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## Cycling by Choice or Necessity? Exploring the Gender Gap in Bicycling in Oregon

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# Cycling by choice or necessity? Exploring the gender gap in bicycling in Oregon

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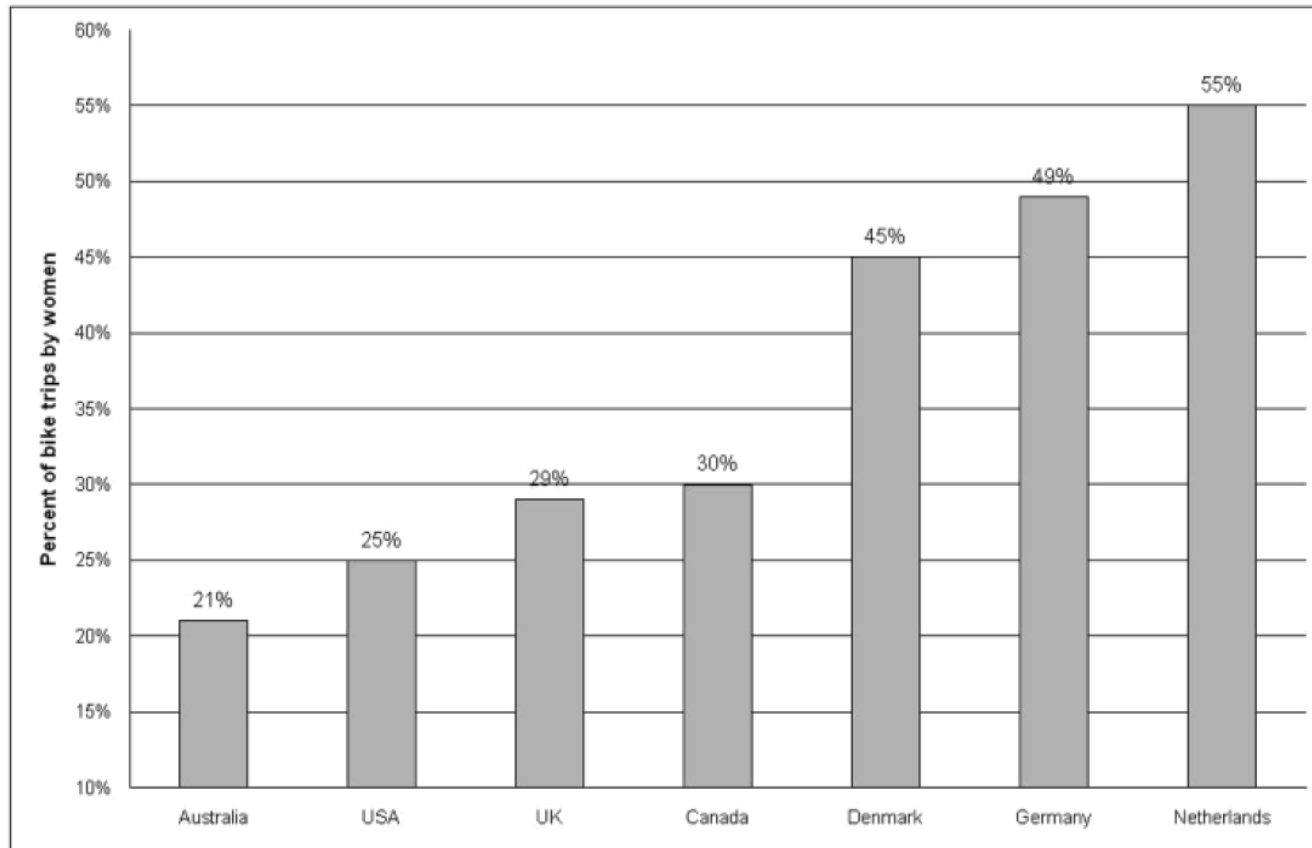
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Portland State University

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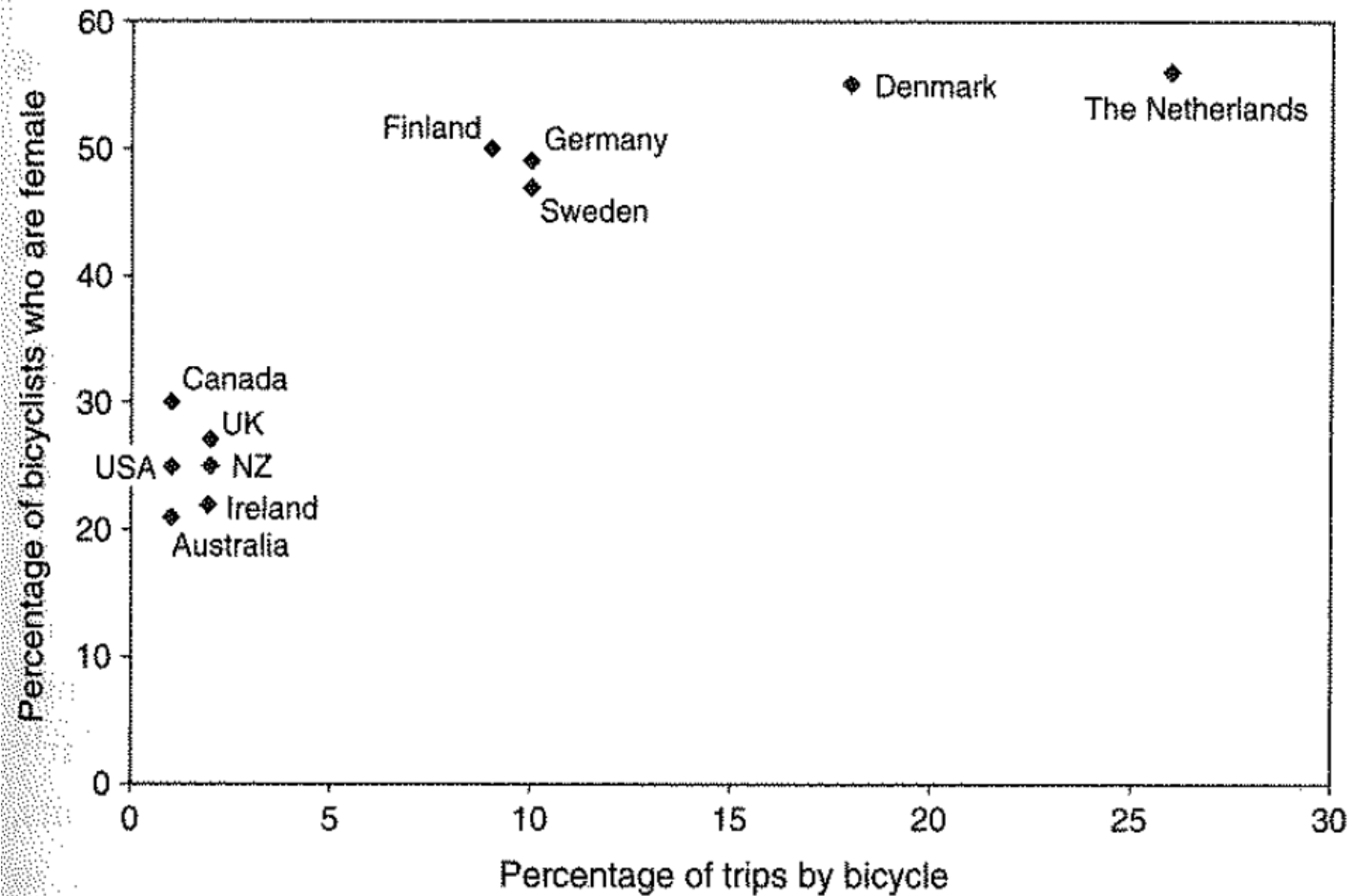
# Gender gap in bicycling



Sources: German Federal Ministry of Transport (2003); U.S. Department of Transportation (2003); Danish Ministry of Transport (2005); Statistics Netherlands (2005); Australian Bureau of Statistics (2007); Department for Transport (2007) and information provided directly by bike planners in Canadian provinces and cities

Pucher, J., and R. Buehler. Making cycling irresistible: Lessons from the Netherlands, Denmark and Germany. *Transport Reviews*, Vol. 28, No. 4, 2008, pp. 495–528.

# Gender gap in bicycling



Garrard, J., S. Handy, and J. Dill. Women and cycling. In J. Pucher and R. Buehler (Eds.), *City Cycling* (pp. 211–234). The MIT Press, Cambridge, MA, 2012.

# Gender gap in bicycling

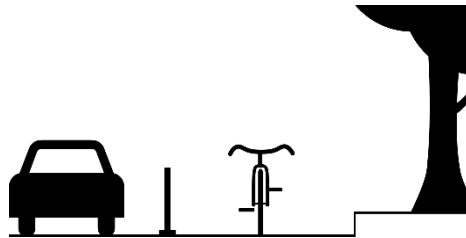
- **Goal: to understand bicycling's gender gap**
- **Importance of closing gender gap**
  - Health
  - Well-being
  - Access to jobs, services, and community



# Gender gap in bicycling

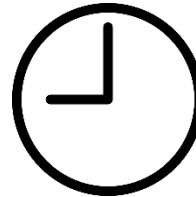
- Explanations

- Bicycle facility preferences & safety perceptions



<https://www.flickr.com/photos/bike/196792901>

- Household responsibilities & time constraints



- Social normative gender roles



<https://www.flickr.com/photos/krawcowicz/4279213591/>

- **Our hypotheses**
  - **Household maintenance responsibilities:**
    - Women with children → ↓ bicycling
    - Women with maintenance activities → ↓ bicycling
    - Single women → ↑ bicycling
  - **Limited means and mobility options:**
    - Low-income women → ↑ bicycling
    - Women with ↓ vehicles → ↑ bicycling

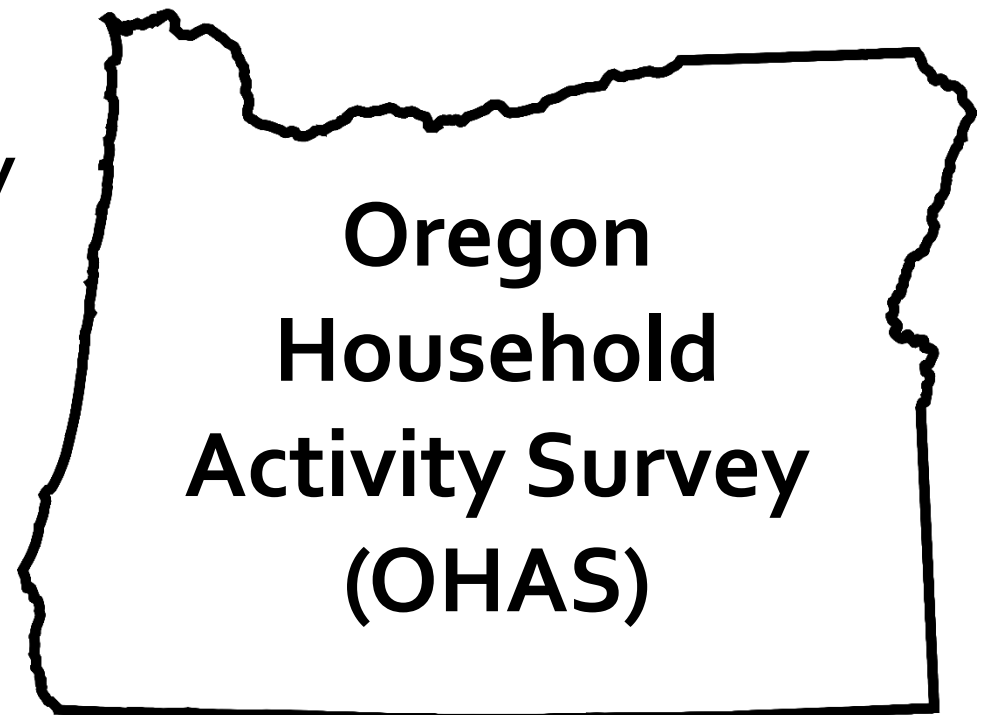
- **Method**
  - **Travel behavior: cross-sectional, one-day**
  - **Bicycle use by gender across demographic and household variables**
  - **For any characteristic, looked for reduced or increased gender gap in bicycling**
  - **Suggest possible interventions; or identify target populations for interventions**



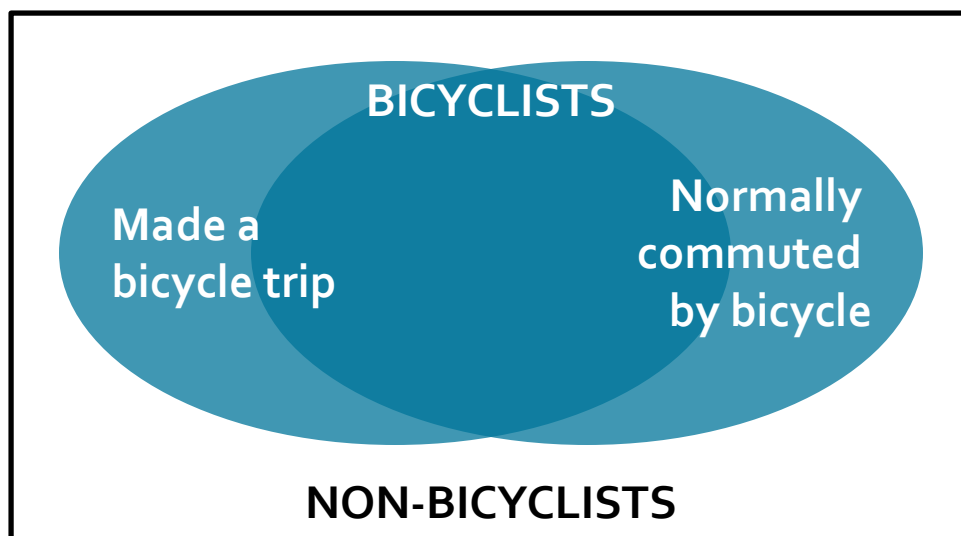
- **Data**

- One-day,  
household-based,  
travel diary survey
- Weighted
- 30,090 adults  
(age 18+)

**2009–2011**

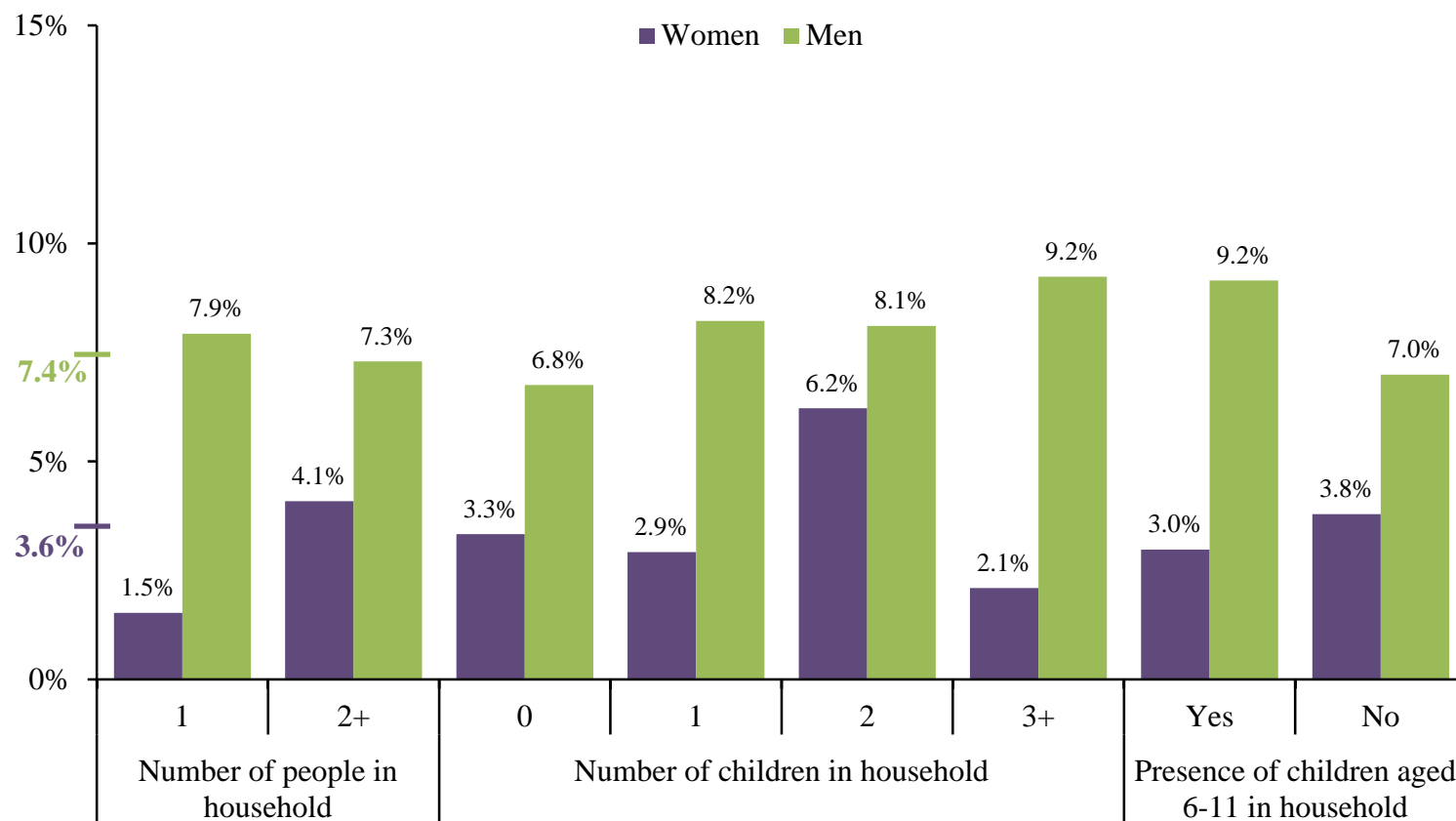


- **Bivariate analysis**
  - **Pearson's chi-squared tests of independence, two-way contingency tables**

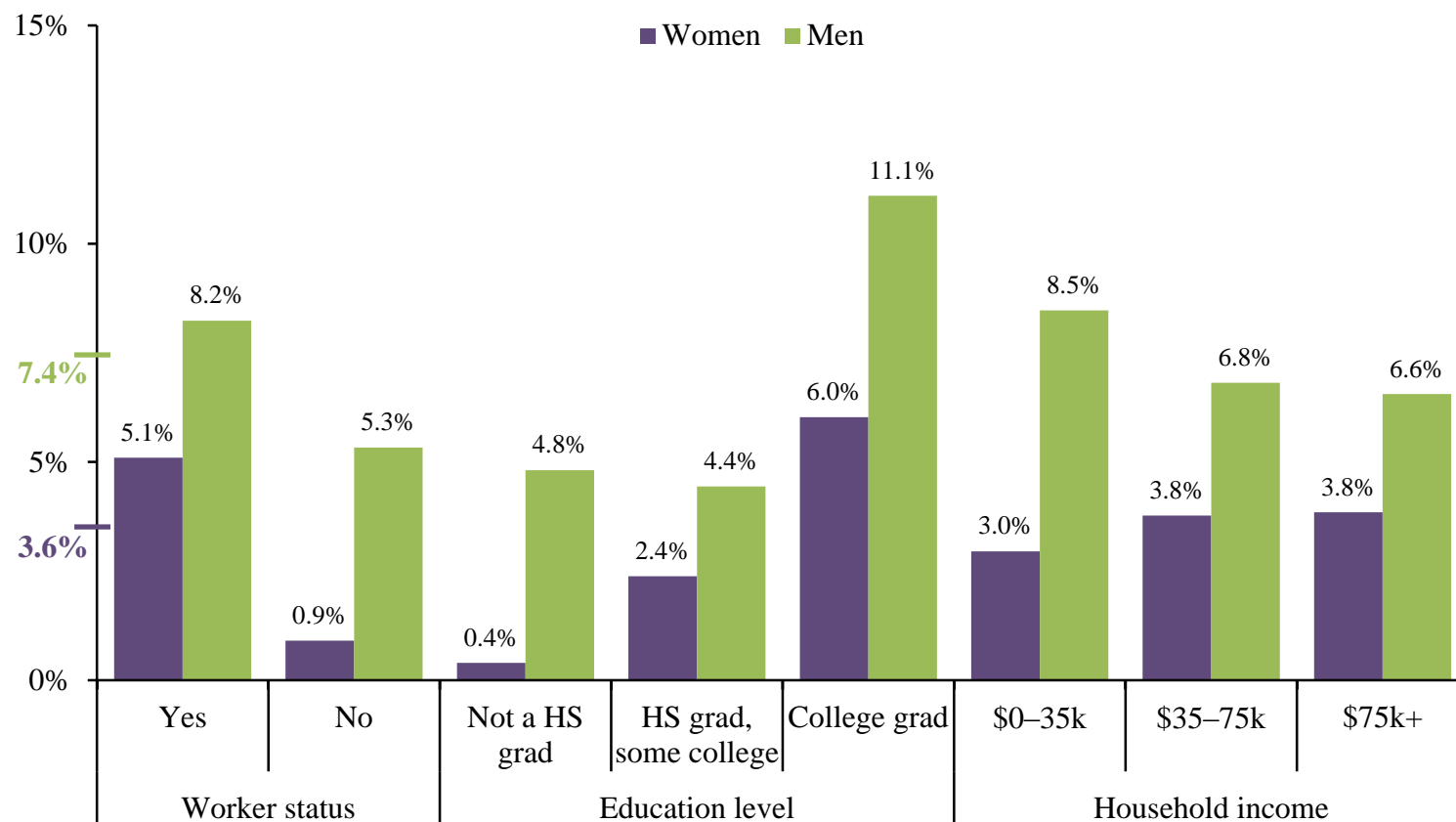


| <i>Bicycle use</i>           | <i>Women</i>         | <i>Men</i>             |
|------------------------------|----------------------|------------------------|
| Made a bicycle trip          | 2.8%<br>(453)        | 5.5%<br>(768)          |
| Normally commuted by bicycle | 2.2%<br>(356)        | 4.8%<br>(665)          |
| <b>Bicyclists</b>            | <b>3.6%</b><br>(590) | <b>7.4%</b><br>(1,023) |

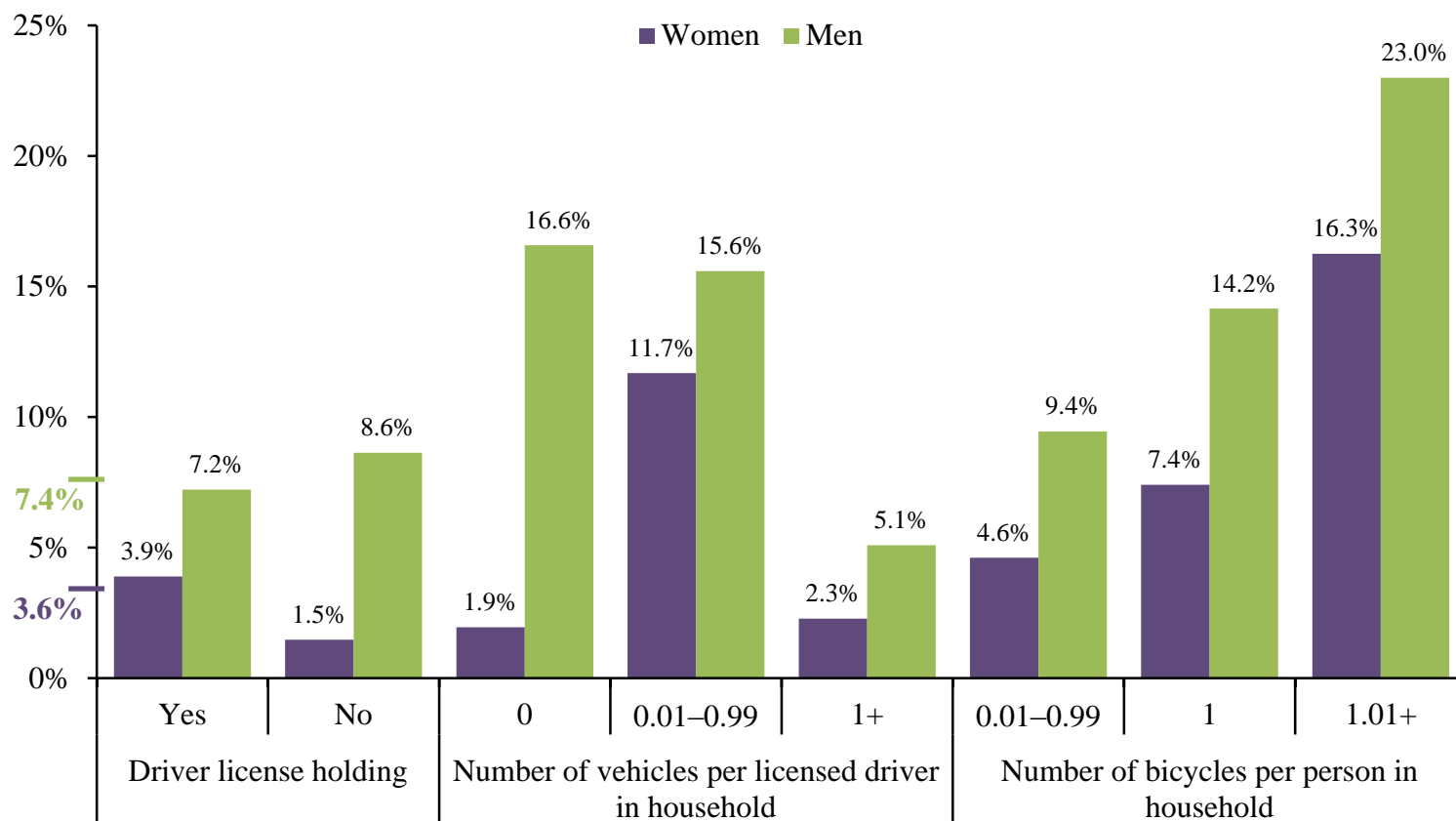
## Percentage of bicyclists by gender for demographics



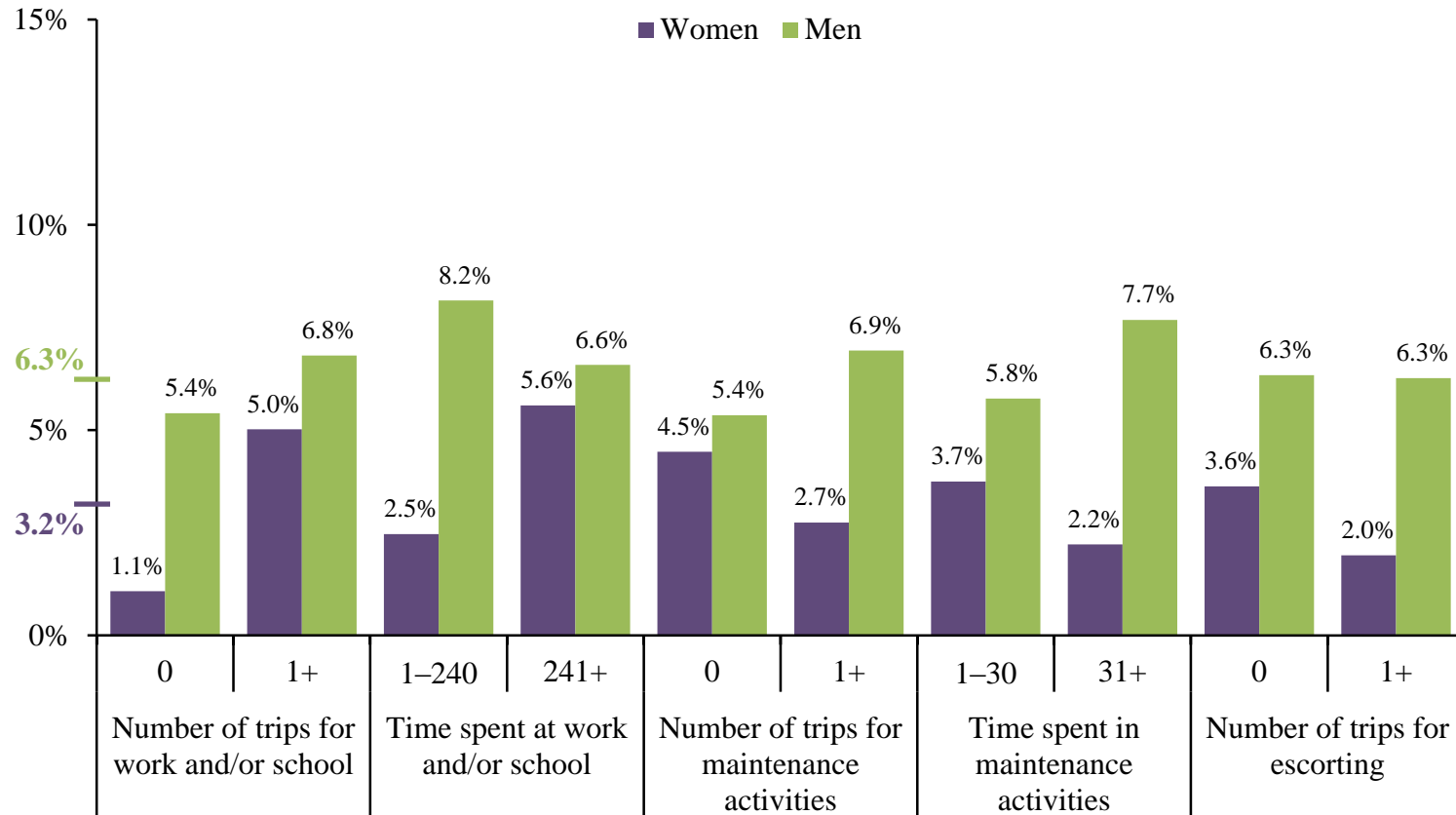
## Percentage of bicyclists by gender for socioeconomics



## Percentage of bicyclists by gender for mobility characteristics



## Percentage of bicyclists by gender for trip and activity characteristics



- **Women, household roles, and bicycling**
  - Household maintenance trip-making; time spent on maintenance activities:
    - Women less likely to bicycle; men more likely.
    - Women made more maintenance trips, and spent more time on maintenance activities.
  - Presence of children:
    - Women with 2+ children more likely to bicycle.
    - Women with children aged 6–11 slightly less likely to bicycle; men more likely.

- **Bicycling as a choice**
  - Women with more economic means and mobility options were more likely to bicycle:
    - ↑ income, employed, Friday, driver license, motor vehicle access, ↑ bicycles.
- **Bicycling (or not) by necessity**
  - Women with less economic means and limited mobility options were less likely to bicycle:
    - < HS degree, not working, low-income HH, no work/school trips, no driver license, zero-vehicle HH.



- **Potential policy implications**
  - **Target low-bicycling women:**
    - Living alone or in single adult HH, < HS education, not working, no driver license, and/or living in low-income or zero-vehicle HH.
  - **Interventions:**
    - Infrastructure installations, awareness-raising, training, skills-building, and social events.



- **Future work**
  - **Multivariate model of bicycling (gender × other variables)**
  - **Multi-day travel survey, longitudinal data**
  - **Data on built environment, bicycle facilities, safety, attitudes and preferences**
  - **External validation of findings (beyond Oregon)**
  - **Supplementary qualitative interviews, case studies, ..., to ask: Why?**

# Questions?



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