



# Students Going Digital: the economic impact on Niagara

Prepared for: Niagara Economic Development



## Table of Contents

Executive Summary .....	2
Introduction .....	3
Section 1 – Niagara's Rental Market.....	4
Section 2 – Student Public Transit Ridership in Niagara.....	6
Section 3 – Student Spending in Niagara .....	8
Section 4 – Student Labour Force Engagement.....	11
Section 4.1 Student Employment .....	11
Section 4.2 Work-Integrated Learning .....	17
Section 5 – Considerations outside the scope of this report .....	19
Concluding assessments .....	20



## Executive Summary

The COVID-19 pandemic forced post-secondary institutions to shift many programs to a virtual model, greatly impacting the Niagara region given the presence of both Niagara College and Brock University. Though certain aspects of the post-secondary experience remained in-person, declining enrollment and the ability to remain at-home while studying virtually led to a significant decrease in post-secondary students living in Niagara. Considering this, the purpose of this paper is to present data identifying the subsequent economic effect through the lens of post-secondary education in Niagara.

Economic impact was measured through the lens of the Niagara rental market, public transit ridership revenue, student spending in Niagara, and available labour supply. To estimate these impacts, sources included local survey data, previous reports on post-secondary economic impacts, and data from a range of sources including Statistics Canada and the Conference Board of Canada to analyze these impacts. Findings from this report estimate that the pandemic resulted in:

- A decrease of between 1,713 and 2,544 students renting a housing unit and 2,941 and 4,369 fewer students living in Niagara during the 2020-21 school year;
- A decline in student U-Pass payments of between \$2.9 million and \$3.3 million;
- A decrease in local student spending of between \$2.8 and \$4.8 million monthly, adjusted to between \$25.4 and \$43.6 million over the course of one year;
- A decrease in Niagara's GDP output of between \$37.1 million and \$47.7 million due to a lack of student labour supply in the region; and
- A decrease in Niagara's GDP output of \$39.0 million due to a lack of student work-integrated learning placements within the region.

While this report provides insight into the economic impacts of virtual post-secondary education, other impacts that may be valuable to assess in future research include:

- Staff layoffs,
- Future capital expenditures placed on hold due to a lack of cash flow, and
- The loss of future localized earnings from students who may have remained in Niagara post-graduation had they physically lived within the region in 2020

Though these factors will have an economic ripple effect on Niagara over the short- to long-term, their direct economic impact is either outside the scope of this project or cannot currently be measured and are therefore not part of this project's calculations.

In total, this report suggests that the economic impact from the pandemic directly related to student engagement in Niagara's economy throughout the 2020-21 school year is between \$104.4 and \$133.6 million. This total represents an overall decline between 21.2% and 25.8% in post-secondary student economic engagement.



## Introduction

This report looks to assess the economic impact of Niagara's post-secondary institutions shifting to a more virtual setting for the 2020-21 academic year. Though certain in-person activities have remained, the majority of coursework has taken place online. Moreover, enrollment rates have declined this year, as students have delayed their post-secondary education until after the pandemic. Due to this reality, many students who would otherwise be moving to Niagara are instead remaining at home.

Previous reports have suggested that prior to the pandemic Brock University and Niagara College each contributed between \$257.4 and \$807 million annually to the Niagara region's economy.<sup>1</sup> These estimates vary due to different aspects of output being measured and a reliance on different economic multipliers. Though the range is broad, it is nevertheless quite clear that both post-secondary institutions are regional economic drivers. As such, the Niagara region will undoubtedly see negative economic consequences of this pandemic-driven shift to virtual education. It is the goal of this paper to provide estimates regarding the economic effect of the pandemic forcing these institutions into a virtual environment. This shortened version of the full report focuses more heavily on the final results rather than the calculations specific to each figure. For a more detailed breakdown of the methodologies and calculations used in this report please refer to the full report.

This paper will be assessing four facets of economic activity typically impacted by post-secondary students. First, we will assess the decrease in rental property demand that has resulted due to the pandemic. Second, this report will provide an overview of the impact on Niagara's public transit system. Third, we will measure the pandemic's impact on localized student spending. Fourth, we will outline the changes to labour supply and the subsequent impact to regional GDP output by estimating the decline in work-integrated learning placements as well as employment by industry.

The fifth section of this report will note economic considerations outside the scope of this paper, including staff layoffs, future capital expenditures, and the loss of future localized earnings from students who may have remained in Niagara post-graduation. Though these factors will have an economic ripple effect on Niagara over the short- to long-term, for a number of reasons expounded upon in section five, they remain outside the purview of this analysis. Finally, this paper will conclude with an overall synopsis of the pandemic's impact on economic activity in Niagara.

---

<sup>1</sup> This paper is distinct from these prior reports and the financial estimates are not comparable. Though this assessment touches upon specific aspects of their findings, the scope of each is different, and each measure different aspects of economic engagement. The figures within this paper are a result of the specific measurements we engaged with and are unique to this report.



## Section 1 – Niagara’s Rental Market

The impact to the local residential rental market has been abrupt, resulting in serious negative consequences for Niagara's rental property owners. This section uses survey data from local rental property owners as well as Niagara's post-secondary students to estimate demand for rental units during the pandemic. Using previous research, this section will also establish a baseline estimate of rental demand during pre-pandemic years, to measure the estimated demand decrease due to COVID-19.

### Section 1.1 Rental Unit Survey Data

In a survey of rental property owners in Niagara from November 2020, 367 of their total 1,647 (22.3%) units were listed as currently available. This compares to only approximately 30 units (1.8%) being unfilled at this time during a “typical” November, an increase of 20.5% in unfilled units. We further identified that 64.3% of student renters were actively living in Niagara compared to a typical, pre-pandemic year. Considering that 77.7% of rooms were filled, that suggests an additional 13.4% of renters were renting a unit but not actively living in it. Though students who are renting a unit but living elsewhere would still be obligated to pay their rent, they would not be spending money, working, or be otherwise engaged in the Niagara economy.

A separate survey of 923 Niagara post-secondary students asking about their living arrangements show relatively similar declines, though not as extreme. Compared to 2019, these survey data show a decrease of 13.8% in demand for off-campus housing in Niagara during the 2020 fall semester (compared to the 20.5% decrease seen by extrapolating the property owners' data to the entire sector). The remainder of this report will consider these figures to be estimates providing a low- and high- end projection of the impact of the pandemic on Niagara's rental market. Table 1.1 presents these survey response data.

Table 1.1 Expected number of filled and unfilled rooms, compared to actual 2020 data, Niagara property owners and student survey response data

	Property Owners Data			Student Survey Data		
	2019	2020	Change	2019	2020	Change
Filled Rooms	98.2%	77.7%	<b>-20.5%</b>	100%	86.2%	<b>-13.8%</b>
Unfilled Rooms	1.8%	22.3%	<b>20.5%</b>	0%	13.8%	<b>13.8%</b>
Renters Actively Living in Units	100%	64.8%	<b>-35.2%</b>	100%	76.3%	<b>-23.7%<sup>2</sup></b>

<sup>2</sup> The student survey did not ask whether students renting properties were planning to live in these accommodations. We chose to imply that the difference between this data and the property owner data would be similar to the difference in “filled room” expectations.



### Section 1.2 The Impact of Niagara's Student Rental Demand Decrease

Previous reporting by Brock University and Niagara College indicated that in a typical year 39.0% of Niagara's post-secondary students reside off-campus, away from home, and within Niagara. Applying this percentage to 2019 enrollment data suggests that 12,411 of Niagara's 31,792 post-secondary students rented an off-campus housing unit during 2019. This section is only concerned with the rental market in Niagara and will therefore focus on these 12,411 students. Table 1.2 presents these estimates.

Table 1.2 2019 estimates of Niagara post-secondary students housing arrangements

Living Status	2019 Estimates	Percentage of Total
On-campus residence	2,875	9.0%
Off-campus in Niagara	12,411	39.0%
At home	16,506	51.9%
<b>Total</b>	<b>31,792</b>	<b>100.0%</b>

Tables 1.3. and 1.4 apply the scenarios from Table 1.1 to the estimated 2019 rental demand to present the potential change in rental unit demand and students actively living in Niagara. As can be seen, in the most dire estimate, 2,544 fewer students were looking for rental units in 2020 compared to 2019. Moreover, in this scenario, an additional 1,825 renters were not living in their rented unit, resulting in a total decrease of 4,369 post-secondary students living in Niagara compared to pre-pandemic totals.

Table 1.3 Estimated rental unit demand decrease in 2020 due to the pandemic

Original Demand	Demand Decrease	Corresponding 2020 Demand	Difference in post-secondary renters
12,411	13.8%	10,698	<b>-1,713</b>
	20.5%	9,867	<b>-2,544</b>

Table 1.4 Estimated decrease in post-secondary students living in Niagara in 2020

Original Demand	Decrease in Renters Living in Niagara	Corresponding 2020 Renters Living in Niagara	Difference in students living in Niagara
12,411	23.7%	9,470	<b>-2,941</b>
	35.2%	8,042	<b>-4,369</b>

These figures place a significant burden on Niagara's property owners and have left many in a precarious situation. One organization stressed that they were dealing with major financial constraints and that unlike other businesses and citizens, they had not been able to access government supports. As income from rental properties dwindles due to COVID-19, the property owner argued there would be two specific outcomes:

- First, many property owners, large and small, will be forced to sell properties;
- Second, for those who retain their properties, rent will have to be raised considerably, pushing the cost of renting in Niagara significantly higher for "the next three to four years, at a minimum."



## Section 2 – Student Public Transit Ridership in Niagara

Niagara's post-secondary students are eligible for a universal bus pass (U-Pass) through negotiated agreements with Niagara's local transit operators; for a mandatory fee, students gain access to busses operating throughout the Niagara region. During the pandemic, however, these fees have been reduced. This section estimates the subsequent decrease in revenue generated through U-Passes as a result of COVID-19.

### Section 2.1 Pre-pandemic U-Pass revenue

To calculate the revenue generated by U-Pass agreements prior to the onset of the pandemic we assessed regional transit reports to the Niagara Region Public Works Committee alongside estimates provided by Niagara Regional Transit officials. To begin, a report to the Public Works Committee, *Niagara Regional Transit Service Expansion Update*, dated October 8, 2019, suggests that overall funding for NRT received from negotiations with Niagara College, Brock University, and their respective student unions is approximately \$3.67 million.<sup>3</sup> These data are presented in Table 2.1.

Table 2.1 2019 NRT Revenue attributable to U-Pass agreements, October 8, 2019 report estimates

	Brock Student Fees Revenue	Niagara College Student Fees Revenue	Total Revenue from U-Pass Agreement, NRT
Pre-Pandemic	\$1,500,000	\$2,170,000	<b>\$3,670,000</b>

To validate this data we received estimates from Niagara Region Transit Services officials. In 2019, according to a March 10, 2020 report to the Niagara Region's Public Works Committee, the Region's share of revenue for NRT grew to \$4,894,838. In consultations, officials suggested that "close to 85% [of this 2019 revenue] was from the U-Pass agreements," resulting in approximately \$4,160,612 in revenue being attributable to U-Pass agreements. These data are presented in Table 2.2.

Table 2.2 2019 NRT Overall revenue attributable to U-Pass agreements, March 10, 2020 estimates

	NRT Revenue	Approximate percentage of revenue attributable to U-Pass	Revenue Attributable to U-Pass Agreements
Pre-Pandemic	\$4,894,838	85%	<b>\$4,160,612</b>

Acknowledging that these figures are estimates, we will rely on these data as the range of potential pre-pandemic revenue generated by U-Pass agreements. As such, we expect that between \$3.7 million and \$4.2 million was generated by U-Pass agreements prior to the pandemic.

<sup>3</sup> This estimate is derived from a series of calculations based on data within the committee report. For a detailed breakdown of how we arrived at this total, please see our full report.



## Section 2.2 Assessing the impact of the COVID-19 pandemic on U-Pass revenue

As revenue agreements are negotiated between Niagara College, Brock University, their respective student unions, and Niagara Regional Transit alongside other local transit partners, definitive assessments of the impact of the pandemic on U-Pass revenue is unattainable at this time. However, information is available regarding the costs passed on from student unions to the students of Brock University and Niagara College. By applying those revenue decreases to the pre-pandemic figures assessed in Section 2.1, we can estimate the potential losses incurred during the pandemic.

To begin, Niagara College students are not being charged any U-Pass fee for either semester during the pandemic, while Brock University students are only being charged 50% of the traditional fee. To translate these net decreases to financial totals, we must separate the revenue estimates from Section 2.1 to account for each post-secondary institution's respective portions.

Table 2.1 noted that \$2.17 million of the \$3.67 million (59.1%) total revenue was attributable to Niagara College's students. As we do not have a breakdown per institution for the data presented in Table 2.2, we will apply this same ratio to that data. Table 2.3 then applies the expected revenue decreases noted above to the two pre-pandemic U-Pass revenue estimates to measure possible outcomes regarding the total economic impact of the pandemic on U-Pass revenue.

Table 2.3 Estimated U-Pass revenue decrease due to the pandemic

Revenue Source	Lower Revenue Scenario			Higher Revenue Scenario		
	BUSU	NCSAC	Total	BUSU	NCSAC	Total
Pre-Pandemic Revenue	\$1,500,000	\$2,170,000	<b>\$3,670,000</b>	\$1,700,523	\$2,460,090	<b>\$4,160,612</b>
Pandemic Decrease	50%	100%	<b>79.6%</b>	50%	100%	<b>79.6%</b>
Pandemic Revenue	\$750,000	\$0	<b>\$750,000</b>	\$850,261	\$0	<b>\$850,261</b>
Revenue Decrease	\$750,000	\$2,170,000	<b>\$2,920,000</b>	\$850,261	\$2,460,090	<b>\$3,310,351</b>

As can be seen, it is estimated that Niagara College and Brock University students will collectively pay between \$2,920,000 and \$3,310,351 less towards U-Pass fees during the pandemic, a decrease of approximately 79.6% compared to pre-pandemic levels.





## Section 3 – Student Spending in Niagara

In an effort to measure the expected monthly expenses of post-secondary students in Niagara, we compared three separate reports on post-secondary spending. The first report is Economic Modelling Specialists Int'l's (EMSI) *Economic Impact Report 2016*, updated in 2018, which measured the local impact of Niagara College. Second, we used a 2018 report produced by the Niagara Community Observatory (NCO) titled *The Brock University Effect: How thousands of students and millions of dollars energize the economy of Niagara Communities*.<sup>4</sup> Finally, we consulted Maclean's 2018 Student Expenses poll, which surveyed 23,384 Canadian post-secondary students.<sup>5</sup>

### Section 3.1 Previous Reports' Estimates

The EMSI Economic Impact report's methodology is proprietary, so only the final figures are known. Meanwhile, the Brock Effect utilized Brock University's fee estimator<sup>6</sup> as well as the Niagara Poverty Reduction Network's (NPRN) paper *Calculating the Cost of Living in the Niagara Region, 2017*<sup>7</sup> while the Maclean's Student Expenses poll surveyed 23,384 post-secondary students across Canada.

The findings of each of the three papers were quite similar. The EMSI report calculated that 5,071 students relocated to Niagara in 2014-2015 and collectively spent approximately \$53.3 million locally (approximately \$10,510.7 per student), amounting to monthly spending of \$1,313.8 per student. Comparatively, the NCO report projected students to spend \$1,131.4 per month, while the Maclean's Student Expenses poll projected monthly spending of \$1,257. Table 3.1 presents these spending estimates.<sup>8</sup>

Table 3.1 Prior reports' monthly spending estimates, Niagara's post-secondary students

	Report		
	EMSI Economic Impact Report	Niagara Community Observatory Report	Maclean's Student Survey
Non-Rent Expenses	N/A	\$706.4	\$726.0
Rent	N/A	\$425.0	\$531.0
<b>Total</b>	<b>\$1,313.8</b>	<b>\$1,131.4</b>	<b>\$1,257.0</b>

<sup>4</sup> Boggs, J. & Peddle, L. Niagara Community Observatory. 2018. *The Brock University Effect: How thousands of students and millions of dollars energize the economy of Niagara Communities*,

<sup>5</sup> Brown, M. Maclean's Magazine, 2018. Education Hub – Maclean's 2018 Student Survey.

<sup>6</sup> Brock University Student Accounts & Financial Aid. <https://brocku.ca/safa/undergraduate-fees-estimator/>

<sup>7</sup> The Niagara Poverty Reduction Network. *Calculating the Living Wage for Niagara Region, 2017*.

<sup>8</sup> Our references to the data captured in the EMSI Analyst and NCO papers do not use multipliers, our data only measure the gross totals.



### Section 3.2 Rental Costs

As Table 3.1 shows, the Niagara Community Observatory (NCO) report projects rent expenses to total approximately \$425 per month (rent, utilities, and laundry)<sup>9</sup>, while the Maclean's student survey suggests total rent expenses average \$531 per month for post-secondary students in Niagara.<sup>10</sup> The authors of the NCO report acknowledge the conservative nature of this estimate, noting that their findings are "based on the most conservative assumptions" as they preferred "to undercount rather than inflate Brock's economic impact".<sup>11</sup> Considering this, we will consider the \$425 monthly rent expense as a more conservative estimate of monthly rent expenses for students and the average rent expense of \$531 for a larger spending estimate.

### Section 3.3 Non-rent spending estimates

To estimate the conservative spending estimate for non-rent spending, we will again rely on the NCO report's estimates. To address the higher-spending estimate, we will combine the EMSI Economic Impact findings with the Maclean's Student Survey. We have chosen not to rely specifically on the Maclean's Student Survey because it used an average of monthly expenses for students across Canada, rather than expenses specific to Niagara. As such, their data on non-rent expenses are representative of national proportions from a range of Canadian cities and post-secondary institutions.<sup>12</sup> Combining these data allows for us to mitigate potential errors in terms of extrapolating the spending habits of one post-secondary demographic to another.

### Section 3.4 Total spending estimates

Table 3.2 combines the low- and high- end estimations regarding non-rent and rent expenses for post-secondary students in Niagara. As reported above, our lesser spending estimate suggests that students in Niagara spend approximately \$706.4 on non-rent expenses and \$425 on rent, for total expenses of \$1,131.4 monthly. In comparison, our higher spending estimate suggests non-rent expenses of \$782.8 per month and \$531.0 on rent, for total student spending of \$1,313.8 monthly.

Table 3.2 Adjusted monthly spending estimates, Niagara post-secondary students<sup>13</sup>

	Lesser spending estimate	Higher spending estimate
Non-Rent Expenses	\$706.4	\$782.8
Rent	\$425.0	\$531.0
<b>Total</b>	<b>\$1,131.4</b>	<b>\$1,313.8</b>

<sup>9</sup> Boggs, J. & Peddle, L. *The Brock University Effect*. Page 9.

<sup>10</sup> Maclean's Magazine. Education Hub - Maclean's University Guide 2018: Build Your Own Ranking.

<sup>11</sup> Boggs, J. & Peddle, L. *The Brock University Effect*. Page 4.

<sup>12</sup> While this amalgamation is not ideal, given the data constraints outlined and the need to separate non-rent and rent expenses to calculate economic impact, we feel that this procedure is acceptable.

<sup>13</sup> As in Section 1, expenses accrued by students living at home are not measured here, because a shift to virtual learning will not change their living situation.



Referring to the data presented in Section 1, it was estimated that between 2,941 and 4,369 fewer post-secondary students are *living* off-campus in Niagara, and of that group between 1,713 and 2,544 fewer students are renting a place to live. To measure the total economic impact of the pandemic on post-secondary spending in Niagara, we can multiply the suggested monthly expenditures of students presented in Table 3.2 by these figures. These potential scenarios are presented in Table 3.3.

Table 3.3 Estimated economic impact of COVID-19 on student spending in Niagara

	Lesser Spending Estimate		Higher Spending Estimate	
	Lesser demand decrease	Higher demand decrease	Lesser demand decrease	Higher demand decrease
Rent cost per month	\$425.00	\$425.00	\$531.00	\$531.00
Rent demand decrease	1,713	2,544	1,713	2,544
Rent payment decrease	\$728,025.00	\$1,081,200.00	\$909,603.00	\$1,350,864.00
Non-rent cost per month	\$706.40	\$706.40	\$782.80	\$782.80
Decrease in renters actively living in Niagara	2,941	4,369	2,941	4,369
Spending decrease	\$2,077,522.40	\$3,085,555.20	\$2,302,214.80	\$3,419,270.40
<b>Total monthly impact:</b>	<b>\$2,805,547.40</b>	<b>\$4,166,755.20</b>	<b>\$3,211,817.80</b>	<b>\$4,770,134.40</b>
<b>Total yearly impact<sup>14</sup></b>	<b>\$25,356,479.20</b>	<b>\$37,658,841.60</b>	<b>\$29,332,954.40</b>	<b>\$43,564,531.20</b>

As presented in Table 3.3, if our more conservative estimates are accurate, then we can expect that the pandemic led to a monthly decrease in total student spending of \$2.8 million, for a yearly decrease of \$25.4 million (representing a decrease of 19.0%) relative to pre-pandemic spending. If, instead, our higher-impact scenario more accurately presents the pandemic's impact, then we will see a total monthly decrease in student spending in Niagara of \$4.8 million, for a yearly decrease in student spending of \$43.6 million (or 27.8% compared to pre-pandemic levels).

With the expectation that in both instances the exact number is not at one of the polar ends of the spectrum but rather somewhere in the middle, we estimate that the economic implications with regard to COVID-19 and student spending in Niagara is between \$25.4 million and \$43.6 million, or a decrease between 19.0% and 27.8% of pre-pandemic post-secondary student spending.

<sup>14</sup> The yearly economic impact is relative to 12 months of rental costs and eight months of student spending. The calculation is done this way because post-secondary students typically sign a 12 month lease but only live in the unit for approximately eight months (two school terms).



## Section 4 – Student Labour Force Engagement

The economic impact of students on Niagara's economy is not solely generated by their spending and rental habits. Post-secondary students further engage in Niagara's economy through employment within the general labour force as well as work-integrated learning (WIL) programs. This section breaks down the impact that the shift to virtual school has had on the number of students engaged in WIL placements as well as the broader labour force, and the resulting economic implications for Niagara.

### Section 4.1 Student Employment

Specific data regarding student employment is difficult to ascertain; Statistics Canada considers full-time students to be not in the labour force when measuring youth engagement and does not differentiate between post-secondary students and youth more broadly. At the same time, because these activities take place off campus, it is difficult for post-secondary institutions to track this information. This subsection utilizes a number of estimates regarding student employment and employee output per industry to provide an approximation of the decrease in gross domestic product (GDP) output attributable to the decrease in students living in Niagara during the pandemic.

#### Section 4.1.1 Number of students working in Niagara

Statistics Canada presents annual data at a provincial level on the estimated percentage of post-secondary students who are working, by age cohort and type of institution attended (high-school, college, or university). Table 4.1 presents the percentage of post-secondary students within each cohort who are working as well as post-secondary enrollment in Ontario by cohort. It further applies these Ontario rates to Niagara's 2019 post-secondary enrollment figures to estimate the number of Niagara's students active in the local labour force.

Table 4.1 Employment of Niagara post-secondary students, based on Ontario trends, 2019

Age Cohort	Enrollment by age group, Ontario	Niagara post-secondary students	Percentage of employed students, Ontario	Employed students, Niagara post-secondary
15 to 19	29.8%	9,489	35.0%	3,321
20 to 24	54.9%	17,466	43.1%	7,534
25 to 29	15.2%	4,837	52.0%	2,514
<b>Total</b>	<b>100%</b>	<b>31,792</b>	<b>42.0%</b>	<b>13,368</b>

Source: Statistics Canada Tables 37-10-0106-01 and 37-10-0015-01

As can be seen, based on rates of employment for Ontario's post-secondary students, we expect approximately 13,368 Niagara post-secondary students to have been employed in 2019. This number would have been expected to be similar in 2020, notwithstanding the impact from the pandemic.



Calculations in Section 1 estimated that between 2,941 and 4,369 fewer students were living off-campus in Niagara during the pandemic compared to pre-pandemic levels. Moreover, survey data suggested a decrease of 2,090 students residing on-campus. Together, that would project a decrease of between 15.8% and 20.3% of the total student population eligible for working in Niagara in 2020.<sup>15</sup> Applying this to the 2019 estimate of 13,368 students working in Niagara would suggest that between 2,112 and 2,714 fewer students will be engaging in Niagara's labour force due to the pandemic. However, it is important to note that these students do not all work full-time.<sup>16</sup>

A study involving over 8,500 students found that the average employed student worked 18 hours per week, equivalent to 0.45 hours of a full-time equivalent (FTE) employee (a full-time equivalent employee is classified as one working 2,080 hours annually, or 40 hours per week for 52 weeks).<sup>17</sup> If we apply this rate of employment to the change in student employment then we can expect that the pandemic has led to a decrease of between 950.5 and 1221.2 FTE positions. These calculations are presented in Table 4.2.

Table 4.2 Estimated full-time equivalent decrease in student employment due to COVID-19

	Low-impact estimate	High-impact estimate
Decrease in students employed	2,112	2,714
Average hours worked per student	18 hours (.45 FTE)	18 hours (.45 FTE)
<b>Decrease in FTE students employed</b>	<b>950.5</b>	<b>1221.2</b>

Anecdotally, this estimated decrease is supported through discussions with local businesses. Consultations with retail stores that traditionally rely upon post-secondary students to buttress their other staff identified that stores were struggling to fill job openings in fall 2020. In one specific instance a retail store within Fairview Mall noted that they had to stay closed more than once during fall 2020 because they could not fully staff their store. The store manager asserted that this was due to a lack of students, though with the acceptance that the general population was also less inclined to work in a public-facing role during the pandemic. At a minimum, among businesses we consulted with it was unanimous that the lack of post-secondary students was making the general administration of the store more difficult.

<sup>15</sup> These decreases differ from those used in Sections 1 and 3, as those sections were only interested in students living off-campus. However, students living off-campus, on-campus, and at-home are all captured in the data in Table 4.1 regarding working in Niagara and are therefore included here.

<sup>16</sup> Employers have suggested that students who are working in Niagara during the pandemic are both working more and working fewer hours during the pandemic. We do not have access to data that can confirm either of these assertions and will therefore instead maintain previous hourly work estimates.

<sup>17</sup> Canadian University Survey Consortium. 2011. *2011 Undergraduate University Student Survey Master Report*. Page 26. [https://www.cusc-ccreu.ca/publications/CUSC\\_2011\\_UG\\_MasterReport.pdf](https://www.cusc-ccreu.ca/publications/CUSC_2011_UG_MasterReport.pdf)



Next, we use Statistics Canada youth employment data to estimate the percentage of youth working in each industry in Ontario. Taking these figures and multiplying by each industry's location quotient in Niagara allows for an estimation of the percentage of employed youth *in Niagara* who work in that industry. Finally, we can apply these percentages to the 13,368 students who worked in Niagara in 2019 to get an estimate of the students who would have worked in each industry in Niagara prior to the pandemic, as well as the FTE figures. These data can be seen in Table 4.3.

Table 4.3 Estimated post-secondary students employed by industry, Niagara, 2019

	Percentage of Niagara Total	2019 Jobs	2019 FTE Jobs
Accommodation and food services	27.2%	3,639	1,637
Retail trade	22.0%	2,941	1,323
Construction	7.9%	1,053	474
Health care and social assistance	7.7%	1,023	461
Finance and Insurance, Real Estate and Rental and Leasing, and Building, Business and Other Support Services	6.3%	838	377
Manufacturing	5.9%	784	353
Educational services	5.6%	745	335
Other services (except public administration)	4.2%	560	252
Information, culture and recreation	3.8%	511	230
Primary (agriculture, forest, fishing, mining, quarrying, oil and gas) and utilities	3.0%	395	178
Professional, scientific and technical services	2.3%	301	135
Wholesale trade	1.6%	220	99
Transportation and warehousing	1.4%	189	85
Public administration	1.3%	169	76
<b>Total</b>	<b>100.0%</b>	<b>13,368</b>	<b>6,016</b>

Source: NWPB Custom Calculation utilizing Statistics Canada Table: 14-10-0023-01 and Table: 14-10-0098-01.



Next, we are able to use the FTE jobs by industry data presented in Table 4.3 and assess the subsequent FTE jobs by industry *during the pandemic*, relative to the high and low impact scenarios presented in Table 4.2. For example, prior to the pandemic approximately 1,323 FTE (22.0% of the entire population of student employees) students worked within the retail trade sector. If the impact from COVID-19 is evenly distributed across industries retail trade would see 22.0% of the subsequent labour supply decrease. Complete industry data are presented in Table 4.4.

Table 4.4 Potential FTE job loss due to pandemic, post-secondary students, per industry, Niagara

	FTE Jobs Estimate, 2019	Low-impact (15.8% decrease in students) scenario		High-impact (20.3% decrease in students) scenario	
		FTE Jobs Lost	2020 Jobs	FTE Jobs Lost	2020 Jobs
Accommodation and food services	1,637	259	1,379	332	1,305
Retail trade	1,323	209	1,114	269	1,055
Construction	474	75	399	96	378
Health care and social assistance	461	73	388	93	367
Finance and Insurance, Real Estate and Rental and Leasing, and Building, Business and Other Support Services	377	60	317	77	300
Manufacturing	353	56	297	72	281
Educational services	335	53	282	68	267
Other services (except public administration)	252	40	212	51	201
Information, culture and recreation	230	36	194	47	183
Primary (agriculture, forest, fishing, mining, quarrying, oil and gas) and utilities	178	28	150	36	142
Professional, scientific and technical services	135	21	114	27	108
Wholesale trade	99	16	83	20	79
Transportation and warehousing	85	13	72	17	68
Public administration	76	12	64	15	60
<b>Total</b>	<b>6,016</b>	<b>950</b>	<b>5,065</b>	<b>1,221</b>	<b>4,795</b>

As with our other assessments, and considering that these are provincial approximations of youth employment that are subject to local fluctuations, we will utilize these figures as low- and high- end estimates of the impact of COVID-19 pandemic.





### Section 4.1.2 Gross Domestic Product Impact

To quantify the impact from this decrease we estimated the net GDP output per employee in each industry. This short report presents the final GDP per employee totals; for a detailed breakdown of this calculation please see our full report.

We are able to apply the net GDP output per employee, per industry, to the number of students estimated to be lost from each industry due to the pandemic. Table 4.5 presents the implications of the low and high end estimates regarding post-secondary student labour supply decreases as well as the resulting impact to Niagara's GDP.

Table 4.5 Impact of COVID-19 on St. Catharines-Niagara CMA GDP output, post-secondary student labour supply decrease

	GDP output per FTE employee	Low-impact scenario		High-impact scenario	
		FTE labour supply decrease	Economic Impact	FTE labour supply decrease	Economic Impact
Accommodation and food services	\$26,559.59	259	\$6,871,815.62	332	\$8,828,891.35
Retail trade	\$23,124.14	209	\$4,834,904.40	269	\$6,211,872.96
Construction	\$16,901.65	75	\$1,265,497.09	96	\$1,625,907.47
Health care and social assistance	\$14,415.53	73	\$1,048,996.86	93	\$1,347,748.52
Finance and Insurance, Real Estate and Rental and Leasing, and Building, Business and Other Support Services	\$185,810.74	60	\$11,068,071.80	77	\$14,220,230.70
Manufacturing	\$50,125.25	56	\$2,795,116.34	72	\$3,591,158.42
Educational services	\$41,757.13	53	\$2,212,959.22	68	\$2,843,204.42
Other services (except public administration)	\$3,598.75	40	\$143,290.73	51	\$184,099.57
Information, culture and recreation	\$33,583.62	36	\$1,221,124.17	47	\$1,568,897.24
Primary (agriculture, forest, fishing, mining, quarrying, oil and gas) and utilities	\$93,558.23	28	\$2,627,690.28	36	\$3,376,049.83
Professional, scientific and technical services	\$2,322.57	21	\$49,674.29	27	\$63,821.40
Wholesale trade	\$81,502.97	16	\$1,276,166.44	20	\$1,639,615.42
Transportation and warehousing	\$12,316.36	13	\$165,265.52	17	\$212,332.72
Public administration	\$49,373.51	12	\$591,891.60	15	\$760,460.84
<b>Total</b>	<b>\$41,076.71</b>	<b>950</b>	<b>\$39,034,116.36</b>	<b>1,221</b>	<b>\$50,150,934.14</b>





One final adjustment is still required; to finalize the net GDP output we must calculate the savings that employers will accrue by not having to train new post-secondary employees. A 2019 report by Deloitte identified that, on average, Canadian businesses spent \$899 per employee on training.<sup>18</sup> We will apply this figure to the total labour supply decrease presented in Table 4.4. Note that this calculation does not rely on a FTE figure, because each employee, regardless of the average number of hours worked per week, would need to undergo training. These calculations are presented in Table 4.6.

Table 4.6 Net decrease to GDP output due to COVID-19, after adjusting for training cost savings

	Low-impact scenario	High-impact scenario
2020 Economic Impact	\$39,034,116.36	\$50,150,934.14
Labour supply decrease	2,112	2,714
Total training cost savings	\$1,898,688.00	\$2,439,886.00
Net impact on GDP output	<b>\$37,135,428.36</b>	<b>\$47,711,048.14</b>

As can be seen, we are estimating that the adjusted annual impact to GDP output due to COVID-19 and the implications for post-secondary students is between \$37.1 million and \$47.7 million. This GDP output decrease represents a decrease of between 15.8% and 20.3% when compared to pre-pandemic post-secondary totals in Niagara. This total stems from a decrease in labour output resulting from a lack of post-secondary employees able to staff available positions.

<sup>18</sup> Deloitte Canada, 2019. *University of Waterloo Economic Impact Assessment*. Page 28.



## Section 4.2 Work-Integrated Learning

Similar to general employment, post-secondary students support Niagara businesses through a wide array of work-integrated learning (WIL) programs, including apprenticeships, clinical placements, co-ops, fieldwork, and course-based research. These work-integrated learning programs span a wide range of fields including medicine, law, business administration, culinary management, and hospitality. However, unsurprisingly, the number of students participating in WIL programs has declined during the pandemic. This subsection measures this decrease based on available data and then quantifies the corresponding economic impact to Niagara.

### Section 4.2.1 Decrease in student WIL participation

Prior to the pandemic, in 2019, approximately 10,804 post-secondary students participated in work-integrated learning programs in Niagara.<sup>19 20</sup> Using enrollment data alongside data from Co-operative Education and Work-Integrated Learning Canada (CEWIL), we are able to estimate the decrease in the supply of post-secondary WIL students actively engaged within the Niagara economy.

To begin, available data suggests that WIL programs at Niagara College and Brock University have seen a 12.2% decrease since the beginning of the pandemic. Students who are actively enrolled in a WIL program during the pandemic are also having greater difficulties finding placements. Specifically, data trends from post-secondary institutions that are members of CEWIL suggest successful placements have decreased by 19.7% for Niagara's WIL students. Table 4.7 applies these data to the estimated 10,804 students enrolled in WIL programs prior to the pandemic.

Table 4.7 Estimated decrease in Niagara post-secondary WIL placements due to COVID-19

	2019	2020	Change, 2019 to 2020
Enrollment, WIL programs	10,804	9,485	<b>-1,319</b>
Successful Placement %	86.4%	66.7%	<b>-19.7%</b>
Successful Placements	9,331	6,325	<b>-3,006</b>

As can be seen, these estimates suggest that there are 1,319 fewer students enrolled in WIL programs in Niagara in 2020. Moreover, these data further suggest that work-integrated learning students at Niagara's post-secondary institutions saw 3,006 fewer placements in 2020-21 due to the pandemic, when compared to pre-pandemic levels of engagement.

<sup>19</sup> Niagara College, 2020. *At a Glance*. <https://www.niagaracollege.ca/wp-content/uploads/At-a-Glance-1312020.pdf>

<sup>20</sup> Brock University, 2019-2020. *Brock Facts*. [https://brocku.ca/institutional-analysis/wp-content/uploads/sites/90/Brock-Facts-2019-2020\\_WithOSAP\\_2020.09.18.pdf](https://brocku.ca/institutional-analysis/wp-content/uploads/sites/90/Brock-Facts-2019-2020_WithOSAP_2020.09.18.pdf) and <https://brocku.ca/ccee/co-op-education/>



### Section 4.2.2 Economic impact of student WIL participation decreases

Similar to the employment data in Section 4.1, we can attempt to quantify the impact that this work-integrated learning shortage will have on Niagara's gross domestic product. Utilizing a 2019 report by Deloitte on the University of Waterloo's economic impact, we are able to estimate that each WIL student in Niagara generates approximately \$12,965.78 in net GDP output.<sup>21</sup> As with the section on general employment, for a detailed breakdown of this calculation please see our full report.

To quantify the suggested total economic impact of the decrease in work-integrated learning students, we must now take this output estimate of \$12,965.78 and apply it to the decrease in students who successfully found a placement in 2020 (3,006 students). Table 4.8 combines these data to present a total expected decrease in GDP output.

Table 4.8 Estimated decrease in GDP output due to decrease in placed WIL students, 2020-21

	2020-21 Estimates
GDP output per WIL student, St. Catharines-Niagara CMA	\$12,965.78
Decrease in WIL students due to COVID-19	3,006
<b>Total expected decrease in GDP output</b>	<b>\$38,975,134.68</b>

As can be seen, the total estimated impact of the pandemic with regard to output generated by WIL students in Niagara is \$38,975,134.68. Compared to pre-pandemic estimates, this figure suggests that COVID-19 has led to a decrease in GDP output of 32.2% from work-integrated learning programs during the 2020-21 post-secondary school year.

<sup>21</sup> Deloitte Canada, 2019. *University of Waterloo Economic Impact Assessment*. Page 28.



## Section 5 – Considerations outside the scope of this report

We have endeavoured here to provide a thorough assessment of the economic ramifications of post-secondary education temporarily moving online, specifically related to the subsequent lack of students moving to, and spending money within, the Niagara region. There are nevertheless additional economic measures that are too cumbersome to be assessed here. These measures include staff layoffs, projected capital expenditures over the medium-term as well as the loss of future localized earnings from students who would have remained in Niagara post-graduation.

We are acutely aware that the impact from receding revenue sources during this pandemic has led to the reduction in many part- and full- time staff at Brock University and Niagara College. Though this will have a significant impact on Niagara's economy, this report is focused solely on the impact that is arising from a lack of student spending and direct labour force engagement. As such, the staffing changes of non-students, even as they relate to fewer students moving to Niagara, are not included here.

We are further aware that capital expenditures are a net-positive to the local community. Nevertheless, it is not accounted for in this paper due to the inability to ascertain the pandemic's direct impact. It is likely that the effects on capital expenditures will have a multi-year lag effect, meaning that the impact will not be known until after the pandemic subsides. Though we are able to assess revenue impacts and enrollment decreases, it would be disingenuous to attempt to apply a direct correlation between current revenue decreases and future capital investments.

Finally, one of the major economic benefits to having local post-secondary institutions is the ability to "showcase" local career opportunities; when students do not live in the region while pursuing their degree this effect is inherently dampened. The 2018 EMSI Economic Impact report calculated that former students generated \$679.3 million in added income to the region. This total includes "higher wages that students earned during the year, the increased output of the businesses that employed the students, and the multiplier effects that occurred as students and their employers spent money at other businesses". It is likely that losing (at a minimum) one year of studying in Niagara will result in a tangible decrease in the number of students remaining in the region after graduation. However, similar to capital expenditures, this effect will remain unclear for a significant period of time and is therefore not assessed here.

Undoubtedly there are other economic impacts from COVID-19 and the shift to virtual post-secondary learning that are not mentioned here. However, the direct economic impact of these factors is either outside the scope of this project or unknowable in the short term, and are therefore not part of this project's calculations.



## Concluding assessments

The COVID-19 pandemic forced post-secondary institutions to shift a large portion of their programs to a virtual model, which greatly impacted the Niagara region's economy given the presence of both Niagara College and Brock University. Though certain aspects of the post-secondary experience remained in-person, the decline in enrollment coupled with some students choosing to remain at-home while studying virtually led to a significant decrease in post-secondary students living in Niagara. This report has assessed the economic impact of this shift to virtual learning through the lens of the Niagara rental market, public transit ridership, declines in localized student spending, and a decrease in available labour supply.

This paper found that the pandemic resulted in:

- A decrease of between 1,713 and 2,544 students (decreases of 13.8% and 20.5%, respectively) renting a housing unit in Niagara and 2,941 and 4,369 fewer students (23.7% and 35.2%) living in Niagara;
- A decline in student U-Pass payments of between \$2.9 million and \$3.3 million, representing a decrease in 79.6% of expected U-Pass payments;
- A decrease in local student spending between \$2.8 and \$4.8 million monthly, adjusted to between \$25.4 and \$43.6 million over the course of one year, totaling approximately 19.0% and 27.8% of pre-pandemic spending;
- A decrease in Niagara's GDP output of between \$37.1 million and \$47.7 million (15.8% and 20.3% of pre-pandemic student-driven GDP output) due to a lack of student labour supply in the region, and
- A decrease in Niagara's GDP output of \$39.0 million due to a lack of student work-integrated learning placements within the region, a reduction in WIL student output of 32.2%.

In total, the facets of economic activity assessed within this report suggest that the impact from the pandemic related to direct student engagement in Niagara's economy over the course of the 2020-2021 school year is between \$104.4 million and \$133.6 million. This range represents a relative reduction in post-secondary student economic output of between 21.2% and 25.8% compared to pre-pandemic estimates.