

4. Economic Impact Analysis

A rich and diverse cultural sector can have far reaching benefits to a society. A number of assessments of cultural sectors have highlighted that a vibrant cultural sector provides positive outcomes for society as a whole such as: quality of life, attractiveness of communities to new residents and economic development. Alongside these societal benefits, the cultural sector also makes an important economic contribution. In the following section, we present the results of our analysis of the economic impact of the cultural sector in Niagara.

In assessing the economic impact of the cultural sector, it is important to include both quantitative economic indicators as well as contextual qualitative indicators to provide a more complete picture of the economic activity generated by a sector.

Using a customized Statistics Canada Input-Output (I-O) table, the research team was able to calculate the economic impact for the Niagara area by (in certain cases) extrapolating from the provincial level to the Niagara area (a sub-provincial jurisdiction). Since I-O tables are at the provincial level, Nordicity adjusted the import ratios⁴⁴ to reflect the import ratios of Niagara and used this data to conduct a more robust economic impact analysis for the area. The research team assessed direct, indirect and induced economic impact of labour income, gross regional product (GRP) and employment in Niagara's cultural sector.

The research team's calculation of the **direct economic impact** is based on employment and revenue inflow/outflow at the organizational level. This direct economic impact calculation also uses key information from the survey, such as operating income and expense breakdowns, which feed into the calculations of indirect and induced economic impacts.

The **indirect economic impact** is calculated using the Statistics Canada I-O tables and captures the increased economic activity experienced by the region from business sectors associated broadly with the cultural sector that are supplying goods and services to the sector.

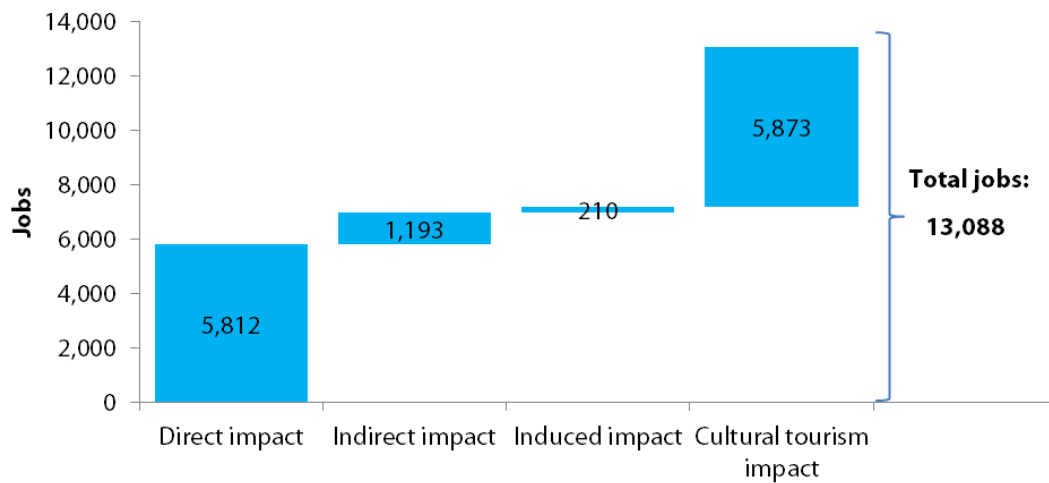
The **induced economic impact** is calculated using the Statistics Canada I-O tables and can be interpreted as the increase in economic activity attributable to re-spending of labour income within an economy.

⁴⁴ Import ratios: Ratio is between 0 and 1. The ratio is based on the demand of the goods and the ability of Niagara to supply that good. For example, bananas may be highly demanded in Niagara but Niagara does not produce any bananas and thus must import 100% of the bananas to satisfy the demand. Thus, the import ratio is 1.0.

4.1 Summary of Economic Impacts

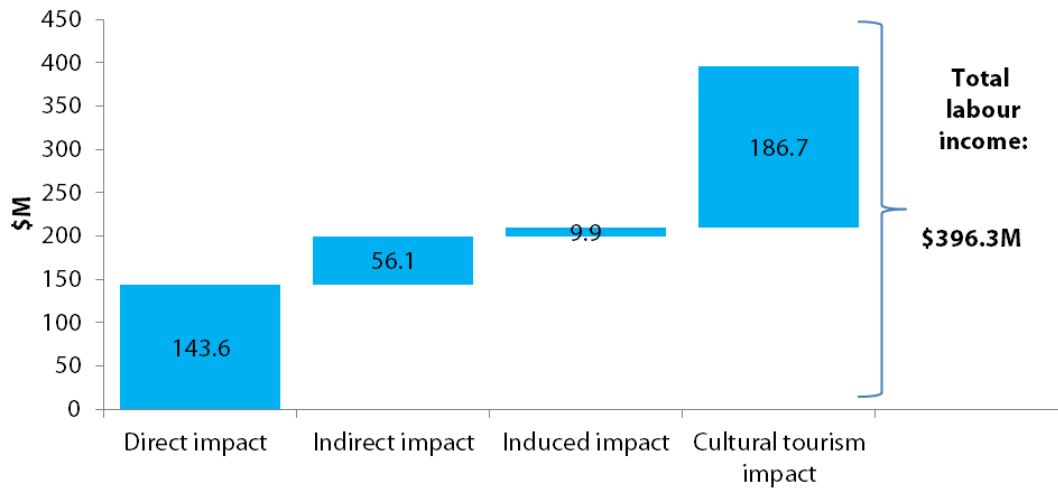
In total, the direct, indirect and induced economic impacts associated with the cultural sector in Niagara generated over 13,000 jobs within the region. The sector also generated \$396.3 million in labour income for Niagara residents and \$595.2million in GRP for Niagara’s economy.

Figure 26: Summary of total economic impact of cultural sector in Niagara, 2011, employment



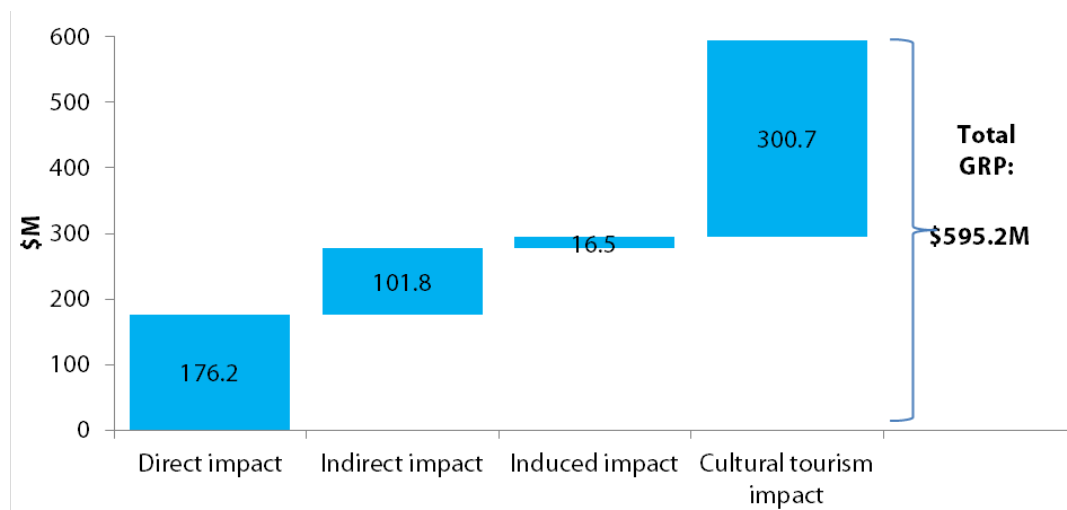
Source: Nordicity estimates based on data from online survey, Statistics Canada and CMPA, *Profile 2011*.

Figure 27: Summary of total economic impact of cultural sector in Niagara, 2011, total labour income



Source: Nordicity estimates based on data from online survey, Statistics Canada and CMPA, *Profile 2011*.

Figure 28: Summary of total economic impact of cultural sector in Niagara, 2011, GRP



Source: Nordicity estimates based on data from online survey, Statistics Canada and CMPA, *Profile 2011*.

4.2 Direct Impact

In this section we quantify the direct economic impact of the cultural sector in Niagara. The direct impact refers to the employment and GRP effects within the cultural sector itself.

Several definitions of terms used in the EIA may be helpful in understanding the results of the EIA. These terms are:

Labour income (\$) comprises the direct, indirect and induced impact in terms of the wages and employment benefits earned by workers. Since wages are paid directly to households in exchange for labour, these households spend their income directly into the regional economy and this money cycles through the economy and has direct, indirect and induced economic impacts for the Niagara area.

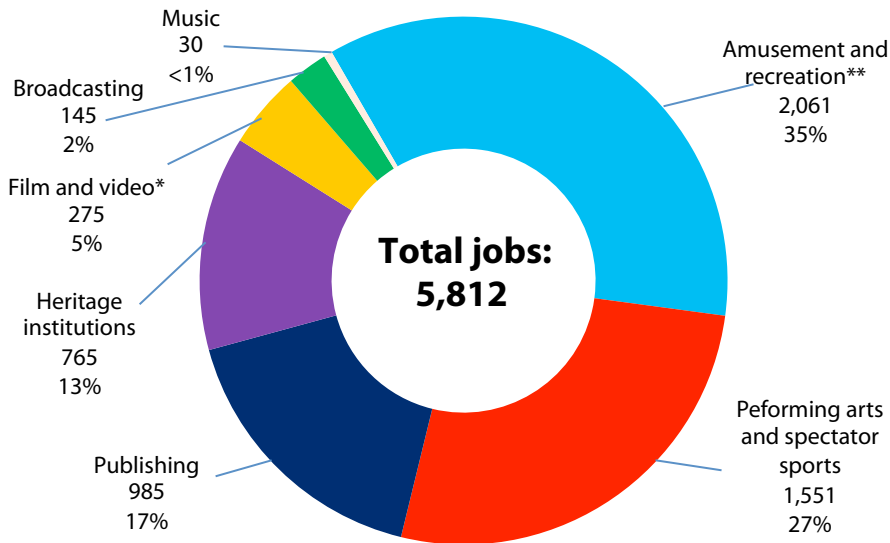
GRP (\$) is the **Gross Regional Product** and is measured using goods and services production and import ratios. Since businesses sell and buy goods and services, these expenditures cycle through the economy and have direct, indirect and induced economy effects in the Niagara area.

'Jobs' measures the number of full-time equivalent jobs generated in the Niagara area by the economic activity in the area. Jobs are created (i.e., hired) in the economy directly in the cultural sector, hired indirectly through business sectors associated broadly with the cultural sector, and the induced hiring effect is a result of hiring in the peripheral industries that are marginally affected by the cultural industry.

4.2.1 Employment

In 2011, the cultural sector in Niagara generated an estimated 5,812 jobs. The largest employment contribution came from the amusement and recreation sub-sector, which accounted for 1,949 jobs, or 35% of total employment. The amusement and recreation sub-sector was followed by the performing arts and spectators sport sub-sector (27%), publishing sub-sector (17%) and heritage institutions sub-sector (13%). The film and video, broadcasting and music sub-sectors all accounted for 5% or less of Niagara's cultural sector employment in 2011.

Figure 29: Direct employment in the cultural sector in Niagara, 2011 (number of workers)



Source: Nordicity calculations based on data from Census 2006, Survey of Employment Payroll and Hours, CANSIM matrix 281-0024

* Includes production, distribution and exhibition of film and video

** Excludes gambling industry

In Figure 30 we benchmark Niagara's cultural sector employment by comparing it on a per-capita basis to cultural sector employment across Ontario. We calculated the number of jobs in each cultural sub-sector on a per-capita basis for Niagara and Ontario and then compared these per-capita amounts to determine if Niagara's level of cultural employment was higher or lower than the Ontario average in 2011. The results are expressed on an index basis.

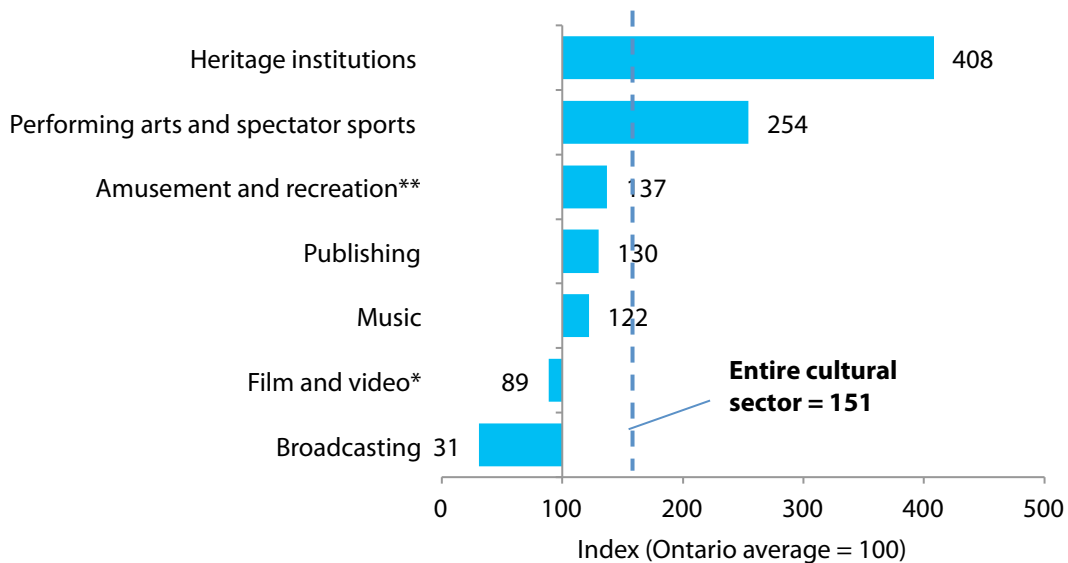
Benchmarking index

An index value of 100 indicates that Niagara's population-adjusted employment was on par with the Ontario average. An index value of over 100 indicates that the population-adjusted employment in Niagara was above the provincial average. For example, an index value of 150 indicates that population-adjusted employment in Niagara was 50% higher than the provincial average. Conversely, an index value below 100 indicates that Niagara's population-adjusted employment was below the provincial average. For example, an index value of 89 indicates that Niagara's population-adjusted employment was 11% below the provincial average.

The results indicate that population-adjusted employment in Niagara in 2011 was above the provincial average in five of the seven cultural sub-sectors. Employment in the heritage institutions sub-sector was over three times the provincial average; and employment in the performing arts and spectator sports sub-sector was more than double the provincial average.

Niagara’s level of employment in the amusement and recreation (excluding gambling), publishing and music sub-sectors were also above the provincial average. Only the film and video and broadcasting sub-sectors displayed employment levels below the provincial average. Overall, in 2011, the population-adjusted employment in Niagara’s cultural sector was 51% higher than the provincial average.

Figure 30: Benchmarking index of per-capita employment in cultural sector, Niagara vs. Ontario



Source: Nordicity calculations based on data from Census 2006, Survey of Employment Payroll and Hours, CANSIM matrix 281-0024

* Includes production, distribution and exhibition of film and video

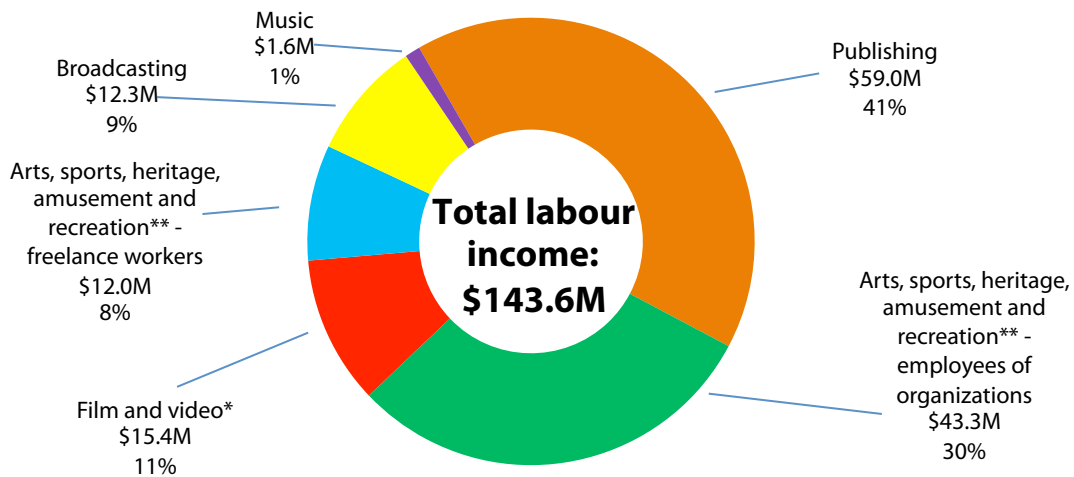
** Excludes gambling industry

4.2.2 Labour Income

Overall, Niagara’s cultural workforce earned an estimated \$143.6 million in labour income in 2011. This estimate is based on a combination of data collected from the online survey, Statistics Canada and the Canadian Media Production Association (see Appendix C for additional detail on data sources). The publishing sub-sector accounted for the largest share of labour income at \$59 million (or 41% of the total).

Employees of organizations engaged in arts, sports, heritage, amusement and recreation activities earned an estimated \$43.3 million, while freelancers working in these sub-sectors earned an estimated \$12.0 million in 2011. Labour income in the film and video sub-sector totalled \$15.4 million. The broadcasting sub-sector accounted for \$12.3 million in labour income, while the music sub-sector accounted for \$1.6 million in 2011.

Figure 31: Direct labour income in the cultural sector in Niagara, 2011



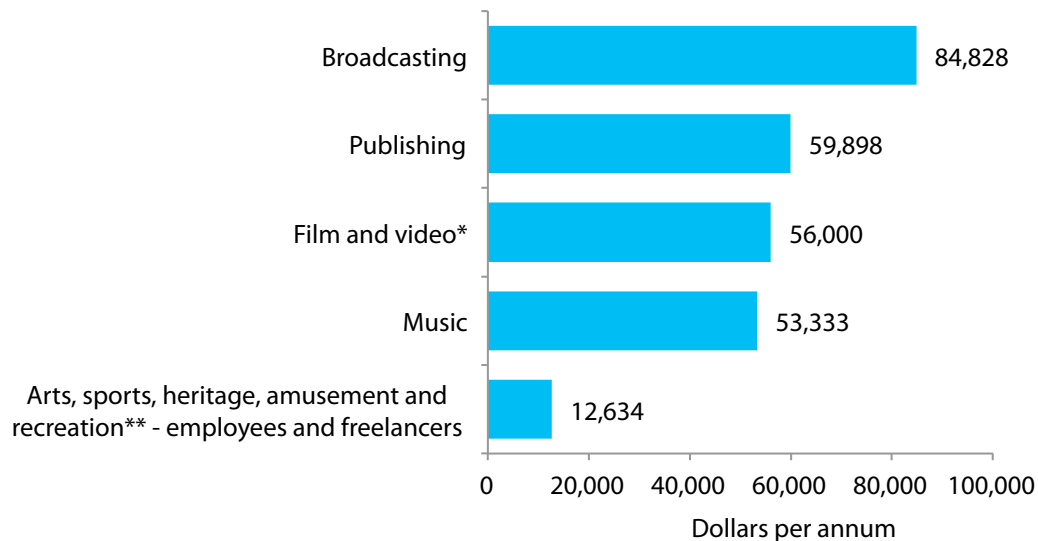
Source: Nordicity estimates based on data from online survey; Statistics Canada, Census 2006, Survey of Employment Payroll and Hours, CANSIM matrix 281-0024, CANSIM matrix 381-0014

* Includes production, distribution and exhibition of film and video

** Includes performing arts, spectator sports, heritage institutions, amusement and recreation activities; excludes gambling industry

Underlying the labour income statistics is the fact that there is a wider variance in the average earnings across the cultural sub-sectors. Average salaries appear to be the highest in the broadcasting sub-sector, where the average annual labour earnings were just under \$85,000 per full-time worker in 2011. Average annual earnings in the publishing, film and video, and music sub-sectors were in the range of \$53,000 to \$60,000. The survey data indicate that average annual earnings of employees and freelancers in the arts, sports, heritage, amusement and recreation sub-sector was \$13,600 in 2011.

Figure 32: Average annual labour earnings, Niagara cultural sector, 2011



Source: Nordicity estimates based on data from online survey; Statistics Canada, Census 2006, Survey of Employment Payroll and Hours, CANSIM matrix 281-0024, CANSIM matrix 381-0014

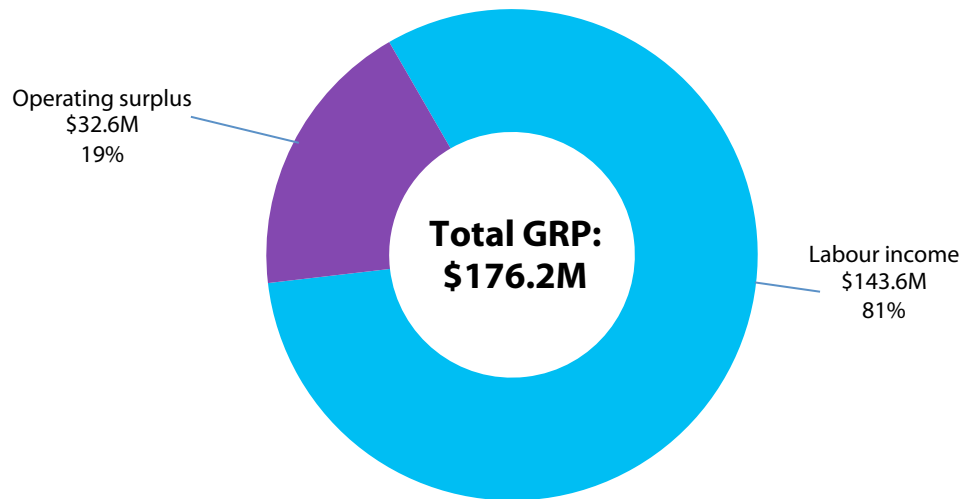
* Includes production, distribution and exhibition of film and video

** Includes performing arts, spectator sports, heritage institutions, amusement and recreation activities; excludes gambling industry

4.2.3 Gross Regional Product

While GRP in the cultural sector is largely comprised of labour income, it also includes operating surplus (i.e., the economic returns earned by suppliers of capital). Niagara's cultural sector earned an estimated \$32.6 million in operating surplus in 2011, including operating surpluses earned by businesses and the income of sole proprietors. Adding this estimate of operating surplus to total labour income results implies that Niagara's cultural sector generated a direct GRP of \$176.2 million in 2011.

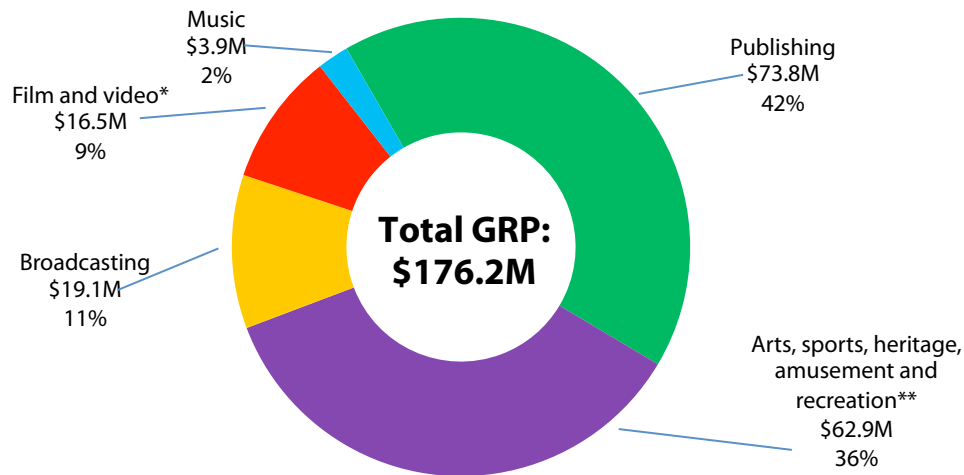
Figure 33: Direct GRP in the cultural sector in Niagara, 2011



Source: Nordicity estimates based on data from online survey; Statistics Canada, Census 2006, Survey of Employment Payroll and Hours, CANSIM matrix 281-0024, CANSIM matrix 381-0014

The publishing sub-sector accounted for the largest single share of GRP in 2011: it generated a GRP of \$73.8 million, or 42% of the total GRP for the cultural sector. The publishing sub-sector was closely followed by the arts, sports, heritage, amusement and recreation sub-sector, which generated \$63.3 million, or 36% of the total GRP for the sector. The broadcasting, film and video, and music sub-sectors account for the remaining 22% of cultural sector GRP in Niagara in 2011.

Figure 34: Direct GRP in the cultural sector in Niagara, by sub-sector, 2011



Source: Nordicity estimates based on data from online survey; Statistics Canada, Census 2006, Survey of Employment Payroll and Hours, CANSIM matrix 281-0024, CANSIM matrix 381-0014

* Includes production, distribution and exhibition of film and video

** Includes performing arts, spectator sports, heritage institutions, amusement and recreation activities; excludes gambling industry

4.3 Indirect Impact

The indirect impact measures the increase in economic activity in other industries that supply inputs to the cultural sector in Niagara. To estimate the indirect impact the research team developed a model based on Statistics Canada's I-O tables for the Ontario economy. In preparing this model we took into account key differences between the Ontario and Niagara economies. Specifically, we reviewed the import ratios for each industry in the Ontario economy and made adjustments to those import ratios so that the model better reflected the nature of the Niagara economy.⁴⁵

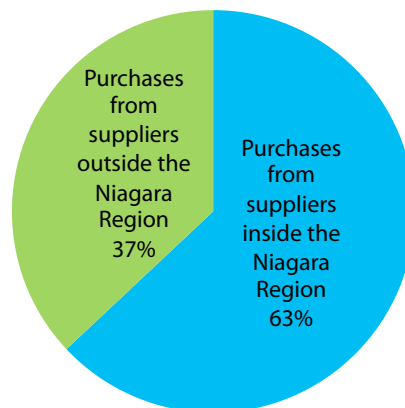
In general, as one moves from a national to a provincial and then to a regional economy the rate of importation (i.e., economic leakages) would increase. Therefore, the import ratio in Niagara for a particular commodity would be equal to or greater than the provincial rate.

⁴⁵ For example, the import ratio for financial services industry for the Niagara economy would be much higher than that of the Ontario economy. Given that Ontario's (and most of Canada's) financial industry is based in Toronto, Ontario residents' expenditures on financial services are unlikely to leave the province. Niagara residents' expenditures on financial services are just as likely not to leave the Ontario economy, however, they are more likely to leave the Niagara economy, and therefore, a higher import ratio is warranted.

This rate does vary from commodity to commodity, depending on the degree to which the commodity can be supplied from within the Niagara economy. This rate can also vary over time, as the Niagara economy changes. The import ratios for this analysis are based on Statistics Canada’s 2008 I-O tables, and therefore, reflect the Niagara economy at that point in time. The results of the review and adjustments to the import ratios can be found in Appendix B.⁴⁶

In modeling the indirect impact, the research team also took into account that cultural sector organizations and firms in Niagara would directly purchase goods and services from outside the region. The survey data indicated that approximately 63% of non-labour expenditures are first spent in Niagara while 37% of expenditures on non-labour inputs are paid to entities outside Niagara.

Figure 35: Profile of cultural sector organizations’ purchases of non-labour inputs, inside vs. outside Niagara Region



Source: Nordicity estimates based on data from online survey

* Note: While this survey question was directed at all organization respondents participating in the online survey, the question was answered, in large part, by respondents from the performing arts, spectator sports, heritage institutions, amusement and recreation sub-sectors
n=84

⁴⁶ Typically economic injections are a result of changes in foreign demand/output, not domestic demand/output. In theory, of course, one could argue that an increase in demand/output in Niagara would increase demand for inputs in the rest of Ontario or Canada, which in turn, could result in increased demand for Niagara products. For example, higher demand for TV services in Niagara would lead to a leakage in the form of rights payments to Toronto based producers/distributors, who, in turn might buy some Niagara ice wine for a party. However, this sort of injection is negligible and is therefore not included in the analysis.

The modeling of the indirect impact took into account the expenditure profile of cultural sector organizations and firms in Niagara. The survey data were used to develop an expenditure profile for the NAICS 71 segments. Since there was limited survey data for the NAICS 51 segments, the research team consulted Statistics Canada’s I-O tables for NAICS 51 in order to develop an expenditure profile that could be applied across all of the NAICS 51 subsectors. A detailed breakdown of the non-labour expenditures for each NAICS category can be found in Appendix C.

Out of total operating expenditures of \$392.9 million, our analysis indicates that \$248.1 million was devoted to non-labour expenditures. Out of these total non-labour expenditures, \$91.8 million was paid to suppliers located outside of Niagara, while \$156.3 million was paid to suppliers inside Niagara.

Table 6: Summary profile of operating expenditures, 2011 (\$M)

	Total cultural sector
Total operating expenditures	392.9
Labour expenditures	144.8
Non-labour expenditures	248.1
Purchases from outside Niagara	91.8
Purchases from Niagara suppliers	156.3

Source: Nordicity estimates based on data from online survey, Statistics Canada and CMPA, *Profile 2011*. See Appendix C for additional detail on calculations and data sources.

Using this breakdown of the Niagara cultural sector’s non-labour expenditures, the research team modeled the economic impact that the sector has on the wider Niagara economy through its purchases of inputs from local businesses – i.e., the indirect economic impact. This model was on Statistics Canada I-O tables for the Ontario economy adjusted to take into account the economic leakages from the Niagara economy (discussed above).

Niagara’s cultural sector payments of \$156.3 million to Niagara suppliers generated 1,193 workers employed in Niagara across a variety of industry sectors. These workers earned a total of \$56.1 million in labour income;⁴⁷ the average salary across these supplier occupations was \$47,000. In total, the purchases of inputs from Niagara suppliers generated an indirect impact of the cultural sector generated \$101.8 million of GRP for Niagara.

⁴⁷ This estimate of labour income includes all employees of Niagara-based supplier companies regardless of whether these employees reside inside or outside Niagara. While there is no need to separate the labour income impact on the basis of residency, the assumption is that any labour income by non-residents is offset by labour income of Niagara residents employed by suppliers located outside of Niagara.

Table 7: Summary of indirect economic impact in Niagara, 2011

	Total cultural sector
Employment (jobs)	1,193
Labour income (i.e., wages and benefits) (\$M)	56.1
GRP (\$M)	101.8

Source: Nordicity estimates based on data from online survey, Statistics Canada and CMPA, *Profile 2011*.

4.4 Induced Impact

The induced economic impact arises as laborers that earn income at the direct and indirect impact stages re-spend their income throughout the economy. While Statistics Canada's Input-Output (I-O) tables do provide a basis for calculating the indirect economic impact of a given economic activity, they do not permit one to directly calculate the induced economic impact. In the absence of multipliers from Statistics Canada, the research team developed a simple approach for deriving an induced economic impact multiplier, which follows the general principle of induced economic impacts and infinite mathematical series.

Table 8: Summary of induced economic impact in Niagara, 2011

	Total cultural sector
Employment (jobs)	210
Labour income (i.e., wages and benefits) (\$M)	9.9
GRP (\$M)	16.5

Source: Nordicity estimates based on data from online survey, Statistics Canada and CMPA, *Profile 2011*.

4.5 Other Spillover Impacts

Spillover impacts are the intangible economic effects generated either by non-commercial stakeholders (i.e., suppliers and producers) within the sector or stakeholders outside of the cultural sector but which feed into or out of the cultural sector indirectly. Some spillover impacts include non-monetized goods and volunteerism. Since volunteerism cannot be quantified in a traditional 'payment for services rendered' method, it falls into the spillover qualitative analysis section.

Non-monetized goods

Non-monetized goods and services are those generated in a sector for which a monetary value cannot be readily attributed. Access to and participation in cultural events, programs, products and services are often cited as key factors impacting the quality of life in a city or region for current and potential citizens and are used by many jurisdictions in setting

strategies for community and economic development.⁴⁸ For example, access to and availability of cultural events are cited in location surveys as a factor in retaining and attracting young families, investors and visitors in a region.

The methodological issues in trying to monetarily quantify these impacts are numerous, including attribution to specific events/programs/institutions in a complex, multi-variable world and attribution of dollar values to an intrinsically qualitative good. Generally, the approach in past surveys has been to ask respondents - on an ordinal scale - to indicate how important specific cultural events, programs and institutions are to their overall quality of life and/or how important they were in specific decisions such as visiting or moving to a city or region.

While a vibrant cultural sector is key to making Niagara an attractive place for young families, investors and visitors, as discussed in the *Niagara Culture Plan*, measuring the impact of Niagara's cultural sector on quality of life and the influx of new families and young professionals was not within the scope of this study. That said, the high median age in Niagara (44 years)⁴⁹ compared to the rest of the province (39.6)⁵⁰ may be an indicator that attracting young families and young professionals to the region is currently a challenge. Investing in developing a more diverse cultural sector could be an important step toward overcoming that challenge.

Volunteerism

The vast majority of organizations that responded to the survey indicated that they make use of volunteers. These results indicate that the value of volunteerism is significant, particularly in terms of its role in helping to support the ongoing vitality of the sector.

The volunteer sector cannot be analyzed fully because there are no standards in economic literature for capturing the economic value of volunteers. In addition, there are difficulties inherent in the survey data and there is a lack of external secondary research regarding volunteers in the cultural sector in Niagara, which prevents a thorough analysis.⁵¹ In sum,

⁴⁸ To cite but one example, see Chapter 2- "Economic Development: Quality of Life", and Chapter 11- "Culture" in the City of Newport, Virginia's comprehensive plan titled: 'Framework for the Future 2030'. Initially part of the second update 2005, revisions made on an ongoing basis. Accessed February 7, 2013 from: <http://www2.nngov.com/newport-news/plan/framework2008/index.html>.

⁴⁹ Niagara Economic Development Corporation. (2010). *Population Profile*. Accessed February 7, 2013 from: <http://www.niagaracanada.com/INVEST-IN-NIAGARA/Economic-Profile/Population-Profile/>

⁵⁰ Statistics Canada. (2011). *Canada's Population Estimates: Age and Sex*. Accessed February 7, 2013 from: <http://www.statcan.gc.ca/daily-quotidien/110928/dq110928a-eng.htm>

⁵¹ We have outlined the state of current economic thought on the volunteerism issue in Appendix H. The discussion outlines the different ways to model volunteerism, including a method applied to the survey