VIRGINIA AUTOMOBILE & BICYCLE CRASH SAFETY ANALYSIS

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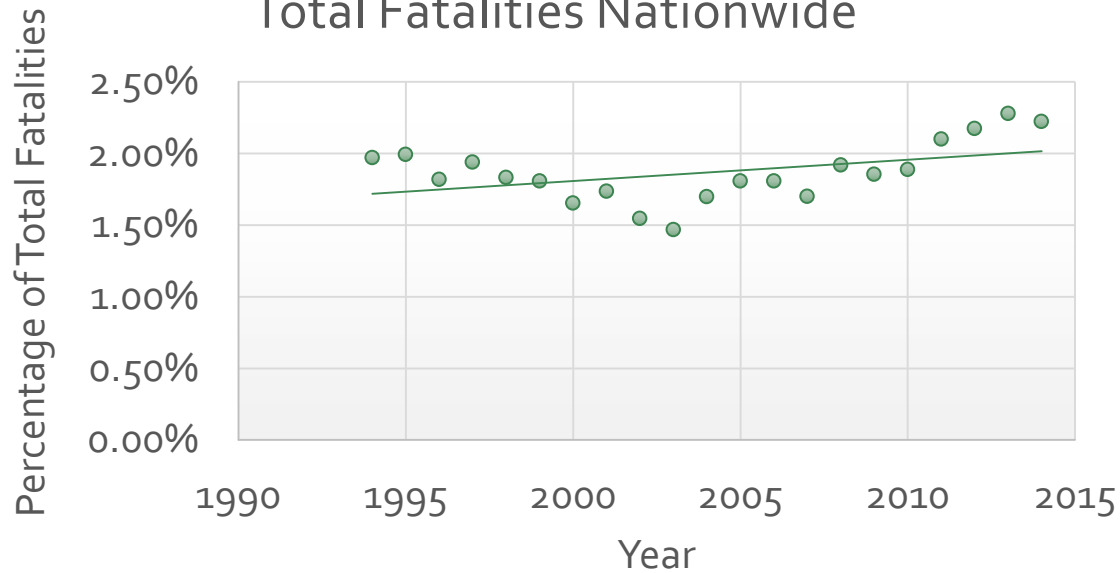
Assistant Professor

University of Virginia
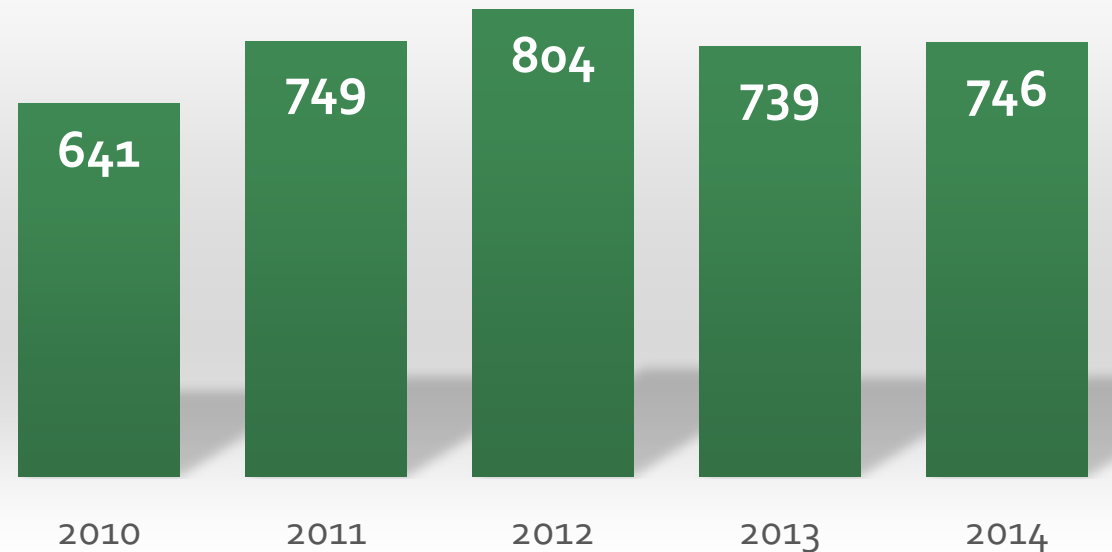
MOTIVATION

Pedalcyclist Fatalities as Percentage of Total Fatalities Nationwide

Total Automobile-Bike Crashes in Virginia

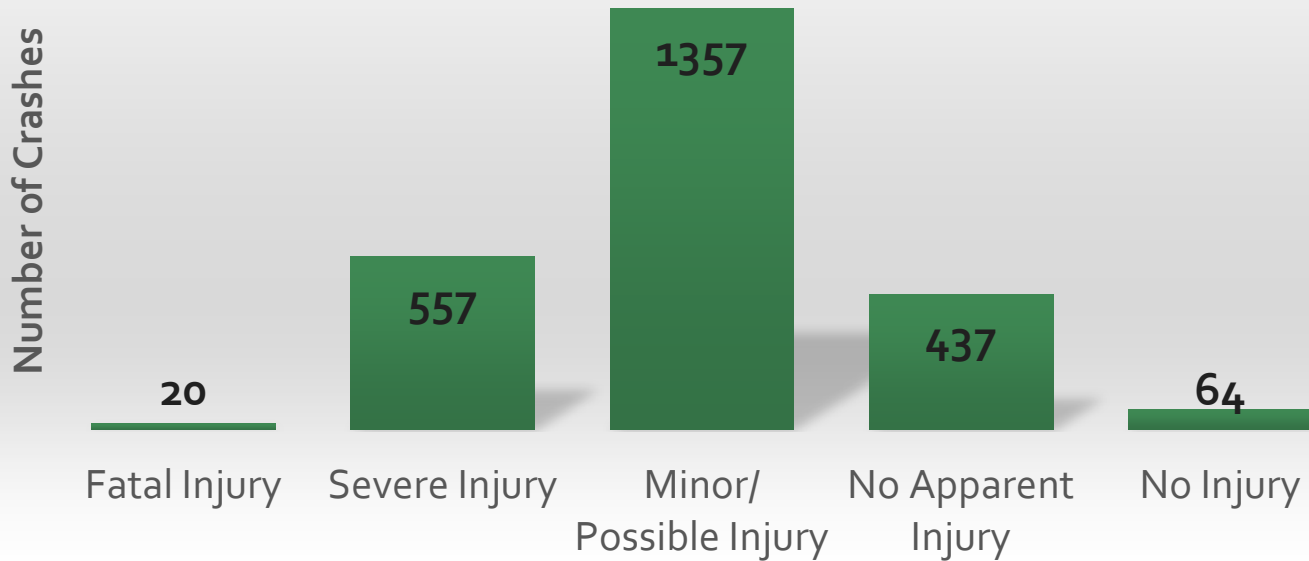| 2010	2011	2012	2013	2014
641	749	804	739	746

DATA CHARACTERISTICS

- Virginia **police crash** reported data

- **Single automobile** - **single bicycle** crashes

- 2010-2014

- 2435 observations

- Analyzed **bicyclist, automobile driver, vehicle, environmental, and roadway** characteristics that influence crash safety
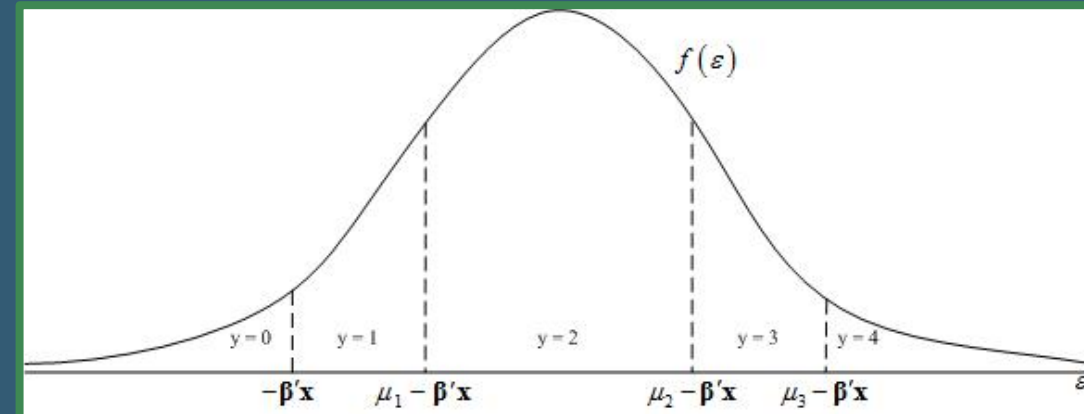

Virginia Auotomobile-Bicycle Crashes 2010-2014

Legend
- InuryCrashLocations
- PDOCrashLocations
- FatalCrashLocations
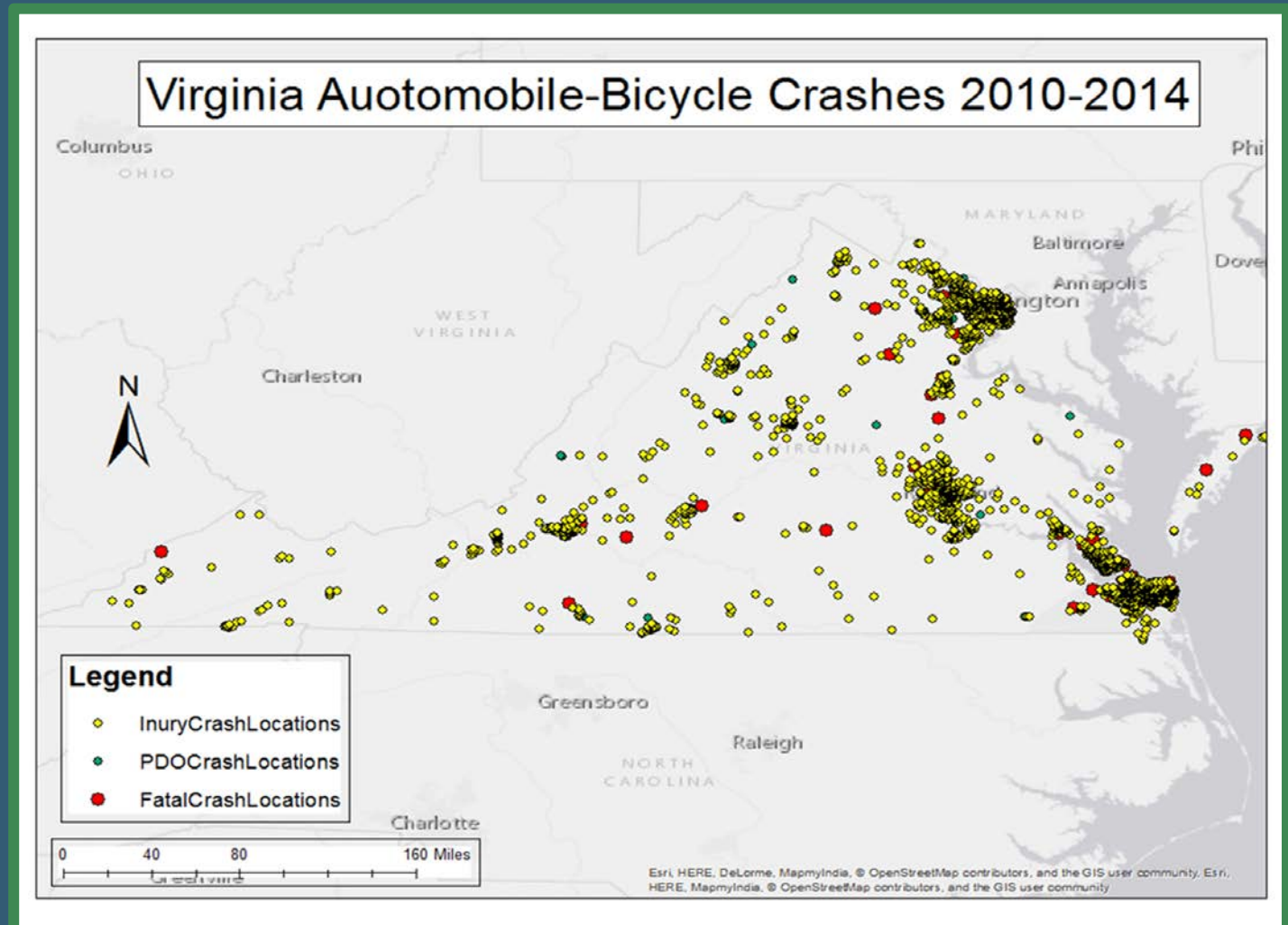
METHODOLOGY

Injury Severity Distribution of Virginia Automobile-Bicycle Crashes 2010-2014

Bar chart with "Number of Crashes" on the y-axis:
- Fatal Injury: 20
- Severe Injury: 557
- Minor/Possible Injury: 1357
- No Apparent Injury: 437
- No Injury: 64

Ordered Probit Model

$Y_0 = -0.13$
$Y_1 = -2.88$
$Y_2 = -1.06$
$Y_3 = 0.55$
$Y_4 = 1.68$

FACTORS THAT INFLUENCE CYCLIST INJURY SEVERITY

- Driving & biking under the **influence**

- Higher automobile & bicycle **speeds**

- **Larger vehicles** (SUVs, vans, and trucks)

- Horizontal **curves** & vertical **grades**

- **Divided** & **one-way** roads

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SPEED LIMIT 40
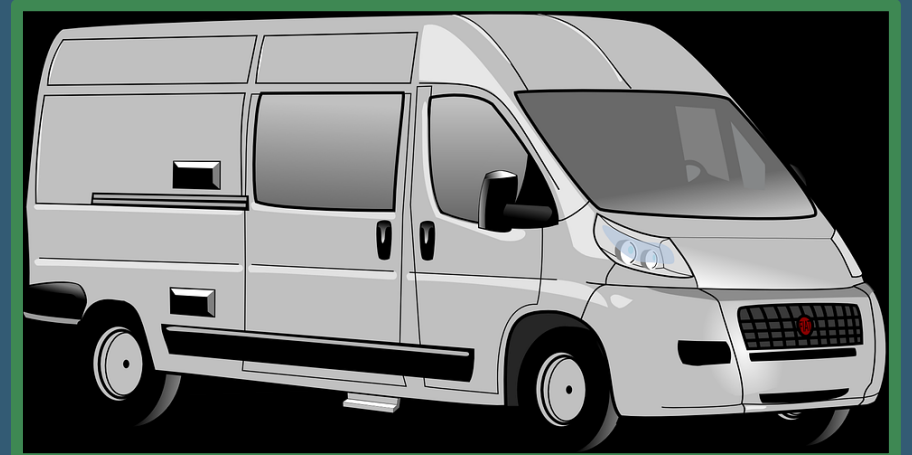
QUESTIONS?

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