

Analysis of Economic Impacts for Nova Scotia Business Inc. 2007-08 to 2011-12

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EXECUTIVE SUMMARY

Nova Scotia Business Inc. (NSBI) serves as Nova Scotia's lead business development agency, and is responsible for front-line business development functions. NSBI's core focus is to work directly with businesses to deliver economic impact results for the province. This report presents the economic impacts on the Nova Scotia economy attributable to NSBI's activities over the period from March 31, 2007 to March 31st 2012. It also examines the success of NSBI in achieving the empirical target set out in *Now is the Time*, the 2007–2012 NSBI strategic plan:

- ❑ *\$800 million in total client payroll created and retained over the five-year time frame of the strategic plan;*

The analysis in this document estimates NSBI's impact with respect to key economic variables, including the direct and spinoff impacts on employment, household income, gross domestic product (GDP), and provincial tax revenues generated and export sales. The analysis focused on the timeframe from March 31, 2007 to March 31, 2012.

Findings

The economic impact analysis provided the following results with respect to NSBI's activities over the past five years, ending March 2012:

- ❑ NSBI exceeds its payroll target of \$800 million over past 5 years with a cumulative total direct payroll impact of over \$1.2 billion by March 31, 2012.

Total Economic Impacts Attributable to NSBI activities over past 5 years

The direct impacts arising from the annual operations of NSBI-assisted businesses include the following:

- ❑ An estimated 29,530 Person Years (PYs) of direct employment impacts over the period 2007-08 to 2011-12
- ❑ Provided direct payroll totaling over \$1.2 billion over the entire five years
- ❑ Directly contributed \$468.8 million in gross domestic product (GDP) to the economy of Nova Scotia in 2011-12, which is over 1 percent of total provincial GDP.
- ❑ Directly accounted for provincial tax revenues of \$139.2 million through the income and consumption (spending) taxes paid by their employees over the entire five years

Total spinoff impacts attributed to the establishment and/or expansion of NSBI-assisted businesses amounted to:

- ❑ 23,654 PYs of employment over the past five years (2007-08 to 2011-12)
- ❑ \$925 million in household income over the entire five years
- ❑ \$427.5 million in spin-off GDP in 2011-12
- ❑ \$98.7 million in provincial tax revenues over the entire five years.

The total impacts attributed to the establishment and/or expansion of NSBI-assisted businesses amounted to:

- ❑ 53,184 PYs of total employment over the past five years (2007-08 to 2011-12)
- ❑ \$2.13 billion in household income over the entire five years
- ❑ \$896 million in total GDP in 2011-12
- ❑ \$238 million in provincial tax revenues over the entire five years.

Investment Impacts

Short-term, one-time capital expenditures (investment impacts) by NSBI-assisted businesses over the five years are estimated at:

- ❑ 1,925 PYs in total employment impacts, including 1,267 PYs in direct and 658 PYs in spinoff employment impacts
- ❑ \$66 million in direct and spinoff household income
- ❑ \$7 million in direct and spinoff provincial tax revenues

Regional Economic Impact Analysis

A regional analysis of the economic impacts attributable to NSBI shows that while a large portion of the economic impacts are geographically located within HRM, a significant proportion of economic impacts occur throughout Nova Scotia. A closer examination shows that every county in Nova Scotia has been impacted by NSBI activities over the past five-year period, illustrating that NSBI activities support and promote economic development throughout the province.

Return on Investment (ROI) Analysis

A cash-flow analysis and return on investment analysis estimated a return on investment of 43.1% over the period 2007-08 to 2011-12. This finding indicates that over the past five years, for every dollar government invests in NSBI and business, NSBI and business will have returned in excess of \$1.40 to government.

I. INTRODUCTION

1. Background

Nova Scotia Business Inc. (NSBI) is a private-sector led agency established in 2001 with a mandate to expand business activity in Nova Scotia and to attract new investment to the province leading to value-added growth of the economy. NSBI serves as Nova Scotia's lead business development agency, and is responsible for business development functions such as investment attraction, trade development, business financing and venture capital.

NSBI's 2007 strategic plan *Now is the Time*, provides a guideline for the corporation's activities over the past five-year period 2007-08 to 2011-12 (fiscal year ending March 31, 2012). The plan also included an outcome target of \$800 million in total client payroll created and retained over the five-year period. In short, NSBI's core focus is to work directly with businesses to deliver economic impact results for the province. NSBI offers customized, client-focused solutions through its business units:

- NSBI's *trade development team* administers a series of government programs targeted at assisting Nova Scotia exporters to explore new business opportunities in export markets (including NSBI-led trade missions) and collaborates with other agencies and organizations that share the common goals of increasing exports from the province;
- NSBI's *business financing team* works with companies to structure financing packages tailored to their specific needs and offers financial tools (often in partnership with other government partners and financial institutions) ranging from loans to guarantees to assist in bridging financial gaps in the marketplace.
- NSBI's *venture capital team* provides capital, strategic direction and advice to help promising companies achieve their full potential, focusing on a variety of sectors and growth opportunities;
- NSBI's *investment attraction team* is primarily concerned with attracting sustainable, export-oriented and value-added business investment to the province.
- NSBI's *business advisory team*¹ works closely with the trade development, business financing, venture capital and investment attraction teams to meet client needs.

NSBI's recent five-year mandate was completed on March 31, 2012 and as per the NSBI Act, to demonstrate its accountability and performance to its stakeholders, the corporation commissioned Gardner Pinfold to undertake this study to determine the impact of NSBI and its assisted businesses on the provincial economy over the past five-year mandate. The impact is determined through a detailed and comprehensive evaluation of NSBI's programs and activities and outcomes over the past five-year period (2007-08 to 2011-12).

¹ The Business Advisory Team (BAT) offices across the province were relocated from NSBI to the Department of Economic and Rural Development and Tourism in 2011.

2. Study Objectives

This impact study has two over-arching objectives:

- 1) To analyze NSBI's impact with respect to the outcome target of \$800 million in total client payroll created and retained over the past five-year period; and
- 2) To analyze NSBI's impact with respect to other key variables, including, but not necessarily limited to:
 - ❑ Creation and retention of employment - direct and spin-off impacts;
 - ❑ Household income - direct and spin-off impacts;
 - ❑ Gross Domestic Product - direct and spin-off impacts;
 - ❑ Provincial tax revenues recovered - direct and spin-off impacts;
 - ❑ Gross Output - direct and spin-off impacts (i.e., total sales, total revenue);
 - ❑ Investment - direct and spin-off impacts (e.g., fixed assets like plant and equipment);
 - ❑ Evaluation of high value jobs in relation to regional and industry average.

This report presents our findings on the degree to which NSBI has met its key target. It also presents our analysis of the economic impact attributable to NSBI's activities over the past five-year period, as measured by the key variables listed above and described in the Request for Proposal.

The results of the Nova Scotia Department of Finance's Nova Scotia Input-Output Model (NSIO) are used to analyze the economic impact analysis over the past five-year period, and in addition:

- ❑ Estimate the Return on Investment (ROI), taking into consideration total operating costs of the organization, total incentives awarded through the Nova Scotia Payroll Rebate, and funds disbursed through the Nova Scotia Business Fund (debt and equity) as well as funds repaid. This analysis takes into consideration all revenues and expenses, including the:
 - financial transactions of the Business Finance team;
 - financial transactions of the Venture Capital team;
 - business attraction projects utilizing the Nova Scotia Payroll Rebate and other incentives (Investment Attraction);
 - outcomes of the Business Advisory Team (BAT); and,
 - export results associated with NSBI programs or programs administered by NSBI on behalf of others (sales signed during event, sales signed since the event, estimated sales forecasted).

II. METHODOLOGY

1. Overview of Methodology

This impact analysis is based on our review of transactions completed between NSBI and its private sector clients during the period from April 2007 to March 2012, inclusive. In cases where venture capital deals and investment attraction payroll rebate deals signed prior to April 2007 were still remaining over the period covered by this study, these transactions were included as well, but only for the duration of the remaining deal over this time period.

To facilitate the analysis, we conducted a thorough review of all data recording the characteristics of each transaction, including the timing, type and the amount of financial support; industry sector, actual results with respect to employment; as well as the timing of the anticipated future employment impacts. Transactions with NSBI clients include loans, equity, loan guarantees, payroll rebates, and also transactions in which NSBI took a lead role but did not provide financial assistance in securing a deal. The Business Advisory Team and Trade Development Team at NSBI provide advice and other non-financial support to Nova Scotia businesses, particularly small and medium-sized businesses throughout the province.

Only actual employment impacts attributable to NSBI transactions with private sector companies either attracted to Nova Scotia or existing within Nova Scotia are included in the analysis of economics impacts over this time period. Actual employment results are tracked and monitored by NSBI through follow-up with assisted private sector clients with respect to NSBI's payroll rebate program or through regular on-going follow-up. This approach differs from that used in "An Analysis of Economic Impacts of Nova Scotia Business Inc., 2001-02 to 2006-07" in which forecasted maximum employment numbers were used.

Investment Attraction, Financial Services, and Venture Capital transactions were adjusted by the following actions:

- ❑ Transactions were deleted in cases for which NSBI assistance was approved but the client either declined the offer or decided not to proceed with an accepted offer;
- ❑ Transactions for separate business units at different locations within the same client company were generally counted separately.
- ❑ Multiple transactions for a single client were combined into one transaction, such as where a Financial Services client received one or more separate approvals for funding. However, in cases where incremental person years (PYs) of employment were created, these were treated as separate transactions;
- ❑ Transactions where a client received financial assistance in the form of both a loan and a payroll rebate were counted as two separate transactions; and

The following analytical methods were used to help us correctly interpret the information contained in the project documentation for these transactions and subsequently to estimate the impacts of NSBI's assistance to businesses.

- ❑ **Data Review:** we reviewed the data files providing transaction details for each business unit of NSBI required for the analysis; this comprehensive data was supplemented with data provided by NSBI from their annual reports and project management databases;

- ❑ **Interviews with NSBI staff:** we completed in-person interviews with senior NSBI staff to gain insights on the financial assistance mechanisms, file organization, details on transactions and other advice. Interviewees included managers of each NSBI business unit as well as other senior officials involved in business development initiatives. The ongoing assistance provided by NSBI was invaluable to the success of the analysis.
- ❑ **Descriptive Analysis:** this analysis relies on the database of project information we compiled with the assistance of NSBI during the impact analysis. The results describe characteristics of NSBI assistance over the past five years.
- ❑ **Economic Impact Analysis:** the 2007 Nova Scotia Input-Output Model maintained by the Department of Finance was used to estimate direct and spinoff impacts in Nova Scotia, measured in terms of employment, household income, provincial tax revenue, gross domestic product (GDP) and sales (gross output).
- ❑ **Return on Investment Analysis:** an undiscounted cash flow approach is used to evaluate NSBI's return on investment.

The detailed methodological approach used in the *Economic Impact Analysis* and *Return on Investment Analysis* is contained in the Appendix.

The approach used in measuring the employment is based on actual direct employment attributable to NSBI activities as tracked through regular follow-up and reporting by client companies to NSBI. In all cases where payroll rebates were given, a report from an auditor verifying employment was used. We relied on NSBI corporate databases to estimate direct employment impacts for each fiscal year. For reasons of confidentiality and effectiveness, we did not directly contact businesses to obtain their current and projected employment levels.

In projects associated with a payroll rebate, the agreements typically provide a multi-year schedule for ramping up employment within a company. For the purposes of the impact analysis, this means for example, that projects announced during the fiscal year 2007-08 that had not yet ramped up their employment are only counted in our analysis of the impact in 2007-08 to the extent that actual employment is in place before March 31, 2008. This same approach is used to measure actual direct employment in each fiscal year in the analysis over the past five years, as well as projected employment impacts into the next 5-years.

Employment impacts are measured as PYs of employment, a standard measure used to nominalize employment measures and allow for a comparison of employment impacts across industries, regions and over time. Person years of employment are measured as a full-time equivalent job for one person for one year in a particular industry. The 2007 NSIO model utilizes industry-specific coefficients to measure employment impacts in terms of PYs. Employment positions that are less than a full year, or less than full-time equivalency are converted into PYs of employment for comparison purposes. Using this methodology often results in lower employment impacts when measured as PYs of employment versus "jobs".

For simplicity in describing the results, unless otherwise specified, references in the report to the "past five years" refer to the five years of NSBI's previous mandate, ending March 31, 2012.

III. A PROFILE OF NSBI SUPPORT AND ASSISTANCE

This chapter provides a more detailed description of NSBI's five business units, their role in producing results for NSBI and a descriptive analysis of the business development activities undertaken by NSBI over the past five years of its mandate. The analysis relies on the project characteristics collected with the support of NSBI during the review and development of the analytical database for this study.

1. NSBI Lines of Business

Over the past five-year mandate, NSBI offered customized, client-focused solutions through its five operating business units, structured to interact directly with business clients: Investment Attraction; Financial Services; Venture Capital; Business Advisory; and Trade Development.

The **Investment Attraction (IA)** unit focuses on increasing investment in Nova Scotia from foreign and/or other provincial jurisdictions to establish sustainable, export-oriented, value-added businesses. NSBI's IA unit is primarily concerned with attracting sustainable, export-oriented and value-added business investment to the province and takes a targeted approach to attract businesses that have a strong strategic fit with Nova Scotia's assets. The principal investment incentive tool employed by the Investment Attraction unit is the payroll rebate.

The **Business Finance (BF)** unit works with companies to structure financing packages tailored to their specific needs and offers financial tools (often in partnership with other government partners and financial institutions) ranging from loans to guarantees to assist in bridging financial gaps in the marketplace. The team also provides advisory assistance to clients in business restructuring. The team's portfolio indicates that industry focus has been and continues to be on sectors with high-growth potential and on the province's foundation industries.

The **Venture Capital (VC)** unit provides capital, strategic direction and advice to help promising companies achieve their full potential, focusing on a variety of sectors and growth opportunities. The team's portfolio focuses on sectors of high growth usually with some form of "disruptive" technology.

The **Trade Development Team** administers a series of government programs targeted at assisting Nova Scotia exporters explore new business opportunities in export markets (including NSBI-led trade missions) and collaborates with other agencies and organizations that share the common goals of increasing exports from the province.

The **Business Advisory Team (BAT)** works closely with the trade development, business financing, venture capital and investment attraction teams to meet client needs. The BAT operated out of offices in six locations across the province, identifying growth opportunities for businesses, making referrals to the NSBI business unit or to external partners that can best assist businesses with their growth plans. In 2011, the BAT was relocated from offices across the province to the Department of Economic and Rural Development and Tourism (ERDT) as part of an effort to centralize regional deliverable arms of the province. The economic impacts resulting from the BAT activities are measured over the past 5 years up to their move to ERDT.

In addition to these direct client-interaction business development initiatives, NSBI owns and manages a portfolio of real estate, including multiple ports and industrial parks across the province, with the goal of working with communities where these assets are located and assist in

the planning of initiatives that will result in business growth for the region. NSBI is involved in selling lands for industrial use and maintaining the infrastructure. Management of the real estate portfolio is conducted in association with the Department of Transportation and Infrastructure Renewal. Revenue from the sale of real estate assets is included in the ROI analysis.

NSBI tracks results and performance of its business activities through a corporate database. This tracking database is designed to assess and measure performance toward the achievement of its prime target outcomes over the five-year strategic plan. In the process of moving toward the prime outcome target(s), NSBI also measures annual results against annual targets. These are presented as a Corporate Scorecard in NSBI's annual reports.

2. *Transactions by Business Unit*

The number of transactions per year varies across NSBI's business units from a total of 13 Venture Capital transactions (some of which were put in place prior to 2007) to a total of 87 Business Advisory Team transactions over the past five years. A total of 59 Business Financing transactions and 49 Investment Attraction transactions took place over this time period. Figure 1 provides a breakdown of the number of transactions for NSBI's Investment Attraction, Business Financing, Venture Capital, and Business Advisory Team units over the past 5-year period.² In addition, to the transactions shown in Figure 1, NSBI's trade marketing events tracking system revealed a total of 1,853 trade development events (representing multiple accounts) took place over the past five years, resulting in a total of \$805 million in total export sales directly attributable to NSBI's Trade Development activities.

Figure 1: Number of Transactions by NSBI Unit, 2007-08 to 2011-12



² IA deals made prior to 2007-08 that overlapped into the early part of the last five-year period, these transactions were also included, but only up to the point where the deal period lapsed. Venture Capital deals completed prior to 2007 were also included in cases where the employment impacts would not have existed without NSBI venture capital.

3. *Business Development Activities*

NSBI activities enhance and assist many sectors of the Nova Scotia economy. NSBI has worked with specific groupings of industry sectors as part of its development strategy over the past five years. These sectors have gradually changed as NSBI has responded to business development opportunities that best reflect Nova Scotia's assets and development goals. Financial sector businesses have assumed a larger presence among assisted businesses while contact centers have proportionately decreased in volume over the past five years.

NSBI has been successful in targeting key sectors for development and in attracting businesses that are complementary to each other within the sector. For example, since 2006, Nova Scotia's financial services and insurance sector has seen phenomenal growth with major international firms establishing back and middle office operations in Halifax, as a result of carefully planned and purposeful sector development activities by NSBI. Companies attracted to Nova Scotia in this sector include Citco Fund Services, Butterfield Fulcrum, Castle Hall Alternatives, Marsh Captive Solutions, Flagstone Management Services, Meridian Fund Services, BF&M Insurance, and Admiral Insurance.

IV. ECONOMIC IMPACT ANALYSIS

1. Findings in Summary

Past Five Years, Ending March 2012

The 2007 I-O Model is used to estimate the economic impacts attributable to NSBI activities. Economic impacts are divided into three components: direct, spinoff, and total impacts. Direct impacts are those that result directly from the company's expenditures on, or purchases of, goods and services in Nova Scotia. Spinoff impacts are the sum of indirect impacts (due to inter-industry transactions) and induced impacts (from the repercussive effects caused by household spending and re-spending). Total impacts are the sum of direct and spinoff impacts.

The direct impacts arising from the annual operations of NSBI-assisted businesses include the following:

- ❑ An estimated 29,530 PYs of direct employment impacts over the period 2007-08 to 2011-12
- ❑ Provided direct payroll totaling over \$1.2 billion over the entire five years
- ❑ Directly contributed \$468.8 million in GDP to the economy of Nova Scotia in 2011-12, which is over 1% of total provincial GDP
- ❑ Directly accounted for provincial tax revenues of \$139.2 million through the income and consumption (spending) taxes paid by their employees over the entire five years.

These NSBI-assisted businesses purchase goods and services from suppliers in Nova Scotia to support their operations, and the employees of NSBI-assisted businesses buy a wide variety of consumer goods and services from businesses in the province. These purchases and expenditures create spinoff impacts: additional production, income and employment in the provincial economy. Total spinoff impacts attributed to the establishment and/or expansion of NSBI-assisted businesses amounted to:

- ❑ 23,654 PYs of employment over the past five years (2007-08 to 2011-12)
- ❑ \$925 million in household income over the entire five years
- ❑ \$427.5 million in spin-off GDP in 2011-12
- ❑ \$98.7 million in provincial tax revenues over the entire five years.

When these spinoff impacts are combined with direct impacts, the total impacts attributed to the establishment and/or expansion of NSBI-assisted businesses amounted to:

- ❑ 53,184 PYs of total employment over the past five years (2007-08 to 2011-12)
- ❑ \$2.13 billion in household income over the entire five years
- ❑ \$896 million in total GDP in 2011-12
- ❑ \$238 million in provincial tax revenues over the entire five years.

In addition to these operating impacts of the NSBI-assisted businesses, there were short-term, one-time impacts from the capital expenditures the businesses made on plant, machinery and equipment. Construction impacts are included here. Over the five years, the cumulative — but temporary — total impacts on the Nova Scotia economy from this investment spending were estimated at:

- ❑ 1,925 PYs of employment, including 1,267 direct and 658 PYs in spinoff employment impacts;
- ❑ \$42 million in direct and spinoff household income;
- ❑ \$66.3 million in direct and spinoff GDP; and
- ❑ \$7 million in direct and spinoff provincial tax revenues.

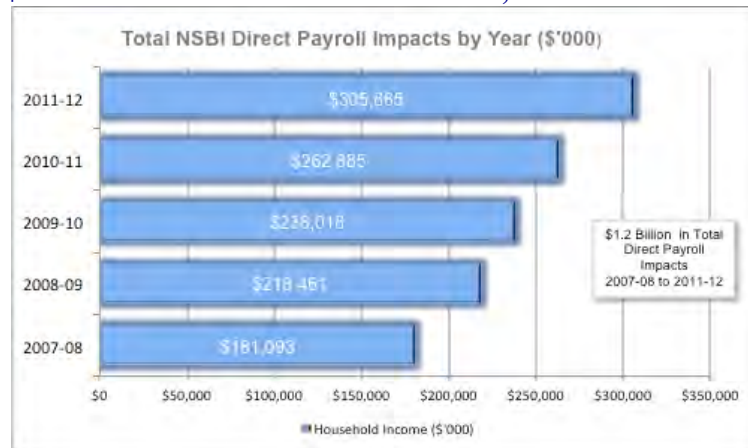
These capital expenditures impacts occurred entirely within the past five years of NSBI's mandate.

This chapter elaborates on the economic impacts summarized above. Appendix A describes the assumptions and methodologies used to estimate the economic impacts of NSBI-assisted businesses.

NSBI Exceeds its Payroll Target of \$800 Million over past 5 Years

The total payroll impact related to NSBI activities over the past 5-year mandate is over \$1.2 billion. This exceeds NSBI's target of \$800 million in total household income generated in the Nova Scotia economy as a result of its program-related investments and activities. Figure 3 provides a breakdown of the direct payroll impacts by year. The spin-off household income impacts are in addition to these direct payroll impacts and are described in further detail in the section below.

Figure 2: Direct payroll impacts in Nova Scotia of \$1.2 Billion as a result of NSBI activities, 2007-08 to 2011-12



NSBI provided the Economics and Statistics Division (ESD) of the Department of Finance with payroll and employment information on IA transactions for which payroll rebates were paid out. This information, along with the original submissions for IA transactions, including associated start-up costs, was used to perform *ex post* economic impact assessments. A complete list of the assumptions can be found in the appendix to this document.

BF transactions are treated in the same manner as the Investment Attraction transactions. Impacts attributed to reported payroll and full time employment are simulated using the NSIO. No impacts related to capital acquisition, construction or other investments are reported, as these estimates were not provided. Custom runs in each industry are used to estimate GDP per dollar of household income, and direct and total output per dollar of GDP. Provincial government revenue is estimated using the Department of Finance tax proforma.

BAT impact estimation follows the above methodology. Between the years 2007-08 and 2011-12, a total of 87 BAT deals were commenced (not all went forward or had measurable economic impacts). Economic impacts are attributable to payroll and reported employment by recipients. No impacts are estimated for capital acquisition or other business investments.

Economic impacts attributable to 13 VC deals over the past five years are also included in the analysis. ESD determined the appropriate industry according to the 2007 NSIO and simulated impacts based on payroll and associated employment reported to NSBI by VC recipients. No estimation is made for leveraged funds, and attribution of impacts is assumed to be 100% due to NSBI's contribution. GDP and Output estimates are based on 2007 NSIO relationships to household income, and provincial government revenue is estimated using the Department of Finance tax *pro forma*.

NSBI also provided ESD with data from their trade marketing events tracking system.³ A total of 1,853 trade sales transactions (events) occurred over the past 5 years with multiple accounts with a total of \$29 million in sales orders signed at the time the trade development events took place. An additional \$121 million in sales occurred 6 months following the events, with another \$655 million in sales directly related to the event but forecasted to occur 18 months following the trade development events.

Total Direct Employment Impacts of 29,530 PYs over the Past 5 Years

Table 1 provides a breakdown of the direct employment impacts related to NSBI's activities over the past five years (2007-08 to 2011-12). The employment estimates shown represent annual, sustained PYs of employment with respect to both the direct and spinoff impacts.

Table 1: Direct Employment By Program Activity (PYs), 2007-08 To 2011-12

Year of Assistance	Investment Attraction	Business Financing	Venture Capital	Trade	Business Advisory Team	Cumulative Total (PYs)
2007-08	3,675	0	336	923	201	5,135
2008-09	3,914	266	239	1,169	160	5,748
2009-10	3,343	761	246	1,230	260	5,840
2010-11	3,145	1121	329	1,414	8	6,017
2011-12	2,669	2179	451	1,492	0	6,791
Total	16,746	4,327	1,601	6,227	629	29,530

Source: Estimated from NSBI Data Sources and the 2007 Nova Scotia Input-Output Model

Spinoff impacts represent employment impacts resulting from the ongoing operations of the businesses assisted by NSBI as well as the spending of household incomes earned. Spinoff employment impacts are estimated on a PY of employment basis, consistent with Nova Scotia's Department of Finance employment impacts measures. The *Total Employment* column shows the cumulative net employment impact achieved in a given fiscal year, and takes into account employment lost over the period.

³ Some of the sales transactions included were completed by companies that NSBI had previously completed a payroll rebate, loan or equity deal with which could have resulted in double counting. The overlap would be no more than 17.5% of the total trade volume. Trade represented approximately 18% of the total activity.

Table 2 and Figure 3 provide a breakdown of direct, spinoff and total employment impacts by year.

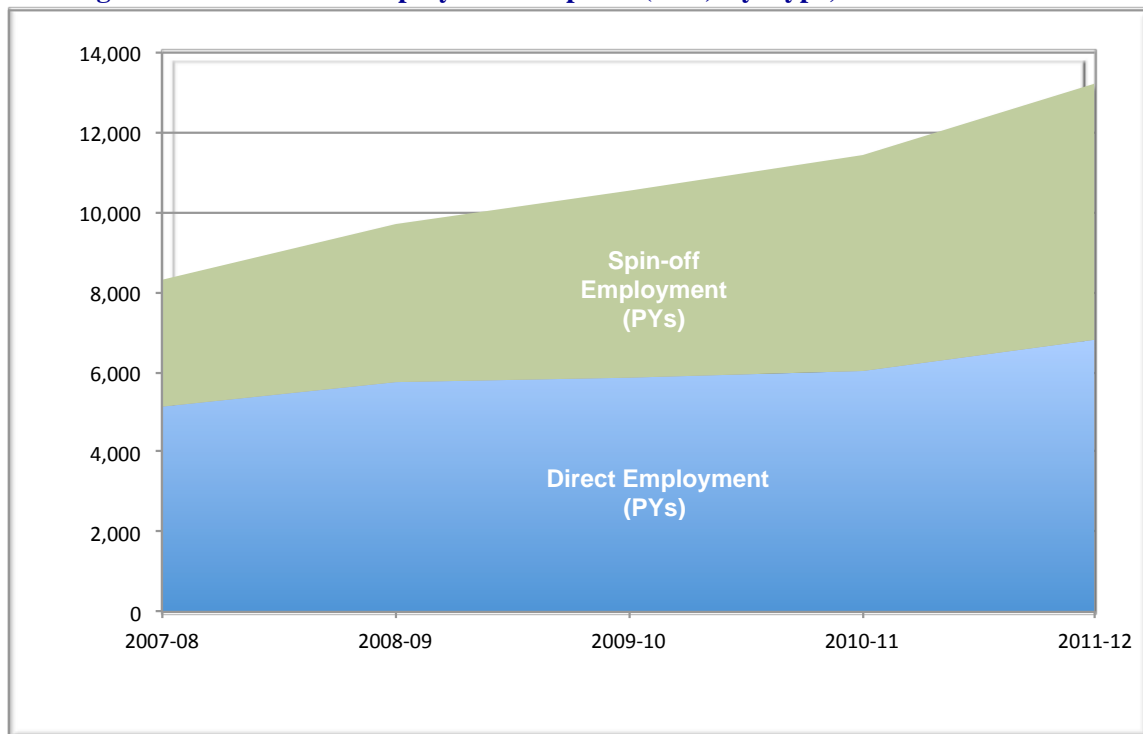
Table 2: Total Employment Impacts by Type, 2007-08 to 2011-12

Year of Assistance	Direct Employment (PYS)	Spinoff Employment (PYS)	Total Employment (PYS)
2007-08	5,135	3,153	8,288
2008-09	5,748	3,968	9,715
2009-10	5,840	4,682	10,522
2010-11	6,017	5,412	11,429
2011-12	6,791	6,440	13,230
Total	29,530	23,654	53,184

Source: Estimated from NSBI Data Sources and the 2007 Nova Scotia Input-Output Model

By 2011-12, an estimated direct employment impact of 6,791 PYs of employment was achieved as a result of NSBI-assisted businesses.

Figure 3: Cumulative Employment Impacts (PYs) by Type, 2007-08 to 2011-12



Source: Estimated from NSBI Data Sources and the 2007 Nova Scotia Input-Output Model

Income Impacts

The direct income impacts are based on NSBI documentation on actual payroll impacts reported by NSBI-assisted businesses and is comprised of wages, salaries and fringe benefits. In cases where actual payroll for NSBI-assisted businesses is not available, average Nova Scotia wages from Statistics Canada's Survey of Labour Income Dynamics (SLID) are used for each calendar year over the past five-year period.

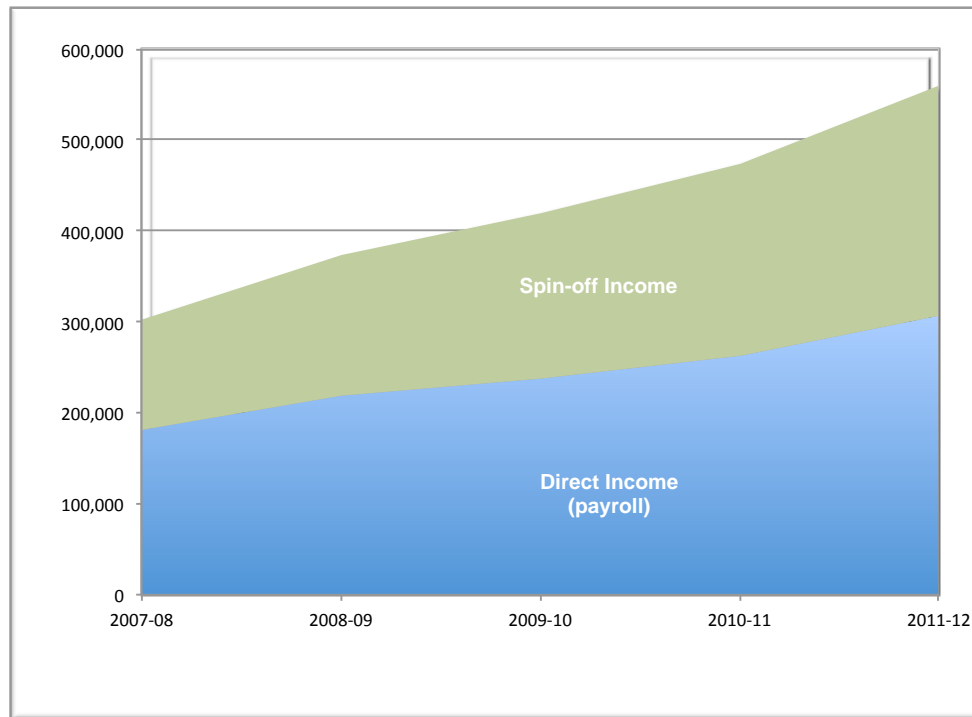
The results in Table 3 point to the growing influence of projects undertaken by NSBI over its past five-year mandate. The direct (payroll) and total income impacts show an increasing trend over the past five-year period, with total direct payroll impacts of \$305.9 million for the province of Nova Scotia by 2011-12. Many of the transactions in 2012 had not been finalized at the time of this study and, therefore, are not included in the analysis. Figure 4 presents a visual representation of the cumulative income impacts shown in Table 3.

Table 3: Income Impacts by Type, 2007-08 to 2011-12, (\$000)

Year	Direct (Payroll)	Spinoff	Total Impacts
2007-08	181,093	121,970	303,063
2008-09	218,462	154,598	373,060
2009-10	238,019	182,482	420,501
2010-11	262,885	211,766	474,651
2011-12	305,886	253,914	559,800
Total	1,206,344	924,731	2,131,075

Source: Estimated from NSBI Data Sources and the 2007 Nova Scotia Input-Output Model

Figure 4: Income Impacts by Type, 2007-08 to 2011-12, (\$'000s)



Source: Estimated from NSBI Data Sources and the 2007 Nova Scotia Input-Output Model

Gross Domestic Product

GDP measures the value added to the economy from the annual production activities of the businesses assisted by NSBI. GDP is comprised mainly of household income and business profits, including depreciation. In addition to the standard reporting of employment, household income, and provincial government revenue, ESD provided an estimate of Gross Domestic Product. These estimated impacts are calculated using output relationships from the 2007 NSIO, for each IA client's specific industry.

Table 4 displays the direct and spinoff impacts on GDP. Interpretation of the annual data is analogous to that of the income impacts in Table 3.

Table 4: GDP Impacts by Type, 2007-08 to 2011-12, \$000

Year	Direct	Spinoff	Total Impacts
2007-08	200,200	177,503	377,703
2008-09	291,082	250,103	541,185
2009-10	351,463	302,079	653,542
2010-11	392,431	359,857	752,288
2011-12	468,793	427,502	896,295
Total	1,703,969	1,517,044	3,221,013

Source: Estimated from NSBI Data Sources and the 2007 Nova Scotia Input-Output Model

Provincial Tax Revenues

The direct impact on provincial government revenue, comprised of personal income and sales taxes, is estimated from wages, salaries and benefits to be paid by the company and from personal income and consumption taxes. Spinoff provincial government revenues are also estimated from spinoff wages and salaries and from the tax pro forma developed by the Department of Finance. The provincial personal income tax rate is based on a single wage earner with one dependant and two children. Tax revenue impacts do not include provision for provincial taxes paid on corporate profits. The business produces a taxable supply and thus will not pay HST on business inputs.

Direct impacts on tax revenues result from the incremental economic activities of NSBI-assisted businesses. The direct tax impacts result from:

- ❑ Income taxes⁴ paid by employees of NSBI-assisted businesses; and
- ❑ Consumption taxes paid when these same employees spend from their incomes.

NSBI-assisted businesses purchase goods and services from suppliers in Nova Scotia to support their operations, and the employees of these NSBI-assisted businesses buy a wide variety of goods and services from businesses in the province. Both the business purchases and personal expenditures create additional (spinoff) impacts.

⁴ The taxes from payroll are not levies on payrolls themselves, such as Canada Pension Plan and Employment Insurance premiums (which are federal) and Workers' Compensation premiums (which are provincial).

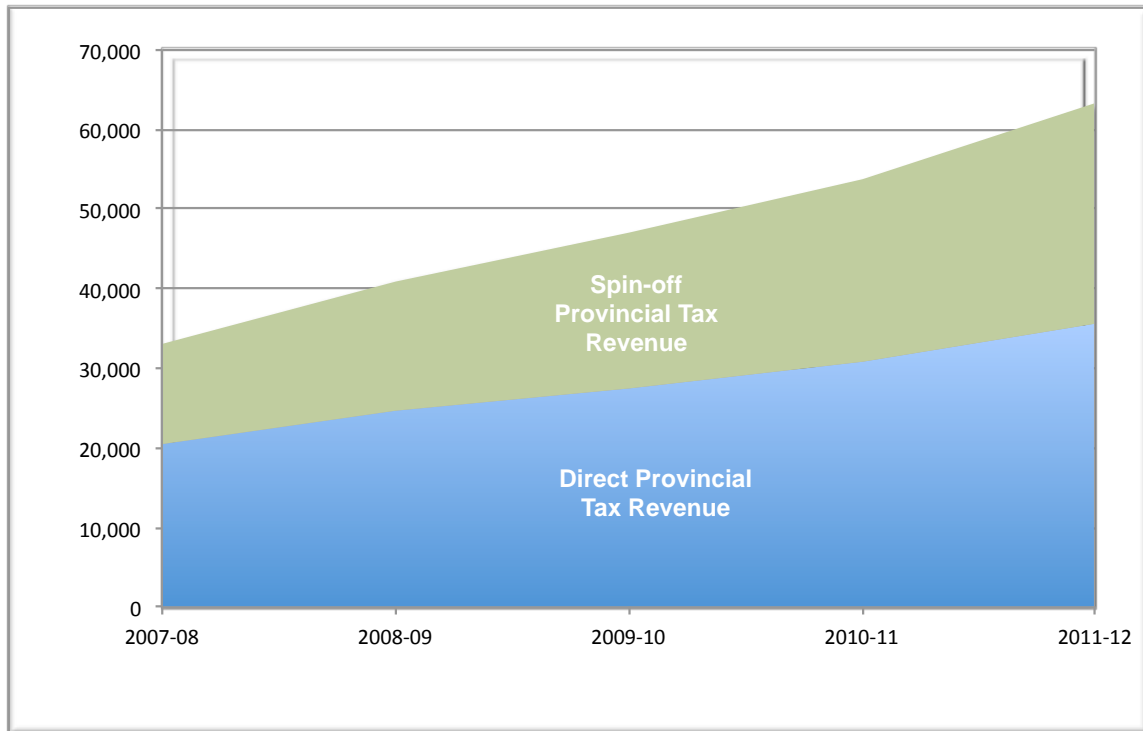
As Table 5 shows, total Nova Scotia provincial tax revenues over the five-year period shown in the table are estimated to reach \$237.9 million. These revenues result from the income taxes and consumption taxes generated directly and through spinoff impacts from NSBI assisted businesses.

Table 5: Provincial Tax Revenues by Type, 2007-08 to 2011-12, \$000

Year of Assistance	Direct Impacts	Spinoff	Total
2007-08	20,431	12,639	33,071
2008-09	24,834	16,160	40,994
2009-10	27,550	19,455	47,005
2010-11	30,854	22,814	53,668
2011-12	35,560	27,612	63,171
Total	139,229	98,681	237,910

Source: Estimated from NSBI Data Sources and the 2007 Nova Scotia Input-Output Model

Figure 5: Provincial Taxes Revenues, 2007-08 to 2011-12, (\$'000)



Source: Estimated from NSBI Data Sources and the 2007 Nova Scotia Input-Output Model

Sales and Export Revenue

Export sales revenues attributable to NSBI's Trade Development unit are included in the economic impact results reported above. Based on NSBI's trade marketing events tracking system a total of 1,853 trade development events occurred with multiple businesses with a total of \$805 million in sales orders signed related to the event.

The ESD of the Department of Finance utilized a tool to estimate the number of direct employment impacts (PYs) per million dollars of output to estimate employment impact based on sales data provided by NSBI. Based on the premise that sales are equal to output, ESD estimates that 353 PYs of employment were created directly from signings during the marketing event; and that an additional 1,007 PYs of employment were created based on the sales history of participating clients 6 months after the event. Based on sales projections, ESD estimates that a total of 6,227 PYs of direct employment impacts over the past 5 years are associated with the total export sales by NSBI assisted businesses attributed to trade development events over this same time period.

In addition, the ESD of the Nova Scotia Department of Finance estimated GDP impacts based on total export sales by NSBI assisted businesses attributed to trade development events over the past 5 year period. Based on the premise that sales are equal to output, ESD estimates that Nova Scotia GDP was increased by an additional \$360 million (direct GDP impact) over the past 5 years due to the total export sales attributed to trade development events over this same time period from participating clients.

Spinoff impacts arise from demand to provide goods and services within the Nova Scotia economy to facilitate the production of goods and services being exported.

In particular, spinoff impacts arise from two sources within the Nova Scotia economy:

- ❑ The inter-industry transactions in the economy that NSBI-assisted businesses triggered by their demands for local goods and services to expand their production of goods, whether sold in Nova Scotia or exported outside the province.
- ❑ The feed-through in the provincial economy of the personal spending of household income on goods and services that are, for the most part, supplied by Nova Scotia businesses.

A critical focus of NSBI's strategy is to assist businesses that are predominantly export-oriented and businesses which typically provide products and services to both Nova Scotia consumers and consumers outside Nova Scotia.

In addition, both the Trade Development team and the BAT work directly with Nova Scotia businesses to increase their sales and export sales. BAT indicates that it supported a total of 51 businesses that created and retained an estimated 270 jobs in Nova Scotia.

The business development and support mechanisms offered by BAT include all aspects of business development and growth. The Trade Development Team focuses on export development through trade missions and trade shows as well as five initiatives designed to help Nova Scotia businesses increase their expertise in exporting and increase their access to export markets.

Investment Expenditures

The economic impacts reported in the previous sections of this chapter include not only the impacts of the incremental annual operations of the businesses assisted by NSBI, but also the economic impacts related to investment expenditures. Assistance to these businesses frequently involved undertaking investment expenditures in fixed assets either to set up or to expand their production capacity. Investment expenditures are essentially comprised of construction of new facilities or expansion of existing plant, and/or acquisition and installation of new machinery and equipment.

A large portion of the investment outlays for NSBI-assisted businesses over the past 5 years were for the acquisition of machinery and equipment, which typically have little direct impact on Nova Scotia. Machinery and equipment are usually imported to the province. Consequently, the impacts on the Nova Scotia economy of investment expenditures result mainly from the construction of plant facilities. Investment expenditures impacts are shown in Table 6.

Unlike the impacts of business operations analyzed above which are ongoing, these construction impacts are one-time impact events: the jobs and other related economic impacts end once the spending on the investment project is completed. Given their one-time impact effect, plant construction impacts are presented separately.

Table 6: Investment Expenditures Impacts, 2007-08 to 2011-12

	Direct	Spinoff	Total
Employment (PYs)	1,267	658	1,925
Household Income (\$000)	42,168	24,088	66,256
Provincial Tax Revenues (\$000)	4,386	2,715	7,101

Source: Estimated from NSBI Data Sources and the 2007 Nova Scotia Input-Output Model

V. REGIONAL ANALYSIS

1. Impacts by Region

Through business development, NSBI's primary goal is to maximize the contribution that NSBI and its clients have to the overall economic prosperity of the province of Nova Scotia as a whole. NSBI takes into consideration the regional economic development impacts when identifying opportunities throughout the province. As a result, NSBI programs and investment activities over the past five-year period have generated economic impacts throughout the entire province.

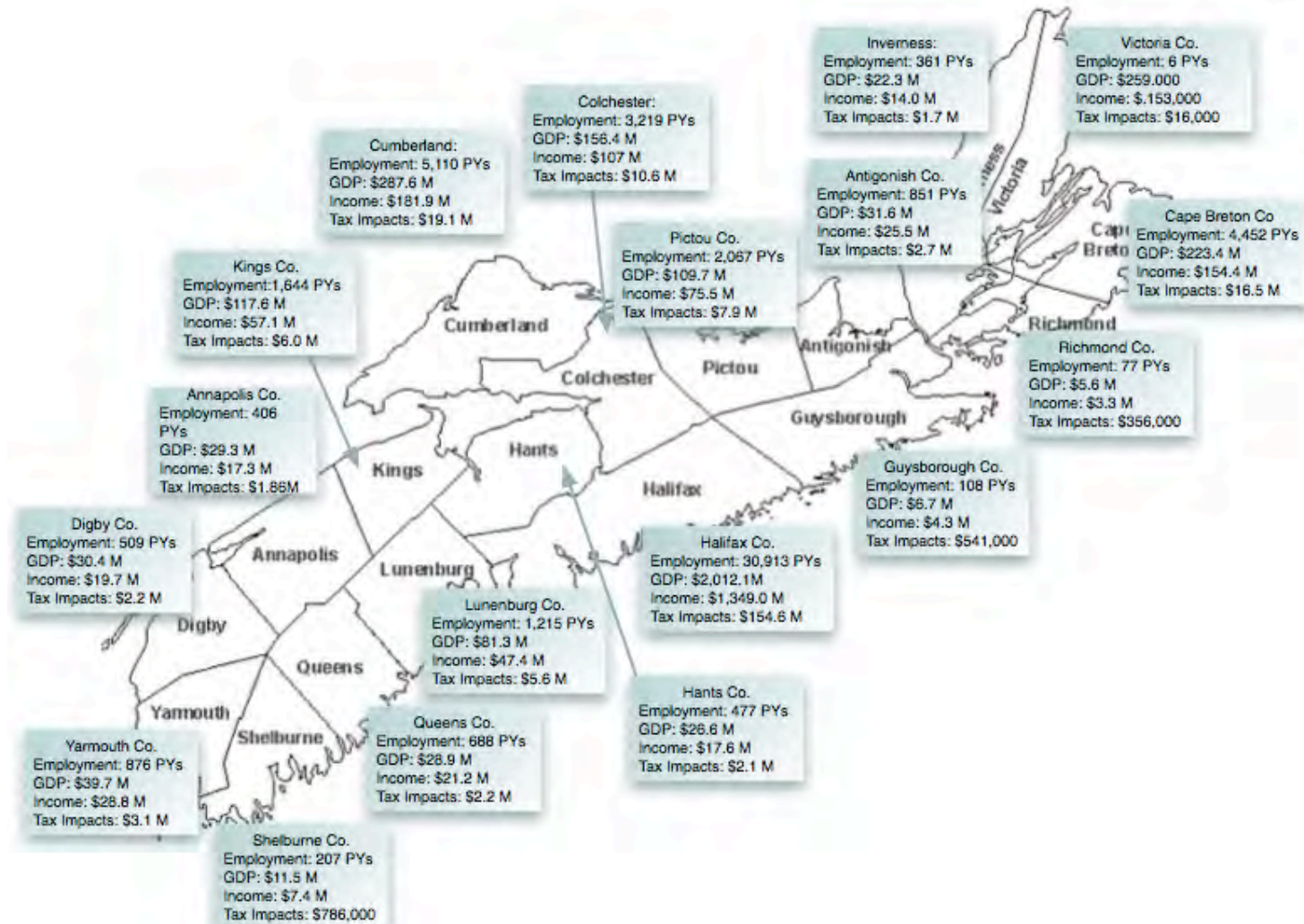
This section of the report provides a regional analysis of the economic impacts generated as a result of NSBI programs and investment activity over the past five years. Economic impacts are measured in terms of employment (PYs), household income, GDP, and government tax revenues based resulting from NSBI assistance through all of its program activities.

The attraction of new companies or branches of existing companies with head office located outside the province to locate within Nova Scotia represents important economic benefits in terms of jobs, household income and contribution to the provinces GDP and tax revenue. This is particularly true when these companies choose to locate in regions of the province with relatively lower levels of employment and economic activity. The same is true for economic impacts generated as a result of assistance for companies already operating within Nova Scotia, but are able to expand their business, enter new export markets, develop new products or experience growth as a result of assistance from NSBI's business finance, venture capital, trade development and business advisory units and their activities. This regional economic development offers increased economic options for regions with otherwise fewer opportunities. As a result, these regions of the province are better able to attract other businesses and skilled workers to their local communities, and leverage additional economic growth.

The economic impacts attributable to NSBI activities over the past five years were examined on a regional basis. Economic impacts are attributed to the county in which an existing or newly-attracted business to Nova Scotia is located. As with the overall total economic impact analysis, adjustments were made in the data to account for NSBI assisted businesses that are no longer in operation.

Figure 6 provides a detailed breakdown of the economic impacts attributable to NSBI activities over the past five-year period by county. A detailed summary table of the regional impacts is contained in the Appendix. In examining the distribution of economic impacts on a county basis, two important observations can be made. First, economic impacts attributable to NSBI activities over the past five-year period resulted in every county in Nova Scotia. Second, while a large portion of the economic impacts is geographically located within HRM, an equally significant proportion of economic impacts occur throughout Nova Scotia. Consequently, the economic impacts resulting from NSBI activities support and promote economic development throughout the province. Examining the distribution of economic impacts by county on a per-capita basis, (Figure 7) a third important observation can be made. The dispersion of economic impacts across the province is more evident when examined on a per-capita basis using population at the county level. For example, the GDP impact is \$9.2 million per 1,000 people in Cumberland County, \$2.12 million per 1,000 people in Cape Breton County and \$4.9 million per 1,000 people in Halifax County.

Figure 6: Distribution of Regional Economic Impacts, 2007-08 to 2011-12



Prepared by Gardner Pinfold based on economic impacts produced by Nova Scotia Department of Finance, Economics and Statistics Division (ESD)

Figure 7: Distribution of Regional Economic Impacts on a Per Capita Basis (Economic Impacts per 1,000 persons), 2007-08 to 2011-12



Prepared by Gardner Pinfold based on economic impacts produced by Nova Scotia Department of Finance, Economics and Statistics Division (ESD)

VI. RETURN ON INVESTMENT (ROI) ANALYSIS

1. ROI Methods

Our approach to the ROI analysis of NSBI activities is similar to the approach used in the previous evaluation report, for consistency and comparison purposes. This approach utilizes a cash flow concept: cash-in less cash-out, where actual revenue and expenditures, as reported in the pro forma statements in NSBI's annual reports is used. This approach is also consistent with the guidance provided in the RFP on variables to be included in measuring the ROI. The components of the cash flow analysis include:

- ❑ NSBI business revenue and operating expenses, derived from the income and cash flow statements in NSBI's annual reports;
- ❑ Actual NSBI disbursements of payroll rebates, as reported in NSBI's annual reports;
- ❑ The cost associated with loans, guarantees and equity investments disbursed during the five-year period. This was calculated using a pro-rated amount of the total costs associated with the Nova Scotia Business Fund; and
- ❑ Direct provincial tax recoveries, as estimated in the economic impact analysis chapter.

Table 7 provides the estimated ROI as well as the summary of aggregated net cash flows for the period ending in the 2011-12 fiscal year and for the full period ending 2011-12.

Table 7: Return on Investment, 2007-08 to 2011-2012

	2007-08 TO 2011-12
Return on Investment (%)	43.1
Net cash flow (\$000)	\$58,193

Source: Estimated by Gardner Pinfold from NSBI Data Sources

It should be noted that the ROI estimation in this report is based on actual PYs of employment, in contrast to using the estimated maximum full time equivalents (FTEs) of employment associated with NSBI transactions - the methodology used in the previous evaluation of NSBI conducted in 2007. The use of maximum FTE of employment results in higher estimated of household income, resulting in higher estimated tax impacts (used in the "Cash In") component of ROI, therefore resulting in inflated ROI estimates. This study uses actual employment impacts resulting from NSBI activities (and associated government tax revenues based on the estimated household income based on actual employment impacts), therefore generating a more realistic and credible, (albeit slightly lower) ROI.

Estimation of the ROI is based solely on the operations of client projects supported by Nova Scotia Business Fund and the Strategic Investment Fund. The capital expenditures related to these projects are not included in the analysis. Appendix A provides details on the methodologies used to estimate the return on investment.

Provincial government tax revenues generated are taken from the tax revenue impacts reported in Table 7 above for the previous five-year period. In evaluating the ROI, the focus is on direct tax revenues, to show impacts from NSBI-assisted business on the revenue of the provincial treasury.

The cash flow results for the 2007-08 to 2011-12 period are displayed in Table 8. The “Cash-In” columns represent the NSBI-related income, comprised of:

- NSBI operating receipts, including interest on loans and other investment income; and
- The direct provincial tax revenues generated by NSBI-assisted businesses.

The “Cash-out” columns, shows NSBI’s operating investment expenditures by year, comprised of:

- NSBI operating expenses;
- Actual NSBI disbursements of payroll rebates, as reported in NSBI’s annual reports; and
- The cost associated with loans, guarantees and equity investments disbursed during the five-year period. This was calculated using a pro-rated amount of the total costs associated with the Nova Scotia Business Fund.

Table 8: NSBI Cash Flows, 2007-08 to 2011-12, \$000

Year	Cash In			Cash Out		
	Business Revenue	Direct Tax Revenue	Total Revenue	Business Expenses	Investment Expenses	Total Outlays
2007-08	12,417	20,431	32,848	10,023	16,438	26,461
2008-09	9,879	24,834	34,713	12,195	13,236	25,431
2009-10	11,469	27,550	39,019	12,626	15,972	28,598
2010-11	11,970	30,854	42,824	11,621	12,515	24,136
2011-12	8,174	35,560	43,734	12,418	17,901	30,319
Subtotal	53,909	139,229	193,138	58,883	76,062	134,945

Source: Estimated by Gardner Pinfold from NSBI Data Sources

APPENDIX A: ANALYTICAL ASSUMPTIONS AND METHODOLOGY

This appendix describes the key assumptions on which the analysis of NSBI impacts is developed and provides in detail the methods employed for quantifying the return on investment (ROI).

RETURN OF INVESTMENT METHODS

Cash Flow Analysis: The Elements

The ROI is assessed using an undiscounted cash flow method that is consistent with the approach used by NSBI. Moreover, NSBI's assessment of ROI is based, with a few exceptions, on direct impacts only, as indicated in the payroll rebate documentation we examined. We adopt NSBI's approach and scope in evaluating NSBI's ROI.

The ROI assessment essentially applies a cash flow analysis. This may be described succinctly as comparing the stream of receipts ("cash-in") with the stream of outlays ("cash-out"), which NSBI describes as investments.

The stream of receipts is comprised of:

- ❑ NSBI operating revenues, adapted from the income and cash flow statements in NSBI's annual reports; and
- ❑ Direct tax revenues from the economic impact analysis

The stream of outlays (investments) is comprised of:

- ❑ NSBI operating expenses, adapted from the income and cash flow statements in the annual reports;
- ❑ Actual disbursements of payroll rebates as reported in the NSBI Annual reports under the Strategic Investment Fund; and
- ❑ The cost associated with loans, guarantees and equity investments disbursed during the five-year period. This was calculated using a pro-rated amount of the total costs associated with the Nova Scotia Business Fund.

CASH FLOW ANALYSIS: PAST FIVE YEARS, 2007-08 TO 2011-12

NSBI Annual Operations

NSBI's operating revenues include:

- ❑ Interest on loans receivable (based on NSBI's share of Schedule 12 portfolio)
- ❑ Other investment income (100 per cent)
- ❑ Proceeds from industrial parks sales (100 per cent)
- ❑ Miscellaneous revenue (100 per cent)

NSBI's operating expenses include:

- ❑ Salaries and benefits (Pro-rated to NSBI as a rising percentage)
- ❑ Business development (100 per cent)

- ❑ Travel (100 percent)
- ❑ Telecommunications and support (100 percent)
- ❑ Legal and audit (50 percent)
- ❑ Office expenses (100 percent)
- ❑ Other (100 percent)
- ❑ Repairs and maintenance (100 percent)
- ❑ Capital additions (100 percent)

Direct Tax Revenue

The annual direct tax revenues are shown in Table 7.

Investment Expenses

- ❑ Actual disbursements of payroll rebates as reported in the NSBI Annual reports under the Strategic Investment Fund.
- ❑ The cost associated with loans, guarantees and equity investments disbursed during the five-year period. This was calculated using a pro-rated amount of the total costs associated with the Nova Scotia Business Fund.

Return on Investment Formula

The ROI, in percent, is calculated from the undiscounted streams of cash flows by the following formula:

$$\text{ROI} = [(\text{Receipts} - \text{Investments}) / \text{Investments}] \times 100$$

APPENDIX B: ANALYTICAL ASSUMPTIONS: NOVA SCOTIA DEPARTMENT OF FINANCE'S ECONOMICS AND STATISTICS DIVISION (ESD)

This appendix describes the key assumptions underlying analysis provided by the Nova Scotia Department of Finance's ESD in producing economic impact figures related to NSBI's activities over the period 2007-08 to 2011-12.

NOTES AND ASSUMPTIONS USED IN ANALYSIS OF NSBI VENTURE CAPITAL DEALS

1	Impact sheets are Fiscal Year 2007/08 starting
2	Average Nova Scotia wages are calculated as 2007 calendar year (see SEPH/ SLID sheets)
3	Average Nova Scotia wages are calculated as Average weekly earnings in the applicable year multiplied by 52 weeks (SEPH/ SLID). Average fringe benefit rates are calculated using Supplementary Labour Income as a proportion of total income from Statistics Canada's Survey of Labour Income Dynamics (SLID)
4	Tax rates are calculated on annual income (52 weeks), less fringe benefit rate
5	Fringe benefit rates are assumed 18% unless otherwise indicated in original NSBI file submission.
6	All tax rates are taken from 2010 NS Finance Tax Proforma.
7	Taxes, fringe benefit rates, and average NS wages are held constant, according to first year following approval by NSBI
8	GDP is estimated using multipliers and ratios from the 2007 NSIO, based on shocks to individual industries.
9	Spinoff GDP is estimated using 2007 NSIO total GDP to Direct GDP ratios for industries (Total less Direct = Spinoff)
10	Total Output is estimated using ratios of output to household income from individual shocks in the 2007 NSIO
11	Spinoff output is estimated using 2007 NSIO total output to direct output ratios for industries (Total less Direct = Spinoff)

NOTES AND ASSUMPTIONS USED IN ANALYSIS OF NSBI IA DEALS

- 1 Only impacts within the scope of the study are included (2007-2011)
Average Nova Scotia wages are calculated on a calendar year basis from Statistics Canada's Survey of Labour
- 2 Income Dynamics (SLID)
Average Nova Scotia wages are calculated as Average weekly earnings in the applicable year multiplied by 52 weeks (SEPH/ SLID). Average fringe benefit rates are calculated using Supplementary Labour Income as a proportion of total income from Statistics Canada's Survey of Labour Income Dynamics (SLID)
- 3 Impacts attributable to wages and salaries are modeled based on ex-post information from businesses that have taken advantage of the Payroll Rebate program. Average salaries and FTEs used in this analysis are provided by NSBI and may not reflect actual payrolls of businesses.
- 4 If businesses did not claim payroll rebates, they are assumed to have not incurred employment due to the program (non-attributable)
- 5 If businesses did not claim payroll rebates, any startup costs proposed to NSBI prior to being part of the program are excluded.
If businesses claimed payroll rebates of any amount, all startup costs proposed to NSBI are considered (as originally proposed in size and dollar value). *Original NSIO results are re-reported*. Considerable detail was required to fulfill the requirements of a custom vector input.
- 6 Tax rates are calculated on annual income (52 weeks), less fringe benefit rate
- 7 Fringe benefit rates are assumed 18% unless otherwise indicated in original NSBI file submission.
- 8 All tax rates are taken from 2010 NS Finance Tax proforma.
- 9 Taxes, fringe benefit rates, and average NS wages are held constant, according to first year following approval by NSBI
- 10 GDP is estimated using multipliers and ratios from the 2007 NSIO, based on shocks to individual industries.
Spinoff GDP is estimated using 2007 NSIO total GDP to Direct GDP ratios for industries (Total less Direct = Spinoff)
- 11 Total Output is estimated using ratios of output to household income from individual shocks in the 2007 NSIO
- 12 Spinoff output is estimated using 2007 NSIO total output to direct output ratios for industries (Total less Direct = Spinoff)
- 13
- 14

NOTES AND ASSUMPTIONS USED IN BAT ECONOMIC IMPACT ANALYSIS

- 1 Average Nova Scotia wages are calculated as a calendar year (based on SEPH/ SLID data)
- 2 Average Nova Scotia wages are calculated as Average weekly earnings in the applicable year multiplied by 52 weeks (see SEPH/ SLID sheets). Average fringe benefit rates are calculated using Supplementary Labour Income as a proportion of total income from Statistics Canada's Survey of Labour Income Dynamics (SLID)
- 3 Tax rates are calculated on annual income (52 weeks), less fringe benefit rate
- 4 Fringe benefit rates are assumed 18% unless otherwise indicated in original NSBI file submission.
- 5 All tax rates are taken from 2010 NS Finance Tax Proforma.
- 6 Taxes, fringe benefit rates, and average NS wages are held constant, according to first year following approval by NSBI
- 7 GDP is estimated using multipliers and ratios from the 2007 NSIO, based on shocks to individual industries.
- 8 Spinoff GDP is estimated using 2007 NSIO total GDP to Direct GDP ratios for industries (Total less Direct = Spinoff)
- 9 Total Output is estimated using ratios of output to household income from individual shocks in the 2007 NSIO
- 10 Spinoff output is estimated using 2007 NSIO total output to direct output ratios for industries (Total less Direct = Spinoff)

APPENDIX C: DETAILED ECONOMIC IMPACT RESULTS: NOVA SCOTIA DEPARTMENT OF FINANCE, ECONOMICS AND STATISTICS DIVISION

INVESTMENT ATTRACTION

Table A-1 illustrates the economic impact attributable to activities funded by the Investment Attraction program in the years 2007-2011 (startup activities as well as actual payroll rebates). Pre 2007 deals are included where payroll rebates took place within the 5-year scope of the study.

**Table C-1: Economic Impacts related to NSBI's Investment Attraction Program
(2007-08 to 2011-12)**

	Direct	Spinoff	Total
Employment (Person-years)			
2007-08	3,675	2,117	5,792
2008-09	3,914	2,551	6,465
2009-10	3,343	2,604	5,947
2010-11	3,145	2,958	6,103
2011-12	2,669	2,824	5,493
Total	16,746	13,054	29,800
Household Income (\$'000)			
2007-08	133,428	77,929	211,357
2008-09	152,925	94,722	247,647
2009-10	146,795	96,526	243,321
2010-11	158,434	109,816	268,250
2011-12	145,744	104,872	250,616
Total	737,326	483,865	1,221,191
Provincial. Government Revenue (\$'000)			
2007-08	14,096	8,449	22,545
2008-09	16,274	10,218	26,492
2009-10	16,118	10,387	26,505
2010-11	17,868	11,810	29,678
2011-12	16,516	11,274	27,790
Total	80,872	52,138	133,010
Gross Domestic Product (\$'000)			
2007-08	124,485	111,903	236,388
2008-09	179,145	161,550	340,695
2009-10	174,353	165,383	339,736
2010-11	190,300	188,121	378,421
2011-12	175,647	178,326	353,973
Total	843,930	805,283	1,649,213
Output (\$'000)			
2007-08	201,528	376,961	578,489
2008-09	307,121	542,280	849,401
2009-10	325,393	553,613	879,006
2010-11	371,976	627,616	999,592
2011-12	354,844	593,781	948,625
Total	1,560,862	2,694,251	4,255,113

Note: GDP and Output estimates not available for three IA clients with start-up costs that flow into 2011-12.

Employment and Household Income estimates above reflect start-up impacts from those three clients.

BUSINESS FINANCING

BF deals are treated in the same manner as the payroll rebate program. Impacts attributed to reported payroll and full time employment are simulated using the NSIO. No impacts related to capital acquisition, construction or other investments are reported, as these estimates were not provided. Custom runs in each industry are used to estimate GDP per dollar of household income, and direct and total output per dollar of GDP. Provincial government revenue is estimated using the Department of Finance tax pro forma. The table below summarizes the combined impacts of all BF deals. Only those deals with impacts in the five-year window of this report are discussed.

**Table C-2: Economic Impacts related to NSBI's Business Finance Program
(2007-08 to 2011-12)**

	Direct	Spinoff	Total
Employment (Person-years)			
2007-08	0	0	0
2008-09	266	262	528
2009-10	761	754	1,515
2010-11	1,121	1,121	2,242
2011-12	2,179	2,137	4,316
Total	4,327	4,274	8,601
Household Income (\$'000)			
2007-08	0	0	0
2008-09	11,468	9,767	21,235
2009-10	29,361	29,019	58,380
2010-11	41,198	43,718	84,916
2011-12	90,676	84,982	175,658
Total	172,703	167,486	340,189
Provincial. Government Revenue (\$'000)			
2007-08	0	0	0
2008-09	1,187	1,044	2,231
2009-10	3,055	3,107	6,162
2010-11	4,311	4,681	8,992
2011-12	9,515	9,097	18,612
Total	18,068	17,929	35,997
Gross Domestic Product (\$'000)			
2007-08	0	0	0
2008-09	27,507	17,201	44,708
2009-10	83,155	50,491	133,646
2010-11	102,337	74,352	176,689
2011-12	184,977	149,725	334,702
Total	397,976	291,769	689,745
Output (\$'000)			
2007-08	0	0	0
2008-09	65,716	59,726	125,442
2009-10	176,432	165,919	342,351
2010-11	229,952	242,557	472,509
2011-12	490,411	483,503	973,914
Total	962,511	951,705	1,914,216

BUSINESS ADVISORY TEAM

BAT impact estimation follows the above methodology. Between the years 2007-08 and 2011-12, 87 such deals were commenced (not all went forward or had measurable economic impacts).

Impacts are attributable to payroll and reported employment by recipients. No impacts are estimated for capital acquisition or other business investments. Table 3 below shows the economic impacts attributable to BAT deals.

**Table C-3: Economic Impacts related to NSBI's Business Advisory Team
(2007-08 to 2011-12)**

	Direct	Spinoff	Total
Employment (Person-years)			
2007-08	201	110	311
2008-09	160	84	244
2009-10	260	167	427
2010-11	8	3	11
2011-12	0	0	0
Total	629	364	993
Household Income (\$'000)			
2007-08	5,754	3,993	9,747
2008-09	4,647	3,120	7,767
2009-10	9,922	6,367	16,289
2010-11	158	106	264
2011-12	0	0	0
Total	20,481	13,586	34,067
Provincial. Government Revenue (\$'000)			
2007-08	580	427	1,007
2008-09	450	335	785
2009-10	1,025	683	1,708
2010-11	16	11	27
2011-12	0	0	0
Total	2,071	1,456	3,527
Gross Domestic Product (\$'000)			
2007-08	7,747	6,982	14,729
2008-09	7,372	5,817	13,189
2009-10	13,146	11,917	25,063
2010-11	145	184	329
2011-12	0	0	0
Total	28,410	24,900	53,310
Output (\$'000)			
2007-08	15,653	23,053	38,706
2008-09	14,837	19,334	34,171
2009-10	26,719	38,659	65,378
2010-11	291	619	910
2011-12	0	0	0
Total	57,500	81,665	139,165

VENTURE CAPITAL

Economic impacts attributable to 13 VC deals active during the 2007-08 to 2011-12 period are presented in Table A-4. ESD determined the appropriate industry according to the 2007 NSIO and simulated impacts based on payroll and associated employment reported to NSBI by VC recipients. No estimation is made for leveraged funds, and no attribution of impacts is assumed to be 100% due to NSBI's contribution. GDP and Output estimates are based on 2007 NSIO relationships to household income, and provincial government revenue is estimated using the Department of Finance tax *pro forma*. Table 4 summarizes the impacts associated with NSBI's Venture Capital program.

**Table C-4: Economic Impacts related to NSBI's Venture Capital Program
(2007-08 to 2011-12)**

	Direct	Spinoff	Total
Employment (Person-years)			
2007-08	336	202	538
2008-09	239	153	392
2009-10	246	191	437
2010-11	329	220	549
2011-12	451	308	759
Total	1,601	1,074	2,675
Household Income (\$'000)			
2007-08	8,981	7,315	16,296
2008-09	7,721	5,536	13,257
2009-10	8,038	6,929	14,967
2010-11	12,637	7,969	20,606
2011-12	16,238	11,150	27,388
Total	53,615	38,899	92,514
Provincial. Government Revenue (\$'000)			
2007-08	936	782	1,718
2008-09	820	592	1,412
2009-10	927	741	1,668
2010-11	1,274	852	2,126
2011-12	1,739	1,192	2,931
Total	5,696	4,159	9,855
Gross Domestic Product (\$'000)			
2007-08	14,486	12,882	27,368
2008-09	9,330	9,725	19,055
2009-10	9,505	9,956	19,461
2010-11	17,699	16,085	33,784
2011-12	21,721	19,780	41,501
Total	72,741	68,428	141,169
Output (\$'000)			
2007-08	28,817	40,474	69,291
2008-09	19,537	31,737	51,274
2009-10	20,471	32,656	53,127
2010-11	34,400	52,384	86,784
2011-12	40,224	65,190	105,414
Total	143,449	222,441	365,890

ECONOMIC IMPACT ANALYSIS OF NSBI'S TRADE DEVELOPMENT PROGRAM

NSBI presented ESD with data from their trade marketing events tracking system and requested an employment impact analysis. The file revealed that multiple accounts had accumulated 1,853 sales events. During the event \$29 million in sales orders had been signed. After the event an additional \$121 million in sales had occurred in the first 6 months. NSBI estimates that an additional \$655 million in sales related to the event will occur over an 18-month period.

The ESD of the Department of Finance has developed a tool for estimating the number of direct employment impacts (PYs) per million dollars of output. This tool is used to estimate employment impact based on sales data provided by NSBI. Based on the premise that sales are equal to output, ESD estimates that 353 PYs of employment were created directly from signings during the marketing event; and that an additional 1,007 PYs of employment were created based on the sales history of participating clients after the event. Based on the sum of incremental sales projections, ESD estimates that a total of 4,867 PYs of employment were created as a result of the NSBI Trade Development Program over the past five year period.

During the trade event, 12.2 PYs of employment were created per million dollars of sales. After the event, 8.3 PYs of employment were created per million dollars of sales; and the event averages 7.4 PYs of employment per million dollars of estimated sales.

The Economics and Statistics Division of the Department of Finance has developed a tool for estimating GDP from Gross Output. This tool is used to estimate GDP from NSBI sales data. Based on the premise that sales are equal to output, EconStats estimates that Nova Scotia GDP was increased by \$12.9 million from signings during the marketing event; and that GDP was increased by an additional \$53.9 million from participating client sales after the event. Based on NSBI 18-month sales projections, EconStats estimates that GDP increased by \$294.1 million over the period.

Over the period 2007 to 2012 average annual sales (6 years) were \$134.2 million and average annual contribution to GDP was \$60.2 million. Nova Scotia average GDP over the period was \$36 billion per year. NSBI impact was 0.17% increase in Nova Scotia average GDP.

Household income impacts are estimated using average Nova Scotia wages from Statistics Canada's SLID data over the period from 2007-08 to 2011-12. Provincial Tax revenue impacts are estimated based on household income impacts for each of the years over the period from 2007-08 to 2011-12 using multipliers in the 2007 Nova Scotia Input Output model.

The following table illustrates the economic impact attributable to activities funded by the Trade Development program in the years 2007-08 to 2011-12.

**Table C-5: Economic Impacts related to NSBI's Trade Program
(2007-08 to 2011-12)**

	Direct	Spinoff	Total
Employment (Person-years)			
2007-08	923	724	1,647
2008-09	1,169	917	2,086
2009-10	1,230	966	2,196
2010-11	1,414	1,110	2,524
2011-12	1,492	1,170	2,662
Total	6,227	4,888	11,115
Household Income (\$'000)			
2007-08	32,930	32,733	65,663
2008-09	41,701	41,453	83,154
2009-10	43,903	43,641	87,544
2010-11	50,458	50,157	100,615
2011-12	53,228	52,910	106,138
Total	222,219	220,895	443,114
Provincial. Government Revenue (\$'000)			
2007-08	4,819	2,981	7,801
2008-09	6,103	3,971	10,074
2009-10	6,425	4,537	10,962
2010-11	7,385	5,460	12,845
2011-12	7,790	6,049	13,838
Total	32,522	22,999	55,521
Gross Domestic Product (\$'000)			
2007-08	53,482	45,736	99,218
2008-09	67,728	55,810	123,538
2009-10	71,304	64,332	135,636
2010-11	81,950	81,115	163,065
2011-12	86,448	79,671	166,119
Total	360,912	326,664	687,576
Output (\$'000)			
2007-08	119,306	207,995	327,301
2008-09	151,086	232,718	383,804
2009-10	159,063	243,053	402,116
2010-11	182,813	286,792	469,605
2011-12	192,846	294,852	487,698
Total	805,113	1,265,411	2,070,524

NSBI TRADE DEVELOPMENT: GDP IMPACTS BY INDUSTRY BY YEAR**NSBI - Gross Output (Sales) Contribution to NS GDP**

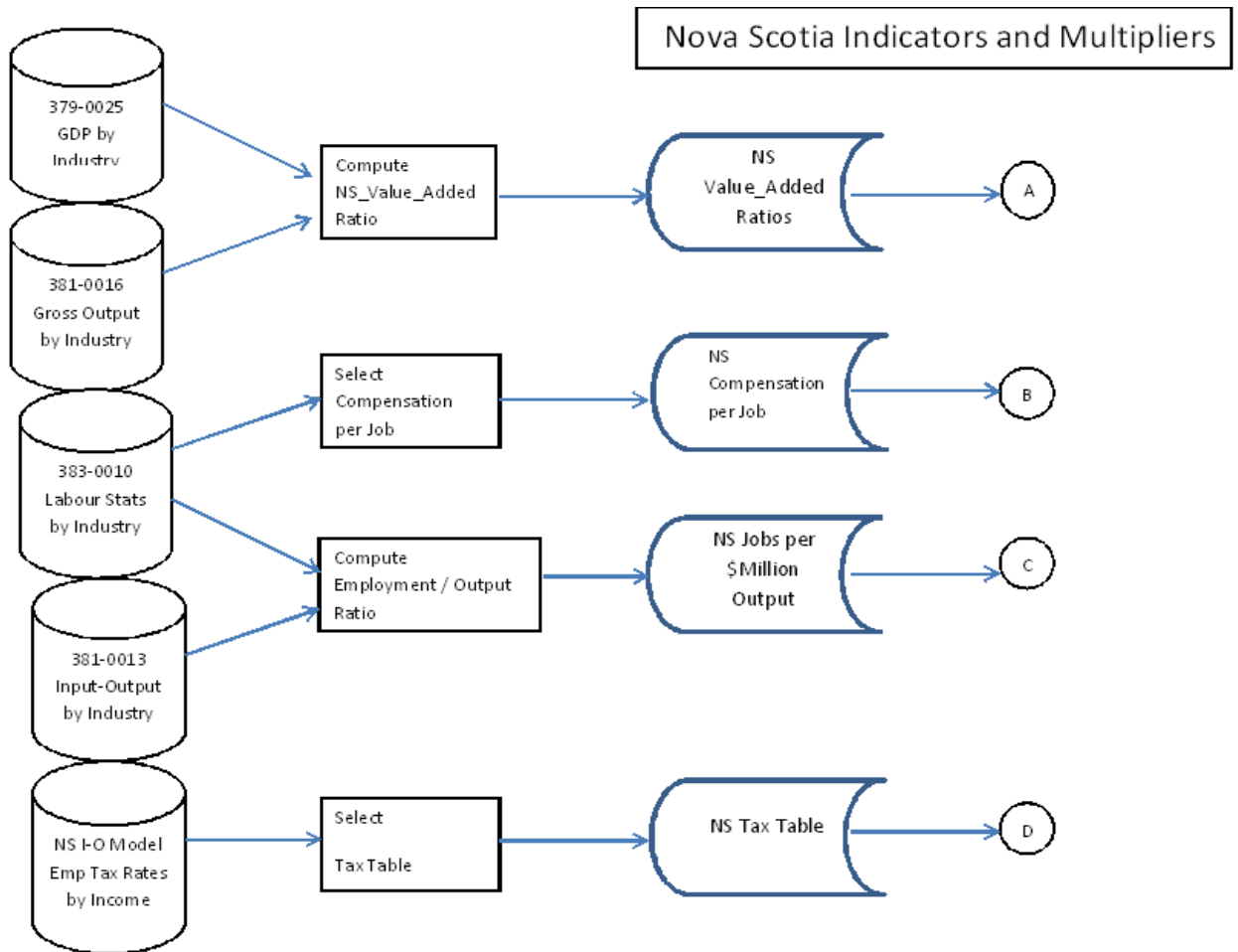
Sales and GDP	Totals	During Event	Since Event	18 Month Estimate
Sales \$	\$ 805,113,377	\$ 29,049,008	\$ 121,296,994	\$ 654,767,375
Contribution\$ to GDP	\$ 360,911,853	\$ 12,869,148	\$ 53,909,665	\$ 294,133,041
NSBI GDP / Gross Output Ratio	0.45	0.44	0.44	0.45
2007-2012				
Average Sales	\$ 134,185,563	\$ 4,841,501	\$ 20,216,166	\$ 109,127,896
Average contribution to GDP	\$ 60,151,976	\$ 2,144,858	\$ 8,984,944	\$ 49,022,173
Total NS GDP	\$ 215,894,000,000	\$ 215,894,000,000	\$ 215,894,000,000	\$ 215,894,000,000
Average Total NS GDP	\$ 35,982,333,333	\$ 35,982,333,333	\$ 35,982,333,333	\$ 35,982,333,333
Avg annual contribution to GDP	0.16717%	0.00596%	0.02497%	0.13624%

NSBI - GDP by Industry (NAICS) by Sales Period

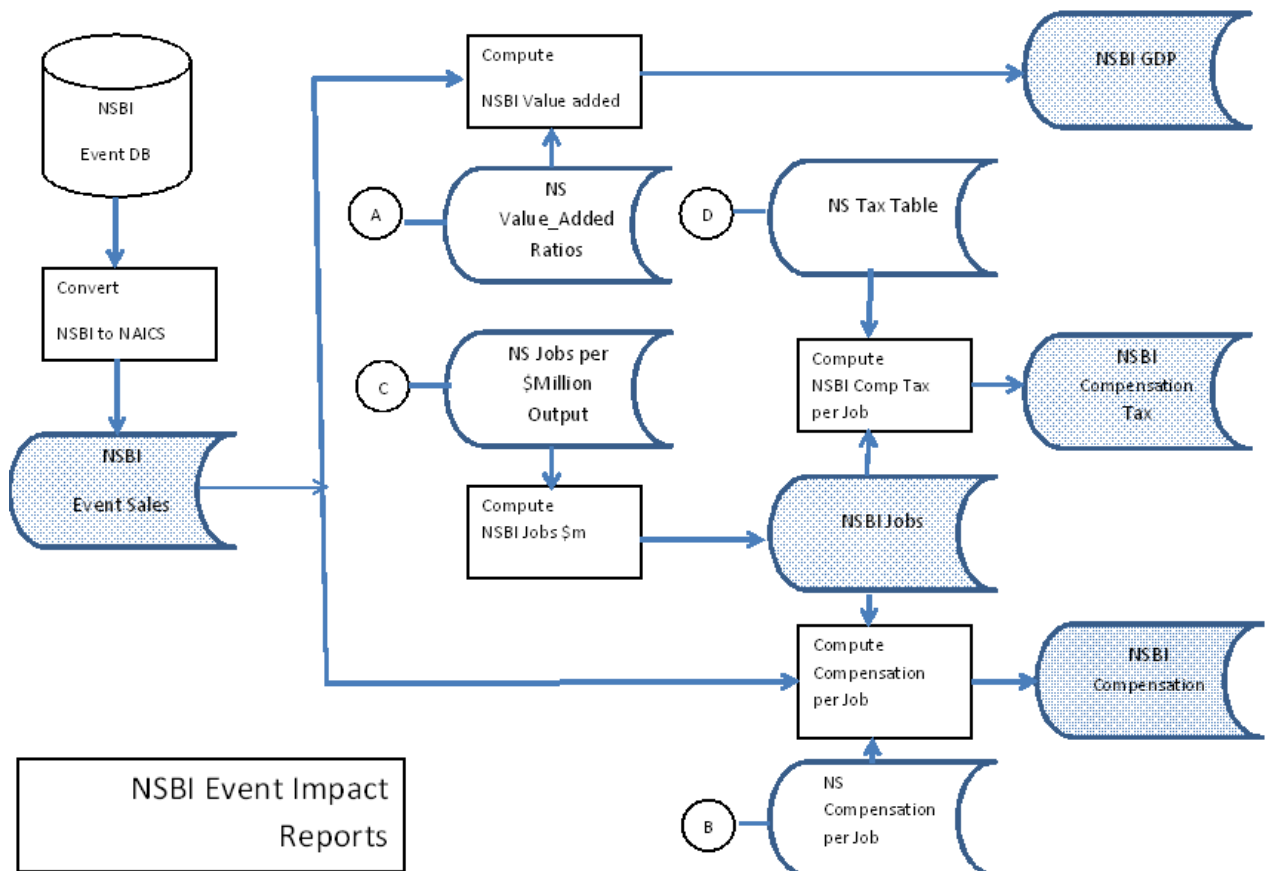
NAICS-2	NAICS Name	Total GDP	GDP from Sales Signed During Event	GDP from Sales Since Event	GDP from 18 Month Estimated Sales
11	Agriculture, forestry, fishing and hun	16,176,819	597,057	3,622,964	11,956,798
21	Mining, quarrying, and oil and gas ext	9,373,572	103,218	1,632,502	7,637,852
22	Utilities [22]	-	-	-	-
23	Construction	13,699,200	542,359	1,419,868	11,736,973
31-33	Manufacturing	78,842,834	2,776,515	12,161,569	63,904,750
41	Wholesale trade	1,883,936	355,935	328,704	1,199,297
44-45	Retail	-	-	-	-
48-49	Transportation and warehousing	253,930	-	-	253,930
51	Information and cultural industries	45,212,570	938,452	8,120,297	36,153,820
52	Finance and insurance	9,931,900	44,033	260,224	9,627,643
54	Professional, scientific and technical	76,080,204	864,977	8,711,660	66,503,567
56	Administrative and support, waste m	1,802,623	-	576,396	1,226,227
61	Educational services	-	-	-	-
62	Health care and social assistance	-	-	-	-
71	Arts, entertainment and recreation	26,230,834	1,052,628	2,435,471	22,742,735
72	Accommodation and food services	604,217	65,048	79,480	459,690
81	Other services (except public admini	10,085,137	267,764	1,727,698	8,089,675
91	Government sector [GS]	70,734,078	5,261,162	12,832,832	52,640,084
Total		360,911,853	12,869,148	53,909,665	294,133,041

Note: Due to data limitations Education services (61), Health care and social services (62) have been combined with Government sector (91)

METHODOLOGY: NSBI TRADE PROGRAM IMPACT ANALYSIS FLOW CHART



The first stage of the impact analysis is to create Nova Scotia indicators and multiplier applicable to the program.



The second stage is to transform NSBI data into GDP, JOBS, COMPENSATION and TAXES using the Nova Scotia multiples. The NSBI JOBS file will scale the Nova Scotia data to the NSBI equivalent.

CONVERSION OF NSBI INDUSTRY DESCRIPTIONS TO NAICS

Conversion of the database from NSBI conventions to the NAICS standard makes it possible to create comparative statistics and to perform a broader range of analysis. Conversion is also a two-way street allowing for linked information to be passed in both directions.

- ❑ The NSBI database has 45 different industry names.
- ❑ Two industry names are spelling variants.
- ❑ One industry name is blank.
- ❑ This leaves 42 or 43 unique industry names.
- ❑ All NSBI industry names were re-assigned NAICS descriptions and NAICS2 codes.
- ❑ The renaming process reduced the number of industry names, from 45 to 17.
- ❑ The total transaction count and sales amounts reconcile with the NSBI database

Concordance: NSBI Industry Descriptions to NAICS

NSBI-Industry	NAICS-2	NAICS Name
0	81	Other services (except public administration)
Advanced Manufacturing	31-33	Manufacturing
Aerospace	31-33	Manufacturing
Agriculture & Food Processing	11	Agriculture, forestry, fishing and hunting
Arts	71	Arts, entertainment and recreation
Banking & Financial Services	52	Finance and insurance
Brewery	31-33	Manufacturing
Business Services	54	Professional, scientific and technical services
Construction & Bldg Materials	23	Construction
Construction & Building Materials	23	Construction
Consultant	54	Professional, scientific and technical services
Consumer Wholesale	41	Wholesale trade
Customer Care	81	Other services (except public administration)
Digital Media	51	Information and cultural industries
Economic Development	54	Professional, scientific and technical services
Education	61	Educational services
Electric/Electronic Equipment	31-33	Manufacturing
Energy	54	Professional, scientific and technical services
Engineering & Allied Services	54	Professional, scientific and technical services
Environmental Services and Technologies	54	Professional, scientific and technical services
Film, TV, Radio & Multimedia	71	Arts, entertainment and recreation
Fishing/Fish Products	11	Agriculture, forestry, fishing and hunting
Food Services	72	Accommodation and food services
Forestry & Wood Products	11	Agriculture, forestry, fishing and hunting
Furniture & Fixtures	31-33	Manufacturing
Gaming	91	Public administration
Government	91	Public administration
Health & Biotechnology	62	Health care and social assistance
Information Technologies	51	Information and cultural industries
Legal	54	Professional, scientific and technical services
Manufacturing	31-33	Manufacturing
Marine Industry	31-33	Manufacturing
Marketing	55	Management of companies and enterprises
Mining	21	Mining, quarrying, and oil and gas extraction
Oceans Technologies	54	Professional, scientific and technical services
Oil, Gas & Coal Products	21	Mining, quarrying, and oil and gas extraction
Other	81	Other services (except public administration)
Paper & Paper Products	31-33	Manufacturing
Retail	44-45	Retail
Security	56	Administrative and support, waste management
Telecommunications	51	Information and cultural industries
Textiles & Clothing	31-33	Manufacturing
Transportation	48-49	Transportation and warehousing
Travel, Tourism & Lodging	72	Accommodation and food services
Travel, Tourism, & Lodging	72	Accommodation and food services

EMPLOYMENT IMPACTS PER \$MILLION OUTPUT INDICATOR

Employment impacts per \$million output indicator are computed from input-output data and labour force survey (employment):

- 1) Output / employment provides a measure of output by employee (a per capita measure),
- 2) Employment / output provides a measure of jobs per \$ of output

Thus $383-0010 / 381-0013 = \text{jobs-per-}\$ \text{million-output}$

Sources: CANSIM Table 383-0010 Labour statistics by business sector industry

CANSIM Table 381-0013 Inputs and outputs, by industry and commodity

JOB PER \$MILLION OUTPUT FORECAST

The Jobs per \$million output indicator is sourced from trade flow data. As such, this source is always three years behind the release of other national and provincial economic account data. To resolve the issue, a forecast function is used to estimate missing data based on the historic trend of earlier data. The methodology used is ordinary least squares (OLS) linear trend.

In the table, the forecast function is applied to the job-per\$million-output by industry array. The forecasted period is used to augment the jobs-per-\$million-output array.

Nova Scotia Employment Compensation per Job by Industry Table**Table 383-0010****Labour statistics by business sector industry and non-commercial activity, consistent with the System of National Accounts, by North American Industry Classification System (NAICS) annual**

Geography= Nova Scotia

Sector=Business sector

Total compensation per job (dollars)**DOLLARS PER JOB**

						Forecast	
	2007	2008	2009	2010	2011	2012	
	1	2	3	4	5	6	
All industries	39,722	41,069	42,323	44,131	45,405	46,858	
Agriculture, forestry, fishing and hunting	30,604	32,661	31,084	32,134	33,861	33,865	
Mining and oil and gas extraction	66,832	72,727	77,440	82,504	88,152	93,256	
Utilities	75,988	79,937	82,018	86,505	91,901	94,788	
Construction	43,130	43,706	46,041	48,359	50,252	51,967	
Manufacturing	47,701	49,071	48,423	50,008	51,131	51,606	
Wholesale trade	43,950	44,011	45,848	47,887	53,742	54,126	
Retail trade	23,833	24,175	23,767	26,383	26,454	27,157	
Transportation and warehousing	43,605	44,584	44,149	44,477	48,096	47,645	
Information and cultural industries	45,262	47,130	59,036	59,342	57,882	64,966	
Finance, insurance, real estate and renting an	49,355	51,064	52,532	52,823	53,687	55,019	
Professional, scientific and technical services	41,924	43,313	43,692	45,049	45,021	46,179	
Administrative and support, waste managemen	26,837	27,185	26,503	26,878	27,993	27,681	
Education services	22,078	21,434	21,432	21,695	21,829	21,623	
Health care and social assistance	33,793	36,449	37,714	40,460	40,034	42,638	
Arts, entertainment and recreation	16,473	17,177	17,711	18,936	18,885	19,811	
Accommodation and food services	18,184	19,067	19,624	20,831	22,082	22,826	
Other services (except public administration	20,315	20,201	21,462	22,595	23,371	24,141	
Non-profit institutions serving households	27,891	30,126	31,839	32,881	35,289	36,871	
Government sector	58,594	60,902	63,745	65,910	67,251	69,977	

GROSS DOMESTIC PRODUCT FORECAST

Nominal gross output and gross domestic product can be sourced from the nominal stream of provincial economic accounts. As such, the data typically is two to three years behind the real stream (i.e. real GDP estimates).

As one can compute a value-added indicator from the available nominal Gross Output and nominal Gross Domestic Product, it is also possible to forecast the missing years of the value-added indicator table using ordinary least squares and other forecasting models.

Looking at the GDP/GROSS OUTPUT table, one will note that the ratio is fairly stable – only changing slightly over time, at the industry level the same characteristic can be observed. It is therefore possible to forecast the value-added ratio forward several years with some expectation of certainty.

Forecasted values for current and future time periods are computed from a table of value-added indicators. Forecasted value-added allows the user to estimate expected GDP contributions from current sales data or sales forecasts.

FORECASTING THE VALUE-ADDED INDICATOR

FORECAST(VectorTIMEN,ArrayINPUTx,y,ArrayOUTPUTx,fy)

RATIO GDP/GROSS_OUTPUT

Total industries	0.54	0.53	0.52	0.53	0.53	0.53	0.54	0.53	0.54	0.54	0.54	0.53
Agriculture, forestry, fishing and hunting [11]	0.43	0.45	0.48	0.47	0.47	0.49	0.48	0.46	0.47	0.48	0.47	0.42
Mining and oil and gas extraction [21]	0.63	0.58	0.54	0.74	0.70	0.67	0.78	0.76	0.83	0.82	0.82	0.83
Utilities [22]	0.64	0.63	0.60	0.62	0.64	0.61	0.68	0.67	0.59	0.60	0.63	0.59
Construction [23]	0.45	0.36	0.34	0.38	0.38	0.39	0.38	0.39	0.40	0.43	0.45	0.44
Manufacturing [3A]	0.28	0.30	0.32	0.29	0.30	0.29	0.29	0.30	0.29	0.27	0.26	0.23
Wholesale trade [41]	0.58	0.60	0.61	0.59	0.60	0.59	0.58	0.60	0.60	0.58	0.59	0.57
Retail trade [4A]	0.61	0.62	0.63	0.62	0.62	0.61	0.63	0.64	0.63	0.65	0.67	0.67
Transportation and warehousing [4B]	0.54	0.52	0.53	0.52	0.53	0.54	0.53	0.52	0.51	0.52	0.52	0.49
Information and cultural industries [51]	0.71	0.70	0.66	0.68	0.68	0.68	0.69	0.68	0.68	0.66	0.62	0.62
Finance, insurance, real estate and rental and leasing [5A]	0.73	0.74	0.72	0.71	0.71	0.71	0.71	0.70	0.69	0.69	0.68	0.69
Professional, scientific and technical services [54]	0.66	0.63	0.59	0.51	0.53	0.55	0.57	0.57	0.57	0.57	0.56	0.58
Administrative and support, waste management and remediation services	0.68	0.68	0.61	0.61	0.63	0.67	0.68	0.69	0.70	0.71	0.71	0.72
Arts, entertainment and recreation [71]	0.52	0.46	0.49	0.51	0.57	0.57	0.55	0.55	0.57	0.56	0.62	0.63
Accommodation and food services [72]	0.50	0.50	0.49	0.48	0.47	0.48	0.48	0.48	0.47	0.48	0.48	0.48
Other services (except public administration) [81]	0.97	0.98	0.87	0.90	0.90	0.91	0.93	0.95	0.99	1.02	1.03	1.02
Government sector [GS]	0.56	0.56	0.57	0.56	0.56	0.56	0.57	0.55	0.55	0.56	0.55	0.57

1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
0.54	0.53	0.52	0.53	0.53	0.53	0.54	0.53	0.54	0.54	0.54	0.53
0.43	0.45	0.48	0.47	0.47	0.49	0.48	0.46	0.47	0.48	0.47	0.42
0.63	0.58	0.54	0.74	0.70	0.67	0.78	0.76	0.83	0.82	0.82	0.83
0.64	0.63	0.60	0.62	0.64	0.61	0.68	0.67	0.59	0.60	0.63	0.59
0.45	0.36	0.34	0.38	0.38	0.39	0.38	0.39	0.40	0.43	0.45	0.44
0.28	0.30	0.32	0.29	0.30	0.29	0.29	0.30	0.29	0.27	0.26	0.23
0.58	0.60	0.61	0.59	0.60	0.59	0.58	0.60	0.60	0.58	0.59	0.57
0.61	0.62	0.63	0.62	0.62	0.61	0.63	0.64	0.63	0.65	0.67	0.67
0.54	0.52	0.53	0.52	0.53	0.54	0.53	0.52	0.51	0.52	0.52	0.49
0.71	0.70	0.66	0.68	0.68	0.68	0.69	0.68	0.68	0.66	0.62	0.62
0.73	0.74	0.72	0.71	0.71	0.71	0.71	0.70	0.69	0.69	0.68	0.69
0.66	0.63	0.59	0.51	0.53	0.55	0.57	0.57	0.57	0.57	0.56	0.58
0.68	0.68	0.61	0.61	0.63	0.67	0.68	0.69	0.70	0.71	0.71	0.72
0.52	0.46	0.49	0.51	0.57	0.57	0.55	0.55	0.57	0.56	0.62	0.63
0.50	0.50	0.49	0.48	0.47	0.48	0.48	0.48	0.47	0.48	0.48	0.48
0.97	0.98	0.87	0.90	0.90	0.91	0.93	0.95	0.99	1.02	1.03	1.02
0.56	0.56	0.57	0.56	0.56	0.56	0.57	0.55	0.55	0.56	0.55	0.57

FORECAST			
2009	2010	2011	2012
0.54	0.54	0.54	0.54
0.47	0.47	0.47	0.47
0.88	0.91	0.93	0.96
0.62	0.61	0.61	0.61
0.43	0.44	0.44	0.45
0.26	0.25	0.25	0.24
0.58	0.58	0.58	0.58
0.66	0.67	0.67	0.68
0.51	0.51	0.51	0.50
0.63	0.63	0.62	0.61
0.68	0.67	0.67	0.66
0.56	0.55	0.55	0.55
0.72	0.73	0.74	0.75
0.63	0.64	0.65	0.66
0.47	0.47	0.47	0.47
1.02	1.03	1.03	1.04
0.56	0.56	0.56	0.56



"=FORECAST(VectorTIMEN,ArrayINPUTx,y,ArrayOUTPUTx,fy)

FORECAST GDP/GROSS_OUTPUT RATIO

Total industries	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.54	0.54
Agriculture, forestry, fishing and hunting [11]	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.47	0.47	0.47
Mining and oil and gas extraction [21]	0.59	0.62	0.64	0.66	0.69	0.71	0.74	0.76	0.79	0.81	0.83
Utilities [22]	0.63	0.63	0.63	0.63	0.63	0.63	0.62	0.62	0.62	0.62	0.62
Construction [23]	0.37	0.38	0.38	0.39	0.39	0.40	0.40	0.41	0.41	0.42	0.43
Manufacturing [3A]	0.31	0.31	0.30	0.30	0.29	0.29	0.28	0.28	0.27	0.27	0.26
Wholesale trade [41]	0.60	0.60	0.60	0.59	0.59	0.59	0.59	0.59	0.59	0.58	0.58
Retail trade [4A]	0.61	0.61	0.62	0.62	0.63	0.63	0.64	0.64	0.64	0.65	0.66
Transportation and warehousing [4B]	0.53	0.53	0.53	0.53	0.53	0.52	0.52	0.52	0.52	0.51	0.51
Information and cultural industries [51]	0.71	0.70	0.70	0.69	0.68	0.68	0.67	0.66	0.66	0.65	0.64
Finance, insurance, real estate and rental and leasing [5A]	0.73	0.73	0.72	0.72	0.71	0.71	0.71	0.70	0.70	0.69	0.68
Professional, scientific and technical services [54]	0.58	0.58	0.58	0.58	0.57	0.57	0.57	0.57	0.56	0.56	0.56
Administrative and support, waste management and remediation services	0.63	0.64	0.65	0.66	0.66	0.67	0.68	0.69	0.69	0.70	0.72
Arts, entertainment and recreation [71]	0.49	0.50	0.51	0.52	0.53	0.54	0.56	0.57	0.58	0.60	0.61
Accommodation and food services [72]	0.49	0.49	0.49	0.49	0.48	0.48	0.48	0.48	0.48	0.48	0.47
Other services (except public administration) [81]	0.90	0.91	0.92	0.93	0.94	0.95	0.96	0.97	0.98	0.99	1.00
Government sector [GS]	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56

1	2	3	4	5	6	7	8	9	10	11	12
0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.54	0.54
0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.47	0.47	0.47	0.47
0.59	0.62	0.64	0.66	0.69	0.71	0.74	0.76	0.79	0.81	0.83	0.85
0.63	0.63	0.63	0.63	0.63	0.63	0.62	0.62	0.62	0.62	0.62	0.62
0.37	0.38	0.38	0.39	0.39	0.40	0.40	0.41	0.41	0.42	0.42	0.43
0.31	0.31	0.30	0.30	0.29	0.29	0.28	0.28	0.27	0.27	0.26	0.26
0.60	0.60	0.60	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.58	0.58
0.61	0.61	0.62	0.62	0.63	0.63	0.64	0.64	0.64	0.65	0.65	0.66
0.53	0.53	0.53	0.53	0.53	0.52	0.52	0.52	0.52	0.52	0.51	0.51
0.71	0.70	0.70	0.69	0.68	0.68	0.67	0.66	0.66	0.65	0.64	0.64
0.73	0.73	0.72	0.72	0.71	0.71	0.71	0.70	0.70	0.69	0.69	0.68
0.58	0.58	0.58	0.58	0.57	0.57	0.57	0.57	0.56	0.56	0.56	0.56
0.63	0.64	0.65	0.66	0.66	0.67	0.68	0.69	0.69	0.70	0.71	0.72
0.49	0.50	0.51	0.52	0.53	0.54	0.56	0.57	0.58	0.59	0.60	0.61
0.49	0.49	0.49	0.49	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.47
0.90	0.91	0.92	0.93	0.94	0.95	0.96	0.97	0.98	0.99	1.00	1.01
0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56

13	14	15	16
0.54	0.54	0.54	0.54
0.47	0.47	0.47	0.47
0.88	0.91	0.93	0.96
0.62	0.61	0.61	0.61
0.43	0.44	0.44	0.45
0.26	0.25	0.25	0.24
0.58	0.58	0.58	0.58
0.66	0.67	0.67	0.68
0.51	0.51	0.51	0.50
0.63	0.63	0.62	0.61
0.68	0.67	0.67	0.66
0.56	0.55	0.55	0.55
0.72	0.73	0.74	0.75
0.63	0.64	0.65	0.66
0.47	0.47	0.47	0.47
1.02	1.03	1.03	1.04
0.56	0.56	0.56	0.56

APPENDIX D: DETAILED REGIONAL ANALYSIS ECONOMIC IMPACT RESULTS RESULTING FROM NSBI ACTIVITIES BY COUNT (2007-08 TO 2011-2012)

Annapolis	Direct	Spinoff	Total
Employment (PYs)	231	174	406
Household Income (\$'000)	10,375	6,944	17,319
Prov. Gov't Revenue (\$'000)	1,114	743	1,857
GDP (\$'000s)	17,157	12,188	29,346
Output (\$'000)	34,165	39,738	73,903
Antigonish	Direct	Spinoff	Total
Employment (PYs)	608	243	851
Household Income (\$'000)	16,384	9,116	25,500
Prov. Gov't Revenue (\$'000)	1,730	986	2,716
GDP (\$'000s)	17,795	13,871	31,666
Output (\$'000)	24,992	48,359	73,350
Cape Breton	Direct	Spinoff	Total
Employment (PYs)	2,737	1,714	4,452
Household Income (\$'000)	88,812	65,550	154,361
Prov. Gov't Revenue (\$'000)	9,605	6,975	16,581
GDP (\$'000s)	113,511	109,910	223,422
Output (\$'000)	223,970	378,343	602,313
Colchester	Direct	Spinoff	Total
Employment (PYs)	2,191	1,028	3,219
Household Income (\$'000)	68,229	38,753	106,983
Prov. Gov't Revenue (\$'000)	6,424	4,160	10,584
GDP (\$'000s)	88,960	67,431	156,390
Output (\$'000)	133,027	232,979	366,006
Cumberland	Direct	Spinoff	Total
Employment (PYs)	3,117	1,994	5,110
Household Income (\$'000)	106,637	75,241	181,878
Prov. Gov't Revenue (\$'000)	11,042	8,068	19,110
GDP (\$'000s)	157,425	130,142	287,566
Output (\$'000)	376,857	438,433	815,290

Digby	Direct	Spinoff	Total
Employment (PYs)	264	245	509
Household Income (\$'000)	9,382	10,310	19,692
Prov. Gov't Revenue (\$'000)	1,155	1,090	2,245
GDP (\$'000s)	13,904	16,441	30,345
Output (\$'000)	37,790	58,428	96,217
Guysborough	Direct	Spinoff	Total
Employment (PYs)	61	48	108
Household Income (\$'000)	2,166	2,153	4,319
Prov. Gov't Revenue (\$'000)	317	224	541
GDP (\$'000s)	3,518	3,184	6,702
Output (\$'000)	7,848	12,334	20,182
Halifax	Direct	Spinoff	Total
Employment (PYs)	15,802	15,110	30,913
Household Income (\$'000)	756,055	592,952	1,349,008
Prov. Gov't Revenue (\$'000)	91,307	63,262	154,569
GDP (\$'000s)	1,052,747	959,363	2,012,111
Output (\$'000)	2,191,357	3,306,932	5,498,289
Hants	Direct	Spinoff	Total
Employment (PYs)	290	187	477
Household Income (\$'000)	9,466	8,131	17,598
Prov. Gov't Revenue (\$'000)	1,247	852	2,099
GDP (\$'000s)	14,067	12,536	26,603
Output (\$'000)	28,763	47,095	75,857
Inverness	Direct	Spinoff	Total
Employment (PYs)	204	157	361
Household Income (\$'000)	7,214	6,833	14,047
Prov. Gov't Revenue (\$'000)	981	716	1,697
GDP (\$'000s)	11,841	10,464	22,306
Output (\$'000)	26,213	38,931	65,145
Kings	Direct	Spinoff	Total
Employment (PYs)	1,032	612	1,644
Household Income (\$'000)	32,917	24,231	57,149
Prov. Gov't Revenue (\$'000)	3,444	2,590	6,034
GDP (\$'000s)	72,803	44,832	117,635
Output (\$'000)	139,689	143,266	282,955
Lunenburg	Direct	Spinoff	Total
Employment (PYs)	677	538	1,215
Household Income (\$'000)	24,386	23,050	47,437
Prov. Gov't Revenue (\$'000)	3,167	2,425	5,593
GDP (\$'000s)	44,890	36,400	81,290
Output (\$'000)	104,547	135,604	240,151

Pictou	Direct	Spinoff	Total
Employment (PYs)	1,263	805	2,067
Household Income (\$'000)	44,717	30,781	75,498
Prov. Gov't Revenue (\$'000)	4,568	3,305	7,874
GDP (\$'000s)	59,080	50,579	109,659
Output (\$'000)	110,781	172,506	283,286
Queens	Direct	Spinoff	Total
Employment (PYs)	497	191	688
Household Income (\$'000)	13,434	7,157	20,591
Prov. Gov't Revenue (\$'000)	1,389	770	2,159
GDP (\$'000s)	16,271	12,677	28,949
Output (\$'000)	22,572	43,834	66,406
Richmond	Direct	Spinoff	Total
Employment (PYs)	34	43	77
Household Income (\$'000)	1,628	1,665	3,293
Prov. Gov't Revenue (\$'000)	187	178	365
GDP (\$'000s)	2,191	3,387	5,578
Output (\$'000)	7,351	10,383	17,734
Shelburne	Direct	Spinoff	Total
Employment (PYs)	131	76	207
Household Income (\$'000)	4,519	2,885	7,404
Prov. Gov't Revenue (\$'000)	477	309	786
GDP (\$'000s)	6,454	5,048	11,502
Output (\$'000)	13,000	17,209	30,209
Victoria	Direct	Spinoff	Total
Employment (PYs)	4	2	6
Household Income (\$'000)	92	61	153
Prov. Gov't Revenue (\$'000)	9	7	16
GDP (\$'000s)	148	111	259
Output (\$'000)	243	362	606
Yarmouth	Direct	Spinoff	Total
Employment (PYs)	388	488	876
Household Income (\$'000)	9,925	18,918	28,843
Prov. Gov't Revenue (\$'000)	1,063	2,024	3,088
GDP (\$'000s)	11,206	28,480	39,686
Output (\$'000)	46,272	90,737	137,009