Travellers

Non-local visitors that arrive in the city of St. John's by air spend money on hotels, taxis, meals, retail, ground transportation and entertainment in the region. This study includes an estimate of the visitor spending in the study region by those who arrive by air.

For this study, the economic impact of expenditures of non-local visitors to St. John's is treated as a separate impact from ongoing airport operations and one-time capital expenditures. Visitor impacts on local employment are estimated using Statistics Canada multipliers that are based on spending rather

[14] One full-time equivalent job is equivalent to 1,832 hours of work. See **Appendix C** for a detailed calculation of the number of hours per full-time equivalent job. Person years are the same as full time equivalents (FTEs).

than direct surveys of employment at hotels, restaurants, retailers, recreation providers, and others. The additional indirect or induced effects associated with visitor spending are not calculated to avoid the double-counting that could be related to the air transportation industry.

To estimate the impacts of non-local visitor spending, we applied data on visitor spending patterns and travel characteristics obtained from the Province of Newfoundland and Labrador's Department of Business, Tourism, Culture and Rural Development. The Statistic Canada economic multipliers are used to estimate the direct employment generated by each dollar of non-local visitor spending, as well as earnings and GDP.

3 Direct Impacts of Airport Operations

3.1 Introduction

SUMMARY

- **Annual operations at St. John's International Airport support 1,940 direct jobs, 1,830 direct FTEs, and $120 million in direct wages**
- **Direct employment related to St. John's International Airport operations includes 96% permanent jobs and 4% seasonal jobs**
- **The larger job categories comprising employment at St. John's International Airport are airline employees (e.g. pilots, flight attendants and CSAs), managerial and clerical staff, and airline support services**

This section describes the total employment, in terms of both jobs and FTEs or person years of employment, and estimated payroll attributable to employers directly related to ongoing operations at St. John's International Airport.

This section also examines the employment due to ongoing operations at St. John's International Airport in more detail. FTEs or person years of employment are broken down by:

- Full-time versus part-time and seasonal employment;
- Employment by industry; and
- Employment by job category.

3.2 Direct Employment and Wages

Every arrival of a flight at St. John's International Airport generates employment hours for individuals with jobs involved in handling passengers, their baggage, cargo and the aircraft. This employment includes customer service, airline crew, ground handling, cleaning, maintenance functions etc. It also includes some overhead labour (e.g., clerical and administrative staff), and the associated employment of ground transportation firms and accommodation providers that service passengers of the airport.[15] The direct impacts are the employment generated largely within the aviation sector associated with the operating and servicing of air services.

[15] Accommodations employment is only considered for staff associated with servicing airline crew stays and St. John's International Airport connecting passenger overnight stays.

Direct employment related to ongoing operations at St. John's International Airport amounts to 1,940 direct jobs. After adjusting for part-time and seasonal employment, the 1,940 jobs equate to 1,830 FTEs or person years of direct employment.

Direct employment at St. John's International Airport and related firms receive an estimated $120 million in wages, providing an average of $65,600 per FTE. This compares to the average provincial wage of $45,800 per FTE, per annum and the average national wage of $47,600 per FTE, per annum.[16] Direct employment figures are summarized in **Figure 3-1** for wages, as well as jobs and FTEs.

Figure 3-1: Direct Employment and Income at St. John's International Airport, 2016

Type of Impact	Employment (Jobs)	Employment (FTEs or Person Years)	Income ($ Millions)
Direct Employment	**1,940**	**1,830**	**$120**

Note: Employment figures (jobs and FTEs) are rounded to the nearest ten. Dollar figures (wages) are rounded to the nearest million.

3.3 Direct Full-time, Part-time, Seasonal and Contract Employment

A total of 1,940 direct jobs or 1,830 FTEs are attributable to St. John's International Airport operations and other airport related businesses. Based on information provided by the survey of employers, 96% of the jobs are permanent jobs while seasonal employment represented only 4% of jobs. Approximately 74% of all direct jobs are full-time positions. This demonstrates that St. John's International Airport and its related businesses are a source of stable, year-round employment.

[16] Based on Statistics Canada's December 2016 data on average hourly wages, and assuming 1 FTE = 1,832 hours. (http://www.statcan.gc.ca/tables-tableaux/sum-som/l01/cst01/labr69b-eng.htm); (http://www.statcan.gc.ca/tables-tableaux/sum-som/l01/cst01/labr69a-eng.htm)

Figure 3-2: Permanent versus Seasonal Employment at St. John's International Airport, 2016

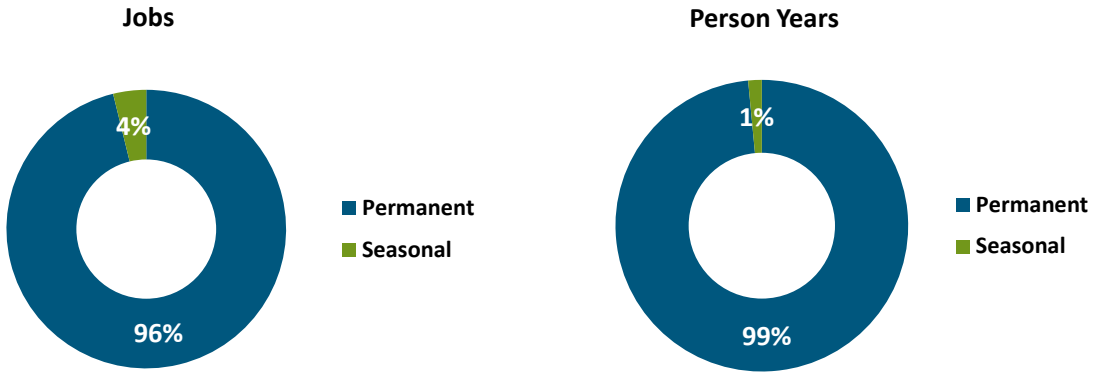
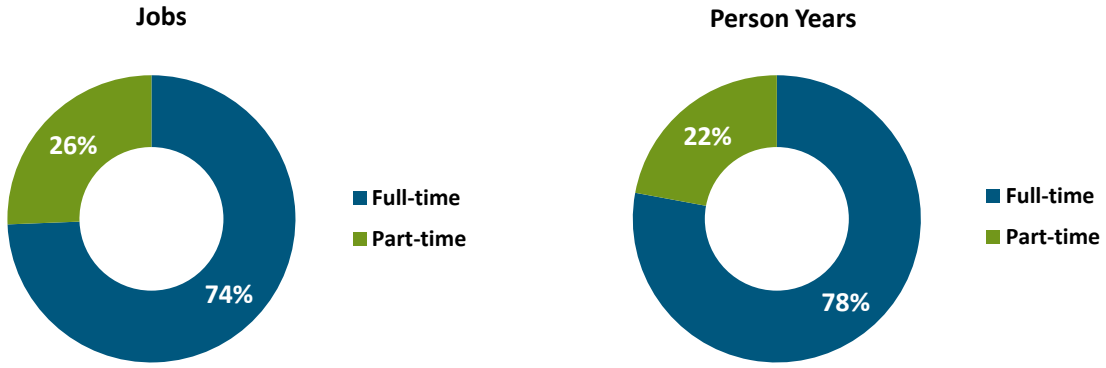


Figure 3-3: Full-Time Versus Part-Time Employment at St. John's International Airport, 2016



3.3.1 Future Economic Impacts at St. John's International Airport

Inter*VISTAS* surveyed airport tenants in October 2016, at which point two construction projects were in progress and planned for a summer 2017 completion. The first of the two projects is a Best Western hotel, strategically situated on airport grounds to accommodate both business and leisure travellers arriving at the airport. The second project includes infrastructure for a future gas station. While the future employment at these businesses was not taken into account for the ongoing economic impacts at the airport, their eventual completion highlights the continued growth of employment generated by St. John's International Airport. When combined, these two businesses are expected to support approximately **60 person years** of employment, in addition to the **1,830 person years** generated by current ongoing operations at the airport.

3.4 Direct Employment by Job Category

St. John's International Airport is a source of a wide variety of job categories, with different positions spread on-site across the airport. A significant proportion of this employment is attributed to firms and employees supporting St. John's International Airport air service, air cargo, and terminal operations. The various occupations associated with St. John's International Airport can be grouped into the following job categories:

- **Airline Services** includes employment of pilots and flight attendants working at St. John's International Airport. Also considered are the labour hours of airline employees within the terminal, including check-in agents, gate agents, escorts (e.g., for wheelchairs), supervisors, and the airline's overhead staff. Airline services comprise the majority of direct employment at St. John's International Airport with 411 FTEs or person years (22% of direct employment).
- **Managerial and Clerical** employment accounts for management staff as well as clerical positions which could include administrative and office support workers. Managerial and clerical employment includes 406 direct person years at St. John's International Airport, equivalent to 22% of direct employment.
- **Airline Support Services** includes employment of aircraft maintenance and related airline servicing trades, including mechanics based at St. John's International Airport. Airline support accounts for 340 person years (19%) of direct employment.
- **Support Trades** includes security, food services, and dispatch. This category comprises 300 person years (16%) of direct employment at St. John's International Airport.
- **Freight Forwarding, Couriers, and Drivers** comprise 133 person years at St. John's International Airport (7% of direct employment).
- **Other** accounts for other non-airline workers within the terminal and onsite including air traffic control, engineers and technicians, janitorial and IT specialists. Other employment comprises 95 person years (5%) of direct employment.
- **Retail and Sales** includes in-terminal food and beverage staff, salespeople, hotel front-desk and cashiers. This category accounts for 76 person years (4%) of direct employment.
- **Craft Trades** include other support functions such as electricians, steam fitters, etc. and account for 67 person years (4%) of direct employment.

A breakdown of direct employment at St. John's International Airport by occupation is illustrated in **Figure 3-4**.

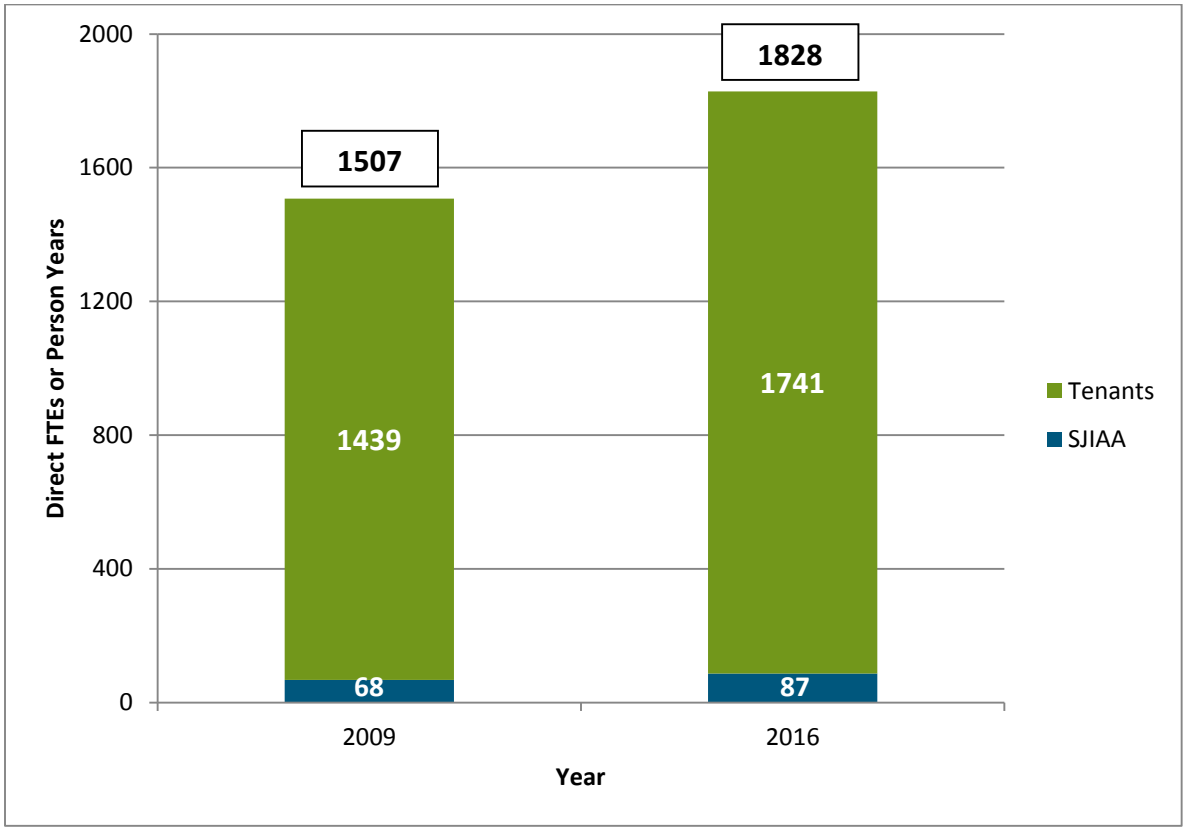
Figure 3-4: Direct Employment by Occupation at St. John's International Airport, 2016

3.5 Comparison of 2009 vs. 2016 Direct Employment Results

St. John's International Airport commissioned a similar study on the economic impact of its 2009 operations. [17] **Figure 3-5** shows the baseline of *direct* employment at St. John's International Airport in 2009 compared to 2016. Direct person years or FTEs of employment at St. John's International Airport (i.e. SJIAA plus airport tenants) grew by over 21%, from approximately 1,510 in 2009 to 1,830 in 2016. SJIAA itself generated 87 direct person years of employment in 2016 (not including the impacts of its capital expenditures), an increase of 28% since 2009. The direct employment from St. John's International Airport's tenants grew by about 21%, from 1,439 person years in 2009 to 1,741 person years in 2016.

[17] The 2009 study was completed in 2011 by Strategic Concepts Inc. and Wade Locke.

Figure 3-5: Direct Employment Levels from Ongoing Operations, 2009 vs. 2016



3.6 Direct Gross Domestic Product and Economic Output

One approach to measuring economic output and value-added GDP is to ask firms in a survey to provide information on their gross revenues, payments to suppliers, etc. However, there are several problems with this approach. First, it is much too expensive. 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 on a national and provincial level. Using these economic multipliers is both cost effective and more accurate than obtaining the data from surveys. This method is the approach adopted here.[18]

[18] The multipliers used for the analysis are based on Statistics Canada economic multipliers for Newfoundland and Labrador from the 2010 Interprovincial Input-Output model, the most recent data available. These multipliers were updated with Consumer Price Indices to account for inflation.

3.6.1 Gross Domestic Product and Economic Output

The direct employment from ongoing St. John's International Airport operations generates $176 million in direct GDP and $393 million in direct economic output. **Figure 3-6** summarizes the GDP and economic output contributions of ongoing airport operations at St. John's International Airport to the provincial economy.

Figure 3-6: GDP and Economic Output Impacts at St. John's International Airport, 2016

Impact	GDP (Millions)	Economic Output (Millions)
Direct	$176	$393

Note: Figures are rounded to the nearest million.

4 Indirect and Induced Impacts of Airport Operations

SUMMARY

- **Indirect employment impacts of St. John's International Airport include 1,150 indirect FTEs and $75 million in indirect wages nationwide**
- **Induced employment impacts of St. John's International Airport include 850 induced FTEs and $45 million in induced wages nationwide**
- **Total employment impacts of St. John's International Airport include 3,830 FTEs and $240 million in wages nationwide**

4.1 Introduction

The previous sections discussed how direct employment related to ongoing operations at St. John's International Airport was measured. However, the employment impact of the airport does not end there, as other sectors of the economy are dependent on these employers' businesses. Indirect employment is generated by suppliers to the businesses directly related to the airport. In addition, there may be additional impacts to the province-wide economy when direct (and indirect) employees spend their wages. These employment effects are referred to as induced employment. Total employment impacts therefore equal the sum of direct, indirect and induced effects.

The indirect and induced effects have been calculated using Statistics Canada's economic multipliers and ratios for the Province of Newfoundland and Labrador as well as the nation as a whole.[19]

4.1.1 Limitations of Economic Multipliers

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, noting that these impacts have not been directly measured by the surveys conducted as part of the study.

The economic multipliers are derived from the 2010 Interprovincial Input-Output model, the most recent version available. Notably, the multipliers were updated by Statistics Canada since the 2009 economic

[19] The multipliers used for the analysis are based on Statistics Canada economic multipliers and ratios for Newfoundland and Labrador and the country from the 2010 Interprovincial Input-Output model, the most recent data available. These multipliers were updated with Consumer Price Indices to account for inflation.

impact study. As a result, the indirect and induced impacts calculated for 2009 and 2016 studies are not directly comparable.

The multipliers used to calculate the indirect and induced impacts in 2016 may better represent the current structure of the Canadian economy which has become less integrated domestically and more integrated internationally, meaning that indirect and induced job impacts *within Canada* may be lower. The ratios of the indirect/induced multipliers to the direct multipliers have decreased in the current data provided by Statistics Canada. It is expected that multiplier impacts will decrease over time. For instance, as the economy becomes more global, more spending will occur outside of Canada, leading to lower employment impacts. In addition, the updated (lower) multipliers represent increased productivity in the aviation industry. This is consistent with more global data on employment in the post global economic downturn era, as employers are seeing improvements in worker productivity.

Altogether, the differences in indirect and induced economic impacts between 2009 and 2016 are influenced by exogenous factors and therefore not representative of the growth in St. John's International Airport's economic impacts.

4.2 Indirect Impacts

Indirect impacts are generated by industries that supply or provide services to the firms located at St. John's International Airport. Based on an analysis of the results of the employer survey and the application of the economic multipliers, it is estimated that 1,150 *indirect* FTEs are related to ongoing operations at St. John's International Airport in 2016. This indicates that 1,150 FTEs are indirectly generated in industries that supply the businesses at the airport. Of this total, 580 indirect FTEs are within the province, while the remaining 570 indirect FTEs relate to impacts throughout the rest of Canada. Labour income associated with the total indirect employment is estimated at $75 million per annum. Indirect GDP contribution is estimated at $118 million per year, and economic output at $265 million annually.

4.3 Induced Impacts

Induced impacts are generated because of expenditures by individuals employed both directly and indirectly by the airport's businesses. It represents the demand for goods and services generated by wage earnings from economic activity directly related to the airport. *Induced* employment attributable to St. John's International Airport is estimated at 850 FTEs total, with 410 FTEs within the province and 440 FTEs throughout the rest of Canada. Induced employment is estimated to generate $45 million per annum in income. Induced GDP and economic impact contributions amount to $94 million and $164 million, respectively, each year nationwide.

4.4 Total Canada Impacts

Ongoing St. John's International Airport operations, including induced and indirect effects, generate 4,070 total jobs (equivalent to 3,830 FTEs) and $240 million in income nationwide. Including multiplier effects, operations at the airport support $388 million in total GDP and $822 million in total economic output.

Figure 4-1 summarizes the direct, indirect, induced and total employment and income in the provincial economy attributable to ongoing operations at St. John's International Airport, as well as annual GDP and economic output contributions.

Figure 4-1: Annual Direct and Total Employment Impacts of St. John's International Airport, 2016

Impact	Employment		Wages ($ Millions)	GDP ($ Millions)	Output ($ Millions)
	Jobs	FTEs (or Person Years)			
Provincial Impacts					
Direct	1,950	1,830	$120	$176	$393
Indirect	620	580	$39	$59	$139
Induced	430	410	$21	$48	$76
Total NL	*3,000*	*2,820*	*$180*	*$283*	*$608*
Rest of Canada Impacts					
Indirect	610	570	$36	$59	$126
Induced	460	440	$24	$46	$88
Total Rest of Canada	*1,070*	*1,010*	*$60*	*$105*	*$214*
Total Canada	**4,070**	**3,830**	**$240**	**$388**	**$822**

Note: Employment figures (Jobs and FTEs) are rounded to the nearest ten. Dollar figures (wages, GDP and output) are rounded to the nearest million.

5 Non-Local Air Visitor Spending Impacts

SUMMARY

- **Total spending by air travellers to St. John's and the surrounding area is estimated at approximately $185 million in 2016**
- **Direct economic impact of non-local tourism spending includes 1,740 FTEs or person years of direct employment, $65 million in direct wages, and $93 million in direct GDP**

5.1 Introduction

The estimate of the direct economic impact of non-local visitor spending in St. John's is based on the amount of spending in the local economy by visitors travelling by air. The indirect and induced economic impacts of tourism on the local economy are not calculated, in order to eliminate the risk of double counting the indirect and induced impacts already calculated for ongoing airport operations. The economic impacts, in terms of employment, wages, GDP, and industry output, are quantified in the following sections.

This study measures the direct economic impact of non-local visitor spending in the city of St. John's and the surrounding municipal area, specifically for air visitors that actually stayed in St. John's and/or the surrounding area.[20]

Non-local visitor spending in the St. John's area is based on statistics available from the Province of Newfoundland and Labrador's Department of Business, Tourism, Culture and Rural Development. In particular, the 2011 Exit Survey Profile of Non-residents Visiting the Avalon Region and St. John's (the 2011 Exit Survey) was the main information source used in the analysis.[21] The survey, conducted every five years, involves interviewing non-resident visitors leaving the province through major exit points including St. John's International Airport. Interviewees were asked questions related to origin, trip purpose, party size, length of stay and party composition, with the option to provide additional information related to destinations visited, activities pursued and expenditures. The survey collected responses from a total of 13,825 visitors traveling by air.

In addition to the 2011 Exit Survey, we referred to the 2015 Provincial Tourism Performance Report and other visitor spending information provided directly by Newfoundland and Labrador's Department of Business, Tourism, Culture and Rural Development.

[20] In contrast, the 2009 study referred to air visitor spending throughout the entire province of Newfoundland and Labrador.

[21] The 2011 Exit Survey was the most recent available at the time of our analysis.

5.2 Air Visitor Spending in St. John's

In 2016, there were an estimated total of 276,900 air visitors to St. John's and the surrounding area.[22] Total consumer spending in 2016 generated by air tourism travellers in the St. John's area was approximately $185 million, as shown in **Figure 5-1**.

Figure 5-1: Estimated Visitor Expenditures in the St. John's Area by Category

Sources: Government of Newfoundland and Labrador – based on 2015 Provincial Tourism Performance Report; 2011 Exit Survey

Category of Spend	Expenditures ($)	% Share of Spend
Accommodation	$69,279,044	38%
Transportation	$40,828,450	22%
Restaurants	$37,503,056	20%
Souvenirs	$12,377,856	7%
Groceries	$10,530,415	6%
Entertainment	$9,421,950	5%
Other	$4,803,347	3%
Total	**$184,744,116**	

5.3 Economic Impact of Non-Local Air Visitor Spending

Visitor expenditures generate direct economic activity in the St. John's area. Using ratios of jobs to spending in the various spending categories, it is estimated that total visitor spending supported 1,740 direct person years of employment in the region, which collectively paid $65 million in wages, as displayed in **Figure 5-2**. The economic impact of non-local visitor spending to the St. John's area region

[22] Based on 385,100 non-resident visitors via air to the province and 71.9% of air visitors visiting the St. John's CMA. Source: 2015 Annual Provincial Performance Report and 2011 Air Exit Survey.

is based on the expenditures made by visitors on accommodation, food and beverage, retail and ground transportation.

Figure 5-2: Direct Economic Impact of Non-Local Visitor Spending in St. John's Region, 2016

Impact	Employment (FTEs or Person Years)	Wages ($ Millions)	GDP ($ Millions)	Output ($ Millions)
Direct	1,740	$65	$93	$185

Note: Employment figures (FTEs) are rounded to the nearest ten. Dollar figures (wages, GDP and output) are rounded to the nearest million. Only direct impacts of air visitor spending impacts are provided, to mitigate double-counting of potential impacts with air transportation.

6 Capital Expenditure Impacts

SUMMARY

- **St. John's International Airport's annual capital budget has grown twofold since 2009. In 2016, St. John's International Airport's capital expenditures totalled $35 million**
- **St. John's International Airport's 2017-2025 projected capital expenditures are estimated at $179 million**
- **Direct impacts of St. John's International Airport's 2016 capital expenditures include 130 direct FTEs or person years of employment, $9 million in direct wages and $11 million in direct GDP**
- **Direct impacts of St. John's International Airport's projected 2017-2025 capital expenditures are estimated at 680 direct FTEs or person years of employment, $44 million in direct wages and $55 million in direct GDP**

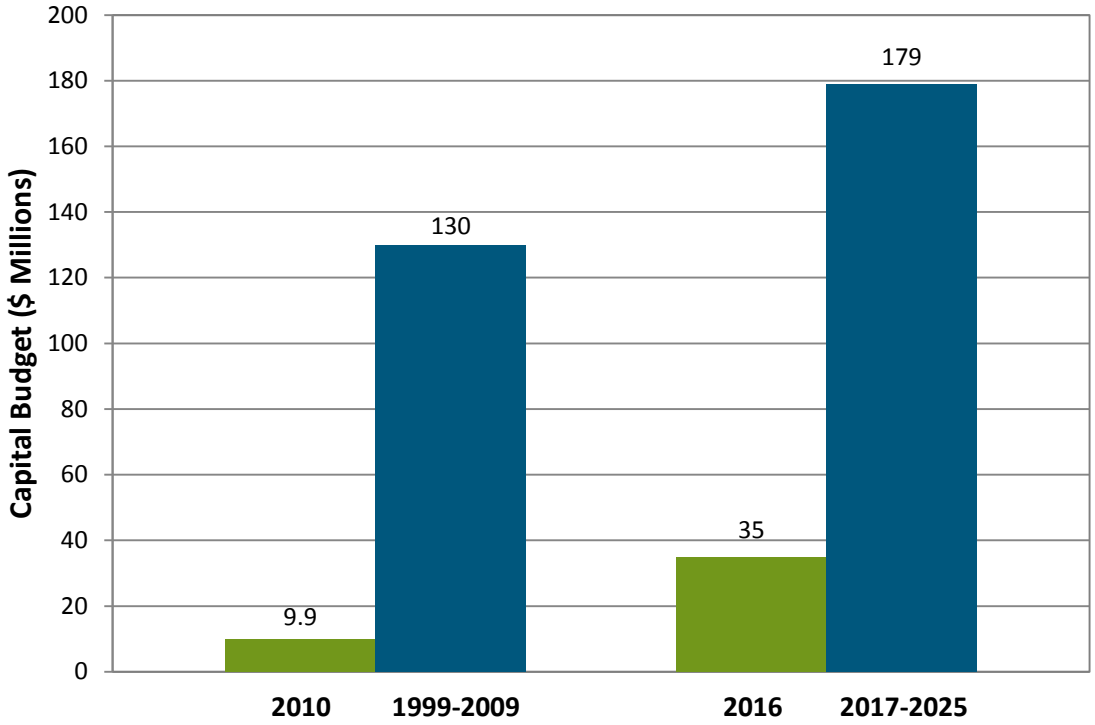
6.1 Economic Impact of Capital Expenditures at St. John's International Airport

In addition to the employment and other economic impacts of ongoing operations at St. John's International Airport, there are also economic impacts associated with the airport's planned capital expenditures. The expenditures include spending on capital improvement projects at St. John's International Airport, which supports employment, GDP and economic output. This section assesses the economic impacts associated with St. John's International Airport's 2016 actual capital expenditures as well as planned capital expenditures for 2017-2025.

SJIAA has significantly ramped up its commitment to improving and growing St. John's International Airport's operations, as shown in **Figure 6-1**. According to SJIAA, approximately $35 million in capital expenditures were incurred by St. John's International Airport in 2016, about 2.5 times higher than the $10 million budgeted for 2010. In addition, approximately $179 million in capital expenditures are planned between 2017 and 2025, representing a sizeable growth in SJIAA's capital improvements since the $130 million incurred in the first decade of the program (1999-2009).[23] The 2016 capital budget was spent on a number of key projects such as terminal expansions, new roadways and parking facilities. Future capital spending between 2017 and 2025 will be directed towards continued terminal expansions, airside maintenance, fleet replacement and baggage-related equipment upgrades.

[23] For historical capital expenditures, refer to the 2009 study, pg. 29.

Figure 6-1: St. John's International Airport Capital Budget, Single-Year and 10-Year Outlooks



Source: SJIAA.

We estimated the economic impacts of the airport's capital expenditures using Statistics Canada economic multipliers for the Province of Newfoundland and Labrador as well as the rest of Canada. Based on this analysis, we calculated that St. John's International Airport's 2016 capital spending supported 130 *direct* FTEs or person years of employment and $9 million in *direct* income. In addition, St. John's International Airport's planned capital spending for 2017-2025 may support an additional 680 *direct* FTEs and $44 million in *direct* income. Summaries of the economic impacts of the 2016 and planned 2017-2025 capital expenditures at St. John's International Airport are provided in **Figure 6-2** and **Figure 6-3**, respectively.

Figure 6-2:
Total Economic Impact of St. John's International Airport's Capital Expenditures, 2016




Impact	Employment (FTEs or Person Years)	Wages ($ Millions)	GDP ($ Millions)	Output ($ Millions)
Provincial Impacts				
Direct	130	$9	$11	$35
Indirect	60	$4	$6	$10
Induced	30	$2	$3	$5
Total NL	*220*	*$15*	*$20*	*$50*
Rest of Canada Impacts				
Indirect	80	$5	$8	$17
Induced	40	$2	$5	$9
Total Rest of Canada	*120*	*$7*	*$13*	*$26*
Total Canada	***340***	***$22***	***$33***	***$76***

Note: Employment figures (FTEs) are rounded to the nearest ten. Dollar figures (wages, GDP and output) are rounded to the nearest million.

Figure 6-3:
Total Economic Impact of St. John's International Airport's Capital Expenditures, 2017-2025 Projections

Impact	Employment (FTEs or Person Years)	Wages ($ Millions)	GDP ($ Millions)	Output ($ Millions)
Provincial Impacts				
Direct	680	$44	$55	$179
Indirect	280	$19	$29	$51
Induced	150	$8	$18	$28
Total NL	*1,110*	*$71*	*$102*	*$258*
Rest of Canada Impacts				
Indirect	430	$27	$43	$88
Induced	220	$12	$23	$44
Total Rest of Canada	*650*	*$39*	*$66*	*$132*
Total Canada	***1,760***	***$110***	***$168***	***$390***

Note: Employment figures (FTEs) are rounded to the nearest ten. Dollar figures (wages, GDP and output) are rounded to the nearest million.

7 Military & Accommodation Impacts at St. John's International Airport

In addition to the economic impacts of onsite tenants, visitor spending and capital expenditure, accommodation impacts due to military visits and air visitors arriving in the St. John's area are considered in the analysis.

7.1 Military Night Stays

The military enjoys a strong history with St. John's International Airport, dating back to 1940 when the Canadian Government originally agreed to construct an air base. St. John's International Airport continues to devote significant resources toward servicing military visits, which often fill St. John's International Airport's aircraft parking space and FBO service capacity even during low-traffic times of the year. Due to the strategic location of the airport, military aircraft perform over 1,000 landings per year to rest crew and perform maintenance (if necessary) and fueling on their aircraft. Consequently, military personnel provide an economic boost to the city by filling up hotel rooms, particularly during the off-season for tourism.

Military stops support additional employment at nearby accommodations in the St. John's area. Inter*VISTAS* surveyed a range of hotels in the region to determine the annual number of room nights accounted for by military stays. In 2016, an estimated **7,400 military room night stays** supported an estimated **10 person years** of employment at accommodations. Expenditures by military visitors also support additional employment in the area, which is included in the estimated visitor spending impacts, by air travellers. See **Figure 7-1**.

Figure 7-1: Employment Impacts of Military Visitor Accommodations, 2016

Accommodation Guest	Supported Employment (Person Years)
Military Visitors	10

7.2 Air Passenger Visitors

St. John's International Airport facilitates the arrival of air passenger visitors that spend time and money in the city by staying at nearby accommodations and enjoying local attractions and entertainment. A survey was distributed to hotels within a 12km radius asking about air passenger related employment. This related employment includes annual visitor nights accounted for by St. John's International Airport single-night connecting passengers, as well as annual visitor nights related to airline crew contracts. When combined, an estimated **95 person years** of employment at accommodations are associated with air passenger visitors and airline crews from St. John's International Airport. **Figure 7-2** presents the results.

Figure 7-2: Employment Impacts of Air Visitor Accommodations, 2016

Accommodation Guest	Supported Employment (Person Years)
Civilian Air Connecting Passengers and Airline Crew Stays	95

8 Tax Impacts of Ongoing Operations at St. John's International Airport

SUMMARY

- **Annual tax contributions of St. John's International Airport amount to nearly $82 million**
- **This includes $47 million to the federal government (57%), $33 million to the provincial government (41%) and $2 million to the municipal governments (2%)**
- **St. John's International Airport's annual tax contribution by tax payer includes $21 million by passengers and $61 million by SJIAA and other airport employers and employees**

8.1 Introduction

This section documents the current contribution to government revenues resulting from current operations at St. John's International Airport and associated economic activity. This includes revenues received by federal, provincial and municipal governments.[24]

Revenue contributions are divided into two groups, based on who is making the payment:

- ***Taxes paid by SJIAA, airport employers and employees***. These are taxes paid by SJIAA as well as other airport employers and employees. They include income and payroll taxes, social insurance contributions (such as employment insurance premiums) and the federal and provincial fuel taxes.
- ***Taxes paid by passengers***. Visitors pay various taxes and fees. For example, these include taxes on personal expenditures at St. John's International Airport such as taxes on food and beverages, taxes on airline tickets and taxes on single night hotel stays by connecting passengers and overnight flight crews, as well as the Airport Improvement Fee (AIF).

For each category, taxes paid to the federal, provincial and local levels of government are separately identified.[25]

[24] Taxation impacts are based on 2016 tax rates.

[25] For the most part, this study **estimates** (some tax envelopes were measured directly, e.g., tenant property taxes) taxes paid from information on the passengers, employers and employees at the airport. In a few situations, such as the corporate income tax paid by employers, an approximate method was used to estimate taxes paid. In every case conservative methods were used. No major tax has been excluded.

The purpose of this section is to present the tax revenue contributions resulting from the activity attributable to St. John's International Airport. As with all such studies, a conceptual decision has to be made as to how broad a definition of *economic activity* should be used in measuring the impacts. For this study, a relatively narrow definition has been taken, for example, the following have **not** been included:

- Taxes associated with indirect or induced employment (i.e. multiplier effects).
- Consumption taxes (e.g., HST) paid by airport employees when they spend their income.
- Excise or import taxes on cargo.
- Taxes paid by airport users outside of the airport.

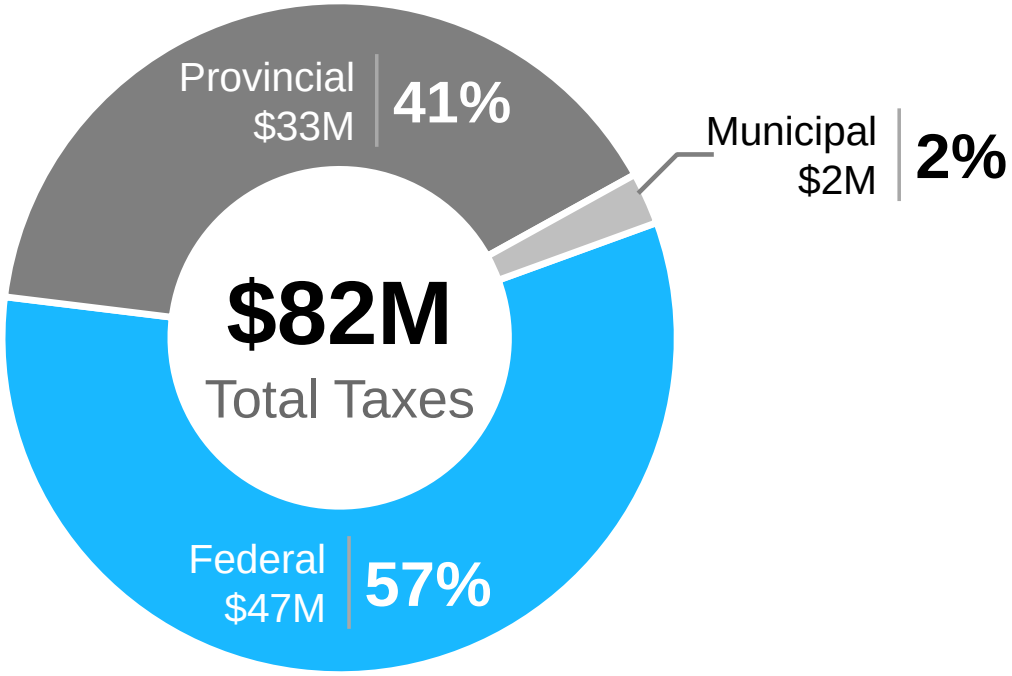
It would be exceedingly complex to broaden the scope of the tax base in this analysis to include taxes generated by indirect and induced employment. The level of detail collected on direct employment by the survey is critical to the analysis while such information is not available for the indirect and induced employment. This being the case, impacts and speculation about the general economy would be complex and averages would not necessarily be precise or accurate. Therefore, the tax analysis in this report is limited to revenues attributable to direct employment only.

8.2 Tax Contributions by Level of Government

Ongoing economic activity at St. John's International Airport generates tax revenue for all levels of government. In 2016, total tax contributions from St. John's International Airport-related *direct* employment to all levels of government were approximately $82 million. **Figure 8-1** provides a rounded breakdown of tax impacts by level of government.

- The federal government was the largest recipient of tax revenue, receiving nearly $47 million (57% of total tax revenue impacts). The vast majority of that total is attributable to taxes paid by employers and employees such as income tax, corporate income tax, CPP contributions, and the like.
- The provincial government received approximately $33 million (41% of total tax revenue impacts). This total is from income taxes, contributions to health insurance, and the Provincial portion of the HST paid by passengers.
- The municipal governments collected nearly $2 million in tax revenue (2% of total tax revenue impacts) in the form of property taxes from tenants or SJIAA.

Figure 8-1:
Annual Estimated Tax Revenues of St. John's International Airport by Level of Government



8.3 Summary of Tax Contributions by Taxpayer

Ongoing economic activity at St. John's International Airport generates tax revenue from different tax payers, as summarized in **Figure 8-2** below.

Figure 8-2:
Annual Estimated Tax Contributions by Taxpayer at St. John's International Airport ($ millions)

Taxpayer	Federal	Provincial	Municipal	Total
Passengers	8	13	-	21
SJIAA[26] and Other Airport Employers/Employees	39	20	2	61
Total	**47**	**33**	**2**	**82**

[26] Includes $2 million in Federal Ground Lease Payments and $1 million in municipal property taxes paid by SJIAA.

9 Wider Economic Benefits

This economic impact study shows that St. John's International Airport serves as a center of employment for the region, as well as the origin for significant secondary spending and economic effects. However, these impacts may not fully capture the true value of St. John's International Airport's presence in the community.

Beyond the direct, indirect and induced economic impacts noted earlier, airports also contribute other positive effects to a region that can be more difficult to assess. These "catalytic effects" of air transport help capture the way in which aviation enhances the productivity of other business sectors of the economy. In particular, the catalytic effects from St. John's International Airport include the following:

- **Employment effects** - the attractiveness of an area for the creation of new or retention of existing job opportunities

- **Trade effects** – additional air service opens new export markets to many businesses as a result of new destinations, better flight connections, and higher frequencies offered.

- **Investment effects** – a key factor many companies take into account when making decisions about location of office, manufacturing or warehouses is proximity of an international airport.

- **Productivity effects** – air transportation offers access to new markets which in term enables businesses to achieve greater economies of scale. Air access also enables companies to attract and retain high quality employees.

Taken together, these issues contribute to an overall sense of a region's attractiveness and competitiveness. Without the presence of St. John's International Airport, the feasibility of conducting business, of maintaining and growing a resident population, and of attracting new resources to the area – particularly given the geography of the Avalon Peninsula – would be severely diminished.

10 Summary of Results

10.1 Economic Impacts

Ongoing operations at St. John's International Airport support a *total* of 3,830 FTEs or person years of employment in Canada, when multiplier impacts are included. Of this employment, 1,830 FTEs or person years of employment are *directly* related to the airport. Because jobs related to the airport extend far beyond St. John's International Airport, the total also includes both indirect (approximately 1,150 FTEs) and induced employment (850 FTEs).

Direct person years or FTEs of employment from ongoing operations at St. John's International Airport (i.e. SJIAA plus airport tenants) grew by over 21%, from about 1,510 in 2009 to 1,830 in 2016.

St. John's International Airport contributes to the provincial and national economy as well. The significance of the airport is demonstrated by the *direct* economic impact of the airport on GDP and economic output in the Province of Newfoundland and Labrador, measured at $176 million and $393 million, respectively. Including indirect and induced impacts, the *total* impacts are approximately $388 million and $822 million, respectively, nationwide.

In addition to ongoing economic impacts of St. John's International Airport operations, additional economic impacts occur through the airport's capital expenditures, local spending by visitors travelling through the airport, and accommodation impacts due to air visitors to the St. John's area. **Figure 10-1** summarizes these 2016 economic impacts in total.[27]

[27] Economic impacts due to accommodations for military visitors to the St. John's area are not included.

Figure 10-1:
Total Economic Impacts of St. John's International Airport Operations in 2016

Impact	Employment		Wages ($ Millions)	GDP ($ Millions)	Output ($ Millions)
	Jobs	FTEs			
Ongoing Economic Impacts of St. John's International Airport Tenants (2016)					
Newfoundland and Labrador Impacts					
Direct	1,940	1,830	$120	$176	$393
Indirect	620	580	$39	$59	$139
Induced	440	410	$21	$48	$76
Rest of Canada Impacts					
Indirect	610	570	$36	$59	$126
Induced	460	440	$24	$46	$88
Total	**4,070**	**3,830**	**$240**	**$388**	**$822**
Air Visitor Spending Impacts (2016)*					
Newfoundland and Labrador Impacts					
Direct	1,850	1,740	$65	$93	$185
Total	**1,850**	**1,740**	**$65**	**$93**	**$185**
Capital Expenditure Impacts (2016)					
Newfoundland and Labrador Impacts					
Direct	140	130	$9	$11	$35
Indirect	60	60	$4	$6	$10
Induced	30	30	$2	$3	$5
Rest of Canada Impacts					
Indirect	90	80	$5	$8	$17
Induced	50	40	$2	$5	$9
Total	**370**	**340**	**$22**	**$33**	**$76**

Impact	Employment		Wages ($ Millions)	GDP ($ Millions)	Output ($ Millions)
	Jobs	FTEs			
Employment Impacts of Air Visitor Accommodations (2016)					
Newfoundland and Labrador Impacts					
Direct	100	95	$4	$7	$11
Indirect	15	15	$1	$2	$3
Induced	15	15	$1	$2	$3
Rest of Canada Impacts					
Indirect	15	15	$1	$2	$3
Induced	15	15	$1	$1	$3
Total	**160**	**155**	**$8**	**$14**	**$23**
GRAND TOTAL	**6,450**	**6,065**	**$335**	**$528**	**$1,106**

Note: Employment figures (Jobs and FTEs) are rounded to the nearest ten. Dollar figures (wages, GDP and output) are rounded to the nearest million.

* Only direct impacts of air visitor spending impacts are provided, to mitigate double-counting of potential impacts with air transportation.

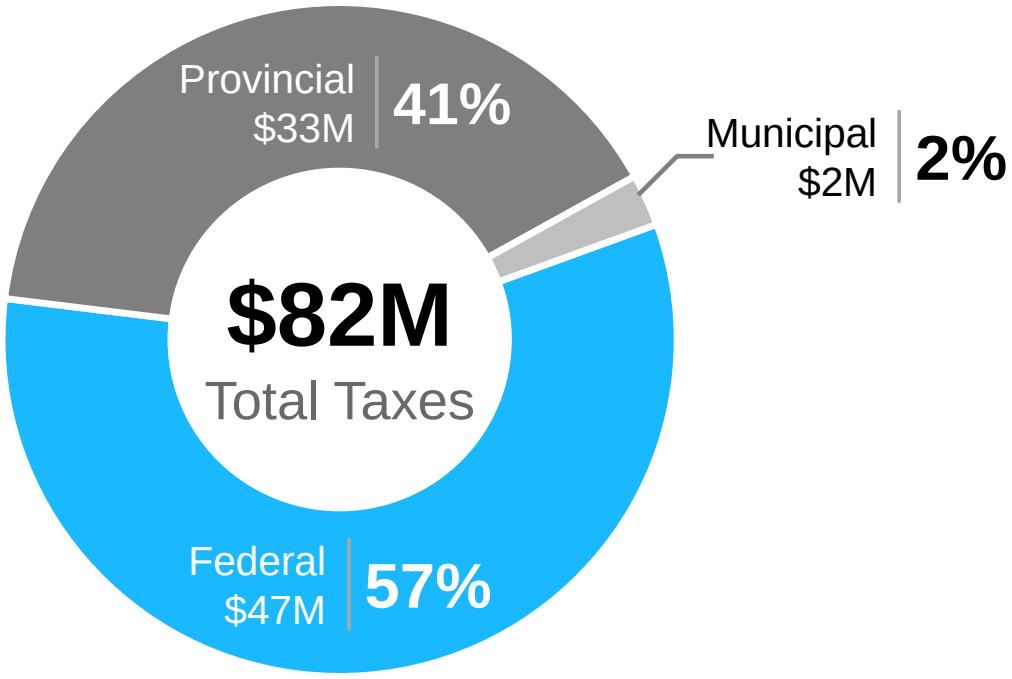
10.2 Tax Revenue Impacts

St. John's International Airport is also an important generator of taxation revenues to all levels of government. Total taxes paid on an annual basis, by airport employers and employees as well as passengers, are estimated at nearly $82 million per year.[28, 29] The majority of taxes accrue to the federal government at 57% overall, while the provincial government receives 41% of the tax revenue generated by St. John's. The municipal government also benefits from the airport through the collection of property taxes amounting to approximately $2 million paid by St. John's and its tenants, as shown in **Figure 10-2**.

[28] Taxation impacts are based on 2016 tax rates.

[29] Includes $2 million in Federal Ground Lease Payments and $1 million in municipal property taxes paid by SJIAA.

Figure 10-2:
Annual Estimated Tax Revenues of St. John's International Airport by Level of Government



Appendix A: Employment Survey

Questionnaire Design

The basic questionnaire was designed to obtain information, and to be as clear and easy to understand as possible for respondent firms. The basic questionnaire provided to airport tenants contained questions in the following areas:

General Information

- Name of firm, address
- Contact person's name and title
- Phone and fax numbers
- Email and website address
- Principal business activity

Total Employment Numbers

- Total employees (2016)
- Number of on-site employees
- Number of off-site employees

Part-time and Full-time Employment

- Full-time permanent employees
- Part-time permanent employees
- Full-time seasonal employees
- Part-time seasonal employees
- Average hours and weeks for part-time and seasonal employees

Payroll and Wage

- Total payroll excluding benefits; or
- Average wage per employee

Employment by Occupation

- A selection of job trades was provided to categorize employment

Outsourcing and Contracting Out

- Number of individuals on contract
- Average hours and weeks for individuals on contract
- Number and names of firms on contract
- Average annual hours for firms on contract

Property Taxes & Other Taxes

- Total property taxes paid (2015)
- Other federal and provincial taxes paid (2015)

Business Related to St. John's International Airport

- Proportion of firm's business revenues related to St. John's International Airport (2016)

Capital Investment

- Capital investment in 2016
- Capital investment planned between 2017-2026

Conducting the Survey

The survey was mailed out electronically by Inter*VISTAS* Consulting, with a cover letter from St. John's International Airport. The letter explained the purpose of the study, the confidentiality of responses and encouraged members of the airport business community to participate.

Following the initial electronic mail-out of the surveys and throughout the following weeks, non-responding firms were contacted by telephone to follow-up on the completion of the survey. St. John's International Airport staff handled the survey follow-up for the onsite tenants, while Inter*VISTAS* staff managed the offsite firm follow-up. Firms were encouraged to return the survey and new copies were offered if the originals were lost. The replacement surveys were emailed once again. Some survey responses were collected via a telephone interview with firms.

Appendix B: Sample Survey

St. John's International Airport (YYT)
Economic Impact of YYT – 2016 Employment Survey

The figures you provide in the following sections are **strictly confidential** and will be viewed only by Inter*VISTAS* Consulting. Only aggregate survey totals will be published in the final report.

For the purposes of this study, it is important that the figures you provide are as accurate as possible. However, where it is not possible to provide precise information, we would appreciate estimates rather than no response at all.

Name of Company: _____

Address of Company: _____

Contact Person: _____ Phone number: _____

Email: _____

Q1. Principal Business Activity

Please indicate your principal business activity. If you are involved in more than one of the businesses below, please choose the one that best describes your business (i.e., contributes the largest proportion of revenues).

Business Type

- ☐ 1. Air Carrier, Helicopter Operator, General Aviation Operator
- ☐ 2. Air Traffic Control
- ☐ 3. Aircraft Maintenance, Repair & Overhaul
- ☐ 4. Aviation Related Manufacturing
- ☐ 5. Aviation Related Training
- ☐ 6. Fixed Base Operator
- ☐ 7. Fuelling Company
- ☐ 8. Government Agency/Department
- ☐ 9. Military Services
- ☐ 10. Recreation Facility
- ☐ 11. Security Services
- ☐ 12. Education Institution
- ☐ 13. Health Service
- ☐ 14. Other: _____

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St. John's International Airport (YYT)
Economic Impact of YYT – 2016 Employment Survey

ST. JOHN'S International Airport Authority

Q2. Location of Business

Please indicate where your company is located.

☐ 1. On-site (on YYT airport land)

☐ 2. Off-site (away from YYT airport land)

Q3. Employment at Your Company

Please state the number of staff (**permanent and seasonal staff on the company payroll**) employed as of September, 2016 by your company both on-site at YYT and off-site (but within Newfoundland and ***directly related to operations at YYT***, e.g. administrative employees in Clarenville). For those employees that are not based at YYT, please include only those whose job functions are directly attributable to services provided by YYT. Please break down the employment into permanent, seasonal, full-time and part-time. *This should not include employment for work done on contract.*

Location	Permanent Employees		Seasonal Employees	
	Full-Time	Part-Time	Full-Time	Part-Time
On-Site *(Employees based at YYT)*				
Off-Site *(Employees not based at YYT, but whose function is directly related to the operations at YYT)*				

Note: For employees that split their time between on-site and off-site locations, please allocate them to the location where they spend the most time.

Please indicate how many hours per week **part-time employees** are expected to work in 2016, as well as how many weeks and weekly hours that **seasonal employees** are expected to work in 2016, on average.

Employee Type	Number of Weeks per Year	Number of Weekly Hours
Permanent Part-Time	52	
Seasonal Full-Time & Part-Time		

St. John's International Airport (YYT)
Economic Impact of YYT – 2016 Employment Survey

ST. JOHN'S International Airport Authority

Q4. Payroll and Wages

Please state the total payroll that is expected to be paid by your company in 2016 for the employees included in Question 2 above. If your organization began operations in 2016, please provide the expected total payroll amounts to be paid at the end of December 2016.

This figure should include all full-time, part-time and seasonal employees. If you are unable to estimate payroll for 2016, please provide figures for your last financial year, and indicate which year that was.

Total Annual Payroll (Estimate for full-year 2016):	**$**
Financial Year *(if not calendar year 2016):*	

Note: Total payroll includes gross (pre-tax) wages or salaries, including overtime pay, commissions, benefits, allowances and bonuses.

Alternatively, if you are unable to answer this question, please provide an estimate of the average annual wage/salary **per employee** (including overtime pay, commissions, benefits, allowances and bonuses), or select one of the options below.

Average Annual Salary/Wage per Employee: $ _____ per annum.

Or: Estimate of the average annual salary range per employee:

- ☐ Less than $20,000
- ☐ $20,000 - $39,999
- ☐ $40,000 - $59,999
- ☐ $60,000 - $79,999
- ☐ $80,000 - $99,999
- ☐ $100,000 or more

Q5. Employment by Occupation

Please estimate below the number of employees included in Question 2 that are in the following occupation categories.[1] *The figures entered below should sum to the same total as Question 2 or sum to 100%.*

Employment by Occupation		**Number *or* % of Employees**
General	Managerial/Supervisory	
	Clerical	
	Craft Trades (Electricians, Steam Fitters, etc.)	
Airline & Airline Servicing Trades	Pilots	
	Flight Attendants	
	Aircraft & Vehicle Mechanics	
	Customer Service Agents	

[1] As classified by the "National Occupational Classification, 2011" published by the Human Resources and Skills Development Canada.

	Aircraft Servicing	
Support Trades	Security Agents	
	Food Service Workers	
	Drivers / Delivery / Couriers	
	Dispatchers	
	Call Center / Reservations	
	Air Traffic Control	
Retail Trades	Sales / Cashiers	
	Food & Beverage Staff	
Other (Please specify)		

Q6. Outsourcing and Contracting Out

Since we do not want to exclude any employment, we would like you to briefly comment on whether your firm contracts out any important services.

Individuals on Contract: If you pay some individuals through a contract, as opposed to through payroll, please indicate the number of such employees, how many weeks worked expected to be worked in full calendar year 2016, as well as how many hours per week worked in 2016, on average.

	Number of Contract Employees	Number of Weeks per Year	Number of Weekly Hours
Contract Employees			

St. John's International Airport (YYT)
Economic Impact of YYT – 2016 Employment Survey

ST. JOHN'S International Airport Authority

Firms on Contract: If you outsource or contract out any work to other companies (e.g., cleaning services, IT, ground handling, etc.), please complete the following table, indicating the functions you outsource to third party companies, and provide an estimate of the annual contracted hours of work completed to the end of 2016. Also, please specify the company's name(s) and indicate whether they are located at YYT. This will allow us to avoid any double counting of work performed by other companies which may also be surveyed as a part of this study. *Feel free to attach another sheet of paper if the space provided below is insufficient.*

Function	Name of Firm	Located at YYT? (Check if Yes)	Number of Hours Performed by the Company in 2016
Example: Cleaning services	*Spic and Span Cleaners*	☐	*100 hours per year (2 hours per week)*
		☐	
		☐	
		☐	
		☐	

Q7. Property Taxes Paid

Please indicate the amount of municipal property taxes paid by your firm in 2015.

Total Municipal Property Taxes Paid (2015):	$

Q8. Business Related to YYT

Please estimate the proportion of your company's business revenues that is related to activities at St. John's International Airport.

Business Revenue Related to YYT (2016):	%

St. John's International Airport (YYT)
Economic Impact of YYT – 2016 Employment Survey

ST. JOHN'S
International Airport Authority

Q9. Capital Investment

Please estimate approximately the value of capital investments made in 2016 that are intended to support your operations at St. John's International Airport (e.g. purchase and installment of new equipment, development of a new facility).

Capital Investment (2016):	$
Capital Investment (2017-2026)	$

Thank you for your assistance in completing this survey.

Please enter your responses to this questionnaire online at:

If you have any questions, please call
Noel Szelewski at **1-877-717-6246**, ext.**1808**.

Appendix C: Calculation of Full-time Equivalent or Person Years of Employment

The following are details of calculations for the average number of hours per full-time equivalent (FTE) or person year of employment.

Table C-1: Full-time Equivalent Hours per Year

Calculation of FTE hours per year:

	365	days per year
Less:	(104)	weekend days
	(11)	legal holidays
	(15)	average vacation days
	(6)	sick leave
	229	days per person year
	* 8	hours per work day

1,832 hours per person year

Workdays vary anywhere from 6.5 to 8 hours; however, in order to be conservative, an 8 hour workday was assumed.[30] Similarly, numbers of vacation and sick leave days may also vary.

[30] Essentially, we are using a measure of paid hours per year. Using a measure of productive hours per year with 6.5 hour workdays (8 hours less 1 hour for lunch less two 15 minute work breaks) would give 1,489 hours per person year. Using this lower figure would result in inferring a greater number of FTEs from seasonal and part-time jobs. Using the 1,832 figure, we infer a lower number of FTEs.

Appendix D: Inferred Employment

Because not all employers responded to our requests for information in the survey, we statistically inferred some employment data to replace that which otherwise would be missing. This allows us to estimate the total amount and type of employment, which provides the basis for other estimates of economic impact.

In general, Inter*VISTAS*' approach bases these inferred estimates on information provided by responding firms for each business type and validated against information from other publicly available sources of data. This approach is conservative in that we assumed that the non-responding firms are smaller than responding firms.

The employment data in this report was compiled from a combination of two sources:

1. Employment reported by employers on surveys submitted to Inter*VISTAS*.

2. Employment inferred for employers who did not provide a survey response. Inferred employment was based on employment information from those firms in each business type that did respond to the survey. The mean employment of respondents in each business type was calculated, excluding outliers, and then conservatively adjusted downwards. For instance, those firms with especially large employment levels were excluded from the "mean without outliers" to obtain conservative results. This "adjusted mean" employment for each business type was then applied to those firms who did not respond to the survey.

Appendix E: Contract Employment

Some firms contract out services that they do not have expertise in providing or when there are cost advantages to doing so. For example, many airport firms contract out janitorial, elevator and maintenance services. The employment survey asked firms to identify whether they contracted out some of their work, and to estimate the number of annual hours involved.

Contract work was separated into two distinct categories in the employment survey: 1) individual "employees" paid through a contract, rather than via payroll, and 2) contracting out services to other firms.

The employment results for individuals on contract were derived by counting the number of individual positions for the number of *jobs* and dividing the total hours of employment by 1,832 to estimate a FTE or one person year of employment. The employment results for firms on contract were derived by dividing the total hours of employment by 1,832 to estimate FTEs or person years.

Appendix F: Methodology using Economic Multipliers

Measurement of indirect and induced economic activity is difficult. While it might be possible to conduct a survey of such employers, the survey would need to cover thousands of firms for indirect employment. For induced employment, the entire provincial economy would need to be scrutinised. In addition to the time and financial resources needed to conduct such surveys, the quality of responses would be suspect.

As an alternative to costly and inaccurate surveys, indirect and induced effects are typically measured by the use of economic multipliers. Multipliers are derived from economic/ statistical/accounting models of the general economy.[31] They come in a variety of forms and differ greatly in definition and application. Thus, great care must be exercised in choosing the appropriate set of multipliers to use. In addition, the use of multiplier analysis is limited by a number of factors, these being:

- the accuracy of the structure and parameters of the underlying model;
- the level of unemployment in the economy;
- the assumption of constant returns to scale in production;
- the assumption that the economy's structure is static over time; and
- the assumption that there are no displacement effects.

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.

[31] The multipliers used in this analysis are from the Statistics Canada 2010 Input-Output tables for Newfoundland and Labrador.

Appendix G: Tax Revenues Attributable to Airport Employers

Introduction

This appendix describes the employment and other assumptions on which tax revenues calculations are based. As well, the approaches used to estimate employer and employee contributions to local, provincial and federal governments are presented.

Some of the taxes pose conceptual questions about how much, or if any, tax revenue from a particular source should be attributed to firms serving St. John's International Airport. These questions are highlighted and simplifying assumptions are put forth.

Employment at St. John's International Airport

The majority of tax calculations in this report depend on direct employment and total wages. The total direct employment, in person years, used for these calculations is 1,828 person years. The total payroll is estimated at $120 million.

Personal Income Tax (Federal and Provincial)

Tax Base and Rates

Under the *Income Tax Act* federal income tax is paid on taxable income at a rate that increases with taxable income.

Provincial income tax was formerly calculated as a percentage of federal tax, but most provincial governments have begun collecting taxes on a sliding scale.

Estimation Method and Results

Because the tax rate is progressive, the tax paid by a group of employees depends on the distribution of income among those employees. Unfortunately, the distribution of income is not known and average incomes must be used.

Each employee is assumed to pay tax as a single tax filer. Estimated personal income tax payable is $16 million in federal tax and $11 million in provincial tax.

The average tax rates used are derived from the more detailed calculations of taxes payable shown in **Figure G-1**. In those calculations, assumptions have been made about income from non-employment sources, tax deductions from income (e.g. RPP and RRSP contributions), and tax credits applied against tax otherwise payable (e.g. CPP, EI and charitable contributions). Average credits are calculated from Revenue Canada, *General Income Tax Forms*, *2016*.

Figure G-1: Newfoundland and Labrador Single Tax Filer Income Tax Calculation – 2016

Newfoundland and Labrador Single Tax Filer Income Tax Calculation																			
Income																			
Employment	5,000	10,000	15,000	20,000	25,000	30,000	35,000	40,000	45,000	50,000	55,000	60,000	70,000	80,000	90,000	100,000	150,000	250,000	350,000
TOTAL	5,000	10,000	15,000	20,000	25,000	30,000	35,000	40,000	45,000	50,000	55,000	60,000	70,000	80,000	90,000	100,000	150,000	250,000	350,000
Deductions																			
RPP	300	81	60	37	52	99	177	415	682	862	1,098	1,365	1,753	2,427	3,144	2,839	2,363	2,131	2,076
RRSP	1,061	145	77	76	103	165	237	351	456	628	859	1,086	1,454	1,906	2,454	3,388	5,904	11,862	20,100
Carrying Charges	223	30	24	15	18	18	22	33	37	53	66	80	84	93	111	782	1,075	883	387
Union	490	134	59	48	49	70	89	143	193	241	285	344	428	595	723	782	1,075	883	387
TOTAL	2,074	389	220	176	223	352	526	941	1,367	1,784	2,308	2,875	3,718	5,021	6,433	7,791	10,417	15,759	22,949
Taxable Income	2,926	9,611	14,780	19,824	24,777	29,648	34,474	39,059	43,633	48,216	52,692	57,125	66,282	74,979	83,567	92,209	139,583	234,241	327,051
Credits																			
Basic Federal	11,474.00	11,474	11,474	11,474	11,474	11,474	11,474	11,474	11,474	11,474	11,474	11,474	11,474	11,474	11,474	11,474	11,474	11,474	11,474
Basic Provincial	$ 8,802.00	8,802	8,802	8,802	8,802	8,802	8,802	8,802	8,802	8,802	8,802	8,802	8,802	8,802	8,802	8,802	8,802	8,802	8,802
CPP	15,374	15,197	7,861	8,348	3,752	2,731	2,558	2,332	2,251	2,074	1,932	1,773	1,555	1,274	920	952	911	1,128	1,671
EI	4,606	1,290	508	345	277	313	370	468	451	531	565	1,106	610	673	548	1,862	243	153	286
Charity	239	244	329	262	186	199	206	243	216	253	268	507	272	298	262	1,114	297	969	756
Fed. Total	31,693	28,205	20,172	20,428	15,689	14,717	14,607	14,517	14,391	14,332	14,240	14,860	13,911	13,719	13,203	15,401	12,925	13,725	14,187
Prov. Total	29,021	25,533	17,500	17,756	13,017	12,045	11,935	11,845	11,719	11,660	11,568	12,188	11,239	11,047	10,531	12,729	10,253	11,053	11,515
Federal Tax Credit Rate	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%
Provincial Tax Credit Rate	8.2%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%
Federal Credits	4,754	4,231	3,026	3,064	2,353	2,207	2,191	2,178	2,159	2,150	2,136	2,229	2,087	2,058	1,980	2,310	1,939	2,059	2,128
Provincial Credits	2,380	2,094	1,435	1,456	1,067	988	979	971	961	956	949	999	922	906	864	1,044	841	906	944
Tax Payable																			
Federal - Bracket 1	439	1,442	2,217	2,974	3,717	4,447	5,171	5,859	6,545	6,792	6,792	6,792	6,792	6,792	6,792	6,792	6,792	6,792	6,792
Federal - Bracket 2	0	0	0	0	0	0	0	0	0	601	1,519	2,428	4,305	6,088	7,848	18,565	18,565	18,565	18,565
Federal - Bracket 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	428	12,745	36,501	36,501
Federal - Bracket 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	27,217	54,132
Federal Total	439	1,442	2,217	2,974	3,717	4,447	5,171	5,859	6,545	7,394	8,311	9,220	11,097	12,880	14,641	25,786	38,103	61,859	61,859
Basic Federal	0	0	0	0	1,363	2,240	2,980	3,681	4,386	5,244	6,176	6,991	9,011	10,822	12,660	23,476	36,164	59,800	59,731
NFL - Bracket 1	240	788	1,212	1,626	2,032	2,431	2,827	2,882	2,882	2,882	2,882	2,882	2,882	2,882	2,882	2,882	2,882	2,882	2,882
NFL - Bracket 2	0	0	0	0	0	0	0	528	1,145	1,764	2,369	2,967	4,203	4,745	4,745	4,745	4,745	4,745	4,745
NFL - Bracket 3	0	0	0	0	0	0	0	0	0	0	0	0	0	682	1,931	3,189	10,081	23,854	37,358
NFL Total	240	788	1,212	1,626	2,032	2,431	2,827	3,410	4,028	4,646	5,251	5,849	7,085	8,309	9,558	10,816	17,708	31,481	44,985
Basic Provincial	0	0	0	170	964	1,444	1,848	2,439	3,067	3,690	4,302	4,850	6,164	7,403	8,695	9,772	16,868	30,575	44,041
TOTAL TAX PAYABLE	0	0	0	170	2,328	3,683	4,828	6,120	7,453	8,934	10,478	11,841	15,174	18,225	21,355	33,247	53,032	90,375	103,771
Average Rate of Tax	0.0%	0.0%	0.0%	0.9%	9.4%	12.4%	14.0%	15.7%	17.1%	18.5%	19.9%	20.7%	22.9%	24.3%	25.6%	36.1%	38.0%	38.6%	31.7%
Federal	0.0%	0.0%	0.0%	0.0%	5.5%	7.6%	8.6%	9.4%	10.1%	10.9%	11.7%	12.2%	13.6%	14.4%	15.1%	25.5%	25.9%	25.5%	18.3%
Provincial	0.0%	0.0%	0.0%	0.9%	3.9%	4.9%	5.4%	6.2%	7.0%	7.7%	8.2%	8.5%	9.3%	9.9%	10.4%	10.6%	12.1%	13.1%	13.5%

Corporate Income Tax (Federal and Provincial)

All corporations are liable to pay federal income tax under the *Income Tax Act*. The tax rate varies by type and size of company and by province. Provincial governments also levy a corporation income tax on any company having a permanent establishment in that province.

Estimation Method and Results

1. To calculate tax liability precisely is very difficult. It requires knowledge of the total tax base, and the proportion of the tax base attributable to the provinces. Therefore, an approximate method has been used.

2. In Newfoundland and Labrador, the federal corporate income tax collected per employee was $2,195 and the provincial corporate income tax collected per employee was $925 in 2015.

3. Assuming all companies pay tax at the average rate per employee calculated above, the 2016 corporation income tax liability of the St. John's International Airport employment sector is estimated to be $3.7 million toward federal revenues and $1.5 million toward provincial revenues. The estimated total corporate income tax revenue is about $5.2 million as shown in **Figure G-2**.

Figure G-2: Estimated Corporate Income Tax Paid by Firms within St. John's International Airport

Government	Revenue ($Million)
Federal	3.7
Provincial	1.5
Total	***5.2***

Note: Amounts may not add to total due to rounding.

Employment Insurance Premiums

Tax Base and Rates

In 2015, employees in Canada paid employment insurance (EI) premiums equal to 1.88% of earnings up to a maximum of $931 per year. (Maximum insurable earnings are $49,500). Employers paid EI premiums equal to 1.4 times employee premiums.

Estimation Method and Results

The employee premium rate is applied to total payroll costs for employees earning less than $49,500 per year. The maximum contribution was used for employees earning more than $49,500 per year. Estimated employee payments were about $1.5 million in 2016.

The employer rate is applied to the employee payments. Estimated employer payments were about $2.1 million in 2016.

Canada Pension Plan Contributions

Tax Base and Rates

In 2015, employee contributions for the Canada Pension Plan (CPP) were 4.95% of pensionable earnings. Pensionable earnings are actual earnings less $3,500, to a maximum of $53,600. The maximum annual employee contribution is $2,479.95. The employer contribution is the same as the employee contribution.

Estimation Method and Results

The employee contribution rate is applied to average payroll for employees who are earning less than $53,600 a year. The maximum contribution was used for employment earning more than the maximum pensionable earnings.

Estimated employer and employee contributions are about $4.5 million each, for a total of $8.9 million.

WorkplaceNL Contributions

Tax Base and Rates

Employers in Newfoundland and Labrador are required to make contributions to the province's government-regulated workers' compensation institution, WorkplaceNL, to help offset the cost of on-the-job injuries. Employers are classified into industry groups. The contribution rate for each group is based on the injury costs associated with all companies in that group.[32] The group contribution rate varies widely among industries and provinces. Some major companies are not included in the general "rateable" method of contribution but simply pay the actual cost of their claims plus an allowance for WorkplaceNL administration costs. As it is not generally known which firms contribute in this manner, nor the value of their claims, an estimate based on reported payroll has been made for all firms.

Conceptual Issues

It is possible that some companies are self-insured and their payments could be viewed as a business expense rather than a tax. However, we have chosen to include their contribution because they are required to be part of this government-mandated program.

Estimation Method and Results

The contribution rates for each employment classification at the airport have been applied to the total payroll for that group. St. John's International Airport employees paid an estimated $1.9 million to WorkplaceNL in 2016.

[32] Subject to Experience Rating Adjustment for individual companies.

Health Insurance Premiums

Tax Base and Rates

There are no Medical Services Plan (MSP) premiums for single filers in Newfoundland and Labrador.

Aviation Fuel Tax

The federal and provincial governments levy taxes on jet fuel. The aviation fuel tax rates are shown in **Table G-3**.

Table G-3: Fuel Tax Rates, 2016

Federal	Newfoundland and Labrador
$/Litre	
$0.04	$0.025

Estimation Method and Results

The amount of aviation fuel sold at St. John's International Airport in 2016 was approximately 75 million litres. The total aviation fuel tax revenues at St. John's International Airport amount to approximately $4.8 million. Of this total, about $3.0 million went to the Federal government and the government of Newfoundland and Labrador collected $1.9 million.

The Harmonised Sales Tax (HST), comprised of the 5% Federal portion of the HST payable to the federal government plus the 8% Provincial portion of the HST, was also collected from aviation fuel sold at the airport. The total HST revenues from fuel sales at St. John's International Airport amount to nearly $4.7 million.

HST on Aircraft Parking

Per discussions with SJIAA, St. John's International Airport collected approximately $0.1 million in aircraft parking fees. St. John's International Airport paid approximately $15,000 in total taxes (HST) to the federal and provincial governments on this revenue.

HST on Crew Accommodation Costs

Tax Base and Rates

Estimation Method and Results

In order to estimate the total accommodation costs of airline crew to St. John's the average daily room rate was applied to the estimated airline nights determined from the hotel survey conducted. The total accommodations expenditure amounted to $0.5 million.

HST based on accommodation costs of $0.5 million by airline crew is approximately $75,000 while the supplementary hotel tax is approximately $20,000.

Property Taxes Paid to Government

Governments levy property taxes to help them finance local services. Property taxes paid by SJIAA amounted to $1.1 million in 2016. Tenants at the airport paid $0.5 million. In total, $1.6 million in property taxes were paid to the municipal government by the airport authority and its tenants.

Federal Ground Lease Payment

St. John's International Airport paid approximately $2.0 million for the Federal Ground Lease payment to the Federal Government in 2015.

Appendix H: Tax Revenues Attributable to Airport Users

St. John's International Airport Passengers, 2016

Based on 2016 traffic, approximately 0.8 million passengers will enplane at St. John's International Airport, including connecting passengers (approximately 0.1 million). **Table H-1** shows the passenger movements used in this study including breakdown into sectors and percentage of connecting passengers at St. John's International Airport.

Table H-1: Passenger Movements, 2016

Sector	Enplaned 2016
Domestic	700,000
Transborder	25,000
Other International	44,000
Connecting	10%
Total	*790,000*

Notes: Based on passenger traffic information provided by SJIAA

NAV CANADA Charges

Prior to November 1, 1998, the Canadian government collected the Air Transportation Tax (ATT) to fund aviation programs, including air navigation services. The ATT was levied on all tickets purchased in Canada as well as those purchased internationally for trips that included an enplanement in Canada. ATT rates were adjusted frequently, reaching a high in May 1995 of 7% + $6 (to a maximum of $55) for domestic and transborder flights, and a flat rate of $55 for international flights.

When control of air navigation services was privatised and passed to NAV CANADA on November 1, 1996, the ATT was gradually replaced by NAV CANADA charges. These fees, collected under authority of the Civil Air Services Commercialisation Act, are not taxes on ticket sales; they are service charges billed to aircraft operators. In order to recover these costs, airlines usually pass these charges on to passengers, though NAV CANADA does not dictate how this is done. Most carriers apply a flat rate NAV CANADA surcharge to tickets they sell.

NAV CANADA fees consist of two parts: en route charges and terminal charges. En route charges are based on the maximum permissible takeoff weight of the aircraft (metric tonnes) and the distance being flown in Canadian-controlled airspace. Terminal charges are dependent only on aircraft weight.

Conceptual Issues

Because the ATT is no longer collected and the fees that NAV CANADA now charges are service fees, rather than taxes, no taxes for air navigation services will be included in total taxes paid.

HST on Air Fares and the Airport Improvement Fee (AIF)

Tax Base and Rates

The Harmonised Sales Tax (5% Federal portion of HST plus 8% Provincial portion of HST) applies to the base fare of all domestic tickets purchased in Canada. The Federal portion of HST applies to the base fare of all trans-border tickets purchased.

The airport authority charges all passengers originating their journey at St. John's International Airport an Airport Improvement Fee (AIF) that is collected for the sole purpose of funding capital improvements at the airport. The HST or Federal portion of HST is levied on the fee.

Conceptual Issues

Taxes levied on the air fare should be shared among airports in Canada associated with the journey. The estimation method builds in a sharing assumption (50% St. John's International Airport and 50% other Canadian airports).

Estimation Method and Results

The Federal portion of the HST is levied on all domestic air fares; however, due to the sharing assumption stated above, only 50% of the estimated taxes per departing domestic passenger are attributable to St. John's International Airport. Total tax on airfares is estimated to be over $13 million.

The airport authority collected over $20 million through the AIF in 2015.[33] Tax revenue on this amount is approximately $3.0 million ($1.0 million to the federal government and $2.0 million to the provincial government).

HST on Air Traveller Security Charge

The Canadian Government enacted the Air Traveller Security Charge (ATSC) on April 1, 2002 to help fund security improvements at airports across Canada, as a result of the terrorist attacks on September 11, 2001. As of April 1, 2010, these rates were increased. There is a flat rate fee of $7.48 for each chargeable enplanement for domestic travel, $12.71 for transborder travel, and $25.91 for international travel.

Tax Base and Rates

The HST applies to the domestic ATSC, while only Federal portion of the HST applies to the transborder ATSC.

[33] Source: 2015 St. John's International Airport Annual Report: http://St. John's International Airportannualreport.com/#financial-report/1

Estimation Method

The volume of enplaned traffic at St. John's International Airport was determined, based on data provided by SJIAA. Each enplaned passenger pays the ATSC. A total of $0.7 million in taxes was collected on the ATSC.

HST on Airport Operating and Landing Fees

The HST rate is applied to airport operating and landing fees.

Estimation Method and Results

Based on the airport's 2015 annual report,[34] net revenue from airport operating fees and landing fees was $5 million and $6 million, respectively, in 2015.[35] Total tax collected is estimated at $0.7 million and $0.9 million for operating and landing fees, respectively.

HST on Airport Concessions and Parking

The HST rate applies to airport concessions and parking fees at the airport.

Estimation Method and Results

Based on the information provided by the airport authority as well as the airport's 2015 annual report, concession and parking revenue was approximately $15.0 million and $3.6 million, respectively. Tax on these expenditures is estimated at $2.2 million for concession and $0.5 million for parking.[36]

HST on Accommodation Costs

Tax Base and Rates

Estimation Method and Results

In order to estimate the total accommodation costs of visitors to St. John's the average daily room rate was applied to the estimated connecting passenger nights determined from the hotel survey conducted. The total accommodations expenditure amounted to $6.4 million.

HST based on accommodation costs of $6.4 million by connecting passengers is approximately $1.0 million.

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[34] Source: 2015 St. John's International Airport Annual Report: http://St. John's International Airportannualreport.com/#financial-report/1

[35] Excluding aircraft parking fees.

[36] Inferences made based on airport concession sales in the annual report as well as taxi and related transportation rates reported on St. John's International Airport's website. Source: 2015 St. John's International Airport Annual Report: http://St. John's International Airportannualreport.com/#financial-report/1

Appendix I: Glossary of Terms

Air Traveller Security Charge (ATSC): A fee collected by the Federal Government from air travellers to help fund security improvements at Canadian airports. The fee varies by region of travel and is charged to the passenger per enplanement.

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 airport, all of those people who work on airport property and in an aviation related capacity 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 the airport, the direct, indirect, induced and total number of jobs or person years created at the airport is examined to produce a snapshot of airport operations.

Full Time Equivalent (FTE): (also Person Year) One full time equivalent (FTE) year of employment is equivalent to the number of hours that an individual would work on a full time basis for one year. In this study we have calculated one full time equivalent year to be equivalent to 1,832 hours. Full time equivalent years are useful because part time and seasonal workers do not account for one full time job.[37]

GDP: (also value-added) A measure of the value added by labour and capital services used to produce final goods and services, 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.

Ground Transportation: Ground Transportation at the airport includes any vehicles which transport passengers from the airport to the cities or from the cities to the airport. This would include taxicab service, limousine service and hotel van service. Valet services as well as skycaps are included in this category.

[37] *The Dictionary of Modern Economics*, David W. Pearce, General Editor, The MIT Press, Cambridge Mass.,1984

Indirect Employment: Indirect employment is employment which results because of direct employment. For the airport, 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 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, and thus must be used with great care.

Airport Improvement Fee (AIF): A fee collected by the airport authority from passengers to help with funding capital improvements at the airport. In some regions of Canada, this is also referred to as the Passenger Facility Charge (PFC).

Seasonality: Seasonality results when the supply and demand for a good is directly related to the season in which is consumed. For example, ski resorts experience changes in net income as a result of seasonality. Airports and airport services also experience seasonality as a result of vacation times for families (typically during the summer) and/or temperatures abroad (typically at Christmas time). As a result of seasonality in demand for flights, some air carriers increase frequency of flights to certain areas during the busy season.

Tenant: A firm which pays a lease to a leasing company or to the airport authority directly.

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 services.

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