



Survey Analysis of Carnegie Mellon Master Students' Transportation Costs

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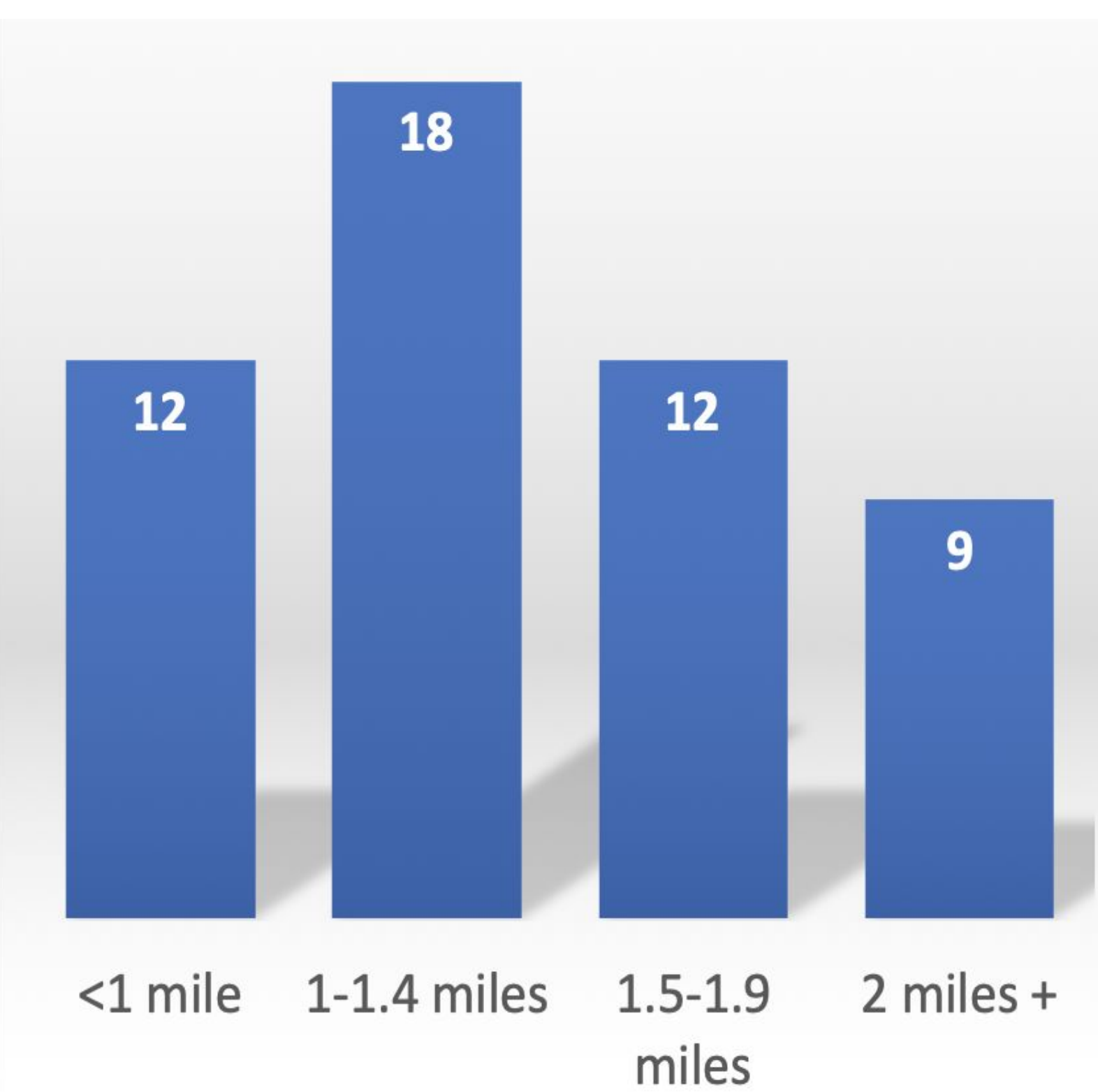
Introduction

This survey investigates CMU Master students' transportation costs. We hope to provide off-campus housing recommendations for incoming graduate students to minimize both their distance from campus and expenses spent on driving services.

Methods

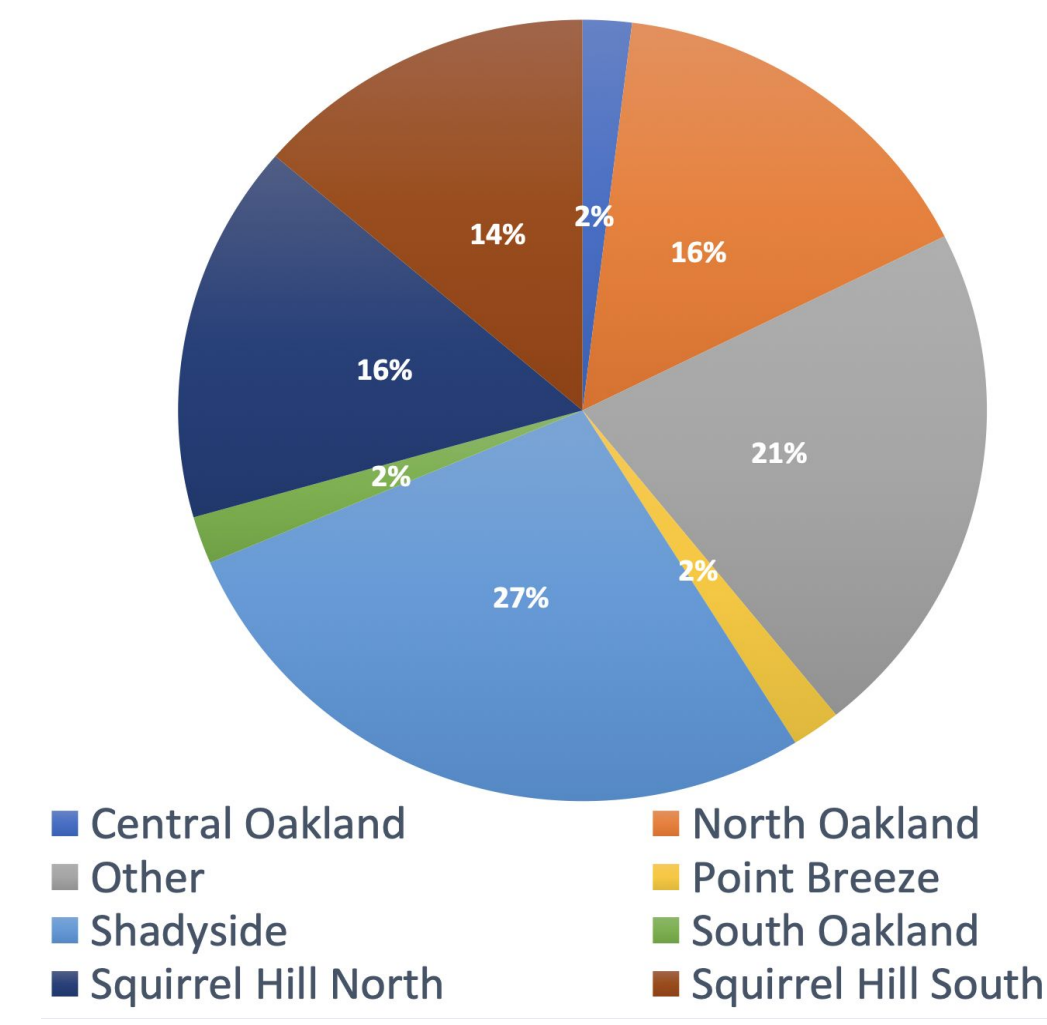
- SRS sample from 500 students; study sent via email
- 5333 total Masters students on CMU Pittsburgh campus
- Post-stratified data on (1) distance range from campus and (2) residential neighborhood

Number of Respondents in Each Distance Interval



Results

Demographics by neighborhoods



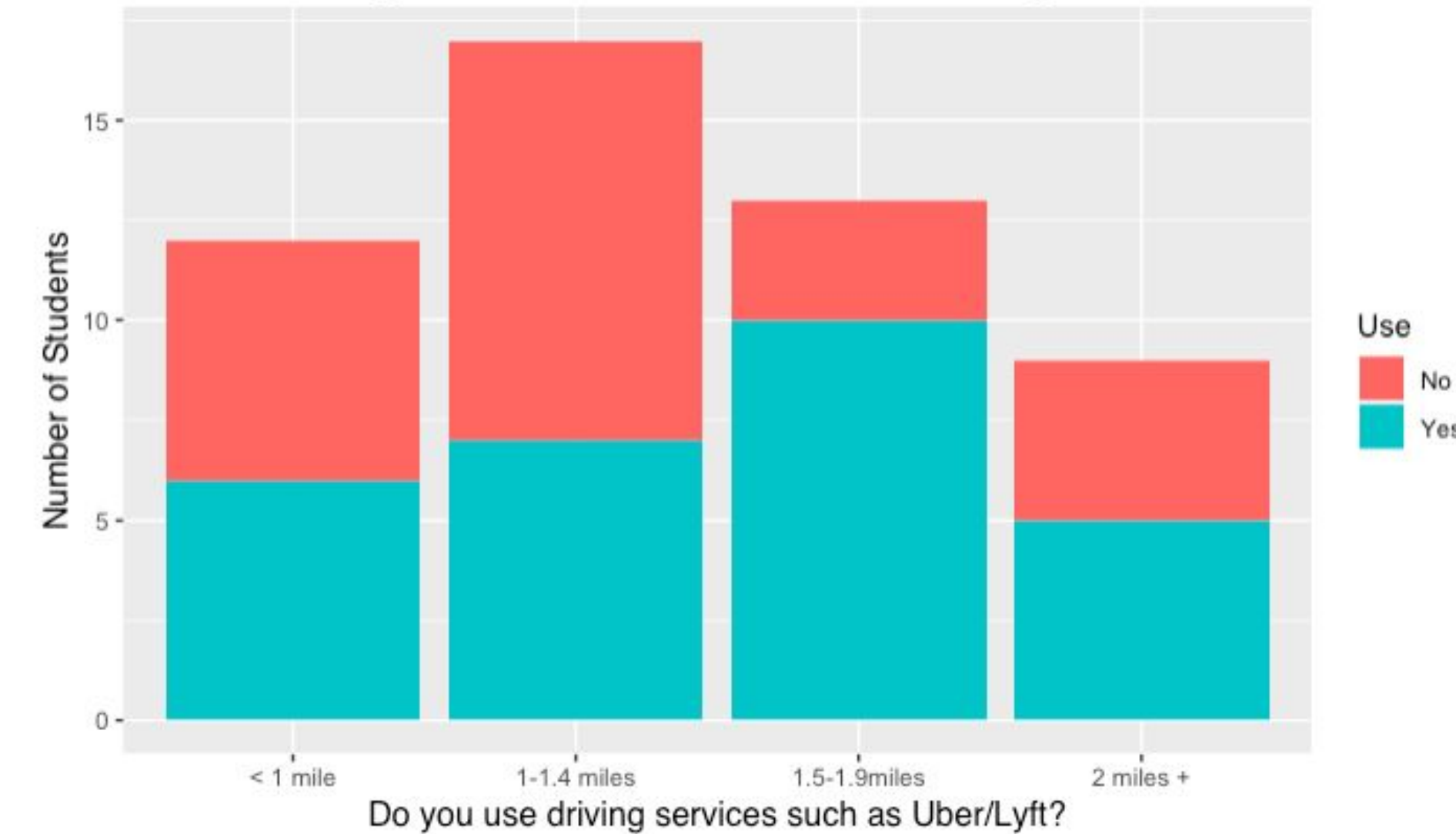
- ~30% of respondents live in Squirrel Hill and Shadyside each, ~15% in North Oakland
- **primary strata:** intervals of distance from campus (< 1 mile, 1-1.4 miles, 1.5-1.9 miles, > 2 miles)
- "other" category uninformative

Average Monthly Cost of Rent + Utilities by Neighborhood

Neighborhood	Rent + Utilities	Transportation	95% CI Rent + Utilities	95% CI Transportation
North Oakland	\$745.78	\$23.70	[742.09, 749.47]	[22.43, 24.97]
Squirrel Hill North	\$652.30	\$67.60	[647.48, 657.12]	[65.09, 70.11]
Shadyside	\$972.92	\$12.64	[967.16, 978.68]	[11.69, 13.59]
Central Oakland	N/A	\$0.00	N/A	N/A
Squirrel Hill South	\$1062.86	\$16.14	[1055.13, 1070.59]	[15, 17.28]
Other	\$704.89	\$70.54	[698.84, 710.94]	[68.33, 72.75]
South Oakland	\$680.00	\$0.00	N/A	N/A
Point Breeze	\$1400.00	\$15.55	N/A	N/A

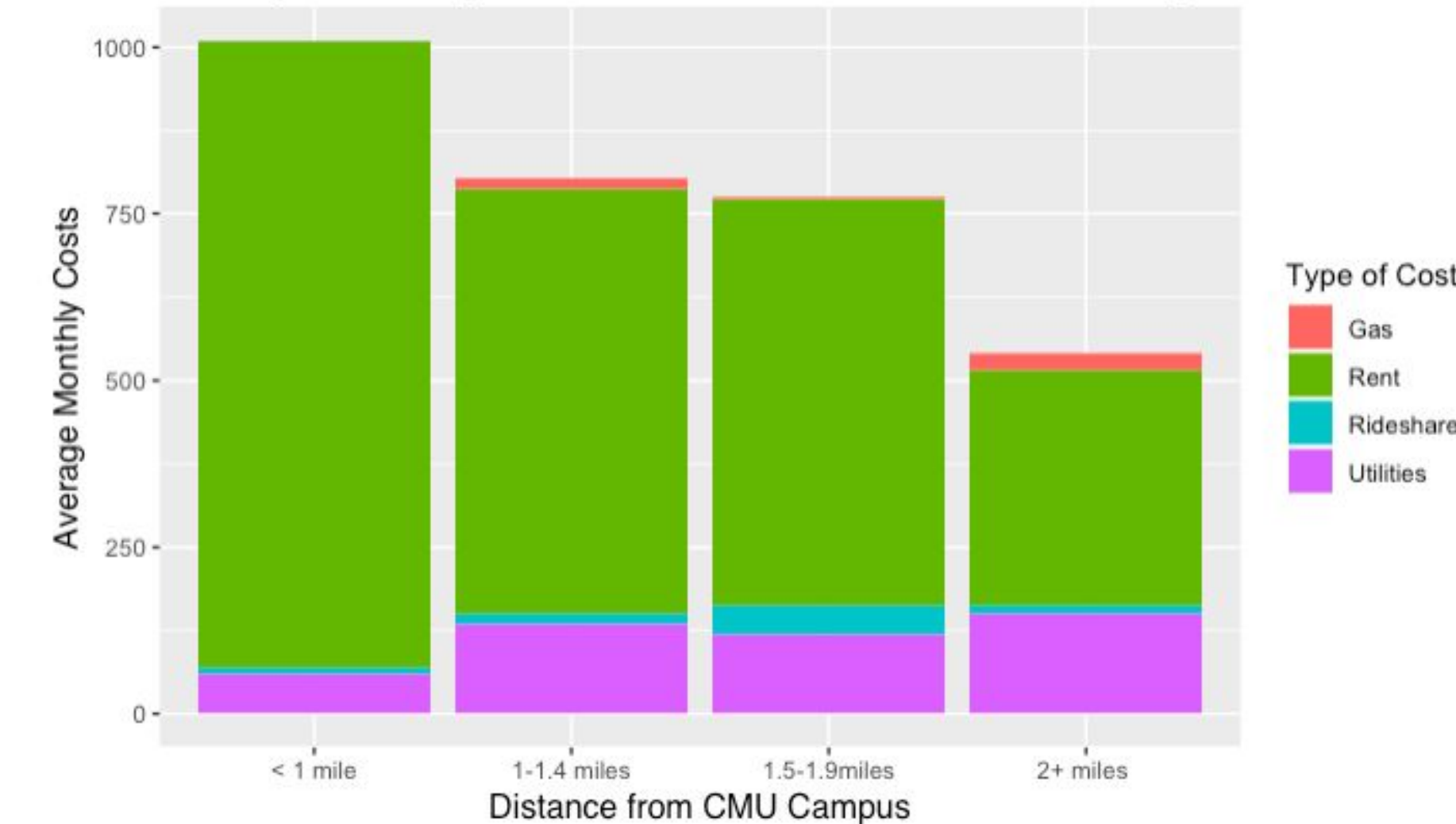
- **Rent + Utilities:** monthly rent and utilities costs added together
- **Transportation:** Uber / Lyft expenses (Feb. / Oct. average data) + monthly gas costs
- **95% CIs:** (1) mean monthly cost of rent + utilities (2) mean monthly transportation expenses
* only 1 respondent from: Central Oakland, South Oakland, Point Breeze

Use Driving Services or Not Based on Living Distances



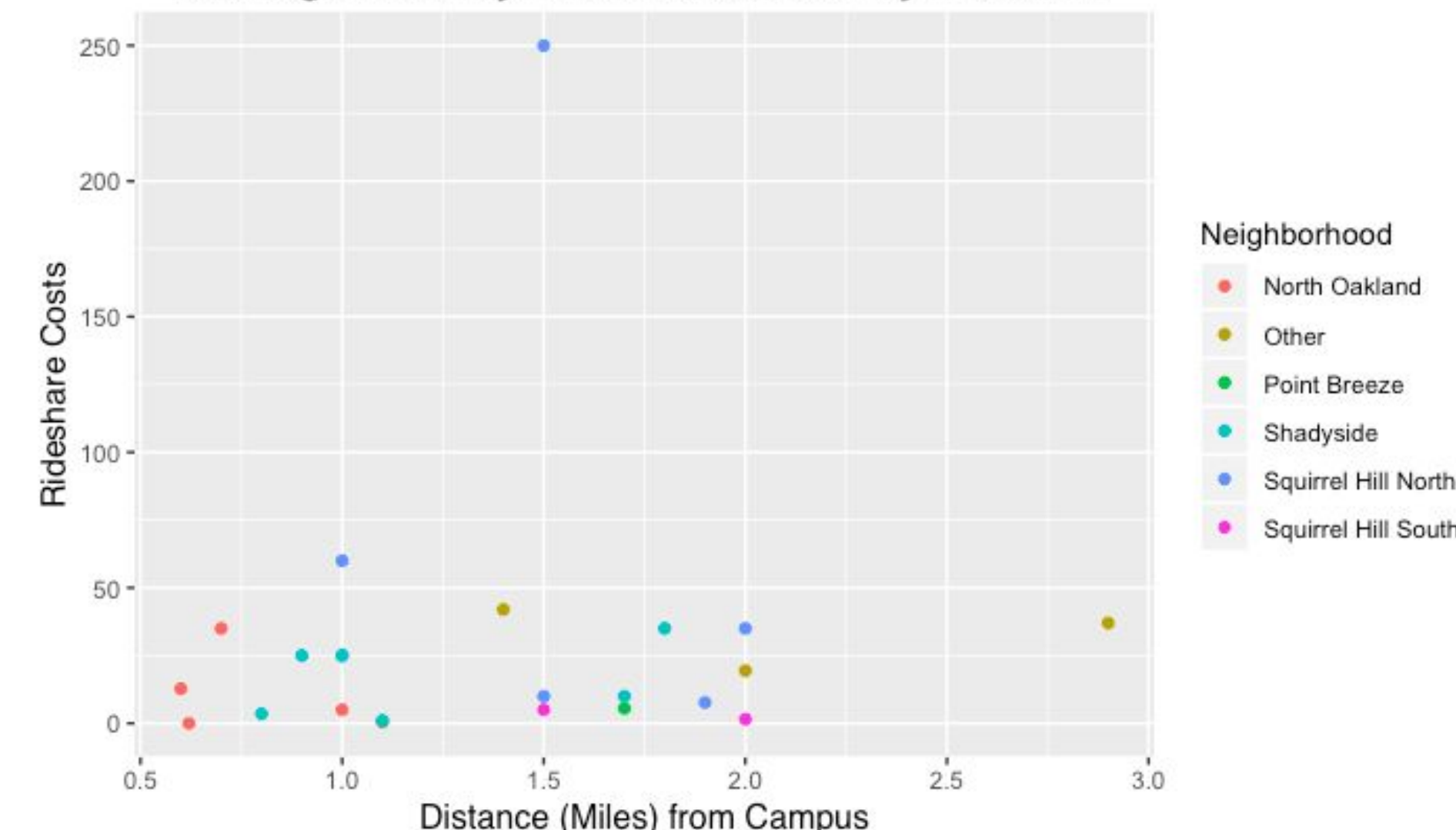
- Uber / Lyft users usually live ~1.5-1.9 miles away
- > 2 miles tend to take less rides: long trips → higher cost
- **Intuition:** for students living 1.5-1.9 mile away, live slightly further from campus, but not far enough that cost of driving services is high

Average Monthly Costs vs. Distance from CMU Campus



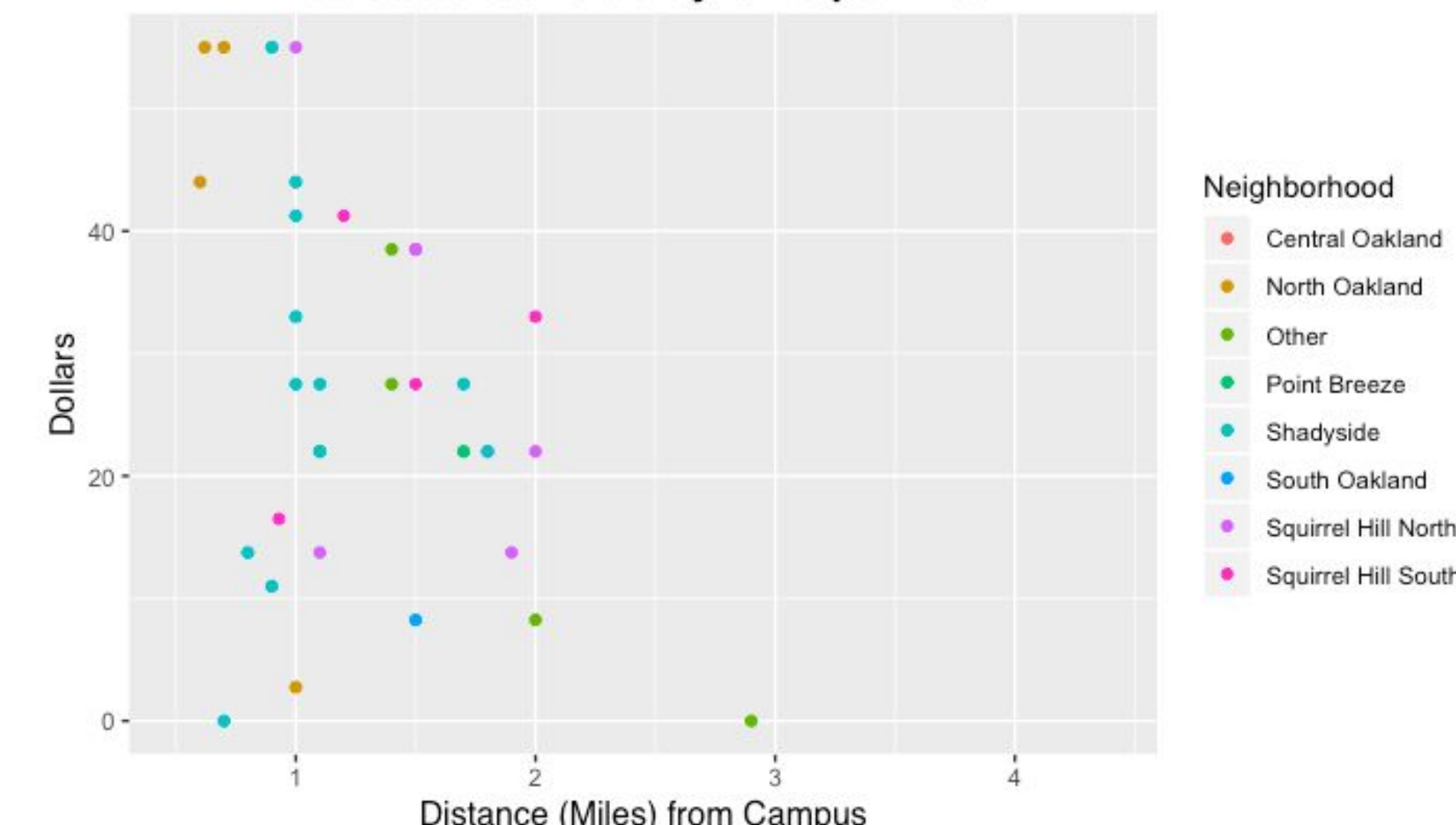
- distance from campus ↑, average monthly costs ↓
- total monthly cost **higher** for those living < 1 mile from campus
- total monthly cost **lower** for those living > 2 miles from campus
- when living > 2 miles away, tend to spend more money on gas than ridesharing, so practical to have a car
- average monthly cost includes: monthly gas, monthly rent, Uber / Lyft expenses (Feb. / Oct. average data), monthly utilities

Average Monthly Rideshare Costs by Location



- rideshare costs **evenly distributed** among distance from campus up to 2 miles and across neighborhoods
* data may be skewed by 2-3 outliers (1 outlier removed)

Bus Costs Covered by CMU per Week



- distance from campus ↑, rate of taking buses ↓
- bus expenses / year (**\$1560**) > transportation fee (**\$200**)
* variation in covered expenses per neighborhood
- average cost for per week per student is \$21.90
- given \$90 fee per semester for transportation, we found that students **gain utility** through using the buses.

Design & Demographic

- 10.2% response rate
- Only driving services used are Uber and Lyft
- None of the respondents pay for parking despite 18% owning a car
- None of the respondents live on-campus
- 59% of 49 respondents would use Uber or Lyft ridesharing options if available, at least 1-2 times/week.
- 24% of respondents from Heinz College, 39% of respondents from CIT, and rest around evenly distributed

Conclusion

- Students who live in **Squirrel Hill South and Shadyside** find that they use the bus more often than residents of other neighborhoods, on average, benefiting from the flat fee for transportation.
- While more students living 1.5-1.9 miles away from CMU campus use Uber and Lyft, the average monthly **costs** spent on these **driving services** is **even** across residences **less than 2 miles** from campus.
- Students living **over 2 miles** from campus have **lower monthly costs**, yet spend more on gas; they probably have **car expenses**

Acknowledgements

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