

A wide-angle photograph of the Grand Canyon, showing its vast, layered rock formations and deep valleys. The canyon is bathed in a soft, golden light, likely from the low sun. In the foreground, the green, needle-covered branches of a pine tree are visible, partially obscuring the lower part of the canyon. The text is overlaid on the center of the image.

Diversity in Outdoor Recreation

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Background

- Outdoor industry determined by federal government to be worth \$373 billion
- 3.8% growth in 2016
- Important for physical/mental health
- Closely tied to conservation, environmental regulation, and public lands policy

Government Puts Outdoor Industry Size at \$373 Billion

That's 2 percent of overall GDP—putting it on par with other major economy-drivers (and larger than oil and mining).



Motivation

- Outdoor industry and recreation still dominated by white males
- One of the first steps to solving the problem is understanding where we are now



#WeAreMarmot

FEATHERED FRIENDS
Warmth Wherever You Are

HOME SLEEPING BAGS - DOWN GARMENTS - DOWN BEDDING



➔ More images for outside magazine covers

Report images

See Additional References slide for links to photos

Data

- WA Statewide Comprehensive Outdoor Recreation Plan (SCORP) survey
- 1575 questions administered via phone to 3,114 residents across the state
- 7 csv's in public domain
- Some analysis was conducted, but lacked visualization or statistical analysis

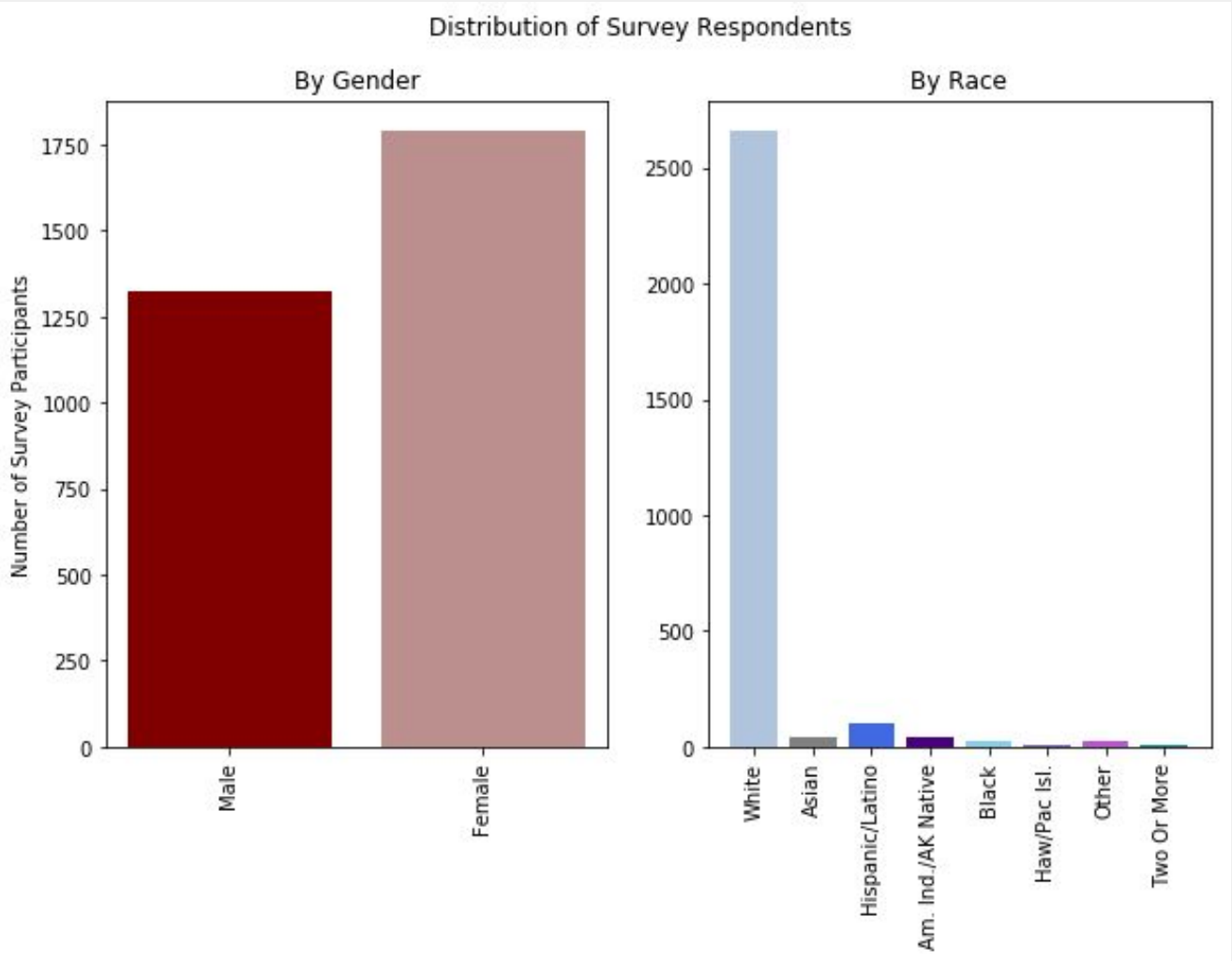
Table 3.17: Activities With Marked Differences in Participation Between White and Non-White Residents.

| | Activity | Percent Participation by Those Identifying Themselves as White | Percent Participation by Those Identifying Themselves as Non-White | Percentage Point Difference |
|---|---|--|--|-----------------------------|
| More Non-White | Jogging or running | 34.44 | 46.22 | 11.77 |
| | Aerobics or fitness activities, but not weights | 36.86 | 46.94 | 10.09 |
| | Tennis | 9.95 | 15.82 | 5.87 |
| | Swimming in pool | 38.45 | 44.30 | 5.85 |
| | Basketball | 16.01 | 21.62 | 5.61 |
| | Weight conditioning | 26.71 | 32.28 | 5.57 |
| | Surfboarding | 1.67 | 6.75 | 5.08 |
| Excludes all activities with a difference of less than 5.00 percentage points | | | | |
| More White | Visiting nature interpretive center | 29.13 | 23.55 | 5.59 |
| | Skiing, downhill | 10.82 | 4.21 | 6.61 |
| | Inner tubing or floating | 18.53 | 11.66 | 6.87 |
| | Gardening, flowers or vegetables | 58.12 | 51.09 | 7.02 |
| | Boating—canoeing, kayaking, rowing, manual craft | 12.08 | 4.20 | 7.88 |
| | Hunting or shooting | 23.01 | 14.88 | 8.13 |
| | Swimming or wading at beach | 40.36 | 32.18 | 8.19 |
| | Wildlife viewing/photographing | 61.25 | 52.29 | 8.96 |
| | Snow and ice activities | 33.29 | 23.91 | 9.38 |
| | Walking with a pet | 53.50 | 44.06 | 9.45 |
| | Boating—motorboating other than personal watercraft | 26.07 | 15.25 | 10.82 |
| | Gathering/collecting things in nature setting | 28.49 | 17.28 | 11.22 |
| | Beachcombing | 34.09 | 21.03 | 13.06 |
| | Boating—any boating | 37.36 | 21.69 | 15.67 |

Focus on Backcountry Outdoor Recreation

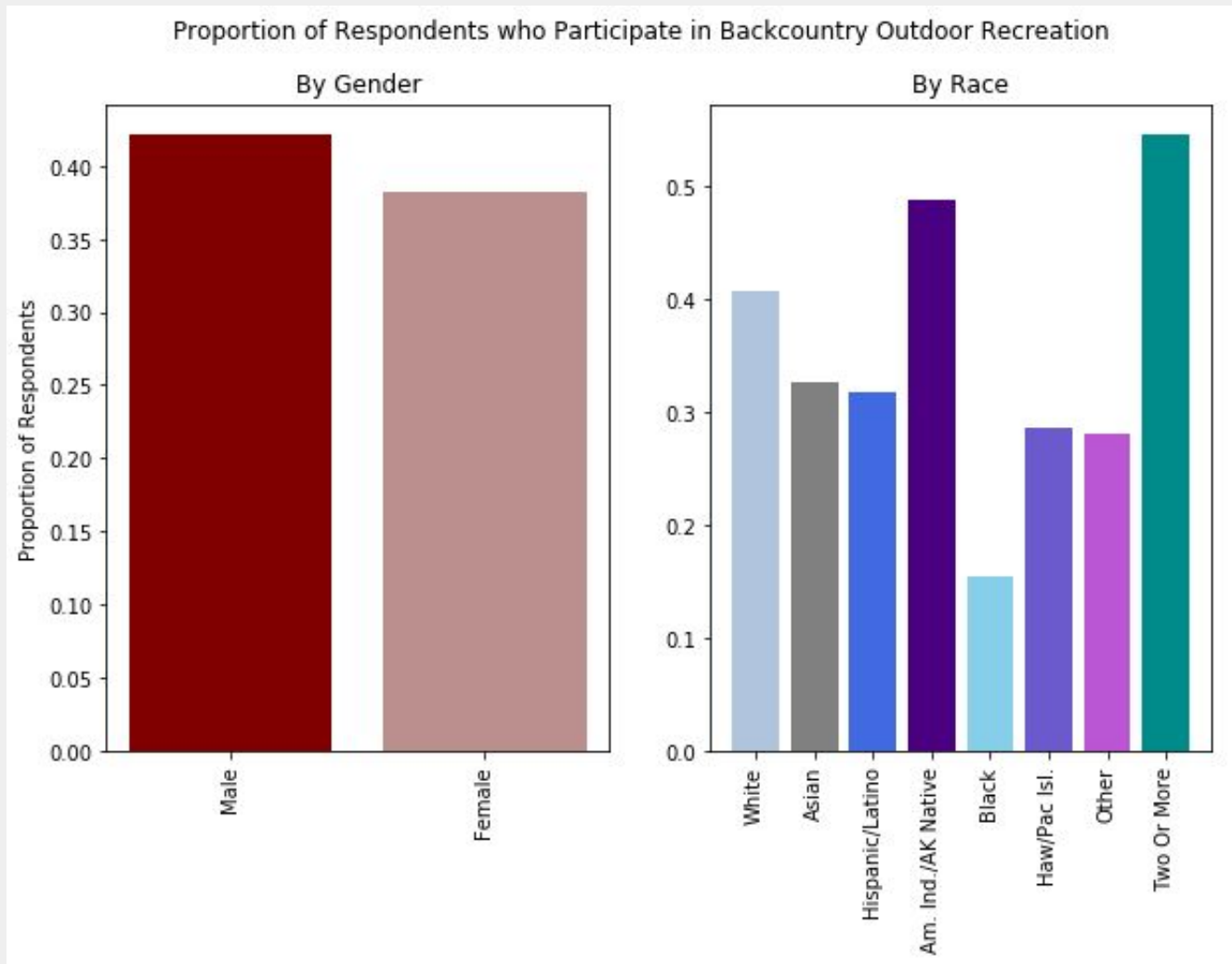
- Chose 7 backcountry sports
 - Downhill skiing
 - Shoeshowing
 - Cross-country skiing
 - Mountaineering
 - Rock climbing
 - Backpacking
 - Hiking
- High barrier to entry
- Traditionally very skewed white male (qualitatively at least)
- Needed to limit scope somehow!

Visualize Data



Visualize Data

Note: more visualizations of this data can be found in my project repo:
<https://github.com/kentdanas/data-512-final-project>



Statistical Analysis - Gender

- 2-sided hypothesis test for difference between population proportions using $\alpha=0.05$
- Null hypothesis: no difference between proportion of the populations who participate in backcountry sports
- Results: p-value of 0.025
- 95% confidence interval: 0.005 - 0.075
- Conclusion: there is a statistically significant difference between participation rates in men versus women

Statistical Analysis - Race

- Chi-squared test with Yates correction (due to small sample sizes) using $\alpha=0.05$
- Each race versus white
- Null hypothesis: no difference between proportion of the populations who participate in backcountry sports

- Results

| Race | p-value |
|----------------------|---------|
| Asian | 0.353 |
| Hispanic/Latino | 0.086 |
| Am. Indian/AK Native | 0.400 |
| Black | 0.015 |
| Haw/Pac. Islander | 0.788 |
| Other | 0.277 |
| Two or more | 0.534 |

Conclusions

- There are statistically significant differences between white males and other groups
- More analysis needed with larger sample sizes to really target outreach
- Industry should focus on outreach to gender and racial minorities and diversify their public image
- Government should focus on potentially underserved populations
- This is a rich dataset, and there are many other interesting points that could be studied!

Thank You!

Questions?



Additional References

‘Motivation’ Slide Pictures:

- <https://www.outdoorresearch.com/us/en/catalog-signup>
- <https://www.marmot.com/>
- <https://featheredfriends.com/>
- <https://www.patagonia.com/home/>
- https://www.google.com/search?q=outside+magazine+covers&rlz=1C1CHBF_enUS741US741&oq=outside+magazine+covers&aqs=chrome.0.69i59j0l4.3929j0j4&sourceid=chrome&ie=UTF-8