John C. Munro Hamilton International Airport Economic Impact Analysis

October 2018

Submitted by:
ICF
100 Cambridgepark Drive
Cambridge, MA 02140

Contents

Tables and Figures

Table of Acronyms/Glossary

Term	Definition
Cargo	Goods shipped through Hamilton on their way to trade in domestic or foreign markets. Cargo is generally comprised of both mail and freight. Hamilton handles cargo from passenger aircraft as well as all-cargo aircraft.
Direct Impacts	Impacts in the primary industries where spending by the Airport and its visitors are focused, such as operations, airport employment, lodging, and restaurant/food purchases.
Employment	Represents the jobs created in each industry, based on the output per worker for each industry.
IMPLAN	Impact Analysis for Planning – economic modeling tool
Indirect Impacts	Impacts in the industries that supply or interact with the primary industries, for example when Airport capital projects require the purchase of construction-related building materials.
Induced Impacts	The increased spending by workers who earn money due to the proposed projects, such as when laborers use their wages at local restaurants.
Industry Activity	Represents the total value of industry activity generated by the direct spending.
Labor Income	Includes all forms of employment income generated by the direct input, including employee compensation (wages and benefits) and proprietor income.
Multiplier	Coefficients that describe the response of the economy to a stimulus (a change in demand or production).
Off Airport Employment	Employment related to airport activities occurring within one mile of the airport. For example, hotels near Hamilton, taxi companies, wholesalers, or shipping services.
On Airport Employment	Employment supported by activities occurring within Hamilton, such as building maintenance contractors, machinery repair workers, and airport retailers.
Regions of Analysis	Local: Hamilton CMA, Region: Province of Ontario
Visitor Spending	Purchases made by visitors to the Ontario region in categories such as ground transportation, lodging, or retail expenditures.

Executive Summary

John C. Munro Hamilton International Airport (the Airport) acts as a key driver of economic activity in the Hamilton CMA and broader Ontario region. Airport capital investment, operational employment, and visitor spending contribute directly to regional employment and industry activity. The airport's direct economic activity has a multiplier effect on employment, labor income and industry activity across the region. Quantifying these impacts will allow the Airport to raise awareness about its crucial role in the regional economy, and to utilize relevant information in garnering stakeholder support for its long-term development plan.

This report seeks to quantify the Airport's economic impact on the Hamilton CMA and the broader Ontario region. Economic impact is measured in terms of job creation, labor income, value added and industry activity. In this analysis, ICF measures the economic impact of the Airport's capital expenditures, operational activity in terms of cargo and passenger related employment, concessions spending, and visitor spending.

Within Hamilton, direct spending in terms of the Airport's capital expenditures, operational employment, and visitor spending generated a total impact of approximately 3,500 jobs, $243.5 million in labor income, and $1.2 billion in industry activity. Roughly, half of the impact leaks out to the rest of the Ontario region, creating a total impact that is almost double the impacts felt immediately in Hamilton. The table below provides a summary of the total impacts in both areas.

Table E1: Total Impacts of Airport-Related Activity, 2017

	Employment	Labor Income	Value Added	Industry Activity
Capital Expenditures	40	$2.8 Million	$4.2 Million	$8.5 Million
Operational Expenditures	2,970	$220.4 Million	$353.2 Million	$1.1 Billion
Concessions	50	$2.3 Million	$3.2 Million	$6.4 Million
Visitor Tourism Spending	390	$18.0 Million	$25.1 Million	$50.7 Million
Total	3,450	$243.5 Million	$385.7 Million	$1.2 Billion

Source: IMPLAN analysis. Employment is reported in terms of number of jobs. All labor income and industry values are in 2018 dollars. Numbers may not sum due to rounding.

Of the spending categories considered, cargo operations had the greatest overall impact. In Hamilton, operational employment related to cargo activity supported approximately 1,700 jobs, and generated approximately $28 million in labor income, and $139 million in industry activity respectively. This is largely due to the significant role the Airport plays in cargo operations as the largest express overnight cargo airport in the country.

The indirect and induced effects of airport spending can be summarized through each multiplier. For example, $1 of direct industry activity in Hamilton produces a total effect that is nearly 1.37 times greater than the initial spending. Visitor spending and cargo impacts are similarly summarized using the metrics, "Impact per visitor," "Impact per thousand kilograms" of aircraft billable cargo, and "Impact per Ton" of cargo handled. Table E2, below, shows the multipliers and metrics for Employment, Labor income, Value Added, and Industry activity.

Table E2: Multipliers and Metrics of Airport-Related Activity

Geography	Total Impact	Labor Income	Value Added	Industry Activity
Hamilton	Multipliers	1.51	1.61	1.37
	Impact per Visitor	$2,900	$4,600	$13,700
	Impact per Thousand kg	$490	$780	$2,300
	Impact per Ton	$2,500	$3,900	$11,800
Ontario	Multipliers	2.76	3.06	2.36
	Impact per Visitor	$5,600	$9,200	$24,300
	Impact per Thousand kg	$950	$1,500	$4,100
	Impact per Ton	$4,800	$7,900	$20,900

Source: IMPLAN analysis. Employment is reported in terms of number of jobs. All labor income and industry values are in 2018 dollars.

Multipliers are larger for Ontario than for Hamilton because the Ontario economy is more robust than Hamilton's and thus indirect and induced effects are more significant in Ontario. For example, a dollar of direct spending supports approximately 1.49 jobs in Hamilton and 3.21 in Ontario. The relationship is similar for labor income, value added, and industry activity. The impacts of visitor spending and cargo operations are also almost twice as large in Ontario compared to Hamilton for the same reason. For every 100 visiting passengers $1.4 million in industry activity is created in Hamilton, while $2.4 million in industry activity is generated across Ontario. For every 100,000 kg's of aircraft billable weight at Hamilton International Airport, approximately $230,000 of industry activity is generated in Hamilton, while $410,000 is generated in Ontario. For every ton of cargo handled at the airport, almost $12,000 of industry activity is supported, and almost $21,000 in Ontario.

As part of the analysis, ICF also assessed how the Airport's services affect the competitiveness of industries in the Hamilton region. ICF conducted interviews with airport stakeholders related passenger, cargo and other aviation-related operations to get a better understanding of how local industries benefit from the Airport's presence. Specifically, ICF evaluated the impact that the Airport's passenger services have on tourism and corporate operations in the Hamilton area

and the impact that cargo operations have on the competitiveness of local industries, with a focus in particular on transport of higher value commodities such as pharmaceuticals, medical devices, perishables, automotive parts, aerospace components, industrial goods and dangerous goods (DGR).

Interview feedback confirmed that the Airport's primary passenger market is leisure travel as well as intra-Canada travel for a variety of travel purposes. Air cargo operations have grown significantly at the airport in recent years. In 2017, Hamilton International Airport handled approximately 98 thousand tons of cargo[1] making the Airport the fourth largest cargo handler in Canada. Additionally, 500 million kilograms of aircraft billable weight landed at the Airport. The primary generator of air cargo volumes at the Airport is Cargojet, Canada's largest dedicated air freighter operator, which uses the Airport has their primary hub. Hamilton Airport also supports scheduled cross-border freight operations by the US integrators UPS and DHL, turboprop regional feeder service, and ad hoc charter freight operations.

The majority of the air cargo volumes at the Airport are local origin-destination (O&D) – e.g., traffic that is trucked to and from the airport, as opposed to transshipped from one aircraft to another. This means that most air cargo traffic at the Airport originates at, or is destined for, the Hamilton region and southern Ontario, rather than simply transiting through the airport. This in turn implies that the Airport's air cargo operations will have a greater economic impact on the surrounding region, compared to an airport that is more highly reliant on air-to-air transshipment.

In 2014, InterVISTAS Consulting Inc. prepared a report for Tradeport International Corporation entitled *John C. Munro Hamilton International Airport: Economic Impact Study.* This report was a similar study that analyzed the economic impact of the Airport. Table E3 below provides a comparison between the 2013 and 2017 studies illustrating the modelled increase in employment, labor income, value added, and industry activity between 2013 and 2017.

Table E3: Comparison of Impact – 2013 and 2017

Input	Employment	Labor Income	Value Added	Industry Activity
Total Impact 2013	2,760	$151 Million	$284 Million	$644 Million
Total Impact 2017	3,450	$243.5 Million	$385.7 Million	$1.2 Billion

Source: InterVISTAS Consulting Inc. *John C. Munro Hamilton International Airport: Economic Impact Study* & IMPLAN analysis

Note: Total impact in 2017 includes visitor expenditure impacts, while the 2013 total impact does not.

The comparison shows growth across every economic metric considered, and demonstrates the growing positive impact that the Airport has on the region.

[1] Source: Statistics Canada

Introduction

Airports are key engines of economic development in the regions they serve. John C. Munro Hamilton International Airport (“the Airport”) employs thousands of workers every year, produces millions in wages, and supports millions in industry activity. This analysis seeks to quantify the Airport's economic impact on the Hamilton CMA and the broader Ontario region.

John C. Munro Hamilton International Airport not only generates direct economic benefits for employees and visitors, it is also indirectly involved in generating regional employment and revenue through spending on airport operations, capital investments, airport employment, and visitor spending. In this analysis, ICF measures the economic impact of the Airport’s capital expenditures, operational activity in terms of cargo and passenger employment, concessions spending, and visitor spending. Impacts are measured in terms of job creation, labor income, and industry activity across Ontario, Canada, as well as specifically in the Hamilton CMA.

Cargo in recent years has come to play a significant role in Hamilton and Ontario's economies as it passes through the region on its way across the country and around the globe. The primary generator of air cargo volumes at the Airport is Cargojet, Canada's largest dedicated air freighter operator, which uses the Airport has their primary hub. Hamilton Airport also supports scheduled cross-border freight operations by the US integrators UPS and DHL, turboprop regional feeder service, and ad hoc charter freight operations. ICF predicts that cargo volumes will continue to increase in Hamilton in coming years, further emphasizing its importance in terms of job creation and economic growth.

Armed with this knowledge, John C. Munro Hamilton International Airport will be able to raise awareness about its crucial role in the regional economy, utilize relevant information for informed decision-making, and garner stakeholder support for its long-term development plan.

Methodology

Economic Impact Modeling

Airport spending initiates economic impact throughout the Hamilton and the Ontario region not only through direct purchase of goods and services from the surrounding economy but also through employment, infrastructure development, and tourism. The Airport creates economic impacts via multiple pathways, from operational purchases and capital spending to employing airport workers and transporting visitors to the region. Direct spending by the Airport and its visitors is the most straightforward economic impact. However, this direct spending represents only a portion of the Airport-generated impact. The full economic impact of the Airport on the regional economy, including indirect impacts in sectors beyond the initial spending categories, can be assessed through economic impact modeling.

Regional economic modeling is founded on the principle that industry sectors are interdependent: one industry purchases inputs from other industries and households (e.g., labor) and then sells outputs to other industries, households, and government entities. Therefore, economic activity in one sector causes an increased flow of money throughout the economy. This analysis uses the modeling software IMPLAN (version 3.1) to calculate these

impacts. IMPLAN is widely used by municipalities and other entities throughout North America and thus the results of this analysis are comparable to other assessments. The Airport's impact is driven by three key spending categories: Capital Expenditures, Operational Activity for both cargo and passenger service and Visitor Spending in terms of on-airport concessions and tourism spending.

The results of this analysis are reported using four commonly-used metrics, consistent with best practices across economic impact analysis. A summary of each metric is provided below:

- **Employment**: Represents the jobs created in each industry, based on the output per worker for each industry.
- **Labor Income**: Includes all forms of employment income generated by the direct input, including employee compensation (wages and benefits) and proprietor income.
- **Value added**: The net value of output, including labor income, indirect business taxes, and business income. It is also known as Gross Domestic Product (GDP).
- **Industry Activity**: Represents the total value of industry activity generated by the direct spending.

Because IMPLAN does not provide city or district level data for Canada, the modeling was done at the provincial level for Ontario. The results of the Ontario model were then scaled down according to data from outside sources to assess the economic impacts of the Airport on the Hamilton region.

The process used to scale the results as well as a more detailed discussion about the methodology employed can be found in **Appendix A.**

Industry Competitiveness Assessment

In addition to the impact modeling, ICF also assessed how the Airport's services impact the competitiveness of industries in the local region and southern Ontario. ICF conducted interviews with airport stakeholders related to both passenger and cargo operations to gain an understanding of how local industries benefit from the Airport's presence.

The stakeholders that informed ICF's analysis are listed in Table 1, below.

Table 1: Stakeholders Interviewed

Name	Association
Sharon Murphy	Tourism Hamilton
Keenan Loomis	Hamilton Chamber of Commerce
Steve Golding	WestJet
Jackie Chong	BioScript Pharmacy
Gord Johnston	Cargojet
Hillary Dawsom	Mohawk College
Grant Stevens	KF Aerospace

Additionally, ICF reached out to representatives as Centre for Probe Development and Commercialization (CPDC), Koss Aerospace, Comtek, Magellan Aerospace, Martinrea International Inc, Multimatic Inc, DHL Express (Canada) Ltd. and Hamilton's Office of Economic Development, Purolator and UPS.

This remainder of this report includes an analysis of the economic impact modeling results followed by a discussion of the competitiveness impacts.

Economic Impacts

This section provides a summary of the economic modeling results as well as a detailed discussion of the impacts associated with each spending category and industry of impact. The section concludes with a comparison of the 2017 impacts to past studies.

Summary of Economic Impacts

The tables below summarize the results from the economic impact modeling analysis by spending category on the Hamilton economy. Table 2 represents the total economic impact of each spending category within Hamilton, while Table 3 represents the economic impact on the rest of Ontario. Findings indicate that the Airport supports an estimated 3,500 annual jobs, $243.5 million in labor income and approximately $1.2 billion in total industry activity in Hamilton. In addition, the Airport contributes $385.7 million in value added towards the GDP.

Table 2: Impacts of Airport-Related Activity in Hamilton, 2017

	Employment	Labor Income	Value Added	Industry Activity
Capital Expenditures	40	$2.8 Million	$4.2 Million	$8.5 Million
Operational Expenditures	2,970	$220.4 Million	$353.2 Million	$1.1 Billion
Concessions	50	$2.3 Million	$3.2 Million	$6.4 Million
Visitor Tourism Spending	390	$18.0 Million	$25.1 Million	$50.7 Million
Total	3,450	$243.5 Million	$385.7 Million	$1.2 Billion

Source: IMPLAN analysis. Note, numbers may not sum due to rounding. Employment is reported in terms of number of jobs. All labor income and industry values are in 2018 dollars.

Operational expenditures are the main driver of economic impacts in Hamilton. Specifically, cargo operations support almost 60% of the total operational impact.

Table 3: Operations Impact in Hamilton

	Employment	Labor Income	Value Added	Industry Activity
Cargo Operations	1,710	$126.9 Million	$203.4 Million	$627.5 Million
Passenger Operations	380	$28.1 Million	$44.9 Million	$138.7 Million
Both Cargo and Passenger Operations	880	$65.4 Million	$104.9 Million	$323.4 Million
Total	2,970	$220.4 Million	$353.2 Million	$1.1 Billion

In addition to the impact felt directly in Hamilton, some of the Airport's activity "leaks" outside of the Hamilton region into the broader Province. Table 4 demonstrates the impact felt in the rest of Ontario, excluding Hamilton. The airport supported an additional 4,000 jobs, $230 million in labor income, $385.9 million in GDP, and $892.5 million in industry activity in the rest of Ontario.

Table 4: Impacts of Airport-related Activity on the Rest of Ontario, 2017

Total Impact	Employment	Labor Income	Value Added	Industry Activity
Capital Expenditures	10	$0.5 Million	$0.8 Million	$1.7 Million
Operational Expenditures	3,830	$219.9 Million	$367.8 Million	$855.9 Million
Concessions	20	$1.1 Million	$1.9 Million	$3.9 Million
Visitor Tourism Spending	140	$8.5 Million	$15.4 Million	$31.0 Million
Total	**4,000**	**$230 Million**	**$385.9 Million**	**$892.5 Million**

Source: IMPLAN analysis. Note, numbers may not sum due to rounding. Employment is reported in terms of number of jobs. All labor income and industry values are in 2018 dollars.

Impacts of Hamilton International Airport can be classified as direct, indirect, and induced effects. In 2017, direct activity at the airport supported 2,300 jobs, $175 million labor income, and $876 million in industry activity.

Table 5: Total Impact in Hamilton, 2017

Total Impact	Employment	Labor Income	Value Added	Industry Activity
Direct Effect	2,300	$175.0 Million	$265.5 Million	$876.0 Million
Indirect Effect	180	$11.0 Million	$17.2 Million	$45.0 Million
Induced Effect	950	$57.5 Million	$112.0 Million	$235.0 Million
Total Effect	**3450**	**$243.5 Million**	**$385.7 Million**	**$1.2 Billion**

*Industry activity is a measure of total economic output, which is a sum of all the transactions included in the GDP

Source: IMPLAN analysis. Note, numbers may not sum due to rounding. Employment is reported in terms of number of jobs. All labor income and industry values are in 2018 dollars.

In the context of the overall Hamilton regional economy, the airport is a small contributor of jobs, making up just less than 1% of the over 385,000 jobs in the Hamilton region. However, with a direct employment of roughly 2,300, Hamilton Airport is among the top ten employers in the region. A list of the top employers, along with their estimated employment, can be seen in Appendix B, Table A13. All of the direct effects of the Airport are felt in Hamilton, however roughly 50% of the total impacts leak out into the province.

Employment can be both permanent and seasonal, as well as full and part time. Intervistas, in their 2013 analysis of the Hamilton International Airport, conducted a survey of 28 tenants and businesses economically linked to the airport to determine the makeup of full time equivalent (FTE) direct jobs supported at the airport. They determined that 99.4% of FTE jobs were permanent versus seasonal, and 79% were full versus part time positions. It is assumed that the makeup of airport-related jobs has remained consistent up to the time of ICF's analysis.

The indirect and induced effects of airport spending can be summarized through each multiplier. For example, $1 of direct industry activity produces a total effect that is nearly 1.37 times greater than the initial spending. Thus, for every dollar of direct industry activity generated by the Airport, roughly $1.37 is returned to the Hamilton economy. The Hamilton multipliers are summarized in Table 6.

Table 6: Multipliers and Metrics of Airport-Related Activity in Hamilton, 2017

Total Impact	Labor Income	Value Added	Industry Activity
Multipliers	1.51	1.61	1.37
Impact per Visitor	$3,000	$4,600	$13,700
Impact per Thousand kg	$490	$780	$2,300
Impact per Ton	$2,500	$3,900	$11,800

Source: IMPLAN analysis. Employment is reported in terms of number of jobs. All labor income and industry values are in 2018 dollars.

Also shown in Table 6 are the impacts per visitor, per thousand kilograms (kg) of aircraft billable cargo, and per ton of cargo handled. Annually there are 84,225 visitors to the Airport and 499,211,000kg of aircraft billable cargo, and 98,000 tons of cargo handled. For every 100 visiting passengers, $1.4 million of industry activity is created. For every 10,000 kg's of aircraft billable cargo, approximately $23 million of industry activity is created, and every thousand tons of cargo handled, $11.8 million of industry activity. Impacts per visitor and thousand kg/ton of cargo are included to show the impact each has on the economy of the region.

For comparison, Table 7 shows Ontario-specific multipliers and impacts per visitor and cargo weight. The multiplier effect here is larger due to the larger area and thus greater indirect and induced effects compared to Hamilton.

Table 7: Multipliers and Metrics of Airport-Related Activity in Ontario, 2017

Total Impact	Labor Income	Value Added	Industry Activity
Multipliers	2.76	3.06	2.36
Impact per Visitor	$5,600	$9,200	$24,300
Impact per Thousand kg	$950	$1,500	$4,100
Impact per Ton	$4,800	$7,900	$20,900

Source: IMPLAN analysis. Employment is reported in terms of number of jobs. All labor income and industry values are in 2018 dollars.

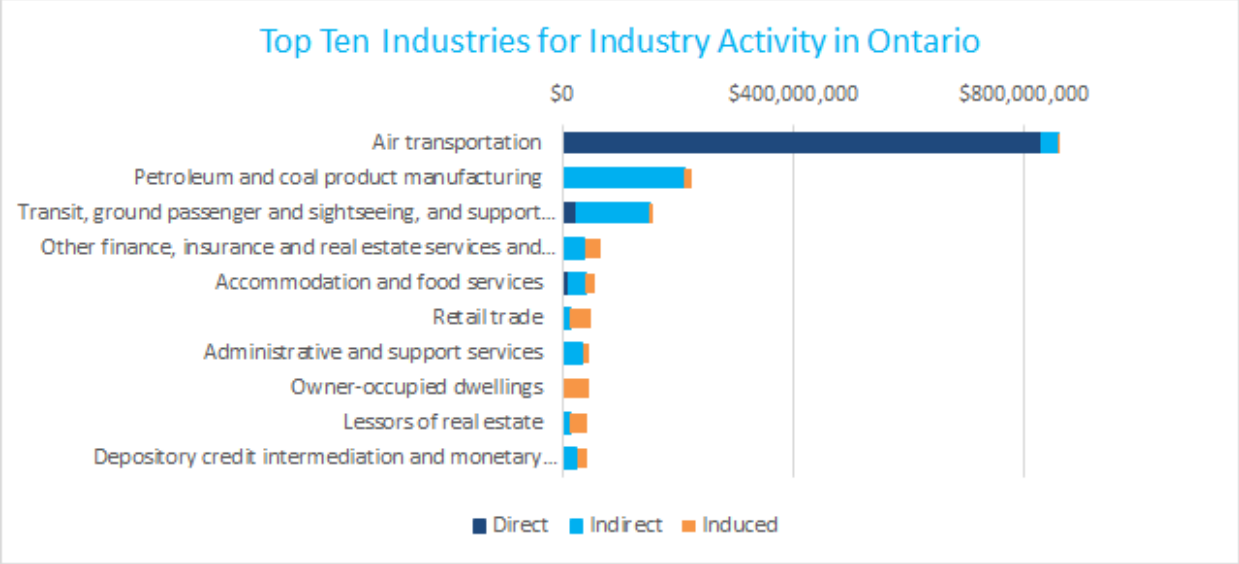
Appendix B provide a detailed discussion of impacts for each spending category: Capital Expenditures, Operational Expenditures, Visitor Concession Spending, and Visitor Tourism Spending for both the Hamilton region and the broader Ontario province.

Industry-Specific Impacts

The previous discussion provides economy-wide impacts generated by Airport-related activity; however, it is important to consider the fact that the bulk of the impacts are felt in a concentrated number of industries.

The top ten industry sectors shown in Figure 1 account for nearly 78% of the total industry impacts in Ontario. Notably, air transportation is one of the few industries driven mainly by direct effects, while the remaining 9 industries are mainly affected my indirect and induced effects.

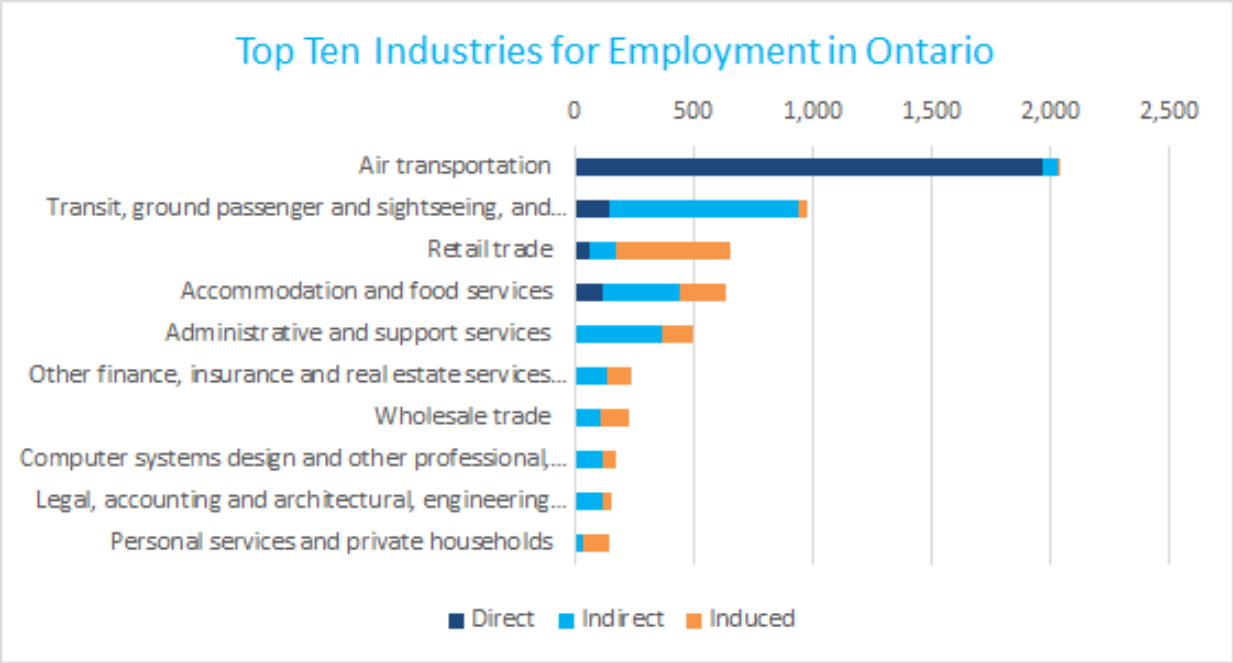
Figure 1: Top Ten Industries for Industry Activity in Ontario, 2017



Source: IMPLAN analysis.

Similarly, the bulk of the employment impacts are felt in a few key sectors. Altogether, the top 10 sectors account for just over 77% of total employment impact. Sectors among the top 10 industries affected by Airport-related activity are again air transportation, ground transportation activity, retail, etc. The full list of industries impacted in terms of employment is illustrated in Figure 2.

Figure 2: Top Ten Industries for Employment in Ontario



Source: IMPLAN analysis.

Comparison to Past Studies

The 2014 *John C. Munro Hamilton International Airport: Economic Impact Study* prepared by InterVISTAS analyzed the economic impact of the Airport using 2013 activity levels. While not all aspects of the study are comparable to the current analysis undertaken by ICF, this previous study provides a basis for comparison of the Airport's impact overtime. Table 8 below shows the increases in employment, labor income, value added and industry activity associated with capital expenditures and operational activity. The impact has grown since 2013 in proportion to increases in direct spending.

Table 8: Study Comparison of Impact

Input	Employment	Labor Income	Value Added	Industry Activity
Total Impact 2013	2,760	$151 Million	$284 Million	$644 Million
Total Impact 2017	3,450	$243.5 Million	$385.7 Million	$1.2 Billion

Source: InterVISTAS Consulting Inc. *John C. Munro Hamilton International Airport: Economic Impact Study*; ICF's IMPLAN analysis

Note: Total impact in 2017 includes visitor expenditure impacts, while the 2013 total impact does not.

Impact on Industry Competitiveness

In addition to assessing the Airport's economic impact in terms of its capital, operational and visitor activity, ICF also assessed how the Airport's services impact the competitiveness of industries in the Hamilton region. ICF conducted interviews with airport stakeholders related to passenger, cargo and other aviation-related operations to gain an understanding of how local industries benefit from the Airport's presence.

Passenger Service

In 2017, nearly 600,000 passengers flew to and from Hamilton International Airport, up 80% from 2016. ICF spoke to representatives from the Hamilton Tourism office, the Chamber of Commerce and WestJet, one of the Airport's major airlines, to better understand how the Airport's passenger service effects the local tourism market and corporate travel for the region's key industries.

With close proximity to Pearson and Billy Bishop airports, Hamilton International has carved out a niche for itself in low-cost passenger leisure travel sector, with scheduled services to key leisure destinations. However, the Airport has not been as effective in penetrating the business travel sector. The sheer critical mass of scheduled passenger aircraft operations at Toronto's Pearson International Airport, with frequent and direct service to key business travel destinations, as well as proximity to Toronto's business and commercial areas, has enabled Pearson to become the airport of choice for the corporate travel market in southern Ontario. Billy Bishop Toronto City Airport, which is located in downtown Toronto, supports only regional and transborder turboprop service at present, but has also been effective at attracting business travelers. That said, Hamilton Airport does serve business travel for government employees and a slice of the business market travelling to Ottawa (via Montreal) or Calgary, Alberta. Furthermore, Hamilton Airport serves convention and sporting event travelers who bring revenue to the City's hotel and restaurant sectors.

Hamilton Airport's successful passenger service focus has been on low cost carrier service in leisure markets. The presence of several low-cost airlines has driven up passenger counts in recent years and helped the Airport to attract travelers to and from Hamilton and other southern Ontario points who previously favored U.S. airports near the border, such as Buffalo Niagara International Airport. While low fares are an important factor for travelers, ease of travel, particularly for outbound passengers, is a significant benefit of Hamilton Airport compared to other regional airport alternatives.

The presence of Hamilton Airport passenger air service provides important benefits to local hotels and restaurants, with business generated from both local and visiting passengers who may stay in the City for a night or two before or after their flight. Additionally, airline crews rely on local hotels and restaurants when they overnight in Hamilton, further contributing to the local tourism economic impact in Hamilton.

Cargo Operations

In 2017, Hamilton International Airport handled approximately 98 thousand tons of cargo and approximately 500 million kilograms of aircraft billable weight, which represents an extremely healthy increase of 14% from 2016 figures. As the largest overnight express airport and the fourth largest cargo facility in Canada, Hamilton Airport is Canada's largest integrated express hub, which affords it a competitive advantage particularly for highly time-sensitive goods and next-day shipments. Key air cargo operators and air cargo stakeholders at the Airport include Cargojet, Purolator, Canada Post, DHL and UPS.

ICF reached out to Cargojet, the Airport's most important air cargo operator, to learn more about their operations in Hamilton. In 2017, Cargojet handled 66% of total Max Takeoff Weight (MTOW) cargo volume at Hamilton Airport, and 89% of the total weight of cargo handled. The vast majority of Cargojet's volume at Hamilton Airport is local O&D, with 90% of goods destined for the Greater Toronto area, indicating that Hamilton Airport is a critical waypoint for local air cargo origin and destination traffic. Hamilton has also served as a gateway for Cargojet service to and from intercontinental destinations, including Europe (specifically Cologne) and South America (Lima and Bogota).

As an integrated express-focused hub, Hamilton Airport is ideally suited to tap into the burgeoning market for highly time-sensitive e-commerce shipments. Much of the global market for e-commerce is transported on integrators and/or by postal services.

E-commerce

Ontario, as well as the rest of Canada, is the home of a strong and rapidly growing e-commerce industry. E-commerce retail spending in the country is predicted to represent 10% of total retail spending by 2019, resulting in $50 billion spent annually. As of March 2017, Canadian retail e-commerce sales were over $1.2 billion. Investment in the e-commerce market continues to grow as well. Since 2012, Canadian e-commerce companies have raised over $4.8 billion in capital in deals with over 590 global investors.[2] These trends are consistent throughout Ontario and the Hamilton region. In Ontario there are over 15 manufacturing companies[3], as well as large distribution centers that contribute to the growth of e-commerce in the Province. Yet there is still great potential for continued expansion. Only about half of Canadian small businesses offer online sales. Additionally, because of the size of Canada, it is difficult to quickly distribute e-commerce goods. Hamilton Airport could play a key role in helping to solve this problem. Hamilton Airport has seen double-digit cargo growth in 2017, largely driven by increases in e-commerce activity in the area.

Business-to-business (B2B) markets in Canada have also been becoming increasingly e-commerce dependent. In 2016 nearly 50% of B2B sellers in Canada generated more than 25% of their sales online.[1] Additionally, a vast majority of Canadian small and large businesses report making online purchases, for things like travel, access to government services, and office

[2]CanadianBusiness.com https://www.canadianbusiness.com/innovation/canada-ecommerce-innovators/
[3] Leonard's Gide Online http://www.leonardsguide.com/lgo/warehouse-companies/ontario.shtml

supplies. As Canada continues to support e-commerce growth this industry is expected to continue to grow.

Hamilton Airport, with its large cargo facilities that operates 24/7, has the capacity to help in meeting the tight deadlines that e-commerce often faces and to distribute the increasing volumes of cargo. Large e-commerce stores are also realizing the capacity of Hamilton Airport. For instance, Amazon, one of the largest online retailers in the world, is increasing their workforce in the Hamilton area in order to meet consumer demand.[4] E-commerce represents 30-40% of total Cargojet cargo activity. Cargojet works in collaboration with Amazon fulfillment centers in Brampton and Caledon along with the likes of Purolator and Canada Post. As Canadians increasingly utilize e-commerce, the industries cargo impacts are likely to continue to grow.

Supporting Regional Industry Success

Healthcare, pharmaceuticals, aviation MRO, steel production and higher education are key regional industries in Hamilton. As discussed, corporate travelers do not make up a significant portion of Hamilton Airport's passengers, however the Airport's cargo operations and on-site training programs support the competitiveness of the region's key industries.

The vast majority of inbound and outbound cargo at the Airport is local origin and destination (O&D) rather than air-to-air transshipment, implying that the Airport's cargo operations are largely supporting local manufacturers, suppliers and businesses that rely on air cargo transportation services. These services are particularly critical for commodities that are higher value or time sensitive, such as medical devices, pharmaceuticals, or perishables including produce and flowers.

ICF contacted regional employer BioScript Pharmacy in Oakville and they confirmed that they rely heavily on air cargo services at Hamilton Airport, and typically contract out their deliveries with large couriers such as Purolator or Canada Post. It is also noted that ATS Healthcare heavily utilizes the airport's cargo operations as well. Similarly, Hamilton's largest regional employer, Hamilton Health Sciences (HHS) relies extensively on air cargo operators that utilize Hamilton Airport.

The Airport does not have any operating curfews or nighttime operating limitations, which provides a competitive advantage vis-à-vis Toronto Pearson, and a further advantage in attracting cargo traffic related to the region's growing, and time-sensitive e-commerce activity.

With the growth of cargo operations at the Airport, the need for other aviation-related services, such as maintenance, repair and overhaul operations (MRO) has also grown. ICF spoke with KF Aerospace, an MRO operator at the Airport which currently employs nearly 150 employees and is expecting to triple in size in the near future. In addition to the uptick in local air cargo activity, aviation service providers at the Airport are also taking advantage of the global growth

[4] CBC News https://www.cbc.ca/news/canada/hamilton/amazon-hamilton-1.4794861

in air transportation. KF also benefits from the Airport's air cargo operations to transport the parts and materials needed in their operations.

Finally, the Airport serves a critical role as a learning site for Mohawk College's aerospace service training programs offering students hands-on experience in electronics, MRO, and assembly. As the aerospace industry continues to grow, so do the training needs of the workforce to support it. With on-site access to airport customers, Mohawk College's program offers a unique opportunity for students from the Hamilton area but also for students from further afield, and will help develop a more highly skilled labor force, offering additional employment and economic benefits to the region.

Conclusion

Hamilton is an integral part of the regional economy, generating $1.2 billion in economic activity each year and supporting roughly 3,500 jobs in the Hamilton. The Airport's capital expenditures, operational expenditures, on-airport and surrounding employment, and visitor spending each contribute a significant economic benefit to the region. ICF also assessed how the Airport's services benefit key industries in the Hamilton region. High value industries such as healthcare, pharmaceuticals, aviation MRO, steel production and higher education all benefit from the Airport's air cargo operations and on-site training programs, and the airport is expected to play an increasingly critical role in supporting the growth of e-commerce activity in the region and will serve as a major gateway for growth in global connectivity.

References

Deloitte. City of Hamilton. The Current and Future Sate of Hamilton's Advanced Manufacturing Sector Study (2014). Available online at: http://www.investinhamilton.ca/wp-content/uploads/2015/02/Hamilton-Adv-Mfg-Report.pdf

Hamilton. Business Count by Size Category in Hamilton. Available online at: https://www.hamilton.ca/city-initiatives/citizen-dashboard/business-count-by-size-category-in-hamilton

Hamilton. Employment by Sector 2016 Labor Force Survey. Available online at: https://www.hamilton.ca/city-initiatives/citizen-dashboard/employment-by-sector

Hamilton. Local Economy & Economic Development. Available online at: https://www.hamilton.ca/city-initiatives/citizen-dashboard/local-economy-economic-development

InterVISTAS Consulting Inc. John C. Munro Hamilton International Airport: Economic Study (2014). Available online at: http://flyhamilton.ca/wp-content/uploads/2012/12/Final-Report_YHM-Economic-Impact-Study_2014.pdf

Statistics Canada. Hamilton, CDR [Census division], Ontario and Ontario [Province] (table). Census Profile (2016). Statistics Canada Catalogue no. 98-316-X2016001. Ottawa. Released November 29, 2017. Available online at: http://www12.statcan.gc.ca/census-recensement/2016/

Statistics Canada. Table 36-10-0468-01 Gross domestic product (GDP) at basic prices, by census metropolitan area (CMA) Available Online at: https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=3610046801?HYPERLINK "https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=3610046801"HYPERLINK "https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=3610046801"

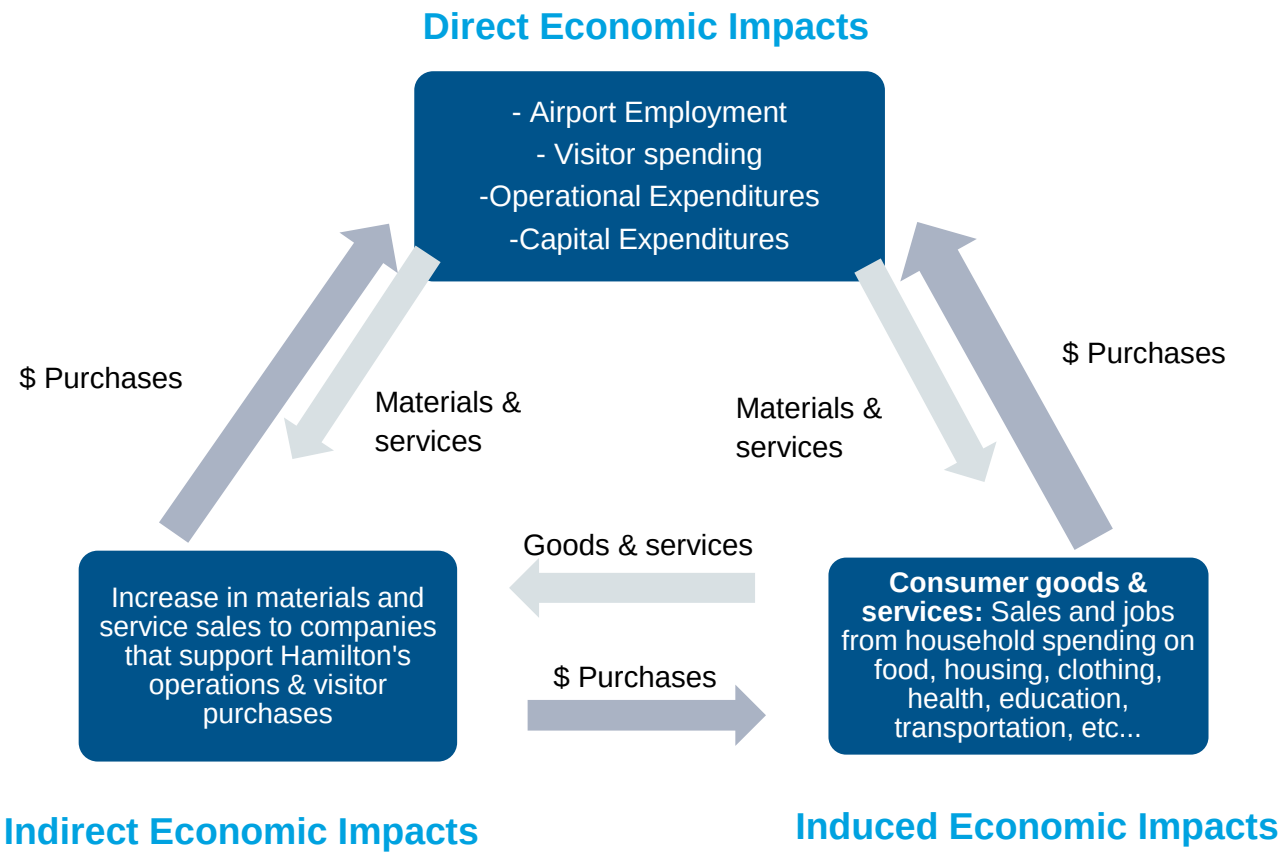
Appendix A: Detailed Discussion of Study Methodology

Introduction to the Model

To estimate the economic impacts of the Hamilton International Airport on the local and regional economy, the project team used the economic impact modeling software IMPLAN (version 3.1), which is created and maintained by the Minnesota IMPLAN Group (MIG). Municipalities across North America regularly use IMPLAN for a variety of applications, including assessing the impact of transportation policies and airports. The IMPLAN model is a static input-output framework used to analyze the effects of an economic stimulus on pre-specified economic regions; in this case both Ontario and Hamilton. The model includes 536 sectors based on the North American Industry Classification System (NAICS). As is depicted in Figure A1, below, the model uses location-specific multipliers to trace and calculate the flow of dollars from the industries that originate the impact to supplier industries. These multipliers are thus coefficients that "describe the response of the economy to a stimulus (a change in demand or production)." IMPLAN's outputs include three types of impacts:

- **Direct impacts**, which are impacts in the primary industries where spending by the Airport and its visitors are focused, such as operations, airport employment, lodging, and restaurant/food purchases.
- **Indirect impacts**, which are impacts in the industries that supply or interact with the primary industries, for example when Airport capital projects require the purchase of construction-related building materials.
- **Induced impacts**, which represent increased spending by workers who earn money due to the proposed projects, such as when airport staff use their wages at local restaurants.

Figure A1: Hamilton Airport's Economic Impact under the IMPLAN Model Framework



The total impact is the sum of the multiple rounds of secondary indirect and induced impacts that remain in the region (as opposed to "leaking out" to other regions). IMPLAN then uses this total impact to calculate subsequent impacts such as total jobs created and tax impacts.

Model Inputs

The total economic impact of the Airport is driven by three key spending categories:

- Capital Expenditures
- Operational Expenditure
  - Cargo Employment
  - Passenger Employment
- Visitor Spending
  - Concessions Spending
  - Tourism spending

Input Methodology and Sources

Model inputs for each spending category were derived from multiple data sources, and therefore required different approaches for transitioning the direct activity data into IMPLAN-ready inputs.

This section describes the data source(s) for each input category and any relevant assumptions and calculations made to prepare inputs for the model.

For all categories except visitor spending, the IMPLAN model inputs were assumed to initiate within Hamilton.

The IMPLAN model for all input categories except direct employment associated with operations were modeled at the SAM model value to account for leakage to other regions. Operational employment was run using 100% local purchase percentages. Setting the model's local purchasing coefficients to 100% acknowledges that all on-airport and surrounding industry employment associated with operations occurred within Hamilton.

Capital Expenditures

The input value for capital expenditure was provided by Airport staff. The figure used in the model was approximately $4.6 million and was primarily modelled in three sectors including non-residential building construction, engineering construction, and repair construction.

Operational Employment

Operational employment inputs were broken out into cargo operational activity and passenger operational activity. Employment data for airport tenants and vendors was provided by Airport staff and totaled by ICF according to business type. Operational employment was categorized as cargo-related unless the business activity was specifically passenger oriented. In all, ICF accounted for 1,964 badged employees, 1,131 or which were in cargo operations, 250 were in passenger operations, and 583 were involved in both cargo and passenger operations.

Visitor Spending

Visitor expenditure was broken out into tourism related visitor spending in the region, and visitor spending on concessions. To develop inputs for visitor spending in the region, ICF first calculated the average visitor spend for 2017 using a weighted average of total visitor spending by origin. Using itemized tourism receipt data for the Ontario region from 1998 through 2015, ICF calculated the average spending ratio among five sectors: Transportation, Lodging, Dining, Gifts/Souvenirs and Entertainment. Multiplying the average visitor spend in each of the five sectors by the annual number of Hamilton visitors, ICF was able to develop direct visitor spending inputs for the model.

Concession spending data was provided by the client and broken down into four sectors including Retail expenditure, Food & Beverage expenditure and Parking expenditure. Car rental expenditure was excluded as it was captured in the operational expenditure inputs. Airport staff provided ICF with data on annual enplanements. To calculate annual passenger spending on concessions, ICF used outside airport statistics data on average concession sales per enplanement to estimate annual passenger concession expenditures. Total visitor spending on concessions totaled approximately $4.9 million.

Study Outputs

Output Metrics

The IMPLAN model was used to assess the economy-wide and industry-specific impacts of the direct spending associated with PVM operational expenditures, capital expenditures, on-airport and surrounding employment in airport-related industries, and visitor spending. The results of this analysis are reported using four commonly-used metrics, consistent with best practices across economic impact analysis. A summary of each metric is provided below:

- **Employment**: Represents the jobs created in each industry, based on the output per worker for each industry.
- **Labor Income**: Includes all forms of employment income generated by the direct input, including employee compensation (wages and benefits) and proprietor income.
- **Industry Activity**: Represents the total value of industry activity generated by the direct spending.

To gain a better understanding of the drivers of impact, the results include impacts for each of the spending categories: operational expenditures, capital expenditures, off-airport employment, on-airport employment, and visitor spending. In addition to providing economy-wide results for each category, industry-specific results for the top 10 industries experiencing the greatest impact were also identified.

Downscaling Hamilton Results

Because IMPLAN does not have a Hamilton-specific model, IMPLAN's Ontario model was used. Hamilton impacts are presented as scaled down indirect impacts using outside data on Real GDP and employment suggesting Hamilton accounts for approximately 5% of the overall Ontario economy.

Appendix B: Economic Impacts by Spending Category

The discussion below provides a more granular look at the results by spending category: Capital Expenditures, Operational Expenditures, Visitor Concession Spending, and Visitor Tourism Spending.

Impacts of Capital Expenditures

Direct capital expenditures totaled approximately $4.6 million in 2018. The tables below describe the impacts of capital expenditures in more detail. Capital expenditures support approximately 40 total annual jobs in Hamilton, $3 million in labor income, and approximately $8.5 million in total industry activity in the region. Over 80% of the total effect on employment, labor income, and industry activity occurs in Hamilton.

Table A1: Impacts of Capital Expenditures in Hamilton, 2017

Impact Type	Employment	Labor Income	Value Added	Industry Activity
Direct Effect	20	$1.5 Million	$2.0 Million	$4.0 Million
Indirect Effect	10	$559,000	$1.0 Million	$2.0 Million
Induced Effect	15	$674,500	$1.5 Million	$2.5 Million
Total Effect	**40**	**$3.0 Million**	**$4.0 Million**	**$8.5 Million**
Multiplier	1.97	1.79	2.04	2

Source: IMPLAN analysis. Totals may not sum due to rounding. Employment is reported in terms of number of jobs. All labor income and industry values are in 2018 dollars.

In Ontario, capital spending drove nearly $3.5 million in labor income and over $10 million in industry activity. Capital spending also supported 50 jobs per year in Ontario, Canada.

Table A2: Impacts of Capital Expenditures in Ontario, 2017

Impact Type	Employment	Labor Income	Value Added	Industry Activity
Direct Effect	20	$1.5 Million	$2.0 Million	$4.0 Million
Indirect Effect	15	$931,000	$1.5 Million	$3.0 Million
Induced Effect	15	$793,000	$1.5 Million	$3.0 Million
Total Effect	**50**	**$3.5 Million**	**$5.0 Million**	**$10.0 Million**
Multiplier	2.33	2.10	2.42	2.40

Source: IMPLAN analysis. Totals may not sum due to rounding. Employment is reported in terms of number of jobs. All labor income and industry values are in 2018 dollars.

Impacts of Cargo Operational Activity

Given the importance of cargo activity at the Airport, it is not surprising that cargo activity makes up a significant portion of the overall operational impact. Direct operational employment related to cargo activity totaled approximately 1,100 badged employees, with about 55 working as vendors, and the remainder as tenants. Operational cargo employment drove approximately 1,700 jobs, $127 million in labor income, and $627.5 million in industry activity across the Hamilton. The tables below describe the impacts of operational cargo expenditures in more detail for both Hamilton and Ontario, with Hamilton representing 5% of Ontario's economy.

Table A3: Impacts of Cargo Operational Expenditures in Hamilton, 2017

Impact Type	Employment	Labor Income	Value Added	Industry Activity
Direct Effect	1,100	$91.0 Million	$135.5 Million	$479.5 Million
Indirect Effect	85	$5.0 Million	$8.0 Million	$21.0 Million
Induced Effect	500	$30.5 Million	$60.0 Million	$127.5 Million
Total Effect	**1,700**	**$127.0 Million**	**$203.5 Million**	**$627.5 Million**
Multiplier	1.51	1.39	1.50	1.31

Source: IMPLAN analysis. Note, numbers may not sum due to rounding. Employment is reported in terms of number of jobs. All labor income and industry values are in 2017 dollars.

Impacts in Ontario are again larger than in Hamilton due to indirect and induced effects. Close to 3,900 jobs, $253.5 million in labor income, and $1.1 billion in industry activity are generated due to operation employment related to cargo. About half of the total effect occurs is in Hamilton.

Table A4: Impacts of Cargo Operational Expenditures in Ontario, 2017

Impact Type	Employment	Labor Income	Value Added	Industry Activity
Direct Effect	1,100	$91.0 Million	$135.5 Million	$479.5 Million
Indirect Effect	1,700	$101.0 Million	$157.5 Million	$413.5 Million
Induced Effect	1,100	$61.0 Million	$122.0 Million	$228.0 Million
Total Effect	**3,900**	**$253.5 Million**	**$415.0 Million**	**$1.1 Billion**
Multiplier	3.46	2.78	3.06	2.34

Source: IMPLAN analysis. Note, numbers may not sum due to rounding. Employment is reported in terms of number of jobs. All labor income and industry values are in 2018 dollars.

Impacts of Passenger Operational Activity

Direct passenger related operational employment totaled to 250 badged employees in 2017, about 150 working as tenants and the remaining 100 working as vendors. Passenger operational employment drove approximately $28 million in labor income and $139 million of industry activity in Hamilton. Passenger operational employment also supported approximately 380 total annual jobs in Hamilton. The tables below describe the impacts of operational expenditures in more detail.

Table A5: Impacts of Passenger Operational Expenditures in Hamilton, 2017

Impact Type	Employment	Labor Income	Value Added	Industry Activity
Direct Effect	250	$20.0 Million	$30.0 Million	$106.0 Million
Indirect Effect	20	$1.0 Million	$1.5 Million	$4.5 Million
Induced Effect	110	$7.0 Million	$13.0 Million	$28.0 Million
Total Effect	**380**	**$28.0 Million**	**$45.0 Million**	**$139.0 Million**
Multiplier	1.51	1.39	1.50	1.31

Source: IMPLAN analysis. Note, numbers may not sum due to rounding. Employment is reported in terms of number of jobs. All labor income and industry values are in 2018 dollars.

Because of direct employment in passenger operations, approximately $247.5 million in industry activity was generated in Ontario, as well as $56 million in labor income. Every direct job associated with Hamilton passenger operations created an additional 3.46 jobs across the Ontario region as a result of indirect and induced effects.

Table A6: Impacts of Passenger Operational Expenditures in Ontario, 2017

Impact Type	Employment	Labor Income	Value Added	Industry Activity
Direct Effect	250	$20.0 Million	$30.0 Million	$106.0 Million
Indirect Effect	365	$22.5 Million	$35.0 Million	$91.5 Million
Induced Effect	250	$13.5 Million	$27.0 Million	$50.5 Million
Total Effect	**870**	**$56.0 Million**	**$92.0 Million**	**$247.5 Million**
Multiplier	3.46	2.78	3.06	2.34

Source: IMPLAN analysis. Note, numbers may not sum due to rounding. Employment is reported in terms of number of jobs. All labor income and industry values are in 2018 dollars.

Impacts of General Operational Activity

There are many positions in Hamilton airport that do not fall into either passenger or cargo related employment, but rather fit into both categories. The impacts of these types of employment was analyzed separately. The input data for employment in the category of "general" operational activity totaled 583 badged employees in 2018. This form of operational employment drove approximately $65.5 million in labor income and a total of $323.5 million in industry activity in Hamilton, while supporting approximately 880 total annual jobs per year. The tables below describe the impacts of operational expenditures in more detail.

Table A7: Impacts of General Operational Expenditures in Hamilton, 2017

Impact Type	Employment	Labor Income	Value Added	Industry Activity
Direct Effect	580	$47.0 Million	$70.0 Million	$247.0 Million
Indirect Effect	40	$2.5 Million	$4.0 Million	$10.5 Million
Induced Effect	260	$16.0 Million	$31.0 Million	$66.0 Million
Total Effect	**880**	**$65.5 Million**	**$105.0 Million**	**$323.5 Million**
Multiplier	1.51	1.39	1.50	1.31

Source: IMPLAN analysis. Note, numbers may not sum due to rounding. Employment is reported in terms of number of jobs. All labor income and industry values are in 2018 dollars.

At the province level, this form of operational activity supports approximately 2,020 annual jobs in Ontario and approximately $131 million in labor income. This operational expenditure also drives approximately $577.5 million in industry activity across the region.

Table A8: Impacts of General Operational Expenditures in Ontario, 2017

Impact Type	Employment	Labor Income	Value Added	Industry Activity
Direct Effect	580	47 Million	$70.0 Million	247.0 Million
Indirect Effect	850	52.0 Million	$81.0 Million	213.0 Million
Induced Effect	585	31.5 Million	$63.0 Million	117.5 Million
Total Effect	**2,020**	**131.0 Million**	**$214.0 Million**	**577.5 Million**
Multiplier	3.46	2.78	3.06	2.34

Source: IMPLAN analysis. Note, numbers may not sum due to rounding. Employment is reported in terms of number of jobs. All labor income and industry values are in 2018 dollars.

Impacts of Visitor Spending on Concessions

Direct visitor spending on airport concessions in 2018 totaled approximately $4.9 million. In Hamilton, approximately 50 jobs are supported by this spending, as well as $2.5 million in labor income and $6.5 million in industry activity. The tables below describe the impacts of visitor concession spending in more detail.

Table A9: Impacts of Visitor Spending on Concessions in Hamilton, 2017

Impact Type	Employment	Labor Income	Value Added	Industry Activity
Direct Effect	35	$1.5 Million	$2.1 Million	$4.5 Million
Indirect Effect	1	$42,600	$0.5 Million	$146,000
Induced Effect	10	$554,400	$1.0 Million	$2.0 Million
Total Effect	**50**	**$2.5 Million**	**$3.0 Million**	**$6.5 Million**
Multiplier	1.32	1.35	1.51	1.46

Source: IMPLAN analysis. Totals may not sum due to rounding. Employment is reported in terms of number of jobs. All labor income and industry values are in 2018 dollars.

Ontario experiences larger indirect and induced effects from direct concession spending. It is these indirect and induced effects that inflate the total effect in Ontario, generating approximately 65 jobs, $35 million in labor income, and $10.5 million in industry activity. Notably, approximately 70% of the total jobs created and of labor income occur in Hamilton.

Table A10: Impacts of Visitor Spending on Concessions in Ontario, 2017

Impact Type	Employment	Labor Income	Value Added	Industry Activity
Direct Effect	35	$1.5 Million	$2.1 Million	$4.5 Million
Indirect Effect	15	$853,000	$1.5 Million	$3.0 Million
Induced Effect	15	$812,000	$1.5 Million	$3.0 Million
Total Effect	**65**	**$3.5 Million**	**$5.0 Million**	**$10.5 Million**
Multiplier	1.81	1.98	2.43	2.35

Source: IMPLAN analysis. Totals may not sum due to rounding. Employment is reported in terms of number of jobs. All labor income and industry values are in 2018 dollars.

Impacts of Visitor Tourism Spending

Thousands of travelers travel to Hamilton each year from across the world. These visitors have a measurable impact on the local economy as they shop locally and partake in the rich culture of the Ontario area. To determine this impact, the project team considered the typical purchases made by tourists in the region, including food and beverages, merchandise, ground transportation, lodging, and entertainment.

Spending by visitors during their stay in the regions totaled to almost $40 million in 2017. Visitor spending in the region supported a total of 530 jobs, 73% of which were based in Hamilton. Aside from direct impacts, 5% of the indirect effects that occur in Ontario are assumed to fall in Hamilton. The tables below describe the impacts of visitor tourism spending on both Hamilton and Ontario in more detail.

Table A11: Impacts of Visitor Tourism Spending in the Region on Hamilton

Impact Type	Employment	Labor Income	Value Added	Industry Activity
Direct Effect	300	$13.5 Million	$16.5 Million	$35.0 Million
Indirect Effect	5	$0.5 Million	$0.5 Million	$1.0 Million
Induced Effect	85	$4.5 Million	$8.0 Million	$15.0 Million
Total Effect	**390**	**$18.0 Million**	**$25.0 Million**	**$51.0 Million**
Multiplier	1.31	1.35	1.51	1.46

Source: IMPLAN analysis. Totals may not sum due to rounding. Employment is reported in terms of number of jobs. All labor income and industry values are in 2018 dollars.

Tourism related visitor spending generated approximately $26.5 million in labor income and $81.5 million in industry activity in Ontario. Because tourism spending is more likely to leak outside of Hamilton than other spending categories, only 50% of all impacts were assumed to occur in the city.

Table A12: Impacts of Visitor Tourism Spending in the Region on Ontario

Impact Type	Employment	Labor Income	Value Added	Industry Activity
Direct Effect	300	$13.5 Million	$16.5 Million	$35.0 Million
Indirect Effect	115	$7.0 Million	$11.0 Million	$23.0 Million
Induced Effect	115	$6.5 Million	$12.5 Million	$24.0 Million
Total Effect	**530**	**$26.5 Million**	**$40.5 Million**	**$81.5 Million**
Multiplier	1.79	1.99	2.43	2.35

Source: IMPLAN analysis. Totals may not sum due to rounding. Employment is reported in terms of number of jobs. All labor income and industry values are in 2018 dollars.

Multipliers demonstrate the impact a dollar of direct tourism spending on the economy of the region. For every job created due to direct visitor spending in the region an additional 1.79 jobs are created in the Ontario, and 1.31 in Hamilton. For every dollar of direct activity, approximately $1.99 in labor income and $2.35 of industry activity is generated in Ontario.

Total Job Impacts

In total, Hamilton Airport supports over 3,400 jobs in the Hamilton region. Of those, 2,300 jobs are direct and fall within Hamilton. In comparison with other top employers in Hamilton, the Airport is on par with the top ten employers in the region. Table A13 lists the top employers in Hamilton by employee size. Based on this list, direct employment associated with Hamilton International Airport would rank 9th in the region in terms of employment size.

Table A13: Top Ten Employers in Hamilton

Rank/Employer	Employment
1. Hamilton Health Sciences	10,000
2. McMaster University	7,400
3. Hamilton-Wentworth District School Board	7,000
4. City of Hamilton	6,000
5. ArcelorMittal Dofasco	5,200
6. Hamilton Catholic District School Board	4,500
7. St. Joseph Healthcare Hamilton	3,000
8. National Steel Car	2,500
9. US Steel	1,100
10. Mohawk College	1,100

2,300 direct jobs associated with Hamilton International Airport would rank 9th compared to other regional employers.

Source: Hamilton International Airport, ICF research and direct communication with business entities.

This page is intentionally blank