

# **Economic Impact Analysis: Thompson Rivers University**

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Prepared for: **Thompson Rivers University**

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February, 2014

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## Acknowledgment

I would like to express my gratitude to Dorys Crespín-Mueller and her team at TRU’s department of Institutional Planning and Analysis for their enthusiastic and valuable support in providing data for this project.

## Executive Summary

**Thompson Rivers University's (TRU) total economic impact in 2012-13 on the Thompson Nicola region is estimated at \$355.1 million. The total impact consists of impacts from**

- **TRU expenditure at \$198.2 million in total gross output (total spending on goods and services produced in the region)**
- **Student expenditure at \$83.2 million in total gross output**
- **Visitor expenditure at \$63.0 million in total gross output**
- **The value of higher education for 2012-13 graduates at \$10.7 million in earnings**

**TRU's total economic impact in 2012-13 on the B.C. economy is estimated at \$650.6 million. The total impact consists of impacts from**

- **TRU expenditure at \$282.2 million in total gross output (total spending on goods and services produced in the province)**
- **Student expenditure at \$140.5 million in total gross output**
- **Visitor expenditure at \$85.1 million in total gross output**
- **The value of higher education for 2012-13 graduates at \$142.8 million in earnings**

*The total economic impact, measured in terms of job creation, results in 2,108 jobs in the Thompson Nicola region and 3,202 jobs in the B.C. economy.*

- *For every two jobs created at TRU, one job was created in the local economy.*
- *For every job created at TRU, approximately 1.3 jobs were created in the B.C. economy.*

*Total TRU related expenditures in 2012-13 consist of TRU spending on capital and operations, student spending, and spending by visitors associated with TRU.*

- *TRU's total expenditures of close to \$172 million generate substantial economic impacts in the local economy.*
- *Students and visitors associated with TRU support the local economy and generate substantial economic impacts through their expenditures. TRU students spent over \$67 million and visitors spent \$39 million in the local economy.*

*TRU faculty and students contribute to the knowledge economy by engaging in research, publishing in academic journals, and disseminating their research through conference presentations across the globe. In 2012-13, total sponsored research funds exceeded \$2.7 million.*

*TRU contributes to the local community by role modeling environmentally sustainable practices, opening campus social and cultural events to the public, and through employee and student participation in the social economy.*

## I. Introduction

Thompson Rivers University (TRU) was incorporated in 2005 under the Thompson Rivers University Act which amalgamated the 35 year old University College of the Cariboo with the BC Open University. After nearly a decade of outstanding growth, TRU boasts ten faculties and schools offering 140 on campus programs and 57 open learning programs. The university offers undergraduate programs in many disciplines and master's programs in business administration, education, and environmental science. The Faculty of Law opened in 2011 and was the first new Canadian Faculty of Law to be established in over 33 years and the first to be situated outside a major metropolitan centre. The research profile of TRU is expanding as evidenced by three Tier 2 Canada Research Chair appointments and institutional membership to the Research Universities Council of British Columbia (RUCBC).

Thompson Rivers University:

- educates over 24,000 students annually;
- attracts nearly 2,600 international students from over 85 different countries;
- attracts over 2,600 Aboriginal students representing 16 First Nation and Aboriginal peoples;
- employs over 1,600 full-time and part-time faculty and staff;
- generates annual expenditures in the range of \$182 million<sup>1</sup>; and
- attracts over \$2 million of external research sponsorship.

While the main purpose of Thompson Rivers University (TRU) is to provide post-secondary education and conduct research, these knowledge creating activities of the institution have far reaching impacts on the local economy. The main purpose of this report is to outline the economic impacts of the university's Kamloops location on the local economy. TRU operates a campus in Williams Lake, 287 kilometers north of Kamloops serving 1,340 students (313 full time equivalents (FTE)) in addition to regional centres serving 1,033 students (75 FTE). The Open Learning Division provides distance courses and programs employing many faculty members and serving 11,794 students (3,205 FTE) outside of Kamloops. For the purpose of this study, the Williams Lake campus, regional centres, and most of the Open Learning Division's activities are excluded<sup>2</sup>.

It is becoming increasingly common for universities to estimate the impact of their existence on the economy using the analytical methods of regional economics. Since 2009, the University of

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<sup>1</sup> \$182 million represents total TRU expenditures for the Kamloops campus as well as for the Open Learning Division, Williams Lake and the regional centres.

<sup>2</sup> Salaries and benefits for OL faculty members residing in the Kamloops area are included in TRU's operational expenditures.

British Columbia, Simon Fraser University, University of Victoria, and University of Vancouver Island have all conducted impact studies.

An economic impact study attempts to measure the additional economic activity created by the existence of a particular entity. In this case, the question being addressed is how much has the dollar value of the economy increased as a result of the existence of TRU? Alternatively, the question can be phrased, how much would the economy decline if TRU did not exist? This study assesses the economic impact of TRU on both the local economy, defined as the Thompson-Nicola region, and the provincial economy of British Columbia.

An economic impact study makes use of input-output analysis to examine the impact of university related expenditures on the surrounding economy. The economic impacts of TRU on both the local and provincial economies are generated by BC Statistics with use of the British Columbia Input-Output Model (BCIOM). The BCIOM is based on the most recent “snapshot” of the BC economy in 2008. Given the assumption that relationships between industries tend to be relatively stable over time, the BCIOM’s structural model of the economy in 2008 is suitable for the current analysis. It is important to note that economic modeling is an imprecise science and the numbers in this report are merely estimates.

The BCIOM uses expenditure data to estimate the economic impacts. The expenditure data used in this study is for the fiscal year 2012-13 and comes from three main expenditure streams, TRU expenditures related to the Kamloops campus, student expenditures, and visitor expenditures.

Input-output analysis typically considers the following three types of impacts:

- Direct impact: a measure of the impact on local industries supplying the goods and services directly used by the university, students, and visitors.
- Indirect impact: a measure of the impact on industries further back in the supply chain. This is a cumulative impact in that it goes back all the way to the beginning of the supply chain.
- Induced impact: a measure of the effect of spending by workers on the economy. This effect refers to spending by TRU employees, students and visitors, and workers of direct and indirect supplier industries.

Input-output analysis is based on the following assumptions, which can be viewed as limitations of the analysis:

- Input-output models are linear, suggesting that a change in the demand for output of a given industry will translate into a proportional change in production.
- Economic adjustments from a change in demand occur immediately. They do not take into account the time needed for changes to happen.
- No capacity constraints exist. For instance, an increase in the demand for labour will result in an increase in employment.

- Consumers spend 80% of their personal income, on average, on goods and services with the remaining 20% going to either taxes or savings.

The impacts can be assessed using many measurements. In this analysis, the impacts are measured in terms of the following four measurements: total gross expenditure, gross domestic product (GDP), employment, and tax revenues. Total gross expenditure is the measure of the total value of production associated with TRU, and can simply be thought of as the total spending on goods and services produced in the region. Spending on goods and services produced outside the region is excluded from the analysis because regional businesses are not directly affected, thus the direct impact is less than the total expenditure.

GDP is a measure of value-added which includes household income from productive activities and profits and other income earned by corporations<sup>3</sup>. The employment measure is derived from estimated wage costs based on average annual wages in an industry<sup>4</sup>. While they do not represent full-time equivalent (FTE) measures, they reflect the wages paid and hours spent on the job by a typical worker in an industry. For instance, if a particular industry employs mostly full time employees, the job counts will be very similar to FTE counts. Whereas if a particular industry employs mostly part-time employees, the numbers will be quite different from FTEs.

The government tax revenue measure is estimated to include income taxes and commodity taxes. Provincial and federal tax revenues include federal and provincial personal and corporate income taxes, as well as PST, GST, and commodity taxes such as gas taxes, liquor and lottery taxes and profits, air transportation taxes, duties and excise taxes. Municipal property tax revenues are not included in the estimates.

While the main purpose of this analysis is to examine the economic impacts of the university's Kamloops location on the local economy, a discussion of non-economic impacts is included. The impact of TRU on the provincial economy is also examined. TRU's expenditures and employment are described in section II, followed by an explanation of the economic impact of university related expenditures in section III, and details of the economic impact of TRU expenditure in section IV, of student expenditure in section V, and visitor expenditure in section VI. Section VII is a discussion of the value of TRU's education on the region, followed by a description of the impact of TRU's research in section VIII, and TRU's contribution to

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<sup>3</sup> Many consider GDP to be a good measure of economic impact because the value of the work completed by each industry is attributed only to the producing industry, and thus double counting is eliminated. For instance, the selling price of a new house includes the cost of the land and all inputs purchased by the builder (lumber, windows, plumbing fixtures, shingles, etc), and the value of the work done by the builder. The GDP calculation of the new house subtracts the cost of all the purchased inputs (including land) from the total value the selling price. The GDP calculation for the windows, for instance, would only include the value of the work done by the window manufacturer, and so on.

<sup>4</sup> The employment estimates have been adjusted to reflect wage inflation from 2008 to 2012-13.

environmental sustainability in section IX. Social and cultural contributions are covered in section X, the impact on the social economy in section XI, and a conclusion in section XII.

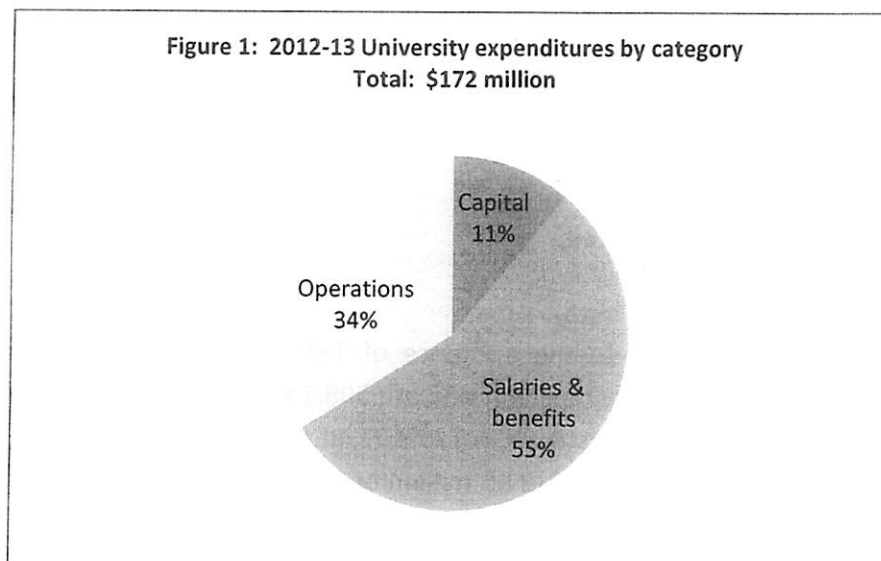
## II. University Expenditures and Employment

Thompson Rivers University's total spending in 2012-13 on activities associated with the Kamloops campus is an estimated \$172 million. The \$172 million of university expenditures on the Kamloops operation (Figure 1) is mainly comprised of salaries and benefits (55%), non-salary operational expenses such as equipment and maintenance, utilities, materials and supplies, and services (34%) and capital expenditures on building and land development (11%). The capital expenditure portion is close to \$18.5 million consisting of approximately \$16 million devoted to new construction of buildings. Other capital expenditures include spending on trades training equipment, computer equipment, computer software, and library books.

Numerous capital projects and upgrades have been completed in 2012-13. The most significant construction project is the revitalization of Old Main, TRU's largest building, expanding the size by close to 4,000 square metres at a total cost of approximately \$20 million. Phase I, the building shell, was completed in 2012-13 adding two floors on top of the existing building. Phase II, the interior finishing, is to be completed by the end of 2013.

Other projects include the renovation of the former Facilities Services building as the new location for Human Resources, the Community University office, IT Media Services, and the TRU Community Trust, and the construction of a Facilities Workshop.

In April of 2013, construction at the Wells Gray Education and Research Centre commenced to support education and research about the wilderness. The upgraded facility will house twenty students and faculty.



TRU employs 1,641 faculty and staff (1,053 FTEs) comprised of 822 full-time and 819 part-time positions<sup>5</sup>. TRU is the third largest employer in the Kamloops Region after the Interior Health Authority (2,921 employees) and School District #73 (1,650 employees) (Venture Kamloops, 2013). Roughly 3 in 100 employees (3% of the workforce) in the Kamloops Census Agglomeration (CA) work at TRU.

Universities typically provide both high paying and stable jobs:

- The total payroll (salaries and benefits) of TRU in 2012-13 amounted to approximately \$100 million with close to \$95 million paid to residents of Kamloops.
- The incomes of university faculty and staff tend to be above the average incomes in the local community. For instance, the average income of a full-time employed resident of Kamloops is \$56,574 (2010), compared to the average salary (excluding benefits) of a TRU employee of \$66,709 (2012-13).
- University jobs tend to be more stable and less vulnerable to the fluctuations in the business cycle than jobs in many other sectors, thus contributing to the stability of the local economy.

### III. Economic Impacts of University Related Expenditures

Table 1 outlines total expenditures in 2012-13 related to the TRU Kamloops campus. Total expenditures of \$278.7 million consist of the operational and capital expenditures of the university associated with the Kamloops campus, off-campus expenditures by students, and expenditures by visitors associated with the university.

TRU expenditures	172.1
Student expenditures	67.7
Visitor expenditures	38.9
<b>Total Expenditures</b>	<b>\$278.7</b>

The total gross expenditure related to the existence of TRU, including total impacts from spending by TRU, students, and visitors, is estimated at \$508.1 million in the BC economy and \$344.2 million in the local economy, as shown in Table 2. In the BC economy, the total gross expenditure is comprised of an estimated \$121.5 million of goods and services purchased from

<sup>5</sup> Sessional faculty are counted as part-time faculty and staff consists of administration and support staff.



direct supplier industries, and an estimated \$63.2 million purchased from industries further back in the supply chain. The induced impact, generated as a result of spending by workers is estimated at \$49.8 million. In the local economy, the direct and indirect impacts are estimated at \$54.2 million and \$9.9 million, respectively. The induced impact in the local economy is estimated at \$6.5 million.

The total value-added (GDP) related to TRU related expenditures is estimated at \$231.8 million in the BC economy and \$137.2 million in the local economy. The direct GDP associated with the operation of TRU is estimated at \$105.3 million, consisting mainly of wages and contracted program and course delivery services. Thus, most of the economic impact associated with the operation of TRU results from direct spending by employees. As outlined in Table 2, GDP generated in supplier industries to TRU is estimated at \$95.3 million including \$65.1 million in direct supplier industries, and \$30.2 million further back in the supply chain. The induced impact estimated at \$31.2 million reflects spending by workers. In the local economy, the GDP impact totals \$31.9 million consisting of \$24.8 million in direct expenditures to suppliers, \$4.0 in indirect expenditures, and \$3.1 million in induced spending by workers.

**Table 2: Economic Impacts of Thompson Rivers University  
Related Expenditures (\$millions/FTE)**

	<b>BC Impact</b>	<b>Local Impact</b>
<b>Gross Expenditure</b>		
Direct Output	273.6	273.6
Direct Impact	121.5	54.2
Indirect	63.2	9.9
Induced	49.8	6.5
<b>Total Gross Expenditure</b>	<b>508.1</b>	<b>344.2</b>
<b>GDP (value-added)</b>		
Direct GDP	105.3	105.3
Direct Impact	65.1	24.8
Indirect	30.2	4.0
Induced	31.2	3.1
<b>Total GDP</b>	<b>231.8</b>	<b>137.2</b>
<b>Employment</b>		
Direct employment	1,398	1,398
Direct Impact	1056	580
Indirect	397	60
Induced	351	70
<b>Total Employment</b>	<b>3,202</b>	<b>2,108</b>
<b>Tax Revenue</b>		
Direct expenditure	23.5	
Direct Impact	3.7	
Indirect	4.3	
Induced	4.0	
<b>Total Tax Revenue</b>	<b>35.5</b>	
Note: Not all figures in the table sum to the total due to rounding		
Source: British Columbia Input-Output Model, BC Stats (2013)		

The total employment impact of TRU related spending in BC is an estimated 3,202 jobs consisting of 1,398 TRU jobs, 1,056 supplier jobs, and 397 worker spending related jobs, as shown in Table 2. The total employment impact in the Thompson-Nicola regional economy is 2,108 jobs, comprised of 1,398 TRU jobs and 710 impact related jobs. The key sectors affected include administrative and other support services, retail, professional, scientific, and technical services, construction, manufacturing, and wholesale trade.

The total tax revenue impact is \$35.5 million with \$23.5 million connected with direct TRU expenditures. The tax impacts include income taxes and taxes paid on goods and services used by TRU. Another \$12 million in tax revenue is associated with the indirect impact of the supplier industries and the induced impact of worker spending.

The following three sections provide a breakdown of the impact by expenditure source. In section V, the impact of TRU expenditure is analysed, followed by the impact of TRU student expenditure in section VI, and finally by visitor expenditure in section VII.

#### **IV. Economic Impact of TRU Expenditure**

TRU's total spending of \$172 million consists of operating expenditures and capital expenditures which are analysed separately for economic impact analysis. Operating expenditures for the Kamloops campus totaled \$153.6 million including bursaries, awards and scholarships, and commissions paid to agents outside Canada, which were both excluded from the analysis<sup>6</sup>. Capital expenditures of \$18.5 million include \$16 million spent on buildings and land improvements, as well as purchases of equipment, computer software, and library books. It is estimated that \$2 million of the capital expenditures was used to purchase goods and services either imported from other provinces and countries, or withdrawn from inventories. The figures in Table 3 represent the aggregate expenditures and impact of TRU's operating and capital expenditures.

Given that salaries and benefits comprise over half of TRU's expenditures, most of the economic impact associated with TRU spending results from direct spending by employees. The total value of goods and services purchased from direct supplier industries in BC is estimated at \$49.1 million, while an estimated \$28.8 million was purchased from industries further back in the supply chain, as shown in Table 3. The induced impact from worker spending is estimated at \$37.3 million bringing the total gross expenditure impact of TRU spending to an estimated \$282.2 million in the BC economy. The total gross expenditure impact in the local economy is estimated at \$198.2 million comprised of direct impacts of \$22.1 million, indirect impacts of \$4.2 million, and induced impacts of \$4.9 million.

As outlined in Table 3, GDP generated in supplier industries to TRU is estimated at \$31.3 million including \$17.6 million in direct supplier industries, and \$13.7 million further back in the supply chain. The induced impact estimated at \$23.3 million reflects spending by workers. The total impact of TRU expenditures on the BC economy is estimated at \$159.9 million in GDP. In the local economy, the GDP impact totals \$10.6 million consisting of \$6.6 million in direct

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<sup>6</sup> Bursaries, awards and scholarships are excluded because they are transfer payments and are not reimbursement for services. However, their impact is indirectly revealed in the analysis of student expenditures. These transfers make it possible for more students to enroll at TRU.

expenditures to suppliers, \$1.7 in indirect expenditures, and \$2.3 million in induced spending by workers.

Table 3: Economic Impacts of Thompson Rivers University Expenditures (\$millions/FTE)		
	BC Impact	Local Impact
<b>Gross Expenditure</b>		
Total Expenditures	167.0	167.0
Direct Impact	49.1	22.1
Indirect	28.8	4.2
Induced	37.3	4.9
<b>Total Gross Expenditure</b>	<b>282.2</b>	<b>198.2</b>
<b>GDP (value-added)</b>		
Total Expenditures	105.3	105.3
Direct Impact	17.6	6.6
Indirect	13.7	1.7
Induced	23.3	2.3
<b>Total GDP</b>	<b>159.9</b>	<b>115.9</b>
<b>Employment</b>		
Total Expenditures	1,398	1,398
Direct Impact	261	90
Indirect	188	30
Induced	263	50
<b>Total Employment</b>	<b>2,110</b>	<b>1,568</b>
<b>Tax Revenue</b>		
Total Expenditures	12.0	
Direct Impact	2.7	
Indirect	1.9	
Induced	3.0	
<b>Total Tax Revenue</b>	<b>19.7</b>	

Source: British Columbia Input-Output Model, BC Stats (2013)

The total employment impact of TRU spending in BC is 2,110 jobs consisting of 1,398 TRU jobs, 449 supplier jobs, and 263 worker spending related jobs, as shown in Table 3. The total employment impact in the Thompson-Nicola regional economy is estimated at 1,568 jobs. The key sectors affected include administrative and other support services, retail, professional, scientific, and technical services, construction, manufacturing, and wholesale trade.

The total tax revenue impact is \$19.7 million with \$12 million connected with direct TRU expenditures. The tax impacts include income taxes and taxes paid on goods and services used by TRU. Another \$7.6 million in tax revenue is associated with the indirect impact of the supplier industries and the induced impact of worker spending.

## V. Economic Impact of Student Expenditure

Student enrollment in 2012-13 in regular programs<sup>7</sup> totals 9,525 domestic and international students, as shown in Table 4. Most of TRU's domestic students are from BC with 41% from the Kamloops area, 47% from other parts of BC, and 12% from other provinces. In addition, TRU provides continuing education courses to 1,324 domestic students, most of whom are part-time.

Program level	Status	Domestic	International	Total
<b>Graduate</b>	Full-time	115	48	163
	Part-time	25	20	45
<b>Post-Undergraduate</b>	Full-time	194	149	343
	Part-time	28	98	126
<b>Undergraduate</b>	Full-time	5,097	1,217	6,314
	Part-time	2,051	483	2,534
<b>Grand Total</b>		<b>7,510</b>	<b>2,015</b>	<b>9,525</b>

International students make up 21% of the total regular student enrollment. Attracting international students represents an international export of education services for the university. The international students come from 76 different countries with approximately one third from China, one sixth from Saudi Arabia, and one seventh from India. In addition to the regular enrollment, an additional 640 international students visit Kamloops under international contract agreements to study in programs ranging in duration from two to 15 weeks.

Student spending plays a vital role in the local economy even when it is acknowledged that many TRU students are local residents. For the purpose of economic impact, consider the question of where these students would be if TRU did not exist. It is reasonable to make the assumption that most would re-locate to attend another university outside of the region. It is assumed that the number of TRU part-time domestic students is a reasonable approximation or

<sup>7</sup> Regular programs exclude continuing education courses and short-term contract programs.

those students who would have chosen to not attend university at all if TRU did not exist, and hence their spending is excluded<sup>8</sup>.

It is estimated that the 6,820 full-time TRU students, in 2012-13, spent \$67.7 million. This estimation is based on different spending patterns for domestic and international students. Domestic student expenditures are estimated using data on projected student expenditures from Employment and Social Development Canada (2013) and data from the Canadian University Survey Consortium (2012, 2013). International student expenditures are estimated with data from the TRU International Student Survey on Student Spending (Seldon, 2013). The aggregate spending of domestic and international students is outlined in table 5 below. Student expenditure on accommodation mainly consists of rent. Miscellaneous spending mainly covers spending on personal and healthcare items, clothing, communications, household cleaning supplies, and transportation. Capital spending mostly includes spending on electronics, furniture and cars. Note that capital spending of \$1.2 million represents international student capital expenditures gathered from the TRU International Student Survey of Student Spending (2013). There is no equivalent data available for capital expenditures of domestic students, thus the total spending estimate is conservative.

Accommodation	29.2
Food	16.0
Miscellaneous	21.2
Capital	1.2
<b>Total Spending</b>	<b>\$67.7</b>
Source: Canadian University Survey Consortium (CUSC) 2012, 2013; Employment and Social Development Canada (2013); Seldon (2013)	

Of the \$67.7 million in student expenditures, total spending on goods and services produced in BC is estimated at \$50.4 million after imports and inventories are subtracted. The impact estimates for student expenditures are based on total spending. They represent impact on the local economy but overstate the impact on the BC economy to the extent that they include spending by students who come from BC.

<sup>8</sup> This assumption was also made by Sun and Lee (2011).

**Table 6: Economic Impact of Student Expenditures (\$millions/FTE)**

Impacts	BC Impact	Local Impact
<b>Gross Expenditure</b>		
Total Expenditures	67.7	67.7
Direct Impact	43.8	10.4
Indirect	21.2	4.0
Induced	7.8	1.0
<b>Total Gross Expenditure</b>	<b>140.5</b>	<b>83.2</b>
<b>GDP (value-added)</b>		
Total Expenditures*	0.0	0.0
Direct	32.0	6.4
Indirect	10.3	1.7
Induced	4.9	0.5
<b>Total GDP</b>	<b>47.1</b>	<b>8.5</b>
<b>Employment</b>		
Total Expenditures*	0	0
Direct	405	170
Indirect	131	20
Induced	55	10
<b>Total Employment</b>	<b>591</b>	<b>210</b>
<b>Tax Revenue</b>		
Total Expenditures	6.6	
Direct**	-1.3	
Indirect	1.4	
Induced	0.6	
<b>Total Revenue</b>	<b>7.3</b>	

\* Student expenditures represent final purchases of goods and services, thus there are no direct jobs or GDP associated with these expenditures.

\*\* Tax revenue impacts are reported net of subsidies.

Source: British Columbia Input-Output Model, BC Stats (2013)

As illustrated in Table 6, the total gross expenditure related to student spending is estimated at \$140.5 million in the BC economy and \$83.2 million in the local economy. The total gross expenditure is comprised of an estimated \$43.8 million of goods and services purchased from direct supplier industries, and an estimated \$21.2 million was purchased from industries further

back in the supply chain. The induced impact, generated as a result of spending by workers is estimated at \$7.8 million. In the local economy, the direct and indirect impacts are estimated at \$14.4 million with an induced impact of \$1 million.

The direct GDP impact is estimated at \$32 million for goods and services produced by direct BC supplier industries and \$10.3 million for goods and services purchased further back in the supply chain, as shown in Table 6. The induced impact of spending by workers is estimated at \$4.9 million bringing the total GDP impact to \$47.1 million in the BC economy. In the local economy, the GDP impact totals \$8.5 million consisting of \$6.4 million in direct expenditures, \$1.7 in indirect expenditures, and \$500,000 in induced spending by workers.

The employment impact is estimated at 591 jobs in the BC economy and 210 jobs in the Thompson-Nicola regional economy. The main sectors affected by the employment impact include accommodation and food services, transportation and warehousing, retail trade and finance, and insurance and real estate.

The tax revenue impacts associated with student spending are estimated at \$7.3 million. Note that the impacts of direct supplier industries are negative which can be explained by highly subsidized public transit.

## VI. Economic Impact of Visitor Expenditure

The many visitors attracted by TRU from outside the region contribute to the local economy. They visit for a variety of academic and non-academic purposes ranging from parents and friends visiting students and attending convocations to visiting academics making presentations and attending conferences. Like most other universities, TRU does not have a system for tracking the number of visitors. Based on methodologies used in similar impact studies, it is estimated TRU had at least 48,000 visitors in 2012-13<sup>9</sup>. The estimate appears reasonable given it represents only 1.4% of the total number of visitors to the Thompson Okanagan Region<sup>10</sup>. Total visitor spending is estimated at \$38.9 million in the local economy, as shown in Table 7. The estimation is based on an average length of stay of three days and an average daily expenditure of \$270.00<sup>11</sup>. Of the \$38.9 million spent by visitors, it is estimated that \$33.5 million is spent on goods and services produced in BC.

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<sup>9</sup> Estimation based on Sudmant's (2009) methodology for visitors to UBC. See also Sun and Lee (2011), and Laliberté and Eder (2012).

<sup>10</sup> Destination BC (2010)

<sup>11</sup> The amount of spending per day is based on visitor spending data collected by Destination BC and estimates used by Sudmant (2009) and Sun and Lee (2011). The estimation is adjusted for inflation using the Consumer Price Index.



**Table 7: Visitor Expenditures, 2012-13 (\$millions)**

Accommodation	17.5
Food & Beverages	9.7
Entertainment	1.9
Shopping	3.9
Local transportation	3.9
Miscellaneous services	1.9
<b>Total Spending</b>	<b>38.9</b>

Source: Destination BC, BC Stats (2013)

Table 8 outlines the economic impact of visitor spending on both the provincial and local economies. Since visitor spending represents final purchases of goods and services there are no direct jobs associated with these expenditures. It should be noted that to the extent that the data includes spending by visitors from BC, the overall impact on the provincial economy may be overstated.

The total gross expenditure in BC is estimated at \$85.1 million consisting of \$41.8 million of goods and services purchased from direct and indirect supplier industries, and an induced impact of \$4.7 million, as shown in Table 8. In the local economy, the total gross expenditure is estimated at \$63 million which includes direct and indirect impacts of \$23.4 million and an induced impact of \$600,000.

The direct and indirect GDP impact associated with visitor expenditures is estimated at \$21.7 million, in addition to the induced impact of \$3 million from spending by workers bringing the total GDP impact to \$24.7 million for the BC economy. The impact on the local economy is \$12.7 million, consisting of \$12.4 million in direct and indirect spending, and \$0.3 million in induced spending by workers.

**Table 8: Economic Impact of Visitor Expenditures (\$millions/FTE)**

Impacts	BC Impact	Local Impact
<b>Gross Expenditure</b>		
Total Expenditures	38.9	38.9
Direct Impact	28.6	21.7
Indirect	13.2	1.7
Induced	4.7	0.6
<b>Total Gross Expenditure</b>	<b>85.1</b>	<b>63.0</b>
<b>GDP (value-added)</b>		
Total Expenditures	0.0	0.0
Direct	15.5	11.8
Indirect	6.2	0.6
Induced	3.0	0.3
<b>Total GDP</b>	<b>24.7</b>	<b>12.7</b>
<b>Employment</b>		
Total Expenditures	0	0
Direct	390	320
Indirect	78	10
Induced	33	10
<b>Total Employment</b>	<b>501</b>	<b>340</b>
<b>Tax Revenue</b>		
Total Expenditures	4.9	
Direct	2.3	
Indirect	1.0	
Induced	0.4	
<b>Total Tax Revenue</b>	<b>8.5</b>	

Source: British Columbia Input-Output Model, BC Stats (2013)

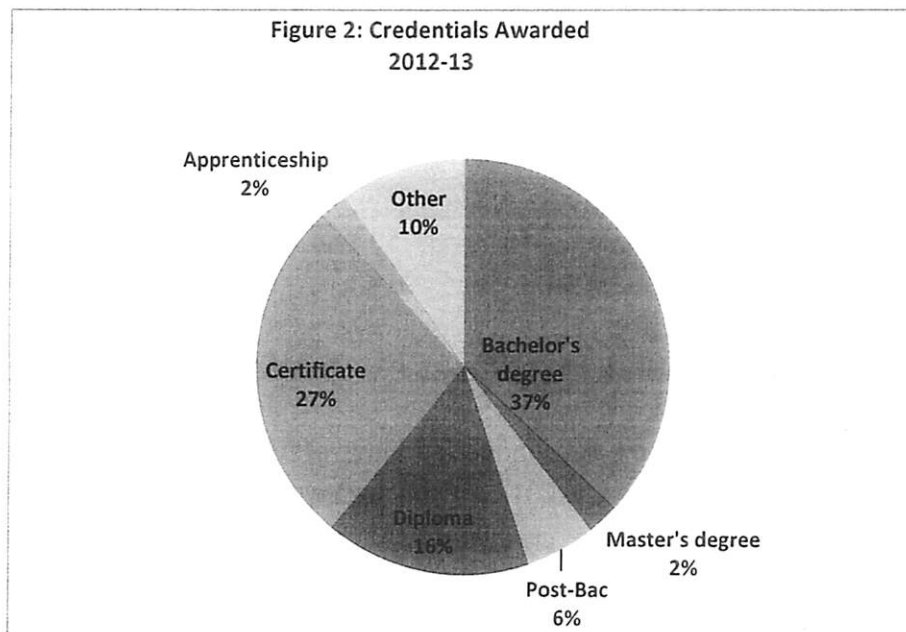
The total employment impact is 501 jobs in the BC economy, 340 of which are in the regional economy. The key employment sectors affected by this impact include accommodation and food services, arts, entertainment and recreation services, retail trade, and transportation and warehousing. The tax revenue impact generated by visitor spending associated with TRU is estimated at \$8.5 million.

## VII. Valuing TRU's Education Impacts

Post-secondary education contributes to the stock of human capital which in turn plays a key role in economic growth and development as well as in more extensive measures of well-being (Whitely, 2012; Riddell, 2006; Mankiw, Romer & Weil, 1992). Although the connection between post-secondary education and economic growth is widely accepted, quantifying the economic growth and development directly resultant from education remains a challenge.

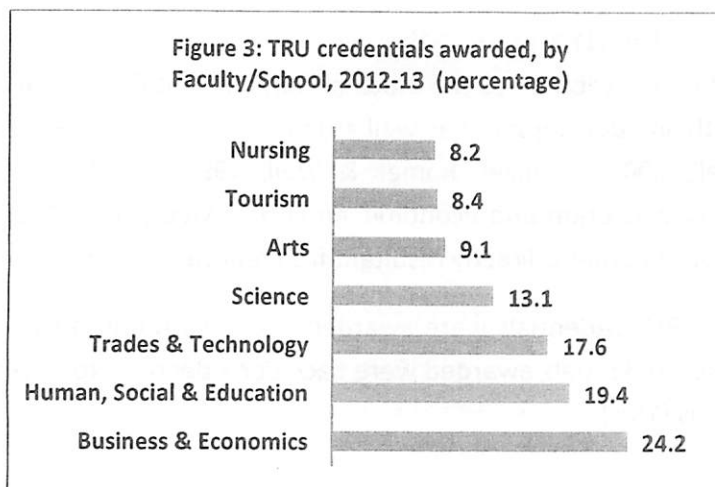
In 2012-13, over 2,000 TRU credentials were awarded<sup>12</sup>. As illustrated in Figure 2, the largest proportion (37%) of TRU credentials awarded were bachelor's degrees, followed by certificates (27%), and then diplomas (16%).

TRU's graduate programs are growing. Currently, master's programs in natural resource science, education, and business administration are offered. Of the post-baccalaureate certificates and diplomas awarded (6%), most were received by students of the School of Business and Economics (83%) with a smaller proportion by those from the Faculty of Human, Social and Educational Development and the Faculty of Arts. Some graduates of the School of Trades and Technology were awarded apprenticeship credentials, comprising 2% of the total.



The largest proportion of credentials (24.2%) were from the School of Business and Economics, followed by the Faculty of Human, Social and Educational Development (19.4%), Technology (17.6%), and then Science (13.1%) as illustrated in Figure 3.

<sup>12</sup> Some students were awarded multiple credentials within the given fiscal year. Credentials awarded to Open Learning and offshore students are not included.



Three student outcomes surveys collect data on TRU alumni after graduation. The 2012 Baccalaureate Graduates Survey was conducted with former students who graduated two years prior. The 2012 Diploma, Associate Degree, and Certificate Student Outcomes Survey collected data from alumni who completed their program 9 to 20 months prior. The 2012 Apprenticeship Student Outcomes Survey collected data from alumni 18 months after they completed their final year of apprenticeship training. Table 9 summarizes the results revealing that 60% of TRU graduates remain in the Interior and Kootenays regions, and 84% remain in BC, contributing to the economic growth and development of the local region and the province.

Table 9: Location of TRU Alumni (percentage)	
Interior BC & Kootenays	59.7
Rest of BC	24.1
Outside BC, in Canada	5.7

Source: B.C. Statistics. BC Student Outcomes Surveys, BGS, DACSO, APPSO

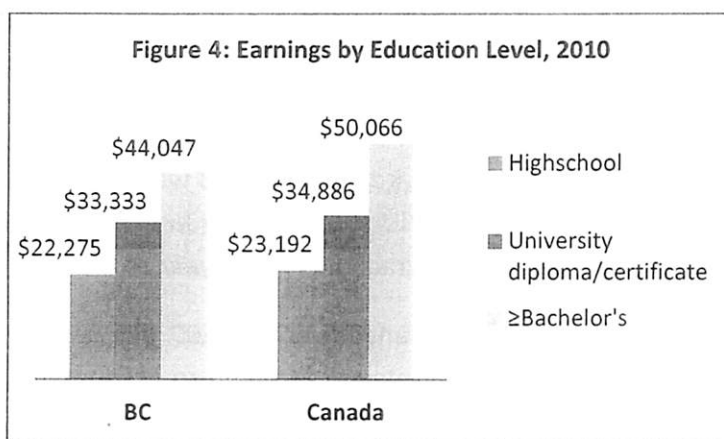
Table 10 summarizes estimates of median annual earnings of TRU graduates based on data from the three student outcomes surveys. TRU graduates with bachelor's degrees earn an annual income of \$50,000 two years after graduation. Those who graduated with a diploma, associate degree, or certificate have earnings of \$36,260, and those who completed their final apprenticeship training have annual earnings of \$69,398 eighteen months after completion.

Table 10: TRU Alumni Earnings	
Level of Education	Annual Earnings
Bachelor's degree	\$50,000
Diploma, Associate Degree, Certificate	\$36,260
Apprenticeship	\$69,398

Source: B.C. Statistics. BC Student Outcomes Surveys, BGS, DACSO, APPSO

## Earnings Differential of Higher Education

The value of higher education accrues to the individuals themselves as well as to all of society. The benefits of higher education include higher earnings, a lower probability of unemployment, and overall greater financial security, to name a few. Statistics Canada's 2011 National Household Survey data<sup>13</sup> indicates that earnings rise with education in British Columbia and Canada, as illustrated in Figure 4. This data shows that income earners in British Columbia with at least a bachelor's degree earn 98% more than those with a high school diploma, and that those with a bachelor's earn 32% more than those with a university diploma or certificate. As demonstrated in Figure 4, the national level data reveals similar differentials.



## Valuation of University Education of 2012-13 Graduates

The data in Table 10 and figure 4 above, illustrate a strong link between education and earnings. However, it is important to acknowledge that the entire earnings differential is not due to university education. As discussed in other economic impact analyses, university education often acts a signal through which individuals with greater ability or motivation are identified (Sudmant, 2009). Other determinants of earnings differentials are neither easy to identify nor quantify, leading to the statistical problem of “omitted variable bias”. Researchers attempt to estimate the relationship between higher education and earnings using various techniques to eliminate the bias. Sudmant (2009) cites research by Riddell (2006), who examined findings of many studies in several countries and found that, “the causal effect of education on earnings is at least as large as – and possibly larger than – what was previously believed”. He explained that in a world where the omitted variable was the same for every person, the earnings differential would be either the same or higher. Among several possible explanations, Riddell suggests that among those without university education, many have been

<sup>13</sup> Source: Statistics Canada, National Household Survey (2011), Table no. 99-014-X2011032

excluded for reasons other than ability or motivation. For instance, Riddell suggests that barriers to securing financing for higher education is a feasible explanation.

Based on Sudmant (2009) and his discussion of Riddell’s research findings, others have followed in estimating a value for additional earnings of university graduates as an economic impact of a post-secondary institution (Laliberté and Eder, 2012; Sun and Lee, 2011; Roslyn Kunin & Associates Inc., 2013). Using a hybrid of different methodologies, similar estimates are calculated for TRU.

Many impact analyses for post-secondary institutions estimate impacts of university education for all alumni residing in the region for the life of their careers (Sudmant, 2009; Laliberté and Eder, 2012; Sun and Lee, 2011). These estimations are difficult at best and even more challenging for institutions such as TRU, given its evolution from a college to a university-college to a university. It is more reasonable to follow the approach used in the impact study for Vancouver Island University (VIU), which also awards many credentials below the bachelor’s level. For instance, 55% of TRU credentials awarded in 2012-13 were below the Baccalaureate level, a decrease from 70% in 2004-05. The VIU study (Roslyn Kunin & Associates Inc., 2013) estimated the value of university education of graduates in the year of the impact study.

The earnings differential is conservatively estimated at \$14,500 per person per year (2005 dollars), based on a 40 year career. Adjustments are required to account for the opportunity cost of university education, which is the foregone income other than part-time and summer employment during the up to four year period. Adjustments are also made for the fact that the earnings differential and the opportunity cost of university education occur over time. The discount rate of 3% per year is used to calculate a net present value of university education. The 2005 dollar figures are then adjusted for inflation to 2012 dollar figures. Following Roslyn Kunin & Associates (2013), the estimated earnings premium is \$211,300 per TRU graduate.

In 2012-13, 914 credentials were awarded at the Bachelor’s level or above (Masters & Post-Baccalaureate) (Figure 2). The annual Baccalaureate Graduates Survey reveals that on average, 74% of TRU Baccalaureate graduates reside in B.C. two years after they completed their studies. It is assumed that 74% remain in B.C. for their entire working career, based on the rationalization that some will move out of the province and others will move back. Table 11 summarizes the impact of a university education to graduates of 2012-13, which is an estimated \$142.8 million over their working career.

Table 11: Value of TRU University Education of 2012-13 Graduates in BC		
Earnings Premium/graduate	Graduates in BC	Total Value of TRU University Education (\$millions)
\$211,300	676	<b>\$142.8</b>

Given that 7.5% of TRU's BC alumni live in the Thompson Nicola region, an estimate of the impact of a TRU university education to 2012-13 graduates on the local economy is \$10.7 million (\$142.8 million x 7.5%).

### **Other Economic Returns of Higher Education**

Human Resources and Social Development Canada (2007) prepared a report entitled, "What difference does learning make to financial security?" The report states that post-secondary education leads to greater net assets, higher growth in earnings, higher income during retirement, less reliance on Old Age Security benefits in retirement, a lower risk of experiencing low income, and a lower risk of unemployment. All these positive returns accruing to individuals with post-secondary education translate to positive returns to the broader economy including the different levels of government in terms of greater income and consumption tax revenues and a lower demand for social safety net programs. The provincial government budget benefits substantially from TRU graduates given that over 80% remain in British Columbia after graduation.

### **Socio-economic Returns of Higher Education**

The literature on the benefits of higher education outlines several socio-economic returns which are expected to benefit the local region and province since close to 60% of TRU's graduates remain in both the Interior and Kootenay regions and 24% remain in other parts of British Columbia.

Crime research reveals that higher educational attainment reduces criminal behaviour. It is suggested that greater incomes and earning potential associated with higher education increases the opportunity cost of engaging in criminal activity. In other words, the potential costs of engaging in criminal behaviour are higher for more educated individuals (Murray, 2009; Levin, Belfield, Muennig, and Rouse, 2006; Riddell, 2006). Thus, lower levels of criminal activity associated with a more educated population lead to reduced public spending on law enforcement.

Post-secondary education is associated with better health and greater longevity as more educated individuals are more likely to adopt healthier lifestyles. Education is also positively correlated with superior mental health as more educated individuals are better able to cope with stress and depressive symptoms (Sironi, 2012; Murray, 2009; Riddell, 2006). A healthier population benefits all of society by reducing reliance on publicly funded health care services.

Post-secondary education tends to lead to greater participation in society. Higher education is associated with greater participation in volunteer activities (Murray, 2009; Bekkers, 2005) and more charitable giving (Hossain and Lamb, 2012; Riddell, 2006). Post-secondary education is also associated with higher levels of social capital such as wider social networks and greater levels of tolerance in regard to relations with others (Murray, 2009). Other societal benefits

include social cohesiveness and active citizenship such as voting participation (Murray, 2009; Riddell, 2006; Fellows, Flanagan, and Shedd, 1997)

### VIII. Impact of TRU Research

University research plays an important role in economic growth, as described by Sudmant (2009). The impact of university research on the economy is two-fold. First, universities are the main producers of new knowledge which is then used by the private sector to increase economic productivity. Second, as Sudmant remarks: “McMahon (1992) estimates that 73 per cent of new knowledge generated by university research is transmitted into the economy through university graduates”. This section includes a description of several TRU research activities and a discussion of some of their not directly measurable impacts on the local economy.

Canada Research Chairs (Tier2)	3
Regional Innovation Chairs	2
Social Sciences and Humanities Research Council (SSHRC) Funded Projects	9
Natural Sciences and Engineering Research Council (NSERC) Funded Projects	11
Canadian Institutes of Health Research (CIHR) Funded Projects	1
Michael Smith Foundation for Health Research (MSFHR) Funded Projects	1

TRU became a member of the Research Universities’ Council of British Columbia (RUCBC) in 2011, reflecting its status as a research institution. Table 12 summarizes TRU’s externally funded research activities in 2012-13.

Table 13 outlines TRU research funding from federal government sources for the fiscal years 2007-08 to 2011-12. In 2012, total sponsored research funds exceeded \$2.7 million. Sponsors included: federal (\$1.6 million) and provincial (\$350,000) agencies, and donations, bequests, non-government grant and endowments from business and non-profit organizations (\$734,000).

TRU faculty and students engage in research, publish in academic journals, and disseminate their research through conference presentations across the globe, contributing to the knowledge economy. In 2012, TRU researchers disseminated their research with over 160 conference presentations across the globe, at locations such as Yellowknife and Waterloo in Canada; Bogotá, Columbia; Lima, Peru; Odense, Denmark; Baku, Azerbaijan; Lanzhou University in China, and Chennai, India. TRU does not currently have a system for tracking the number and types of research publications.



Source	2007-08	2008-09	2009-10	2010-11	2011-12
<b>Social Sciences &amp; Humanities Research Council (SSHRC)</b>	\$0	\$218,000	\$321,000	\$361,000	\$269,000
<b>Natural Sciences &amp; Engineering Research Council (NSERC)</b>	\$510,000	\$448,000	\$308,000	\$399,000	\$463,000
<b>Canadian Institutes of Health Research (CIHR)</b>	\$4,000	\$2,000	\$40,000	\$111,000	\$107,000
<b>Canadian Foundation for Innovation (CFI)</b>	\$65,000	\$0	\$36,000	\$325,000	\$222,000
<b>Canada Research Chairs</b>	\$325,000	\$300,000	\$300,000	\$300,000	\$300,000
<b>Other Federal</b>	\$302,000	\$1,276,000	\$1,228,000	\$1,298,000	\$468,000
<b>Total</b>	<b>\$1,206,000</b>	<b>\$2,244,000</b>	<b>\$2,233,000</b>	<b>\$2,794,000</b>	<b>\$1,829,000</b>

Source: Canadian Association of University Business Officers (CAUBO) website (August, 2013)

### Regional Impact of TRU Research

While TRU researchers investigate local, regional, national, and international topics, there is a significant amount of research devoted to issues relevant to the local region. For instance, Dr. Lauchlan Fraser, Tier II Canada Research Chair in Community and Ecosystem Ecology, investigates how climate change and cattle grazing affect the health of BC's grasslands, sustainable ranching practices, and land reclamation. Dr. John Church, Regional Innovation Chair in Cattle Industry Sustainability, assists ranchers in the interior of BC in adopting technologies and practices for sustainability.

TRU researchers partner with local organizations to conduct research addressing local issues. TRU's Centre for Optimization and Decision Science has conducted research to benefit the Interior Health Authority on improved lab schedules and has worked with Teck's Highland Valley Copper mining operation to improve energy efficiency. Masters of Science student Julie Schooling has joined forces with the City of Kamloops to examine trees and their impact on storm runoff water.

TRU researchers investigate issues relevant to British Columbia's Aboriginal communities. For instance, Dr. Ashok Mathur, Tier II Canada Research Chair in Cultural and Artistic Inquiry, examines critical elements of the Truth and Reconciliation Commission on Indian Residential Schools. Dr. Rod McCormick, BC Regional Innovation Chair in Aboriginal Early Childhood Development and Maternal and Child Health, conducts policy research on the health of Aboriginal women and children in Aboriginal communities. Dr. Patrick Walton researches retention of Aboriginal students at university. Dr. Wendy Hulko of Social Work and Tracy

Christianson of Nursing have teamed up on a community-based project to build capacity amongst nurses to care to First Nations elders.<sup>14</sup>

## **IX. A Role Model for Environmental Sustainability**

Thompson Rivers University is a role model of sustainable practices for the Kamloops community, a reputation earned from its emphasis on environmental sustainability in both its daily operations and construction projects.

TRU boasts one of the largest solar domestic hot water heating systems in B.C., uses the Pulse-Energy Management Information System to save energy, and has installed a Wireless Energy Management System to measure occupancy and ambient light levels. In addition, eight electric vehicle charging stations have been installed for free public use on campus. TRU achieved STARS Silver Status in 2011 through the Association for the Advancement of Sustainability in Higher Education.

TRU invests its energy savings in an Energy Revolving Fund to support future energy efficiency projects, stemming from the institution's partnership in the Billion Dollar Green Challenge, an initiative sponsored by the Rockefeller Foundation to invest a total of one billion dollars in self-managed revolving funds to finance energy efficiency improvements. TRU is one of only two Canadian universities to sign on to the Billion Dollar Green Challenge.

These projects are improving energy efficiency in existing buildings while long-term planning processes are ensuring that Thompson Rivers University maintains high environmental sustainability standards well into the future.

## **X. Social and Cultural Contributions**

Many social, cultural, and academic events sponsored by or held at Thompson Rivers University in 2012-13 were enjoyed by the public and thus contribute to the enrichment of the social and cultural life of the Kamloops community.

In 2012, the 19<sup>th</sup> Annual Stabilizing Indigenous Languages Symposium brought together close to 200 scholars, language activists, language teachers, Elders, students and others from North America and around the world. In September of 2012, TRU and the Shuswap Nation Tribal Council presented a Law Conference on Doctrine of Discovery.

Over 66 presentations by many notable individuals were hosted by TRU some of which include cognitive scientist and Pulitzer Prize finalist Steven Pinker, playwright Kevin Loring, prominent writer Dr. Aleida Geuvara, author Kim Scott, and CEO of Knowledge Network Rudy Buttignol.

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<sup>14</sup> For more detail on research at TRU refer to Research and Graduate Studies Annual Report 2012 at [www.tru.ca/research](http://www.tru.ca/research)

Many Aboriginal cultural events were held at TRU, such as the Secwepemc museum display and basket weaving workshop, a presentation on generational impacts of colonization and the Indian residential schools, and a performance by Aboriginal hip-hop artist and journalist Wab Kinew.

TRU has become a vital component of the Kamloops social and cultural community with a myriad of diverse events. Some events at TRU in 2012-13 include the first Gay Pride Parade in Kamloops, star gazing activities at the TRU Observatory, the Kamloops Global Film Festival. The TRU Horticultural and Friends of the Gardens Fundraiser attracts over 400 people each spring. TRU's 20<sup>th</sup> International Days offered guest scholars, presentations, film screenings and cultural exhibitions open to the wider community in February, 2013. In addition, the TRU WolfPack teams provide many sporting events throughout the year which broaden the entertainment options for the local community.

These social and cultural events contribute to the development and growth of the Kamloops community by increasing its desirability as a place to live, and thus play a role in attracting residents and businesses to the local region.

## **XI. Impact on the Social Economy**

TRU employees and students actively support Kamloops' social economy through participation in volunteer activities and charitable giving. TRU employees support the Thompson Nicola Cariboo United Way as demonstrated by the 2012 fundraising campaign which surpassed \$46,000. Faculty of Law students worked with the United Way and volunteered time to serve meals in the Local People in Transition meal program.

Enactus, TRU's largest student group with 87 members, contributed over 9,000 volunteer hours and worked with 80 community partners providing service to the community. Their programs impacted an estimated 457 people in Kamloops and raised over 18,000 pounds of food for the local food banks.

TRU Wolf Pack athletes and teams organized and participated in volunteer events such as the Terry Fox Runs in elementary schools, charity soccer clinics, and Wendy's Dream lift and Raise a Reader in the Kamloops community.

## **XII. Conclusion**

The activities associated with Thompson Rivers University's Kamloops campus have an enormous impact on the local economy as well as on the BC economy. A summary of the measurable impacts on the local economy is illustrated in Table 14 and on the BC economy in Table 15.

Source of economic impact	Total Gross Output
TRU expenditure	\$198.2
Student expenditure	83.2
Visitor expenditure	63.0
Value of higher education for 2012-13 graduates*	10.7
<b>Total impact</b>	<b>\$355.1</b>

\*Value of higher education is measured in earnings \$.

Source of economic impact	Total Gross Output
TRU expenditure	\$282.2
Student expenditure	140.5
Visitor expenditure	85.1
Value of higher education for 2012-13 graduates*	142.8
<b>Total impact</b>	<b>\$650.6</b>

\*Value of higher education is measured in earnings \$.

These figures illustrate that Thompson Rivers University is an outstanding investment for the province of British Columbia. Considering the total investment in education, and the amount of post-secondary teaching and research associated with Thompson Rivers University, the total government grant funding of \$133.6 million (2012-13) results in an impact 2.7 times larger in the local economy and 4.9 times larger in the BC economy. In addition, there are many other socio-economic and cultural impacts that are not easily quantifiable, and thus are not reflected in the figures in Tables 14 and 15.

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