

Yukon in COVID-19 Pandemic: Decline in Tourism Activities and the Impact on the Economy

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Abstract

Tourism is one of the most important economic sectors in Yukon that has been acutely impacted by the COVID-19 pandemic. The international tourist arrivals in Yukon in the first three months of the calendar year dropped 25% in 2020 compared to 2019. This paper examines the decline in Yukon tourism activities due to the COVID-19 pandemic and its impact on Yukon's economy. Three scenarios are considered in the paper to reflect three possible patterns of quarterly changes in tourism activities in 2020. We assume that travel restrictions will start to be lifted and national borders will be opened in early July (Scenario 1), in early September (Scenario 2), or in early December (Scenario 3). Based on input-output multipliers and the structure of Yukon's economy, the decline in Yukon tourism activities under these three scenarios would lead to a drop in the business sector GDP by 6.3%, 8.1%, or 8.9%, and a drop in business sector jobs by 1,995, 2,572, or 2,841, respectively, relative to what they would have been without the shock to tourism activities.

Introduction

Tourism is one of the most important economic sectors in Yukon. In 2014, tourism activities in Yukon accounted for 5.3% of its business sector GDP and 18.4% of its business sector jobs, much higher than the corresponding shares for Canada as a whole¹ (Table 1). Note that the business sector in Table 1 is defined as total all industries net of education services, health services, the government sector, the non-profit institutions serving households sector, and the owner occupied dwellings. In 2014, Yukon business sector accounted for about 51% of total nominal GDP and 41% of total number of jobs.

Table 1: Contributions of Tourism Activities to the Business Sector GDP and Jobs, 2014

	Yukon		Canada	
	GDP	Jobs	GDP	Jobs
Total Tourism Activities	5.31%	18.36%	2.63%	4.86%
Transportation	0.92%	0.97%	0.62%	0.50%
Accommodation	2.02%	5.80%	0.53%	0.88%
Food and beverage services	0.96%	5.80%	0.42%	1.65%
Recreation and entertainment	0.15%	0.97%	0.19%	0.51%
Travel services	0.16%	0.97%	0.18%	0.35%
Other Industries*	1.09%	3.86%	0.69%	0.96%

* Includes industries that produce some products bought by tourists including groceries, alcoholic beverages from stores, motor vehicle parts and repair, motor vehicle fuel, toiletries etcetera.

Source: Author's calculation based on Statistics Canada CODR² tables 24-10-0042 and 36-10-0480.

Historically, tourism activities grow faster than the rest of the economy both in Canada and in Yukon. GDP generated by tourism activities in Canada grew at an average annual rate of 2.9% over the 2014-2018 period, compared with 1.8% of the business sector GDP growth during the same period (Table 2). The number of inbound international travelers grew by 6.0% per year on average in Yukon³, slightly higher than the rate of 5.6% for Canada as a whole (Table 2).

Table 2: Growth of Tourism in Yukon and Canada, 2014-2018

	Average Annual Growth	
	Yukon	Canada
Inbound International Travelers	6.0%	5.6%
Tourism GDP	NA	2.9%
Business Sector GDP	-0.2%	1.8%
Tourism Jobs	NA	1.4%
Business Sector Jobs	3.8%	1.2%

Source: Author's calculation based on Statistics Canada CODR tables 36-10-0480, 36-10-0232, 36-10-0234, and 24-10-0005.

¹ The tourism information in 2014 are the most recent information that can be obtained from Statistics Canada Tourism Satellite Accounts.

² CODR is the abbreviation for Common Output Database Repository.

³ Data on domestic travellers (travellers from other provinces) are not available for Yukon.

Tourism activities are hit hard by the global COVID-19 pandemic. According to UNWTO (2020), international arrivals in the month of March fell by 57% worldwide following the start of the lockdown in many countries, widespread travel restrictions, and the shutdown of airports and national borders. Beginning on March 16, 2020, the Yukon government has put in place a series of public health directives relating to COVID-19. Starting March 20, any discretionary, recreational and tourist travel between Canada and the US are banned, including Yukon-Alaska border crossings; and starting March 22, all non-essential travel into and out of Yukon are suspended. As a result of these travel restrictions, Yukon's tourism activities came to a standstill in mid-March, and they will remain so until the travel restrictions are lifted.

The input-output framework

In Yukon, tourism is a high-value contributor to most service-sector businesses, and this is particularly meaningful during the COVID-19 pandemic. The shutdown of tourism activities will impact a wide range of Yukon's economy, including tour operators, local aviation, hotels, restaurants, taxis, gift shops, grocery stores, and businesses in the arts, entertainment and recreation sector.

The input-output model is often used to measure the impact of a final demand shock such as the travel-restriction-induced drop in tourism activities. It can distinguish direct, indirect, and induced effects of a final demand shock. The direct effect is the drop in tourism activities itself. But an exogenous shock to the tourism sector will also reverberate to the broader economy. As output and jobs decline in the tourism sector, so does the demand for the inputs the tourism sector uses. The reduction in the production of these inputs by other industries is termed as the indirect effect. Both the direct and indirect effects also cause employees' income and hence their spending to fall. Therefore, businesses serving the needs of these affected employees will also experience falling demand. This impact is referred to as the induced effect of the shock.

The total impact of the decline in tourism activities on the Yukon economy, including the direct, indirect and induced effects, can be quantified using input-output multipliers derived from Supply and Use Tables (SUT). According to Statistics Canada (2018), these multipliers "... provide a measure of the interdependence between an industry and the rest of the economy." They summarize the direct, indirect, and induced effects of any exogenous shock, such as changes in tourism activities, on the overall economy.

The detailed provincial and territorial SUT, which characterize the structure of a region's economy and the forward and backward linkages between industries within the region, are available only with a lag. The estimates in this paper use the 2016 SUT for Yukon, which are the latest available from Statistics Canada, to estimate the impact of the shock to tourism activities within Yukon. However, the structure of the economy evolves slowly, so the lag should have a minimal impact on the estimates in the scenarios discussed in the next section.

Estimation of the impact of the shock to tourism activities in Yukon

The first step of using the input-output multipliers for impact analysis is to determine the size of the exogenous shock to Yukon tourism activities. Let us look at what has happened in the first quarter 2020. The year-over-year quarterly change in the arrival of international tourists (travellers taking an overnight

trip) in Yukon was -24.8% for the first quarter of 2020⁴. We assume a similar reduction in Canadian tourist arrivals, and that overall, Yukon tourism activities in the first quarter of 2020 would be about 25% lower compared to the first quarter of 2019.

The prospects of Yukon tourism activities for the rest of 2020 are highly uncertain, depending on when the travel restrictions start to be lifted and national borders are to be reopened. Following the scenario analysis in UNWTO (2020), the same three scenarios are considered in this paper. They are: (1) the travel restrictions start to be lifted and national borders are to be reopened in early July; (2) in early September, and (3) in early December. It is noteworthy that these three scenarios are possible outcomes, not most likely outcomes.

To estimate the impact of tourism activities in Yukon, we also need to make assumptions on how Yukon's tourism activities will recover after the lifting of travel restrictions and reopening of national borders. Tourism activities will take a longer time to recover because tourism is more a luxury consumption than a basic need. It is one of the first things that people can easily delete from, and one of the last things that people will add to, their spending plan. In this paper we assume tourism activities in Yukon will recover 30% in the first month after the lifting of travel restrictions and reopening of national borders, and 10% more in each following month up to the end of 2020. Under the assumption, the annual growth of tourism activities would be -67.4%, -86.9%, and -96.0% for the three scenarios, respectively (Table 3)⁵. The result is much higher than the predicted global international travelers by UNWTO (2020) for the year of 2020⁶ because tourism activities in Yukon are highly concentrated in the second and third quarters of each year.

Table 3: Year-to-Year Quarterly Change in Tourism Activities, Yukon, 2020

	Q1	Q2	Q3	Q4	Annual
Scenario 1	-25%	-100%	-60%	-30%	-67.4%
Scenario 2	-25%	-100%	-90%	-50%	-86.9%
Scenario 3	-25%	-100%	-100%	-90%	-96.0%

In addition to the recovery path of the tourism activities, their shares in business sector GDP and jobs are needed for estimating their direct impact. Recall that Table 1 gives the contributions of tourism activities by industry to Yukon business sector GDP and number of jobs in 2014. While these contributions are the latest values available, they do not reflect the recent changes in relative contributions of the relevant sectors to the total GDP. Statistics Canada's CODR table 36-10-0400 shows that from 2014 to 2018, the contributions of the Transportation and warehousing sector (NAICS 48-49), the Arts, entertainment and recreation sector (NAICS 71), and the Accommodation and food services sector (NAICS 72) to the total GDP increased by 38%, 37%, and 18%, respectively. Hence it is reasonable to assume that tourism activities in these industries have been increased proportionally during the period. Under the assumption, projected contributions of tourism activities to the business sector GDP

⁴ It is calculated based on Statistics Canada CODR table 24-10-0043.

⁵ The annual change is weighted sum of quarterly changed. According to Statistics Canada CODR table 24-10-0043, the quarterly shares of international arrivals in Yukon were 4.3%, 28.1%, 59.9% and 7.7% from quarter 1 to quarter 4 in 2019, respectively.

⁶ UNWTO (2020) predicted that the global international arrivals will fall down by 58%, 70%, and 78% under the three scenarios discussed in the report, respectively.

and jobs in 2018 have been updated (Table 4). We also assume that the relative contributions of these sectors to the total GDP did not undergo any substantial change in 2019.

Table 4: Projected Contributions of Tourism Activities to the Business Sector GDP and Jobs, 2018

	Yukon	
	GDP	Jobs
Total Tourism Activities	6.25%	21.16%
Transportation	1.27%	1.34%
Accommodation	2.38%	6.83%
Food and beverage services	1.14%	6.83%
Recreation and entertainment	0.21%	1.33%
Travel services	0.16%	0.97%
Other Industries*	1.09%	3.86%

* Includes industries that produce some products bought by tourists including groceries, alcoholic beverages from stores, motor vehicle parts and repair, motor vehicle fuel, toiletries etcetera.

Source: Author's projection based on Table 1 and information from Statistics Canada CODR tables 36-10-0400.

Estimated impact of the shock on Yukon's business sector GDP growth and jobs

The direct impact of the shock to tourism activities are calculated based on Table 4. The direct impact of the first scenario's 67.4% decline in tourism activities is equivalent to a 4.2% drop in the business sector GDP and a 14.3% drop in the business sector jobs. Using the average growth of the business sector jobs in Yukon from 2014 to 2018⁷, the business sector jobs are predicted to be 11,043 in 2019. Given that, the direct impact on the business sector jobs under the first scenario is equivalent to a loss of 1,576 jobs.

The within-territory input-output multipliers for Yukon — derived from the 2016 territorial Supply and Use Tables — are used to calculate the indirect, induced and total impacts. The ratios of indirect and induced multipliers to direct multipliers by tourism industries are presented in the last two columns of Table 5 and Table 6. Based on these ratios, the indirect and induced effects of a shock in total tourism are 23.0% and 25.7% of its direct effect on the business sector GDP (table 5) and 16.0% and 10.7% of its direct effect on the business sector jobs (table 6), respectively.

The estimated impacts under all three scenarios are presented in the first four columns of Table 5 and Table 6. As shown in the two tables, the reduction in tourism activities in 2020 due to COVID-19 pandemic is likely to lead to a drop in Yukon's business sector GDP by 6.3%, 8.1%, and 8.9%, and a drop in its business sector jobs by 1,995, 2,572, and 2,841 under the three scenarios (Table 3), respectively, relative to what they would have been without the shock to tourism activities.

The estimated impacts in this paper need to be interpreted with caution. First, given the nature of the shocks facing Yukon's tourism sector, the supply conditions in this sector heavily rely on when the travel restrictions are to be lifted and national borders are to be reopened, and the demand conditions are highly related to the actual recovery path of tourism activities. Both supply and demand conditions for tourism are highly uncertain and may play out much differently than the scenarios analysed and the

⁷ Statistics Canada CODR table 36-10-0480.

recovery paths assumed. Second, there are several assumptions behind input-output models, including that: inputs are used in fixed proportions as output is increased or decreased; firms within an industry use the same production process; and prices are fixed. These assumptions can lead to an overstatement of the impacts of a shock if firms can tailor their technology to their new economic conditions, firms are heterogeneous in their capacity to respond to shocks, and/or prices are flexible. Third, the data on the structure of Yukon's tourism activities and their contributions to the business sector GDP and jobs are not up-to-date, so any updates of these values would affect the estimation results in the paper.

Table 5: Percentage Drop in Business Sector GDP due to the Shock in Tourism, Yukon, 2020

	Direct	Indirect	Induced	Total	Indirect as % of direct	Induced as % of direct
Scenario 1						
Transportation*	-0.9%	-0.2%	-0.2%	-1.3%	22.7%	26.5%
Accommodation	-1.6%	-0.4%	-0.4%	-2.4%	23.2%	25.5%
Food and beverage services	-0.8%	-0.2%	-0.2%	-1.2%	20.5%	31.6%
Recreation and entertainment	-0.1%	-0.1%	0.0%	-0.2%	39.3%	25.8%
Travel services**	-0.1%	0.0%	0.0%	-0.2%	29.3%	22.4%
Other Industries***	-0.7%	-0.2%	-0.1%	-1.0%	21.2%	19.4%
Total Tourism	-4.2%	-1.0%	-1.1%	-6.3%	23.5%[†]	25.7%[†]
Scenario 2						
Transportation*	-1.1%	-0.3%	-0.3%	-1.7%	22.7%	26.5%
Accommodation	-2.1%	-0.5%	-0.5%	-3.1%	23.2%	25.5%
Food and beverage services	-1.0%	-0.2%	-0.3%	-1.5%	20.5%	31.6%
Recreation and entertainment	-0.2%	-0.1%	0.0%	-0.3%	39.3%	25.8%
Travel services**	-0.1%	0.0%	0.0%	-0.2%	29.3%	22.4%
Other Industries***	-0.9%	-0.2%	-0.2%	-1.3%	21.2%	19.4%
Total Tourism	-5.4%	-1.2%	-1.4%	-8.1%	23.5%[†]	25.7%[†]
Scenario 3						
Transportation*	-1.2%	-0.3%	-0.3%	-1.8%	22.7%	26.5%
Accommodation	-2.3%	-0.5%	-0.6%	-3.4%	23.2%	25.5%
Food and beverage services	-1.1%	-0.2%	-0.3%	-1.7%	20.5%	31.6%
Recreation and entertainment	-0.2%	-0.1%	-0.1%	-0.3%	39.3%	25.8%
Travel services**	-0.2%	0.0%	0.0%	-0.2%	29.3%	22.4%
Other Industries***	-1.0%	-0.2%	-0.2%	-1.5%	21.2%	19.4%
Total Tourism	-6.0%	-1.4%	-1.5%	-8.9%	23.5%[†]	25.7%[†]

* Multipliers for Transportation and Warehousing (NAICS 48-49) are used.

** Multipliers for Travel arrangement and reservation services (NAICS 5615) are used.

*** Multipliers for all industries are used.

[†] Indirect/direct and induced/direct ratios are implicitly calculated for the total tourism.

Note: Author's calculation based on Statistics Canada CODR tables 36-10-0113, 36-10-0595, 24-10-0042 and 36-10-0480.

Table 6: Drop in Business Sector Jobs⁸ due to the Shock in Tourism, Yukon, 2020

	Direct	Indirect	Induced	Total	Indirect as % of direct	Induced as % of direct
Scenario 1						
Transportation*	-100	-19	-15	-134	19.6%	15.0%
Accommodation	-509	-72	-51	-632	14.2%	10.0%
Food and beverage services	-509	-51	-44	-604	10.0%	8.7%
Recreation and entertainment	-99	-19	-6	-124	19.2%	6.4%
Travel services**	-72	-27	-14	-113	37.7%	18.8%
Other Industries***	-288	-63	-38	-389	21.8%	13.3%
Total Tourism	-1576	-251	-168	-1995	16.0%[†]	10.7%[†]
Scenario 2						
Transportation*	-128	-25	-19	-173	19.6%	15.0%
Accommodation	-656	-93	-66	-815	14.2%	10.0%
Food and beverage services	-656	-65	-57	-779	10.0%	8.7%
Recreation and entertainment	-127	-24	-8	-160	19.2%	6.4%
Travel services**	-93	-35	-17	-145	37.7%	18.8%
Other Industries***	-371	-81	-49	-501	21.8%	13.3%
Total Tourism	-2032	-324	-217	-2572	16.0%[†]	10.7%[†]
Scenario 3						
Transportation*	-142	-28	-21	-191	19.6%	15.0%
Accommodation	-725	-103	-72	-900	14.2%	10.0%
Food and beverage services	-725	-72	-63	-860	10.0%	8.7%
Recreation and entertainment	-141	-27	-9	-176	19.2%	6.4%
Travel services**	-102	-39	-19	-160	37.7%	18.8%
Other Industries***	-410	-90	-54	-554	21.8%	13.3%
Total Tourism	-2244	-358	-239	-2841	16.0%[†]	10.7%[†]

* Multipliers for Transportation and Warehousing (NAICS 48-49) are used.

** Multipliers for Travel arrangement and reservation services (NAICS 5615) are used.

*** Multipliers for all industries are used.

[†] Indirect/direct and induced/direct ratios are implicitly calculated for the total tourism.

Note: Author's calculation based on Statistics Canada CODR tables 36-10-0113, 36-10-0595, 24-10-0042 and 36-10-0480.

⁸ A drop in the number of jobs does not signify an identical increase in the number of unemployed persons as an employed person may work in more than one job.

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References

UNWTO 2020, "The impact of COVID-19 on international tourism", *World Tourism Barometer*, May 2020 <https://webunwto.s3.eu-west-1.amazonaws.com/s3fs-public/2020-05/Barometer%20-%20May%202020%20-%20Short.pdf>.

Statistics Canada, 2018, "National and Provincial Multipliers", *Surveys and statistical programs – Documentation*: 15F0046X, <https://www150.statcan.gc.ca/n1/en/catalogue/15F0046X>.