

# The Economic Impact of the South Dakota Snowmobiling Industry

January 2012



Prepared by:

Michael Allgrunn, Ph.D.  
Beacom School of Business  
University of South Dakota



This study was commissioned by the South Dakota Department of Game, Fish, and Parks and conducted by Dr. Michael Allgrunn, Assistant Professor of Economics for the Beacom School of Business at the University of South Dakota. Questions about the methodology or the proper interpretation of the results should be directed to Dr. Allgrunn at: [Mike.Allgrunn@usd.edu](mailto:Mike.Allgrunn@usd.edu).

# TABLE OF CONTENTS

REPORT SECTION	PAGE
EXECUTIVE SUMMARY .....	1
INTRODUCTION.....	2
SNOWMOBILE TRAILS PROGRAM DESCRIPTION .....	3
SURVEY DATA .....	6
TABLE 1. GENERAL QUESTIONS.....	7
TABLE 2. LOCATION QUESTIONS.....	8
TABLE 3. DEMOGRAPHIC QUESTIONS.....	9
TABLE 4. BLACK HILLS QUALITATIVE QUESTIONS — RESIDENT RESPONSES.....	10
TABLE 5. BLACK HILLS QUALITATIVE QUESTIONS — NON-RESIDENT RESPONSES .....	11
TABLE 6. EAST RIVER QUALITATIVE QUESTIONS — RESIDENT RESPONSES .....	12
TABLE 7. ANNUAL EXPENDITURES BY CATEGORY, POPULATION ESTIMATES.....	13
TABLE 8. OTHER EXPENDITURES, POPULATION ESTIMATES — RESIDENTS ONLY.....	14
METHODOLOGY.....	15
RESULTS .....	16
TABLE 9. ECONOMIC IMPACTS OF SOUTH DAKOTA'S SNOWMOBILING INDUSTRY.....	16
SUMMARY.....	17



## EXECUTIVE SUMMARY

South Dakota's snowmobile trail system is maintained without any contribution from general fund dollars, but brings substantial economic activity into the state. This study estimates the magnitude of that economic activity and its effect on the overall state economy.

We find that the snowmobiling industry generates approximately \$131.6 million in annual economic impact to South Dakota. Providing ample winter recreation for residents and attracting snowmobilers from across the nation, the snowmobile trails are a valuable state resource. Highlights include:

- More than \$15 million in lodging, restaurants, gaming, and other trip-related spending.
- Over \$58 million in revenues to South Dakota snowmobile retailers and distributors.
- Residents (76%) and non-residents (84%) both rate snowmobiling in the Black Hills more highly than alternative destinations.
- Direct and indirect support of over 1,400 full-time jobs.
- Hundreds of miles of groomed trails in scenic locations

The direct effects of the snowmobiling are impressive, providing employment opportunities for hundreds of workers in the snowmobiling and hospitality industries, but even industries that aren't directly related to snowmobiling benefit from the additional economic activity it brings to (and keeps in) the state. This report describes the results of extensive surveys of residents, non-residents, and businesses, and models the economic impact of snowmobiling activity in South Dakota.

# INTRODUCTION

South Dakota's vast wilderness and heavy snows are a tantalizing combination for snowmobile enthusiasts. Thousands of riders from within the state and across the country are attracted to South Dakota's ample snow, miles of groomed trails, and pristine scenery.

The economic activity generated by snowmobiling is substantial. South Dakota's snowmobiling opportunities inject money into the state economy both by bringing in out-of-state visitors and by encouraging residents to spend their recreational dollars within the state. Their spending directly supports hotels, restaurants, gaming, and other tourism related industries, and provides revenue to South Dakota snowmobile retailers. There are also secondary impacts as these industries purchase goods and services and employ workers, who subsequently use that money in supporting other aspects of the state economy.

This report aims to quantify the impact that the snowmobiling industry has on the state. Using data collected from residents, non-residents, and snowmobile retailers and distributors, we construct a dynamic regional economic model to estimate this impact. Whenever necessary, we have used conservative assumptions so as to provide a reasonable lower bound for the true impact of the industry.

We begin with a description of the groups that work together to provide the extensive trail system that supports South Dakota snowmobiling: The South Dakota Snowmobile Trails Program, administered by the Game, Fish and Parks Department – Division of Parks and Recreation, the Governor's Snowmobile Advisory Council, and the South Dakota Snowmobile Association, and the USDA Black Hills National Forest Service. We then summarize the collected survey data, describe the economic impact model, discuss the results, and conclude with a brief summary.

# SNOWMOBILE TRAILS PROGRAM

## PROGRAM SUMMARY

The South Dakota Department of Game, Fish and Parks (GFP), Division of Parks and Recreation is charged with managing South Dakota's Snowmobile Trails Program. The program is administered by a Trails Program Specialist in Pierre and District Park Manager in the Black Hills (BH). Each region is managed differently and each has its own unique challenges and needs.

The BH Snowmobile Trail System is maintained through a cooperative agreement with the USDA Black Hills National Forest Service, Bureau of Land Management, Barrick Mining Co., and Wharf Resources. Thirty miles of the system are made available through a cooperative agreement with the Wyoming Division of State Parks and Historic Sites. A large portion of the trail system runs across private property where Land Use Agreements are signed between GFP and private land owners permitting snowmobile use during a specified time. Department staff, along with 18 hired seasonal workers, groom, sign, and maintain the nationally recognized 350 mile trail system.

The Black Hills trail system has a long standing tradition of being one of the top snowmobiling destinations in North America according to popular publications. In 2004 SnoWest Magazine came out with an article titled "SnoWest Best of the West" ranking the top 15 trail systems based on nine categories. The BH trail system ranked #1 in Maps, Signing, grooming and received an overall ranking of #10. This annual article consistently has the 350 mile trail system receiving high marks providing great publicity for the BH and South Dakota. Due to the popularity of the trail system the local economies are heavily reliant upon the thousands of snowmobilers who visit the area throughout the winter season. The season starts December 15th and runs through March 31st.

In eastern SD 1,225 miles of trails are groomed, signed, and maintained by local snowmobile clubs through a Grant-In-Aid (GIA) program. Clubs submit annual proposals to the trails program specialist for consideration during the coming year. The GIA program reimburses clubs for expenses associated with maintaining a safe and enjoyable trail system. Those expenses include: fuel, maintenance of grooming equipment, grooming, sign installation and removal, landowner leases, liability insurance, and equipment storage. Clubs who maintain a trail system through the GIA program are located in: Aberdeen, Faulkton, Huron, Redfield, Miller, Webster, Milbank, Sisseton, Brookings, Clear Lake, Badger, De Smet, Sioux Falls, and Beresford. Club members donate hundreds of hours maintaining their respective trail systems. After a recent survey snowmobile clubs who maintain a trail system through the GIA program combine for over 6,200 hours of donated time and labor towards their local trail systems.

Most trails in eastern SD are located in the right-of-way through a cooperative agreement with the Department of Transportation. The right-of-way permit allows clubs to start signing at a specified time and trails officially open from December 1st to March 15th. Other sections of trail run through private property where land use agreements are signed between GF&P and the private landowner. These agreements are important to avoid hazards in the right-of-way and to keep the trail interesting.

Snowmobile clubs located across the state have a major impact on their local communities as well. All clubs with grooming equipment play a role with their local emergency services team. During some severe blizzards the groomers which are used by the clubs to groom the trails are the only vehicles which can go

out to help stranded pedestrians. Clubs have also worked on grants or fundraisers to buy a snowmobile and rescue sled and then donate that equipment to their emergency services team. This type of commitment towards using the over-snow vehicles to help the public also takes place in the Black Hills as full time staff have been called out to transport utility workers to downed power lines to help restore power to various (BH) neighborhoods and to retrieve stranded pedestrians during blizzards when only the over-snow vehicle could be utilized.

Snowmobile clubs host many events which support their local communities such as snowmobiling safety courses for all ages and levels of snowmobile riders and club rides which help support local businesses on the trail. Clubs participate in various non-fundraising charities such as: Christmas for Kids, Food Pantries, Make a Wish, Local Fire Departments, and Special Olympics to name a few. In-fact, 1,930 hours were donated towards charities which helped others in 2010-2011. Clubs also host various fundraising events for local and nationally recognized charities. The biggest example is the annual Ride for the Ribbon charity hosted by the Poinsett Pounders out of Lake Poinsett, SD. In the first three years of the event snowmobilers across South Dakota have raised over \$123,000 for the SD affiliate Susan G Komen for the Cure charity. Seventy-five percent stays in South Dakota for education and the remaining twenty-five percent goes towards national research projects. This is just one of many examples of fundraising projects for charities. Total charitable contributions according to the 2010-2011 SDSA Charity report is \$55,051.

Trails Program Specialist works with the Department of Tourism to promote winter trail activities and events, snowmobiling in South Dakota, trail conditions, and updating the snowmobile map annually. An average of 30,000 maps are printed per season and distributed to the public at no cost to the user. The maps identify trailside vendors where gas, food, shelter, and temporary permits may be purchased. Licensing, operational requirements, and other snowmobiling information are also posted for the public's benefit.

## **GOVERNOR'S SNOWMOBILE ADVISORY COUNCIL**

The Snowmobile Advisory Council is a citizen advisory group for the state's Snowmobile Trails Program. The seven-person council was established in 1980, and has been a very useful forum to ensure that snowmobilers' best interests are considered in the expenditure of dedicated snowmobile funds.

GFP staff meet with the Snowmobile Advisory Council three to four times each year to receive endorsements for budgets, trail reroutes, and to inform them of other snowmobile trail related issues. The governor appoints members of the Snowmobile Advisory Council for three-year terms.

## **SOUTH DAKOTA SNOWMOBILE ASSOCIATION**

SDSA is an organization committed to developing and promoting the sport of snowmobiling in South Dakota. GFP, the Governor appointed Snowmobile Advisory Council, and SDSA all work hand in hand in providing an enjoyable snowmobile experience for both resident and non-resident snowmobiling enthusiasts. SDSA board meetings are held in conjunction with the advisory council meetings so all three parties can work together managing the trails program, promoting special events and the sport in South Dakota.



## FUNDING SOURCES

**The Snowmobile Trails Program is funded entirely with dedicated revenue coming from snowmobilers pockets only, making it completely self-sufficient.** The three main sources of funds include the sale of a 2-yr \$20 snowmobile license, a 3% excise tax on the purchase price of new and used snowmobiles, and a fuel tax reimbursement which is based upon the number of registered snowmobiles licensed in the state. Federal Recreation Trails Program funds are also used to supplement the snowmobile trails program.



## SURVEY DATA

We created survey instruments for each of the following groups: Resident snowmobilers, non-resident snowmobilers, and snowmobile retailers.

### RESIDENTS

South Dakota had 13,080 registered snowmobile users as of January 2010. We solicited responses from a random sample of 1,000 of these residents. 54 of surveys were returned as undeliverable, leaving 946 residents solicited, from whom we collected 214 usable responses (22.6% response rate). Residents with unregistered snowmobiles would not be a part of this sample, nor would residents who rent snowmobiles for their trips. As such, our estimates of the economic activity of the total population of resident snowmobilers will be on the conservative side.

### NON-RESIDENTS

The South Dakota Department of Game, Fish, and Parks went to popular trailheads on 10 different dates from December 2010 to March 2011 to solicit contact information from non-resident snowmobilers. They collected 482 non-resident contacts, 178 of whom returned usable responses (response rate 36.9%). There is not a feasible way to determine the total number of non-resident visitors, so our non-resident expenditure data will necessarily underestimate the true spending by non-resident snowmobilers in South Dakota.

Tables 1 through 8 summarize the survey data obtained from the resident and non-resident surveys.

### RETAILERS AND DISTRIBUTORS

We solicited information from 38 South Dakota businesses involved in the sale, rental, or distribution of snowmobiles and/or snowmobile related equipment. 13 of these businesses returned useable surveys. Some of the businesses were also involved in non-snowmobile related industries, so all the results reported in this study report only the proportion of the business related to snowmobiles or snowmobile equipment. Data for snowmobile distributors represent only the portion of their business related to South Dakota.<sup>1</sup>

Snowmobile retailers and distributors in our sample directly employ 177.23 workers (FTE), with an associated payroll of \$3.3 million<sup>2</sup> and \$12.1 million in operating expenses. They provide state and local tax income of \$458,673, and report \$58.1 million in annual revenues. Snowmobile retailers estimate that roughly half of their sales are to non-residents.

---

<sup>1</sup> It is important to note that many lodges, resorts, hotels, restaurants, and other businesses rely directly and substantially on the snowmobiling industry. We did not survey those businesses directly. Identifying all such businesses, and trying to sort out the portion of their revenues that comes from snowmobilers, was beyond the scope of this project. Some of the direct impacts on those kinds of businesses are accounted for by the expenditure data from the resident and non-resident surveys. To the extent that those expenditures are under-reported, we will be underestimating the direct effects of the snowmobiling industry on these businesses. Some under-reporting is likely, given the limitations on the Resident and Non-resident samples mentioned above.

<sup>2</sup> Payroll numbers exclude family members working in the business.

**Table 1.** General Questions

	Residents	Non-residents
Annual trips to the Black hills	3.8	2.0
Days spent in Black Hills	3.0	4.2
Days spent East River	7.7	—
How many days do you spend snowmobiling on trails located east of the Missouri River each year?	7.7	—
Are you a member of a local snowmobile club?	74%	—
Are you a member of the SD snowmobile association?	74%	—
How many snowmobiles do you own?	2.9	2.4
How many snowmobiles do you rent?	1.4	1.0
How many snowmobile trailers do you own?	1.6	1.5
How often do you replace a snowmobile (in years)	5.3	4.5
How often do you replace a snowmobile trailer (in years)	9.2	9.0
How many years have you been snowmobiling?	21.1	20.3
How many years have you been visiting the Black Hills?	14.4	11.6
When I travel to the Black Hills, I typically travel with ____ people.	6.7	4.9
Please estimate how many gallons of gas you use per trip (vehicle and sled)	—	77.1
How many miles do you ride your snowmobile on a typical trip?	—	282.8



**Table 2.** Location Questions

	Residents	Non-residents
Months you typically snowmobile in the Black Hills		
December	35%	17%
January	75%	70%
February	86%	81%
March	45%	20%
Percentage of time spent, by accommodation		
Hotel	45%	56%
Camper	0%	1%
Commercial Cabin	10%	14%
Private Cabin	16%	16%
Family or Friends	9%	7%
Other	2%	3%
Don't Need Accommodations	18%	2%
Percentage of time spent, by community		
Spearfish	16%	23%
Deadwood	37%	34%
Lead	19%	30%
Hill City	3%	1%
Custer	0%	1%
Rapid City	10%	3%
Other	14%	7%
Other than the Black Hills area, where do you most often snowmobile?		
Elsewhere in South Dakota	45%	8%
Yellowstone	9%	18%
Big Horn	47%	25%
Other	36%	71%

**Table 3.** Demographic Questions

	Residents	Non-residents
What age group do you fall into?		
Under 20	2%	1%
20-34	20%	19%
35-44	18%	22%
45-54	31%	33%
55-64	21%	17%
65-74	7%	7%
75+	1%	1%
What is the highest level of education that you have completed?		
Some high school or less	1%	0%
High School graduate	21%	15%
Some College, No Degree	16%	17%
Technical School	18%	22%
Associate's Degree	9%	12%
Bachelor's Degree	24%	28%
Graduate or Professional Degree	10%	6%
What is your marital status?		
Single	13%	11%
Married	80%	79%
Separated	0%	1%
Divorced	4%	3%
Widowed	0%	1%
Partnered, not married	1%	4%
Other	0%	1%
Please select your income level.		
Less than \$25,000	5%	3%
\$25,000–49,999	28%	19%
\$50,000–74,999	25%	30%
\$75,000–99,999	16%	21%
\$100,000–124,999	9%	12%
\$125,000–149,999	5%	2%
\$150,000+	13%	14%

**Table 4.** Black Hills Qualitative Questions — Resident Responses

	Strongly Agree	Agree	No opinion	Disagree	Strongly Disagree
The quality of snowmobiling opportunities in the Black Hills is better than other places I go to snowmobile	35%	41%	16%	7%	1%
The Black Hills trails are well maintained	48%	42%	8%	2%	0%
The trails in the Black Hills are signed well	54%	40%	5%	2%	0%
There are sufficient miles of groomed trails	51%	40%	7%	2%	1%
Gas, food, & general supplies are readily available	38%	48%	8%	6%	0%
Trail maps are helpful and informative	64%	32%	5%	0%	0%
Trail maps are readily available	59%	36%	5%	0%	0%
There are many things to do in the area when not snowmobiling	42%	46%	11%	1%	0%
Trip costs are reasonable in this area	31%	54%	11%	4%	1%
Scenic qualities are among the best	53%	38%	8%	1%	0%
I would support a nonresident user fee to maintain trails in the Black Hills	55%	27%	13%	3%	2%
There are ample parking opportunities when I visit the Black Hills	27%	46%	16%	10%	1%
Trails in the Black Hills are less crowded than those in other destinations	11%	33%	33%	19%	3%

**Table 5.** Black Hills Qualitative Questions — Non-Resident Responses

	Strongly Agree	Agree	No opinion	Disagree	Strongly Disagree
The quality of snowmobiling opportunities in the Black Hills is better than other places I go to snowmobile	33%	51%	11%	3%	2%
The Black Hills trails are well maintained	58%	39%	2%	1%	0%
The trails in the Black Hills are signed well	62%	34%	2%	2%	0%
There are sufficient miles of groomed trails	49%	45%	3%	3%	0%
Gas, food, & general supplies are readily available	35%	53%	7%	4%	1%
Trail maps are helpful and informative	62%	37%	1%	0%	0%
Trail maps are readily available	60%	39%	0%	1%	0%
There are many things to do in the area when not snowmobiling	40%	46%	11%	2%	1%
Trip costs are reasonable in this area	27%	65%	7%	1%	0%
Scenic qualities are among the best	54%	40%	5%	1%	1%
I would support a nonresident user fee to maintain trails in the Black Hills	24%	34%	19%	18%	6%
There are ample parking opportunities when I visit the Black Hills	29%	53%	11%	6%	2%
Trails in the Black Hills are less crowded than those in other destinations	13%	39%	26%	15%	7%

**Table 6.** East River Qualitative Questions — Resident Responses

	Strongly Agree	Agree	No opinion	Disagree	Strongly Disagree
The quality of snowmobiling opportunities east of the Missouri River is better than other places I go to snowmobile	5%	20%	35%	30%	10%
The trails east of the Missouri River are well maintained	10%	32%	41%	15%	3%
The trails east of the Missouri River are signed well	12%	44%	36%	6%	2%
Gas, food, & general supplies are readily available	18%	50%	27%	4%	1%
Trail maps are helpful and informative	22%	41%	33%	3%	1%
Trail maps are readily available	17%	33%	40%	8%	2%
There are ample parking opportunities when I visit east of the Missouri River	22%	36%	36%	4%	2%





**Table 7.** Annual Expenditures by category, population estimates

	Residents	Black Hills Non-residents	East River Residents
Lodging	\$2,396,060	\$205,613	\$28,694
Eating & Drinking (restaurants/bars)	\$2,561,039	\$143,804	\$129,760
Liquor Stores	\$407,834	\$20,202	—
Grocery & Convenience store Food & Drink	\$599,048	\$30,894	\$44,443
Tow Vehicle Expenses (Fuel, repairs, etc)	\$2,046,507	\$98,163	\$59,250
Gasoline for Snowmobile	\$1,628,682	\$90,823	\$125,739
Snowmobile expenses excluding fuel (oil, repairs, etc)	\$840,717	\$29,999	\$107,585
Shopping/Retail Items (souvenirs, etc.)	\$320,538	\$37,545	—
Snowmobile rental (including the fuel, oil, and repairs)	\$207,776	\$52,501	—
Snowmobile Trailer Expenses (repairs)	\$259,965	\$3,042	\$10,839
Gambling	\$1,389,619	\$74,020	—
Other Entertainment (i.e., movies, ski areas, etc.)	\$200,778	\$11,393	—
Gear and Clothing	\$344,396	\$10,313	\$68,059
Other Spending or Purchases	\$277,492	\$4,831	\$91,346
5-Day Snowmobile Temporary Permit	\$17,475	\$29,657	\$958
Totals	\$13,497,927	\$837,970	\$669,538

Note: Population estimates obtained by dividing the sample total by .076, the proportion of registered users sampled. This likely underestimates residential expenditures, as it does not include rental users or unregistered users.

**Table 8.** Other Expenditures, population estimates — Residents only

	Average	Total
Snowmobile Expenses including insurance, licensing, other maintenance and repair costs.	\$761	\$1,940,115
Snowmobile Trailer Expenses including insurance, licensing, other maintenance and repair costs.	\$342	\$873,155
Snowmobile Gear and Clothing	\$209	\$532,225
New or used Snowmobile Purchase.	\$2,198	\$5,606,480
New or used Snowmobile trailer purchase.	\$534	\$1,340,177

Note: Population estimates obtained by dividing the sample total by .076, the proportion of registered users sampled. This likely underestimates residential expenditures, as it does not include rental users or unregistered users.



## METHODOLOGY

We use the Policy Insight model developed by Regional Economic Model Inc. (REMI) to model the economic impact of the snowmobiling industry in South Dakota. REMI offers some advantages over other economic modeling software. In addition to a traditional input-output model, REMI uses computational general equilibrium modeling and econometric time-series techniques to create a dynamic response model that takes into account how the economy reacts over time to economic activity changes. For this study, we consider the impact of the snowmobiling industry by comparing a baseline South Dakota model with a model that adds in the direct economic inputs from snowmobiling. The difference between the two models provides the impact of the industry on the state economy.

The inputs include the expenditure data from residents and nonresidents, and employment numbers from retailers. For resident data, we use the population estimate, which is generated by dividing the sample data by the proportion of registered snowmobile users, .076. This would exclude any expenditures by resident snowmobilers who are either rental users or unregistered users.

For non-resident data, a population estimate is harder to come by, as it would require counting every non-resident snowmobiler to come to South Dakota in 2010. As such, we limit our population estimate for non-residents to include our sampled non-residents, plus the number of additional non-residents we could have surveyed by collecting data on two additional weekends.<sup>3</sup> This is certainly an underestimate of the non-resident population that visits South Dakota, but we feel a conservative estimate is appropriate given the uncertainty.

---

<sup>3</sup> There were four weekends during the prime season that we did not survey. The two weekends beginning December 17th and 24th, and the two weekends beginning March 18th and 25th. Since those weekends tend to have fewer snowmobilers than the weekends we did survey, we only scale our data by two additional weekends. (This is equivalent to assuming that the 4 weekends have half as much traffic as our surveyed weekends.)

## RESULTS

Table 9 describes the economic impacts obtained through the model. The dollar impact on South Dakota's Gross Domestic Product is \$131.6 million on an annual basis. This includes the direct impacts of the industry, as well as the secondary impacts as those expenditures filter through the state economy. Output is not as meaningful a measure as GDP, but is included as a comparison to the I-O models used in some impact studies. Snowmobiling supports approximately 1,449 jobs (FTE) in South Dakota. Again, this includes those directly employed in the service of the snowmobiling and related expenditures, but also the jobs that are supported indirectly through the increased economic activity surrounding the snowmobiling industry.

Finally, the economic activity surrounding the snowmobiling industry makes it possible for more workers and their families to live and work in South Dakota. We have roughly 2,547 more people in the state than we would have without the snowmobiling industry.

**Table 9.** Economic Impacts of South Dakota's Snowmobiling Industry

Category	Impact
Gross Domestic Product	\$131,570,500
Output	\$180,328,900
Employment (FTE)	1,449
Population	2,547

Note: Output, while more analogous to traditional Input-Output impact modeling, includes some double counting based on intermediate goods. GDP is the more meaningful figure.

## SUMMARY

South Dakota's miles and miles of snowmobiling trails are a valuable resource for the state economy. The economic impacts of the snowmobiling industry on the state are substantial. Considering that upkeep of trails is funded entirely by snowmobilers, without contribution from the state general fund, this is a particularly efficient recreational industry. Specifically, we find that \$131.6 million of state GDP is attributable to the direct and indirect effects of snowmobiling. That economic activity is associated with 1,449 jobs and 2,547 population in South Dakota that otherwise would leave for other states. Given the far-reaching impacts, all those miles of trails are both good fun and a great investment.





UNIVERSITY OF  
**SOUTH DAKOTA**

BEACOM SCHOOL OF BUSINESS

University of South Dakota

414 East Clark Street • Vermillion, South Dakota 57069

[www.usd.edu/business](http://www.usd.edu/business) • [business@usd.edu](mailto:business@usd.edu)