TREIM 2017: ONTARIO TOURISM REGIONAL ECONOMIC IMPACT MODEL USER MANUAL

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About this Manual

The Ministry of Tourism, Culture and Sport (MTCS) maintains and provides the Tourism Regional Economic Impact Model (TREIM) to estimate the economic impact of tourism activity in Ontario. While the TREIM model has been available for a number of years, the 2017 version of the TREIM has been redesigned to provide users with a more reliable, easy-to-use tool for analysis of a variety of tourism-related activities and events within the province. The purpose of this manual is to assist users to navigate through the TREIM and to conduct economic impact analysis.

For more information and research on tourism activity in Ontario, please visit the [ministry web site](#).

Introduction to TREIM

The Ontario Tourism Regional Economic Impact Model is a regional economic impact model that makes it easier for organizations and individuals working or interested in tourism to determine the economic impact of tourism-related activities on the local and provincial economies.

TREIM produces estimates of the:

- **Direct**, **Indirect** and **Induced** impacts of tourism-related activities on **Gross Domestic Product (GDP)**, **Labour Income** and **Employment**
- **Direct** and **Total** impacts of tourism-related activities on Federal, Provincial and Municipal **Tax Revenues**

Tourism is defined as all activities that people engage in when travelling outside their usual environment for any purpose. For the purpose of this tool, a visitor is someone who takes an overnight out-of-town trip or an out-of-town same-day trip of 40 kilometres or more away from his/her home for purposes other than commuting to work or school, being on a diplomatic mission, going shopping as part of a regular activity, and going to regular appointments for doctors or religious ceremonies. For international visitors, it also excludes students who stay in Canada for 75 or more nights.

The Ministry of Tourism, Culture and Sport developed TREIM and made it available to the public in the 1980s. A web version was made available in 2005. The current updated version is based on data from the year 2011,[1] but is capable of simulating tourism-related economic impacts from 2010 to 2025. Future versions of the model will incorporate more recent data as it becomes available.

TREIM is intended to be a versatile tool capable of providing detailed tourism-related economic impact analysis for various user-selected geographies. The user can choose from one of 49 Census Divisions in Ontario, 43 Census Metropolitan Areas and Census Agglomerations, 16 Travel Regions and sub regions, or the entire province. The model can be used to estimate the economic impact of specific tourism events, the impacts on the supply side by tourism industry sector, or the impacts by type of capital project for the chosen region.

TREIM is a multi-region input-output model and differs from a standard input-output model in several aspects. The first different aspect is its treatment of time. Where other input-output models are static – that is their results are independent of the date of the simulation - TREIM explicitly adjusts the model for changes in prices and labour productivity for the year chosen for the simulation. The model provides users with the options to conduct analysis for an event in the past, the present, or several years into the future. The impact results are reported in the current year (nominal) dollars of the year in which the event takes place.

The second different aspect between TREIM and other standard input-output models is its treatment of income earned by households and businesses. Direct and indirect activity by businesses provides income for workers and generates profits. The re-spending of this income yields what is referred to as the induced impacts. Users can elect to either include or exclude the induced impact.

The third different aspect is TREIM's estimates of government tax revenue. Standard input-output models only provide information on indirect tax revenues arising from sales and excise taxes. However, in addition to these revenues, TREIM also includes estimates, by level of government, of personal and business income taxes, social insurance payments and other transfers to government.

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[1] Provincial input-output tables are produced annually by Statistics Canada but with a four year lag. Input-output tables show what each industrial sector produced in that year, what inputs it used and who consumed its outputs and are central to the construction of TREIM.

The users are required to provide information on the type of tourism activity they wish to simulate. This information includes:

- a description of the type of activity;
- the location;
- timing; and
- approximate values for the key input assumptions.

Based on the required information input, TREIM provides the user with a report that includes a summary of the information provided and a set of economic impact tables.

Please note that TREIM is an abstract representation of economic activity in Ontario and is constructed using estimated data. Therefore, it produces information that will not and cannot exactly equal the "true" impacts of tourism-related events in the province and the results should be interpreted with appropriate caution. Based on continued research and user feedback, the ministry may continue to make improvements to this research tool.

TREIM 2017 Model Design

This section provides a brief overview of the design, methodology and data sources of the 2017 version of TREIM. The next section provides the user with information on the user inputs and options for the model. The final section provides a discussion of the model output and the interpretation of the results.

TREIM consists of 108 interregional input-output (IRIO) models plus the province-wide Ontario model. The province-wide Ontario model follows the standard input-output methodology. An IRIO model is used when the simulated spending occurs in one of the Census Divisions, Census Metropolitan Areas or Agglomerations, or Travel Regions included in TREIM. Each of the IRIO models consists of the region in which the simulated spending occurs and a second region that represents the rest of Ontario. The trade between these two regions helps determine the economic impacts that occur both in the simulation region and in the rest of the province.

TREIM Regions

Census Divisions

Stormont, Dundas and Glengarry (3501), Prescott and Russell (3502), Ottawa (3506), Leeds and Grenville (3507), Lanark (3509), Frontenac (3510), Lennox and Addington (3511), Hastings (3512), Prince Edward (3513), Northumberland (3514), Peterborough (3515), Kawartha Lakes (3516), Durham (3518), York (3519), Toronto (3520), Peel (3521), Dufferin (3522), Wellington (3523), Halton (3524), Hamilton (3525), Niagara (3526), Haldimand-Norfolk (3528), Brant (3529), Waterloo (3530), Perth (3531), Oxford (3532), Elgin (3534), Chatham-Kent (3536), Essex (3537), Lambton (3538), Middlesex (3539), Huron (3540), Bruce (3541), Grey (3542), Simcoe (3543), Muskoka (3544), Haliburton (3546), Renfrew (3547), Nipissing (3548), Parry Sound (3549), Manitoulin (3551),Sudbury (3552), Greater Sudbury (3553), Timiskaming (3554), Cochrane (3556), Algoma (3557), Thunder Bay (3558), Rainy River (3559), Kenora (3560)

Census Metropolitan Areas/Agglomerations

Cornwall (501), Hawkesbury (35502), Ottawa (35505), Brockville (512), Pembroke (515), Petawawa (516), Kingston (521), Belleville (522), Cobourg (527), Port Hope (528), Peterborough (529), Kawartha Lakes (530), Centre Wellington (531), Oshawa (532), Ingersoll (533), Toronto (535), Hamilton (537), St. Catharines - Niagara (539), Kitchener - Cambridge - Waterloo (541), Brantford (543), Woodstock (544), Tillsonburg (546), Norfolk (547), Guelph (550), Stratford (553), London (555), Chatham-Kent (556), Leamington (557), Windsor (559), Sarnia (562), Owen Sound (566), Collingwood (567), Barrie (568), Orillia (569), Midland (571), North Bay (575), Greater Sudbury (580), Elliot Lake (582), Temiskaming Shores (584), Timmins (586), Sault Ste. Marie (590), Thunder Bay (595), Kenora (598)

Tourism Regions

Southwest Ontario (RTO 1), Niagara Canada (RTO 2), Hamilton, Halton and Brant (RTO 3), Huron, Perth, Waterloo and Wellington (RTO 4), Greater Toronto Area (RTO 5), York, Durham and the Hills of Headwaters (RTO 6), Bruce Peninsula, Southern Georgian Bay and Lake Simcoe (RTO 7), Kawarthas Northumberland (RTO 8), South Eastern Ontario (RTO 9), Ottawa and Countryside (RTO 10), Haliburton Highlands to the Ottawa Valley (RTO 11), Muskoka, Parry Sound and Algonquin Park (RTO 12), North Eastern Ontario (RTO 13a), Sault Ste. Marie - Algoma (RTO 13b), Northwest Ontario (RTO 13c), North Ontario (RTO 13)

TREIM's input-output structure assumes that output is proportional to the inputs used during its production, which supports analysis to answer questions like: "If the demand for accommodation goes up by $1 billion, how much would employment go up in the accommodation industry and in other industrial sectors?" Or "If the demand for accommodation goes up by $1 billion, which other industrial sectors would be affected and by how much, in terms of output and employment?" The TREIM interface has been designed so that users can simulate the impact of both demand and supply side tourism-related activity in the province. The options available include: visitor spending, investment spending by tourism-related industries, operating expenses by tourism related industries and convention centre activity. The next section reviews the user inputs required for all these simulation options.

TREIM includes options for the user to include or exclude induced spending impacts arising from household and business income generated at the direct and indirect levels of impact. Income (net of direct taxes and savings) that is earned by workers at the direct and indirect level of impact is used to determine household spending. This spending (net of indirect taxes on products (i.e. sales and excise taxes) is allocated between commodities produced in the region, in the rest of the province and outside Ontario.[2] The impact of this household spending yields the household induced spending impact both in the region and in the rest of the province. Business net operating surplus at the direct and indirect levels of impact is used to determine business spending on new capital. This spending (net of indirect taxes on products) is also allocated between commodities produced in the region, in the rest of the province and outside Ontario. The impact of this business spending yields the business induced spending impact both in the region and in the rest of the province.[3]

The model yields economic impacts measured in dollar values based on the year in which the simulation occurs. This means that $1 of spending yields $x of economic impacts for whatever year is selected by the user. However, that $1 of spending will yield different employment impacts in different years due to changes in wages and productivity. In general, $1 of spending will yield more jobs now than in the future.

The current version of TREIM is constructed using data from Statistics Canada's 2011 Census, National Household Survey, CANSIM database and Input-Output Division. It also draws on data from the Ontario Ministry of Municipal Affairs, the Ontario Ministry of Tourism, Culture and Sport and the Centre for Spatial Economics.

- The 2011 Census and National Household Survey tables provide information on employment, income, population and housing for detailed geographies across Ontario.
- Statistics Canada CANSIM matrices provide information on employment, income and tax revenue for the province.
- Statistics Canada's Input-Output Division national W-level tables and Ontario S-level tables for 2011 are used to construct custom tourism-focused input-output tables for Ontario.
- The Ministry of Municipal Affairs' 2011 Financial Information Reporting data is used to determine municipal and education property tax rates by region.
- The Ministry of Tourism, Culture and Sport's estimates of visitor spending by activity, visitor origin and duration are used to determine visitor spending when the user does not have estimates of spending by category. These estimates are derived from Statistics Canada's Travel Survey of Residents of Canada and the International Travel Survey. The Ministry's Tourism Price Index

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[2] If the region selected is Ontario then all activity occurs in the province and there is no 'rest of province' economic activity.
[3] As time does not exist in an input-output model, capital spending is assumed to be fully expensed thus reducing business net operating surplus and corporate income tax revenue.

history and forecast is used to adjust 2011 visitor survey spending to correspond with the year of the spending simulation.

- The Center for Spatial Economics wage and productivity forecasts are used to adjust employment impacts relative to 2011.

This data is used to estimate economic activity by industry for the 108 regions in TREIM. A set of impacts for the corresponding "rest of province" region is then generated along with a set of inter-regional trade matrices for each region.

Limitations of Input-output Models

Industrial Capacity Constraints:

The I-O tables, and TREIM, do not include any capacity constraints at the industry level. For example, if one wanted to study what would happen to the Ontario economy if demand doubled, then the answer will be that everything will double, i.e., employment, GDP, etc. Now this is a highly unrealistic answer since neither Ontario nor Canada, for that matter, have enough labour and materials to double Ontario's GDP and employment in one year. So what would happen to all that extra demand? It will go towards increasing prices and wages; and in terms of real output and employment those will increase only to the extent that there was some unused capacity in each industry.

Consequently, the users of TREIM will need to be aware of TREIM's limitations and the relative size of the tourism event they are trying to measure. If the event is small relative to the economy of the region under consideration, then the price effects could be safely ignored. But if the event is relatively large, then the user will have to estimate the impact of the excess demand on prices and wages outside TREIM and input into TREIM only the real increase in demand.

Gross versus Incremental Impacts:

The interpretation of TREIM's output should be as follows: "In order to meet the demand for its services, a particular tourism-related business or event employed X number of employees, produced $Y of value added (GDP) and generated $Z of taxes."

Note that this interpretation does not imply that if the tourism-related business or event was not around, the employment, GDP and tax impacts will disappear from the Ontario economy. If a restaurant were to close tomorrow, most of its customers will likely switch to another restaurant. Or if someone goes to a particular restaurant on an evening out, that means s/he did not go to some other restaurant. The number of customers, who go out to a restaurant only because that particular restaurant exists, and will stay home in its absence, is rather small.

In order to attribute a portion of Ontario's economy to that particular event or business requires additional information. Namely, the user will need to know to what extent that event/business was the reason for tourists taking their trip to Ontario, without that particular event the trip would not have happened. And to gather this information one will need to carry out an exit survey in accordance with the guidelines provided here.

Local Resident versus Tourism Impacts

Tourism events, or businesses serving tourists, are also attended by local residents. Since local residents would have done something else in the community in the absence of the tourism event, their impact on the local economy washes out and as such should not be included in the economic impact of an event. A user could include local residents only if the interpretation of TREIM's output is around its gross impact and not about the event's incremental impact on the local economy.

Model Use

TREIM can calculate how much GDP, federal, provincial and municipal taxes and how many jobs are generated from visitors' spending, or from investing in a tourism business or from the operation of an existing tourism business in the area where the above activities take place. It can also estimate what the spin-off impacts of these activities are on the rest of the province and which industries benefit the most. The current version of TREIM is able to estimate the impact of tourism-related activity that takes place between 2010 and 2025. However, the user will need to provide certain information about the tourism activity and identify the geographical area and the year that it will or has taken place.

TREIM is applicable to all the Census Divisions, Census Metropolitan Areas, Census Agglomerations and Travel Regions in the province. Due to data constraints, TREIM is not applicable to other geographical areas beyond those listed above. Special cautions should also apply to the results when an activity takes place in an area smaller than the ones listed above. For example, measuring the economic impact of a festival that takes place in Huntsville - while the model only applies to the Muskoka District. However, if the user decides to use the model for Muskoka District to assess the economic impact of this festival, the user is inferring that the economic structure of Huntsville resembles that of Muskoka District, and this may not necessarily be correct.

TREIM is accessed through the Tourism Research page of the Ontario Ministry of Tourism, Culture and Sport's [website](#). Users should review and accept the Terms and Conditions of use. For your privacy, please note that all information inputted by the User will be deleted at the end of the session.

Screens 1 & 2

TREIM 2017 consists of 4 modules that determine the impact of user-defined tourism-related activity or events. The modules are selected in the first screen of the application and then a sub-module is selected in the second screen:

- **Visitor Spending:** (i) spending by category is known, (ii) total spending is known, (iii) number of visitors is known
- **Investment Spending:** (i) industry spending detail is known, (ii) industry total spending is known
- **Spending on Operations:** (i) industry operating expense detail is known, (ii) total industry spending is known
- **Convention Centre Activity**

Screen 3

In the third screen, the user must specify the following input parameters:

- **Report Title:** user supplied text that appears in the PDF format report generated by the application
- **Region:** select one of 109 available regions
- **Year:** select the simulation year between 2010 and 2025
- **Induced Household Spending Impact:** yes or no[4]
- **Induced Business Investment Spending Impact:** yes or no[5]
- **Local Property Tax Impact:** yes or no[6]

Screen 4

The fourth screen will depend upon selections made in the first two screens. This is where the user supplies values on spending and spending-related activity for the selected module.

Visitor Spending: Spending by Category is known

The user enters spending values (in dollars) for each of the categories listed in the form. Spending is valued at purchaser prices (i.e. inclusive of sales and excise taxes) for the year of the simulation.

Visitor Spending: Total Spending is known

The user must select a tourism event or activity or, in the case the event/activity is not known, select option #18 below.

Activity (or Event) Options

1. Festivals/Fairs
2. Cultural Performances
3. Heritage Sites
4. Museums/Galleries
5. Any Cultural Activity (includes activities 1-4)
6. National/Provincial Nature Parks
7. Fishing
8. Golfing
9. Hunting
10. Boating
11. Downhill Skiing
12. Any Outdoors (includes activities 6-11)
13. Zoos, Botanical Gardens
14. Sporting Events
15. Casinos
16. Theme/Amusement Parks
17. Any Entertainment (includes activities 13-16)
18. Total (average of all activities)

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[4] The use of this option is discussed on page 3.
[5] The use of this option is discussed on page 3.
[6] The use of this option is discussed on page 8.

The user must also provide an estimate for total spending (in dollars, valued at purchaser prices). The user can provide information on the origin of the visitors responsible for this spending: percent from Ontario, other provinces, the USA and overseas. If these percentages are not provided or do not sum to 100 then they will be ignored and average spending values will be used.

Visitor Spending: Number of Visitors is known

The user must select a tourism event or activity or, in the case the event/activity is not known, select option #18 below.

Activity (or Event) Options

1. Festivals/Fairs
2. Cultural Performances
3. Heritage Sites
4. Museums/Galleries
5. Any Cultural Activity (includes activities 1-4)
6. National/Provincial Nature Parks
7. Fishing
8. Golfing
9. Hunting
10. Boating
11. Downhill Skiing
12. Any Outdoors (includes activities 6-11)
13. Zoos, Botanical Gardens
14. Sporting Events
15. Casinos
16. Theme/Amusement Parks
17. Any Entertainment (includes activities 13-16)
18. Total (average of all activities)

The user must provide estimates for the number of visitors from each origin: Ontario, other provinces, the USA and overseas. The user can select the percent split between same day and overnight visitors for each origin. However, this information will be ignored if the same day and overnight total does not equal 100 per cent for each visitor origin. Finally, the user can provide information on the average number of nights spent by overnight visitors from each origin. Where the number of nights is left at zero an average number of nights will be assumed for overnight visitors.

Spending on Operations: Industry Spending Detail is known

The user must select a tourism sector (North American Industry Classification System, or NAICS, industry) for this option.

Type of Tourism Facility/Operation Options

1. Retail Trade 4A
2. Arts, Entertainment and Recreation 71
3. Accommodation Services 721
4. Food & Beverage Services 722

The user enters spending values (in dollars) for each of the categories listed in the form. Spending is valued at net of sales taxes for the year of the simulation. The user can enter the number of people

directly employed by the enterprise or accept TREIM's estimate by leaving zero in the direct employment cell.

Spending on Operations: Total Industry Spending is known

The user must select a tourism sector (NAICS industry) for this option.

Type of Tourism Facility/Operation Options

1. Retail Trade 4A
2. Arts, Entertainment and Recreation 71
3. Accommodation Services 721
4. Food & Beverage Services 722

The user enters spending values (in dollars) for total spending on operations. Spending is valued net of sales taxes for the year of the simulation. The user can enter the number of people directly employed by the enterprise or accept TREIM's estimate by leaving zero in the direct employment cell.

Investment Spending: Industry Spending Detail is known

The user must select a tourism sector (NAICS industry) for this option.

Type of Tourism Facility/Investment Options

1. Retail Trade 4A
2. Arts, Entertainment and Recreation 71
3. Food & Accommodation Services 72

The user enters spending values (in dollars) for each of the categories listed in the form. Spending is valued at purchaser prices (i.e. inclusive of sales and excise taxes) for the year of the simulation.

Investment Spending: Total Industry Spending is known

The user must select a tourism sector (NAICS industry) for this option.

Type of Tourism Facility/Investment Options

1. Retail Trade 4A
2. Arts, Entertainment and Recreation 71
3. Food & Accommodation Services 72

Convention Centre Activity

The user enters spending values (in dollars) for the categories in the delegate spending, exhibitor spending and production cost forms. Delegate and exhibitor spending are valued at producer prices while the production costs are valued net of sales taxes for the year of the simulation.

Once all the user values for the simulation have been entered the user **submits** them in order to generate a report summarizing the results.

Model Output

After running the model, the TREIM provides a report summarizing the inputs provided by the user and the resulting set of economic outputs. This section provides definitions of the concepts included as economic outputs along with information on the interpretation of the results and, if desired, the calculation of various economic multipliers that can be used to summarize the impacts.

What information is produced by TREIM?

A report in PDF format is produced by the TREIM. The report includes an introduction that summarizes all the input data provided by the user, including the defaults and selections that the user has agreed to if applicable, followed by two tables with the information generated by the TREIM.

The first table provides TREIM's estimates of the direct, indirect, induced (if selected), and total impacts for GDP, labour income, employment and government revenue generated in the simulation region and the rest of the province or just for Ontario if a specific region is not selected.

A definition for each type or level of economic impact is provided below:
- **Direct impact**: refers to the impact generated in businesses or sectors that produce or provide goods and services directly to visitors, e.g. accommodations, restaurants, recreations, travel agents, transportation and retail enterprises etc. Direct impact on GDP, employment and tax revenues is also called tourism GDP, tourism employment and tourism tax revenues.
- **Indirect impact:** refers to the impact resulting from the expansion of demand from businesses or sectors directly produce or provide goods and services to visitors, to other businesses or sectors.
- **Induced impact:** refers to the impact associated with the re-spending of labour income (household spending) and/or profits earned in the industries (business investment) that serve visitors directly and indirectly.
- **Total impact:** refers to the sum of the direct, indirect and, if selected, induced impacts.

A definition for each of the economic measures generated by TREIM is provided below:[7]
- **GDP:** is the value of goods and services produced by labour and capital located within a country (or region), regardless of nationality of labour or ownership. The GDP measures in TREIM are valued at market prices in nominal dollars.[8]

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[7] Like other input-output models, TREIM also generates estimates of the gross output generated by the simulation. The impact on gross output is of limited value for economic policy purposes; so it is not reported in the PDF format report to prevent any potential misinterpretation of the results.

[8] There are several different GDP (also referred to as value added) measures. Income-based measures include GDP at factor cost which includes the returns to labour and capital, GDP at basic prices adds indirect taxes on production less subsidies on production to GDP at factor cost while GDP at market prices adds indirect taxes on products and production less subsidies on products and production. Expenditure-based GDP sums final purchases made by households, governments, foreigners and by businesses on new capital of domestically produced goods and services. Expenditure-based GDP is measured at market prices and is, theoretically, equal to income-based GDP at market prices. GDP can be measured in nominal dollars or in inflation-adjusted (real) terms. Real GDP is expressed in terms of the value of goods and services that a dollar will purchase in a given reference year.

- **Labour income:** is the value of income generated by labour from wages, salaries, supplementary labour income and mixed income. Mixed income largely consists of non-wage income earned by self-employed persons.

- **Employment:** refers to the number of jobs, including full-time, part-time, seasonal and temporary employment for employed and self-employed (paid and unpaid) persons.

- **Federal tax revenues**: include personal income tax, corporate income tax, commodity tax (GST/HST, gas tax, excise tax, excise duty, air tax and trading profits) and payroll deductions that are collected by the federal government.

- **Provincial tax revenues:** include personal income tax, corporate income tax, commodity tax (PST/HST, gas tax, liquor gallonage tax, amusement tax and trading profits) and the employer health tax collected by the Ontario government.

- **Municipal tax revenues**: include business and personal property taxes that are collected by municipalities. Collection, however, does not immediately follow the consumption or production of goods and services in a municipality (as is the case with GST/HST or personal income taxes). Rather, if selected, these taxes represent property taxes collected by a municipality that can be attributed to tourism because of tourism's contribution to the economic activity of the municipality and hence its tax base.

The second table provides TREIM's estimates of the direct and total impacts for GDP by industry in the simulation region and the rest of the province or just for Ontario if a specific region is not selected.

- **GDP by Industry:** the industries shown in this table are custom input-output industries that include more tourism-related industries than are available in the standard S-level tables published by Statistics Canada. GDP is measured at market prices in dollars of the simulation year.

- **Exogenous Indirect Taxes on Products:** this is a measure of the sales and excise taxes paid on the tourism-related spending.

How to use this information

The information produced by TREIM may be useful to make your business case, such as indicating the significance of tourism or tourism activities to the local economy and to other areas in the province, or comparing the impact of tourism to that of other sectors, or in making a business proposal etc.

Users can report information on the impacts from either the selected region or, by adding the results from the rest of Ontario columns, for the province as a whole. The GDP, labour income and government revenue impacts are relatively self-explanatory but the employment impact can be subject to interpretation. The employment impact refers to an equivalent number of permanent jobs. For short-term events, many of these jobs may be temporary with the number of people impacted higher than reported by the model.

The use of the local tax revenue option influences the value of local government taxes generated by the model. For analysis of future or upcoming visitor spending events the 'no' option is likely to be the most appropriate choice.[9] The 'no' option leaves municipal and education tax revenues unaffected by the

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[9] The local tax user option can be set to "yes" for investment and operating expenditure simulations but the results should still be interpreted with caution. For example, investment spending may raise the stock of non-residential buildings that will be taxed on an ongoing basis but the construction workers' presence in the region may be temporary and not contribute to a long-term increase in property tax revenue.

tourism event. This result is appropriate if tax mill rates and real property values are unaffected by the event. Alternatively, an analysis of previous events can use the 'yes' option to generate the impact on local government tax revenues. These impacts should be described as "the **contribution** of [your event] to the economy of [your region] is…" since the model's estimated impacts on GDP, employment and government revenues represent a portion of the actual activity that occurred in the region in that year.[10] This interpretation of a historical impact differs from that of future events in which the event impacts will **add to** the regional economy.

The impacts produced by TREIM on GDP, labour income, employment and tax revenue are of value to policy makers. TREIM can also be used to summarize the impacts and provide "rules-of-thumb" through the calculation of various multipliers. The calculation and interpretation of various multipliers is discussed in the next section.

Multipliers

Multipliers are simply ratios of an impact divided by the source of that impact. They can be used to describe how the economy is affected by an incremental change in spending and, therefore, provide valuable rules-of-thumb for policy analysis. While multipliers can be used to predict the economic impacts of tourism activity, users should note that the impact of a given activity will depend on many factors, including the distribution of expenditure on different categories, geographical regions, and the propensity to import goods and services from abroad, other provinces and other regions. The use of multipliers to generalize economic impacts should be done with appropriate caution.

The following effects are sometimes referred to as multipliers and are used by policy makers and analysts to better understand how the economy will respond to an incremental change in tourism activity.

- **Income (GDP) Effects:** The income or GDP effect is expressed as the total GDP[11] change due to the change in tourism activity (total spending in the first output table). This effect tells us the dollar impact, in terms of GDP added to the economy, from a $1.00 increase in tourism activity. The user should note that the GDP effect can be greater or less than one.
- **Labour Income Effects:** The labour income effect is expressed as the total change in labour income due to the change in tourism activity. This effect tells us the dollar impact, in terms of labour income added to the economy, from a $1.00 increase in tourism activity. The user should note that the labour income effect is normally less than the GDP effect.
- **Government Revenue Effects:** The government revenue effects are expressed as the total change in government revenue (by level of government or for all levels of government) due to the change in tourism activity. This effect tells us the dollar impact, in terms of government revenue generated, from a $1.00 increase in tourism activity.
- **Employment Effects:** The employment effect is expressed as the total change in employment per $1 million of tourism activity (divide total spending in the first output table by $1 million). This effect tells us the number of jobs added to the economy from a $1 million increase in tourism activity.

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[10] Future year's activity for annual or regularly scheduled events could also be characterized as an "ongoing contribution" with the local tax revenue option set to "yes".
[11] Multipliers can be generated with total impacts that include the induced impacts (referred to as Type II multipliers) or excluding them (Type I multipliers) and with either the impacts limited to just the simulated region or for the province as a whole.

The following multiplier measures are less useful for policy analysis but do have a role in helping users better understand relationships in the economy and its response to tourism activity.

- **Income (GDP) Multiplier:** The GDP multiplier is expressed as the ratio of the total GDP changes to the direct GDP change, due to a unit increase in final demand. In other words, if you have the change in direct GDP the GDP multiplier can be used to calculate the change in GDP for the economy as a whole.
- **Labour Income Multiplier:** This measures the change in labour income which occurs throughout the economy as a result of a change in final demand and is calculated by dividing the impact on total labour income by the direct impact on labour income.
- **Government Revenue Multipliers:** These measure the change in government revenue (by level of government or for all levels of government) which occurs throughout the economy as a result of a change in final demand and is calculated by dividing the impact on total government revenue by the direct impact for the same level of government.
- **Employment Multiplier:** The employment multiplier is the ratio of the total employment change to the direct employment change.