The Economic Contributions of ATV/UTV Riders in Wisconsin

During Calendar Year of 2023

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3/14/2024

Contents

1 Executive Summary

Scope and Size of Wisconsin's ATV/UTV Industry

In 2023, ATV/UTV riders in Wisconsin generated substantial economic activity, spending an estimated $4.2 billion and creating 25,845 jobs. This spending occurred across various industries, including motor vehicle dealers, lodging facilities, restaurants, gas stations, and retail stores. Table 2 details the rider spending by category. The estimated spending of $4.2 billion aligns reasonably with findings from comparable studies, as discussed in Section 6.

Total economic effect

Beyond direct spending, ATV/UTV rider activity had a significant ripple effect throughout Wisconsin's economy. The rider spending of $4.2 billion supported supply industries, such as accounting, advertising, employment services, and warehousing and storage (interindustry effect). In addition, the combined workforce of these affected industries spent their earnings in the state's service industries (household-spending effect), such as hospitals, schools, repair and maintenance services, gas stations, restaurants, and utility companies. In 2023, the total effect of ATV/UTV rider spending was estimated to be 39,804 jobs, $1.7 billions in labor income (which is largely wages and salaries), or $5.4 billion in output. The total effect is the sum of the rider spending, interindustry and household-spending effect. See Table 1.

Total economic effect in perspective

The total economic effect of 39,804 jobs was 1.03% of all employment in Wisconsin [1]. This means 1.03% of all employment in Wisconsin was directly or indirectly dependent on ATV/UTV rider spending. The total effect of $3.1 billion in value added was 0.75% of the state's gross domestic product during 2023[2] .

Contribution to state and local government taxes

ATV/UTV riders also contribute to the state's coffer. It was estimated that their spending resulted in a total of $435.4 million of tax revenues to Wisconsin's state and local governments, which was about 1.11% of Wisconsin's state and local government taxes[3]. Table 5 reports detailed information on state and local government taxes.

Conclusion

In summary, the economic contributions of ATV/UTV riders to Wisconsin's economy are significant and poised for further growth. National statistics underscore the state's leading position in terms of economic production within the ATV/UTV industry, a position that persists even when adjusted for population size. The industry's expansion is evident in the steady rise of ATV/UTV registrations since 2012, reflecting its increasing importance to the state's economic landscape.

Crucially, the presence of ATV/UTV manufacturing facilities within Wisconsin amplifies the industry's economic impact, distinguishing the state from others where rider spending predominantly affects service sectors. Moreover, the industry's potential for future growth is underscored by the accelerating influx of non-resident riders, signaling opportunities to attract external spending and foster economic development, particularly in rural areas.

In essence, the ATV/UTV industry not only represents a substantial economic driver for Wisconsin's economy but also holds promise for continued expansion and prosperity in the years ahead.

[1] To calculate this percentage, the author used the state jobs data from the U.S. Bureau of Economic Analysis (BEA), which is only available up to 2022. To estimate the value for 2023, the author utilized jobs data from the Bureau of Labor Statistics (BLS). BLS reports nonfarm payroll data, which excludes farm jobs but generally reflects similar trends in overall employment. BEA: accessed 2/10/2024 at https://apps.bea.gov/iTable/index_regional.cfm BLS: accessed 2/10/2024 at https://www.bls.gov/sae/

[2] To calculate this percentage, the author used the state GDP data from BEA, which is only available up to the third quarter of 2023. To estimate the value for the fourth quarter of 2023, the author utilized the U.S. GDP data, which is available for all quarters of 2023. This estimation assumes that Wisconsin's economy grew at the same pace as the United States during the fourth quarter of 2023. Accessed 1/15/2024 at https://apps.bea.gov/iTable/index_regional.cfm

[3] To calculate this percentage, the author used the tax data from the State & Local Government Finances by the U.S. Census Bureau. For further details on the tax estimation methodology, please refer to section 7.2.4, "Estimating Taxes." Accessed 1/14/2024 at https://www.census.gov/data/datasets/2021/econ/local/public-use-datasets.html

2 Scope of the Study

This study aims to evaluate the economic contributions of ATVing in Wisconsin, focusing on ATV and UTV usage while excluding rental companies and commercial dealerships to ensure a precise representation of recreational riding activity. Commercial registrations constitute a small fraction of recreational riding, less than 0.5% of all registrations, and may exhibit distinct spending patterns.

Comprehensive data on ATV/UTV rider spending was collected through an on-site, in-person survey conducted and funded by the NOHVIS Group in partnership of the Wisconsin ATV Association. Participants were asked to provide detailed spending information by category, offering insights into their economic contributions. While the survey excludes activity by minors, it includes spending made by adults on their behalf, providing a holistic view of economic impacts. Additionally, survey respondents comprise both in-state and out-of-state residents.

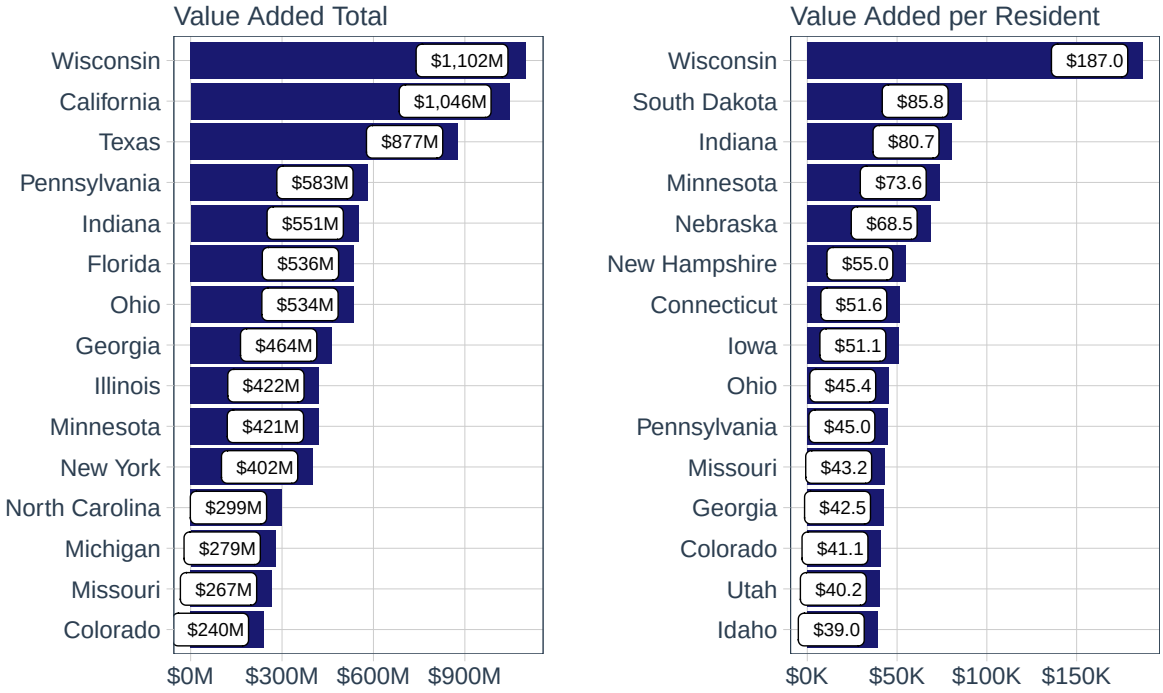
Furthermore, this study utilizes the RIMS II input/output economic model by the United States Bureau of Economic Analysis to measure multiplier effects of ATV/UTV rider spending. Through this model, the estimated economic value was expressed by metrics such as employment, labor income, and output in Wisconsin. Moreover, the author estimated state and local government taxes using RIMS II impact results and government tax data. Together, these methodologies offer a comprehensive understanding of the economic implications of ATVing activity in Wisconsin.

3 ATV/UTV Industry in Wisconsin, Overview

Wisconsin stands as a leader in the ATV/UTV industry nationwide, ranking 1st in the country in terms of economic production in Motorcycling/ATVing. According to the U.S. Bureau of Economic Analysis Outdoor Recreation Satellite Account, the industry annually generates over $1.1 billion in Value Added, which equates to Gross Domestic Product at the national level[4]. This ranking remains consistent even when considering the size of states, showcasing Wisconsin's prominent position in the ATV/UTV sector. On a per-resident basis, the industry contributes significantly, with an annual production of $187 per resident in Wisconsin. This figure is twice the amount seen in South Dakota, the runner-up state with $85.8 per resident. The population data were obtained from the U.S. Census Bureau[5].

It's worth noting that while this data from the U.S. Bureau of Economic Analysis provides valuable insights, it may not perfectly align with the scope of ATVing specifically targeted in this study, as it also encompasses motorcycling. Nonetheless, it offers a comprehensive understanding of the economic significance of ATVing to Wisconsin compared to other states across the country.

Figure 1: Top 15 States in Motorcycling/ATVing in 2022

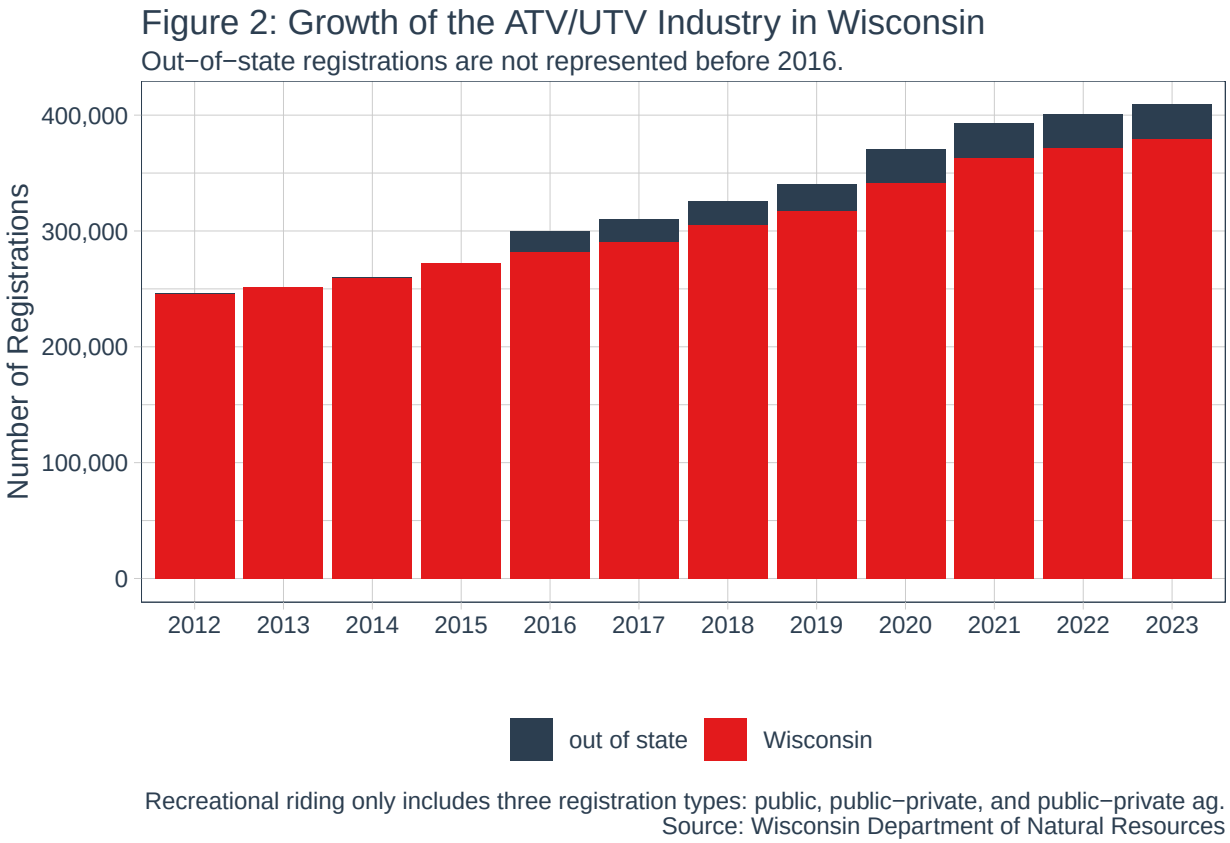


Source: Calculated by the author based on data from the U.S. BEA and the U.S. Census Bureau

[4] Accessed 1/12/2024 at https://apps.bea.gov/iTable/iTable.cfm?reqid=70&step=1&acrdn=9
[5] Accessed 1/12/2024, 2022 American Community Survey 1 year estimate, at https://data.census.gov/cedsci/

The economic contribution of the ATV/UTV industry is poised for further growth in the coming years. Over the past decade, Wisconsin has witnessed significant and consistent increases in ATV and UTV registrations, as depicted in Figure 2 below. While the majority of recreational riders in the state are residents, a closer examination reveals an intriguing trend. Although still a minority compared to resident riders, the number of non-resident riders has expanded nearly twice as rapidly as their resident counterparts. Between 2016 and 2023, out-of-state riders increased by 66%, while resident riders grew by 35%. This disparity suggests a potential catalyst for future economic expansion.

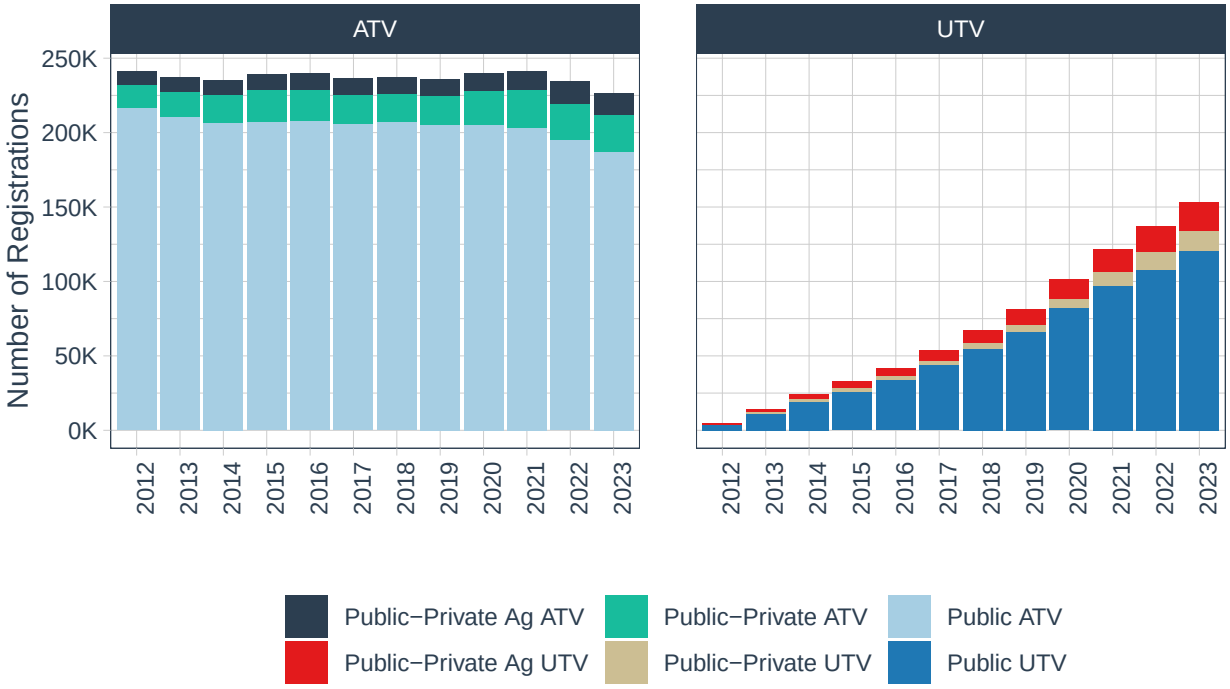
The inclusion of non-resident data starting from 2016 coincides with the implementation of legislation requiring trail passes for out-of-state riders. Prior to 2016, out-of-state riders registered their vehicles in their respective states, with registrations from outside Wisconsin being recognized. It's worth noting that commercial ATV/UTV Certificates and Plates were excluded from this trend analysis. These registrations primarily represent businesses, such as dealerships, utilizing vehicles for purposes beyond traditional recreational riding. Moreover, commercial registrations constitute less than 0.5% of all registrations according to the registrations data, further underscoring their minimal impact on the trend analysis.



An examination of registration data by type unveils another compelling trend within the ATV/UTV industry. The industry's growth is predominantly attributed to the exponential rise of UTVs. Figure 3 below starkly illustrates the contrasting trends between ATV and UTV registrations, offering valuable insights for planning purposes. Notably, public registrations constitute the majority in both ATV and UTV registrations. Furthermore, it's noteworthy that public UTV registrations contribute the most to the industry's overall growth trajectory.

Figure 3: Growth of ATV/UTV Registrations by Type

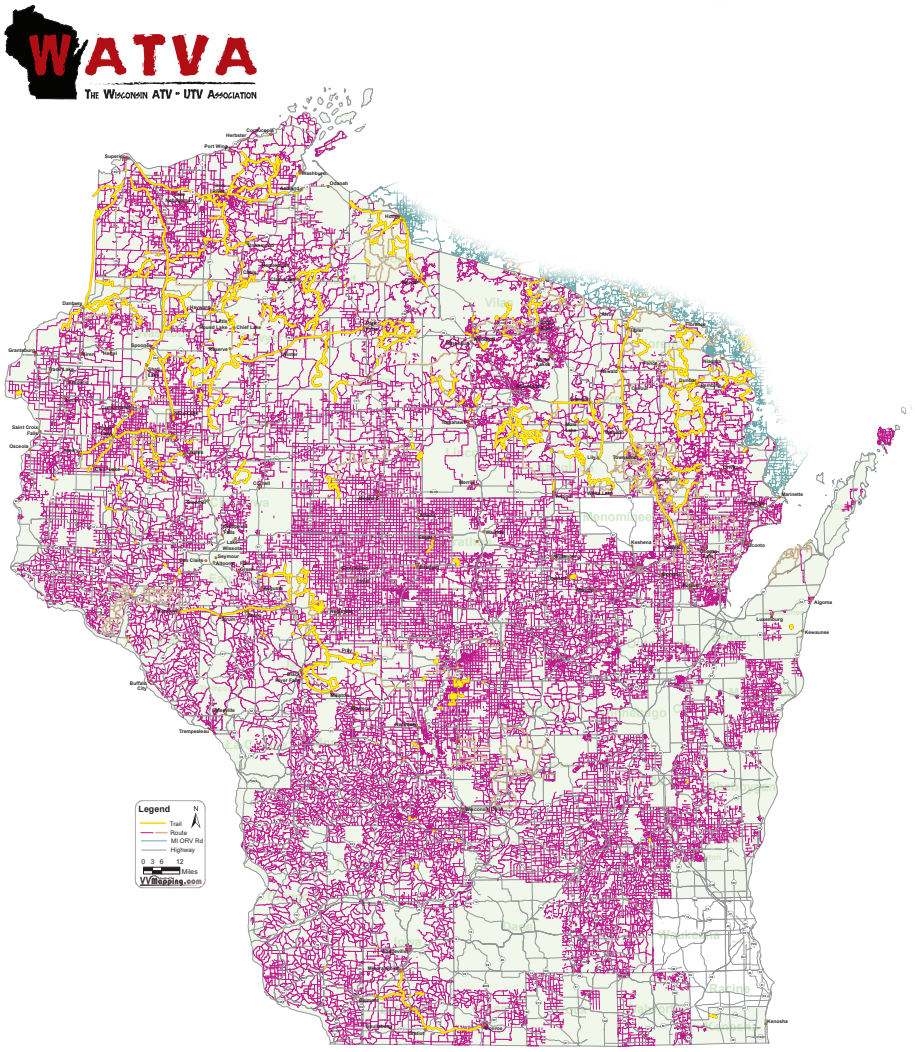
Represented are resident recreational registrations.



Recreational riding only includes three registration types: public, public−private, and public−private ag.
Source: Wisconsin Department of Natural Resources

The economic impact of ATV/UTV rider spending extends across the entirety of the state, as depicted in the ATV/UTV trail map below. While Wisconsin boasts more extensive ATV/UTV trails in its northern and western rural regions, the industry's contributions are felt statewide. Many riders residing in southeastern urban areas often journey to trails, stopping at various gas stations and restaurants along the way. Additionally, while spending during trips may primarily concentrate near the trails, expenditures on vehicles and equipment are more likely to occur in urban areas closer to their residences.

Figure 4: Map of Wisconsin ATV/UTV Trails



4 ATV/UTV Industry in Wisconsin, Economic Contributions

The economic contributions of ATV/UTV riders, as depicted in Table 1, were derived using the RIMS II model. These riders spent at various establishments including motor vehicle and parts dealers, lodging facilities, restaurants, gas stations, grocery stores, and other retail outlets. Their expenditures not only stimulated demand within these sectors but also supported their respective supply industries within the state, thereby initiating a ripple effect known as the interindustry effect. Furthermore, the earnings of workers in these affected industries were subsequently reinvested into the state's service sectors, generating an household-spending effect.

For instance, the data in Table 1 illustrates that ATV/UTV riders' spending resulted in the creation of 25,845 jobs in Wisconsin. These jobs, in turn, supported an additional 5,719 positions in supporting industries such as accounting, advertising, employment services, and insurance carriers. Moreover, the combined workforce of 25,845 jobs and 5,719 jobs in supporting industries further supported 8,240 jobs in service industries such as hospitals, schools, repair and maintenance services, gas stations, restaurants, and utility companies.

In total, ATV/UTV riders contributed to the support of 39,804 jobs in Wisconsin in 2023 through their spending activities.

Table 1: Summary of Economic Contribution (in billions of dollars)

Impact Type	Employment	Labor Income	Value Added	Output
Rider Spending	25,845	$0.91	$1.67	$2.85
Interindustry Effect	5,719	$0.35	$0.66	$1.24
Household-Spending Effect	8,240	$0.41	$0.76	$1.34
Total Effect	39,804	$1.67	$3.09	$5.43

The dollars are expressed in billions of 2023 dollars. Labor income is the sum of employee compensation (wages and salaries plus other compensations) and proprietor income. Value added is the sum of labor income, other types of property income (such as dividends, interest income, rent income, and profits), and taxes on production and imports. Output is the sum of value added and the cost of all the inter-industry purchases required for production.

In 2023, ATV/UTV riders in Wisconsin spent an estimated $4.2 billion. Table 2 illustrates rider spending across three primary categories: spending during the trip, spending on vehicles (such as ATV/UTVs and towing trucks), and spending on equipment. Within each category, the table itemizes the expenditure amounts for specific items. For example, in the spending during the trip category, riders collectively spent $973 million on Food & Beverage during the calendar of 2023.

Table 2: Rider Spedning by Category (in millions of dollars)

Category	Subcategory	Spending
Trip	Food & Beverage	$973
Trip	Transportation	$697
Trip	Recreation	$534
Vehicles	New ATV/UTV	$488
Trip	Lodging	$319
Trip	Souvenir	$298
Vehicles	New Towing Truck	$282
Trip	Entrance	$226
Equipment	Accessories	$115
Vehicles	Used ATV/UTV	$86
Equipment	Maintenance	$59
Vehicles	Used Towing Truck	$50
Equipment	Insurance	$44
Equipment	Apparel	$30
Equipment	Government	$13
Equipment	Other	$10
Total	Total	$4,223

Please note that the vehicle categories (e.g., ATV/UTVs and towing trucks) encompasses only a segment of total spending specifically associated with recreational riding activities, as indicated by data from the rider survey. For instance, the "New ATV/UTV" category represents 75.1% of the total spending on new ATV/UTVs, while the "Used Towing Truck" category accounts for 30.7% of total spending.

Table 3 illustrates the employment supported by ATV/UTV rider spending across 22 industries, as determined by the RIMS II Model. The most significant contribution was observed in "the food & beverage industry" supporting 10,882 jobs. Following is "the retail trade industry," which accounts for 7,325.

Table 3: Employment Contributions by Industry

Sector	Description	Rider Spending	Interindustry Effect	Household-Spending Effect	Total Effect
20	Food & beverage	10,035	246	600	10,882
8	Retail trade	5,658	293	1,373	7,325
18	Arts, entertainment, and recreation	5,270	396	236	5,902
19	Accommodation	2,786	61	144	2,991
12	Real estate and rental and leasing	1,179	570	760	2,509
17	Health care and social assistance	0	3	1,630	1,633
21	Other services	582	237	653	1,472
15	Administrative and support and waste management and remediation services	0	686	313	999
11	Finance and insurance	116	343	443	902
13	Professional, scientific, and technical services	0	491	264	755
9	Transportation and warehousing	5	472	265	742
6	Nondurable goods manufacturing	0	404	280	685
5	Durable goods manufacturing	207	235	114	557
14	Management of companies and enterprises	0	432	87	520
7	Wholesale trade	6	251	250	506
1	Agriculture, forestry, fishing and hunting	0	201	172	374
16	Educational services	0	55	315	371
10	Information	0	146	112	258
4	Construction	0	111	45	157
22	Households	0	0	141	141
3	Utilities	0	80	39	119
2	Mining, quarrying, and oil and gas extraction	0	3	1	4

Table 4 illustrates the labor income supported by ATV/UTV rider spending across 22 industries, as determined by the RIMS II Model. The most significant contribution was observed in "the food & beverage industry" supporting $317 million. Following closely is "the retail trade industry," which accounts for $287 million.

Table 4: Labor Income Contributions by Industry (in millions of dollars)

Sector	Description	Rider Spending	Interindustry Effect	Household-Spending Effect	Total Effect
20	Food & beverage	$293	$7	$17	$317
8	Retail trade	$227	$12	$48	$287
18	Arts, entertainment, and recreation	$208	$15	$6	$230
17	Health care and social assistance	$0	$0	$105	$105
19	Accommodation	$88	$2	$5	$95
12	Real estate and rental and leasing	$35	$19	$23	$78
21	Other services	$31	$13	$28	$72
11	Finance and insurance	$10	$26	$33	$69
14	Management of companies and enterprises	$0	$53	$11	$64
13	Professional, scientific, and technical services	$0	$40	$21	$60
6	Nondurable goods manufacturing	$0	$28	$20	$47
7	Wholesale trade	$1	$22	$22	$45
15	Administrative and support and waste management and remediation services	$0	$29	$13	$42
9	Transportation and warehousing	$0	$26	$14	$40
5	Durable goods manufacturing	$12	$16	$8	$36
10	Information	$0	$12	$9	$22
3	Utilities	$0	$11	$5	$17
16	Educational services	$0	$3	$14	$16
1	Agriculture, forestry, fishing and hunting	$0	$7	$6	$13
4	Construction	$0	$8	$3	$11
22	Households	$0	$0	$2	$2
2	Mining, quarrying, and oil and gas extraction	$0	$0	$0	$0

Table 5 shows the state and local government taxes ATV/UTV riders contributed. It collectively generated $435.4 million of tax revenues to Wisconsin's state and local governments from all sources (rider spending, interindustry effects, and household-spending effects). It was about 1.11% of all state and local government taxes[6].

Table 5: Tax Contribution (in millions of dollars)

Category	Tax
General sales	$226.1
Motor fuel	$72.3
Property	$59.0
Individual income	$32.5
Corporate income	$16.1
ATV/UTV registrarion fees	$12.4
Other selective sales	$4.2
Other taxes	$3.8
Tobacco products	$3.5
Motor vehicle license	$3.0
Public utilities	$2.1
Alcoholic beverage	$0.4
Total	$435.4

Note: ***Other taxes*** include fishing and hunting licenses, other personal licenses.

[6]The percentage was calculated using the tax data from the U.S. Census Bureau, 2021 State & Local Government Finances for Wisconsin, the latest available data. Accessed 1/14/2024 at https://www.census.gov/data/datasets/2021/econ/local/public-use-datasets.html

5 ATV/UTV Manufacturing in Wisconsin

The presence of ATV/UTV manufacturing facilities within Wisconsin significantly enhances the economic impact of rider spending in the state, distinguishing it from many other states where rider spending primarily influences service industries. This distinction is evident in Table 3 and Table 4, which detail the employment and labor income effects of rider spending across various sectors.

For instance, Table 3 indicates that rider spending resulted in the creation of 207 jobs in the "Durable goods manufacturing" industry. Notably, Wisconsin is home to two prominent ATV/UTV manufacturers: John Deere and Polaris. John Deere manufactures the majority of its Gator models at its Horicon facility, while Polaris operates a major manufacturing plant in Osceola. According to Polaris's latest annual report, the Osceola plant is designated as the primary site for component parts and engine manufacturing[7].

Traditional economic impact modeling often incorporates a process known as "retail margin," where only a fraction of retail spending is utilized for estimating economic impacts. This methodology assumes that purchased products are not manufactured within the study region and therefore captures only the retail margin share of the purchase amounts. However, this assumption does not hold true in Wisconsin due to the substantial presence of ATV/UTV manufacturing facilities in the state.

Given the considerable market shares of Polaris and John Deere and the critical role of engines in ATV/UTV performance and value, it is reasonable to infer that a significant portion of rider spending on new ATV/UTV purchases remains within the state. This amplifies its impact on Wisconsin's economy through the manufacturing industry instead of leaking out of the state. After consulting industry experts, it was determined that at least 21.8% of rider spending on new ATV/UTV purchases is generated within the state. Consequently, all of the 21.8% spending on new ATV/UTVs is fully accounted for in estimating economic contributions, while the remaining 78.2% is marginally accounted for, capturing only the retail portion of its effect.

It is important to note that this conservative estimate of 21.8% may underestimate the true economic impact, as engines often represent a significant portion of an ATV's total value, especially for high-performance models. In certain cases, the engine alone can constitute 50% or more of the ATV's overall value, underscoring the substantial economic contribution of ATV/UTV manufacturing to Wisconsin's economy.

[7] Accessed on 2/28/2024 at https://s27.q4cdn.com/214071222/files/doc_financials/2022/ar/2022-PII-Annual-Report-bookmarked-Final.pdf

6 Spending Estimate in perspectives

To contextualize the estimated ATV/UTV rider spending of $4.2 billion, it's essential to consider industry benchmarks and comparative studies.According to the Outdoor Industry Association's 2017 report, Americans annually allocate $51.5 billion towards participating in ATV/UTV recreational riding activities. Additionally, the U.S. Bureau of Economic Analysis determined that Wisconsin constitutes 9.6% of the Motorcycling/ATVing segment of the U.S. Outdoor Recreational Economy in terms of Value Added[8].

By multiplying the total national spending of $51.5 billion by Wisconsin's share of 9.6%, one could reasonably approximate ATV/UTV rider spending in Wisconsin to be approximately $4.9 billion. Hence, the reported ATV/UTV rider spending of $4.2 billion appears conservative in comparison.

Similarly, a recent study conducted by Plymouth State University estimated that ATVing activities in New Hampshire during 2020 amounted to $296 million[9]. Considering that Wisconsin's Motorcycling/ATVing activity, as measured by Value Added, is 14 times larger than that of New Hampshire, one could approximate ATV/UTV rider spending in Wisconsin to be around $4.3 billion by multiplying the spending in New Hampshire by 14.

Again, this puts the estimate of $4.2 billion in a reasonably close range.

[8] Accessed on 2/28/2024 at https://apps.bea.gov/itable/?ReqID=70&step=1&_gl=1*m1mt4i*_ga*MTM5NzkxNTEyMS4xNzA4MzQ2Nzk1*_ga_J4698JNNFT*MTcwOTEyMjQxOC4xMC4xLjE3MDkxMjI0NDYuMzIuMC4w#eyJhcHBpZCI6NzAsInN0ZXBzIjpbMSwyOSwyNSwzMV0sImRhdGEiOltbIlRhYmxlSWQiLCIzMDYiXSxbIk1ham9yX0FyZWEiLCIwIl1dfQ==

[9] Accessed on 2/28/2024 at https://www.nhstateparks.org/getmedia/d0c3e291-63e1-463c-9c2c-37e7b1b0a8fc/2020-OHRV-Economic-Study-2021.aspx#:~:text=It%20was%20estimated%20that%20OHRV,during%20the%20calendar%20year%202020."

7 Appendix

7.1 Methods

The methodology was primarily drawn from the Outdoor Industry Association's 2017 study[10]. The author estimated the economic contributions of ATV/UTV rider spending in Wisconsin in the following manner.

- Step 1: Estimate the average spending per ATV/UTV owner by category with a rider survey.
- Step 2: Estimate aggregate spending by multiplying the average spending by the number of ATV/UTV owners, which was estimated based on the number of ATV/UTV registrations from the Wisconsin Department of Natural Resources.
- Step 3: Estimate ATV/UTV riders' economic contributions by using the aggregate spending as input for RIMS II, an input/output model.

7.1.1 Rider Survey

The NOHVIS Group, in collaboration with the Wisconsin ATV Association, undertook an in-person survey at trailheads from April 2023 to October 2023 to collect data on ATV/UTV riders. A total of 1,072 riders participated in the survey, out of which 948 responses were deemed usable for the purposes of this study. It's important to note that the survey was conducted throughout the study year, meaning it covered spending that had occurred up to that point in the year as well as anticipated spending for the remainder of the year.

For instance, when querying riders about their spending on vehicles, the survey asked, "Did you, or will you, purchase an ATV or UTV in Wisconsin in 2023?" While this approach may result in a portion of the reported spending data not yet reflecting actual expenditures, one could argue that it is no less accurate than asking riders about spending a year later. Memories are fresher when closer to the time of action, potentially leading to more accurate reporting.

Note that, in the remainder of the document, the discussion related to the survey is presented in the past tense for the simplicity of the discussion. This choice in wording allows for a clearer and more cohesive presentation of the survey findings and their analysis.

Moreover, it's crucial to acknowledge that the method employed to estimate rider spending is based on the number of ATV/UTV owners rather than riders, as these two groups are not synonymous. The number of riders typically exceeds the number of owners, as multiple individuals can ride in a single vehicle. For instance, when estimating spending during trips, the survey inquired, "On a typical OVERNIGHT trip, how much do you spend in Wisconsin on each of the following categories for your immediate travel group? It would just be you, your immediate family or friends, but not a larger group such as all members of a club, rally, race, or similar event. Please include any money spent on children under 18 in your household who were part of your immediate group for this activity."

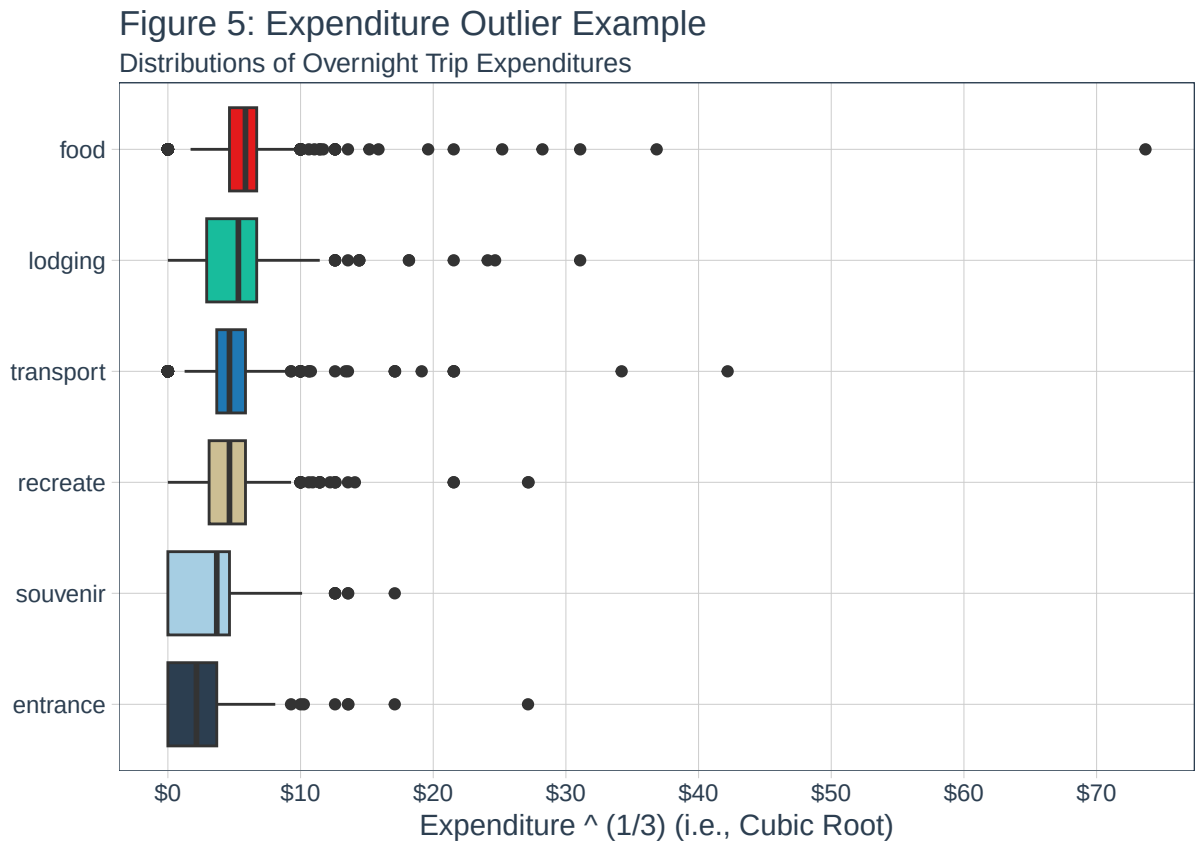
Lastly, to ensure the precision of spending estimates, a rigorous process of outlier removal was implemented on spending-related survey data subsequent to applying the cubic transformation.

Outliers typically exhibit extreme values, either significantly larger than the median plus 1.5 times the interquartile range (IQR) or considerably smaller than the median minus 1.5 times the IQR.

Utilizing the cubic transformation results in a more normalized distribution of spending, thus providing a more conservative approach to outlier identification. This method helps to enhance the reliability of the data analysis process.

Figure 5 illustrates these disregarded outliers.

[10]Outdoor Industry Association, 2017 Recreation Economy Contributions: Technical Report



The dots in the figure indicate outliers, with those on the right side of the box representing extremely large values exceeding the median plus 1.5 times the IQR. These outliers were excluded from the calculation of average expenditure by category. For instance, expenditures of $1,000 or more per trip were deemed outliers and excluded when estimating the average overnight trip spending on food. Conversely, dots on the left side of the box represent extremely small values below the median minus 1.5 times the IQR, which were also removed. For example, instances of $0 spending (indicating no expenditure) were considered outliers and excluded when estimating overnight trip spending on food. This process ensures that outliers do not unduly influence the calculation of average expenditure, leading to more accurate and reliable results.

7.2 Procedures

Economic contributions of ATV/UTV riders were estimated in the following order:

1. Estimate the number of ATV/UTV owners
2. Estimate trips
3. Estimate expenditures
4. Estimate economic contributions

7.2.1 ATV/UTV owners

The number of ATV/UTV owners was estimated by the following formula:

`number of ATV/UTV owners = number of public ATV/UTV registrations / avg. number of registrations per person` [11]

[11] The ATV/UTV registrations data were obtained from the Wisconsin Department of Natural Resources.

Estimating the number of ATV/UTV owners involves a multifaceted approach to ensure accuracy and reliability.

Initially, the total number of owners was calculated by dividing the overall number of registrations by the average number of registrations per person, accounting for individuals who possess multiple vehicles.

It's important to clarify that the average number of registrations per person reflects either ATVs or UTVs per rider. This distinction is crucial, as the count of ATV/UTV owners does not equate to the sum of ATV owners and UTV owners. Rather, it represents the number of owners who possess either an ATV or a UTV. It's noteworthy that a rider may own both types of vehicles, resulting in multiple registrations but still counted as one rider. Registrations considered for this estimation encompassed only public registration types, namely public, public-private, and public-private ag, as these types are typically associated with recreational riding.

During 2023, Wisconsin residents accounted for 379,556 ATV/UTV registrations. Excluding commercial registrations, which constitute less than 0.5% of all registrations, the Wisconsin Department of Natural Resources provided data indicating that the average owner possesses 1.34 machines (either ATVs or UTVs). This suggests a total of 282,317 ATV/UTV owners within the state.

Additionally, in 2023, 29,445 ATV/UTV registrations were attributed to non-residents. With an average of 1.34 machines per person, approximately 21,901 ATV/UTV owners were estimated to be from outside the state. It's notable that more than 92% of ATV/UTV owners in Wisconsin are residents.

Commercial ATV/UTV Certificates and Plates were excluded from rider calculations, as they pertain to businesses, primarily dealerships, utilizing vehicles beyond traditional recreational riding. These commercial registrations constitute less than 0.5% of all registrations and are not typical of recreational riders in outdoor recreational studies.

While the registrations-based estimate offers the best approximation given available data, it may underestimate actual rider numbers, as individuals other than the registered owner may utilize the vehicle. Furthermore, commercial registrations were not included. Conversely, the estimate may overestimate rider numbers, as registration payment does not necessarily indicate a "recreational" ATV/UTV trip.

A comparison of the resulting spending estimate with relevant studies suggests that this registrations-based estimate of ATV/UTV owners is reasonably accurate.

Table 6: Estimating ATV/UTV Owners, Calendar Year 2023

State	ATV/UTV Registrations	Registrations per Person	ATV/UTV owners
Wisconsin	379,556	1.34	282,317
Out of State	29,445	1.34	21,901

7.2.2 Rider Expenditures

Expenditures were estimated in the following three sections:

- Trip-Related Spending: It is measured on a per-trip basis and includes items, such as food & beverage, transportation, lodging, souvenirs, etc.
- Equipment & Services: This spending is measured per ATV/UTV owner annually. It includes items such as primary equipment, apparel, accessories, services, fees, etc.
- ATV/UTV: Vehicle spending is measured per ATV/UTV owner annually. Riders were also asked in the survey the percentage of the usage of the vehicle that was for recreational riding, and only this part of the purchase price was counted toward the ATV/UTV's economic contributions.

7.2.2.1 Trip-Related Spending

Trip-related spending was estimated by the formula below.

`trip expenditure = number of ATV_UTV owners * avg. number of trips per owner * avg. spending per trip`

To estimate ATV/UTV rider spending during trips, the study categorized spending into four distinct trip profiles:

1. In-state Day Trips
2. In-state Overnight Trips
3. Out-of-state Day Trips
4. Out-of-state Overnight Trips

Survey respondents were grouped into these trip profiles based on their reported participation in each type of trip (in-state day, in-state overnight, out-of-state day, out-of-state overnight). Subsequently, respondents who indicated taking one or more of these trips were asked to provide details on their typical spending.

For each trip type, respondents were queried about their expenditures across various categories such as lodging, food, gasoline, and souvenirs. These responses were then compiled to generate average spending estimates for each trip profile. Figures 6 and 7 present a breakdown of the survey results for these spending profiles.

7.2.2.2 Equipment & Services

Equipment & services spending was estimated by the formula below.

`equipment expenditure = number of ATV_UTV owners * percentage of the owners who bought equipment * avg. spending on equipment per person`

Each qualified respondent was asked to indicate how much money they spent in Wisconsin during 2023 on equipment and services for recreational riding (e.g., apparel, vehicle maintenance, and vehicle insurance). See Figure 8 for the results.

7.2.2.3 Spending on Vehicles

Vehicle spending was estimated by the formula below.

`vehicle expenditure = number of ATV_UTV owners * percentage of the owners who bought vehicle * avg. spending on vehicle per person * avg. vehicle usage`

The survey meticulously collected data on vehicle spending across four distinct categories: new ATV/UTV, used ATV/UTV, new towing trucks, and used towing trucks. This division into new and used categories was implemented to refine the accuracy of spending estimates, considering the significant price variations between new and used vehicles. Similarly, the differentiation between ATV/UTV and towing trucks was crucial due to disparities in spending patterns and usage behaviors.

For each of the four vehicle types, the survey gathered the following information:

1. Percentage of Owners Who Purchased a Vehicle: This metric indicates the proportion of ATV/UTV owners who acquired a vehicle in Wisconsin during the year 2023.
2. Average Spending on Vehicle per Person: This figure represents the mean amount spent by individual owners on ATV/UTVs purchased in Wisconsin throughout 2023.
3. Average Vehicle Usage: This metric quantifies the percentage of vehicle usage specifically dedicated to ATV/UTV recreational riding. It's important to note that ATV/UTVs serve various purposes beyond recreational activities, including personal transportation and commercial ventures. Therefore, any usage or expenditures associated with non-recreational activities were excluded from consideration in this study.

Figures 9 and 10 report the results of these survey questions. Table 6 shows the estimated number of ATV/UTV owners.

7.2.3 Estimating Economic Contributions

The author estimated the economic contributions of ATV/UTV rider spending by using the RIMS II model, an industry-standard input/output model that estimates multiplier effects of an economic event. Table 7 shows how expenditures were assigned to RIMS II industries. Note that an expenditure category was divided into sub-categories, when necessary, using the ratios found in the Outdoor Industry Association's 2017 study[12]. For example, spending on food and beverage was divided into three separate sub-categories: Full-service restaurants, Limited-service restaurants, and All other food and beverage places.

Table 7: Assignment of Expenditure to RIMS II Industries (in millions of dollars

RIMS II Industries	Expenditure
336999 - All other transportation equipment manufacturing	$79.8
420000 - Wholesale trade	$2.1
441000 - Motor vehicle and parts dealers	$244.5
447000 - Gasoline stations	$204.8
448000 - Clothing and clothing accessories stores	$13.9
484000 - Truck transportation	$1.0
4B0000 - All other retail	$139.2
5241XX - Insurance carriers (except direct life insurance)	$44.0
531000 - Real estate	$225.7
711200 - Spectator sports	$178.4
713100 - Amusement parks and arcades	$70.0
713200 - Gambling industries (except casino hotels)	$108.4
713900 - Other amusement and recreation industries	$177.3
721000 - Accommodation	$319.2
722110 - Full-service restaurants	$444.4
722211 - Limited-service restaurants	$472.7
722A00 - All other food and beverage places	$55.4
811100 - Automotive repair and maintenance	$58.5
S00A00 - Other government enterprises	$12.5

7.2.4 Estimating Taxes

The tax estimation methodology involved several steps. First, base estimates were derived by multiplying state and local government taxes by the ratio of the total effect of ATV/UTV spending (measured in value added or GDP) to the state's total GDP. Detailed tax data are available from State and Local Government Finance (SLGF) by the U.S. Census Bureau[13]. But they typically lag by two to three years. To estimate tax values for 2023, growth rates from the Government Current Receipts and Expenditures (GCRE) report by the U.S. Bureau of Economic Analysis[14] were applied. This assumed that tax items grew at the same rate in Wisconsin as observed nationally between fiscal year 2021 and calendar year 2023. While the GCRE aggregates state and local government tax receipts at the national level, it offers more current and frequently updated data compared to state-specific reports from the State and Local Government Finance (SLGF) by the U.S. Census Bureau.

Secondly, adjustments were made to taxes on production and imports (indirect business taxes). While base estimates for personal and corporate income taxes remained unchanged, modifications were applied to taxes

[12]Accessed 7/19/2019 at https://outdoorindustry.org/wp-content/uploads/2015/03/OIA_Recreation_Economy_Contributions_Technical_Report_2017-08-24.pdf

[13]Accessed 1/14/2024 at https://www.census.gov/programs-surveys/gov-finances.html

[14]Accessed 2/4/2024 at https://apps.bea.gov/iTable/?reqid=19&step=2&isuri=1&categories=survey&_gl=1*1yfdsi6*_ga*MTM5NDI2NTU0OC4xNzA1NDk2ODA3*_ga_J4698JNNFT*MTcwNzkxODg2MC4yMS4xLjE3MDc5MTg4NjYuNTQuMC4w

on production and imports utilizing tax collection by industry data from SAGDP6N Taxes on production and imports by the U.S. Bureau of Economic Analysis. The total tax for the production and imports category was estimated, and individual tax item base estimates within this category were proportionally adjusted based on the percentage difference between the initial total base estimate and the new total derived from SAGDP6N Taxes on production and imports. This adjustment accommodated variations in rider spending and tax collection by industry. Notably, rider spending often concentrates in industries with higher tax collection rates, such as retail, resulting in a more significant tax contribution compared to the economy-wide average.

Lastly, adjustments were made based on information collected from rider surveys and government sources. Some tax items were directly estimated from rider survey data (e.g., sales, rooms, and motor fuel taxes), while others, such as registration fees, were obtained from government sources.

7.3 RIMS II Model

7.3.1 About

The Regional Input-Output Modeling System (RIMS II), developed by the U.S. Bureau of Economic Analysis, helps us estimate the economy-wide effects of an initial change in economic activity. It traces impacts through direct, indirect, and induced economic effects. The direct impact relates to the first round of inputs purchased by the final-demand industry. The indirect impact relates to the subsequent rounds of inputs purchased by supporting industries. The sum of the direct and indirect impacts is often called the interindustry effect. The induced impact relates to the spending of workers whose earnings are affected by a final-demand change. This impact is often called the household-spending effect. In this study, we use RIMS II to see how ATV/UTV rider spending impact Wisconsin's economy.

RIMS II assumes that when money is spent in one area, it sets off a chain reaction of spending across different industries. For example, building new roads results in an increase in the production of asphalt and concrete, which would in turn increase mining. Also workers in these industries would see an increase in earnings and spend more in restaurants, entertainments, and other services industries. So, RIMS II assumes that economic activities are all connected, and one action can have many ripple effects throughout the economy.

7.3.2 Model Assumptions

All usual assumptions of the input-output model apply in this study. The model incorporates the following:

- **Backward linkages**: it assumes backward linkages, meaning an increase in demand for one industry's output boosts demand for inputs from other industries. For instance, if a warehouse expands, RIMS II accounts for the increased demand for construction materials but doesn't directly consider the subsequent increase in production by industries using the warehouse.
- **Fixed purchase patterns**: it assumes industries keep their input-output ratios consistent. If industries can increase output without hiring as many workers as predicted, the model's impacts may be inflated.
- **Industry homogeneity**: it assumes all businesses within an industry use the same production process. However, if a business deviates from the industry norm in the national I-O accounts, using RIMS II multipliers could give inaccurate estimates.
- **No supply constraints**: it assumes they operate under "fixed price" conditions. This assumption implies that businesses can acquire inputs without facing increased prices due to limited supply.
- **Local supply conditions** it doesn't explicitly address cross-hauling, where goods serve as both imports and exports. For example, in a construction project, if windows are made in the region, RIMS II assumes these windows are purchased rather than those manufactured outside the region.
- **No regional feedback** it only focuses on one region at a time and ignores interactions between regions. Choosing a study area big enough to include related industries can help address this.

- **No time dimension** it doesn't account for how long it takes for the full impact of an economic change to happen. This depends on the nature of the change and the region's industry structure. For accurate assessment, the initial change should be long-lasting. But short-term projects or events often don't meet this criterion, leading to fewer local hires and purchases than predicted by the model.

7.4 Definition of Key Measures

1. **employment**: the annual average number of jobs, including both full- and part-time jobs; for example, 10 jobs for the first half of the year and 20 jobs in the second half results in 15 average jobs for the year.
2. **Labor income**: employee compensation (wages and salaries plus other compensations) and proprietor income.
3. **Value added**: labor income, other types of property income (such as dividends, interest income, rent income, and profits), taxes on production and imports. It is also known as gross domestic product.
4. **Output**: the total value of production, which is the sum of value added and the cost of all the inter-industry purchases required for production. It is also known as sales.
5. **Multiplier effect**: the cumulative economic activity arising from the fact that the ATV/UTV industry's contribution spreads across the state's economy by creating and supporting jobs, incomes, and taxes. The ATV/UTV industry supports its supply industries in the region by making purchases from them (interindustry effect). These supply industries include marketing, accounting, employment services, and insurance carriers. In addition, workers in the ATV/UTV industry and its supply industries spend their earnings in the region's services industries (household-spending effect), such as hospitals, schools, repair and maintenance services, and utility companies.
6. **interindustry effects**: the economic effects of local inter-industry spending due to the existence of the ATV/UTV industry.
7. **household-spending effects**: the economic effects of local spending (usually in services industries) of employee's wages and salaries of the directly and indirectly affected industries.

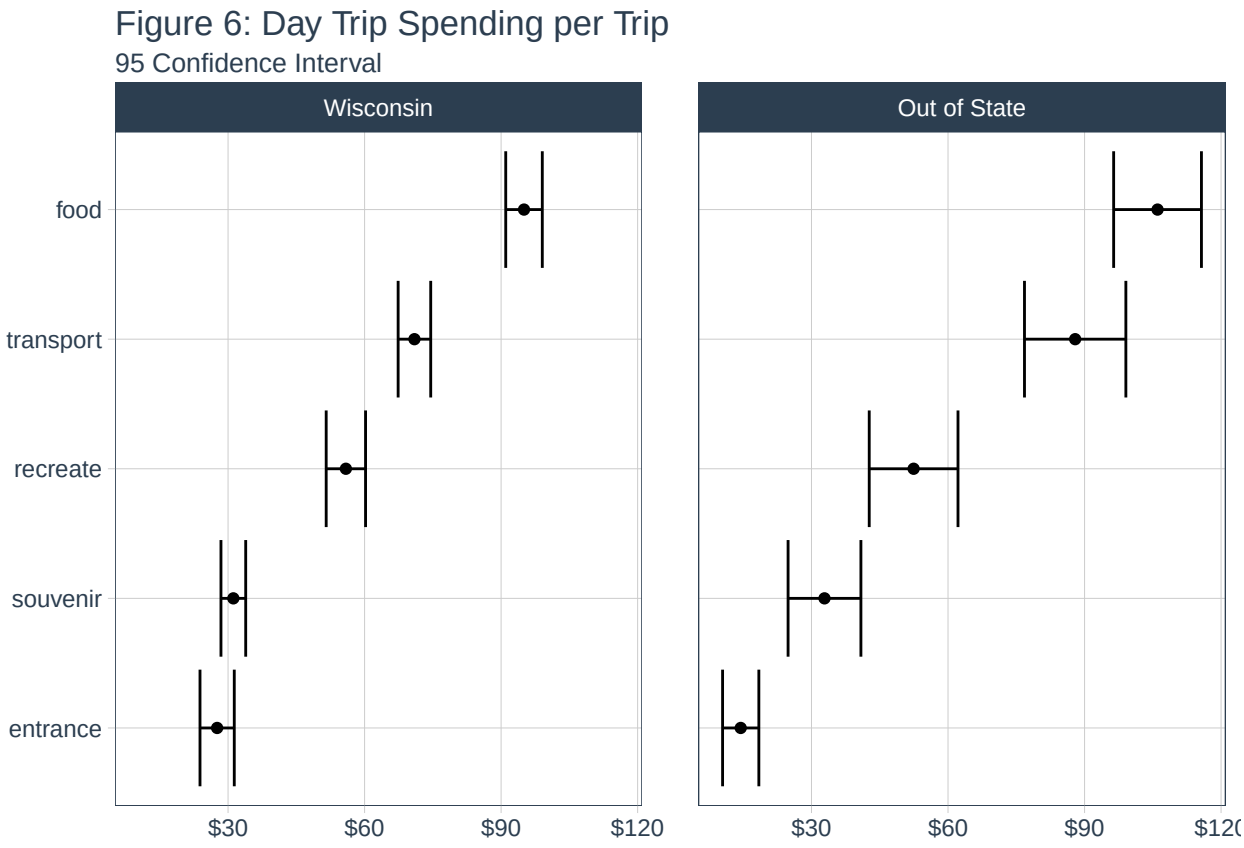
7.5 Survey Findings

This section presents the key findings derived from the survey conducted. The survey encompassed two main categories of inquiries: 1) questions pertaining to rider spending and 2) other rider characteristics unrelated to spending. Out of the 948 participants, 831 were classified as Wisconsin residents, with the remaining 117 identified as nonresidents.

7.5.1 Rider Spending

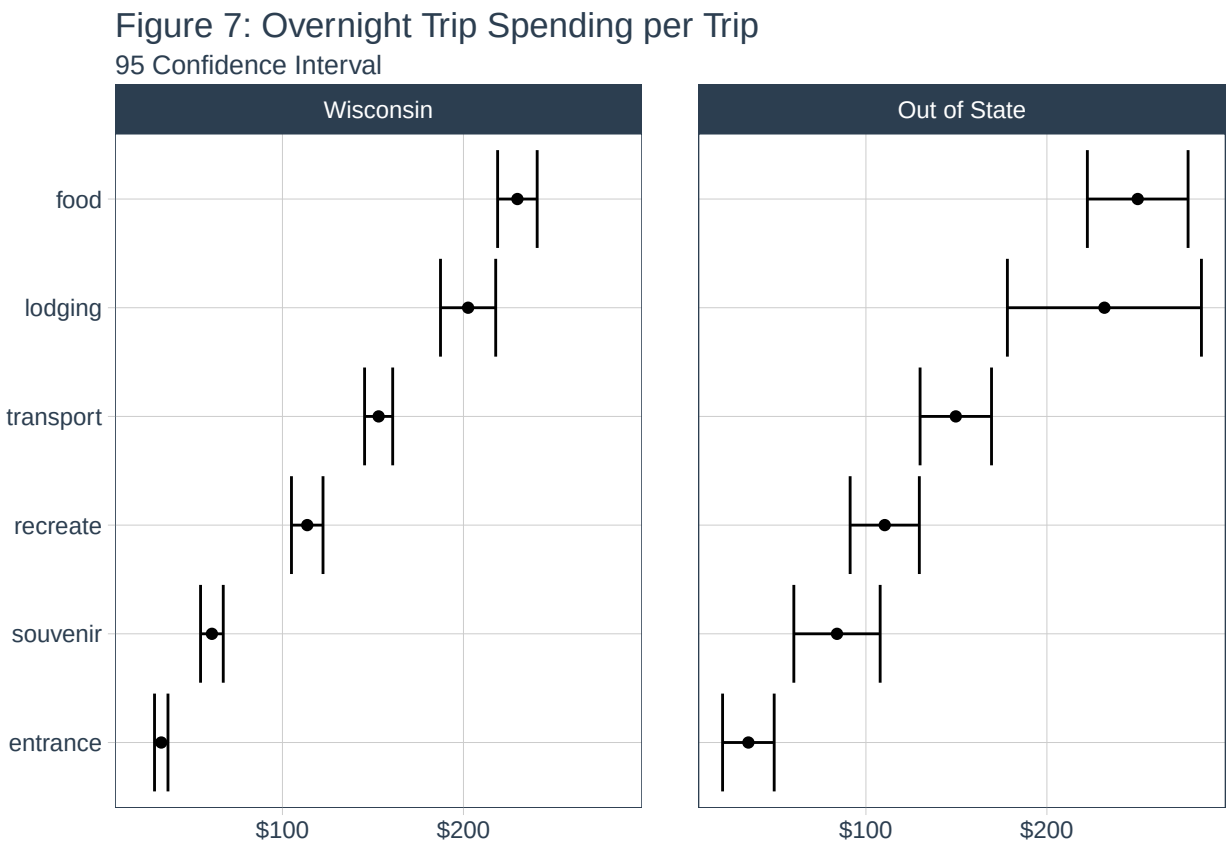
In 2023, Wisconsin residents reported an average of 21.9 day trips and 5 overnight trips. Conversely, non-residents reported an average of 10.6 day trips and 6.3 overnight trips during the same period.

An intriguing finding is that non-resident riders indicated more day trips than overnight trips, despite the distances from their homes to ATV trails. This observation suggests that non-residents may predominantly select ATV trails situated near the border, which are not far from their residences.



During day trips, resident riders in Wisconsin spent an average of $281, while nonresident riders spent slightly more at $294. The breakdown of itemized spending by residency is illustrated in the plot above.

Among day-trip expenses, ATV/UTV riders allocate the majority of their spending to gasoline and food. Notably, non-residents tend to spend more per trip compared to residents.

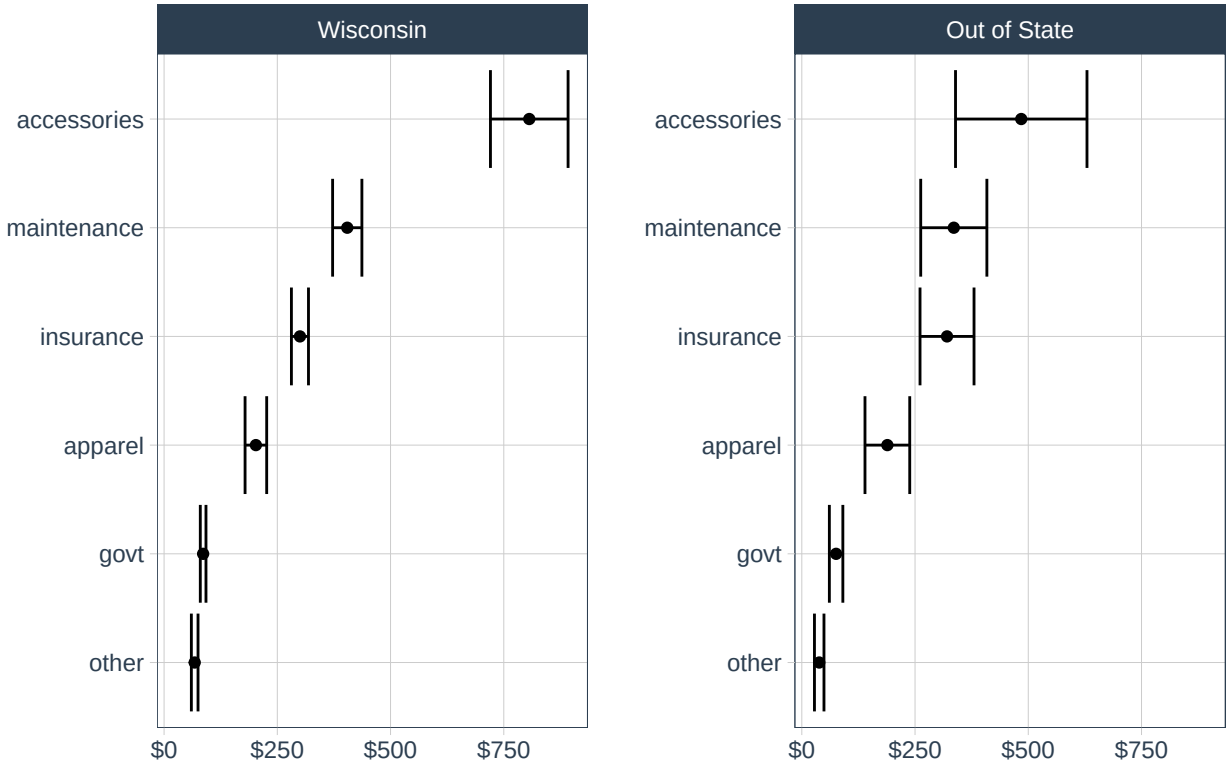


During overnight trips, resident riders in Wisconsin spent an average of $793, while nonresident riders spent slightly more at $861. The breakdown of itemized spending by residency is illustrated in the plot above.

On overnight trips, ATV/UTV riders tend to spend more compared to their day trips, with lodging and food being the primary expenses. Similar to day trips, non-residents likely spend more per trip compared to residents.

Figure 8: Annual Equipment Spending per ATV/UTV Owner

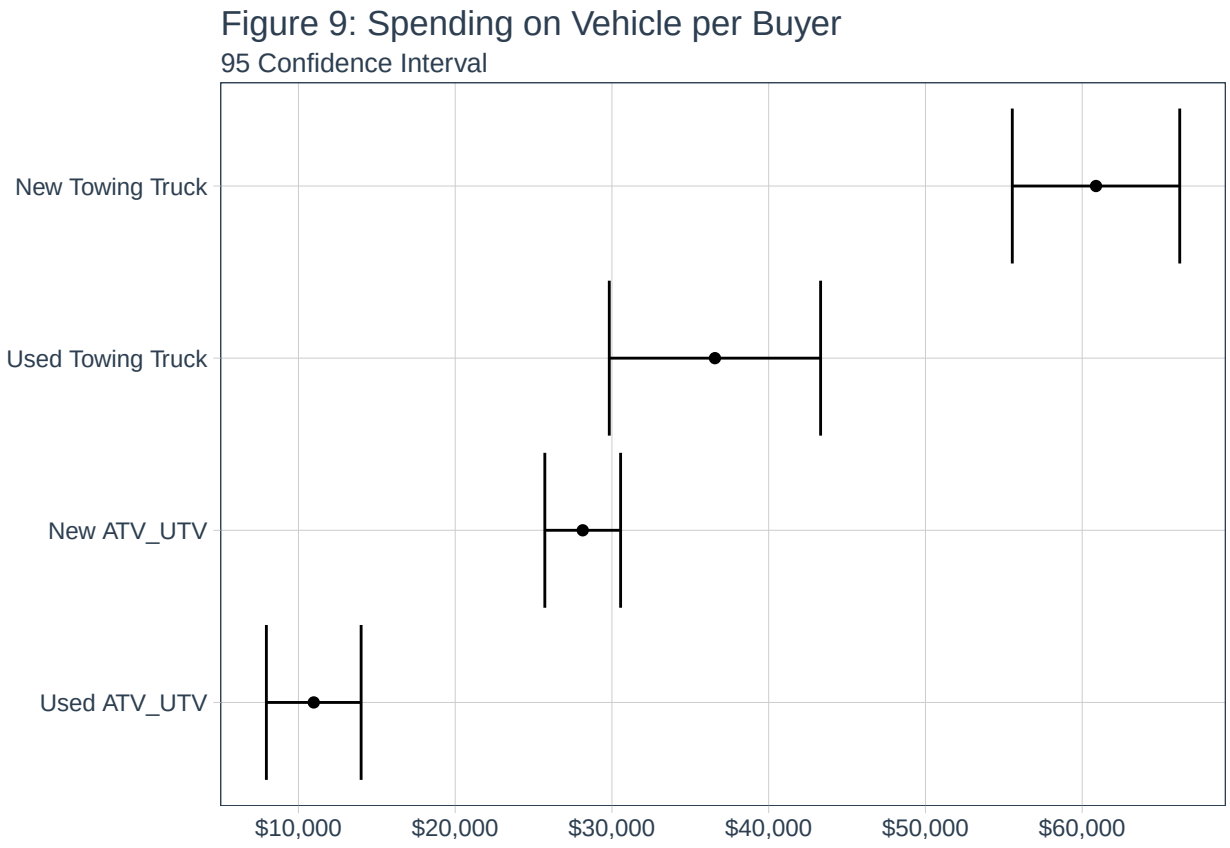
95 Confidence Interval



Resident ATV/UTV owners in Wisconsin allocate an average of $1,867 annually on equipment, while non-resident ATV/UTV owners spend slightly less at $1,444. The breakdown of itemized spending by residency is illustrated in the plot above.

In contrast to trip expenditures, Wisconsin residents tend to invest more in equipment and accessories compared to non-residents. This disparity in spending patterns may be explained by non-resident ATV/UTV owners choosing to purchase equipment items such as accessories and vehicle maintenance services closer to their homes, within their own state.

Regarding spending on equipment and accessories for their trips, nearly half of the ATV/UTV owners made purchases within Wisconsin in 2023. Specifically, 54.3% (451 out of 831) of residents and 39.3% (46 out of 117) of non-residents made purchases within Wisconsin during the same period.



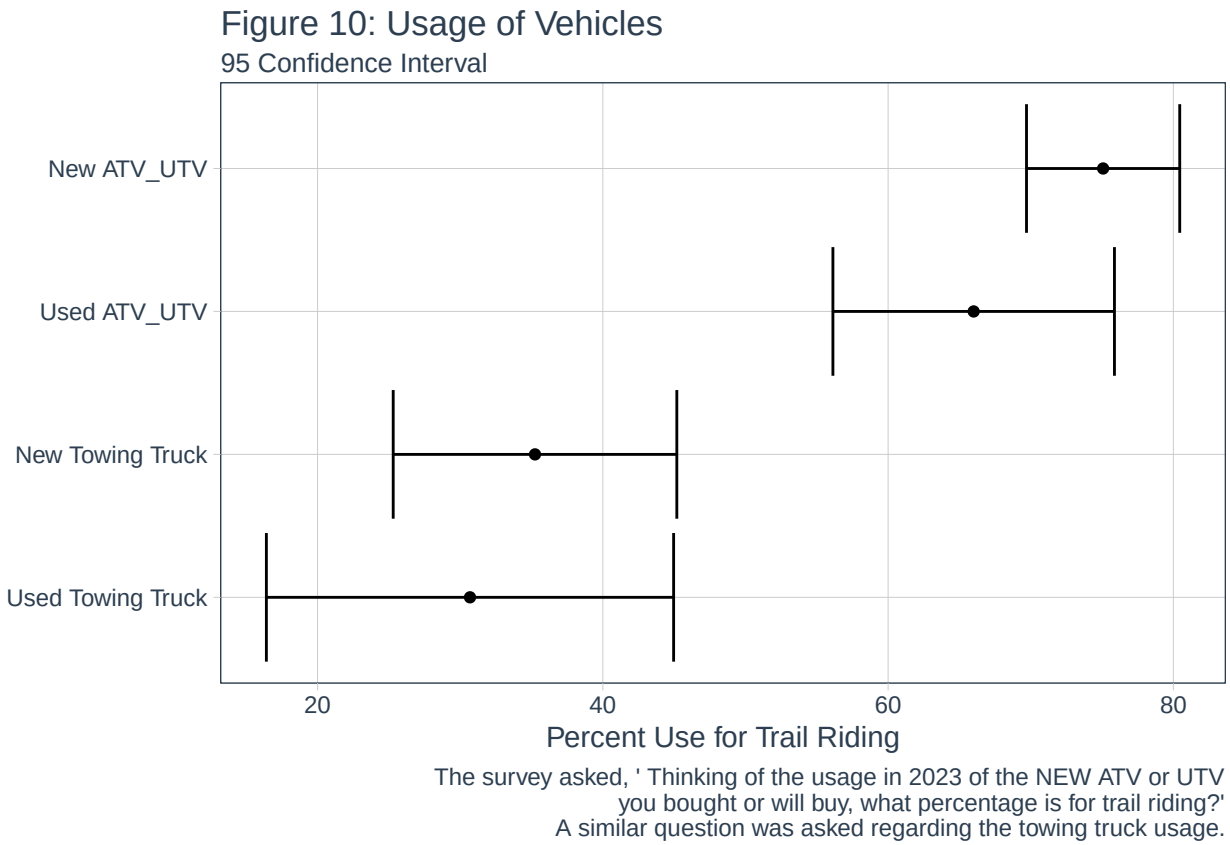
The survey revealed that 7.6% of riders purchased a new ATV or UTV in Wisconsin during 2023, with an average expenditure of $28,000 per person. Furthermore, 3.9% of respondents acquired a used ATV or UTV, spending an average of $11,000.

In addition to ATV/UTV purchases, the survey identified that 4.3% of participants bought a new towing truck, spending an average of $61,000 per person. Similarly, 1.5% of respondents opted for a used towing truck, with an average expenditure of $37,000.

These spending figures represent a significant increase of over 80% compared to the findings reported in the 2020 New Hampshire study[15]. It's important to note that while spending per person does not necessarily equate to the price per unit, as individuals may purchase multiple units, this substantial increase between the two studies likely reflects inflation, particularly in vehicle prices since the pandemic.

The inflation in vehicle prices may also explain the notable decrease in the proportion of respondents who purchased vehicles, as reported in the 2020 New Hampshire study, with most proportions declining by nearly half. This decline in vehicle purchases can be attributed to the considerable increases in vehicle prices.

[15] Accessed on 2/26/2024 at https://www.nhstateparks.org/getmedia/d0c3e291-63e1-463c-9c2c-37e7b1b0a8fc/2020-OHRV-Economic-Study-2021.aspx#:~:text=It%20was%20estimated%20that%20OHRV,during%20the%20calendar%20year%202020.



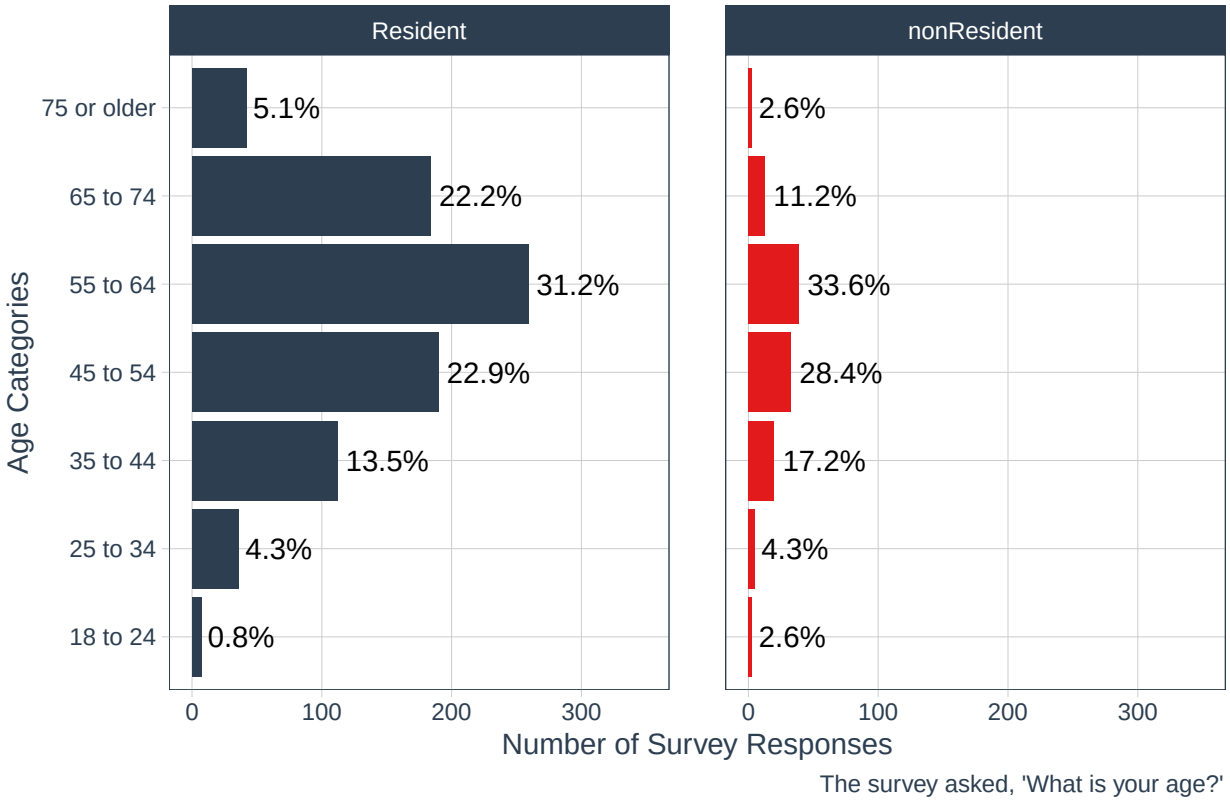
Vehicles serve purposes beyond recreational riding activity, necessitating careful consideration when estimating the economic contributions of ATV/UTV riders. To ensure accuracy, vehicle spending should only be attributed to recreational riding activity, excluding other uses like commuting, shopping, or other outdoor recreational pursuits such as hunting.

Respondents who purchased a new ATV/UTV in Wisconsin during 2023 reported using the vehicle for recreational riding 75.1% of the time. Similarly, individuals who purchased a new towing truck in Wisconsin during the same period reported allocating the vehicle for recreational riding 35.2% of the time. These percentages provide valuable insights for refining economic estimations, facilitating more accurate assessments of economic contributions.

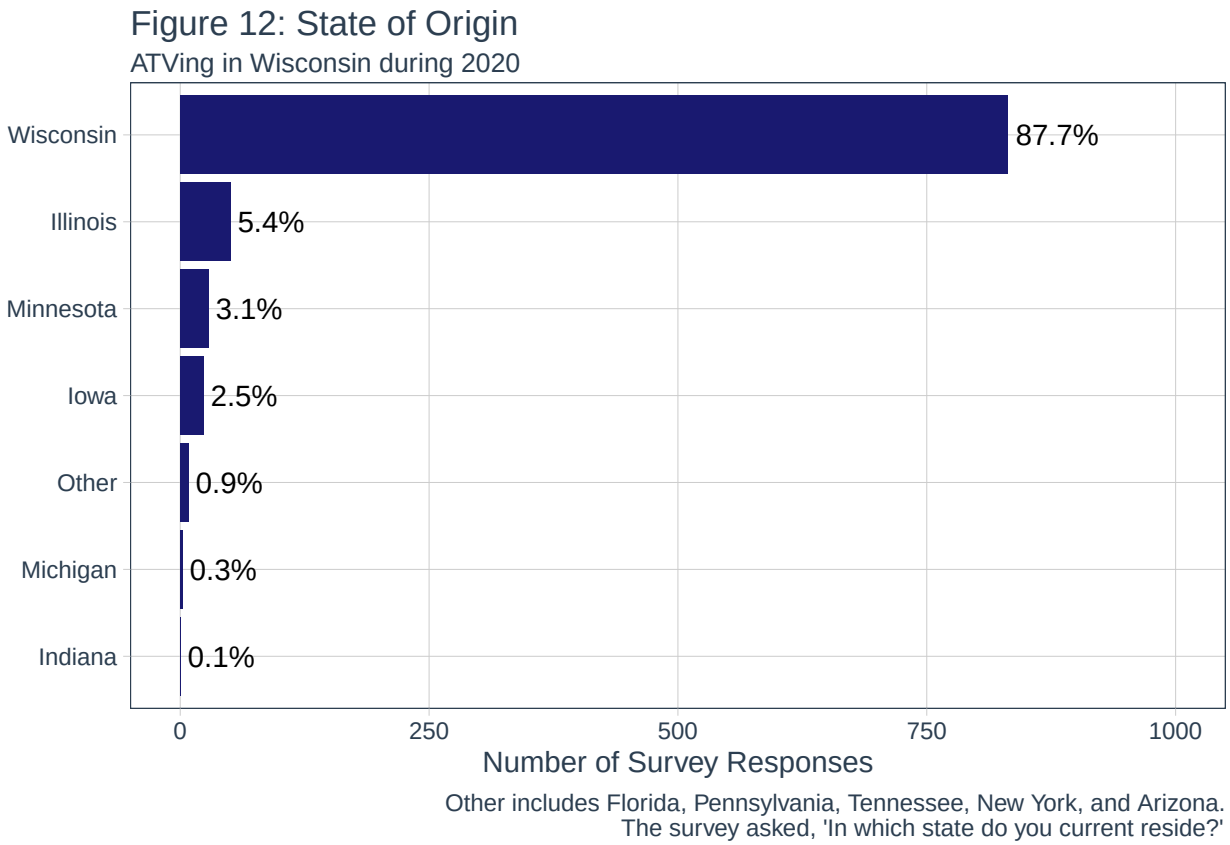
7.5.2 Rider Characteristics

The survey also inquired about rider characteristics beyond their spending behaviors. Unlike the spending data presented earlier, the data in this section have not been adjusted for outliers. They represent raw data collected from the survey. However, obvious reporting errors were rectified. For instance, if someone reported a value exceeding 100% for a question regarding the percentage of their winter riding compared to their total riding time, that data point was excluded. It's important to note that the data presented in this section are not utilized in measuring the economic contribution of riders.

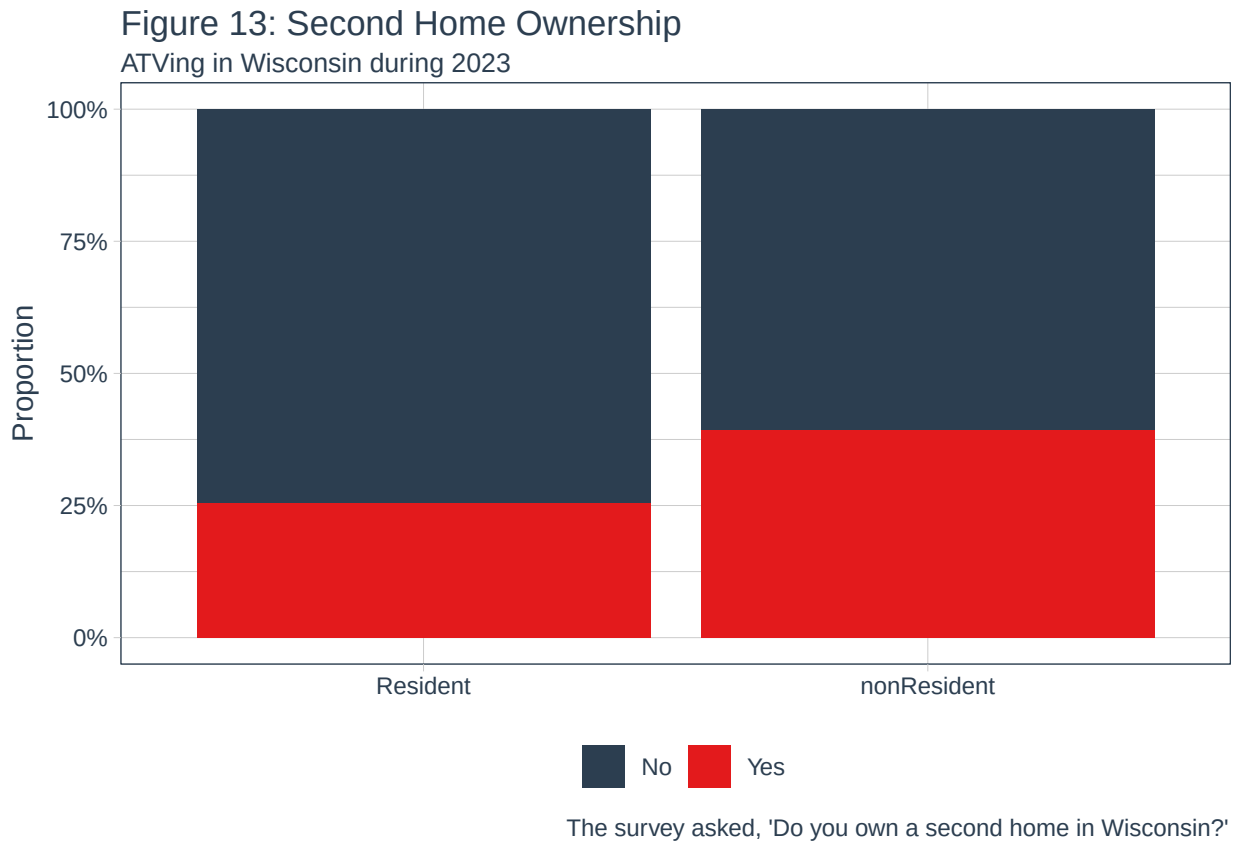
Figure 11: Age Distribution of Riders



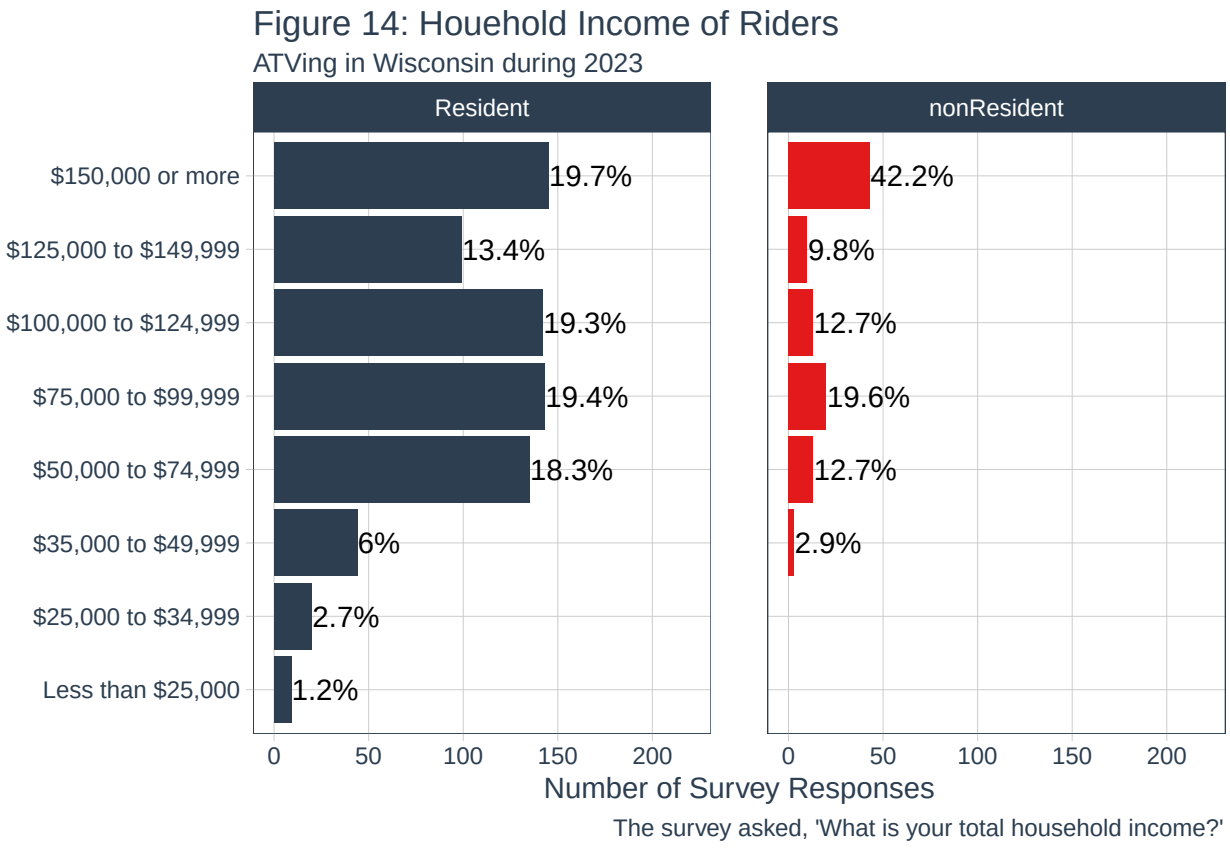
Riders typically fall within the middle age range. Age groups under 35 constitute less than 7% of both resident and nonresident riders. The largest age demographic falls within the 55-64 years old bracket.



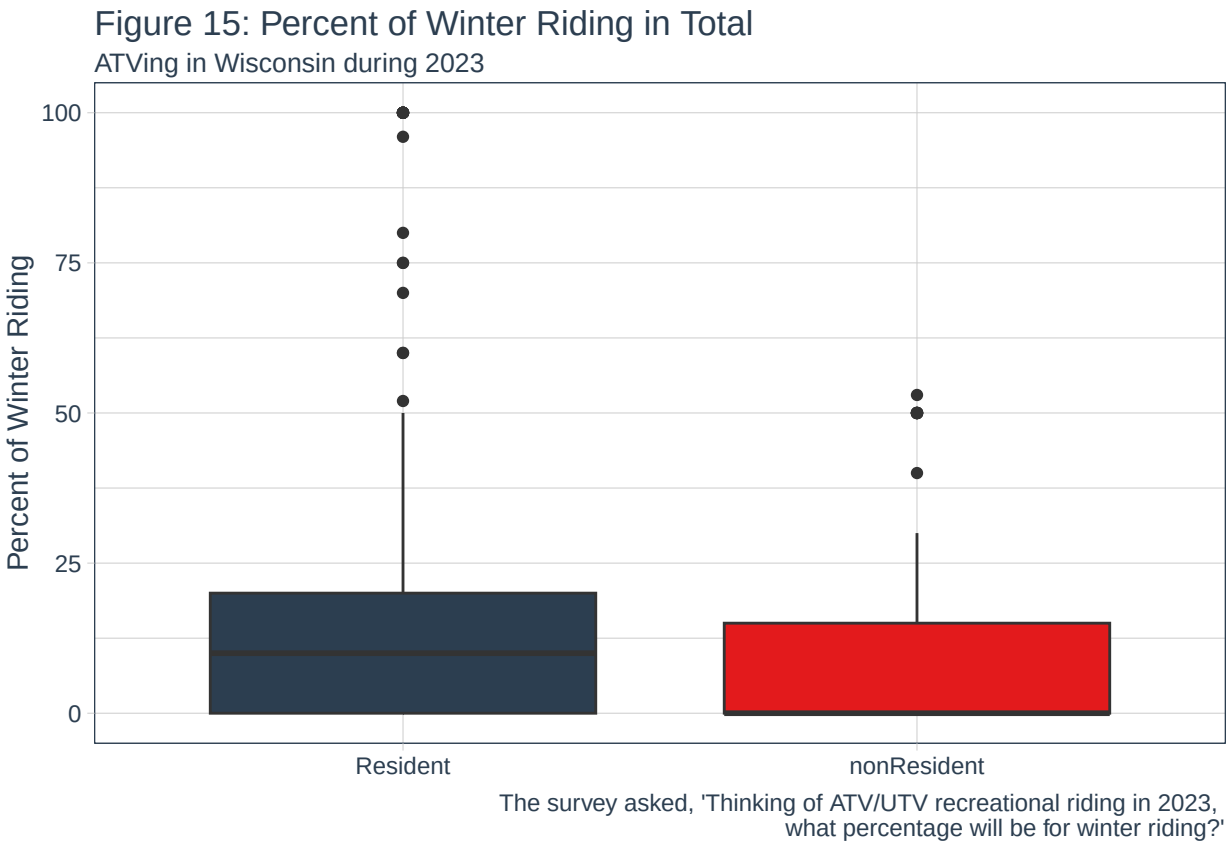
The overwhelming majority of riders originate from within Wisconsin, with 87.7% reporting residency within the state. The second-largest group, comprising only 5.4% of riders, hails from Illinois, a statistic likely reflective of residents from Chicago and its surrounding areas. It's noteworthy that nonresident riders in Wisconsin predominantly come from neighboring states.



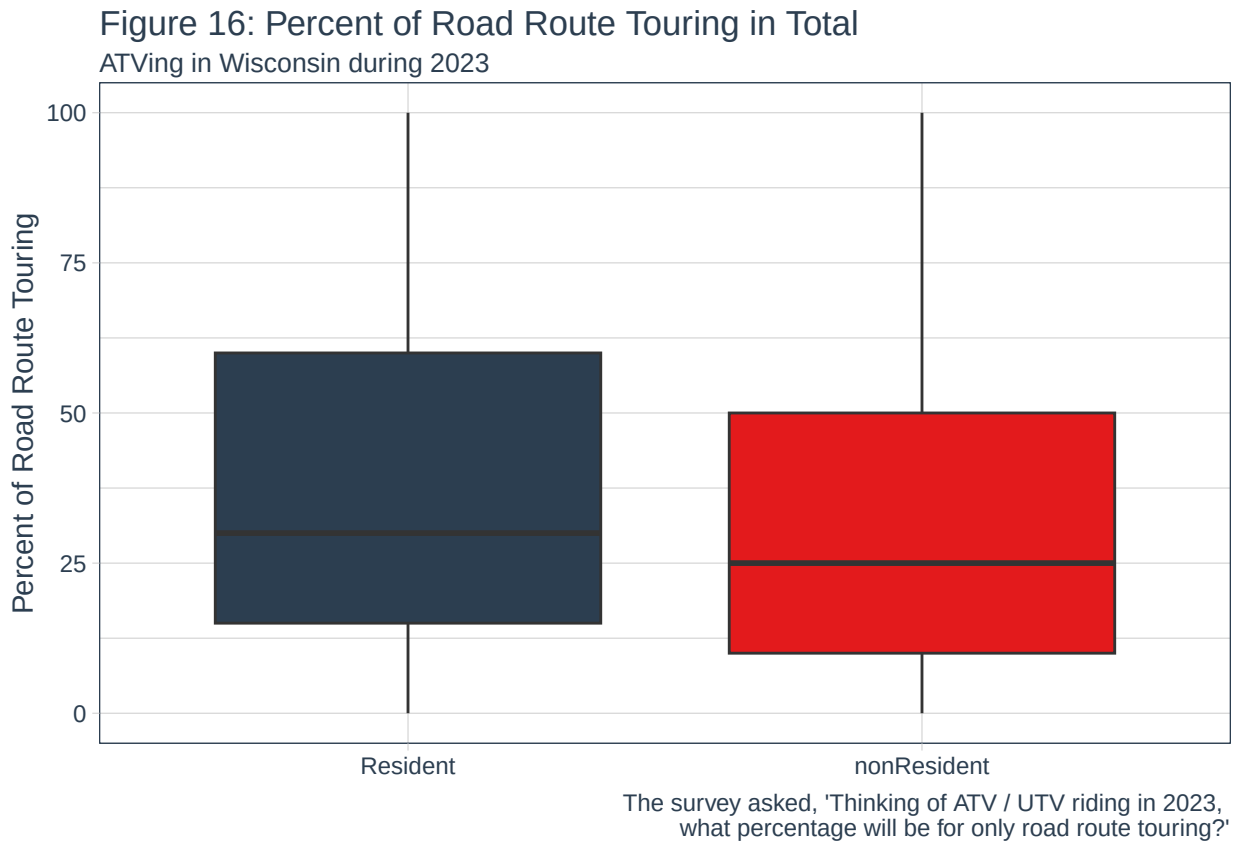
Many riders possess second homes, indicating a propensity for multiple residences within the riding community. Approximately 25% of resident riders reported owning a second home. Notably, this percentage is even higher among nonresident riders, suggesting a greater prevalence of secondary residences among those who ride in Wisconsin but reside elsewhere.



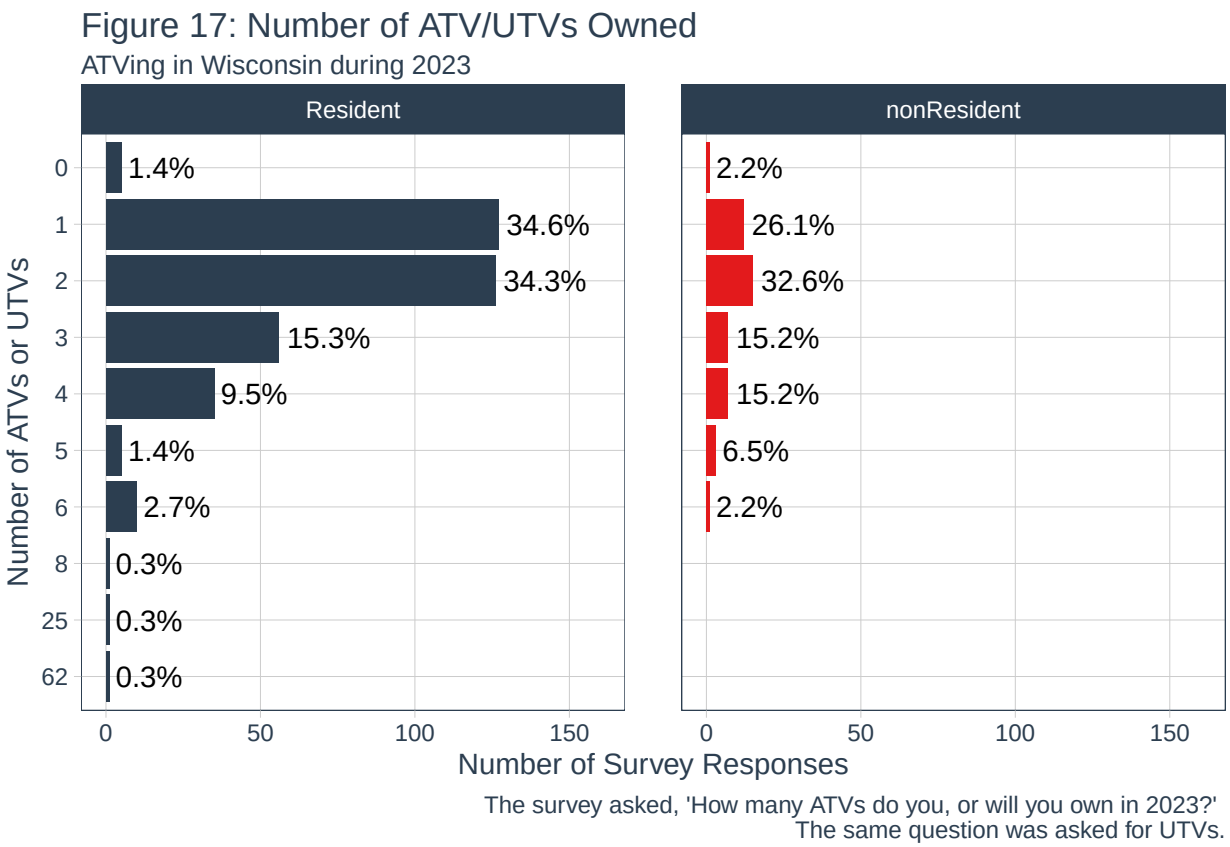
Riders tend to have higher household incomes. Among both resident and nonresident riders, the highest income group, earning $150,000 or more per year, ranks at the top. However, while this income bracket is the highest for both groups, it constitutes a significantly larger proportion of the total among nonresidents compared to residents.



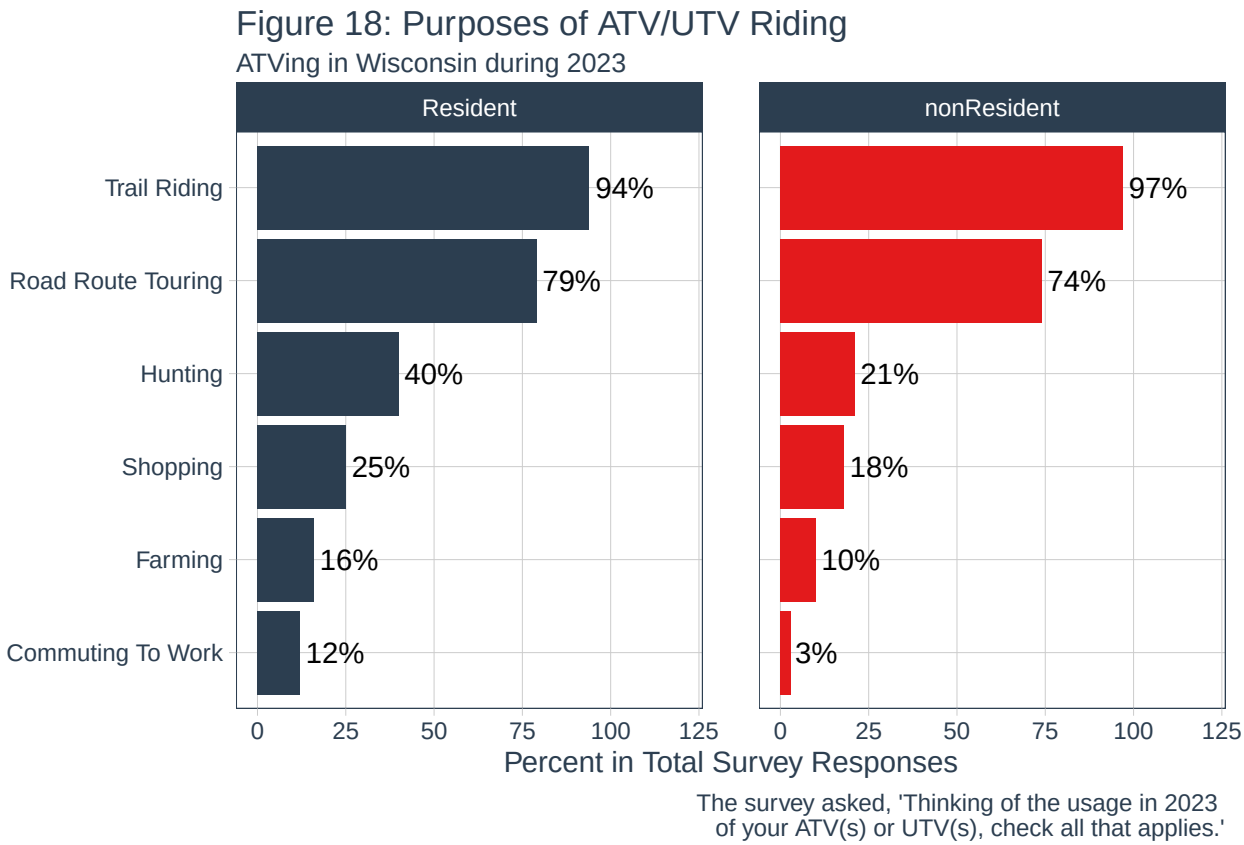
Among surveyed riders, a substantial majority, accounting for 75%, reported that their winter riding activities constitute less than 20% of their total riding time. Interestingly, winter riding seems to be even less common among nonresident riders. For instance, the median nonresident rider, as indicated by the horizontal line in the box of the plot, reported no winter riding at all. In contrast, the median resident rider indicated that winter riding comprises approximately 10% of their total riding time.



Road route touring appears to be highly popular among surveyed riders. For resident riders, 50% indicated that road route touring constitutes between 20% and 60% of their total riding time, as depicted by the height of the box in the plot. Similarly, nonresident riders exhibit a comparable distribution, albeit slightly lower. The median resident rider, represented by the horizontal line in the box of the plot, reported that road route touring makes up approximately 30% of their total riding time.



The majority of riders, regardless of residence status, own one or two vehicles. However, there are outliers within the resident group. For instance, one rider reported owning 65 vehicles, while another reported owning 25 vehicles. These outliers likely represent rental businesses. It's worth noting that rental businesses are not within the scope of this study and are not considered in measuring the economic contribution of riders.



Among ATV/UTV riders, trail riding emerges as the most prevalent usage, closely followed by road route touring. In response to inquiries about the various uses of their ATV/UTVs, a vast majority of riders indicated a preference for trail riding, with 94% of residents and 97% of nonresidents reporting enjoyment in this activity. Additionally, 79% of surveyed riders identified road route touring as a favored activity, while 74% of nonresident riders shared this sentiment.

Furthermore, hunting emerged as a significant activity for riders, alongside other notable purposes such as shopping, farming, and commuting to work. In the survey's "other" category, respondents mentioned engaging in activities like fishing and plowing, further illustrating the diverse range of purposes for which ATV/UTVs are utilized.