Economic Impact of Snowsports in the Grand Mesa, Uncompahgre & Gunnison National Forests

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Executive Summary of Study

This study examined the economic impact of human-powered snowsports (henceforth snowsports) visitors to Colorado's Grand Mesa, Uncompahgre and Gunnison National Forests (GMUG). These include skiing, snowshoeing, fat biking, winter hiking, and other similar forms of recreation.

Forest Service data indicates that snowsports users visit the GMUG over 1.3 million times per year. An estimated 60% of these visits are from persons living outside the GMUG and surrounding region

In all, 259 snowsports users around the nation responded to the survey, with 160 respondents sharing the economic expenditures from their most recent 2017-2018 trip to the GMUG.

Based on the economic impact analysis and NVUM visitation figures, the research team estimates:

1. Resort visitors who live outside of the GMUG area spend an annual estimated $213 million while visiting the GMUG. Their expenditures support 2,547 jobs and $63 million in wages.

2. Backcountry visitors who live outside of the GMUG area spend an annual estimated $120 million while visiting the GMUG. Their expenditures support 968 jobs and $33 million in wages.

REPORT CONTENTS

Meet Your Research Team

DR. JAMES N. MAPLES is an associate professor of sociology at Eastern Kentucky University, where he examines the political economy of renewable tourism. His research interests include the economic impact of outdoor recreation and social change in rural areas. In his free time, he is conducting an oral history of rock climbing in Kentucky's Red River Gorge. He is also an Eagle Scout, Girl Scout dad, and metal detectorist.

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DR. MICHAEL J. BRADLEY is an associate professor and director of graduate studies in the Department of Recreation and Park Administration at Eastern Kentucky University. His professional and academic interests include human dimensions of natural resource and wildlife management as well as sustainable recreation practices as it relates to outdoor recreation.

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CONTACT INFORMATION FOR FUTURE STUDIES

Our research team regularly conducts economic impact studies, surveys, assessments, interpretation studies, and other kinds of community-driven studies. If you or your organization is interested in conducting a study, please contact lead researchers Dr. James Maples or Dr. Michael Bradley (emails above) for further information.

Methodological Notes

STUDY PURPOSE

The purpose of this study was to examine the annual economic impact of snowsports visitors in the GMUG based upon expenditure patterns from their most recent Winter 2017-2018 visit to the GMUG. For this report, snowsports includes downhill skiing (both at a resort and in the backcountry), cross country skiing (both groomed and ungroomed trails), snowboarding (both at a resort and in the backcountry), snowshoeing, ice climbing/winter mountaineering, winter hiking, and fatbiking.

DATA COLLECTION

The researchers collected data using an online survey available from July 14, 2018 until August 24, 2018. This is best treated as a convenience sample. The final survey language is available upon request. The survey included questions examining economic expenditures across fifteen sectors and are outlined in this report. The survey included questions about where the respondent lives the majority of the year, the size of the group accounted for in the respondent's economic impact questions, and a lodging selection. The research team used all of these questions in creating the economic estimates.

ANALYSIS

The research team used established techniques utilized in previous peer-reviewed economic impact studies. First, respondents were sorted by local residents (respondents who self-reported as being a resident of the GMUG and immediate surrounding area) and visitors (respondents self-reporting as living outside the GMUG area). Local residents are separated from the economic impact estimates as their expenditures, while important, are not typically treated as true economic impact. Their mean expenditures are, however, reported as a supplement to the economic impact estimates.

Second, the research team established mean expenditures for snowsports visitors in each study area for each of the fifteen economic impact categories. Means are also included for expenditures outside the study area but still within the state of Colorado.

Third, group sizes in expenditures are addressed by dividing the respondent's reported expenditures by their reported group size.

Fourth, respondent cases in each mean with values higher than the third standard deviation were marked as missing data. This technique prevents overestimating economic impact and provides reliable, conservative means.

Fifth, these means are entered into IMPLAN, an industry-leading economic impact calculation system, which uses input-output modeling to establish economic impact across three measures: output, value added, and job income.

Sixth, these estimates are shaped by visitation data from the 2014 National Visitor Use Monitoring (NVUM) survey and resort-specific data. Visitation data were discussed with Colorado Mountain Club and categorized by study area to create a more nuanced economic estimate by study area.

Study Regions

This study builds around three areas based around snowsport destinations in the Gunnison, Grand Mesa, and Uncompahgre National Forests. Economic impact study areas are built around common snowsports destinations and the cities and towns where snowsports user visitors are most apt to spend funds as part of their trip. Each of the study areas are discussed in detail below.

Table 1

Economic Indicator Summary of Study Areas			
Indicator	***Gunnison***	***Grand Mesa***	***Uncompahgre***
Gross Regional Product*	$1,636,363	$7,417,195	$2,099,645
Total Personal Income*	$1,692,003	$8,395,923	$2,315,304
Total Employment	28,272	121,063	35,190
Number of Industries	210	295	229
Land Area (square miles)	7,421	6,710	4,069
Population	41,855	221,996	54,345
Total Households	18,440	87,221	22,076

STUDY AREA ONE: GUNNISON AREA

The Gunnison study area is modeled around snowsports opportunities in Crested Butte/Northern Gunnison Basin, La Garita/Southern Gunnison Basin, and Collegiate Peaks. The area is modeled around Gunnison, Chafee, and Saguache Counties, which include cities/towns of Gunnison, Salida, and Saguache.

The GRP and total personal income for this area both exceed $1.6 billion. There are around 28,272 jobs in the study area spread across 210 industries and 7,421 square miles. The study area has a population of approximately 41,855 and contains 18,440 households.

STUDY AREA TWO: GRAND MESA AREA

The Grand Mesa area is built around recreation in North Fork Valley and Grand Mesa areas. It is modeled in Mesa, Delta, and Montrose counties which includes cities/towns of Paonia, Crawford, Hotchkiss, Montrose, Grand Junction, and Palisade. Notably, Mesa County includes the Grand Junction metropolitan statistical area.

The GRP totals over $7 billion and personal income exceeds $8 billion in this study area, with the Grand Junction metro making an important contribution to this figure. There are an estimated 131,063 jobs in the study area spread across 295 industries over 6,710 square miles. The population here is much larger than the other two areas as a result of the metropolitan area and includes over 221,000 residents in over 87,000 households.

*Gross Regional Product and Total Personal Income listed in 1000s

Study Regions, Continued

STUDY AREA THREE: UNCOMPAHGRE AREA

The Uncompahgre area includes recreation opportunities in the Northern San Juans and Uncompahgre Plateau areas. It is modeled in Ouray, Montrose, and San Miguel counties which include notable locations such as Telluride, Norwood, Silverton, Ouray, Ridgway, and Montrose.

The study area's GRP exceeds $2 billion with a personal income of $2.3 billion. There are an estimate 35,190 employees in this study area employed in 229 different industries. The land area includes of 4,069 square miles, which includes over 54,245 residents and over 22,076 households.

Visitor Mean Expenditures

Tables 2A-2B feature the estimate mean expenditures for snowsports visitors in the study areas across fifteen common economic impact areas. Visitors are persons who self-described as not living within 60 miles of the GMUG area.

Table 2A focuses solely on mean expenditures for persons who self-reported as being a resort user (downhill skiing or snowboarding at a ski resort) on the GMUG, while 2B looks at means for those who engage in backcountry snowsports on the GMUG. Both tables feature the estimate mean expenditures for snowsports visitors in the study areas across fifteen common economic impact areas. Due to low response rates, both tables should be interpreted with caution.

Mean expenditures are an averaged figure of the economic activity created by one typical outdoor recreation visit to the study area. In this table, only visitors are represented (and later modeled) to estimate economic impact, as is the norm in economic impact research.

Table 2A lists mean expenditures for resort visitors who are not residents of the region. In this table, the highest expenditure categories are in sit-dining and lodging with a typical trip average of $482.38.

Table 2A

Resort Visitor Mean Expenditures for All Study Areas (Estimated 442,00 Annual Visits)

Variable	*Obs*	*Mean*	*Std. Dev.*	*Min*	*Max*
Fast food	39	$4.36	8.13	0	30
Sit-down dining	39	$178.03	262.04	0	1200
Grocery Stores	38	$72.04	179.44	0	1000
Gas station food	39	$3.67	6.04	0	20
Gasoline & oil	39	$42.63	52.71	0	300
Retail gear	39	$26.85	91.78	0	500
Retail, non-food	39	$14.91	37.29	0	200
Rental gear	39	$2.56	16.01	0	100
Guide service	39	$29.49	104.95	0	500
Rental Car	39	$0.00	0.00	0	0
Taxi / Uber / Lyft	38	$0.00	0.00	0	0
Adventure tourism	38	$1.32	5.78	0	0
Entertainment	38	$2.02	6.09	0	25
Hotels & resorts	37	$104.50	92.84	0	600
Camping	38	$0.00	0.00	0	0

Visitor Mean Expenditures, Continued

Table 2B examines mean expenditures for backcountry visitors who are not residents of the region. Here, the average per trip expenditures total $274.29, with the highest expenditures in lodging and sit-down dining.

Table 2B

Backcountry Visitor Mean Expenditures for All Study Areas (Estimated 437,789 Annual Visits)

Variable	*Obs*	*Mean*	*Std. Dev.*	*Min*	*Max*
Fast food	11	$1.82	4.05	0	10
Sit-down dining	13	$97.95	141.77	0	500
Grocery Stores	13	$15.90	29.57	0	100
Gas station food	12	$0.42	1.44	0	5
Gasoline & oil	13	$29.87	35.40	0	100
Retail gear	12	$0.00	0.00	0	0
Retail, non-food	12	$5.00	17.32	0	60
Rental gear	13	$0.00	0.00	0	0
Guide service	12	$16.67	57.74	0	200
Rental Car	13	$0.00	0.00	0	0
Taxi / Uber / Lyft	13	$0.00	0.00	0	0
Adventure tourism	13	$0.00	0.00	0	0
Entertainment	13	$0.00	0.00	0	0
Hotels & resorts	13	$106.67	78.95	0	600
Camping	16	$0.00	0.00	0	0

Economic Impact Terminology

In the following paragraphs, three terms describe economic impact: *direct effect, indirect effect,* and *induced effect*.

Direct effect is the economic impact created by the presence of the economic activity. For example, if a local restaurant sells $1K in food, its direct effect would be $1K.

Indirect effect is economic activity created when local businesses purchase goods and services from other local industries as a result of the direct effect.

Induced effect is the estimated local expenditures by local households and employees as a result of income created from the direct effect.

Labor income impact is measured by the estimated labor income created by the economic activity in the region. This is a conservative measure of economic impact.

Value added is a measure of the increase in the study region's gross domestic product. Gross domestic product is a measure of all goods and services produced in the study area and is treated as a measure of the size of the economy.

Output is a measure of the increase in business sales revenue in the study area as a result of the economic impact being studied. It includes business revenues as well as costs of doing business. It includes value added as part of its calculation.

Economic Impact Modeling

RESORT-BASED SNOWSPORTS

Tables 3A - 3C detail the economic impact linked to snowsports visitation across the three study areas for resort users only. In sum, resort visitors who are not local residents spent an estimated $213 million across the three study areas. In sum, resort visitors who are not local residents support an estimated 2,547 jobs and $63 million in job income, which is a useful and conservative measure of economic impact.

Table 3A focuses on the Gunnison area and resort use there by persons not living in the area. There, resort use by visitors from outside the area support 1,464 jobs and $34 million in wages.

Table 3A

Economic Impact Summary of Resort Users in the Gunnison Study Area (Estimated 240,000 Annual Visits)				
Impact Type	*Jobs Supported*	*Labor Income*	*Value Added*	*Output*
Direct	1,184.2	$26,651,827	$33,317,481	$62,048,424
Indirect	140.0	$3,673,311	$7,320,422	$16,928,178
Induced	139.8	$3,903,874	$8,376,799	$15,681,677
Total Effect	1,464.1	$34,229,013	$49,014,702	$94,658,279

Table 3B looks at resort use in Grand Mesa. There, snowsports users who live outside the area supported 283 jobs and $7.1 million in labor income via their expenditures.

Table 3B

Economic Impact Summary of Resort Users in the Grand Mesa Study Area (Estimated 45,000 Annual Visits)				
Impact Type	*Jobs Supported*	*Labor Income*	*Value Added*	*Output*
Direct	221.1	$4,983,709	$6,454,456	$11,699,571
Indirect	26.0	$893,334	$1,512,441	$3,259,649
Induced	36.4	$1,254,052	$2,245,496	$4,235,158
Total Effect	283.5	$7,131,096	$10,212,392	$19,194,378

Table 3C examines resort use in the Uncompahgre study area. There, expenditures by visiting snowsports users targeting resorts support 799 jobs and $22 million in wages.

Table 3C

Economic Impact Summary of Resort Users in the Uncompahgre Study Area (Estimated 157,200 Annual Visits)				
Impact Type	*Jobs Supported*	*Labor Income*	*Value Added*	*Output*
Direct	640.1	$17,103,994	$20,319,130	$35,435,232
Indirect	64.4	$2,3030,859	$4,183,163	$8,682,560
Induced	95.1	$3,058,449	$5,955,067	$11,057,572
Total Effect	799.6	$22,466,302	$30,457,360	$55,175,363

Economic Impact Modeling, Continued

BACKCOUNTRY SNOWSPORTS

Tables 4A - 4C look at backcountry visitor use. In sum, backcountry visitors who are not local residents spend an estimated $120 million, supporting 968 jobs and $33 million in wages.

Table 4A looks specifically at backcountry use in the Gunnison study area, where visitors support 347 jobs and $8 million in job income.

Table 4A

Economic Impact Summary of Backcountry Users in the Gunnison Study Area (Estimated 111,995 Annual Visits)				
Impact Type	*Jobs Supported*	*Labor Income*	*Value Added*	*Output*
Direct	281.3	$6,236,778	$7,631,178	$14,576,110
Indirect	33.5	$880,449	$1,737,306	$4,038,068
Induced	32.8	$916,231	$1,966,012	$3,680,453
Total Effect	347.6	$8,033,497	$11,334,396	$22,294,631

Table 4B lists the impact of visitor spending in Grand Mesa. There, snowsports users visiting the backcountry areas support 699 jobs and $17 million in wages via their expenditures.

Table 4B

Economic Impact Summary of Backcountry Users in the Grand Mesa Study Area (Estimated 218,997 Annual Visits)				
Impact Type	*Jobs Supported*	*Labor Income*	*Value Added*	*Output*
Direct	544.6	$12,365,842	$15,833,126	$28,882,963
Indirect	64.3	$2,229,691	$3,747,327	$8,061,313
Induced	90.4	$3,114,427	$5,576,688	$10,517,992
Total Effect	699.3	$17,709,960	$25,157,141	$47,462,267

Table 4C looks at backcountry visitors from outside the region in the Uncompahgre area. There, expenditures support 268 jobs and $7,472,071 in wages.

Table 4C

Economic Impact Summary of Backcountry Users in the Uncompahgre Study Area (Estimated 106,797 Annual Visits)				
Impact Type	*Jobs Supported*	*Labor Income*	*Value Added*	*Output*
Direct	216.3	$5,696,508	$6,551,457	$11,685,428
Indirect	20.9	$757,947	$1,363,353	$2,831,741
Induced	31.6	$1,017,616	$1,981,315	$3,679,114
Total Effect	268.8	$7,472,071	$9,896,125	$18,196,283

Taxation Generation Within the Study Areas

RESORT-BASED SNOWSPORTS

Tables 5A - 5C detail the estimate taxes (both local/state and federal) generated by snowsports visitors to resorts in or near the three study areas.

Table 5A

Annual Estimated Taxation Generated by Resort Users in Gunnison Study Area		
Tax Type	***State & Local***	***Federal***
Employee Compensation	$106,533	$3,776,113
Proprietor Income	$0	$133,550
Tax on Production & Imports	$6,054,233	$846048
Households	$796,321	$2,428,003
Corporations	$52,463	$419,551

Table 5A details taxation in the Gunnison study area. There, snowsports users generate $7 million in state and local taxes and another $7.6 million in federal taxes.

Table 5B

Annual Estimated Taxation Generated by Resort Users in Grand Mesa Study Area		
Tax Type	***State & Local***	***Federal***
Employee Compensation	$22,791	$850,382
Proprietor Income	$0	$19,863
Tax on Production & Imports	$1,236,488	$166,230
Households	$166,613	$519,326
Corporations	$11,949	$98,427

Table 5B focuses on the Grand Mesa area, where snowsports user visitor expenditures support $1.4 million in state/local taxes on and $1.6 million in federal taxes.

Table 5C

Annual Estimated Taxation Generated by Resort Users in Uncompahgre Study Area		
Tax Type	***State & Local***	***Federal***
Employee Compensation	$71,770	$2,696,816
Proprietor Income	$0	$631,148
Tax on Production & Imports	$3,221,119	$332,785
Households	$551,476	$1,685,694
Corporations	$26,240	$214,485

Table 5C lists tax generation in the Uncompahgre study area. In this study area, snowsports user visitors support $3.8 million in state/local taxes and imports, as we as over $5.5 million in federal taxes.

Taxation Generation Within the Study Areas, Continued

BACKCOUNTRY SNOWSPORTS

Tables 6A - 6C detail the estimate taxes (both local/state and Federal) generated by snowsports visitors to backcountry areas in the three study areas.

Table 6A

Annual Estimated Taxation Generated by Backcountry Users in Gunnison Study Area		
Tax Type	***State & Local***	***Federal***
Employee Compensation	$25,020	$886,843
Proprietor Income	$0	$31,077
Tax on Production & Imports	$1,393,414	$194,722
Households	$186,885	$569,817
Corporations	$11,396	$91,135

Table 6A details taxation in the Gunnison study area. There, snowsports users in the backcountry generate $1.6 million in state and local taxes and another $1.7 million in federal taxes.

Table 6B

Annual Estimated Taxation Generated by Backcountry Users in Grand Mesa Study Area		
Tax Type	***State & Local***	***Federal***
Employee Compensation	$56,576	$2,110,960
Proprietor Income	$0	$49,662
Tax on Production & Imports	$2,977,521	$400,289
Households	$413,797	$1,289,791
Corporations	$28,968	$238,617

Table 6B focuses on the Grand Mesa area, where snowsports backcountry user visitor expenditures support $3.4 million in state/local taxes on and $4 million in federal taxes.

Table 6C

Annual Estimated Taxation Generated by Backcountry Users in Uncompahgre Study Area		
Tax Type	***State & Local***	***Federal***
Employee Compensation	$24,035	$903,144
Proprietor Income	$0	$18,834
Tax on Production & Imports	$1,009,062	$104,250
Households	$183,297	$560,284
Corporations	$7,751	$63,359

Table 6C lists tax generation in the Uncompahgre study area. In this study area, snowsports user visitors engaging the backcountry areas support $1.2 million in state/local taxes and imports, as we as over $1.6 million in federal taxes.

Visitor Expenditures Beyond Study Area But In State

Table 7 lists mean expenditures for snowsports user visitors (both resort and backcountry) who reported funds spent outside the study areas but still within the state's boundaries as a result of their most recent trip to a study area. These are important expenditures that, even though they are not modeled in the study, continue to demonstrate the economic importance of human-powered outdoor recreation in the region.

Beyond the borders of the GMUG and surrounding region, snowsports users noted expenditures in rental gear ($16.19), and gas station food and drink ($9.72) as industries where snowsports users contribute while recreating in the GMUG. Across all categories, this adds another $36 million to the state's economy. Due to low responses it was not possible to calculate expenditure tables for this section by both resort and backcountry users.

Table 7

Snowsports Visitor Expenditures (Resort and Backcountry) Outside Study Areas but still within State of Colorado (Estimated 437,789 Annual Visits)

Variable	*Obs*	*Mean*	*Std. Dev.*	*Min*	*Max*
Fast food	52	$1.79	5.50	0	20
Sit-down dining	52	$1.79	5.50	0	20
Grocery Stores	46	$1.20	4.62	0	20
Gas station food	53	$9.72	29.06	0	150
Gasoline & oil	53	$2.89	9.68	0	60
Retail gear	41	$1.99	6.27	0	27
Retail, non-food	52	$5.00	18.42	0	100
Rental gear	52	$16.19	42.35	0	200
Guide service	53	$0.00	0.00	0	0
Rental Car	53	$0.00	0.00	0	0
Taxi / Uber / Lyft	51	$0.00	0.00	0	0
Adventure tourism	52	$0.00	0.00	0	0
Entertainment	53	$0.00	0.00	0	0
Hotels & resorts	53	$0.94	6.87	0	50
Camping	51	$0.00	0.00	0	0

Local Resident Expenditures by Study Area

Table 8A describes local residents' expenditures as a result to visits to resorts in and near the three study areas. Although local resident snowsports users are not regarded as true economic impact in their local economies, local residents do make a noted contribution to the local economy while visiting the GMUG. Local resident resort users spent an estimated $81 million annually as a result of visiting the study areas.

Table 8A

Local Resident Expenditures at Resorts in Study Areas (Estimated 294,800 Annual Visits)					
Variable	*Obs*	*Mean*	*Std. Dev.*	*Min*	*Max*
Fast food	48	$0.63	2.74	0	17
Sit-down dining	50	$48.60	92.25	0	500
Grocery Stores	50	$76.00	297.11	0	2000
Gas station food	51	$3.53	9.28	0	50
Gasoline & oil	50	$57.61	212.74	0	1500
Retail gear	50	$49.80	117.69	0	500
Retail, non-food	51	$10.59	36.91	0	200
Rental gear	52	$0.00	0.00	0	0
Guide service	51	$0.00	0.00	0	0
Rental Car	52	$0.00	0.00	0	0
Taxi / Uber / Lyft	52	$0.00	0.00	0	0
Adventure tourism	51	$1.37	7.49	0	50
Entertainment	51	$12.78	41.78	0	200
Hotels & resorts	51	$16.01	75.35	0	450
Camping	53	$0.00	0.00	0	0

Local Resident Expenditures by Study Area,Continued

Table 8B details local resident backcountry users' average expenditures per visit to the study areas. There they spent an estimated $36 million dollars as a result of their visit.

Table 8B

Local Resident Expenditures in Backcountry in Study Areas (Estimated 291,859 Annual Visits)					
Variable	*Obs*	*Mean*	*Std. Dev.*	*Min*	*Max*
Fast food	20	$0.25	1.12	0	5
Sit-down dining	21	$32.86	46.46	0	150
Grocery Stores	19	$17.89	32.20	0	100
Gas station food	20	$0.00	0.00	0	0
Gasoline & oil	20	$31.00	34.09	0	100
Retail gear	21	$0.48	2.18	0	10
Retail, non-food	21	$0.00	0.00	0	0
Rental gear	22	$0.00	0.00	0	0
Guide service	21	$0.00	0.00	0	0
Rental Car	22	$0.00	0.00	0	0
Taxi / Uber / Lyft	22	$0.00	0.00	0	0
Adventure tourism	22	$0.00	0.00	0	0
Entertainment	22	$0.00	0.00	0	0
Hotels & resorts	20	$0.00	0.00	0	0
Camping	23	$0.00	0.00	0	0

Local Resident Expenditures Beyond Study Area But Inside State

Table 9 Local residents also continue to spend funds outside the study area as a result of visits to the GMUG. As a result of these trips, local residents spent an average of $37.68 per visit to the GMUG beyond the study areas but within Colorado, totaling an estimated $22 million per year. Due to low responses it was not possible to calculate expenditure tables for this section by both resort and backcountry users.

Table 9

Local Resident Expenditures Beyond Study Area but within State of Colorado (Estimated 586,659 Annual Visits)					
Variable	*Obs*	*Mean*	*Std. Dev.*	*Min*	*Max*
Fast food	72	$0.00	0.00	0	0
Sit-down dining	72	$4.44	16.80	0	100
Grocery Stores	72	$8.75	32.50	0	200
Gas station food	73	$0.41	2.60	0	20
Gasoline & oil	73	$16.58	55.98	0	300
Retail gear	72	$0.00	0.00	0	0
Rental gear	72	$7.50	31.35	0	200
Guide service	73	$0.00	0.00	0	0
Rental Car	74	$0.00	0.00	0	0
Taxi / Uber / Lyft	74	$0.00	0.00	0	0
Adventure tourism	74	$0.00	0.00	0	0
Entertainment	74	$0.59	0.00	0	0
Hotels & resorts	73	$0.00	0.00	0	0
Camping	73	$0.00	0.00	0	0
Retail, non-food	78	$0.00	0.00	0	0

OMISSIONS & CONSIDERATIONS

During the research process, the research team identified minor issues that should be noted. First, as is always the case with economic impact studies, the findings in this report must be treated as estimations. This economic impact study utilizes mean figures to estimate expenditures that may vary from year to year, visit to visit, event to event, and person to person.

Second, this study does not account for length of visit. As point of reference, visitors in the study indicated staying an average of 4.3 days.

Third, collecting economic impact data well after the initial day of expenditures can result in unavoidable errors in data collection. For examples, respondents rounding expenditures to the nearest dollar, forgetting expenditures, or misstating expenditures are common issues. As such, the research team recommends repeating this study by collecting data in the field at or around the day expenditures are made.

Fourth, this study uses generalized categories (e.g. snowsports users) to account for expenditures across more than one form of outdoor recreation. Individual outdoor recreation types may have unique spending patterns that are lost in aggregated data. The researchers suggest conducting future field studies on separate outdoor recreation categories to create a more nuanced economic estimate.

Fifth, NVUM visitation estimates are unable to account for every single visit that occurs into a particular area or study area. Outdoor recreation is particularly easy to under count as outdoor recreation users are often less visible or in remote areas of a national forest.

Sixth, NVUM data make no distinction between winter hikers and regular hikers. They also do not specify numbers for snowshoers (which are often lumped into cross country skiing) or fatbikers.

Seventh, future research would benefit from having a larger sample size that targets specific kinds of snowsports (e.g. winter hiking, downhill skiing) to provide more nuance to the study.

Eighth, modeling for resorts is complicated by the number of resorts in the area that are technically beyond the GMUG's borders but are nearby and are engaged as a result of visiting the GMUG. Future research should be aware of this and attempt to mediate this issue in responses.