

A person is riding a bicycle on a path lined with trees. The scene is captured in a soft, slightly blurred style, suggesting a focus on the overall environment rather than specific details. The path is paved and the trees are tall and thin, creating a canopy effect. The lighting is bright, possibly from a sunny day, casting soft shadows.

# World Bank Bike Commuter Safety Survey

Anne Gaëlle Selod, MD

Health Services Department, The World Bank Group

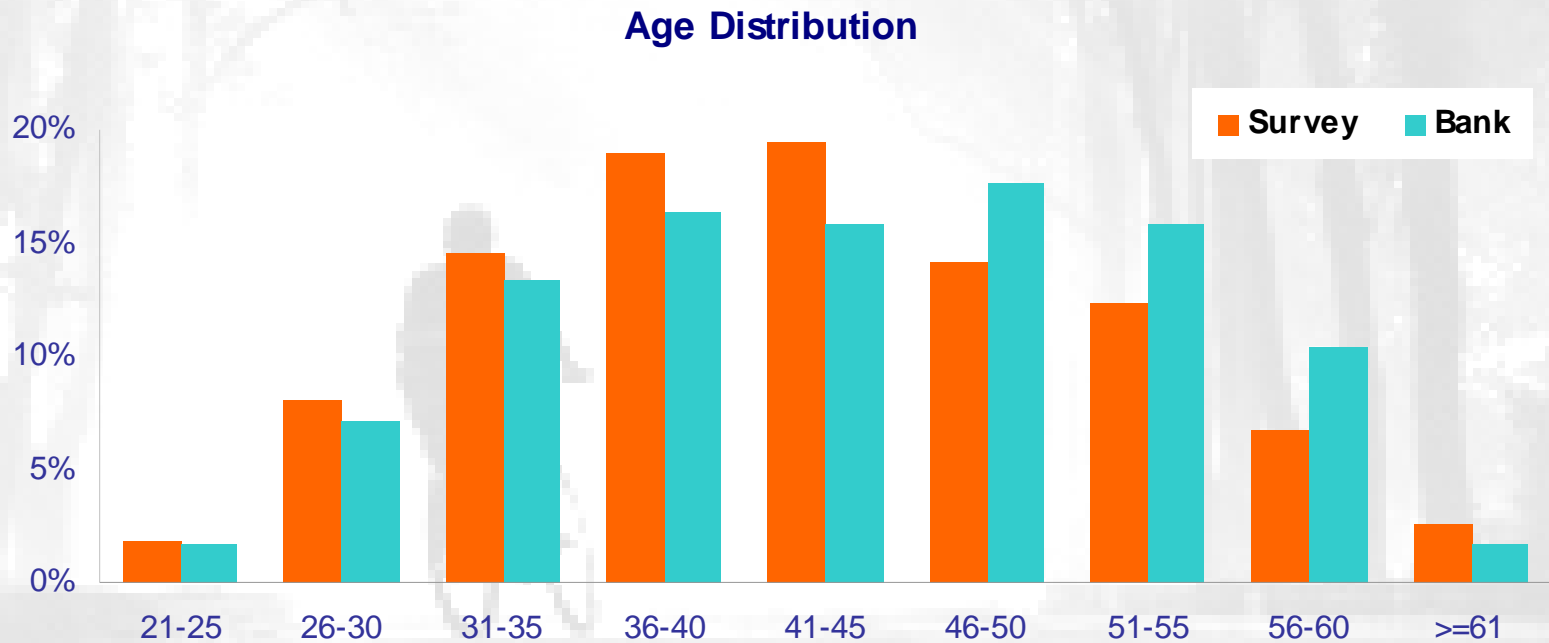
# Survey team

- **Eric Swanson**, PhD, Development Economics Vice Presidency, World Bank Staff Bike Club
- **Jasminka Goldoni Laestadius**, MD, PhD, Health Services Department
- **Lennart Dimberg**, MD, PhD, Health Services Department
- **Jian Ye**, MD, PhD, Health Services Department
- **Marissa Barrera**, General Services Department
- **Maria-Audrey Roxas**, General Services Department

# Overview

- **Survey conducted June 2008**
- **1,047 Bank cyclists identified**
- **569 responded to on-line survey concerning**
  - commuting experience
  - distance traveled
  - safety equipment used
  - accident history
  - Bank facilities evaluation
- **Results provide estimates of accident risk**

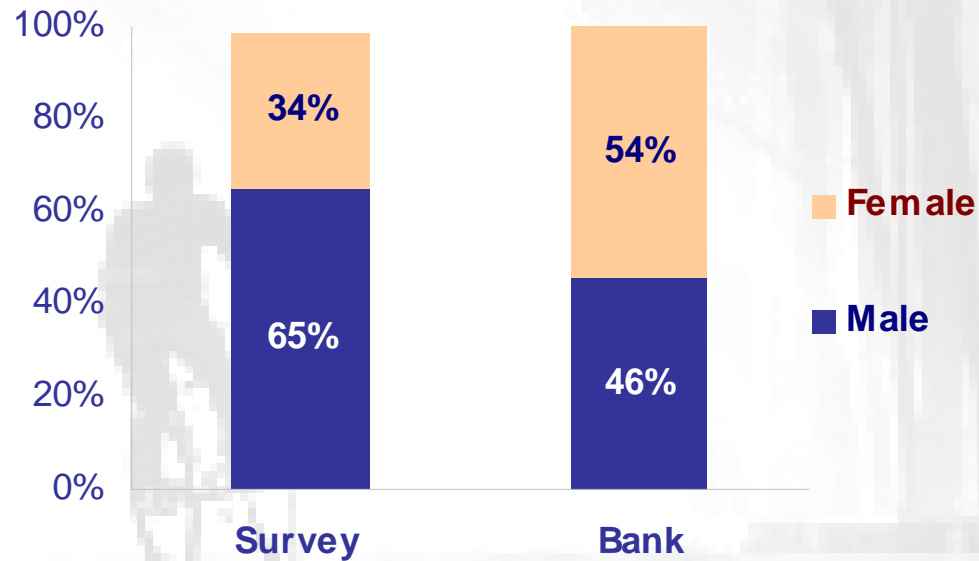
# Bike riders are younger than average staff



\* Note: 1% of survey respondents skipped question about gender

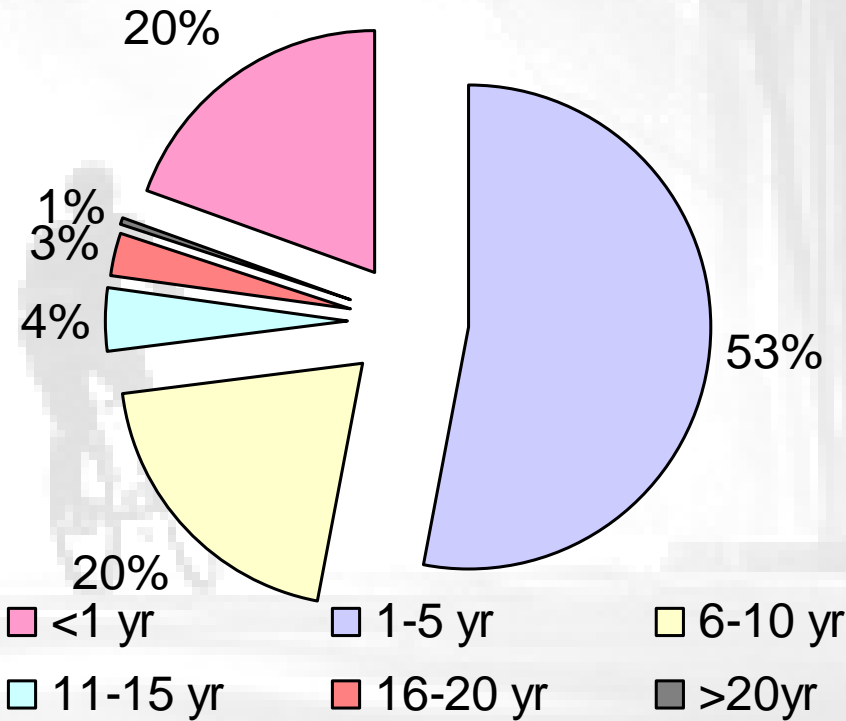
# And more likely to be male

**Gender Distribution**

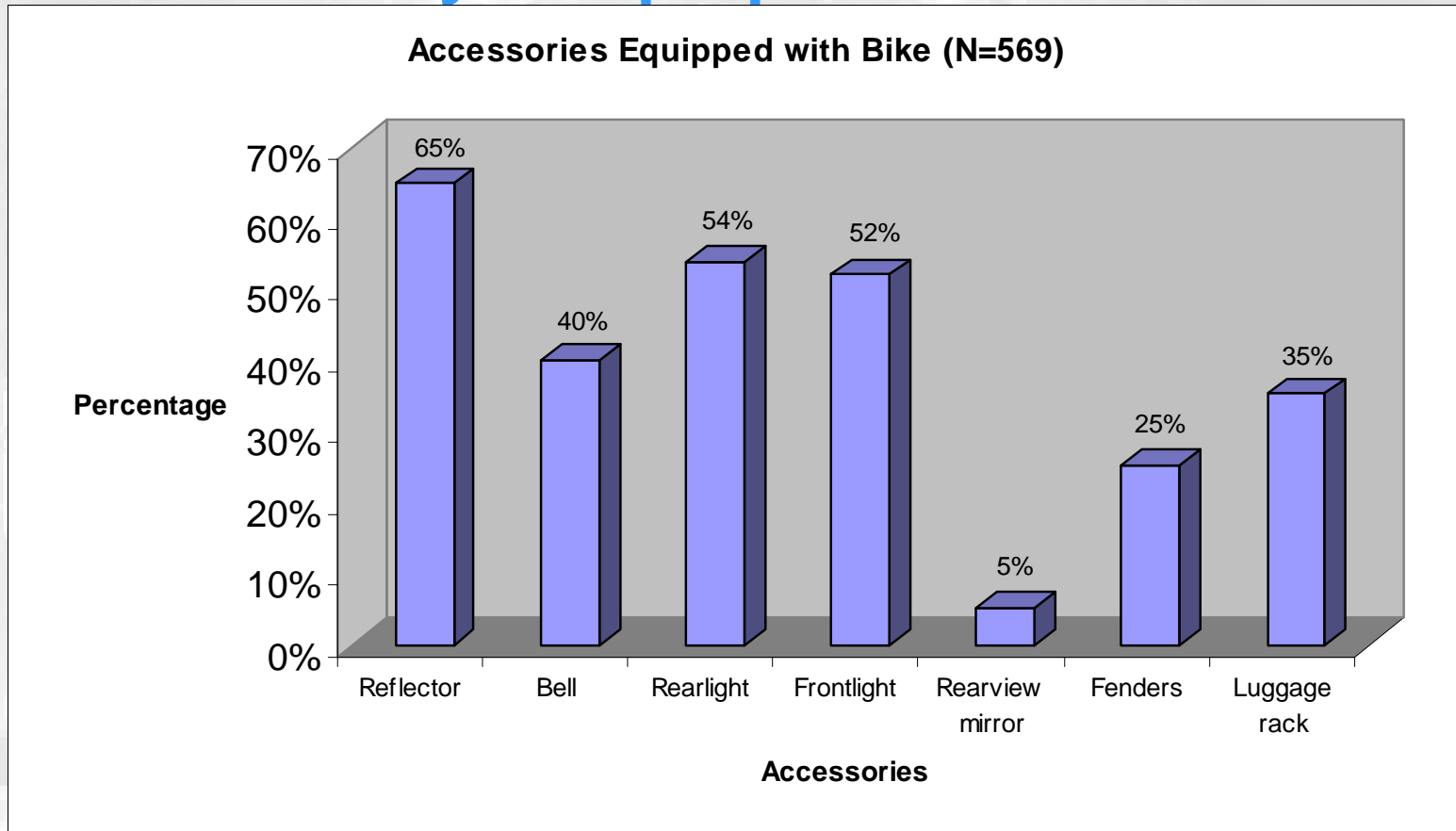


# More than 70% have commuted to the Bank for less than 6 years

Commuting Experience among Survey Respondents



# Safety Equipment used



- **Helmet use: Always 70% (male 75%, female 60%)**

# Commuting patterns

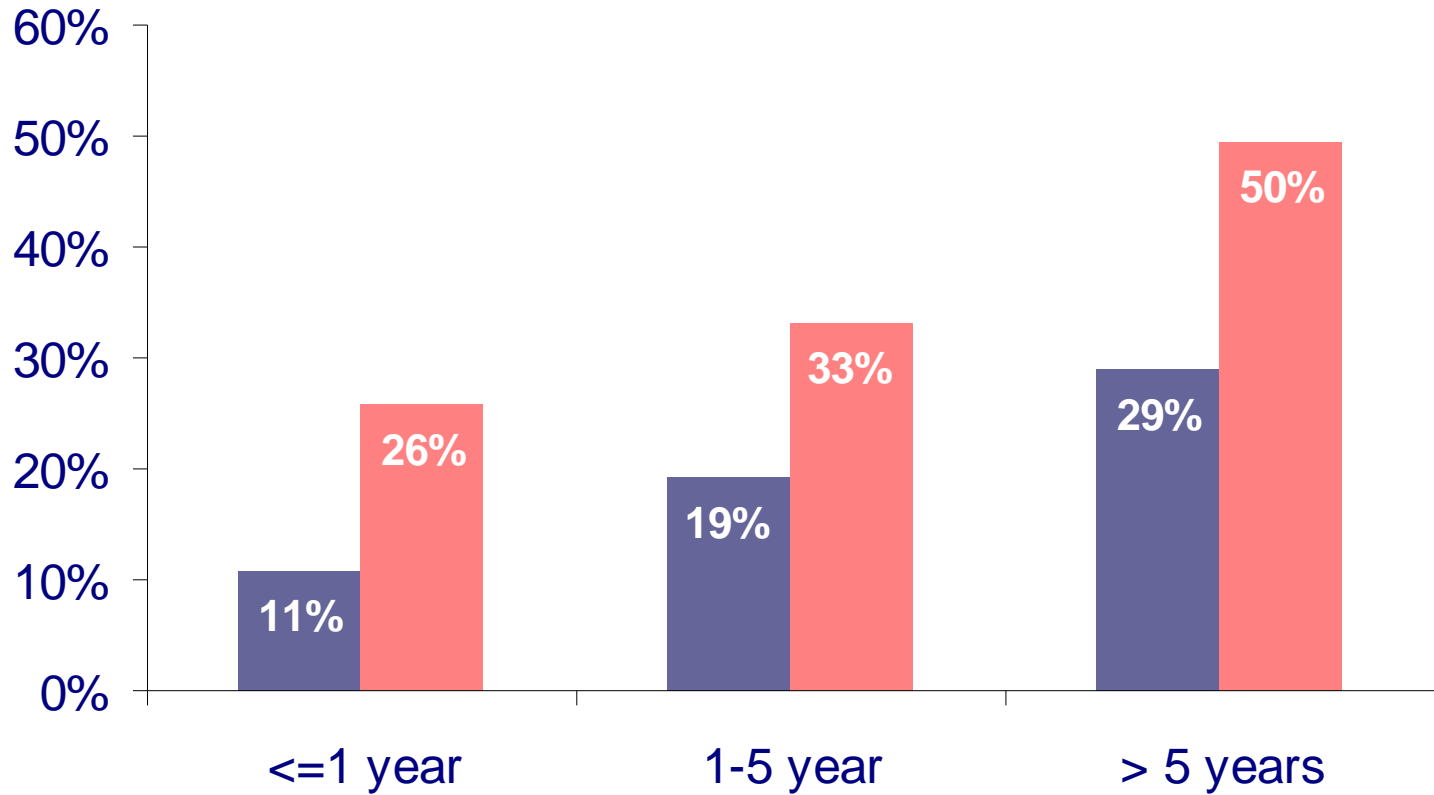
- 50% of trips originated in DC
- 55% use a bike trail as part of commute
- Median length of trip: 5 miles
- Median riding time: 25 minutes
- Number of round trips in last month (May): 13
- Days riding/year: 115
- Total commuting miles in last year: 610,000

# Accident rates

- **Collisions**  
131 in last 3 years
  - 30% Injuries
  - 11% Req. medical treatment
- **Non-collision accidents**  
251 in last 3 years
  - 50% Injuries
  - 19% Req. medical treatment
- **Location**
  - 80% in streets
  - 20% on trails
- **Location**
  - 50% on trails
  - 40% in streets, 10% in garages
- **Collision rate**
  - 300 per million trips
  - 72 per million miles
  - 16 injuries per million miles
- **Non-Collision rate**
  - 574 per million trips
  - 137 per million miles
  - 44 injuries per million miles

## Reported accident and commuting years

■ Collision accident ■ Non-collision accident



# Causes of collisions accidents

Description	Number	% of reported accidents
<b>With motorized vehicles (72%)</b>		
Right hook	13	15.1
Sideswipe	9	10.5
Crossing/intersection	8	9.3
Doored	7	8.1
Left hook	6	7.0
Hit from behind	4	4.7
Hit stationary car or other object	4	4.7
Wrong way riding, hit vehicle ahead, cut off by other vehicle	11	<1 each
<b>Other type of collisions accidents</b>		
Hit another cyclist on trail or sidewalk	6	7.0
Hit pedestrian in street	6	7.0
Hit pedestrian on trail	4	4.7
Encounter with dog or other animal	3	3.5
Hit another cyclist in street	2	2.3
Lost control of bike as a result of other cyclist	2	2.3

# Causes of non-collision accidents

Description	Number	Proportion of all accidents (%)
Obstacles on the road/trail	67	48
Traffic conditions	11	8
Bike/biker	24	17
Weather conditions	35	25
Bank garages (slippery floor)	6	4

# Comparative accident rates

Study	Indicator	Value
World Bank (2008)	Collisions/million miles Non-collisions/million miles	72 137
Delaware Valley (2005)	Collisions/respondent	25% non-motorized 14% motor vehicle
Kaplan (1975)	Accidents/million miles	Maryland 130 DC 125 (WABA 167) Virginia 107
Moritz (1998)	Accidents/respondent	9% Serious crashes of which falls 59%; motor vehicles 11%
Wachtel and Lewiston (1994)	Relative accident rates	Accidents 1.8 times more likely on sidewalk or bike path

# How to make commuting more pleasant and safer

Suggestions/Recommendations from survey respondents

<b>Road</b>	<b>Traffic rules</b>	<b>Employer</b>
<p>More bike lanes</p> <p>Improve conditions of existing lanes</p> <p>Improve conditions of the road in general</p> <p>Integrated biking infrastructure DC/MD/VA</p>	<p>Better enforcement of traffic laws</p> <p>⇒For drivers (share the road)</p> <p>⇒For bikers (act as vehicles)</p> <p>Hotline for dangerous behavior</p>	<p>Improve Locker/Shower/Parking</p> <p>Subsidize transport</p> <p>Subsidize annual tune up</p> <p>Discount at bike stores</p> <p>Flexible office hours</p> <p>Participation in Bike to work day</p> <p>Safety information and training</p> <p>Monitoring and evaluation</p>

# Carbon footprint

If the 474 riders, who rode 610,000 miles in the last year, had driven an average car

27,235 gallons of gasoline  
531,000 pounds of CO<sub>2</sub>  
1,120 pounds per person



**Equivalent to 2% of average individual emissions in US**