The Cycling Gender Gap: What Can We Learn From Girls?

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The Cycling Gender Gap: What can we learn from girls?

Jennifer Dill, Ph.D.
Professor, Urban Studies & Planning
Director, TREC
Portland State University
The biking gender gap

Source: 2009 National Household Travel Survey (NHTS)
That’s not the case everywhere

Percent of bike trips by women

<table>
<thead>
<tr>
<th>Country</th>
<th>25%</th>
<th>27%</th>
<th>30%</th>
<th>49%</th>
<th>55%</th>
<th>56%</th>
</tr>
</thead>
<tbody>
<tr>
<td>USA</td>
<td></td>
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<tr>
<td>UK</td>
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<tr>
<td>Canada</td>
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<td>Germany</td>
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<td>Denmark</td>
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<tr>
<td>Netherlands</td>
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</tbody>
</table>

FAS Team:
Nathan McNeil
Joe Broach
Data collection

Surveys

GPS (GlobalSat DG-100) and accelerometer (Actigraph GT3X) for 5 days
Timeline

1. Pre data collection (GPS+AM+surveys)
2. Interim data collection (surveys only)
3. Post data collection (GPS+AM+surveys)

2 years

1. July-October 2010
2. April-August 2011

2. April-August 2013
Sample size by phase

- Pre: 491 households
  - 417 Kids 11-17
  - 74 Kids 5-10
  - 99 Adults

- Interim: 363 households
  - 224 Kids 11-17
  - 114 Kids 5-10
  - 24 Adults

- Post: 354 households
  - 260 Kids 11-17
  - 134 Kids 5-10
  - 29 Kids Adults

- AM: 3 days Pre & Post: 294 households
  - 186 Kids 11-17
  - 99 Kids 5-10
  - 11 Kids Adults

- GPS: 3 days Pre & Post: 329 households
  - 215 Kids 11-17
  - 99 Kids 5-10
  - 13 Kids Adults
Age of kid participants

Notes:
4-year olds only included with older siblings, at request of parents
17-year old dropped out
Findings

Today’s findings are new, and just the beginning of the analysis.
I welcome your ideas for further analysis.
Keep in mind that these are kids living in the city of Portland.
Need to be careful about applying findings to other cities.
Behavior
Bikes trips by gender

Based on GPS data over 5 days

Gender differences are not statistically significant

5-10 year olds: 123 boys, 119 girls
11-16 year olds: 65 boys, 57 girls
Number of bike trips, by gender

5-10 year olds

11-16 year olds
## Differences between corridors

<table>
<thead>
<tr>
<th></th>
<th>Boys</th>
<th>Girls</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Control</td>
<td>Treatment</td>
</tr>
<tr>
<td><strong>5-10 year olds</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Minutes biking</td>
<td>↓</td>
<td>No change</td>
</tr>
<tr>
<td>Bike trips</td>
<td>No change</td>
<td>No change</td>
</tr>
<tr>
<td><strong>11-16 year olds</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Minutes biking</td>
<td>No change</td>
<td>No change</td>
</tr>
<tr>
<td>Bike trips</td>
<td>No change</td>
<td>No change</td>
</tr>
</tbody>
</table>

Paired sample t-tests, p<0.10
Kids’ attitudes
Attitudes about walking vs. biking

<table>
<thead>
<tr>
<th></th>
<th>5-10 year olds</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>girls vs. boys, pre</td>
</tr>
<tr>
<td>I like walking</td>
<td>=</td>
</tr>
<tr>
<td>I like biking</td>
<td>=</td>
</tr>
<tr>
<td>I like riding my bike to school</td>
<td>=</td>
</tr>
<tr>
<td>I like riding my bike to other places</td>
<td>=</td>
</tr>
</tbody>
</table>

I like walking = = = = = =
I like biking = = = = girls < boys girls
I like riding my bike to school = = girls & boys ↓
I like riding my bike to other places = = girls ↓
Attitudes about walking vs. biking

<table>
<thead>
<tr>
<th></th>
<th>5-10 year olds</th>
<th>11-16 year olds</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td>=</td>
</tr>
<tr>
<td>I like riding my bike to other places</td>
<td>=</td>
<td>=</td>
</tr>
</tbody>
</table>
Gender differences in attitudes about biking

% Agreeing that they Like Biking

- 5-10, Pre
- 5-10, Post
- 11-16, Pre
- 11-16, Post

Boys | Girls

2 years later | 2 years later
Barriers to biking, by gender (11-16 years, pre)

Very much a barrier to biking

- Rain: Boys = 3.0, Girls = 4.0
- Cold weather: Boys = 2.0, Girls = 1.5
- No one to bike with: Boys = 2.0, Girls = 1.5
- My parents don’t want me to bike: Boys = 1.5, Girls = 1.0
- It takes too long: Boys = 1.5, Girls = 1.0
- Not fun, don’t feel like it: Boys = 2.0, Girls = 1.5
- I don’t like wearing helmet: Boys = 1.5, Girls = 1.0
- I am afraid of getting hurt: Boys = 1.0, Girls = 0.5
- My bike does not fit me well: Boys = 1.0, Girls = 0.5
- I don’t want to get sweaty: Boys = 0.5, Girls = 0.0
- I can’t ride my bike well: Boys = 0.5, Girls = 0.0
- My friends don’t want me to bike: Boys = 0.5, Girls = 0.0
- I don’t want other kids to see me biking: Boys = 0.5, Girls = 0.0

Not at all a barrier to biking

- Not at all a barrier to biking: Boys = 0.0, Girls = 0.0

p-values:
- Rain: p=0.02
- Cold weather: p<0.01
- No one to bike with: p<0.01
- My parents don’t want me to bike: p=0.02
- It takes too long: p=0.02
- Not fun, don’t feel like it: p=0.02
- I don’t like wearing helmet: p=0.02
- I am afraid of getting hurt: p=0.02
- My bike does not fit me well: p=0.02
- I don’t want to get sweaty: p=0.02
- I can’t ride my bike well: p=0.02
- My friends don’t want me to bike: p=0.02
- I don’t want other kids to see me biking: p=0.02
Change among girls, barriers to biking

1. Rain
2. Cold weather
3. No one to bike with
4. Parents don't want me to bike
5. Takes too long
6. Not fun, don't feel like it
7. Afraid of getting hurt
8. I don't like wearing my helmet
9. My bike does not fit me well
10. I don't want to get sweaty
11. Friends don't want me to bike
12. Don't want other kids to see me biking
13. I can't ride my bike well

Pre: Not at all a barrier to biking
Post: Very much a barrier to biking

- Rain: p=0.03
- Cold weather: p=0.07
- No one to bike with: p=0.06
- Parents don't want me to bike: p=0.02
Barriers to biking, by gender (11-16 years, post)

- Rain: Very much a barrier to biking (Boys p<0.01, Girls p<0.01)
- Cold weather: Not much of a barrier to biking (Boys p=0.03, Girls p=0.02)
- No one to bike with: Not a barrier to biking (Boys p=0.03, Girls p=0.02)
- Not fun, don’t feel like it: Very much a barrier to biking (Boys p<0.01, Girls p<0.01)
- It takes too long: Very much a barrier to biking (Boys p<0.01, Girls p<0.01)
- I don’t like wearing my helmet: Not much of a barrier to biking (Boys p=0.03, Girls p=0.02)
- I don’t want to get sweaty: Not much of a barrier to biking (Boys p=0.03, Girls p=0.02)
- My bike does not fit me well: Very much a barrier to biking (Boys p<0.01, Girls p<0.01)
- I can’t ride my bike well: Very much a barrier to biking (Boys p<0.01, Girls p<0.01)
- My friends don’t want me to bike: Not much of a barrier to biking (Boys p=0.03, Girls p=0.02)
- My parents don’t want me to bike: Not much of a barrier to biking (Boys p=0.03, Girls p=0.02)
- Am afraid of getting hurt: Not much of a barrier to biking (Boys p=0.03, Girls p=0.02)
- I don’t want other kids to see me biking: Very much a barrier to biking (Boys p<0.01, Girls p<0.01)
Parents’ attitudes
Parents’ comfort with kids biking & walking

I/We do not feel comfortable allowing this child to walk/bike alone to places in the neighborhood because of ….

Very few significant gender differences:
- 5-10, walk alone due to stranger danger p<0.05
- 5-10, bike alone due to stranger danger p<0.10

Boys, 5-10
girls, 5-10
Boys, 11-16
girls, 11-16

stranger danger
traffic

Biking
Walking
Infrastructure
Comfort on facilities: 11-16 year olds

- On a street with heavy traffic and no bike lane
- On a street with heavy traffic with a bike lane
- On a street with little traffic and no bike lane
- On a street with little traffic with a bike lane
- On a path or trail separate from the street

Mean Comfort Level, 1=Very uncomfortable, 4=Very comfortable

Boys
Girls

* sig. difference p<0.05

Alone
Comfort on facilities: 11-16 year olds

Mean Comfort Level, 1=Very uncomfortable, 4=Very comfortable

Boys
Girls

* sig. difference p<0.05

On a street with heavy traffic and no bike lane
On a street with heavy traffic with a bike lane
On a street with little traffic and no bike lane
On a street with little traffic with a bike lane
On a path or trail separate from the street

Alone
With Parents
Questions?

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