

National, Provincial, and Territorial Economic Impacts of ATVs and Side-By-Sides 2015: Final Report

For

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September 19, 2016
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This report explores how 2015 expenditures on recreational activities utilizing all-terrain vehicles (ATVs) and side-by-sides (SxSs) impacted on Canadian and provincial economies.¹

In 2015, there was an estimated minimum of 629,609 ATVs and 299,624 SxSs in operation. This minimum estimate is based on an attrition rate of 10% of the current stock of ATVs from 1994 onward when annual sales data were available or could be estimated. Similar adjustments were calculated on SxSs purchased after 2006 when they started being used for recreational purposes. The 10% attrition rate is in-line with similar rates for personal watercraft and snowmobiles and is conservative. Based on Smith Gunther’s survey of ATV and SxS owner/riders, an 8.6% attrition rate is more likely. Because attrition rates reflect annual retirement of vehicles, an 8.6% attrition rate means more vehicles remain operational leading to higher estimates of operational ATVs (705,264) and SxSs (432,219). From those provinces where licensing data were available this rate is supported by that data.

Annual investments in new purchases of equipment and machinery, including ATVs, SxSs and related enhanced vehicles² reached \$1.1 billion to \$1.2 billion before depreciation, as shown in Table E-1. Since this data reflects purchases of new ATVs and SxSs, the numbers are not affected by rates of attrition. Investments in enhanced on-highway vehicles are affected in that fewer or more vehicles are required to transport the newly purchased stock as well as the stock still in operation. In the low case (10% attrition), fewer ATVs and SxSs are still in operation therefore fewer enhanced vehicles are required and less is spent on replacing them. The opposite is true in the high case (8.6%).

Table E-1: 2015 Investments in ATVs and SxSs (\$1,000s)

Items\Cases	Low (10%)	High (8.6%)
ATVs	643,776	643,776
SxSs	378,628	378,628
Enhanced on-highway vehicles	84,100	159,400
Total	1,106,504	1,181,804

Sources: Smith Gunther Associates Ltd. based on annual sales data of ATVs and survey data for SxSs.

¹ Off-highway vehicles used for recreational purposes include ATVs and SxSs less than 80 inches wide. For a full definition, see COHV Voluntary Standards for Four Wheel All-Terrain Vehicles and for Recreational Off-Highway Vehicles at www.cohv.ca

² Enhanced vehicles include trailers, trailer hitches and larger vehicles used for purposes of participating in ATV and SxS recreation.

Annual direct operating expenditures amounted to an additional \$5.0 billion to \$6.7 billion. Direct operating expenditures encompass those on ATV and SxS gear and activities including special clothing e.g. helmets and goggles; gasoline and paid repair and maintenance; food and beverages at ATV and SxS events and shows; accommodations (camping, hotel and motels and recreational vehicles); travel to and from ATV and SxS events; and related membership fees in clubs and associations as well as related entertainment.

Table E-2 summarizes 2015 key operating expenditures by ATV and SxS recreationalists for the 10% and the 8.6% attrition cases. Because the number of ATVs and SxSs differ in the two cases and affects each type of direct operating expenditure, the gap between the 10% case and 8.6% case widens relative to the investment one where only the enhancement of on-highway vehicles associated with ATV and SxS recreation was impacted.

Combined, the investment and operating expenditure data have annual impacts of \$6.1 billion to \$7.9 billion. These data include licenses and volunteer time which are outside of Statistics Canada’s analytical framework. Because volunteer time is not covered within Statistic Canada’s Input/Output (I/O) framework and licensing fees are not recycled back into ATV and SxS impacts, Smith Gunther has set aside direct volunteer time valued at 40%, standard in cost-benefit analysis, of provincial average wage and salaries. Had it been included, volunteer time would have been valued at \$554 to \$858 million in the 10% and 8.6% cases. Estimated annual licensing fees amount to a further \$99 to \$123 million. Inclusion of these expenditures would have enhanced the impacts from ATV and SxS recreational activities. In particular, inclusion of volunteer time would add \$1.1 to \$1.7 billion to total values shipped. Omitting these expenditures further underlines the conservative nature of the estimates in this report.

Direct and indirect domestic expenditures by Canadian riders of ATVs and SxSs accrue to Canadian suppliers. Due to a lack of data, these numbers do not cover expenditures by foreigners riding in Canada. In that way, both the 10% and 8.6% cases are conservative.

Table E-2: 2015 Key Operating Expenditures in ATV and SxS Activities (\$millions)

Operating Expenditures\Cases	Low (10%)	High (8.6%)
Repair & maintenance	1,142.7	1,513.6
Gasoline for ATVs and SxSs	724	948
Food and beverages	652	837
Casualty & liability insurance	568	773
Accommodation excluding RV expenditures	334	378
Ground transportation	177	228

Club & trail fees	445	534
Entertainment	196	226
Other	85	306
Total included in further analysis	4,324	5,743
Licenses	99	123
Volunteer time*	584	858
Excluded from further analysis	683	981
Total	5,007	6,724

Sources: Smith Gunther Associates Ltd. based on annual sales data of ATVs and survey data for SxSs.

Note: *The survey established the amount of volunteer time by province which was extrapolated to cover provincial ATV and SxS recreationalists and evaluated at 40% of average hourly wages and salary rates in each province in line with standard practices for benefit-cost analysis.

Total expenditures impacted total value shipped – the sum of the value shipped by all participants in the supply of goods and services to ATV and SxS recreationalists – by \$8.5 billion to \$10.8 billion. These expenditures all contributed to improved national economic performance. But, as explained in the value shipped section, total value shipped includes raw materials and many other inputs being counted several times, which must be taken into account when considering the use of this economic indicator.

Table E-3 summarizes other key national economic impacts, presented in greater detail in the text.

Table E-3: Key 2015 National Economic Impacts of ATV and SxS in Canada Low and High Cases (\$1,000 Unless Otherwise Noted)

Cases	Low (10%)			High (8.6%)		
	Direct & Indirect	Induced	Total	Direct & Indirect	Induced	Total
Metric\Type of Impacts						
Domestic Expenditures	5,501,040*	1,535,382	7,036,422	6,916,210	1,949,127	8,865,337
GDP	3,499,414	1,048,263	4,547,676	4,449,224	1,330,685	5,779,909
Labour income	2,196,606	496,336	2,692,942	2,788,907	630,377	3,419,283
Employment (# FTEs)	39,176	8,753	47,929	50,105	11,108	61,213
Total taxes	1,223,151	317,492	1,540,643	1,499,664	393,081	1,892,746
Taxes on products	669,984	152,925	822,909	848,855	193,918	1,042,773
Taxes on production	135,167	81,099	216,266	171,809	103,293	275,101
Income taxes	418,000	83,469	501,469	479,000	95,871	574,871

Source: Based on Statistics Canada Input/Output (I/O) runs submitted and interpreted by Smith Gunther Associates Ltd.

Note: *Because direct expenditures provide the total impetus for this analysis there are no indirect domestic expenditures. All rows and tax columns may not add due to rounding. Direct and indirect economic activities occur within Canadian supply lines of goods and services purchased by ATV and SxS recreationalists. Given the inclusion of indirect expenditures and other statistical adjustments, “Domestic Expenditures” are similar but not equal to the sum of direct expenditures from the first two tables.

In the 10% case, direct and indirect domestic expenditures of \$5.5 billion – net of product and production taxes, and imports net of exports but including subsidies – add \$3.5 billion to direct and indirect Gross Domestic Product (GDP). GDP includes direct and indirect labour force income of \$2.2 billion attracting employment measured as 39,176 full-time equivalents (FTEs). The case also generates \$1.2 billion in various direct and indirect taxes.

For the 8.6% case indicate, direct and indirect domestic expenditures of \$6.9 billion - net of product and production taxes, and imports net of exports but including subsidies - add \$4.5 billion to direct and indirect Gross Domestic Product (GDP). GDP includes direct and indirect labour force income of \$2.7 billion attracting employment measured as 50,105 full-time equivalents (FTEs). This 10% case also generates \$1.5 billion in various direct and indirect taxes.

After paying income taxes and setting aside savings, incremental labour force incomes facilitate additional consumption which yields induced impacts, documented in the second and fifth columns. Added to the direct and indirect impacts these result in total impacts in columns 3 and 6.

Total domestic expenditures range from \$7.0 billion to \$8.9 billion generating GDP of \$4.5 billion to \$5.8 billion. GDP includes labour force incomes of \$2.7 billion to \$3.4 billion. Tax revenues as a result of ATV and SxS expenditures yield \$1.5 billion to \$1.9 billion. Further, these activities and related expenditures generate fuller employment by 47,921 to 61,213 FTEs³.

In the 10% case, total employment impacts were concentrated in retail (20%), paid repair and maintenance (19%), food and accommodations, (15%) and finance and real estate (8%). Other sectors attracting 5% or more of total employment were: administrative services, manufacturing, wholesaling and warehousing, transportation, and entertainment services. Professional and scientific services including research and development made up another 3% of additional employment.

In the 8.6% case, total employment impacts were concentrated in retail (20%), paid repair and maintenance (16%), food and accommodations, (14%) and finance and real estate (8%). Other

³ To convert national FTEs generated from ATV and SxS recreation to jobs, multiply the FTEs by 1.142. Warning: these ratios do differ between the nation and provinces and among the provinces.

sectors attracting 5% or more of total employment were: administrative services, manufacturing, wholesaling and warehousing, and transportation services. Professional and scientific services including research and development made up another 3% of additional employment.

Multipliers, defined here as ratios of total impacts relative to their direct expenditure, were generally higher for those provinces with positive interprovincial trade balances, especially in Ontario and British Columbia. The high capital intensity and low labour intensities of fossil fuel production meant that Alberta's multipliers were above the national one for GDP, but below national ones in employment and labour income despite its relatively high wage and salary levels compared to other provinces in 2015.

When considering Canada's industry as a whole, the provincial multipliers in this report should be utilized. When considering the industry solely from a provincial perspective, those with net interprovincial trade gains, namely Ontario and British Columbia, would no longer benefit from enhanced provincial impacts, and in this case national multipliers should be used. Multipliers from all other provinces would not be affected because they are not greatly impacted by net trade gains.

Detailed level results of provincial impacts are contained in Appendix 2 of this report. They confirm that multiplier effects are strongest in provinces which are net beneficiaries of interprovincial trade and where industrial linkages within the province are the strongest. Ontario has the strongest overall multipliers followed by British Columbia. Alberta benefits from strong value shipped and GDP multipliers and Quebec has above national employment and labour force income multipliers.

Appendix 1 includes the survey of riders conducted in Phase 2 of the study. Detailed provincial impacts are contained in Appendix 2. Appendix 3 contains a Glossary of terms.

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National, Provincial, and Territorial Economic Impacts Of ATVs and Side-By-Sides 2015: Final Report

Introduction

At the outset of 2016, the Canadian Off-Highway Vehicle Distributors Council (COHV) contracted Smith Gunther Associates Ltd. to undertake a national, provincial, and territorial economic impact study of the use of all-terrain vehicles (ATVs) and side-by-sides (SxSs) in Canada. This report first establishes total 2015 provincial and national direct expenditures by off-highway riders on ATVs and side-by-side (SxS) less than 80 inches wide⁴. Vehicles in excess of 80 inches wide are excluded from the ranks of off-highway recreational vehicles.

While current sales of ATVs and SxSs are integral to 2015 expenditures, they are only part of all expenditures on ATV and SxS activities. Other expenditures include upkeep and operations of the entire stock of all ATVs and SxSs that is the surviving stock of ATVs and SxSs sold in all years dating back to 1994 for ATVs and 2006 for SxS⁵, enhancements of any on-highway vehicles to facilitate ATV or SxS recreational activities, paid repair and maintenance, gasoline for ATVs and SxSs, membership fees, licensing costs, attendance at events and off-highway vehicle shows and related travel, e.g. mileage charges, food and beverages and accommodation.

This comprehensive study updates an earlier 2006 study, also conducted by Smith Gunther, which examined the economic impact of ATVs specifically. Both of these reports are a snapshot in time of the economic impacts of ATV and SxS recreational activities. Since the 2006 study, SxSs have become a factor and both data sources and geographic information systems have improved facilitating increased direct expenditures and availability of data to analyze the impacts.

To gather data, Smith Gunther attended and interviewed attendees at the Motorcycle and ATV shows owned by Power Sport Services – a for-profit incorporated division of the Canadian Off-Highway Vehicle Distributors Council. Smith Gunther supplemented information gathered through these interviews with telephone calls with club executives. A survey was subsequently developed for ATV and SxS recreationalists, and distributed with the support of the national and provincial clubs. A total of 2,977 enthusiasts responded. The respondents provided sufficient information to be confident in provincial level as well as national responses. In addition to the survey data, COHV records were useful in providing annual sales of ATVs

⁴ For a full definition, see Canadian standard for All-Terrain Vehicles and Recreational Off-Highway Vehicles at www.cohv.ca.

⁵ 2006 is the year in which SxSs started being sold for recreational purposes.

This report contains national level responses with cross references to the provinces covering direct, indirect and induced impacts. Direct impacts are those which relate specifically to ATV and SxS capital expenditures and operating expenses. Indirect impacts occur because goods and services from industries other than the ones making the final product to satisfy ATV and SxS recreational expenditures are needed to assemble, manufacture, mine, transport, insure and finance inputs and final products. Induced impacts are driven by expenditures of direct and indirect labour force incomes earned by those supplying all demands. The sum of these three types of impacts is the total impact.

Smith Gunther presents more comprehensive provincial coverage in Appendix 2 with separate sections for each province. Because the statistical tools utilized to analyze the data provided unstable responses for areas with small populations, indirect and induced impacts for Prince Edward Island need to be treated with care and Territorial results are limited to the direct impacts only.

Overview of ATV and SxS Recreational Activities

Introduction

Among the key metrics by province is the stock of currently operating ATVs and SxSs. The stock of ATVs and SxSs in each province is an important number because operating expenditures per ATV or SxS need to be multiplied by the number of vehicles.

This chapter starts with capital expenditures by province including annual sales of ATVs provided by COHV, . From this point, sales of SxSs were estimated along with other capital expenditures on enhanced transportation equipment such as trailers and trailer hitches and larger vehicles for purposes of participating in ATV and SxS recreation. It also establishes two annual attrition rates applied to current and historical sales to derive estimates for the 2015 stock of ATVs and SxSs in use; a survey-based 8.6% attrition rate and a more conservative attrition rate of 10% based on attrition rates of other recreational vehicles such as personal snowmobiles.

Recent Sales of ATVs

Table 1 illustrates ongoing steady national demand for ATVs, 2010-2015. Sales downturns in provinces most heavily dependent on petroleum and other natural resources were generally offset by upturns in other provinces, particularly in the Atlantic Region.

Table 1: Retail ATV Sales by Jurisdiction: (Units 2010-2015)

Jurisdiction	2010	2011	2012	2013	2014	2015
British Columbia	4,808	4,143	4,342	4,003	4,200	3,953
Alberta	9,734	8,649	9,245	9,468	9,199	7,472
Saskatchewan	3,998	4,008	4,373	4,026	3,619	3,435
Manitoba	2,914	2,603	2,821	2,463	2,518	2,405
Ontario	12,513	11,073	11,320	11,528	11,244	12,268
Quebec	15,103	12,534	12,027	11,623	11,068	10,645
New Brunswick	2,314	1,887	2,228	2,203	2,319	2,324
Prince Edward Island	159	176	258	240	241	277
Nova Scotia	1,291	1,416	1,638	2,045	2,327	2,460
Newfoundland	2,767	2,752	3,297	3,676	3,973	4,113
Northwest Territories	233	498	257	221	190	276
Yukon Territory	218	205	211	183	186	168
Nunavut	465	224	457	459	488	390
Total	56,517	50,168	52,474	52,138	51,572	50,186

Source: COHV

Alberta's 1,615 downturn in sales in 2015 or -18.44% exceeded that of the nation as noted in the table. 2015 nationally, unit sales were down YTD by 1,511 or -3.12%.

Provinces bucking this national trend were generally less economically reliant on petroleum and other mineral-based resources. Between 2014-15, modest growth was focused in Ontario, the Atlantic Provinces and the Northwest Territories. High percentage growth was concentrated in the small markets of Prince Edward Island and the Northwest Territories.

Nationally, retail ATV sales in units have been relatively flat (51,321±1,153) since 2011 when side-by-sides started being marketed more intensively than previously for recreational purposes. Historically, Quebec has led all other jurisdictions in retail sales followed by Ontario and Alberta. It was not until 2014 that Ontario retail sales exceeded those in Quebec.

Capital Expenditures

Recent annual expenditures on new ATVs are part of what enters Smith Gunther's macro-economic analysis of investments in ATV recreational activities. Table 2 values estimated national sales in dollars of the year in which sales occurred.

Table 2: Estimated National Sales of ATVs. (Current \$1,000s)

Year	2010	2011	2012	2013	2014	2015
Sales	645,199	588,271	672,938	665,804	711,734	643,778 (P)

Direct capital expenditures by province included in this study cover new purchases of both ATVs and SxSs less than 80 inches wide. Also included are purchases of larger than otherwise required on-road enhanced vehicles dedicated to off-road activities, e.g. trucks, vans and RVs.

The COHV has provided 2015 data on both ATV unit sales and revenues by jurisdiction. In addition, parallel COHV annual records from previous years have been sufficient to generate estimates of the stocks of ATVs by jurisdiction. Smith Gunther estimated the current purchases and stocks of operating SxSs from the above data by utilizing the ratio of SxSs to ATVs by province derived from the survey (See Appendix 1). It included questions of both the numbers of ATVs and SxSs and their age so 2015 purchases could be identified by household from the survey. In keeping with the survey data, the stock data for ATVs stretched back to 1994⁶. Because the sale of SxSs for recreational purposes began in 2006 and data are generally not available for those sales, estimates of the stock of SxSs come from the survey results by jurisdiction on the number of families with access to both ATVs and SxS in 2015.

Smith Gunther and the COHV designed their survey of ATV and SxS operators to specifically identify additional capital expenditures related to their on-road transportation as well as off-road activities. These data included purchases of enhanced trucks, larger vehicles than would otherwise be used by families, as well as RVs and trailers deployed in off-road recreation. Based on provincial extrapolations by Smith Gunther, the estimated national incremental capital stock from these enhanced vehicles is \$840 million to \$1.6 billion. At ten per cent renewal rates, in 2015 these incremental purchases amount to \$84 to 159 million. Noted in Table 3, 2015 total Canadian ATV and SxS recreationalists' capital expenditures on new ATVs, new SxSs and new enhanced vehicles amounted to \$1.1 billion \$1.2 billion.

⁶ The attrition rate assumed for the stocks was 10%.

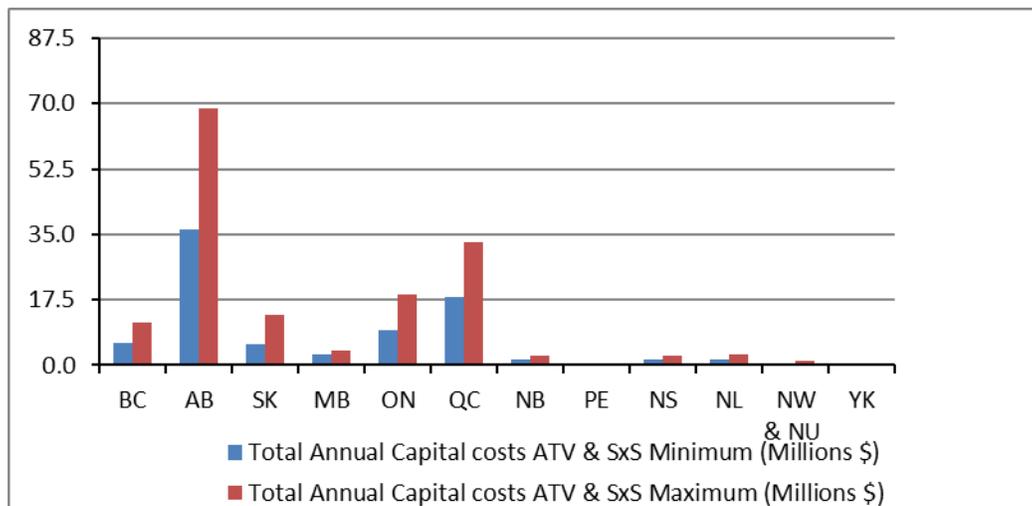
Table 3: Capital Expenditures 2015 (Values in Millions \$)

Jurisdiction	ATVs		SxSs		Enhanced Transportation		Total	
	Units	Value	Units	Value	Minimum \$	Maximum \$	Minimum \$	Maximum \$
BC	3,953	50.7	2,442	37.6	6.1	11.3	94.4	99.6
AB	7,472	95.8	6,508	100.2	36.2	68.8	232.2	264.8
SK	3,435	44.1	1,963	30.2	5.5	13.6	79.8	87.9
MB	2,405	30.9	802	12.3	2.9	4.1	46.1	47.3
ON	12,268	157.4	2,197	33.8	9.5	18.9	200.7	210.1
QC	10,645	136.6	6,083	93.6	18.3	33.0	248.5	263.2
NB	2,324	29.8	1,384	21.3	1.5	2.5	52.6	53.6
PE	277	3.6	82	1.3	0.1	0.1	4.9	4.9
NS	2,460	31.6	1,287	19.8	1.5	2.7	52.9	54.1
NL	4,113	52.8	1,530	23.6	1.7	2.9	78.0	79.2
NW & NU	444	5.7	237	3.7	0.6	1.1	10.0	10.5
YK	390	5.0	82	1.3	0.2	0.4	6.7	6.9
Canada	50,186	644	24,597	379	84.0	159.3	1,107	1,182

Sources: COHV for ATVs and Smith Gunther extrapolations from the Survey.

The provincial leader in the acquisition of enhanced on-road transportation equipment is Alberta reflective of both greater distances travelled and a relatively high propensity to travel by RVs. As Chart 1 shows, RV⁷ usage is concentrated generally in Western Canada and Alberta in particular.

Chart 1: Capital Outlays for Enhanced Vehicles by Province and Territory 2015 (Millions \$)



⁷ "RV" is meant in the narrow sense to refer to mobile homes throughout.

Operating Expenditures

Methodology in Brief

Expenditures on recreational ATV and SxS activities underpin the key tool to carrying out the analysis - Statistic Canada's Input Output structure. It requires that all direct expenditures on the recreational activity of ATVing and side-by-siding be set in single year dollar values. Once all direct expenditures are estimated, the Input Output (I/O) tables are used to estimate the indirect impacts – those needed to supply inputs to industries producing final new products for recreational ATVing and side-by-siding. In addition, the same I/O framework is used to estimate further economic impacts induced from the incremental wage and salary earnings being spent. It is these derived expenditures by those earning from ATV and side-by-side expenditures that result in the multiplier effects whereby the economy increases by more than the initial direct expenditures by ATV and SxS participants. In addition, these impacts are augmented further by induced impacts as expenditures of increased labour income stimulate the economy. The sum of the direct and indirect impacts divided by direct expenditures is the direct multiplier. Adding induced impacts to the former numerator while still dividing by the direct impacts yields the total multiplier.

Stocks of ATVs

Unlike new retail sales of ATVs, SxS, and new enhanced transportation equipment, which are capital figures, the activities of ATVing and side-by-siding also involve operating costs for the entire operational stock of ATVs, SxSs, and enhanced transportation equipment. From the survey results, Smith Gunther estimated expenditures per ATV and SxS and additional expenditures on enhancements by each vehicle operator, e.g. safety gear, and consumables that are all part of the direct expenditures for the sport. In order to aggregate average expenditures within each province, it is useful to estimate operational stocks of ATVs and side-by-sides.

From annual ATV unit sales and historical data back to 1994, Smith Gunther has estimated the current total number of operating ATVs by jurisdiction. In doing so it has used an annual attrition rate of 10%. While this might sound high, it does result in 12.8% of those sold in 1994 still being in operation today. A lower annual attrition rate of 8.6%, results in more ATVs remaining operational. The Smith Gunther survey results favor utilizing the higher case based on the 8.6%, but the lower case is more in-line with attributions on other recreational vehicles.

The operational ATVs stocks and SxSs in Table 4 include those used by owners strictly on their own farms and/or private properties which do not require annual licensing in many jurisdictions. For that reason the total stock may exceed those which are licensed.

Table 4: Currently Operational ATVs and SxSs (2015 Units)

Jurisdiction	Operational ATVs		Operational SxSs	
Attrition Rate	10%	8.6%	10%	8.6%
British Columbia	48,217	53,399	22,760	32,396
Alberta	114,221	127,406	82,231	106,960
Saskatchewan	37,394	41,113	20,072	29,420
Manitoba	27,681	30,701	11,896	13,726
Ontario	141,135	158,278	38,605	62,265
Quebec	166,395	188,563	81,087	125,740
New Brunswick	28,064	31,697	13,847	19,025
Prince Edward Island	2,155	2,384	486	911
Nova Scotia	24,949	28,440	10,915	16,318
Newfoundland	30,869	33,878	13,836	19,893
Northwest Territories	2,591	2,851	1,181	1,690
Yukon Territory	2,370	2,664	1,081	1,546
Nunavut	3,568	3,891	1,627	2,328
Total	629,609	705,264	299,624	432,219

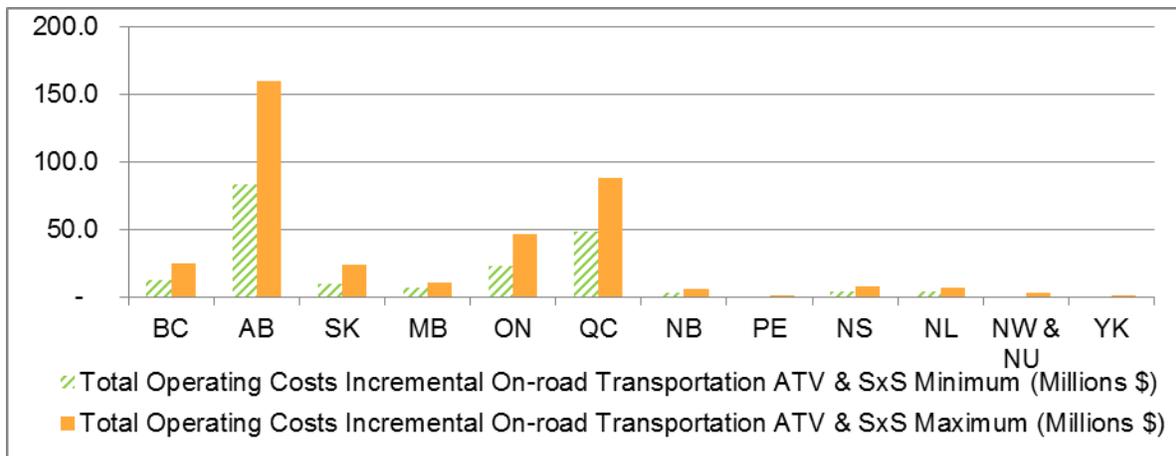
Estimates of the stock of SxSs come from the survey results by jurisdiction on the number of families with access to both ATVs and SxS in 2015. Because the stock of ATVs had already been estimated the minimum and maximum stocks for the same attrition rates were then estimated for SxSs over the more limited time period over which they have been available.

Operating Costs

In cooperation with the national and provincial ATV and SxS riding associations, specific operating costs were determined from Smith Gunther's survey of provincial riders including information on specific expenditures such as licensing, insurance, repair and maintenance and purchases of incidentals and transportation services by ATV and side-by-side owners. Power Sport Services's separate surveys of attendees at its Motorcycle and ATV shows have been examined to determine expenditures in travelling to and from the shows and on consumables at the shows.

According to respondents, operating costs for enhanced vehicles range from \$200 to \$376 million. Chart 3 illustrates the geographical distribution of operations related to the stock of enhanced vehicles.

**Chart 3: Operating Outlays for Enhanced Vehicles by Province and Territory 2015
(\$200 to \$376 Million)**



Source: Smith Gunther and COHV survey.

Smith Gunther has estimated direct national operating expenditures at \$5.23 to \$6.85 billion. Other expenditures are ordered by size with the largest expenditures first, as follows:

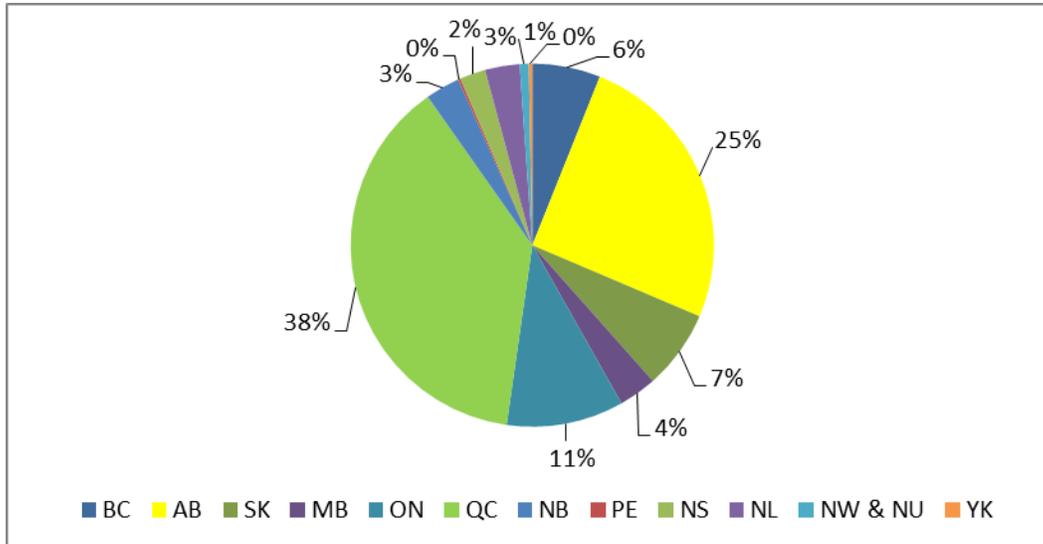
- Repair and maintenance, excluding both volunteer time and gasoline;
- Gasoline for operating ATVs and SxSs;
- Food and beverages;
- Volunteer time for maintenance and repair;
- Accommodations;
- Liability insurance;
- Casualty insurance;
- Ground transportation;
- Operating costs on incremental ground transportation;
- Attending events other than Power Sport Services shows;
- Club fees;
- Licensing fees;
- Trail fees;
- COHV shows; and
- Other.

Paid Repair and Maintenance

Even exclusive of volunteer time, paid repair and maintenance accounted for the largest operating cost at \$1.1 to \$1.5 billion nationally. Among the jurisdictions, average paid off-road vehicle repair and maintenance costs were higher in the more fully employed jurisdictions than elsewhere, culminating in a concentration of expenditures in Alberta and to a lesser extent Saskatchewan and British Columbia. Quebec had strong market shares due mostly to its high

participation rates in off-road riding. Despite its dominance of population, repair and maintenance in Ontario was modest as noted in Chart 4.

Chart 4: Percentage Shares of Paid Repair and Maintenance (\$1.14 to \$1.5 billion)



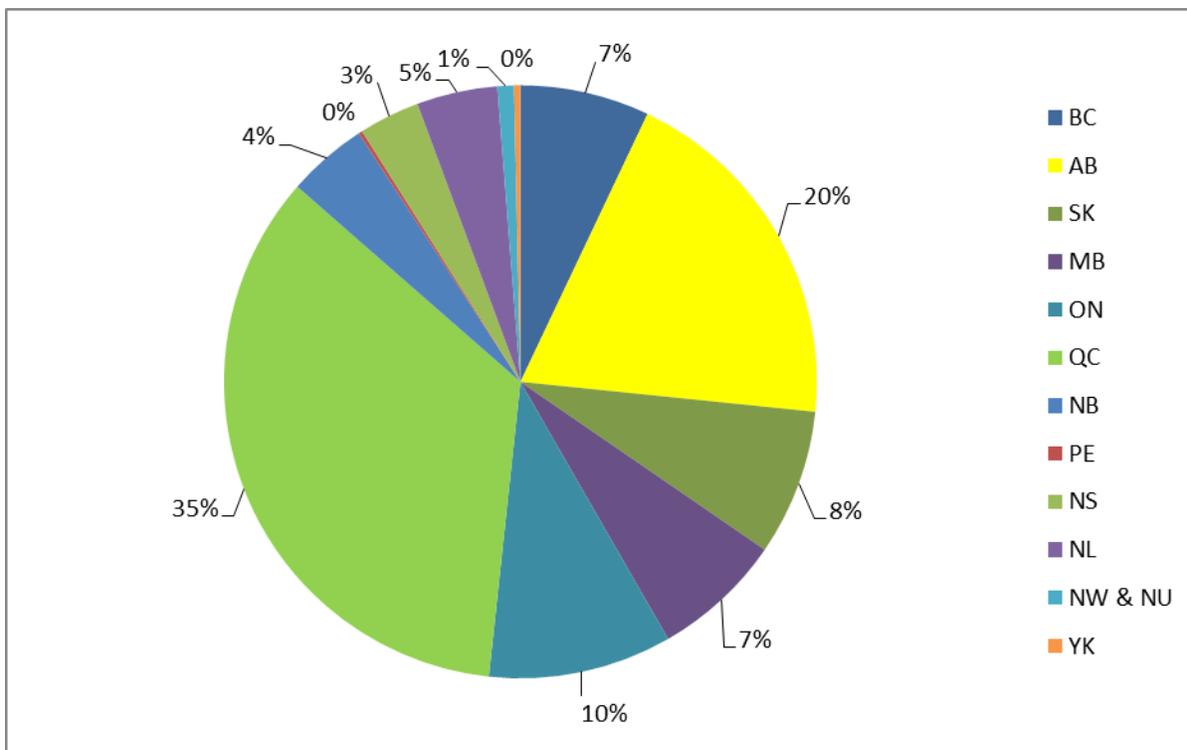
Source: Smith Gunther and COHV survey.

Gasoline

For simplification, Smith Gunther has modelled both ATVs and SxSs as being fueled by gasoline rather than dividing fuels between gasoline and diesel. Despite falling fuel costs during the year, the second largest operating cost was gasoline used in off-road operations at \$724 to \$948 million for the nation. This figure excludes on-road consumption of gasoline from travelling to and from off-road activities and events. Fuel consumed in transit is included with ground transportation and comes out of the modelling exercise as an indirect impact.

Jurisdictional shares are determined by the stock of off-road vehicles, average usage and the price of gasoline by jurisdiction. Due to the scarcity of data for all three territories, the impact of higher gasoline prices in these areas is not fully taken into account.

Chart 5: Percentage Shares of Off-Road Gasoline Consumption (\$724 to \$948 million)

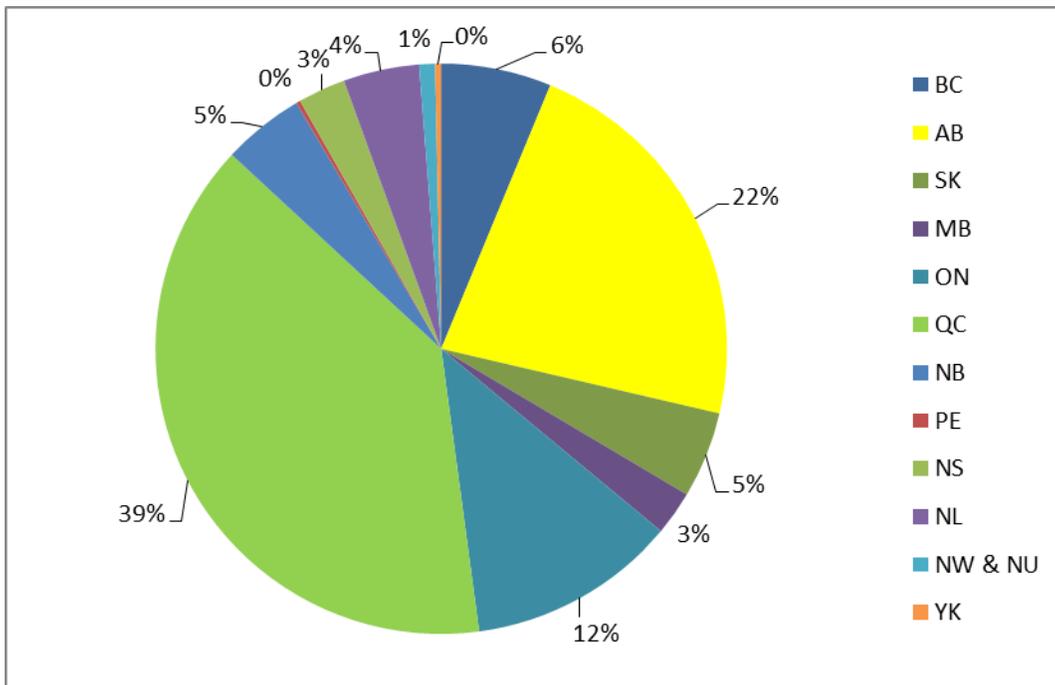


Source: Smith Gunther and COHV survey.

Food and Beverages

In 2015, off-road riders fueled not only their vehicles but also themselves with food and beverage consumption valued at \$652 to \$836 million. These figures include meals on the road and consumed at off-road events and shows. Regional expenditure patterns are similar to the shares of expenditures listed in Charts 4 and 5, and reflective of the relative affluence of each province as noted in Chart 6.

Chart 6: Percentage Shares of Food and Beverage Consumption (\$652 to \$836 million)



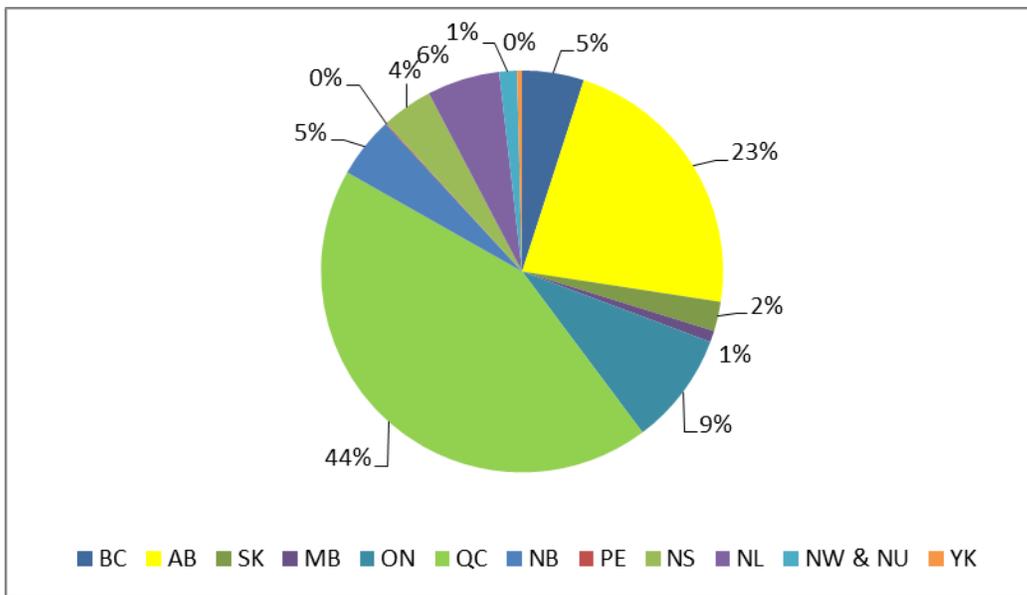
Source: Smith Gunther and COHV survey.

Volunteer Maintenance and Repair

In addition to paid expenditures on ATVs and SxSs, owners dedicated volunteer time to that activity on their own off-road vehicles as well as those of their compatriots. The survey asked respondents to note the number of days each dedicated to this activity as well as the number of off-road vehicles owned by them. From that data, Smith Gunther developed the average volunteer time devoted to each off-road vehicle by jurisdiction which was then extrapolated by jurisdictional stocks of off-road vehicles amounting nationally to 15.2 and 18.9 million person days. By valuing this time at 40% of the average wage and salaries in each jurisdiction, Smith Gunther assessed the value of this volunteer time at \$584 to \$658 million.

The regional shares illustrated in Chart 7 highlight the greater concentration of this activity in Quebec and the Atlantic Provinces relative to elsewhere in the country, especially relative to paid maintenance.

Chart 7: Percentage Shares of the Value of Volunteer Repair and Maintenance (\$584 to \$658 million)

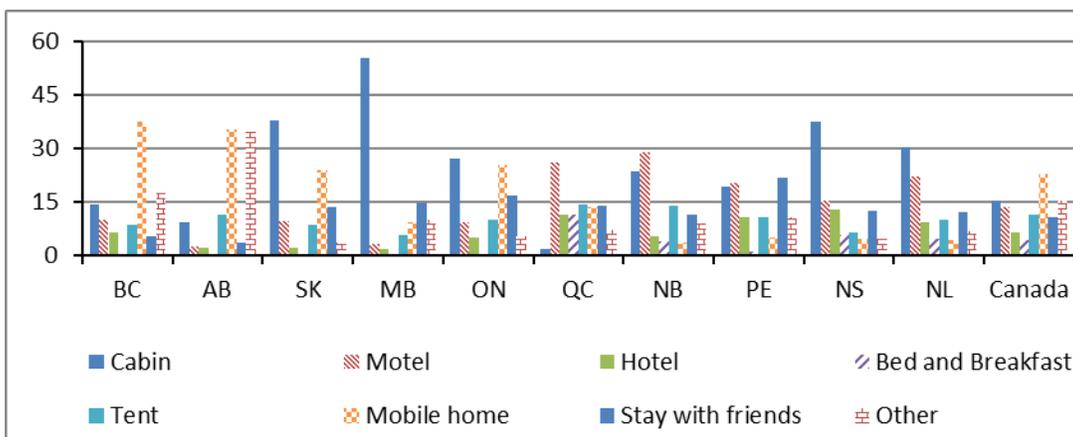


Source: Smith Gunther and COHV survey.

Accommodations

Chart 8 illustrates regional differences in the percentages of respondents staying in different types of accommodation. Newfoundland and Territorial results have been approximated by Maritime and National outcomes adjusted to stocks in each jurisdiction. Ready access to northern Lake Country may influence cabin use in the Prairie Provinces. East of Ontario, there was greater utilization of motels. Mobile homes/RVs are much more popular in the West than elsewhere.

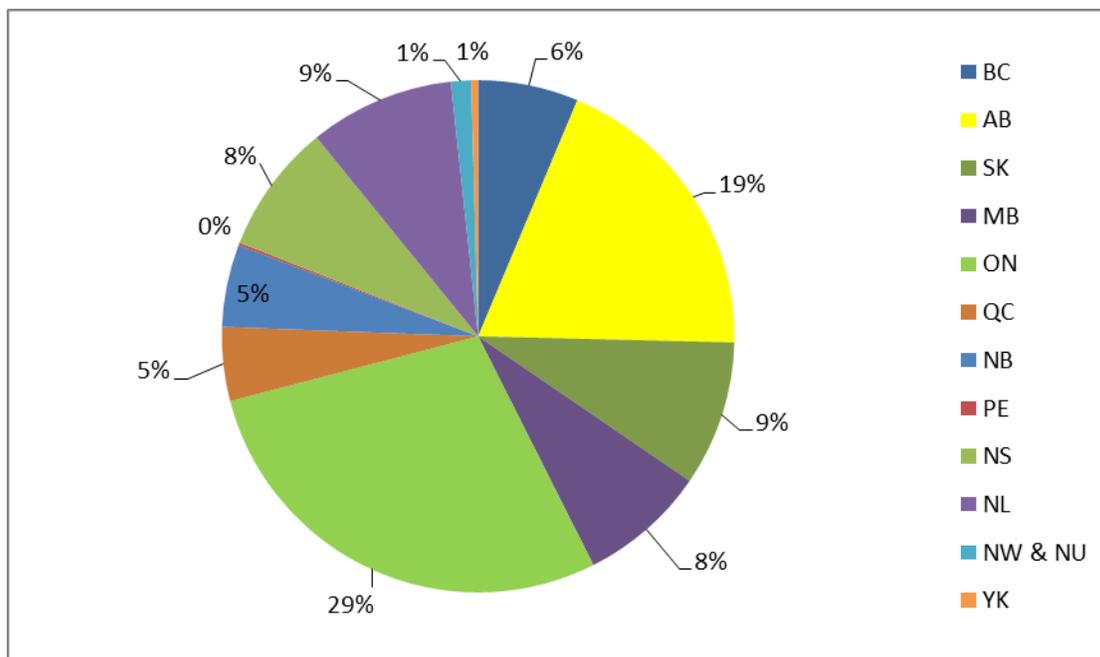
Chart 8: Percentages of Respondents Utilizing Types of Accommodations (%)



Source: Smith Gunther and COHV survey.

Expenditures on hotel accommodation in each province and territory were valued at the highest of concessionary Federal government rates in large cities as posted by Treasury Board. Taking the highest rates allowed by Treasury Board offsets the discounts achieved through concessionary rates. Smith Gunther applied this rate to cabins and to bed and breakfast accommodations but discounted it by 20% for motels. Stays with friends and families were cost at \$25 per night again within the confines of Treasury Board rules. Under these conditions, 2015 paid accommodations by off-road riders at events and shows nationally amounted to \$334 to \$378 million. Shares of accommodation expenditures among Canadian jurisdictions were distributed as depicted in Chart 9.

Chart 9: Percentage Shares of Expenditures for Paid Accommodation (\$334 to \$378 million)



Source: Smith Gunther and COHV survey.

The relatively low shares of paid accommodations in the western provinces, and to some degree Ontarians, result from their greater use of RVs which were not included in the paid accommodations because they are included in ground transportation. Relative to their other expenditures, Atlantic residents make up a relatively large share of those staying in paid accommodations.

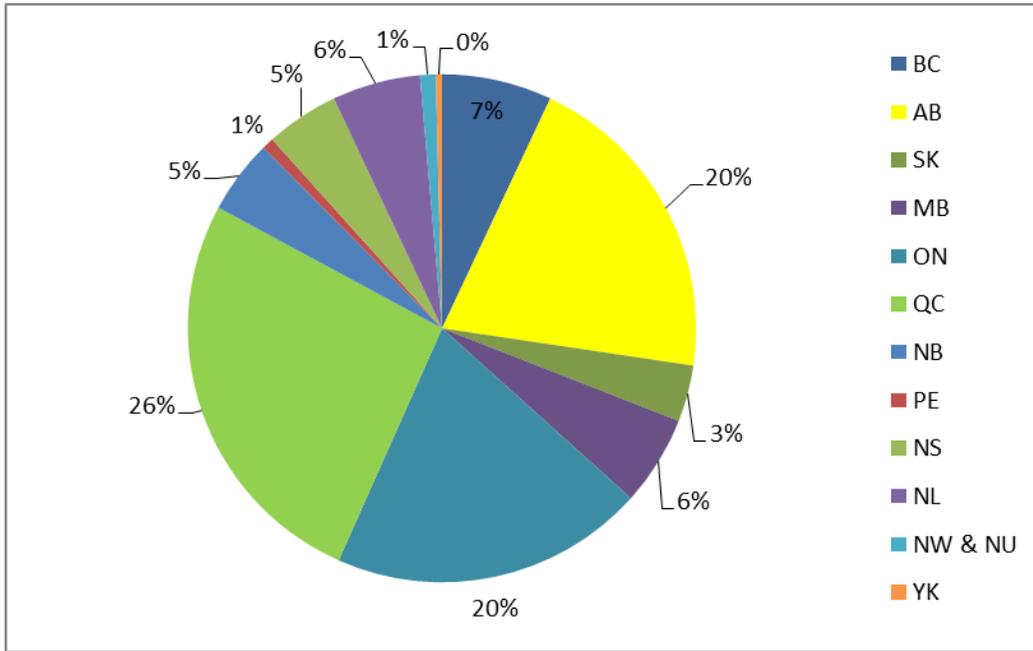
Insurance

Combined off-road riding annually generates liability and casualty insurance premiums of \$568 to \$720 million.

Liability Insurance

Of the two types of insurance, liability is the larger at \$316 to \$395 million. Chart 10 contains the regional shares. Of note is that liability insurance is one of the higher expenditures in Ontario, not because of a concentration of the industry in the province but because Ontario consumers pay higher liability rates insurance relative to the rest of the country.

Chart 10: Percentage Shares of Liability Insurance (\$316 to \$395 million)

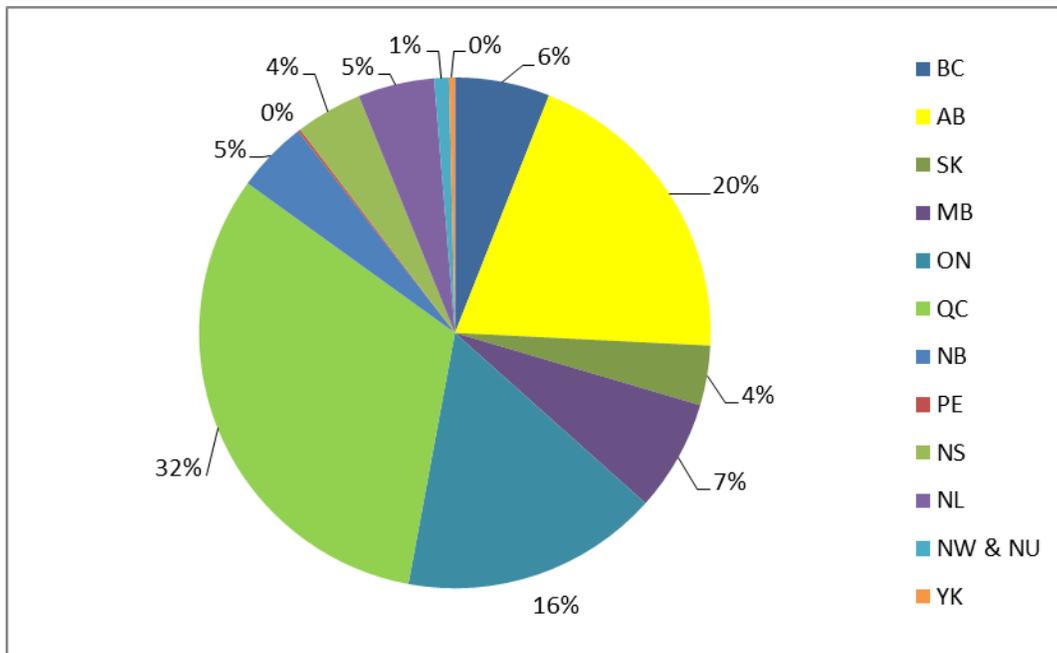


Source: Smith Gunther and COHV survey.

Casualty Insurance

National premiums for casualty insurance in 2015 were \$253 to \$325 million. Chart 11 breaks out regional shares with a greater concentration in Quebec than is present in other provinces.

Chart 11: Percentage Shares of Casualty Insurance (\$253 to \$325 million)



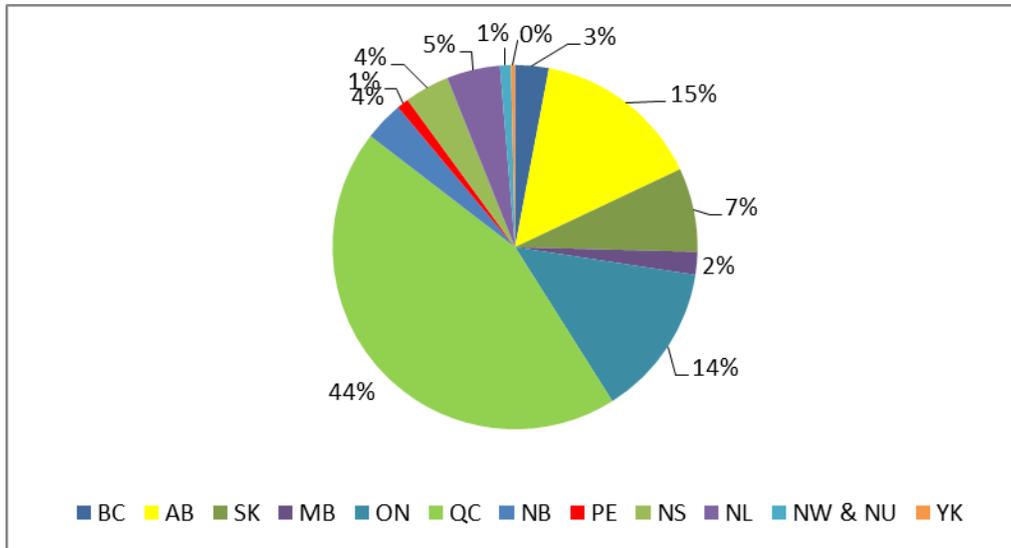
Ground Transportation

Smith Gunther has estimated two aspects of ground transportation. The first has to do with transportation related to off-road riding, club and show activities in standard vehicles by those not owning enhanced vehicles. The second involves the incremental costs of utilizing enhanced vehicles for those same journeys. Together nationally they result in expenditure estimates of \$377 to \$598 million.

Ground Transportation in Standard Vehicles

Normal ground transportation is estimated at \$176 to \$222 million. Given high frequency in the use of off-road vehicles and low shares of RVs, Quebecers dominate (44%) in this type of expenditure as noted in Chart 12.

Chart 12: Percentage Shares of Normal Ground Transportation (\$176 to \$222 million)

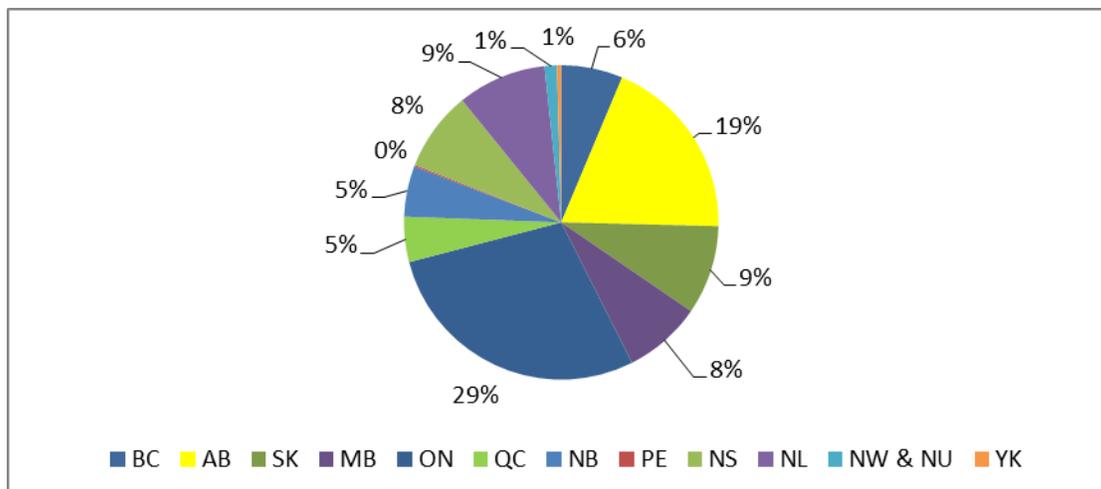


Source: Smith Gunther and COHV survey.

Enhanced Vehicle Transportation

Investments in enhanced vehicles lead to additional ground transportation operations and upkeep expenditures. In 2015, these operating expenditures reached \$200 to \$376 million. Chart 13 emphasizes the Ontario and Western orientation of enhanced vehicles to undertake off-road activities. While the province west of Quebec expended 41% of normal ground transportation, they spent 71% of the larger enhanced ground transportation funds. Ontario led enhanced ground transportation expenditures at 29%.

Chart 13: Percentage Shares of Ground Transportation Expenditures on Enhanced Vehicle Operations (\$200 to \$376 million)

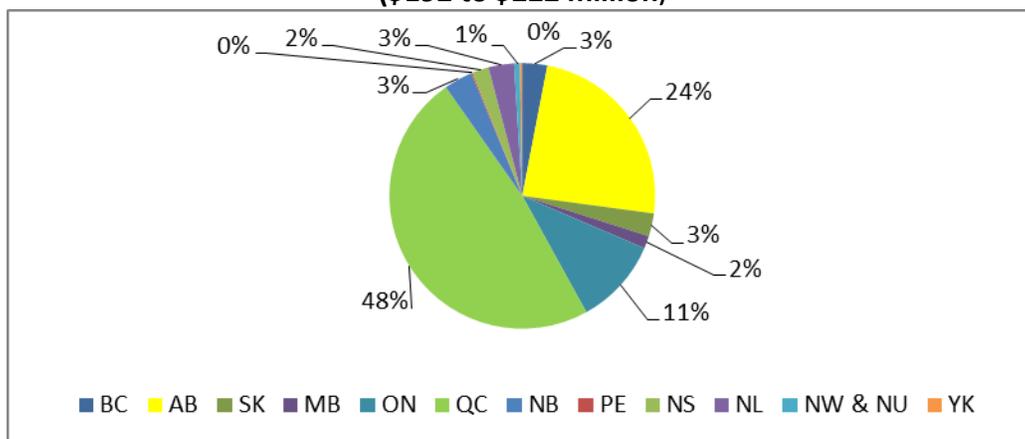


Attending Events Other Than Power Sport Services (PSS) Shows

Participants in off-road activities attended several related events for training, competitions, socializing and simply riding with or without friends. National estimates of additional funds spent on these activities ranged from \$192 to \$222 million. Because PSS has separate data about their own shows, these figures are net of expenditures at PSS shows in order to avoid double counting.

Chart 14 identifies expenditures to attend these events are concentrated in Quebec and Alberta.

Chart 14: Percentage Shares of Expenditures Attending Events Other Than PSS Shows (\$192 to \$222 million)



Source: Smith Gunther and COHV survey.

Fees

Fees are charged for club memberships, use of other club's trail and for licenses. Smith Gunther's national estimate of these combined fees is \$297 to \$365 million.

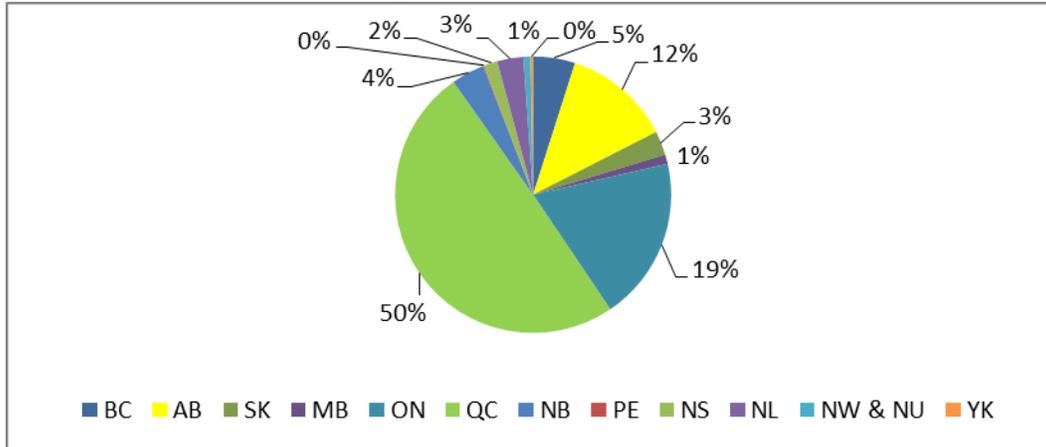
Club

Club fees consist of club memberships which include trail passes or, where riders do not belong to the club managing the trail, trail passes must be purchased separately. Smith Gunther's estimate for national spending on club fees is between \$104 and \$127 million. These fees are concentrated in Quebec as noted in Chart 15.

Encouraging riders to join clubs continues to be an issue particularly in the West. With clubs responsible for building, extending and maintaining trails, it is necessary for all trail users to carry their share of the work. The New Brunswick ATV Federation Inc. has been particularly diligent in expanding its membership, while the Prince Edward Island ATV Federation is in its infancy. Various Ontario clubs are working together to put trail loops in place capable of handling week-long excursions. But all these projects require time and effort from club

member volunteers not just in maintaining trails but in encouraging trail users to be considerate of adjacent residences and private property owners.

Chart 15: Percentage Shares of Club Fees (\$104 to \$127million)

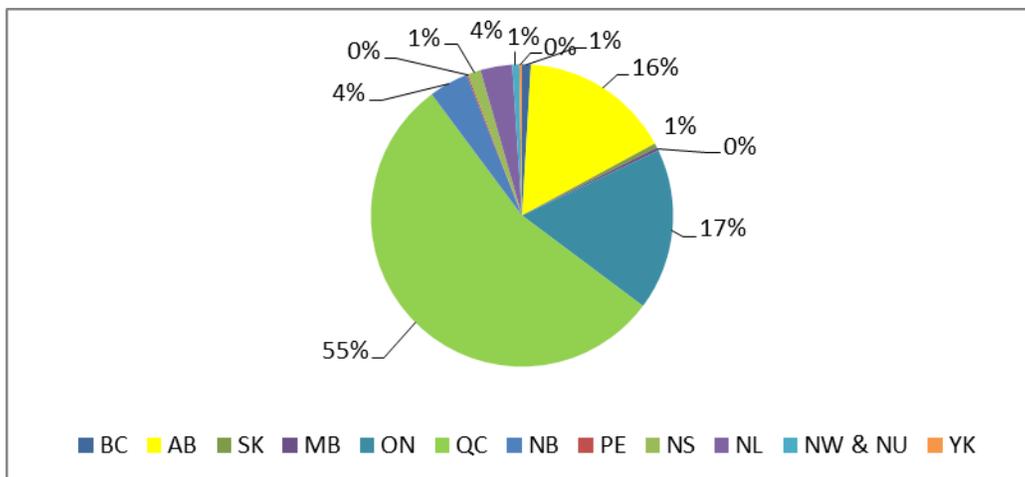


Source: Smith Gunther and COHV survey.

Other Trail Fees

Clubs earn other trail fees from non-members who make use of their trails. Nationally, Smith Gunther estimates these to be \$95 to \$115 million. Given ready access to logging roads, the scarcity of trail fees in British Columbia and Nova Scotia is understandable (see Chart 16). On the other hand, the hard work that has gone into maintaining trails in Quebec and Ontario is clearly being rewarded with trail fee revenues concentrated in those jurisdictions.

Chart 16: Percentage Shares of Trail Fees (\$95 to \$115 million)



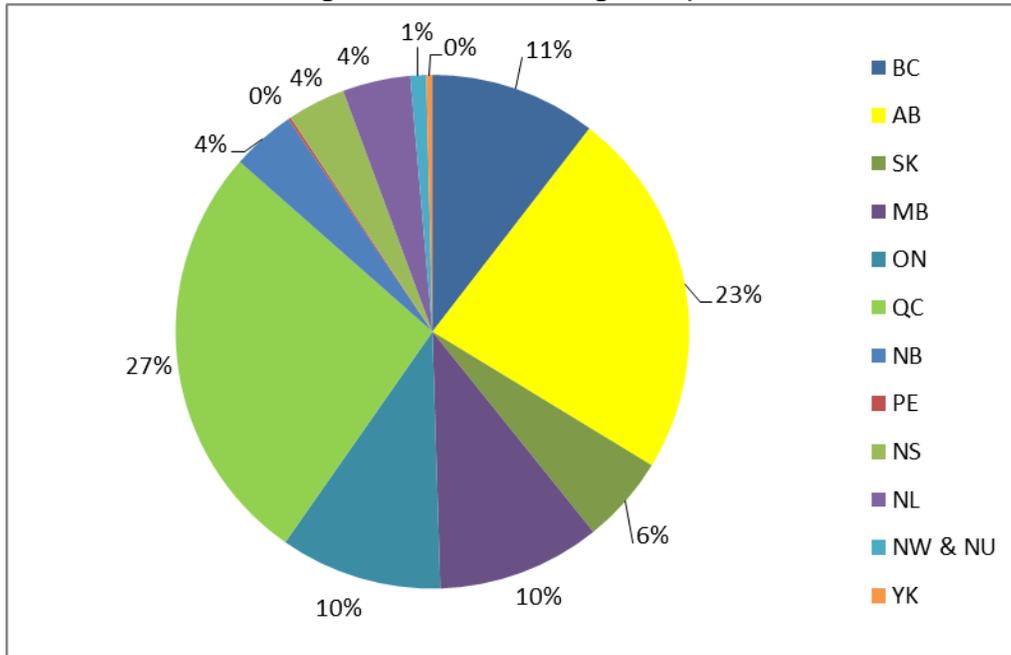
Source: Smith Gunther and COHV survey.

Licensing Fees

Generated from the survey, Smith Gunther’s national estimate of 2015 licensing fees is \$99 to \$123 million. While various provincial governments post data on licenses issued, none operate

with sufficient detail for the purposes of this research. Licenses are not required in all jurisdictions for all ATVs and SxSs particularly if operators are using them solely on their own lands. This capacity to avoid licensing erodes licensing revenues. British Columbia has just started to require annual licensing. Displayed in Chart 17, the high concentration of licensing fees in Quebec and Alberta illustrates the importance of off-road riding to those jurisdictions.

Chart 17: Percentage Shares of Licensing Fees (\$99 to \$123 million)



Source: Smith Gunther and COHV survey.

Power Sport Services Shows

Data from surveys taken at the PSS Shows indicate expenditures such as clothes, gear and helmets exclusive of those made on major items such as ATVs and SxSs. Important though these are the last of these are excluded in this section in order to avoid double counting with what is included in the earlier capital expenditures. Seven shows were held in five provinces and the amounts are presented by province in Table 5.

These totals are modest at \$3.9 million nationally, but may contain information for expanding covers to shows held by other organizations.

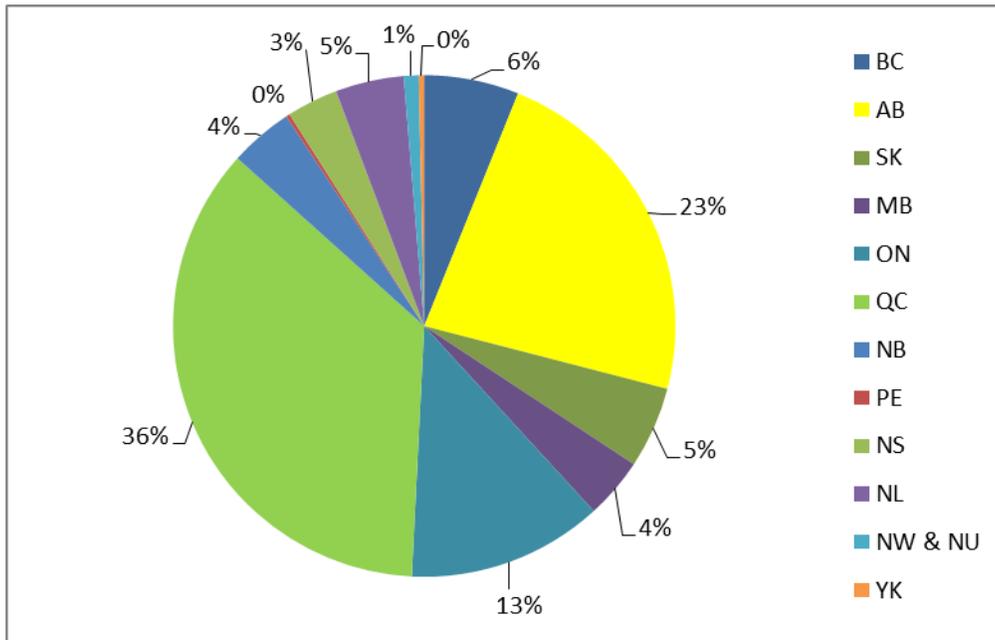
Table 5: Incremental Expenditures at COHV Shows

Jurisdiction	Expenditures
British Columbia	563,617
Alberta (2 shows)	1,582,337
Ontario	614,541
Quebec (2 shows)	976,020
New Brunswick	199,054
Total	3,935,569

Total Direct National Operating Expenditures

Summing the above operating expenditures, Smith Gunther estimates total direct operating impacts from \$5.0 to \$6.72 billion. Total direct operating expenditures emanate from provincial and territorial activities. Quebec is the strongest followed by Alberta and Ontario in that order as illustrated in Chart 18. Combined, the Atlantic Regional direct operating expenditures come within a percent of Ontario’s, suggesting much higher activity per capita in the Atlantic than in Ontario.

Chart 18: Percentage Shares of Total Direct Operating Expenditures (\$5.0 to \$6.72 billion)



Source: Smith Gunther and COHV survey

The above figures are inclusive of volunteer time of which the Input-Output (I/O) analysis takes no account. For that reason the direct operating impacts accounted for in the I/O runs will be net of the value of volunteer time that is net direct operation of \$4.52 to \$5.87 billion.

Table 6 contains the national direct operating expenditures by type.

Table 6: National Summary of Direct Operating Expenditures by Type 2015 (Million \$)

Type of Operating Expenditure	Minimum Estimate	Maximum Estimate
Repair and maintenance, excluding volunteer time and gasoline	1,143	1,514
Gasoline for operating ATVs and SxSs	724	948
Food and Beverages	652	836
Volunteer maintenance and repair	584	858
Accommodations	234	378
Liability Insurance	316	395
Casualty Insurance	253	325
Ground Transportation	176	222
Operating costs on Incremental Ground Transportation	200	376
Attending events other than COHV shows	192	222
Club Fees	104	127
Licensing Fees	99	123
Trail fees	95	115
Power Sport Services Shows	4	4
Other	232	282
Total	5,007	6,724

Economic Impacts

Introduction

The previous section establishes 2015 direct impacts of ATVs and side-by-sides (SxS) recreation activities by province. Those data determine direct economic impacts - which stimulate indirect and induced impacts - based on 10% and 8.6% case scenarios. For each measure of economic performance, the I/O analysis yields direct impacts, direct plus indirect, and induced impacts. Total economic impacts include direct, indirect and induced economic impacts. As noted previously, indirect impacts occur because industries other than the ones making the final product to satisfy ATV and SxS recreational expenditures are needed to assemble, manufacture, mine, transport, and finance inputs into final products. Induced impacts are

driven by expenditures of direct and indirect labour force incomes and spending from incomes of those supplying induced demands.

Adding capital and operating expenses, covered earlier in Table 3 and Table 6, the 10% scenario involves total expenditures of \$6.2 billion and the 8.6% one of \$7.9 billion.

Licensing fees and volunteer maintenance and repair were excluded from the Input-Output (I/O) analysis, leaving the direct expenditures applied to the economy as \$5.5 billion in the 10% case and \$6.9 billion in the 8.6% case. Annual license fees on ATVs and SxSs usually accrue to general revenue funds of provincial governments so that recycling of those funds is diffused throughout provincial economies by government decisions that have little or nothing to do with ATVs and SxSs. The second excluded item was estimated volunteer work by club members for repair of their own and other members' ATVs and SxSs, trail building, and other work dedicated to club activities. Because no money exchanged hands, such volunteer activities are excluded from the purview of I/O analyses which accounts only for money-based transactions.

Included direct expenditures encompass those on new ATVs, SxSs, gear, special clothing e.g. helmets and goggles; operating expenses e.g. gasoline and paid repair and maintenance for ATVs and SxSs; accommodations (camping, hotel and motels and recreational vehicles (RVs)); and travel to and from ATV and SxS events including any repairs on enhanced vehicles, trucks and trailers to facilitate ATV and SxS recreational activities; and, related membership fees in clubs and associations.

This analysis covers three measures of income: value shipped, GDP, and labour income. Value shipped measures shipments at factory gates along supply lines from inputs to final products (see Value Shipped section for a fuller explanation). Value shipped naturally results in double and even multiple counting. GDP measures the value added (labour income, production taxes and profits) at each stage of production and therefore avoids multiple counting. Labour income is a subset of GDP measuring wages and salaries⁸, supplementary labour income⁹ and labour

⁸ Statistics Canada, **National Income and Expenditure Accounts Volume 3: A Guide to National Income and Expenditure Accounts**, 1975, p. 120. *Wages and salaries, including income in kind (i.e., board and lodging), are estimated on a "gross" basis, that is, they are reckoned before tax deductions and before deduction of contributions by employees to unemployment insurance, pensions and other social security schemes. Bonuses, commissions, directors' fees, taxable allowances and retroactive wage payments are included in the year in which they are paid.*

⁹ *Ibid.* *Supplementary labour income is composed of other expenditures by employers on labour account that can be regarded as payment for employees' services. Included here are employers' contributions to private pension funds, the Canada and Quebec Pension Plans, employee welfare funds, the Unemployment Insurance Fund, and Workmen's Compensation Funds.*

income from unincorporated companies and individuals¹⁰.

The analysis also covers employment measured in full-time employment equivalents (FTEs). *Full-time employment consists of persons who usually work 30 hours or more per week at their main or only job*¹¹. Equivalence to full-time employment occurs when combinations of part-time workers within the same industry have aggregate hours on the job that equal or exceed 30 hours. There are more jobs than FTEs because some jobs require less than 30 hours per week of employment.

Money Tracking

This section follows the funds spent directly, indirectly and induced to trace where the \$5.5 billion and \$6.9 billion of direct and indirect expenditures are percolating through the economy. Following where the money goes outlines how impacts occur as part of enhancing understanding of the national and international impacts of ATV and SxS recreational activities. This brief exercise also identifies how national imports, interprovincial imports, inventory accumulation, and taxes generate leakages in the flow of funds. Leakages divert funds from geographic of demand thereby curbing subsequent economic impacts. Any leakage of funds not recycled in the economy diminishes the total impacts that consumer expenditures will have on Canadian or provincial economies.

Trade

On imports of units manufactured outside of Canada, most of the indirect and induced expenditures remain outside of Canada, restricting domestic impacts. Deficits in international trade (where imports exceed exports) lessen economic impacts while surpluses enhance the impacts.

Table 7 traces ATV and SxS expenditures nationally and provincially. It begins with the direct domestic expenditures on goods and services for undertaking ATV and SxS recreational activities in each of the 10% and 8.6% cases. The next two lines capture imports of

¹⁰ Statistics Canada, **National Income and Expenditure Accounts Volume 3: A Guide to National Income and Expenditure Accounts**, 1975, p. 131. *Net income of non-farm unincorporated business consists of the earnings of working proprietors from their own businesses. Such businesses are "unincorporated" as distinct from the corporate form of organization. The estimates represent a mixture of labour and investment income that cannot be segregated on anything but an arbitrary basis. To the extent that working proprietors supply their own labour, they earn wages and salaries; to the extent that they supply their own capital, they earn profits, interest and rents. These elements are inextricably mixed in the estimates of the net income field. The net rental income of persons is also included here in order to consolidate all forms of income from non-farm unincorporated business activity in a single category.*

¹¹ Statistics Canada, *Table 282-0005 - Labour force survey estimates (LFS), by full- and part-time students during school months, sex and age group, unadjusted for seasonality, monthly.* (accessed: August 06, 2016)

intermediate and final international products and services with intermediate imports. The following two lines are interprovincial imports to meet both final expenditures and intermediate inputs among Canadian provinces and territories. While there are net trade (exports less imports) differences among the provinces, within Canada the sum of interprovincial imports (lines 4 and 5) must be equal to interprovincial exports (line 8). Inventories and other commodity leakages result in relatively minor leakages from cash flows in each case -\$25 million in the 10% case and -\$31 million in the 8.6% case.

Interprovincial trade in final and intermediate goods and services does not balance within each province. In the 10% case, Ontario nets \$364 million through its interprovincial exports exceeding its interprovincial imports as do British Columbia at \$25 million and Alberta at \$11 million. The 8.6% case yields varying interprovincial trade impacts with Ontario at \$509 million, British Columbia at \$20 million while Alberta's net interprovincial trade results in a deficit of interprovincial trade with imports exceeding exports by \$99 million. All other jurisdictions leaked funds to experience deficits in interprovincial trade in both the 8.6% and 10% cases.

Table 7: Following the Money: International and Interprovincial Trade (\$1,000s)

	Low Case (10%)	High Case (8.6%)
1. Direct domestic expenditures on commodities	5,501,040	6,916,210
2. International imports (final expenditures)	-726,462	- 860,679
3. International imports (intermediate inputs)	-637,083	- 796,839
4. Interprovincial imports (final expenditures)	-867,573	- 1,093,758
5. Interprovincial imports (intermediate inputs)	-581,258	- 736,902
6. Inventories and other commodity leakages	-25,231	- 30,695
7. Interprovincial exports	1,448,831	1,830,661
8. Total (GDP at market prices, by definition)	4,112,264	5,227,996

Source: Based on Statistics Canada I/O runs submitted and interpreted by Smith Gunther Associates Ltd. Columns may not add due to rounding.

The outcome is that international imports, net interprovincial deficits and inventory leakages reduce domestic impacts at the provincial level. Because national interprovincial trade has to balance (Line 4+ Line 5 = -Line 7), by definition, interprovincial trade does not influence national GDP of \$4.1 billion in the 10% case and \$5.2 billion in the 8.6% case.

GDP at market prices includes taxes on products but is net of product subsidies whereas GDP at basic prices is net of taxes on products but includes any subsidies on products as indicated in the first six lines of Table 8. It is GDP at basic prices that appear throughout the rest of the analysis.

**Table 8: Following the Money: From GDP to Labour Income and Gross Operating Incomes
(\$1,000s)**

	Low Case (10%)	High Case (8.6%)
1. GDP at market prices (Last line of Table 7)	4,112,264	5,227,996
2. Taxes on products (final expenditures)	597,420	756,671
3. Taxes on products (intermediate inputs)	60,020	77,602
4. Taxes on products (import duties)	12,544	14,582
5. Subsidies on products	-57,133	- 70,084
6. GDP at basic prices (Line 6= Line1-Sum(Lines 2 to 5))	3,499,414	4,449,224
7. Subsidies on production	-18,503	- 22,215
8. Taxes on production	135,167	171,809
9. Wages and Salaries	1,809,384	2,299,077
10. Supplementary labour income	227,184	283,390
11. Labour income of unincorporated companies and individuals	160,038	206,440
12. Total labour income (Sum of line 9 to 11)	2,196,606	2,788,907
13. Gross operating surplus (Line 6-sum of Lines(7 to 11))	1,186,143	1,510,723

Source: Based on Statistics Canada I/O runs submitted and interpreted by Smith Gunther Associates Ltd. Columns may not add due to rounding.

Labour Force Income

Further subtracting taxes and subsidies on production (lines 7+8) and gross operating surplus (line 13) used to pay business owners, leaves \$2.2 billion (sum line 9 to 11) accruing to total labour income. Total labour income includes wages and salaries, supplementary labour income and labour income from unincorporated companies and individuals¹². Of the total labour income, \$1.8 billion is paid in annual wages and salaries before personal income tax deductions. After income taxes of \$418 million (not shown in this table) direct wages and salaries amounted to \$1.4 billion.

In the 8.6% case, adjusting GDP at basic prices for subsidies and taxes on production leaves \$4.3 billion of which \$2.8 billion (sum line 9 to 11) accrues to labour income. After income taxes of \$479 million, (not included in the above table) labour income amounted to \$2.3 billion.

Gross Operating Surplus

After production taxes less subsidies and labour force income, the third component of GDP is the gross operating surplus which initially accrues to business owners before depreciation on plant and equipment and any corporate income taxes. In the 10% case it is \$1.2 billion and in the 8.6% case \$1.5 billion. The bottom line of gross operating surplus should not be interpreted

¹² These terms are defined earlier in footnotes on page 5.

entirely as profits because gross operating surpluses include depreciation and therefore overstate real profits accruing to owners.

Taxes

Table 9 identifies government revenues from various tax sources. In the 10% case, direct and indirect taxes on products result in tax leakages of \$670 million. Direct and indirect production taxes result in further leakages of \$135 million. In addition, direct and indirect income taxes from additional labour force income generate \$418 million for a total of \$1,223 million in government revenues. Adding total induced tax revenues brings increases in government revenues to \$1.5 billion.

In the 8.6% case, direct and indirect taxes on products result in revenues for governments of \$849 million. Direct and indirect production taxes add a further leakage of \$172 million while increased labour incomes also generate further direct and indirect personal income taxes worth \$479 million so that the case augments direct and indirect government revenues by \$1.5 billion. Adding total induced tax revenues brings the total increase in revenues to \$1.9 billion.

Table 9: Tax Revenues Generated by ATV and SxS Recreational Activities: 2015 (\$1,000s)

Cases	Low (10%)			High (8.6%)		
	Direct & Indirect	Induced	Total	Direct & Indirect	Induced	Total
Type of Impacts						
Metric						
Total taxes	1,223,151	317,492	1,540,643	1,499,664	393,081	1,892,746
Taxes on products less product subsidies	669,984	152,925	822,909	848,855	193,918	1,042,773
Taxes on production less production subsidies	135,167	81,099	216,266	171,809	103,293	275,101
Income taxes	418,000	83,469	501,469	479,000	95,871	574,871

Source: Based on Statistics Canada I/O runs submitted and interpreted by Smith Gunther Associates Ltd. Columns may not add due to rounding.

Induced Impacts, Total Impacts, and Multipliers

When income earners spend their direct and indirect incremental incomes, they generate induced expenditures resulting in induced multiplier effects. As used herein, multipliers are simply ratios of total impacts relative to their direct expenditures on the same metric. Smith Gunther with Statistics Canada has estimated total impacts in each case - first for combined direct and indirect impacts alone and second for total impacts inclusive of induced impacts. The remaining sections delineate the direct and indirect, induced and total impacts as well as

multipliers for three measures of income – value shipped, GDP, and labour force income, as well as employment in full-time equivalents. For both cases, they appear by jurisdiction in the following bar charts along with the direct Canadian stimulus in the title of each chart.

Because multipliers among different jurisdictions are impacted by interprovincial shipments and by the intensity of industrial concentrations, those provinces with more interprovincial exports than imports have higher multipliers when assessing national level impacts. Multipliers also vary with the metric being assessed in that they differ among value shipped, GDP, labour income, and employment.

Value Shipped

Value shipped is the sum of the value shipped by all supply-line manufacturers. For example, one of the supply lines may begin with a hide used to manufacture leather riding gear. Value shipped inherently involves some double and multiple counting because as inputs move along the supply chain, they are captured with each shipment from each stage of production going into the next one. The hide is captured when shipped from the abattoir to the tannery, and again from the tannery to a clothes manufacturer and then from the clothing manufacturer to a wholesaler of leather riding gear.

To meet ATV and SxS expenditures in the low case, Canadian direct value shipped was \$4.1 billion, direct and indirect value shipped \$6.7 billion and total value shipped \$8.5 billion (inclusive of the induced expenditures). These findings mean that indirect impacts are \$2.5 billion topped-up by another \$1.8 billion of induced impacts as indicated in Table 10. The 8.6% case impacts rise at each step of the analysis from direct impacts of \$5.3 billion, indirect ones of \$3.2 billion and induced ones of \$2.2 billion culminating in total impacts of \$10.8 billion (allowing for rounding).

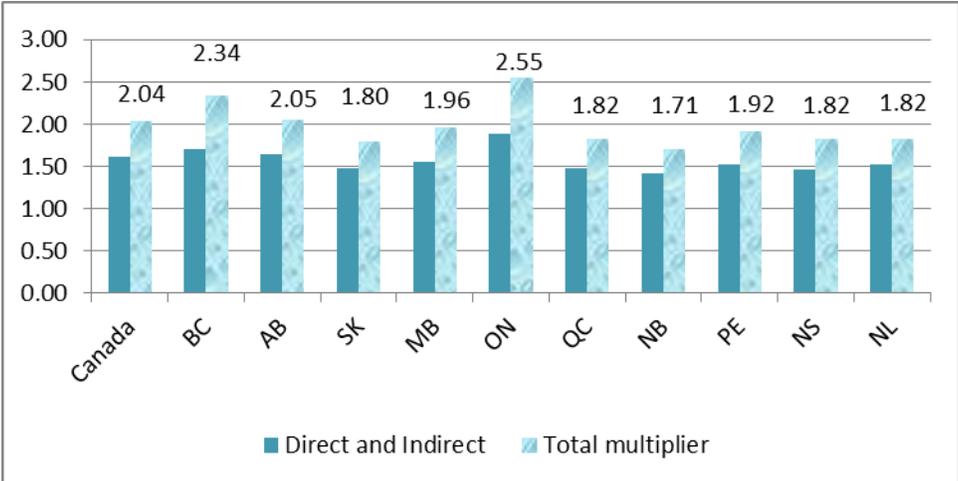
Table 10: Canadian Value Shipped for ATV and SxS Recreational Activities in 2015 (\$Millions)

Cases	Low (10%)				High (8.6%)			
Type of Impacts	Direct	Indirect	Induced	Total	Direct	Indirect	Induced	Total
Metric								
Value Shipped	4,167	2,532	1,800	8,489	5,275	3,219	2,286	10,780

Source: Based on Statistics Canada I/O runs submitted and interpreted by Smith Gunther Associates Ltd. Rows may not add due to rounding.

The sums of the direct, indirect and induced impacts lead to value shipped national multipliers of 1.61 directly and indirectly and 2.04 totally¹³, inclusive of induced demands, shown in the Canada column of Chart 19a. Total multipliers for each jurisdiction are documented numerically in the chart. Similar calculations among the provinces result in the highest total multiplier for Ontario at 2.55 followed by British Columbia at 2.34 and Alberta at 2.05. Because Alberta’s trade performance is dependent on its role in energy supply, it is clearly vulnerable to international price swings in fossil fuels. With the decline in fossil fuel prices since 2015, its 2016 multiplier may become less than indicated here. All other provinces have total value shipped multipliers below the national benchmark.

Chart 19a: 10% Case Value Shipped Multipliers ATV and SxS Recreation (Direct Canadian Stimulus \$4.1 Billion)



Source: Based on Statistics Canada I/O runs submitted and interpreted by Smith Gunther Associates Ltd.

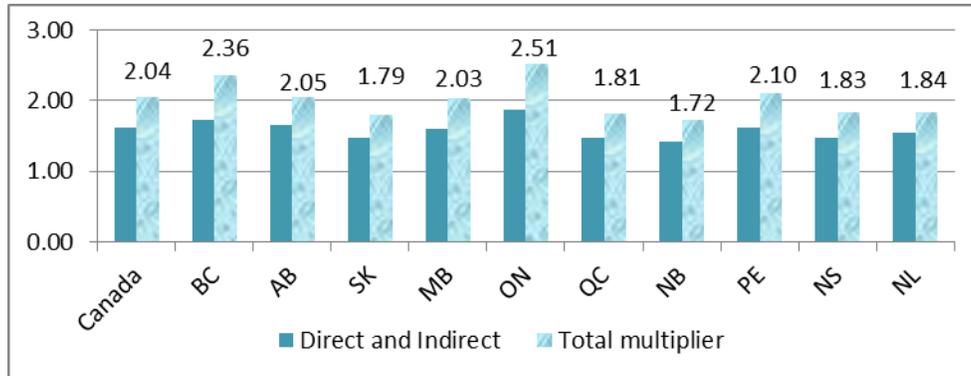
In the 8.6% case, Canadian direct value shipped was \$5.3 billion, direct and indirect value shipped \$8.5 billion and total value shipped \$10.8 billion. These results lead to national multipliers of 1.61 for direct and indirect value shipped and 2.04 for total value shipped of which the total one is documented numerically in Chart 19b. Similar calculations among the provinces result in the highest multiplier for Ontario at 2.51 for total value shipped followed by British Columbia at 2.36 for total value shipped. As in the 10% case, Alberta’s performance at above national results is influenced by fossil fuel prices. With the decline in fossil fuel prices since 2015, its 2016 multiplier may become less than indicated here. All other provinces have total value shipped multipliers below the national benchmark.

Aside from the multipliers for Prince Edward Island where I/O results suffer instability due to its small scale industrialization, the other provincial multipliers are quite similar in both the 10%

¹³ Multipliers are estimated to 16 decimal places and may differ from those readers might derive from those in the text due to rounding.

and 8.6% cases. These multipliers should be used by provinces in establishing provincial value shipped impacts from ATV and SxS recreational activities.

**Chart 19b: 8.6% Case Value Shipped Multipliers ATV and SxS Recreation
(Direct Canadian Stimulus \$5.3 Billion)**



Source: Based on Statistics Canada I/O runs submitted and interpreted by Smith Gunther Associates Ltd.

GDP

The GDP appearing in these charts and hereafter is GDP at basic prices. Because GDP measures only the value added at each stage of production, GDP avoids the multiple counting inherent in value shipped. Table 11 indicates that ATV and SxS expenditures generated direct GDP of \$2.1 billion in the 10% case with another \$1.4 billion occurring indirectly, and another \$1.0 billion from induced expenditures for a total GDP impact of \$4.5 billion. The 8.6% case culminated in total GDP impacts of \$5.8 billion.

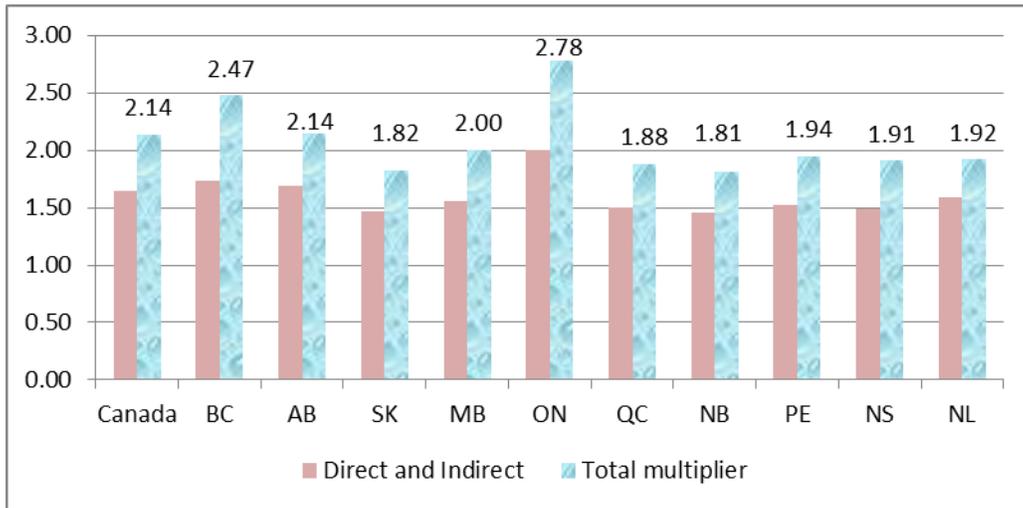
**Table 8: Canadian GDP Generated from ATV and SxS Recreational Activities in 2015
(\$Millions)**

Cases	Low (10%)				High (8.6%)			
	Direct	Indirect	Induced	Total	Direct	Indirect	Induced	Total
Type of Impacts								
Metric								
GDP	2,127	1,372	1,048	4,547	2,704	1,745	1,331	5,780

Source: Based on Statistics Canada I/O runs submitted and interpreted by Smith Gunther Associates Ltd. Rows may not add due to rounding.

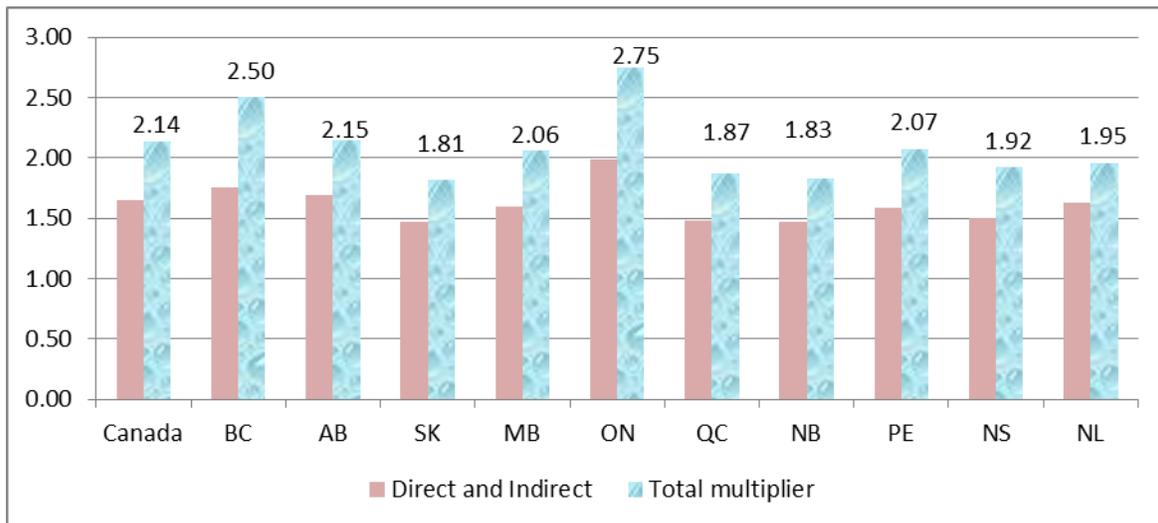
As noted in Charts 20a and 20b, multipliers for GDP are slightly higher than for value shipped. For the 10% and 8.6% cases, direct and indirect GDP impacts were \$3.5 billion and \$4.4 billion respectively, resulting in multipliers for direct and indirect impacts of 1.64 to 1.65 in each case respectively. Total national GDP impacts resulted in similar total multipliers of 2.14 in both cases.

**Chart 20a: 10% Case GDP Multipliers ATV and SxS Recreation
(Direct Canadian Stimulus \$2.1 Billion)**



Source: Based on Statistics Canada I/O runs submitted and interpreted by Smith Gunther Associates Ltd.

**Chart 20b: 8.6% Case GDP ATV and SxS Recreation
(Direct Canadian Stimulus \$2.7 Billion)**



Source: Based on Statistics Canada I/O runs submitted and interpreted by Smith Gunther Associates Ltd.

The provincial ordering of GDP multipliers is similar to those for value shipped. Because a large share of Alberta’s input is concentrated in the fossil fuels sector which is capital intensive and much of the rest of the country is dependent on fossil fuels from there, its GDP multipliers are even with or slightly above Canada’s. Again, aside from Prince Edward Island, the I/O multipliers are similar – stable – between the two cases.

Labour Income

In the 10% case, direct Canadian labour income impacts of \$1.4 billion, net of personal income taxes, generate direct and indirect impacts of \$2.2 billion and total impacts on labour income of \$2.7 billion. In the 8.6% case, direct labour income impacts of \$1.8 billion, net of personal income taxes, generate direct and indirect impacts of \$2.8 billion and total impacts on labour income of \$3.4 billion as indicated in Table 12.

Table 12: Canadian Labour Force Income Generated from ATV and SxS Recreational Activities: 2015 (\$Millions)

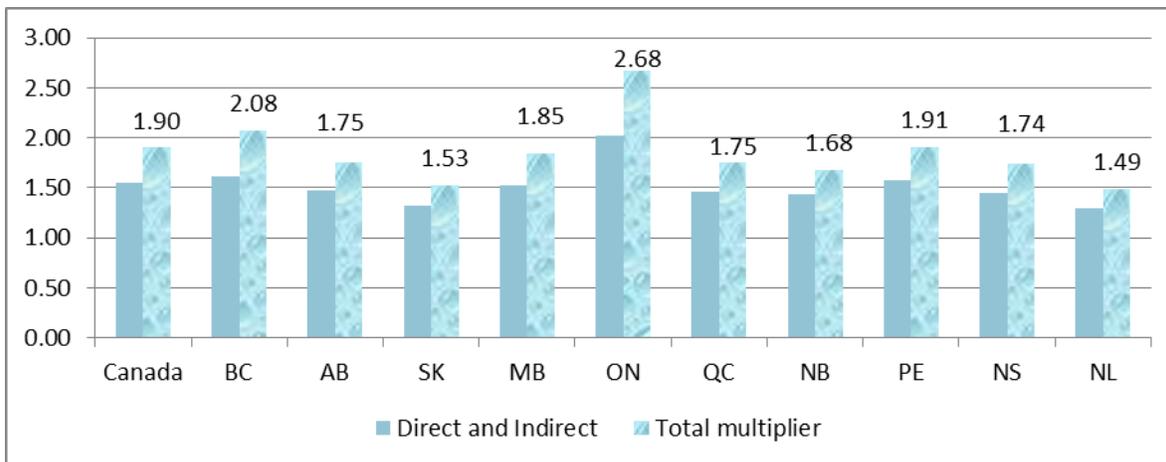
Cases	Low (10%)				High (8.6%)			
	Direct	Indirect	Induced	Total	Direct	Indirect	Induced	Total
Type of Impacts								
Metric								
Labour force income	1,416	780	496	2,693	1,800	989	630	3,419

Source: Based on Statistics Canada I/O runs submitted and interpreted by Smith Gunther Associates Ltd. Rows may not add due to rounding.

The resulting national multipliers for both cases are 1.55 for direct and indirect labour income and 1.90 for total labour income.

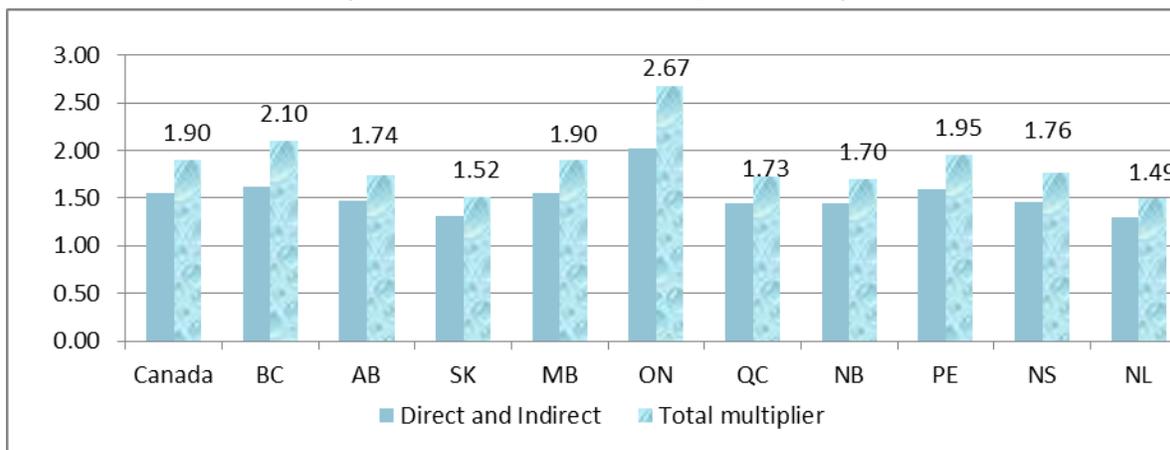
Due to the capital intensive nature of its primary fossil fuel sector and corresponding low labour intensity, Alberta's labour force income multipliers fall below those of the nation, despite higher than average wages and salaries, so that only Ontario's, British Columbia's and Quebec's labour force income multipliers are above national levels as shown in Charts 3a and 3b. Those Quebec sectors impacted indirectly and from induced demands tend to be slightly more labour intensive than those in the rest of the country contributing to its aggregate labour force incomes being above national averages.

**Chart 21a: 10% Case Labour Income Multipliers ATV and SxS Recreation
(Direct Canadian Stimulus \$1.4 Billion)**



Source: Based on Statistics Canada I/O runs submitted and interpreted by Smith Gunther Associates Ltd.

**Chart 21b: 8.6% Case Labour Income Multipliers ATV and SxS Recreation
(Direct Canadian Stimulus \$1.8 Billion)**



Source: Based on Statistics Canada I/O runs submitted and interpreted by Smith Gunther Associates Ltd.

Employment

As mentioned, full-time employment consists of persons who usually work 30 hours or more per week at their main or only job. Equivalence to full-time employment occurs when combinations of part time workers have aggregate hours on the job that equal or exceed 30 hours. Because volunteer time is excluded from the analysis, these results cover paid employment only. In the 10% case, direct employment in supplying goods and services to ATV and SxS activities was 27,385 FTEs with another 11,791 FTEs employed indirectly within the supply chain. Induced employment of 8,753 brings total employment emanating from ATV and

SxS recreational activities to 47,929 FTEs. The less conservative, but more likely estimate from the 8.6% case is 61,213 FTEs broken out among direct, indirect and induced as Table 13. The use of FTEs is conservative. According to the I/O results, the number of jobs, which does not distinguish between part-time and full-time employment, would be 1.142 times the FTE results in this instance.

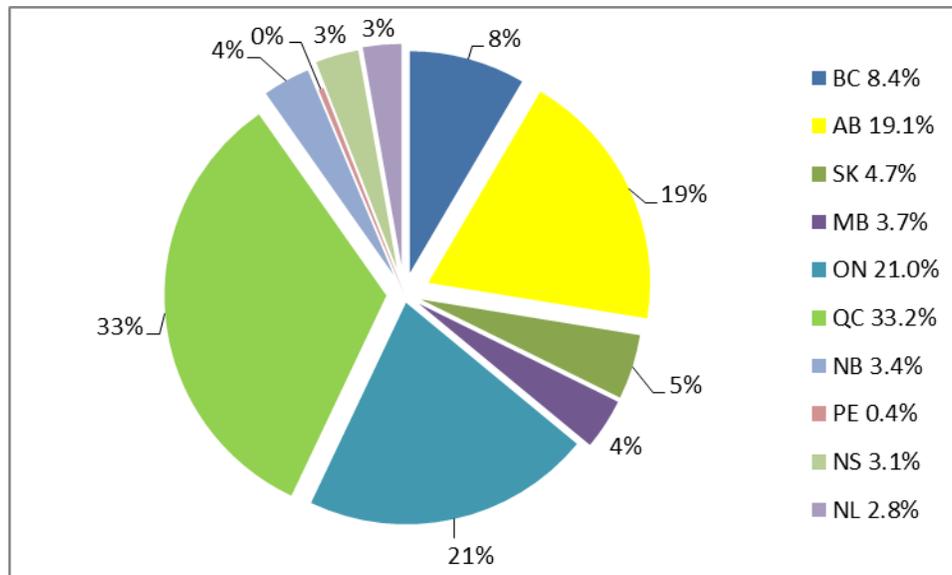
Table 13: Canadian Employment Generated from ATV and SxS Recreational Activities: 2015 (# FTEs)

Cases	Low (10%)				High (8.6%)			
	Direct	Indirect	Induced	Total	Direct	Indirect	Induced	Total
Type of Impacts								
Metric								
Employment	27,385	11,791	8,753	47,929	35,152	14,953	11,108	61,213

Source: Based on Statistics Canada I/O runs submitted and interpreted by Smith Gunther Associates Ltd. Rows may not add due to rounding.

10% case, total employment impacts are distributed among the provinces and territories shown in Chart 22a.

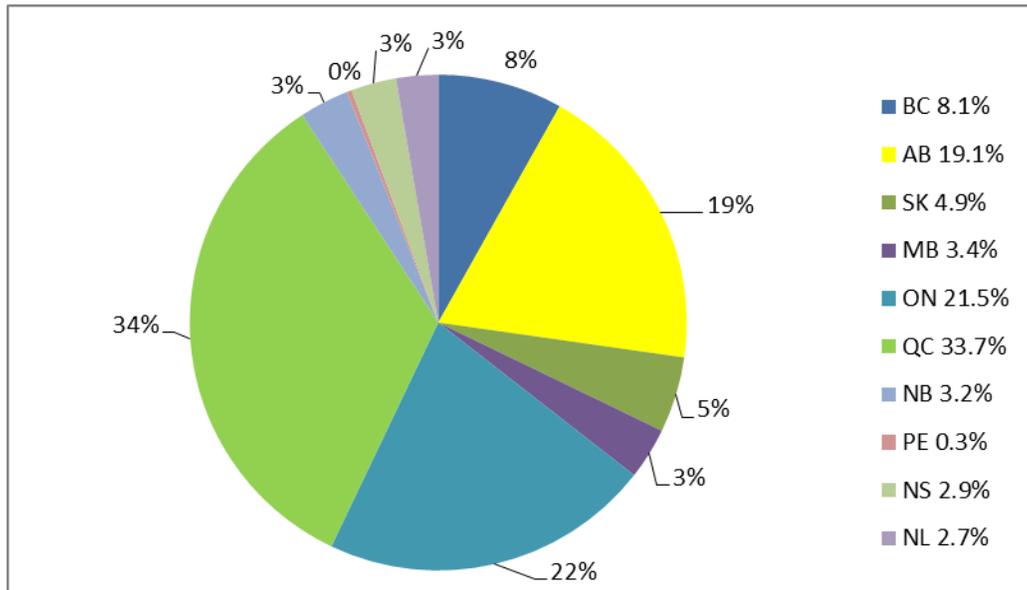
Chart 22a: 10% Case Distribution of Total Full-Time Employment Impacts from ATV and SxS Recreation (Total Canadian Impacts FTEs 47,929)



Source: Based on Statistics Canada I/O runs submitted and interpreted by Smith Gunther Associates Ltd.

Chart 22b illustrates that the provincial distribution of employment is very similar in the 8.6% case to that in the 10% one.

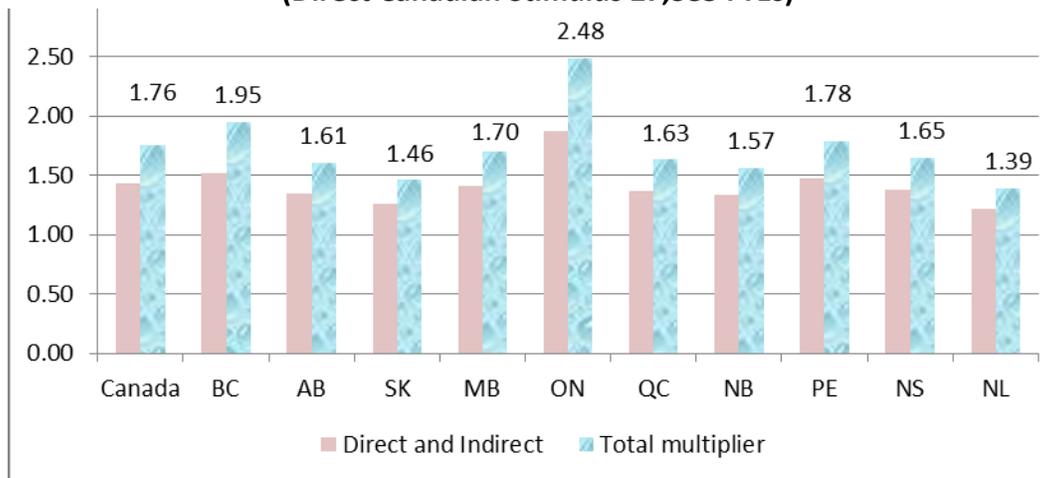
**Chart 22b: 8.6% Case Distribution of Full-Time Employment Impacts ATV and SxS Recreation
(Total Canadian Impacts FTEs 61,213)**



Source: Based on Statistics Canada I/O runs submitted and interpreted by Smith Gunther Associates Ltd.

FTE multipliers for the 10% and 8.6% cases appear in Charts 23a and 23b. In the 10% case, ATV and SxS recreational activities employed 27,385 directly, 39,176 directly and indirectly and 47,929 in total including those employed directly, indirectly and in induced activities. The resulting multipliers for the 10% case were 1.44 directly and indirectly, and 1.76 in total. There is some instability in I/O derived multipliers for small economies so that the high multiplier for Prince Edward Island is a statistical anomaly.

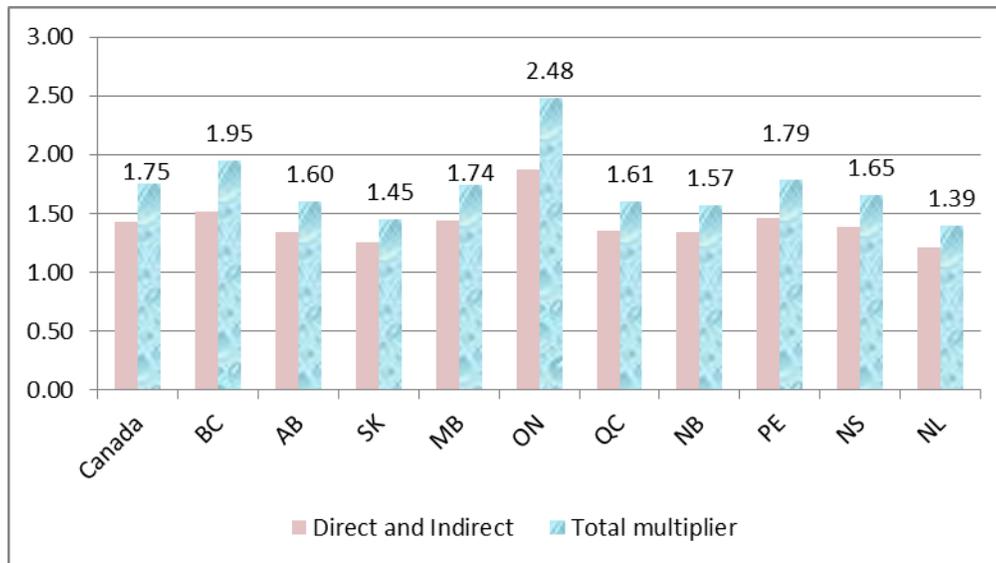
**Chart 23a: 10% Case Full-time Employment Multipliers ATV and SxS Recreation
(Direct Canadian Stimulus 27,385 FTEs)**



Source: Based on Statistics Canada I/O runs submitted and interpreted by Smith Gunther Associates Ltd.

In the 8.6% case, ATV and SxS recreational activities employed 35,152 FTEs directly, 50,105 FTEs directly and indirectly and 61,213 in total including those employed directly indirectly and in induced activities. The resulting national multipliers were 1.44 directly and indirectly and 1.75 in total.

**Chart 23b: 8.6% Case Full-time Employment Multipliers ATV and SxS Recreation
(Direct Canadian Stimulus 35,152 FTEs)**



Source: Based on Statistics Canada I/O runs submitted and interpreted by Smith Gunther Associates Ltd.

Sector Concentration of Employment

For the 10% case, Chart 24a illustrates the sector concentration of direct and indirect employment. The highest percentage concentration is in retail (20%) followed by repair and maintenance (19%) inclusive of not only ATVs and SxSs but also enhancements to vehicles as well as all vehicles deployed in supply chain activities or purchased as part of induced demands and on repair and maintenance of trails. Repair and maintenance is followed by food and accommodations (15%) and finance and real estate at 8%. Employment in these sectors is trailed by employment in manufacturing, transportation, entertainment and wholesale trade and warehousing and administrative services including organizations and similar operations all at 5% to 6%. Professional scientific and technical services including research and development, and education, health, social assistance and business services accounted for 2% to 3% each. Each of the other industries had one percent shares of the direct and indirect employment impacts.

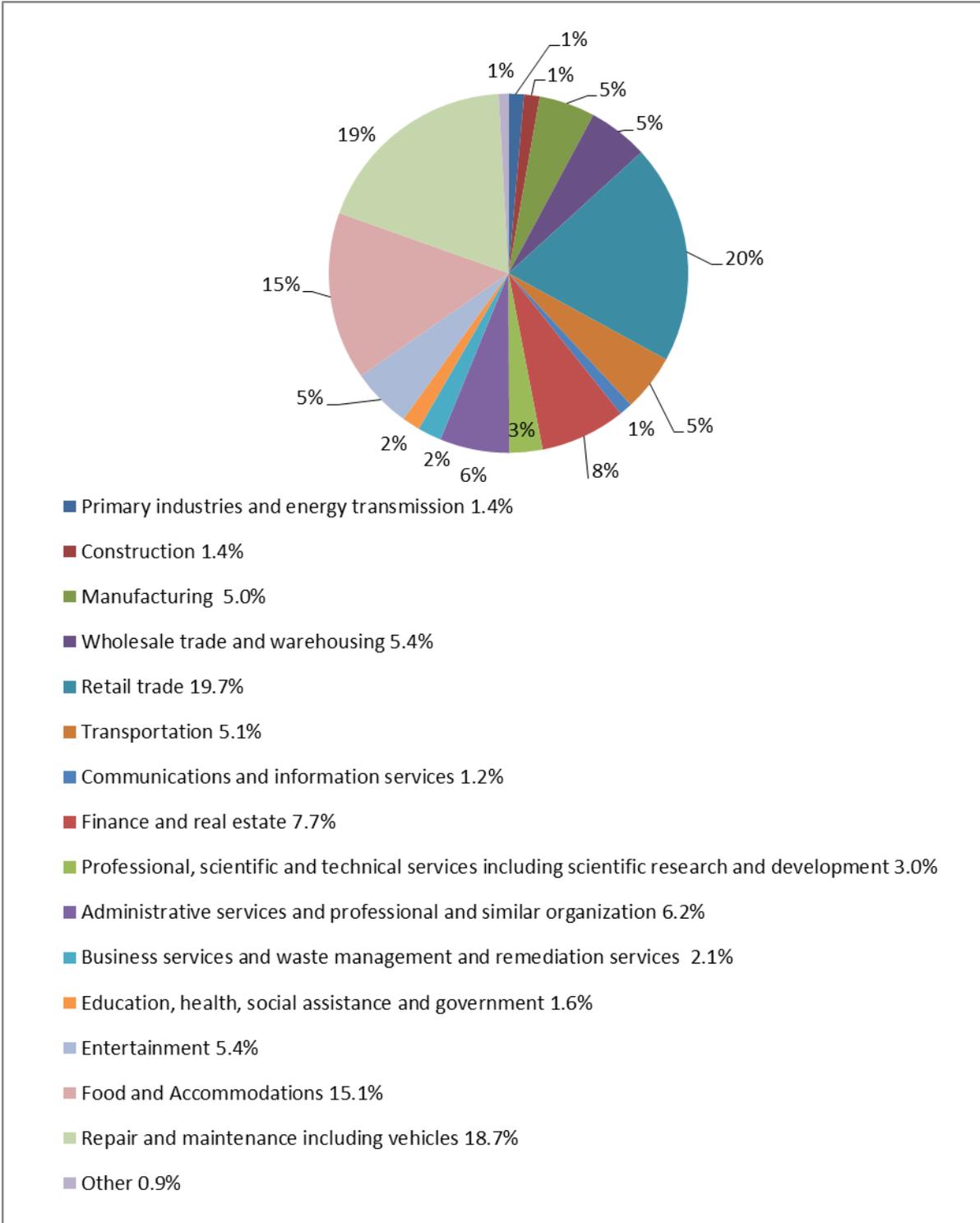
Chart 24b presents the percentage shares for total employment impacts in the 10% case inclusive of induced impacts. General expenditures induced from increased labour force

incomes have more general expenditure patterns relative to those which allow enthusiasts to undertake ATV and SxS activities. Because the two sets of expenditures on the goods and services differ, so will mixes of sectoral employment.

Sector shares for total employment are different from the direct and indirect shares. Decreased shares are experienced by repair and maintenance (-3%), and both entertainment and food and accommodations (-1%). Rounding issues aside, among those increasing shares by a percentage through induced demands were retail, education, health, social assistance, and, other¹⁴.

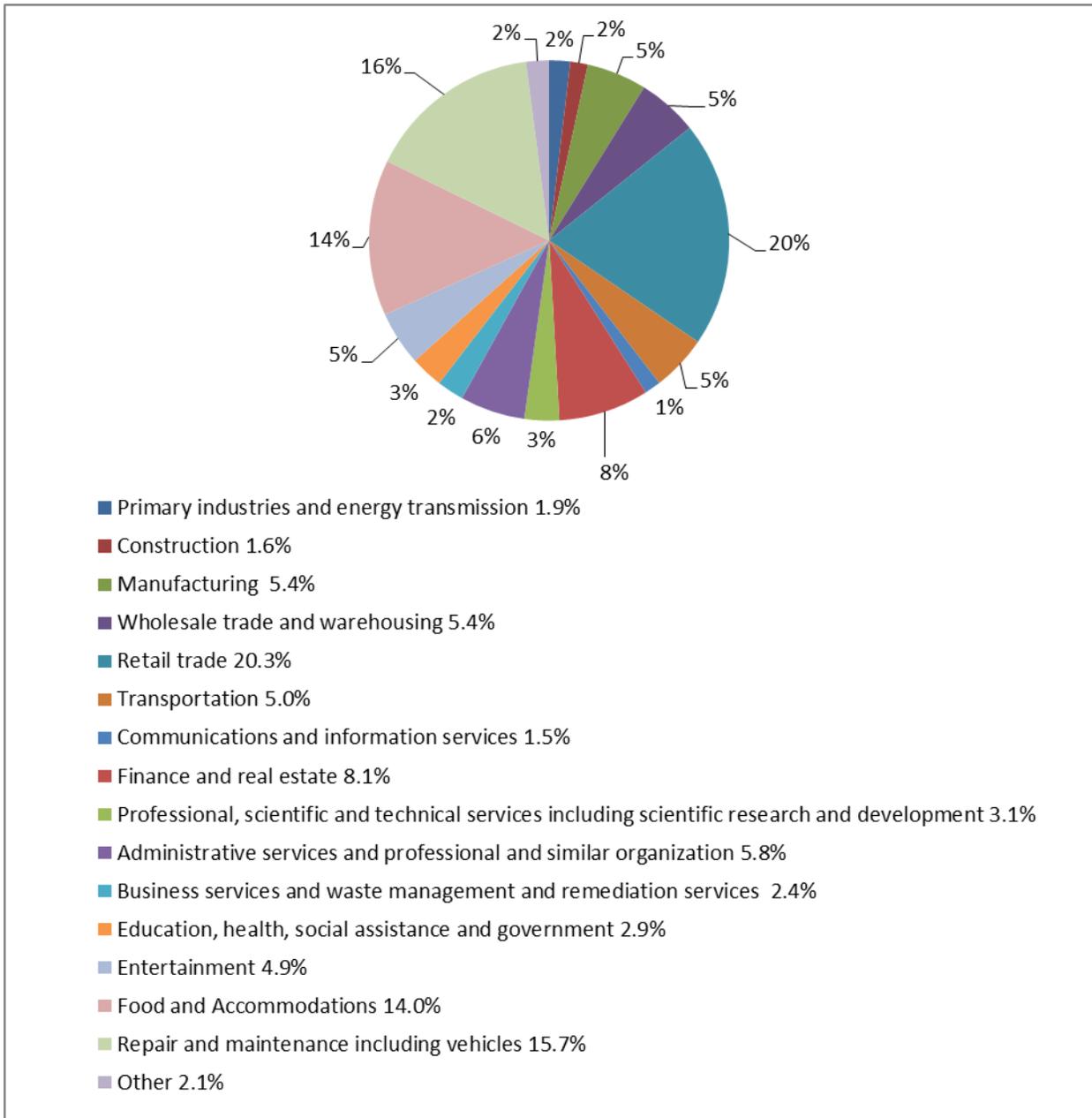
¹⁴ While others appear to be increasing by a percentage in the graphs that optic is attributable to rounding because when the total percentages are subtracted from the direct and induced ones the percentage differences for sectors round down rather than up. Rounding also explains why the sum of the gains does not equal the sum of the losers.

**Chart 24a: 10% Case Sector Shares of Direct and Indirect Employment 2015
(Direct and Indirect Employment 29,176)**



Source: Based on Statistics Canada I/O runs submitted and interpreted by Smith Gunther Associates Ltd.

**Chart 24b: 10% Case Sector Shares of Total Employment 2015
(Total Employment 47,929)**



Source: Based on Statistics Canada I/O runs submitted and interpreted by Smith Gunther Associates Ltd.

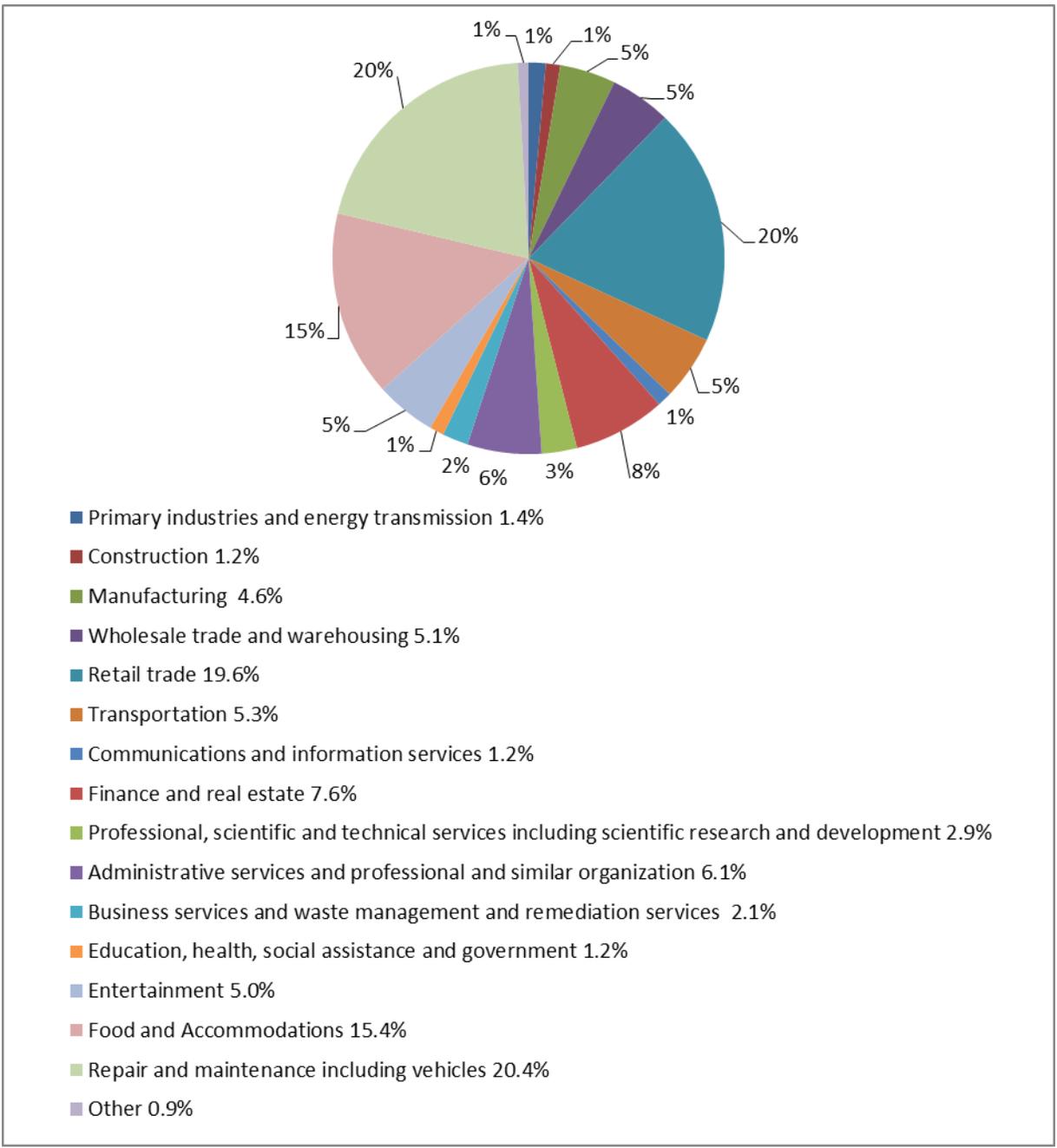
In the 8.6% case, Chart 24c illustrates the sector concentration of direct and indirect employment. The highest percentage concentration is in retail and repair and maintenance each at 20%. Repair and maintenance encompasses not only work on ATVs and SxSs but also repairs to enhanced vehicles as well as all repairs to supply chain activities or purchased as part of induced demands on repair and maintenance of trails. Repair and maintenance is followed by food and accommodations (15%) and finance and real estate (8%). Five other sectors employ 5% to 6% of those employed directly and indirectly in meeting demands of ATV and SxS recreationalists. These sectors include manufacturing, construction, wholesale and warehousing, entertainment and administrative services, et al. Professional and scientific services employed another 3% of the additional employment while other sectors made up 1% to 2% of the additional direct and indirect employment.

Chart 24d presents the percentage shares for total employment impacts in the 8.6% case inclusive of induced impacts. General expenditures induced from increased labour force incomes have more general expenditure patterns relative to those established by enthusiasts for undertake ATV and SxS activities. Because the two sets of expenditures on the goods and services differ, so will mixes of sectoral employment.

Sector shares for total employment are different from the direct and indirect shares. Decreased shares are experienced by repair and maintenance (-3%), and food and accommodations (-1%). Among those increasing shares by a percentage through induced demands were: retail; education, hospitals and social assistance, and “other”¹⁵.

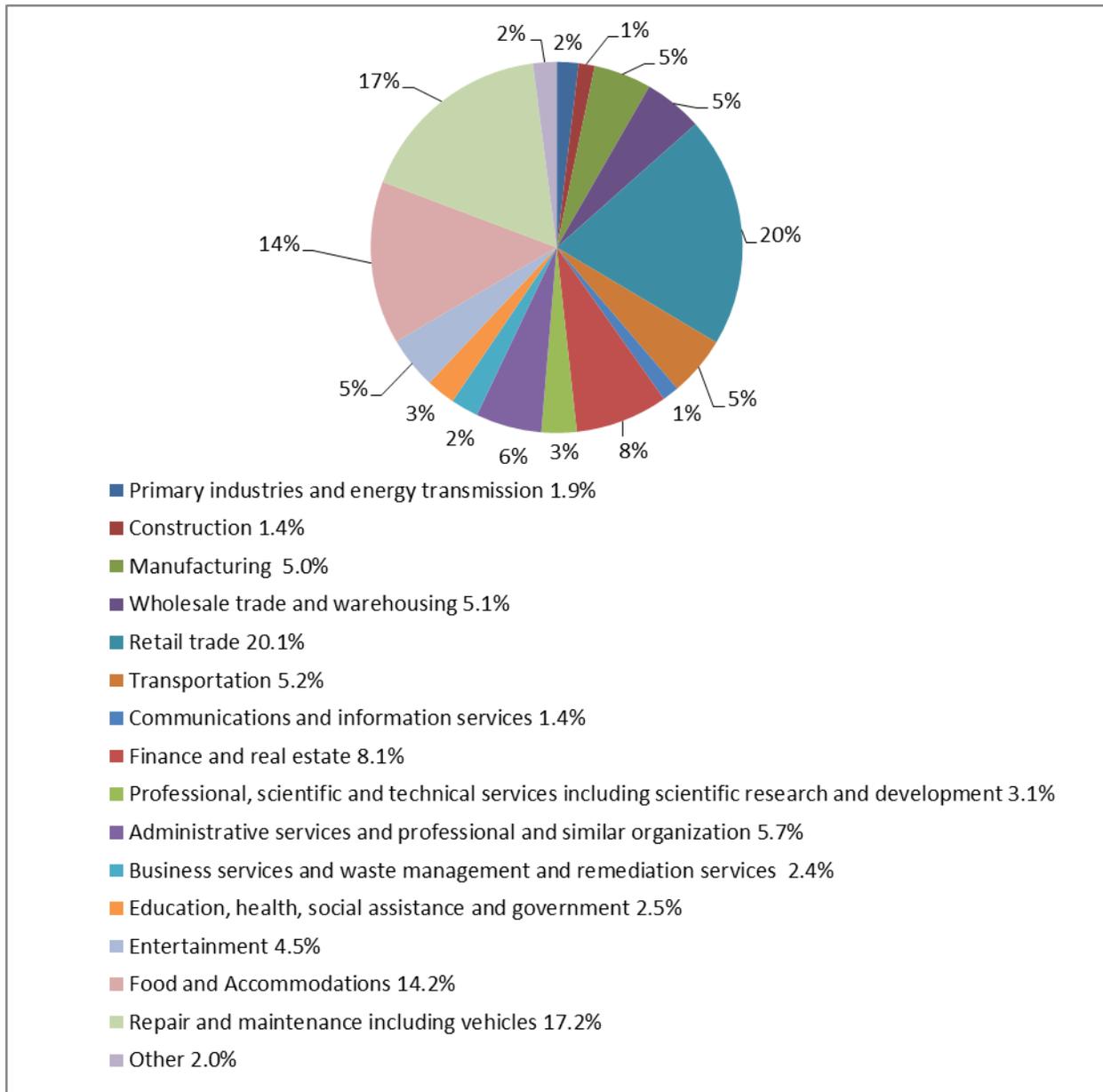
¹⁵ While ‘other’ appears to be increasing by a percentage in the graphs, that optic is attributable to rounding because when the total percentages are subtracted from the direct and induced ones the percentage differences for sectors round down rather than up. Rounding also explains why the sum of the gains does not equal the sum of the losses.

**Chart 24c: 8.6% Case Sector Shares of Direct and Indirect Employment 2015
(Direct and Indirect Employment 50,123)**



Source: Based on Statistics Canada I/O runs submitted and interpreted by Smith Gunther Associates Ltd.

**Chart 24d: 8.6% Case Sector Shares of Direct, Indirect and Induced Employment 2015 FTEs
(Total employment 61,231)**



Source: Based on Statistics Canada I/O runs submitted and interpreted by Smith Gunther Associates Ltd.

Provincial Results

Detailed provincial Impacts are contained in Appendix 2. They confirm that multiplier effects are strongest in provinces where interprovincial exports exceed imports and where industrial linkages within the province are the strongest. Ontario has the strongest overall multipliers followed by British Columbia. Alberta has stronger labour income multipliers and Quebec has strong employment multipliers.

Conclusions

Smith Gunther, with the support of the national and provincial clubs, received excellent responses to its survey of ATV and SxS recreationalists¹⁶. A total of 2,977 responded to Smith Gunther's survey. The respondents provided sufficient information to be confident in provincial level as well as national response. In addition to the survey data, COHV records were useful in providing annual sales of ATVs as well as expertise and guidance in several jurisdictions. Smith Gunther attended Power Sport Services shows in Moncton, Montreal, Toronto, and Abbotsford (catering primarily to British Columbians from the Lower Mainland.) Smith Gunther supplemented information gathered these meetings with telephone calls with club executives. They guided our work and encouraged members to respond to the survey.

In 2015, there was an estimated minimum of 629,609 ATVs and 299,624 SxSs in operation. This minimum estimate is based on an attrition rate of 10% of the current stock of ATVs from 1994 onward when annual sales data were available or could be estimated. Similar adjustments were calculated on SxSs purchased after 2006 when they started being used for recreational purposes. The 10% attrition rate is in-line with similar rates for personal watercraft and snowmobiles and is conservative. Based on Smith Gunther's survey of ATV and SxS owner/riders, an 8.6% attrition rate is more likely. Because attrition rates reflect annual retirement of vehicles, an 8.6% attrition rate means more vehicles remain operational leading to higher estimates of operational ATVs (705,264) and SxSs (432,219). From those provinces where licensing data were available this rate is supported by that data.

Participants in ATV and SxS recreational activities made investments in new and replacement ATVs and SxSs annually, as well as enhanced on-highway vehicles for transporting ATVs and SxS and accommodating themselves, such as trailers, larger vehicles and mobile homes (RVs). In 2015, annual investments, in the economic meaning of new purchases of equipment and machinery, including ATVs, SxSs and related enhanced vehicles reached \$1.1 billion to \$1.2 billion before depreciation shown in Table 14. Since this data reflects purchases of new ATVs and SxSs, the numbers are not affected by rates of attrition. Investments in enhanced on-highway vehicles are affected in that fewer or more vehicles are required to transport the newly purchased stock as well as the stock still in operation. In the low case (10% attrition), fewer ATVs and SxSs are still in operation therefore fewer enhanced vehicles are required and less is spent on replacing them. The opposite is true in the high case (8.6%).

¹⁶ This report is based largely on metrics from actual gate receipts at ATV and SxS shows operated by Power Sport Services, Smith Gunther survey results from 2,977 members of ATV and SxS clubs, and ATV sales data provided by Canadian Off-Highway Vehicle Distributors Council (COHV). The sample size is nearly three times the size relied on for national political and consumer polling is highly significant and sufficient for provincial level analysis.

Table 14: 2015 Investments in ATVs and SxSs (\$1,000s)

Items\Cases	Low (10%)	High (8.6%)
ATVs	643,776	643,776
SxSs	378,628	378,628
Enhanced on-highway vehicles	84,100	159,400
Total	1,106,504	1,181,804

Sources: Smith Gunther Associates Ltd. based on annual sales data of ATVs and survey data for SxSs.

Further, annual operating expenditures amounted to an additional \$5.0 billion to \$6.7 billion bringing 2015 direct investment and operating expenditures to \$6.2 billion to \$7.9 billion. Table 15 summarizes 2015 key operating expenditures by ATV and SxS recreationalists for the 8.6% and the 10% cases. Because the number of ATVs and SxSs differ in the two cases and affects each type of direct operating expenditure, the gap between both cases' direct operating expenditures widens relative to the investment one where only the enhancement of on-highway vehicles associated with ATV and SxS recreation was impacted.

Table 15: 2015 Key Operating Expenditures in ATV and SxS Activities (\$millions)

Operating Expenditures\Cases	Low (10%)	High (8.6%)
Repair & maintenance	1,142.7	1,513.6
Gasoline for ATVs and SxSs	724	948
Food and beverages	652	837
Casualty & liability insurance	568	773
Accommodation excluding RV expenditures	334	378
Ground transportation	177	228
Club & trail fess	445	534
Entertainment	196	226
Other	85	306
Total included in further analysis	4,324	5,743
Licenses	99	123
Volunteer time*	584	858
Excluded from further analysis	683	981
Total	5,007	6,724

Sources: Smith Gunther Associates Ltd. based on annual sales data of ATVs and survey data for SxSs.

Notes: *The survey established the amount of volunteer time by province which was extrapolated to cover provincial ATV and SxS recreationalists and evaluated at 40% of average hourly wages and salary rates in each province in line with standard practices for benefit-cost analysis.

Total expenditures impacted total value shipped – the sum of the value shipped – by \$8.5 billion to \$10.8 billion. These expenditures all contributed to improved national economic performance. But, as explained in the value shipped section, total value shipped includes raw materials and many other inputs being counted several times, which must be taken into account when considering use of this economic indicator.

Combined, the investment and operating expenditure data have annual impacts of \$6.1 billion to \$7.9 billion of which licenses and volunteer time are outside of Statistics Canada’s analytical framework as discussed later in the report, so that the total expenditures included in the analysis are \$5.5 billion in the 10% case and \$6.9 billion in the 8.6% one¹⁷.

These expenditures all contributed to improved national economic performance. Table 16 summarizes other key national economic impacts, presented in greater detail in the text. Direct and indirect impacts occur among Canadian suppliers of goods and services purchased by ATV and SxS recreationalists and of the inputs into them, and inputs into inputs ad infinitum. The first three columns provide impact data on the 10% case and the last three on the 8.6% case.

Direct and indirect domestic expenditures occur in Canada by Canadian riders of ATVs and SxSs. As noted above through its survey and COHV provided data on sales, Smith Gunther has established domestic expenditures by ATV and SxS recreationalists in Canada and its provinces. Due to a lack of data, these numbers do not cover expenditures by foreigners riding in Canada.

¹⁷ Because volunteer time is outside of Statistics Canada’s I/O, this estimate sets aside the value of volunteer time, worth \$554 to \$858 million annually. Further because there are no linkages to annual licensing fees of \$99 to \$123 million, they too are set aside. Included expenditures encompass those on new ATVs, gear, special clothing e.g. helmets and goggles; operating expenses e.g. gasoline and paid repair and maintenance for ATVs and SxSs; accommodations (camping, hotel and motels and recreational vehicles (RVs)); and travel to and from ATV and SxS events including any upgrades to cars, trucks and trailers to facilitate ATV and SxS recreational activities; and, related membership fees in clubs and associations.

Table 16: Key 2015 National Economic Impacts of ATV and SxS in Canada 10% and 8.6% Cases (\$1,000 Unless Otherwise Noted)

Cases Metric\Type of Impacts	Low (10%)			High (8.6%)		
	Direct & Indirect	Induced	Total	Direct & Indirect	Induced	Total
Domestic Expenditures	5,501,040*	1,535,382	7,036,422	6,916,210	1,949,127	8,865,337
GDP	3,499,414	1,048,263	4,547,676	4,449,224	1,330,685	5,779,909
Labour income	2,196,606	496,336	2,692,942	2,788,907	630,377	3,419,283
Employment (# FTEs)	39,176	8,753	47,929	50,105	11,108	61,213
Total taxes	1,223,151	317,492	1,540,643	1,499,664	393,081	1,892,746
Taxes on products	669,984	152,925	822,909	848,855	193,918	1,042,773
Taxes on production	135,167	81,099	216,266	171,809	103,293	275,101
Income taxes	418,000	83,469	501,469	479,000	95,871	574,871

Source: Based on Statistics Canada I/O runs submitted and interpreted by Smith Gunther Associates Ltd.

Note: *Because direct expenditures provide the total impetus for this analysis there are no indirect domestic expenditures. All rows and tax columns may not add due to rounding. Direct and indirect economic activities occur within Canadian supply lines of goods and services purchased by ATV and SxS recreationalists. Given the inclusion of indirect expenditures and other statistical adjustments, "Domestic Expenditures" are similar but not equal to the sum of direct expenditures from the first two tables.

In the 10% case, direct and indirect domestic expenditures of \$5.5 billion, net of product and production taxes and imports net of exports but including subsidies, add \$3.5 billion to direct and indirect Gross Domestic Product (GDP). GDP is inclusive of direct and indirect labour force income of \$2.2 billion attracting employment measured as 39,176 full-time equivalents (FTEs). The case generates another \$1.2 billion in various direct and indirect taxes.

In the 8.6% case, direct and indirect domestic expenditures of \$6.9 million - net of product and production taxes, and imports net of exports but including subsidies - add \$4.4 billion to direct and indirect Gross Domestic Product (GDP). GDP is inclusive of direct and indirect labour force income of \$2.8 billion and employment measured as 50,105 full time equivalents (FTEs). This 8.6% case generates another \$1.5 billion in the various direct and indirect taxes, specified in the last three lines.

Adding the induced impacts to the direct and indirect impacts yields total impacts. The totals in the above table size Canadian ATV and SxS activities in Canada in the range of domestic expenditures for the 10% and 8.6% cases in the range of \$7.0 billion to \$8.8 billion generating

GDP of \$4.5 billion to \$5.8 billion including labour force incomes of \$2.7 billion to \$3.4 billion. Taxes revenues as a result of ATV and SxS expenditures yield \$1.5 billion to \$1.9 billion. Further these activities and related expenditures generate fuller employment by 47,921 to 61,213 FTEs¹⁸.

In the 10% case, total employment impacts were concentrated in retail (20%), paid repair and maintenance (16%), food and accommodations, (14%) and finance and real estate (8%). Other sectors attracting 5% or more of total employment were; administrative services and other similar organizations, manufacturing, wholesaling and warehousing, transportation, and entertainment services. Professional and scientific services including research and development made up another 3% of additional employment.

In the 8.6% case, total employment impacts were concentrated in retail (20%), paid repair and maintenance (17%), food and accommodations, (14%) and finance and real estate (8%). Other sectors attracting 5% or more of total employment were administrative services and other similar organizations, manufacturing, wholesaling and warehousing, and transportation services. Professional and scientific services including research and development made up another 3% of additional employment.

Multipliers, defined here as ratios of total impacts relative to their direct expenditure, were generally higher for those provinces with positive interprovincial trade balances, especially Ontario and British Columbia. The high capital intensity and low labour intensities of fossil fuel production meant that Alberta's multipliers were above the national one for GDP, but below national ones in employment and labour income, despite its relatively high wage and salary levels among provinces in 2015.

When considering Canada's industry as a whole, the provincial multipliers in this report should be utilized. When considering the industry solely from a provincial perspective, those with net interprovincial trade gains, namely Ontario and British Columbia, would no longer benefit from enhanced provincial impacts, and in this case national multipliers should be used. Multipliers from all other provinces would not be affected because they are not greatly impacted by net trade gains.

Detailed level results of provincial impacts are contained in the Appendix 2 of this report. They confirm that multiplier effects are strongest in provinces which are net beneficiaries of interprovincial trade and where industrial linkages within the province are the strongest. Ontario has the strongest overall multipliers followed by British Columbia. Alberta benefits

¹⁸ To convert national FTEs generated from ATV and SxS recreation to jobs multiply the FTEs by 1.142. Warning: these ratios do differ between the nation and provinces and among the provinces.

from strong value shipped and GDP multipliers and Quebec has above national employment and labour force income multipliers.

Because volunteer time is not covered within the I/O framework and licensing fees are not recycled back into ATV and SxS impacts, Smith Gunther has set aside direct volunteer time valued at \$554 to \$858 million in the 10% and 8.6% cases respectively as well as annual licensing fees of \$99 to \$123 million. Inclusion of these expenditures would have enhanced the impacts from ATV and SxS recreational activities. In particular, inclusion of volunteer time would add \$1.1 to \$1.7 billion to total values shipped.

Appendix 1: Smith Gunther Survey of Riders

Background on Questionnaire

The following questionnaire was made available electronically to all ATV and SxS recreationalist from February 10, 2016 until May15, 2016 with an extended deadline. All but a handful of the 2977 respondents completed the entire questionnaire. Of 2,946 respondents, 1,607 owned one or more ATVs but no SxSs; 644 owned one or more SxSs and no ATVs; while 695 owned a mix of ATVs and SxSs. Given multiple OFHV ownership by responding households, total ownership covered at least 3,800 ATVs and 1,971 SxSs.

Of the 2977 respondents, 2,447 completed the questionnaire within the advertised 15 minutes albeit some took considerably longer so that the average time of completion was 28 minutes. From our conversations with those struggling to complete it, the main stumbling block was not the key content but their postal code information. That problem can be overcome in the future by reminding respondents of which postal code cells are alpha or numeric – especially “Os” and zeros got mixed up.

Due to the unparalleled efforts by provincial leaders in encouraging their members to participate in the survey, the returns in Table A1.1 are sufficiently robust for Smith Gunther to generate parallel summaries for each province but Newfoundland. Because Newfoundland returns were weak, data for that province approximated as Maritime averages weighted by the stock of ATVs and SxSs in Newfoundland. Similarly, national averages weighted by their small stocks have been used for the Territories.

Table A1.1: Survey Responses by Jurisdiction

Jurisdiction	Respondents #
British Columbia	578
Alberta	232
Saskatchewan	42
Manitoba	149
Ontario	399
Quebec	477
New Brunswick	622
Prince Edward Island	96
Nova Scotia	371
Newfoundland	5
North West Territories & Nunavut	1
Yukon	1
USA	2
ELSEWHERE	2

Smith Gunther Survey

INTRO

Not only are recreational off-highway vehicles fun, they're also a great contributor to Canada's economy.

The Canadian Off-Highway Vehicle Distributors Council needs your help in conducting a nationwide survey to determine just how significant this contribution is. Please help us figure this out by completing the attached survey.

The survey will collect information on the economic contribution made by Recreational Off-Highway Vehicles (ROVs) – specifically ATVs (quads) and side-by-sides - as well as related activities. While overall survey results will be shared with government, trail-user groups, municipalities, and other stakeholders to support the growth of the sport, be assured that all individual responses will remain confidential.

It should take about 15 minutes.

Our deadline is April 30, 2016.

Please complete it to the best of your ability and send the survey to:

Smith Gunther Associates Ltd.

10 Armagh Way

Nepean ON, K2J 4C3

Or, for your convenience, electronic copies are available from pgunther@bellnet.ca.

If there are questions or concerns, please contact Sally Smith of Smith Gunther Associates at 613-464-1456 or sals@superaje.com or Peter E. Gunther at pgunther@bellnet.ca.

Thanks for your assistance.

NO.	Question	Response
Q1	Number of Recreational Off-Highway Vehicles (ROVs) in the family Q1a. Side-by-sides;----- ----- Q1b. ATVs (quads);----- -----	#

2Q2	Number of family members participating in ROV activities	#
-----	--	---

4Q3	How long has each ROV owned by your family been ridden?						
		Side by sides			Oldest _____		
		Years	Not applicable	Don't know	Years	Not applicable	Don't know
Newest ROV _____							
2 nd newest ROV _____							
3 rd newest ROV _____							
4 th newest ROV _____							
Oldest ROV _____							

	Repair and maintenance (excluding gasoline) as spent dollars;	\$ _____
	Repair and maintenance (excluding gasoline) as volunteer time in 2015	Days _____
	Gasoline consumed by ROV in 2015	\$ _____
	Average off-road distances ridden per ROV in 2015 (km)	Km _____
	Average per person spending on lunches, dinners, snacks and other food and beverage services in 2015	\$ _____

	Fees in 2015:	\$ _____
	Average fees to events, other than the show	a) _____
	For Club membership	b) _____
	For trail use	c) _____
	Licenses	d) _____
	Casualty insurance	e) _____
	Liability insurance	f) _____
	Other (Please specify)	g) _____

	Number of ROV events attended in 2015 in order to:	#
	Compete	a) _____
	Officiate	b) _____
	Watch	c) _____

	Average distances from residence to each event attended (km)	Km _____
--	--	----------

	Your residential postal code	
--	------------------------------	--

	Related to ROV events, accommodation and nights stayed in each in 2015:	# Nights
	Cabin	a) _____
	Motel	b) _____
	Hotel	c) _____
	Bed and Breakfast	d) _____
	Tent	e) _____
	Mobile home	f) _____
	Stay with friends	g) _____
	Other	h) _____

	Major reasons for participating in ROV (Tick all that apply)	√
	Enjoying the outdoors	a) _____
	Hunting	b) _____
	Fishing	c) _____
	Camaraderie	d) _____
	Exploring	e) _____

Many individuals and families invest or make capital expenses in vehicles to transport themselves and ROVs to various ROV events or trailheads. As part of the economic impact we are interested in those additional capital and operating expenditures related to transportation to ROV events or trailheads incurred in 2015. For example, if you would otherwise drive a smaller vehicle, but instead drive a half-ton or bigger truck to facilitate ROV activities, what is the difference between the higher purchase price of the truck rather than of the smaller vehicle. Similarly, for mobile homes and trailers used primarily to get to ROV trailheads and events. The second part of this question has to do with any additional operation or maintenance on the above vehicle.

For example: If you purchased a \$25,000 truck to transport your ROV and without your ROV you would have purchased an \$18,000 car, the additional capital expense would be \$7,000. If your annual gas and tune-ups on the larger vehicle are \$8,000 and on a smaller vehicle would be \$4,500, the additional operating expense would be \$3,500.

Do you normally travel to ROV events or trailheads using transportation other than an ROV:	Yes ___: No ___
If yes, additional capital expense of having these vehicles/trailers/mobile homes (please see explanation above)	\$ _____
If yes, additional operating expense of having these vehicles/trailers/mobile homes (please see explanation above)	\$ _____

Smith Gunther Associates Ltd. for the Canadian Off-Highway Vehicle Distributors Council

Please mail or email to:

Sally Smith
 Smith Gunther Associates Ltd
 10 Armagh Way
 Nepean, ON, K2J 4C3
sals@superaje.com

Appendix 2: Provincial and Territorial Economic Snapshots

British Columbia

In 2015, British Columbians operated an estimated minimum of 48,217 ATVs and 22,926 SxSs. This estimate is based on an attrition rate of 10% of the current and previous years' stocks of ATVs and on SxSs purchased after 2006 when they started being deployed for recreational purposes. With a rate of attrition of 8.6%, more vehicles remain operational - ATVs (53,399) and SxSs (32,051). The Smith Gunther survey results suggest the case based on the 8.6%, but the 10% case is more in line with attrition rates in studies of personal watercraft and snowmobiles.

Participants in ATV and SxS recreational activities made investments in new and replacement ATVs and SxSs annually, as well as enhanced on-highway vehicles for transporting ATVs and SxSs and accommodations for themselves, such as trailers, larger vehicles and mobile homes (RVs)¹⁹. During 2015, annual investments, in the economic meaning of new purchases of equipment, in ATVs, SxSs and related enhanced vehicles reached \$94 million to \$100 million shown in Table BC-1, before depreciation. Since this data reflects purchases of new ATVs and SxSs, the numbers are not affected by rates of attrition. Investments in enhanced on-highway vehicles are affected in that fewer or more vehicles are required to transport the newly purchased stock as well as the stock still in operation. In the 10% case, fewer ATVs and SxSs are still in operation therefore fewer enhanced vehicles are required and less is spent on replacing them. The opposite is true in the 8.6% case.

Table BC-1: British Columbia 2015 Investments in ATVs and SxSs (\$1,000s)

Items\Cases	Low (10%)	High (8.6%)
ATVs	50,708	50,708
SxSs	37,584	37,584
Enhanced on-highway vehicles	6,100	11,300
Total	94,392	99,592

Sources: Smith Gunther Associates Ltd. based on annual sales data of ATVs and survey data for SxSs.

¹⁹ **Recreational Vehicle (RV)** is used narrowly herein to include only mobile homes

Table BC-2 summarizes 2015 expenditures by ATV and SxS recreationalists for both cases. Annual British Columbia direct operating expenditures amounted to an additional \$305 million to \$403 million.

Because the number of ATVs and SxSs in operation differs in the 10% and high cases and affects each type of direct operating expenditure, the gap between both cases' direct operating expenditures widens relative to direct investment where only the enhancement of on-highway vehicles associated with ATV and SxS recreation was impacted.

Table BC-2: 2015 Key British Columbia Operating Expenditures in ATV and SxS Activities (\$1,000s)

Operating Expenditures\Cases	Low (10%)	High (8.6%)
Repair & maintenance	69,237	88,818
Gasoline for ATVs and SxSs	51,077	66,485
Food and beverages	40,697	51,013
Casualty & liability insurance	37,246	48,614
Accommodation excluding RV expenditures	16,758	24,043
Ground transportation	5,250	6,808
Club & trail fees	6,014	7,119
Entertainment	6,389	7,626
Other	33,220	47,950
Total included in further analysis	265,886	348,476
Licenses	10,329	13,004
Volunteer time*	28,998	41,274
Excluded from further analysis	39,328	54,278
Total	305,213	402,754

Sources: Smith Gunther Associates Ltd. based on annual sales data of ATVs and survey data for SxSs.

Note: *The survey established the amount of volunteer time by province which was extrapolated to cover all provincial ATV and SxS recreationalists and assessed at 40% of average hourly wages and salary rates in each province in line with standard practices for benefit-cost analysis.

Combined investment and operating expenditure data (Totals in Tables BC-1 and BC-2) have annual impacts of \$400 million to \$502 million of which licenses and volunteer time are outside of Statistics Canada's analytical framework, so that the total direct operating and investment

expenditures included in the analysis are \$361 million in the 10% case and \$448 million in the high one²⁰.

These expenditures all contributed to improved provincial economic performance. Table BC-3 contains key British Columbia direct and indirect, induced, and total economic impacts. Direct and indirect impacts arise from ATV and SxS recreational purchases in British Columbia. The direct and indirect economic activities occur within British Columbian supply lines of goods and services purchased by ATV and SxS recreationalists. The first three columns provide impact data on the 10% case and the last three on the 8.6% case.

Table BC-3: Impact of ATV and SxS Recreational Activities in British Columbia

(\$1,000s unless otherwise stated*)

Cases	Low (10%)			High (8.6%)		
	Direct & Indirect	Induced	Total	Direct & Indirect	Induced	Total
Type of Impacts						
Metric						
Domestic Expenditures	364,797	132,898	497,695	449,614	161,913	611,527
GDP	240,320	101,682	342,002	292,914	125,202	418,116
Labour income	165,586	47,765	213,351	201,082	59,023	260,105
Employment (# of FTEs)*	3,216	921	4,138	3,954	1,139	5,093
Total taxes	96,083	29,590	125,673	113,961	35,116	149,077
Taxes on products	50,224	13,146	63,370	62,287	16,049	78,336
Taxes on production	8,934	5,792	14,726	10,908	7,101	18,009
Income taxes	36,926	10,652	47,577	40,766	11,966	52,731

Source: Based on Statistics Canada I/O runs submitted and interpreted by Smith Gunther Associates Ltd.

Note: Direct and indirect impacts arise from ATV and SxS recreational purchases in British Columbia. Direct and indirect economic activities occur within British Columbia supply lines of goods and services purchased by ATV and SxS recreationalists. Given the inclusion of indirect expenditures and other statistical adjustments, "Domestic Expenditures" are similar but not equal to the sum of direct expenditures from the first two tables.

Direct and indirect domestic expenditures occur in British Columbia from expenditures made by Canadian riders of ATVs and SxSs. These data do not cover expenditures by foreign riders.

In the 10% case, direct and indirect domestic expenditures of \$365 million - net of product and production taxes, and imports net of exports but including subsidies - add \$240 million to direct and indirect Gross Domestic Product (GDP). GDP is inclusive of direct and indirect labour force income of \$166 million and employment measured as 3,216 full time equivalents (FTEs). The case generates another \$96 million in the various direct and indirect taxes, specified in the last three lines.

²⁰ Equal to combined expenditures less the line of BC-2.

In the 8.6% case, direct and indirect domestic expenditures of \$450 million - net of product and production taxes, and imports net of exports but including subsidies - add \$293 million to direct and indirect Gross Domestic Product (GDP). GDP is inclusive of direct and indirect labour force income of \$166 million and employment measured as 3,954 full-time equivalents (FTEs). This case generates another \$114 million in the various direct and indirect taxes, specified in the last three lines.

Net of income taxes and usually minor savings, incremental labour force incomes facilitate additional consumption which yield induced impacts, documented in the second and fifth columns. Added to the direct and indirect impacts these result in the total impacts in columns 3 and 6.

Total impacts in the above table size British Columbia ATV and SxS activities in the range of domestic expenditures of \$498 million to \$612 million generating GDP of \$342 million to \$418 million including labour force incomes of \$213 million to \$260 million. Tax revenues as a result of ATV and SxS expenditures yield \$126 million to \$149 million. Further, these activities and related expenditures generate fuller employment by 4,138 to 5,093 FTEs²¹.

²¹ FTEs in British Columbia can be converted to jobs by multiplying its FTEs by 1.169.

Alberta

In 2015, Albertans operated an estimated minimum of 114,221 ATVs and 80,516 SxSs. This estimate is based on an attrition rate of 10% of the current and previous years' stocks of ATVs and on SxSs purchased after 2006 when they started being deployed for recreational purposes. With a rate of attrition of 8.6%, more vehicles remain operational - ATVs (127,406) and SxSs (104,269). The Smith Gunther survey results suggest the case based on the 8.6%, but the 10% case is more in line with attrition rates in studies of personal watercraft and snowmobiles.

Participants in ATV and SxS recreational activities made investments in new and replacement ATVs and SxSs annually, as well as enhanced on-highway vehicles for transporting ATVs and SxSs and accommodations for themselves, such as trailers, larger vehicles and mobile homes (RVs)²². During 2015, annual investments, in the economic meaning of new purchases of equipment, in ATVs, SxSs and related enhanced vehicles reached \$232 million to \$265 million shown in Table AB-1, before depreciation. Since this data reflects purchases of new ATVs and SxSs, the numbers are not affected by rates of attrition. Investments in enhanced on-highway vehicles are affected in that fewer or more vehicles are required to transport the newly purchased stock as well as the stock still in operation. In the 10% case, fewer ATVs and SxSs are still in operation therefore fewer enhanced vehicles are required and less is spent on replacing them. The opposite is true in the 8.6% case.

Table AB-1: 2015 Alberta Investments in ATVs and SxSs (\$1,000s)

Items\Cases	Low (10%)	High (8.6%)
ATVs	95,849	95,849
SxSs	100,178	100,178
Enhanced on-highway vehicles	36,200	68,800
Total	232,227	264,827

Sources: Smith Gunther Associates Ltd. based on annual sales data of ATVs and survey data for SxSs.

Table AB-2 summarizes 2015 direct operating expenditures by ATV and SxS recreationalists for both cases. Annual Alberta direct operating expenditures amounted to an additional \$1.1 billion to \$1.5 billion.

²² **Recreational Vehicle (RV)** is used narrowly herein to include only mobile homes

Because the number of ATVs and SxSs in operation differs in the 10% and 8.6% cases and affects each type of direct operating expenditure, the gap between both cases' direct operating expenditures widens relative to direct investments where only the enhancement of on-highway vehicles associated with ATV and SxS recreation was impacted.

Table AB-2: 2015 Key Alberta Operating Expenditures in ATV and SxS Activities (\$1,000s)

Operating Expenditures\Cases	Low (10%)	High (8.6%)
Repair & maintenance	289,627	360,078
Gasoline for ATVs and SxSs	141,609	172,684
Food and beverages	146,178	175,953
Casualty & liability insurance	114,262	139,140
Accommodation excluding RV expenditures	42,330	71,711
Ground transportation	26,466	31,690
Club & trail fess	28,477	35,403
Entertainment	47,830	57,595
Other	157,727	245,686
Total included in further analysis	994,505	1,289,940
Licenses	22,910	27,436
Volunteer time*	131,131	170,565
Excluded from further analysis	154,042	198,001
Total	1,148,547	1,487,941

Sources: Smith Gunther Associates Ltd. based on annual sales data of ATVs and survey data for SxSs.

Note:*The survey established the amount of volunteer time by province which was extrapolated to cover all provincial ATV and SxS recreationalists and assessed at 40% of average hourly wages and salary rates in each province in line with standard practices for benefit-cost analysis.

Combined direct investment and operating expenditure data (Totals in Tables AB-1 and AB-2) have annual impacts of \$1.4 billion to \$1.8 billion of which licenses and volunteer time are outside of Statistics Canada's analytical framework, so that the total direct operating and investment expenditures included in the analysis are \$1.2 billion in the 10% case and \$1.6 billion in the 8.6% one²³.

These expenditures all contributed to improved provincial economic performance. Table AB-3 contains key Alberta direct and indirect, induced, and total economic impacts. Direct and indirect impacts arise from ATV and SxS recreational purchases in Alberta. Direct and indirect economic activities occur within the province's supply lines of goods and services purchased by

²³ Equal to combined expenditures less the second last line of AB-2.

ATV and SxS recreationalists. The first three columns provide impact data on the 10% case and the last three on the 8.6% case.

Table AB-3: Impact of ATV and SxS Recreational Activities in Alberta
(**\$1,000s unless otherwise stated***)

Cases	Low (10%)			High (8.6%)		
	Direct & Indirect	Induced	Total	Direct & Indirect	Induced	Total
Type of Impacts						
Metric						
Domestic Expenditures	1,249,944	346,282	1,596,226	1,571,345	441,960	2,013,306
GDP	827,607	223,308	1,050,915	1,052,859	284,588	1,337,447
Labour income	513,960	96,873	610,833	655,928	123,422	779,350
Employment (# of FTEs)*	7,643	1,461	9,104	9,761	1,862	11,622
Total taxes	225,023	60,008	285,031	272,510	74,082	346,592
Taxes on products	89,604	25,394	114,998	112,926	32,407	145,333
Taxes on production	23,536	13,526	37,061	29,774	17,250	47,024
Income taxes	111,883	21,088	132,972	129,810	24,425	154,236

Source: Based on Statistics Canada I/O runs submitted and interpreted by Smith Gunther Associates Ltd.

Note: Direct and indirect impacts arise from ATV and SxS recreational purchases in Alberta. Direct and indirect economic activities occur within Alberta supply lines of goods and services purchased by ATV and SxS recreationalists. Given the inclusion of indirect expenditures and other statistical adjustments, "Domestic Expenditures" are similar but not equal to the sum of direct expenditures from the first two tables.

Direct and indirect domestic expenditures occur in Alberta as expenditures by Canadian riders of ATVs and SxSs. These data do not cover expenditures by foreigner riders.

In the 10% case, direct and indirect domestic expenditures of \$1.2 billion - net of product and production taxes and imports net of exports, but including subsidies - add \$828 million to direct and indirect Gross Domestic Product (GDP). GDP includes direct and indirect labour force income of \$514 million attracting increased employment measured as 7,643 full-time equivalents (FTEs). This case generates \$225 million in the various direct and indirect taxes delineated in the last three lines of the table.

In the 8.6% case, direct and indirect domestic expenditures of \$1.6 billion - net of product and production taxes, and imports net of exports but including subsidies - add \$1.1 billion to direct and indirect Gross Domestic Product (GDP). GDP is inclusive of direct and indirect labour force income of \$656 million and employment measured as 9,761 full time equivalents (FTEs). This case generates another \$273 million in the various direct and indirect taxes, specified in the last three lines.

Net of income taxes and usually minor savings, incremental labour force incomes facilitate additional consumption which yields induced impacts, documented in the second and fifth

columns. Added to the direct and indirect impacts these result in the total impacts in columns 3 and 6.

Total impacts in the above table size Alberta ATV and SxS activities in the range of domestic expenditures of \$1.6 billion to \$2.0 billion generating GDP of \$1.1 billion to \$1.3 billion including labour force incomes of \$611 million to \$779 million. Tax revenues as a result of ATV and SxS expenditures yield \$289 million to \$347 million. Further, these activities and related expenditures generate fuller employment by 9,104 to 11,622 FTEs²⁴.

²⁴ FTEs in Alberta can be converted to jobs by multiplying its FTEs by 1.146.

Saskatchewan

In 2015, Saskatchewan residents operated an estimated minimum of 37,394 ATVs and 2,027 SxSs. This estimate is based on an attrition rate of 10% of the current and previous years' stocks of ATVs and on SxSs purchased after 2006 when they started being deployed for recreational purposes. With a rate of attrition of 8.6%, more vehicles remain operational – ATVs (41,113) and SxSs (28,853). The Smith Gunther survey results suggest the case based on the 8.6%, but the 10% case is more in line with attrition rates in studies of personal watercraft and snowmobiles.

Participants in ATV and SxS recreational activities made investments in new and replacement ATVs and SxSs annually, as well as enhanced on-highway vehicles for transporting ATVs and SxSs and accommodations for themselves, such as trailers, larger vehicles and mobile homes (RVs)²⁵. During 2015, annual investments, in the economic meaning of new purchases of equipment, in ATVs, SxSs and related enhanced vehicles reached \$80 million to \$88 million shown in Table SK-1, before depreciation. Since this data reflects purchases of new ATVs and SxSs, the numbers are not affected by rates of attrition. Investments in enhanced on-highway vehicles are affected in that fewer or more vehicles are required to transport the newly purchased stock as well as the stock still in operation. In the 10% case, fewer ATVs and SxSs are still in operation therefore fewer enhanced vehicles are required and less is spent on replacing them. The opposite is true in the 8.6% case.

Table SK-1: 2015 Saskatchewan Investments in ATVs and SxSs (\$1,000s)

Items\Cases	Low (10%)	High (8.6%)
ATVs	44,063	44,063
SxSs	30,215	30,215
Enhanced on-highway vehicles	5,500	13,600
Total	79,778	87,878

Sources: Smith Gunther Associates Ltd. based on annual sales data of ATVs and survey data for SxSs.

Table SK-2 summarizes 2015 expenditures by ATV and SxS recreationalists for both cases. Annual Saskatchewan direct operating expenditures amounted to an additional \$263 million to \$375 million.

²⁵ **Recreational Vehicle (RV)** is used narrowly herein to include only mobile homes

Because the number of ATVs and SxSs in operation differs in the 10% and 8.6% cases and affects each type of direct operating expenditure, the gap between both cases' direct operating expenditures widens relative to direct investments where only the enhancement of on-highway vehicles associated with ATV and SxS recreation was impacted.

Table SK-2: 2015 Key Saskatchewan Direct Operating Expenditures in ATV and SxS Activities (\$1,000s)

Operating Expenditures\Cases	Low (10%)	High (8.6%)
Repair & maintenance	80,360	108367
Gasoline for ATVs and SxSs	57,676	79745
Food and beverages	31,924	42190
Casualty & liability insurance	20,855	26947
Accommodation excluding RV expenditures	17,994	35621
Ground transportation	13,128	14833
Club & trail fess	3,376	4466
Entertainment	5,362	6,787
Other	12,797	27701
Total included in further analysis	243,472	346656
Licenses	5,434	7733
Volunteer time*	13,861	20317
Excluded from further analysis	19,295	28050
Total	262,766.88	374,705.40

Sources: Smith Gunther Associates Ltd. based on annual sales data of ATVs and survey data for SxSs.

Note:*The survey established the amount of volunteer time by province which was extrapolated to cover all provincial ATV and SxS recreationalists and assessed at 40% of average hourly wages and salary rates in each province in line with standard practices for benefit-cost analysis.

Combined investment and direct operating expenditure (Tables SK-1 and SK-2) have annual impacts of \$343 billion to \$463 million of which licenses and volunteer time are outside of Statistics Canada's analytical framework, so that the total direct operating and investment expenditures included in the analysis are \$324 million in the 10% case and \$435 million in the 8.6% one²⁶.

These expenditures all contributed to improved provincial economic performance. Table SK-3 contains key Saskatchewan direct and indirect, induced, and total economic impacts. Direct and indirect impacts arise from ATV and SxS recreational purchases in Saskatchewan. Direct and indirect economic activities occur within the province's supply lines of goods and services

²⁶ Equal to combined expenditures less the second last line of SK-2.

purchased by ATV and SxS recreationalists. The first three columns provide impact data on the 10% case and the last three on the 8.6% case.

**Table SK-3: Impact of ATV and SxS Recreational Activities in Saskatchewan
(\$1,000s unless otherwise stated*)**

Cases	Low (10%)			High (8.6%)		
	Direct & Indirect	Induced	Total	Direct & Indirect	Induced	Total
Type of Impacts						
Metric						
Domestic Expenditures	327,003	69,684	396,687	425,306	92,457	517,762
GDP	167,937	40,308	208,245	222,213	52,998	275,212
Labour income	100,718	16,149	116,867	134,021	21,218	155,239
Employment (# of FTEs)*	1,915	308	2,222	2,564	404	2,968
Total taxes	64,157	13,518	77,675	81,739	17,445	99,183
Taxes on products	38,764	6,859	45,623	50,712	9,088	59,800
Taxes on production	3,693	3,179	6,873	4,776	4,201	8,977
Income taxes	21,700	3,479	25,179	26,251	4,156	30,407

Source: Based on Statistics Canada I/O runs submitted and interpreted by Smith Gunther Associates Ltd.

Note: Direct and indirect impacts arise from ATV and SxS recreational purchases in Saskatchewan. Direct and indirect economic activities occur within Saskatchewan supply lines of goods and services purchased by ATV and SxS recreationalists. Given the inclusion of indirect expenditures and other statistical adjustments, "Domestic Expenditures" are similar but not equal to the sum of direct expenditures from the first two tables.

Direct and indirect domestic expenditures occur in Saskatchewan as expenditures by riders of ATVs and SxSs. These numbers do not cover expenditures by foreigners riding in Canada.

In the 10% case, direct and indirect domestic expenditures of \$327 million - net of product and production taxes and imports net of exports, but including subsidies - add \$170 million to direct and indirect Gross Domestic Product (GDP). GDP includes direct and indirect labour force income of \$101 million attracting increased employment measured as 1,915 full-time equivalents (FTEs). This case also directly and indirectly generates \$64 million in the various direct and indirect taxes delineated in the last three lines of the table.

In the 8.6% case, direct and indirect domestic expenditures of \$425 million - net of product and production taxes, and imports net of exports but including subsidies - add \$222 million to direct and indirect Gross Domestic Product (GDP). GDP is inclusive of direct and indirect labour force income of \$134 million and employment measured as 2,564 full-time equivalents (FTEs). This case generates another \$82 million in the various direct and indirect taxes, specified in the last three lines.

Net of income taxes and usually minor savings, incremental labour force incomes facilitate additional consumption which yields induced impacts, documented in the second and fifth

columns. Added to the direct and indirect impacts these result in the total impacts in columns 3 and 6.

Total impacts in the above table size Saskatchewan ATV and SxS activities in the range of domestic expenditures of \$397 million to \$518 million generating GDP of \$208 million to \$275 million including labour force incomes of \$117 million to \$155 million. Tax revenues as a result of ATV and SxS expenditures yield \$78 million to \$99 million. Further, these activities and related expenditures generate fuller employment by 2,222 to 2,968 FTEs²⁷.

²⁷ FTEs in Saskatchewan can be converted to jobs by multiplying its FTEs by 1.159.

Manitoba

In 2015, Manitoba residents operated an estimated minimum of 27,681 ATVs and 11,508 SxSs. This estimate is based on an attrition rate of 10% of the current and previous years' stocks of ATVs and on SxSs purchased after 2006 when they started being deployed for recreational purposes. With a rate of attrition of 8.6%, more vehicles remain operational – ATVs (30,701) and SxSs (13,347). The Smith Gunther survey results suggest the case based on the 8.6%, but the 10% case is more in line with attrition rates in studies of personal watercraft and snowmobiles.

Participants in ATV and SxS recreational activities made investments in new and replacement ATVs and SxSs annually, as well as enhanced on-highway vehicles for transporting ATVs and SxSs and accommodating themselves, such as trailers, larger vehicles and mobile homes (RVs)²⁸. During 2015, annual investments, in the economic meaning of new purchases of equipment, in ATVs, SxSs and related enhanced vehicles reached \$46 million to \$47 shown in Table MB-1, before depreciation. Since this data reflects purchases of new ATVs and SxSs, the numbers are not affected by rates of attrition. Investments in enhanced on-highway vehicles are affected in that fewer or more vehicles are required to transport the newly purchased stock as well as the stock still in operation. In the 10% case, fewer ATVs and SxSs are still in operation therefore fewer enhanced vehicles are required and less is spent on replacing them. The opposite is true in the 8.6% case.

Table MB-1: 2015 Manitoba Investments in ATVs and SxSs (\$1,000s)

Items\Cases	Low (10%)	High (8.6%)
ATVs	30,851	30,851
SxSs	12,340	12,340
Enhanced on-highway vehicles	2,900	4,100
Total	46,091	47,291

Sources: Smith Gunther Associates Ltd. based on annual sales data of ATVs and survey data for SxSs.

Table MB-2 breaks out and summarizes 2015 direct operating expenditures by ATV and SxS recreationalists for both cases. Annual Manitoba direct operating expenditures amounted to an additional \$196 million to \$232 million distributed among sectors as noted.

²⁸ **Recreational Vehicle (RV)** is used narrowly herein to include only mobile homes

Because the number of ATVs and SxSs in operation differs in the 10% and 8.6% cases and affects each type of direct operating expenditure, the gap between both cases' direct operating expenditures widens relative to the investments where only the enhancement of on-highway vehicles associated with ATV and SxS recreation was impacted.

Table MB-2: 2015 Key Manitoba Direct Operating Expenditures in ATV and SxS Activities (\$1,000s)

Operating Expenditures\Cases	Low (10%)	High (8.6%)
Repair & maintenance	38,775	43,073
Gasoline for ATVs and SxSs	51,511	58,314
Food and beverages	16,313	17,919
Casualty & liability insurance	35,899	38,916
Accommodation excluding RV expenditures	14,506	28,067
Ground transportation	3,575	3,786
Club & trail fess	1,476	1,536
Entertainment	2,938	3,155
Other	15,892	19,787
Total included in further analysis	180,885	214,553
Licenses	10,148	11,264
Volunteer time*	5,278	6,090
Excluded from further analysis	15,426	17,354
Total	196,311	231,907

Sources: Smith Gunther Associates Ltd. based on annual sales data of ATVs and survey data for SxSs.

Note:*The survey established the amount of volunteer time by province which was extrapolated to cover all provincial ATV and SxS recreationalists and assessed at 40% of average hourly wages and salary rates in each province in line with standard practices for benefit-cost analysis.

Combined direct investment and direct operating expenditure (Tables MB-1 and MB-2) have annual impacts of \$242 billion to \$279 million of which licenses and volunteer time are outside of Statistics Canada's analytical framework, so that the total direct operating and investment expenditures included in the analysis are \$227 million in the 10% case and \$262 million in the 8.6% one²⁹.

These expenditures all contributed to improved provincial economic performance. Table MB-3 contains key Manitoba direct and indirect, induced, and total economic impacts. Direct and indirect impacts arise from ATV and SxS recreational purchases in Manitoba. Direct and indirect

²⁹ Equal to combined expenditures less the second last line of MB-2.

economic activities occur within the province’s supply lines of goods and services purchased by ATV and SxS recreationalists. The first three columns provide impact data on the 10% case and the last three on the 8.6% case.

**Table MB-3: Impact of ATV and SxS Recreational Activities in Manitoba
(\$1,000s unless otherwise stated*)**

Cases	Low (10%)			High (8.6%)		
	Direct & Indirect	Induced	Total	Direct & Indirect	Induced	Total
Type of Impacts						
Metric						
Domestic Expenditures	230,014	52,332	282,347	252,452	60,558	313,010
GDP	116,880	33,287	150,167	134,771	39,499	174,271
Labour income	72,281	15,271	87,552	83,196	18,226	101,422
Employment (# of FTEs)*	1,444	296	1,740	1,668	353	2,021
Total taxes	50,960	11,692	62,651	55,468	16,388	68,796
Taxes on products	28,499	5,640	34,138	31,482	6,550	38,032
Taxes on production	5,147	2,394	7,540	5,869	5,869	8,677
Income taxes	17,315	3,658	20,973	18,118	3,969	22,087

Source: Based on Statistics Canada I/O runs submitted and interpreted by Smith Gunther Associates Ltd.

Note: Direct and indirect impacts arise from ATV and SxS recreational purchases in Manitoba. Direct and indirect economic activities occur within Manitoba supply lines of goods and services purchased by ATV and SxS recreationalists. Given the inclusion of indirect expenditures and other statistical adjustments, “Domestic Expenditures” are similar but not equal to the sum of direct expenditures from the first two tables.

Direct and indirect domestic expenditures occur in Manitoba from Canadian riders of ATVs and SxSs. These numbers do not cover expenditures by foreigners riding in Canada.

In the 10% case, direct and indirect domestic expenditures of \$230 million - net of product and production taxes and imports net of exports, but including subsidies - add \$117 million to direct and indirect Gross Domestic Product (GDP). GDP includes direct and indirect labour force income of \$72 million attracting increased employment measured as 1,444 full-time equivalents (FTEs). This 10% case generates another \$51 million in the various direct and indirect taxes, delineated in more detail in the last three lines of the Table.

In the 8.6% case, direct and indirect domestic expenditures of \$252 million - net of product and production taxes, and imports net of exports but including subsidies - add \$235 million to direct and indirect Gross Domestic Product (GDP). GDP is inclusive of direct and indirect labour force income of \$83 million and employment measured as 1,668 full-time equivalents (FTEs). This case generates another \$55 million in the various direct and indirect taxes, specified in the last three lines.

Net of income taxes and usually minor savings, incremental labour force incomes facilitate additional consumption which yields induced impacts, documented in the second and fifth columns. Added to the direct and indirect impacts these result in the total impacts in columns 3 and 6.

Total impacts in the above table size Manitoba ATV and SxS activities in the range of domestic expenditures of \$285 million to \$313 million generating GDP of \$150 million to \$174 million including labour force incomes of \$88 million to \$101 million. Tax revenues as a result of ATV and SxS expenditures yield \$63 million to \$69 million. Further, these activities and related expenditures generate fuller employment by 1,740 to 2,021 FTEs³⁰.

³⁰ FTEs in Manitoba can be converted to jobs by multiplying its FTEs by 1.165.

Ontario

In 2015, Ontario residents operated an estimated minimum of 141,135 ATVs and 36,941 SxSs. This estimate is based on an attrition rate of 10% of the current and previous years' stocks of ATVs and on SxSs purchased after 2006 when they started being deployed for recreational purposes. With a rate of attrition of 8.6%, more vehicles remain operational – ATVs (158,276) and SxSs (59,108). The Smith Gunther survey results suggest the case based on the 8.6%, but the 10% case is more in line with attrition rates in studies of personal watercraft and snowmobiles.

Participants in ATV and SxS recreational activities made investments in new and replacement ATVs and SxSs annually, as well as enhanced on-highway vehicles for transporting ATVs and SxSs and accommodations for themselves, such as trailers, larger vehicles and mobile homes (RVs)³¹. During 2015, annual investments, in the economic meaning of new purchases of equipment, in ATVs, SxSs and related enhanced vehicles reached \$201 million to \$210 million shown in Table ON-1, before depreciation. Since this data reflects purchases of new ATVs and SxSs, the numbers are not affected by rates of attrition. Investments in enhanced on-highway vehicles are affected in that fewer or more vehicles are required to transport the newly purchased stock as well as the stock still in operation. In the 10% case, fewer ATVs and SxSs are still in operation therefore fewer enhanced vehicles are required and less is spent on replacing them. The opposite is true in the 8.6% case.

Table ON-1: 2015 Ontario Investments in ATVs and SxSs (\$1,000s)

Items\Cases	Low (10%)	High (8.6%)
ATVs	157,371	157,371
SxSs	33,823	33,823
Enhanced on-highway vehicles	9,500	18,900
Total	200,695	210,095

Sources: Smith Gunther Associates Ltd. based on annual sales data of ATVs and survey data for SxSs.

Table ON-2 breaks out and summarizes 2015 direct operating expenditures by ATV and SxS recreationalists for the 8.6% and the 10% cases. Annual Ontario direct operating expenditures amounted to an additional \$630 million to \$862 million.

Because the number of ATVs and SxSs in operation differs in the 10% and 8.6% cases and affects each type of direct operating expenditure, the gap between both cases' direct operating

³¹ **Recreational Vehicle (RV)** is used narrowly herein to include only mobile homes

expenditures widens relative to direct investments where only the enhancement of on-highway vehicles associated with ATV and SxS recreation was impacted.

Table ON-2: 2015 Key Ontario Direct Operating Expenditures in ATV and SxS Activities (\$1,000s)

Operating Expenditures\Cases	Low (10%)	High (8.6%)
Repair & maintenance	119,213	150,903
Gasoline for ATVs and SxSs	72,417	93,000
Food and beverages	77,238	101,262
Casualty & liability insurance	104,302	137,035
Accommodation excluding RV expenditures	62,585	107,283
Ground transportation	24,010	29,451
Club & trail fess	36,400	44,856
Entertainment	20,867	24,776
Other	49,812	75,267
Total included in further analysis	566,844	763,832
Licenses	10,064	12,920
Volunteer time*	53,026	85,525
Excluded from further analysis	63,090	98,445
Total	629,934	862,278

Sources: Smith Gunther Associates Ltd. based on annual sales data of ATVs and survey data for SxSs.

Note:*The survey established the amount of volunteer time by province which was extrapolated to cover all provincial ATV and SxS recreationalists and assessed at 40% of average hourly wages and salary rates in each province in line with standard practices for benefit-cost analysis.

Combined investment and direct operating expenditures (Tables ON-1 and ON-2) have annual impacts of \$831 million to \$1,072 million of which licenses and volunteer time are outside of Statistics Canada’s analytical framework, so that the total direct operating and investment expenditures included in the analysis are \$768 million in the 10% case and \$974 million in the 8.6% one³².

These expenditures all contributed to improved provincial economic performance. Table ON-3 contains key Ontario direct and indirect, induced, and total economic impacts. Direct and indirect impacts arise from ATV and SxS recreational purchases in Ontario. Direct and indirect economic activities occur within the province’s supply lines of goods and services purchased by

³² Equal to combined expenditures less the second last line of ON-2.

ATV and SxS recreationalists. The first three columns provide impact data on the 10% case and the last three on the 8.6% case.

**Table ON-3: Impact of ATV and SxS Recreational Activities in Ontario
(\$1,000s unless otherwise stated*)**

Cases	Low (10%)			High (8.6%)		
	Direct & Indirect	Induced	Total	Direct & Indirect	Induced	Total
Type of Impacts						
Metric						
Domestic Expenditures	776,547	341,427	1,117,974	940,629	444,668	1,385,297
GDP	745,500	294,242	1,039,742	982,981	379,370	1,362,351
Labour income	470,060	152,310	622,370	614,394	196,036	810,430
Employment (# of FTEs)*	7,510	2,464	9,974	9,858	3,174	13,032
Total taxes	245,068	94,699	339,767	301,479	118,305	419,784
Taxes on products	99,577	35,653	135,229	123,976	46,347	170,322
Taxes on production	33,522	22,766	56,289	44,457	29,506	73,963
Income taxes	111,969	36,280	148,249	133,047	42,452	175,499

Source: Based on Statistics Canada I/O runs submitted and interpreted by Smith Gunther Associates Ltd.

Note: Direct and indirect impacts arise from ATV and SxS recreational purchases in Ontario. Direct and indirect economic activities occur within Ontario supply lines of goods and services purchased by ATV and SxS recreationalists. Given the inclusion of indirect expenditures and other statistical adjustments, "Domestic Expenditures" are similar but not equal to the sum of direct expenditures from the first two tables.

Direct and indirect domestic expenditures occur in Ontario from Canadian riders of ATVs and SxSs. These numbers do not cover expenditures by foreigners riding in Canada.

In the 10% case, direct and indirect domestic expenditures of \$777 million - net of product and production taxes and imports net of exports, but including subsidies - add \$746 million to direct and indirect Gross Domestic Product (GDP)³³. GDP includes direct and indirect labour force income of \$470 million attracting increased employment measured as 7,510 full-time equivalents (FTEs). This case generates another \$245 million in the various direct and indirect taxes, delineated in more detail in the last three lines of the Table.

In the 8.6% case, direct and indirect domestic expenditures of \$941 million - net of product and production taxes, and imports net of exports but including subsidies - add \$983 million to direct and indirect Gross Domestic Product (GDP). GDP is inclusive of direct and indirect labour force income of \$614 million and employment measured as 9,858 full-time equivalents (FTEs). This case generates another \$301 million in the various direct and indirect taxes, specified in the last three lines.

³³ GDP earned in Ontario also includes the GDP earned on exports to the rest of the country, explaining why the differences between its provincial domestic earnings and GDP are so small when compared to other provinces.

Net of income taxes and usually minor savings, incremental labour force incomes facilitate additional consumption which yields induced impacts, documented in the second and fifth columns. Added to the direct and indirect impacts these result in the total impacts in columns 3 and 6.

Total impacts in the above table size Ontario ATV and SxS activities in the range of domestic expenditures of \$1.1 billion to \$1.4 billion generating GDP of \$1.0 billion to \$1.4 billion including labour force incomes of \$622 million to \$810 million. Tax revenues as a result of ATV and SxS expenditures yield \$340 million to \$420 million. Further, these activities and related expenditures generate fuller employment by 9,974 to 13,032 FTEs³⁴.

³⁴ FTEs in Ontario can be converted to jobs by multiplying its FTEs by 1.144.

Quebec

In 2015, Quebec residents operated an estimated minimum of 166,395 ATVs and 79,061 SxSs. This estimate is based on an attrition rate of 10% of the current and previous years' stocks of ATVs and on SxSs purchased after 2006 when they started being deployed for recreational purposes. With a rate of attrition of 8.6%, more vehicles remain operational – ATVs (188,563) and SxSs (121,010). The Smith Gunther survey results suggest the case based on the 8.6%, but the 10% case is more in line with attrition rates in studies of personal watercraft and snowmobiles.

Participants in ATV and SxS recreational activities made investments in new and replacement ATVs and SxSs annually, as well as enhanced on-highway vehicles for transporting ATVs and SxSs and accommodations for themselves, such as trailers, larger vehicles and mobile homes (RVs)³⁵. During 2015, annual investments, in the economic meaning of new purchases of equipment, in ATVs, SxSs and related enhanced vehicles reached \$248 million to \$263 million shown in Table QC-1, before depreciation. Since this data reflects purchases of new ATVs and SxSs, the numbers are not affected by rates of attrition. Investments in enhanced on-highway vehicles are affected in that fewer or more vehicles are required to transport the newly purchased stock as well as the stock still in operation. In the 10% case, fewer ATVs and SxSs are still in operation therefore fewer enhanced vehicles are required and less is spent on replacing them. The opposite is true in the 8.6% case.

Table QC-1: 2015 Quebec Investments in ATVs and SxSs (\$1,000s)

Items\Cases	Low (10%)	High (8.6%)
ATVs	136,552	136,552
SxSs	93,636	93,636
Enhanced on-highway vehicles	18,300	33,000
Total	248,488	263,188

Sources: Smith Gunther Associates Ltd. based on annual sales data of ATVs and survey data for SxSs.

Table QC-2 breaks out and summarizes 2015 direct operating expenditures by ATV and SxS recreationalists for both cases. Annual Quebec direct operating expenditures amounted to an additional \$1.8 billion to \$2.5 billion.

³⁵ **Recreational Vehicle (RV)** is used narrowly herein to include only mobile homes

Because the number of ATVs and SxSs in operation differs in the 10% and 8.6% cases and affects each type of direct operating expenditure, the gap between both cases' direct operating expenditures widens relative to direct investments where only the enhancement of on-highway vehicles associated with ATV and SxS recreation was impacted.

Table QC-2: 2015 Key Quebec Direct Operating Expenditures in ATV and SxS Activities (\$1,000s)

Operating Expenditures\Cases	Low (10%)	High (8.6%)
Repair & maintenance	433,802	620,863
Gasoline for ATVs and SxSs	251,477	351,811
Food and beverages	254,656	341,491
Casualty & liability insurance	163,694	211,395
Accommodation excluding RV expenditures	18,037	18,413
Ground transportation	78,331	102,935
Club & trail fess	103,579	124,663
Entertainment	93,614	102,141
Other	118,775	181,661
Total included in further analysis	1,515,965	2,055,373
Licenses	26,417	33,837
Volunteer time*	253,554	393,183
Excluded from further analysis	279,971	427,020
Total	1,795,937	2,482,393

Sources: Smith Gunther Associates Ltd. based on annual sales data of ATVs and survey data for SxSs.

Note:*The survey established the amount of volunteer time by province which was extrapolated to cover all provincial ATV and SxS recreationalists and assessed at 40% of average hourly wages and salary rates in each province in line with standard practices for benefit-cost analysis.

Combined investment and direct operating expenditures (Table QC-1 and QC-2) have annual impacts of \$2.0 billion to \$2.7 billion of which licenses and volunteer time are outside of Statistics Canada's analytical framework, as discussed later in the report, so that the total direct operating and investment expenditures included in the analysis are \$1.8 billion in the 10% case and \$2.3 billion in the 8.6% one³⁶.

These expenditures all contributed to improved provincial economic performance. Table QC-3 contains key Quebec direct and indirect, induced, and total economic impacts. Direct and indirect impacts arise from ATV and SxS recreational purchases in Quebec. Direct and indirect

³⁶ Equal to combined expenditures less the second last line of QC-2.

economic activities occur within the province’s supply lines of goods and services purchased by ATV and SxS recreationalists. The first three columns provide impact data on the 10% case and the last three on the 8.6% case.

Table QC-3: Impact of ATV and SxS Recreational Activities in Quebec
(\$1,000s unless otherwise stated*)

Cases	Low (10%)			High (8.6%)		
	Direct & Indirect	Induced	Total	Direct & Indirect	Induced	Total
Type of Impacts						
Metric						
Domestic Expenditures	1,781,614	444,754	2,226,369	2,357,956	570,372	2,928,328
GDP	1,061,702	274,701	1,336,404	1,354,422	351,666	1,706,088
Labour income	666,826	132,793	799,619	852,610	169,953	1,022,564
Employment (# of FTEs)*	13,251	2,591	15,842	17,224	3,317	20,542
Total taxes	496,033	113,387	609,420	624,206	141,056	765,262
Taxes on products	267,442	48,721	316,163	353,143	62,472	415,615
Taxes on production	46,171	28,339	74,510	59,019	36,316	95,335
Income taxes	182,420	36,327	218,748	212,044	42,267	254,312

Source: Based on Statistics Canada I/O runs submitted and interpreted by Smith Gunther Associates Ltd.

Note: Direct and indirect impacts arise from ATV and SxS recreational purchases in Quebec. Direct and indirect economic activities occur within Quebec supply lines of goods and services purchased by ATV and SxS recreationalists. Given the inclusion of indirect expenditures and other statistical adjustments, “Domestic Expenditures” are similar but not equal to the sum of direct expenditures from the first two tables.

Direct and indirect domestic expenditures occur in Quebec from Canadian riders of ATVs and SxSs. These data do not cover expenditures by foreigners riding in Canada.

In the 10% case, direct and indirect domestic expenditures of \$1.8 billion - net of product and production taxes and imports net of exports, but including subsidies - add \$1.1 billion to direct and indirect Gross Domestic Product (GDP). GDP includes direct and indirect labour force income of \$667 million and increased employment measured as 13,251 full-time equivalents (FTEs). This case generates another \$496 million in the various direct and indirect taxes, delineated in more detail in the last three lines of the Table.

In the 8.6% case, direct and indirect domestic expenditures of \$2.4 billion - net of product and production taxes, and imports net of exports but including subsidies - add \$1.4 billion to direct and indirect Gross Domestic Product (GDP). GDP is inclusive of direct and indirect labour force income of \$853 million and employment measured as 17,224 full-time equivalents (FTEs). This case generates another \$624 million in the various direct and indirect taxes, specified in the last three lines.

Net of income taxes and usually minor savings, incremental labour force incomes facilitate additional consumption which yields induced impacts, documented in the second and fifth columns. Added to the direct and indirect impacts these result in the total impacts in columns 3 and 6.

Total impacts in the above table size Quebec ATV and SxS activities in the range of domestic expenditures of \$2.2 billion to \$2.9 billion generating GDP of \$1.3 billion to \$1.7 billion including labour force incomes of \$800 million to \$1.0 billion. Tax revenues as a result of ATV and SxS expenditures yield \$609 million to \$765 million. Further, these activities and related expenditures generate fuller employment by 15,842 to 20,542 FTEs³⁷.

³⁷ FTEs in Quebec can be converted to jobs by multiplying its FTEs by 1.128.

New Brunswick

In 2015, New Brunswick residents operated an estimated minimum of 28,064 ATVs and 13,046 SxSs. This estimate is based on an attrition rate of 10% of the current and previous years' stocks of ATVs and on SxSs purchased after 2006 when they started being deployed for recreational purposes. With a rate of attrition of 8.6%, more vehicles remain operational – ATVs (31,697) and SxSs (18,773). The Smith Gunther survey results suggest the case based on the 8.6%, but the 10% case is more in line with attrition rates in studies of personal watercraft and snowmobiles.

Participants in ATV and SxS recreational activities made investments in new and replacement ATVs and SxSs annually, as well as enhanced on-highway vehicles for transporting ATVs and SxSs and accommodations for themselves, such as trailers, larger vehicles and mobile homes (RVs)³⁸. During 2015, annual investments, in the economic meaning of new purchases of equipment, in ATVs, SxSs and related enhanced vehicles reached \$53 million to \$54 million shown in Table NB-1, before depreciation. Since this data reflects purchases of new ATVs and SxSs, the numbers are not affected by rates of attrition. Investments in enhanced on-highway vehicles are affected in that fewer or more vehicles are required to transport the newly purchased stock as well as the stock still in operation. In the 10% case, fewer ATVs and SxSs are still in operation therefore fewer enhanced vehicles are required and less is spent on replacing them. The opposite is true in the 8.6% case.

Table NB-1: 2015 New Brunswick Investments in ATVs and SxSs (\$1,000s)

Items\Cases	Low (10%)	High (8.6%)
ATVs	29,812	29,812
SxSs	21,304	21,304
Enhanced on-highway vehicles	1,500	2,500
Total	52,616	53,616

Sources: Smith Gunther Associates Ltd. based on annual sales data of ATVs and survey data for SxSs.

Table NB-2 breaks out and summarizes 2015 direct operating expenditures by ATV and SxS recreationalists for both cases. Annual New Brunswick direct operating expenditures amounted to an additional \$204 million to \$262 million.

³⁸ **Recreational Vehicle (RV)** is used narrowly herein to include only mobile homes

Because the number of ATVs and SxSs in operation differs in the 10% and 8.6% cases and affects each type of direct operating expenditure, the gap between both cases' direct operating expenditures widens relative to the investments where only the enhancement of on-highway vehicles associated with ATV and SxS recreation was impacted.

Table NB-2: 2015 Key New Brunswick Direct Operating Expenditures in ATV and SxS Activities (\$1,000s)

Operating Expenditures\Cases	Low (10%)	High (8.6%)
Repair & maintenance	35,075	43,460
Gasoline for ATVs and SxSs	31,717	39,825
Food and beverages	30,203	37,242
Casualty & liability insurance	26,342	32,271
Accommodation excluding RV expenditures	13,233	19,517
Ground transportation	6,148	7,612
Club & trail fess	8,072	9,525
Entertainment	6,878	8,566
Other	14,232	19,541
Total included in further analysis	171,898	217,559
Licenses	3,965	4,850
Volunteer time*	28,686	39,413
Excluded from further analysis	32,650	44,263
Total	204,548	261,822

Sources: Smith Gunther Associates Ltd. based on annual sales data of ATVs and survey data for SxSs.

Note:*The survey established the amount of volunteer time by province which was extrapolated to cover all provincial ATV and SxS recreationalists and assessed at 40% of average hourly wages and salary rates in each province in line with standard practices for benefit-cost analysis.

Combined investment and direct operating expenditures (Table NB-1 and NB-2) have annual impacts of \$257 million to \$316 million of which licenses and volunteer time are outside of Statistics Canada's analytical framework, as discussed later in the report, so that the total direct operating and investment expenditures included in the analysis are \$224 million in the 10% case and \$272 million in the 8.6% one³⁹.

These expenditures all contributed to improved provincial economic performance. Table NB-3 contains key New Brunswick direct and indirect, induced, and total economic impacts. Direct and indirect impacts arise from ATV and SxS recreational purchases in New Brunswick. Direct

³⁹ Equal to combined expenditures less the second last line of NB-2.

and indirect economic activities occur within the province’s supply lines of goods and services purchased by ATV and SxS recreationalists. The first three columns provide impact data on the 10% case and the last three on the 8.6% case.

Table NB-3: Impact of ATV and SxS Recreational Activities in Quebec
(\$1,000s unless otherwise stated*)

Cases	Low (10%)			High (8.6%)		
	Direct & Indirect	Induced	Total	Direct & Indirect	Induced	Total
Type of Impacts						
Metric						
Domestic Expenditures	226,193	46,310	272,504	268,492	54,625	323,117
GDP	102,195	24,888	127,083	121,181	29,667	150,848
Labour income	64,318	11,149	75,466	75,668	13,335	89,003
Employment (# of FTEs)*	1,408	242	1,650	1,683	289	1,972
Total taxes	48,300	9,753	58,054	55,741	11,288	67,029
Taxes on products	29,143	5,397	34,540	34,723	6,373	41,096
Taxes on production	4,501	1,816	6,317	5,343	2,153	7,496
Income taxes	14,656	2,540	17,196	15,675	2,762	18,437

Source: Based on Statistics Canada I/O runs submitted and interpreted by Smith Gunther Associates Ltd.

Note: Direct and indirect impacts arise from ATV and SxS recreational purchases in New Brunswick. Direct and indirect economic activities occur within New Brunswick supply lines of goods and services purchased by ATV and SxS recreationalists. Given the inclusion of indirect expenditures and other statistical adjustments, “Domestic Expenditures” are similar but not equal to the sum of direct expenditures from the first two tables.

Direct and indirect domestic expenditures occur in New Brunswick from Canadian riders of ATVs and SxSs. These numbers do not cover expenditures by foreigners riding in Canada.

In the 10% case, direct and indirect domestic expenditures of \$226 million - net of product and production taxes and imports net of exports, but including subsidies - add \$122 million to direct and indirect Gross Domestic Product (GDP). GDP includes direct and indirect labour force income of \$64 million attracting increased employment measured as 1,408 full-time equivalents (FTEs). This case generates another \$29 million in the various direct and indirect taxes, delineated in more detail in the last three lines of the Table.

In the 8.6% case, direct and indirect domestic expenditures of \$268 million - net of product and production taxes, and imports net of exports but including subsidies - add \$121 million to direct and indirect Gross Domestic Product (GDP). GDP is inclusive of direct and indirect labour force income of \$76 million and employment measured as 1,683 full-time equivalents (FTEs). This case generates another \$56 million in the various direct and indirect taxes, specified in the last three lines.

Net of income taxes and usually minor savings, incremental labour force incomes facilitate additional consumption which yields induced impacts, documented in the second and fifth columns. Added to the direct and indirect impacts these result in the total impacts in columns 3 and 6.

Total impacts in the above table size New Brunswick ATV and SxS activities in the range of domestic expenditures of \$273 million to \$323 million generating GDP of \$127 million to \$151 million including labour force incomes of \$75 million to \$89 million. Tax revenues as a result of ATV and SxS expenditures yield \$58 million to \$67 million. Further, these activities and related expenditures generate fuller employment by 1,650 to 1,972 FTEs⁴⁰.

⁴⁰ FTEs in New Brunswick can be converted to jobs by multiplying its FTEs by 1.139.

Prince Edward Island

In 2015, Prince Edward Island residents operated an estimated minimum of 2,155 ATVs and 519 SxSs. This estimate is based on an attrition rate of 10% of the current and previous years' stocks of ATVs and on SxSs purchased after 2006 when they started being deployed for recreational purposes. With a rate of attrition of 8.6%, more vehicles remain operational – ATVs (2,384) and SxSs (919). The Smith Gunther survey results suggest the case based on the 8.6%, but the 10% case is more in-line with attrition rates in studies of personal watercraft and snowmobiles.

Participants in ATV and SxS recreational activities made investments in new and replacement ATVs and SxSs annually, as well as enhanced on-highway vehicles for transporting ATVs and SxSs and accommodations for themselves, such as trailers, larger vehicles and mobile homes (RVs)⁴¹. During 2015, annual investments, in the economic meaning of new purchases of equipment, in ATVs, SxSs and related enhanced vehicles reached \$4.9 million to \$4.9 million shown in Table PE-1, before depreciation. Since this data reflects purchases of new ATVs and SxSs, the numbers are not affected by rates of attrition. Investments in enhanced on-highway vehicles are affected in that fewer or more vehicles are required to transport the newly purchased stock as well as the stock still in operation. In the 10% case, fewer ATVs and SxSs are still in operation therefore fewer enhanced vehicles are required and less is spent on replacing them. The opposite is true in the 8.6% case.

Table PE-1: 2015 Prince Edward Island Investments in ATVs and SxSs (\$1,000s)

Items\Cases	Low (10%)	High (8.6%)
ATVs	3,553	3,553
SxSs	1,263	1,263
Enhanced on-highway vehicles	100	105
Total	4,917	4,922

Sources: Smith Gunther Associates Ltd. based on annual sales data of ATVs and survey data for SxSs.

Table PE-2 summarizes 2015 direct operating expenditures by ATV and SxS recreationalists for both cases. Annual Prince Edward Island direct operating expenditures amounted to an additional \$12.4 million to \$15.9 million.

⁴¹ **Recreational Vehicle (RV)** is used narrowly herein to include only mobile homes and excludes ATVs, SxSs, personal watercraft, snowmobiles, bipeds, scooters, and motorcycles.

Because the number of ATVs and SxSs in operation differs in the 10% and 8.6% cases and affects each type of direct operating expenditure, the gap between both cases' direct operating expenditures widens relative to the investments where only the enhancement of on-highway vehicles associated with ATV and SxS recreation was impacted.

Table PE-2: 2015 Key Prince Edward Island Direct Operating Expenditures in ATV and SxS Activities (\$1,000s)

Operating Expenditures\Cases	Low (10%)	High (8.6%)
Repair & maintenance	2,471	3,352
Gasoline for ATVs and SxSs	1,517	1,992
Food and beverages	1,560	1,890
Casualty & liability insurance	2,788	3,068
Accommodation excluding RV expenditures	490	664
Ground transportation	1,855	2,329
Club & trail fess	267	348
Entertainment	311	411
Other	486	659
Total included in further analysis	11,746	14,713
Licenses	163	207
Volunteer time	513	962
Excluded from further analysis	676	1,169
Total	12,422	15,882

Sources: Smith Gunther Associates Ltd. based on annual sales data of ATVs and survey data for SxSs.

Note:*The survey established the amount of volunteer time by province which was extrapolated to cover all provincial ATV and SxS recreationalists and assessed at 40% of average hourly wages and salary rates in each province in-line with standard practices for benefit-cost analysis.

Combined investment and direct operating expenditures (Tables PE-1 and PE-2) have annual impacts of \$17.3 million to \$20.8 million of which licenses and volunteer time are outside of Statistics Canada's analytical framework, as discussed later in the report, so that the total direct operating and investment expenditures included in the analysis are \$16.6 million in the 10% case and \$19.6 million in the 8.6% one⁴².

These expenditures all contributed to improved provincial economic performance. Table PE-3 contains key Prince Edward Island direct and indirect, induced, and total economic impacts. Direct and indirect impacts arise from ATV and SxS recreational purchases in Prince Edward

⁴² Equal to combined expenditures less the second last line of PE-2.

Island. Direct and indirect economic activities occur within the province’s supply lines of goods and services purchased by ATV and SxS recreationalists. The first three columns provide impact data on the 10% case and the last three on the 8.6% case.

**Table PE-3: Impact of ATV and SxS Recreational Activities in Prince Edward Island
(\$1,000s unless otherwise stated*)**

Cases	Low (10%)			High (8.6%)		
	Direct & Indirect	Induced	Total	Direct & Indirect	Induced	Total
Type of Impacts						
Metric						
Domestic Expenditures	16,779	4,890	21,670	19,675	5,372	25,047
GDP	10,986	3,049	14,035	11,246	3,480	14,726
Labour income	6,265	1,322	7,587	6,814	1,525	8,340
Employment (# of FTEs)*	147	31	178	165	36	201
Total taxes	3,944	1,685	5,629	4,297	1,836	6,133
Taxes on products	2,109	1,212	3,321	2,445	1,325	3,771
Taxes on production	469	185	654	501	208	709
Income taxes	1,366	288	1,654	1,351	302	1,653

Source: Based on Statistics Canada I/O runs submitted and interpreted by Smith Gunther Associates Ltd.

Note: Direct and indirect impacts arise from ATV and SxS recreational purchases in Prince Edward Island. Direct and indirect economic activities occur within Prince Edward Island supply lines of goods and services purchased by ATV and SxS recreationalists. Given the inclusion of indirect expenditures and other statistical adjustments, “Domestic Expenditures” are similar but not equal to the sum of direct expenditures from the first two tables.

Direct and indirect domestic expenditures occur in Prince Edward Island from Canadian riders of ATVs and SxSs. These numbers do not cover expenditures by foreigners riding in Canada.

In the 10% case, direct and indirect domestic expenditures of \$16.8 million - net of product and production taxes and imports net of exports, but including subsidies - add \$11.0 million to direct and indirect Gross Domestic Product (GDP). GDP includes direct and indirect labour force income of \$6.3 million attracting increased employment measured as 147 full-time equivalents (FTEs). This case generates another \$2.1 million in the various direct and indirect taxes, delineated in more detail in the last three lines of the Table.

In the 8.6% case, direct and indirect domestic expenditures of \$20 million - net of product and production taxes, and imports net of exports but including subsidies - add \$11 million to direct and indirect Gross Domestic Product (GDP). GDP is inclusive of direct and indirect labour force income of \$7 million and employment measured as 165 full-time equivalents (FTEs). This case generates another \$4 million in the various direct and indirect taxes, specified in the last three lines.

Net of income taxes and usually minor savings, incremental labour force incomes facilitate additional consumption which yields induced impacts, documented in the second and fifth columns. Added to the direct and indirect impacts these result in the total impacts in columns 3 and 6.

Total impacts in the above table size Prince Edward Island ATV and SxS activities in the range of domestic expenditures of \$22 million to \$25 million generating GDP of \$14.0 million to \$14.7 million including labour force incomes of \$7.6 million to \$8.3 million. Tax revenues as a result of ATV and SxS expenditures yield \$5.6 million to \$6.1 million. Further, these activities and related expenditures generate fuller employment by 178 to 201 FTEs.⁴³

⁴³ FTEs in Prince Edward Island can be converted to jobs by multiplying its FTEs by 1.178, reflecting the seasonality of its mainstay tourism industry.

Nova Scotia

In 2015, Nova Scotians operated an estimated minimum of 24,949 ATVs and 11,110 SxSs. This estimate is based on an attrition rate of 10% of the current and previous years' stocks of ATVs and on SxSs purchased after 2006 when they started being deployed for recreational purposes. With a rate of attrition of 8.6%, more vehicles remain operational – ATVs (28,440) and SxSs (16,202). The Smith Gunther survey results suggest the case based on the 8.6%, but the 10% case is more in line with attrition rates in studies of personal watercraft and snowmobiles.

Participants in ATV and SxS recreational activities made investments in new and replacement ATVs and SxSs annually, as well as enhanced on-highway vehicles for transporting ATVs and SxSs and accommodations for themselves, such as trailers, larger vehicles and mobile homes (RVs)⁴⁴. During 2015, annual investments, in the economic meaning of new purchases of equipment, in ATVs, SxSs and related enhanced vehicles reached \$53 million to \$54 million shown in Table NS-1, before depreciation. Since this data reflects purchases of new ATVs and SxSs, the numbers are not affected by rates of attrition. Investments in enhanced on-highway vehicles are affected in that fewer or more vehicles are required to transport the newly purchased stock as well as the stock still in operation. In the 10% case, fewer ATVs and SxSs are still in operation therefore fewer enhanced vehicles are required and less is spent on replacing them. The opposite is true in the 8.6% case.

Table NS-1: 2015 Nova Scotia Investments in ATVs and SxSs (\$1,000s)

Items\Cases	Low (10%)	High (8.6%)
ATVs	31,556	31,556
SxSs	19,808	19,808
Enhanced on-highway vehicles	1,500	2,700
Total	52,864	54,064

Sources: Smith Gunther Associates Ltd. based on annual sales data of ATVs and survey data for SxSs.

Table NS-2 breaks out and summarizes 2015 direct operating expenditures by ATV and SxS recreationalists for both cases. Annual Nova Scotian direct operating expenditures amounted to an additional \$165 million to \$126 million.

⁴⁴ **Recreational Vehicle (RV)** is used narrowly herein to include only mobile homes and excludes ATVs, SxSs, personal watercraft, snowmobiles, bipeds, scooters, and motorcycles.

Because the number of ATVs and SxSs in operation differs in the 10% and 8.6% cases and affects each type of direct operating expenditure, the gap between Both cases' direct operating expenditures widens relative to the investments where only the enhancement of on-highway vehicles associated with ATV and SxS recreation was impacted.

Table NS-2: 2015 Key Nova Scotia Direct Operating Expenditures in ATV and SxS Activities (\$1,000s)

Operating Expenditures\Cases	Low (10%)	High (8.6%)
Repair & maintenance	26,162	33,843
Gasoline for ATVs and SxSs	24,057	31,356
Food and beverages	17,568	22,253
Casualty & liability insurance	25,331	35,024
Accommodation excluding RV expenditures	20,314	31,496
Ground transportation	7,006	8,951
Club & trail fess	2,964	3,755
Entertainment	3,864	4,887
Other	9,994	13,881
Total included in further analysis	137,260	185,446
Licenses	3,612	4,737
Volunteer time*	24,055	35,962
Excluded from further analysis	27,667	40,699
Total	164,927	226,145

Sources: Smith Gunther Associates Ltd. based on annual sales data of ATVs and survey data for SxSs.

Note:*The survey established the amount of volunteer time by province which was extrapolated to cover all provincial ATV and SxS recreationalists and assessed at 40% of average hourly wages and salary rates in each province in line with standard practices for benefit-cost analysis.

Combined investment and direct operating expenditures, (Tables NS-1 and NS-2) have annual impacts of \$218 million to \$280 million of which licenses and volunteer time are outside of Statistics Canada's analytical framework, as discussed later in the report, so that the total direct operating and investment expenditures included in the analysis are \$190 million in the 10% case and \$239 million in the 8.6% one⁴⁵.

These direct expenditures all contributed to improved provincial economic performance. Table NS-3 contains key Nova Scotia direct and indirect, induced, and total economic impacts. Direct and indirect impacts arise from ATV and SxS recreational purchases in Nova Scotia. Direct and

⁴⁵ Equal to combined expenditures less the second last line of NS-2.

indirect economic activities occur within the province's supply lines of goods and services purchased by ATV and SxS recreationalists. The first three columns provide impact data on the 10% case and the last three on the 8.6% case.

**Table NS-3: Impact of ATV and SxS Recreational Activities in Nova Scotia
(\$1,000s unless otherwise stated*)**

Cases	Low (10%)			High (8.6%)		
	Direct & Indirect	Induced	Total	Direct & Indirect	Induced	Total
Type of Impacts						
Metric						
Domestic Expenditures	192,203	43,387	235,590	231,924	51,363	283,287
GDP	90,482	25,360	115,842	107,247	30,306	137,553
Labour income	57,625	11,445	69,070	67,936	13,718	81,653
Employment (# of FTEs)*	1,243	242	1,484	1,490	289	1,779
Total taxes	45,069	9,877	54,946	52,304	11,433	63,737
Taxes on products	26,091	5,234	31,325	31,412	6,202	37,613
Taxes on production	4,290	1,726	6,016	5,151	2,053	7,204
Income taxes	14,688	2,917	17,605	15,742	3,179	18,920

Source: Based on Statistics Canada I/O runs submitted and interpreted by Smith Gunther Associates Ltd.

Note: Direct and indirect impacts arise from ATV and SxS recreational purchases in Nova Scotia. Direct and indirect economic activities occur within Nova Scotia supply lines of goods and services purchased by ATV and SxS recreationalists. Given the inclusion of indirect expenditures and other statistical adjustments, "Domestic Expenditures" are similar but not equal to the sum of direct expenditures from the first two tables.

In the 10% case, direct and indirect domestic expenditures occur in Nova Scotia from Canadian riders of ATVs and SxSs. These numbers do not cover expenditures by foreigners riding in Canada. Direct and indirect domestic expenditures of \$192 million - net of product and production taxes and imports net of exports, but including subsidies - add \$90.0 million to direct and indirect Gross Domestic Product (GDP). GDP includes direct and indirect labour force income of \$58 million and increased employment measured as 1,243 full-time equivalents (FTEs). This case generates another \$45 million in the various direct and indirect taxes, delineated in more detail in the last three lines of the Table.

In the 8.6% case, direct and indirect domestic expenditures of \$232 million - net of product and production taxes, and imports net of exports but including subsidies - add \$107 million to direct and indirect Gross Domestic Product (GDP). GDP is inclusive of direct and indirect labour force income of \$68 million and employment measured as 1,490 full-time equivalents (FTEs). This case generates another \$52 million in the various direct and indirect taxes, specified in the last three lines.

Net of income taxes and usually minor savings, incremental labour force incomes facilitate additional consumption which yields induced impacts, documented in the second and fifth

columns. Added to the direct and indirect impacts these result in the total impacts in columns 3 and 6.

Total impacts in the above table size Nova Scotia ATV and SxS activities in the range of domestic expenditures of \$236 million to \$283 million generating GDP of \$116 million to \$138 million including labour force incomes of \$69 million to \$82 million. Tax revenues as a result of ATV and SxS expenditures yield \$55 million to \$64 million. Further, these activities and related expenditures generate fuller employment by 1,484 to 1,779 FTEs⁴⁶.

⁴⁶ FTEs in Nova Scotia can be converted to jobs by multiplying its FTEs by 1.141.

Newfoundland

In 2015, Newfoundlanders operated an estimated minimum of 30,869 ATVs and 13,983 SxSs. This estimate is based on an attrition rate of 10% of the current and previous years’ stocks of ATVs and on SxSs purchased after 2006 when they started being deployed for recreational purposes. With a rate of attrition of 8.6%, more vehicles remain operational – ATVs (33,878) and SxSs (19,713). The Smith Gunther survey results suggest the case based on the 8.6%, but the 10% case is more in line with attrition rates in studies of personal watercraft and snowmobiles.

Participants in ATV and SxS recreational activities made investments in new and replacement ATVs and SxSs annually, as well as enhanced on-highway vehicles for transporting ATVs and SxSs and accommodations for themselves, such as trailers, larger vehicles and mobile homes (RVs)⁴⁷. During 2015, annual investments, in the economic meaning of new purchases of equipment, in ATVs, SxSs and related enhanced vehicles reached \$78 million to \$79 million shown in Table NL-1, before depreciation. Since this data reflects purchases of new ATVs and SxSs, the numbers are not affected by rates of attrition. Investments in enhanced on-highway vehicles are affected in that fewer or more vehicles are required to transport the newly purchased stock as well as the stock still in operation. In the 10% case, fewer ATVs and SxSs are still in operation therefore fewer enhanced vehicles are required and less is spent on replacing them. The opposite is true in the 8.6% case.

Table NL-1: 2015 Newfoundland Investments in ATVs and SxSs (\$1,000s)

Items\Cases	Low (10%)	High (8.6%)
ATVs	52,761	52,761
SxSs	23,557	23,557
Enhanced on-highway vehicles	1,700	2,900
Total	78,018	79,218

Sources: Smith Gunther Associates Ltd. based on annual sales data of ATVs and survey data for SxSs.

Table NL-2 breaks out and summarizes 2015 direct operating expenditures by ATV and SxS recreationalists for both cases. Annual Newfoundlanders direct operating expenditures amounted to an additional \$221 million to \$292 million as noted.

⁴⁷ **Recreational Vehicle (RV)** is used narrowly herein to include only mobile homes

Because the number of ATVs and SxSs in operation differs in the 10% and 8.6% cases and affects each type of direct operating expenditure, the gap between both cases' direct operating expenditures widens relative to the investments where only the enhancement of on-highway vehicles associated with ATV and SxS recreation was impacted.

Table NL-2: 2015 Key Newfoundland Direct Operating Expenditures in ATV and SxS Activities (\$1,000s)

Operating Expenditures\Cases	Low (10%)	High (8.6%)
Repair & maintenance	35,201	44,353
Gasoline for ATVs and SxSs	31,907	40,847
Food and beverages	28,027	35,007
Casualty & liability insurance	29,914	37,934
Accommodation excluding RV expenditures	22,970	34,833
Ground transportation	8,343	10,503
Club & trail fess	6,447	7,807
Entertainment	5,985	7,571
Other	13,536	18,805
Total included in further analysis	182,331	237,660
Licenses	4,210	5,304
Volunteer time*	34,202	49,174
Excluded from further analysis	38,412	54,478
Total	220,743	292,138

Sources: Smith Gunther Associates Ltd. based on annual sales data of ATVs and survey data for SxSs.

Note:*The survey established the amount of volunteer time by province which was extrapolated to cover all provincial ATV and SxS recreationalists and assessed at 40% of average hourly wages and salary rates in each province in line with standard practices for benefit-cost analysis.

Combined investment and direct operating expenditures (Tables NL-1 and NL-2) have annual impacts of \$299 million to \$371 million of which licenses and volunteer time are outside of Statistics Canada's analytical framework, as discussed in the report, so that the total direct operating and investment expenditures included in the analysis are \$261 million in the 10% case and \$317 million in the 8.6% one⁴⁸.

These expenditures all contributed to improved provincial economic performance. Table NL-3 contains key Newfoundland direct and indirect, induced, and total economic impacts. Direct and indirect impacts arise from ATV and SxS recreational purchases in Newfoundland. Direct

⁴⁸ Equal to combined expenditures less the second last line of NL-2.

and indirect economic activities occur within the province's supply lines of goods and services purchased by ATV and SxS recreationalists. The first three columns provide impact data on the 10% case and the last three on the 8.6% case.

Table NL-3: Impact of ATV and SxS Recreational Activities in Newfoundland
(**\$1,000s unless otherwise stated***)

Cases	Low (10%)			High (8.6%)		
	Direct & Indirect	Induced	Total	Direct & Indirect	Induced	Total
Type of Impacts						
Metric						
Domestic Expenditures	262,679	44,884	307,563	309,268	55,717	364,985
GDP	110,324	22,619	132,943	138,918	28,114	167,032
Labour income	64,150	9,476	73,626	79,657	11,771	91,428
Employment (# of FTEs)*	1,151	169	1,320	1,435	210	1,645
Total taxes	55,083	9,370	64,453	64,322	11,350	75,672
Taxes on products	33,778	5,702	39,480	39,826	7,079	46,904
Taxes on production	4,257	1,150	5,407	5,252	1,428	6,680
Income taxes	17,047	2,518	19,566	19,244	2,844	22,088

Source: Based on Statistics Canada I/O runs submitted and interpreted by Smith Gunther Associates Ltd.

Note: Direct and indirect impacts arise from ATV and SxS recreational purchases in Newfoundland. Direct and indirect economic activities occur within Newfoundland supply lines of goods and services purchased by ATV and SxS recreationalists. Given the inclusion of indirect expenditures and other statistical adjustments, "Domestic Expenditures" are similar but not equal to the sum of direct expenditures from the first two tables.

Direct and indirect domestic expenditures occur in Newfoundland from Canadian riders of ATVs and SxSs. These numbers do not cover expenditures by foreigners riding in Canada.

In the 10% case, direct and indirect domestic expenditures of \$263 million - net of product and production taxes and imports net of exports, but including subsidies - add \$110.0 million to direct and indirect Gross Domestic Product (GDP). GDP includes direct and indirect labour force income of \$64 million attracting increased employment measured as 1,253 full-time equivalents (FTEs). This case generates another \$54 million in the various direct and indirect taxes, delineated in more detail in the last three lines of the Table.

In the 8.6% case, direct and indirect domestic expenditures of \$309 million - net of product and production taxes, and imports net of exports but including subsidies - add \$139 million to direct and indirect Gross Domestic Product (GDP). GDP is inclusive of direct and indirect labour force income of \$80 million and employment measured as 1,435 full-time equivalents (FTEs). This case generates another \$64 million in the various direct and indirect taxes, specified in the last three lines.

Net of income taxes and usually minor savings, incremental labour force incomes facilitate additional consumption which yields induced impacts, documented in the second and fifth columns. Added to the direct and indirect impacts these result in the total impacts in columns 3 and 6.

Total impacts in the above table size Newfoundland ATV and SxS activities in the range of domestic expenditures of \$308 million to \$365 million generating GDP of \$133 million to \$167 million including labour force incomes of \$74 million to \$91 million. Tax revenues as a result of ATV and SxS expenditures yield \$64 million to \$76 million. Further, these activities and related expenditures generate fuller employment by 1,320 to 1,645 FTEs⁴⁹.

⁴⁹ FTEs in Newfoundland can be converted to jobs by multiplying its FTEs by 1.143.

Appendix 3: Glossary

All-terrain Vehicles (ATVs), a motorized off-highway vehicle designed to travel on four low pressure tires, having a seat designed to be straddled by the operator and handlebars for steering control. For a full definition, see Canadian Standard for All-Terrain Vehicles at www.cohv.ca.

Attrition Rate, the percentage rate at which a commodity goes out of service for various reasons over a period of time.

Domestic Expenditures, spending made in Canada on ATV and SxS activities, where activities are broadly defined to include everything from sales of ATVs and SxSs, their transportation and upkeep as well as spending by ATV and SxS recreationalists in undertaking ATV and SxS activities including purchases of enhanced vehicles, travelling to and from ATV and SxS events and shows.

Exports, as used herein, are goods or services sent from one jurisdiction to another.

Full-Time Equivalent (FTE), includes full-time employment and consists of persons who usually work 30 hours or more per week at their main or only job. Equivalence to full-time employment occurs when combinations of part-time workers have aggregate hours on the job that equal or exceed 30 hours. There are more jobs than FTEs because some jobs require less than 30 hours per week of employment. (Statistics Canada, *Table 282-0005 - Labour force survey estimates (LFS), by full- and part-time students during school months, sex and age group, unadjusted for seasonality, monthly*. (Accessed: August 06, 2016).) In this case if a reader wishes to convert FTEs to jobs, a multiple of 1.22 is appropriate.

Gross Domestic Product (GDP), represents the total value of production of goods and services in the economy resulting from the initial expenditure. It is GDP at basic prices is used in this report. GDP at basic prices is net of taxes on products but includes any subsidies on products (see Table 8).

Imports, as used herein, are goods or services entering one jurisdiction from another.

Direct and indirect impacts, occur among Canadian suppliers of goods and services purchased by ATV and SxS recreationalists and of the inputs into them, and inputs into inputs, ad infinitum.

Industries, are groups of firms in any jurisdiction of sufficient commonality to be treated as a type of firm in Statistic Canada's I/O system.

Input Output Tables (I/O), constitute a series of Statistics Canada tables that identify all goods and services being utilized for both final consumption and for intermediate consumption where

intermediate consumption is utilized in producing other goods and services. As part of identifying inputs to production, the I/O tables also identify employment and capital equipment needed for producing goods and services.

Jobs, is a measure of employment which does not distinguish between full- and part-time employments.

Labour force income, income accruing to workers from all sources of labour income including wages and salaries, supplementary income and income from unincorporated businesses and individuals, and net income of non-farm unincorporated businesses.

Multipliers, as used herein, are ratios of total impacts relative to their direct expenditure (within the same metric).

National Income and Expenditure Accounts, a system of national accounts Statistics Canada has designed to monitor the economic health of jurisdictions, including Canada, its provinces and territories and smaller regions where applicable.

Net income of non-farm unincorporated businesses, consists of the earnings of working proprietors from their own businesses. Such businesses are "unincorporated" as distinct from the corporate form of organization. The estimates represent a mixture of labour and investment income that cannot be segregated on anything but an arbitrary basis. To the extent that working proprietors supply their own labour, they earn wages and salaries; to the extent that they supply their own capital, they earn profits, interest and rents. These elements are inextricably mixed in the estimates of the net income field. The net rental income of persons is also included here in order to consolidate all forms of income from non-farm unincorporated business activity in a single category. (Statistics Canada, **National Income and Expenditure Accounts Volume 3: A Guide to National Income and Expenditure Accounts**, 1975, p. 131.)

Primary Industries and energy transmission, includes agriculture, fishing, mining, and immediately supporting industries as well as electricity production and transmission.

Sectors, are of one or more industries.

Side-by-sides (SxS), motorized off-highway vehicle designed to travel on four or more tires, intended by the manufacturer for recreational use by one or more persons and having the following characteristics: a steering wheel for steering control; foot controls for throttle and service brake; non-straddle seating; maximum speed capability greater than 30 MPH (48 km/h); Gross Vehicle Weight Rating (GVWR) no greater than 1700 kg (3750 lbs); less than 2030 mm (80 in) in overall width, exclusive of accessories; engine displacement equal to or less than 1,000cc (61cubic inch) for gasoline fueled engines; and identification by means of a 17 character PIN or VIN. For a full definition, see Canadian Standard for All-Terrain Vehicles at www.cohv.ca.

Statistics Canada, is Canada's central statistical agency tasked by the Federal government with producing data suitable to monitor socio-economic activity in Canada aside from health.

Subsidies on either products or production, do not apply to ATVs and SxSs directly but may apply to one or more products in supply lines to produce ATVs and/or SxSs or any item meeting induced demands.

Supplementary Labour Income, is composed of other expenditures by employers on labour account that can be regarded as payment for employees' services. Included here are employers' contributions to private pension funds, the Canada and Quebec Pension Plans, employee welfare funds, the Unemployment Insurance Fund, and Workmen's Compensation Funds. (Statistics Canada, **National Income and Expenditure Accounts Volume 3: A Guide to National Income and Expenditure Accounts**, 1975, p. 120.)

Trade, is used to refer to both interprovincial and international movement of goods and services.

Trade deficits, occur when imports exceed exports from a given jurisdiction.

Trade surpluses, occur when exports exceed imports from a given jurisdiction.

Value shipped, is the total value of goods and service shipped from factory gates in meeting ATV and SxS demands. As noted in the text it inherently includes multiple counting of early stage inputs.

Wages and Salaries, including income in kind (i.e., board and lodging), are estimated on a "gross" basis, that is, they are reckoned before tax deductions and before deduction of contributions by employees to unemployment insurance, pensions and other social security schemes. Bonuses, commissions, directors' fees, taxable allowances and retroactive wage payments are included in the year in which they are paid. (Statistics Canada, **National Income and Expenditure Accounts Volume 3: A Guide to National Income and Expenditure Accounts**, 1975, p. 120.)