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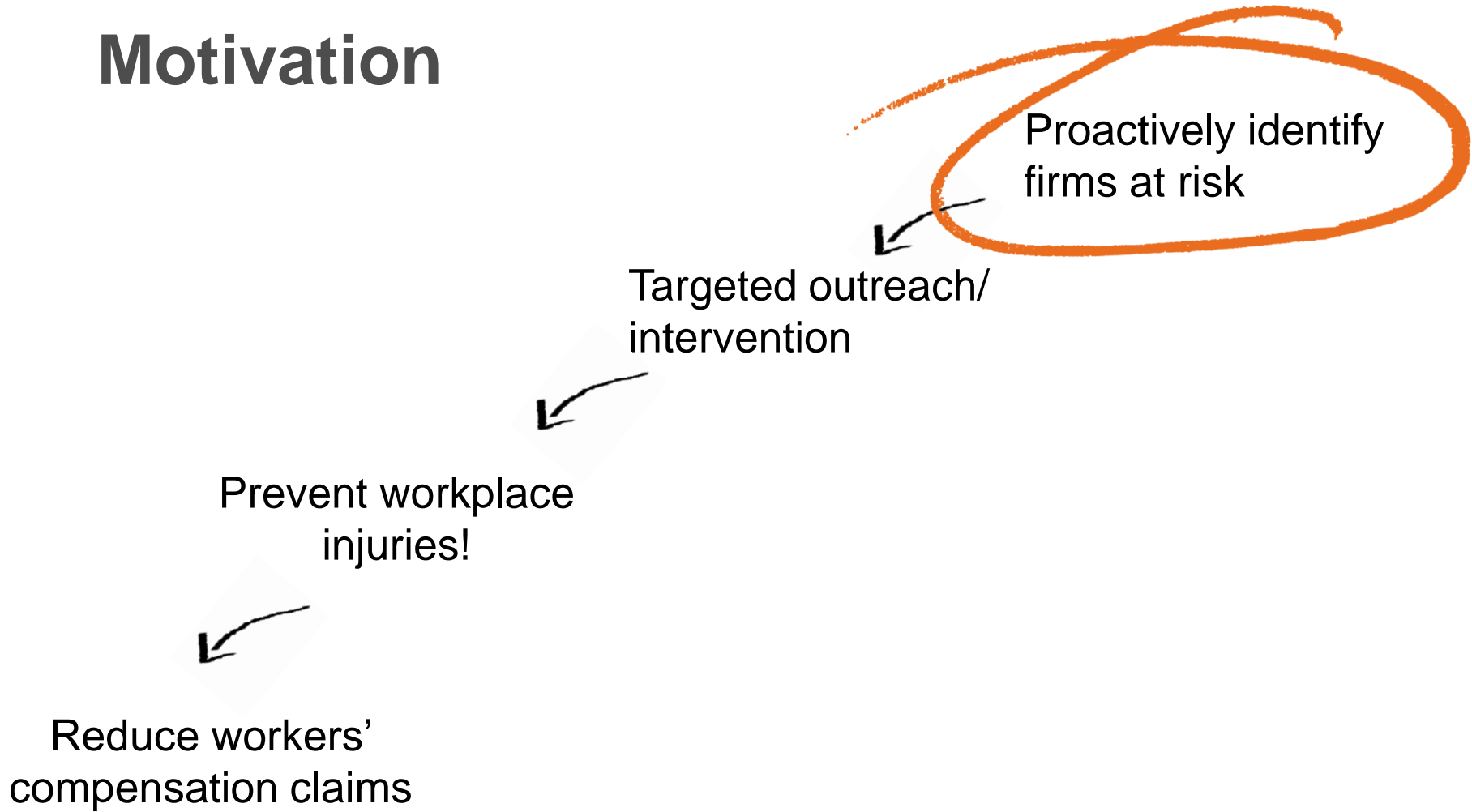 - Josh Ligosky
  - Henry Cheng
  - Mark Mercier

Motivation

- WA Labor and Industries (L&I) and workers' compensation
  - Compulsory coverage
  - Monopolistic, State Fund insures 99% employers and 75% of workers

- Injury risk is not uniform across firms

[1]Shannon HS and Vidmar M. How low can they go? Potential for reduction in work injury rates. *Injury Prevention.* 2004. 10:292-295.
[2]Rosenman K, Kalush A, and Reilly MJ. Variations in workers compensation claims by company- the potential for achieving a significant reduction in claims. *Am J Ind Med.* 2007. 50:415-420.
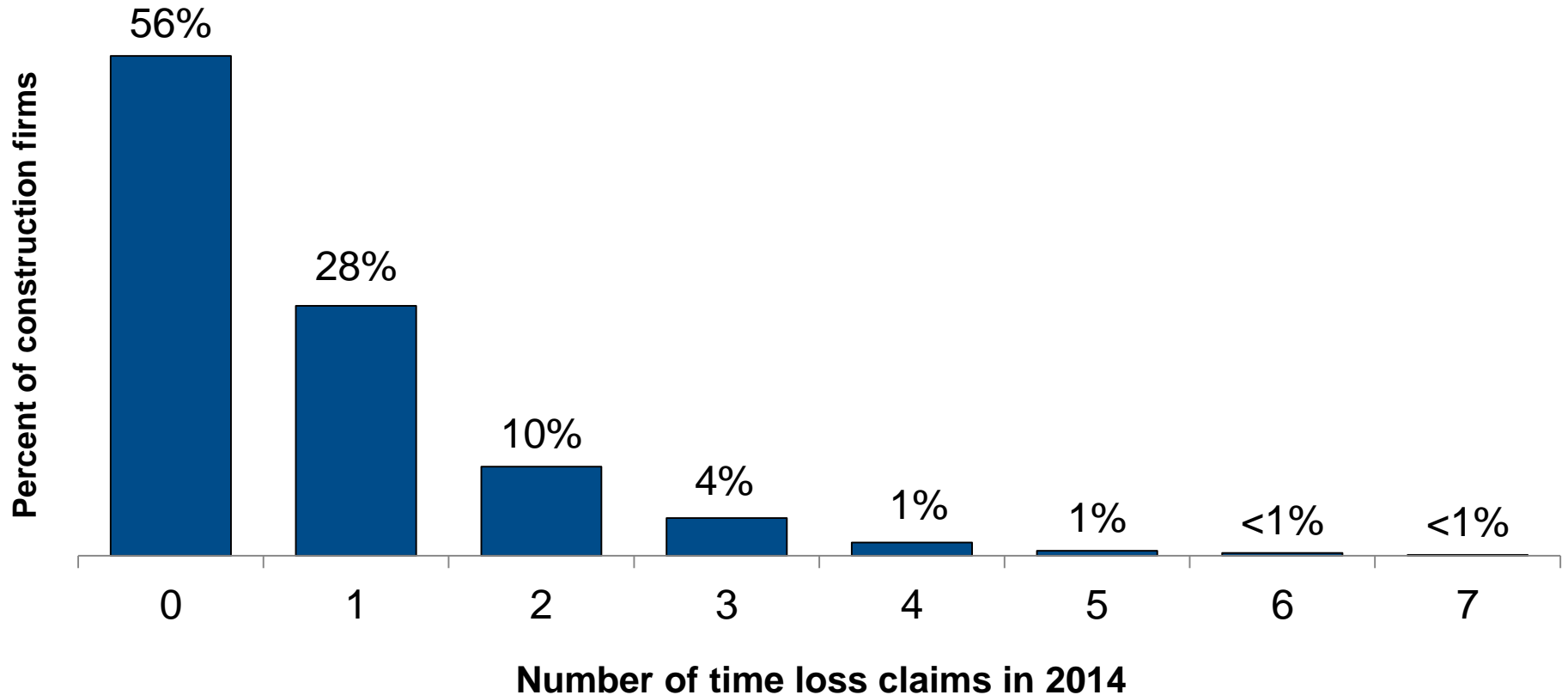
Motivation

Proactively identify firms at risk

Targeted outreach/ intervention

Prevent workplace injuries!

Reduce workers' compensation claims

Approach: identify firms at risk

- Data sources:
  - Workers' compensation data
  - Unemployment insurance data

- Methods:
  - Test ability of firm characteristics (2011–2013) to predict future (2014) time loss claim rates
  - Negative binomial regression modeling

- Test population:
  - Construction firms
  - 10–50 Full Time Equivalent (FTE)
  - Firms excluded if did not report hours during each quarter of the baseline period

Injury risk not uniform across construction firms (n=1,228)

Bar chart showing percent of construction firms by number of time loss claims in 2014:
- 0 claims: 56%
- 1 claim: 28%
- 2 claims: 10%
- 3 claims: 4%
- 4 claims: 1%
- 5 claims: 1%
- 6 claims: <1%
- 7 claims: <1%

Y-axis: Percent of construction firms
X-axis: Number of time loss claims in 2014

Description of construction sample (n=1,228)

Construction industry group description	Firms (%)	FTE (n), 2014	Claim rate, 2014 (per 100 FTE)
Foundation, structure, and building construction	15%	4,375	4.6
Highway, street, and bridge construction	3%	1,042	3.7
Building finishing contractors	15%	4,294	3.5
Residential building construction	10%	2,705	3.2
Utility system construction	5%	1,644	3.2
Other specialty trade contractors	11%	3,193	3.2
Nonresidential building construction	11%	3,381	2.4
Building equipment construction	29%	8,460	2.1
Other heavy and civil engineering construction	1%	596	2.0
Land subdivision	0.40%	141	0.7
SAMPLE TOTAL	**100%**	**29,831**	**3.0**

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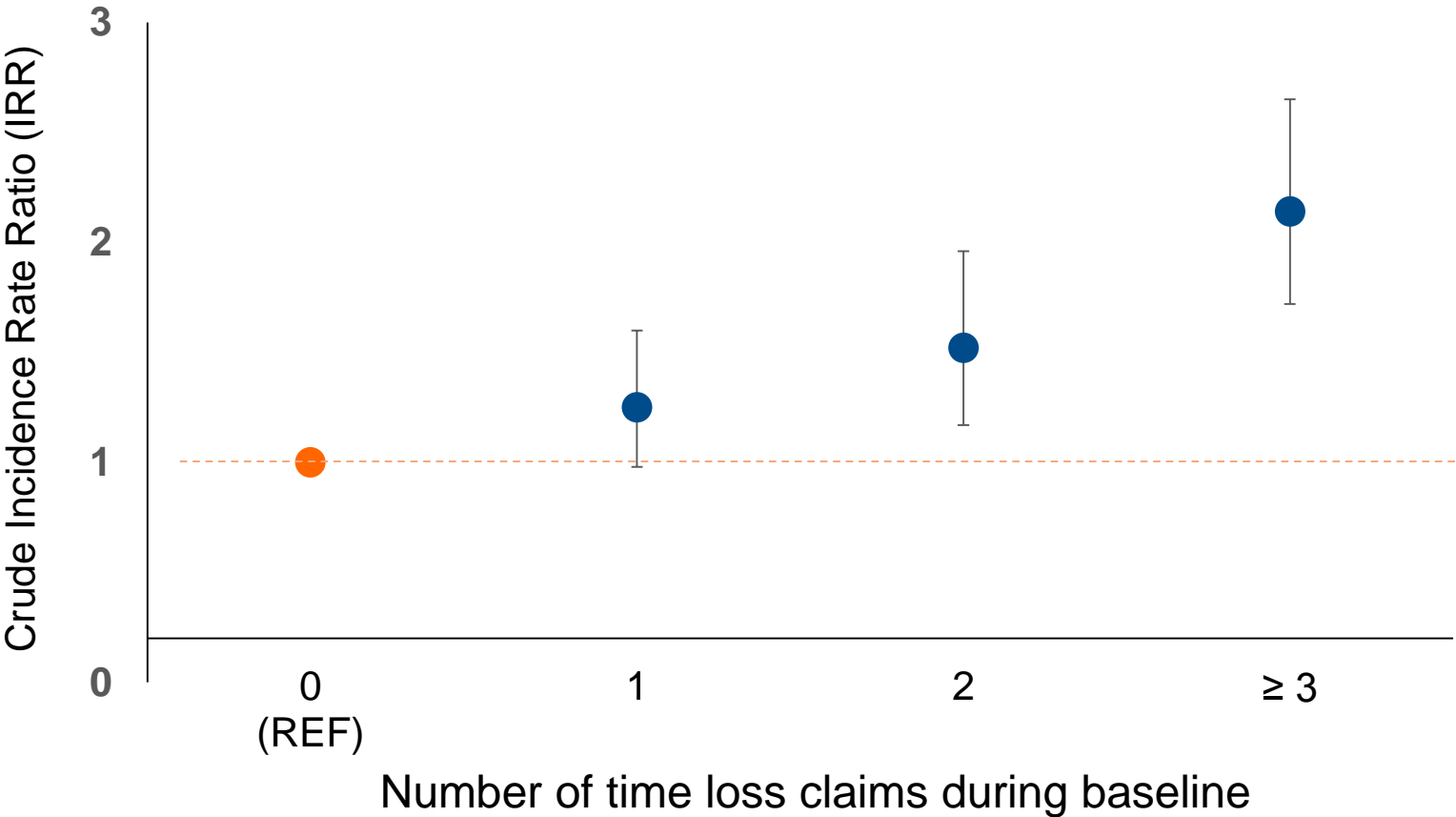
Modeling results

Part I: An epidemiologist and an actuary walk into a bar…

WC premium rate (exposure to hazardous work)
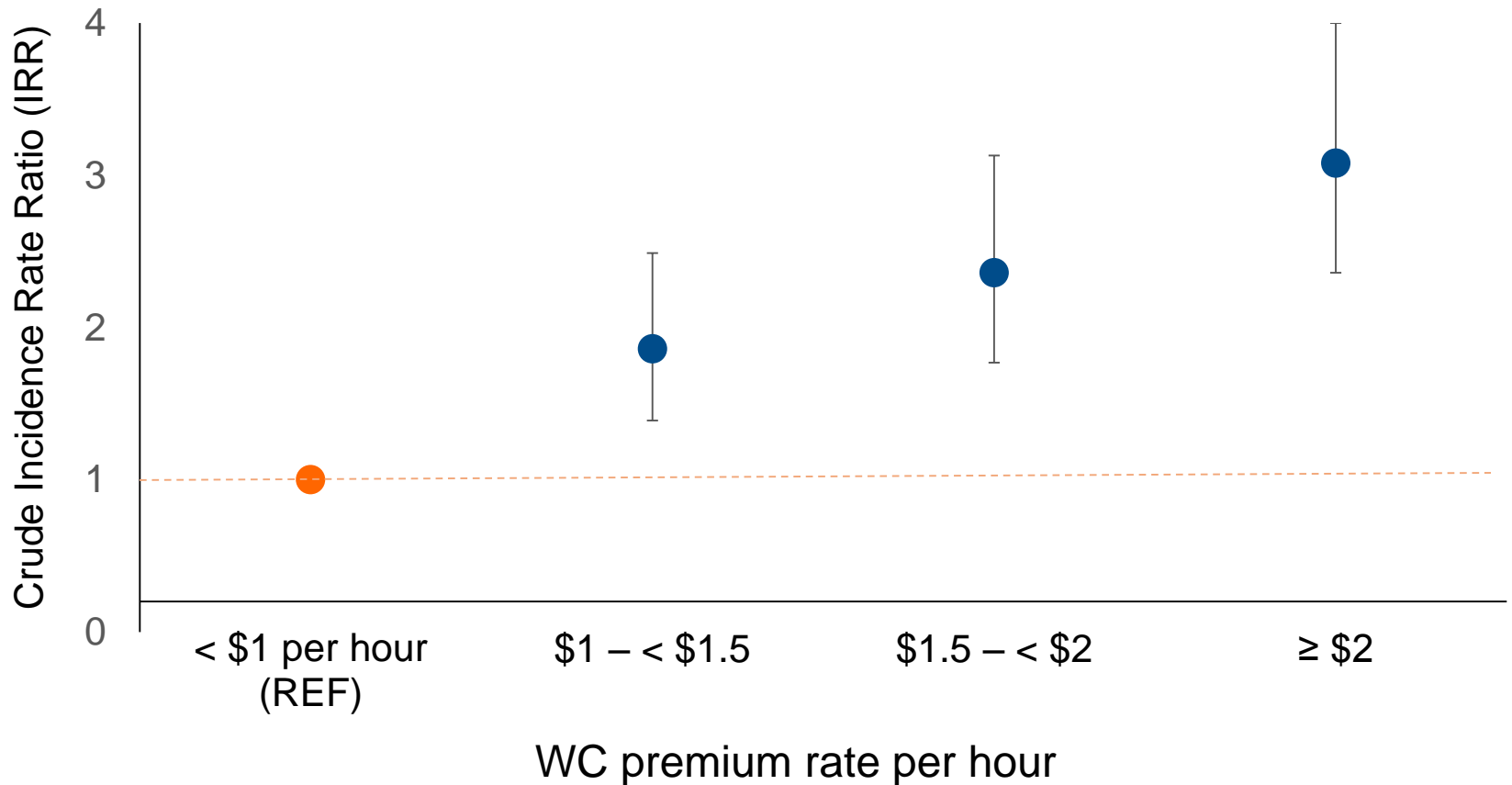
Claim history

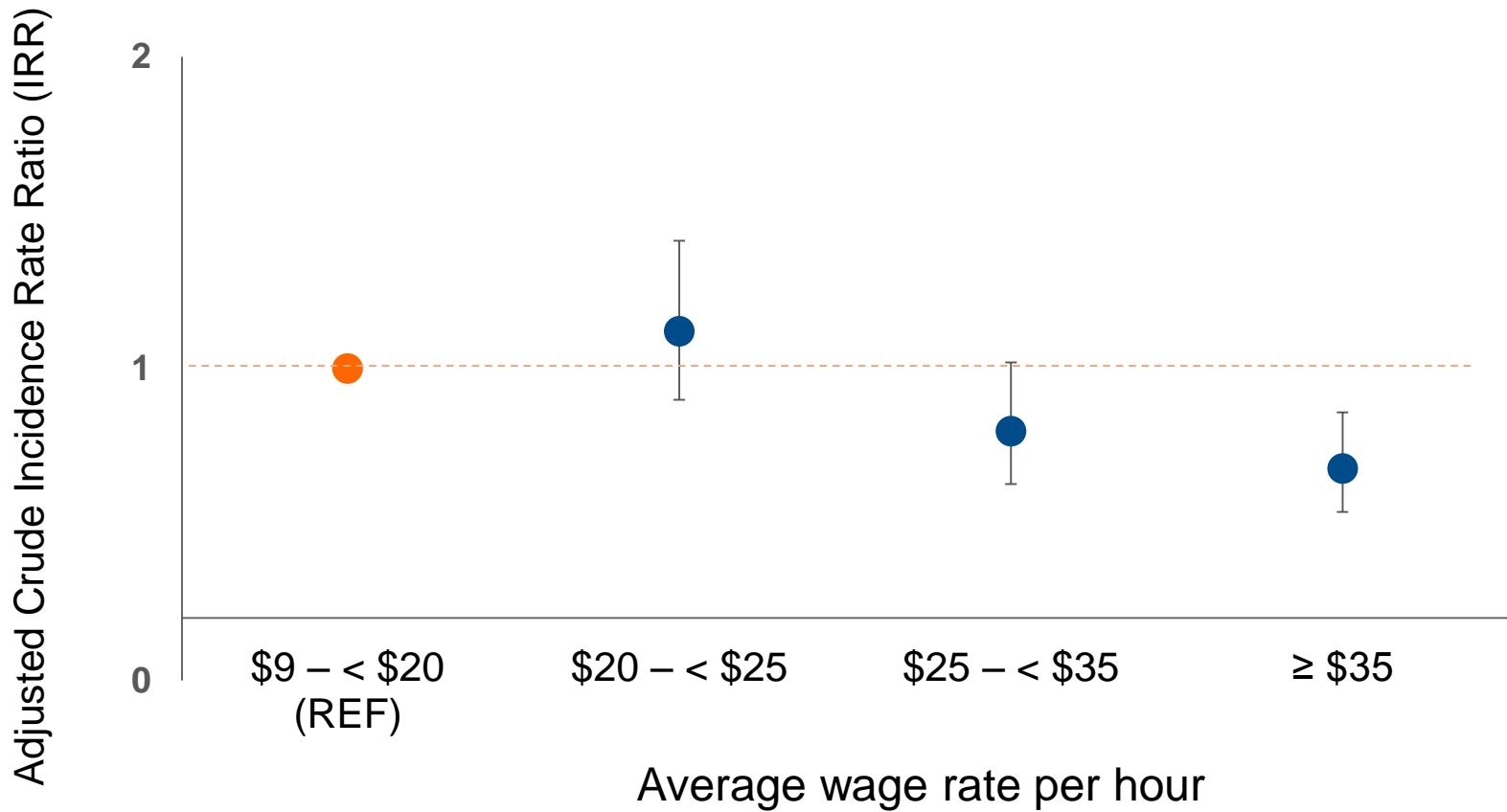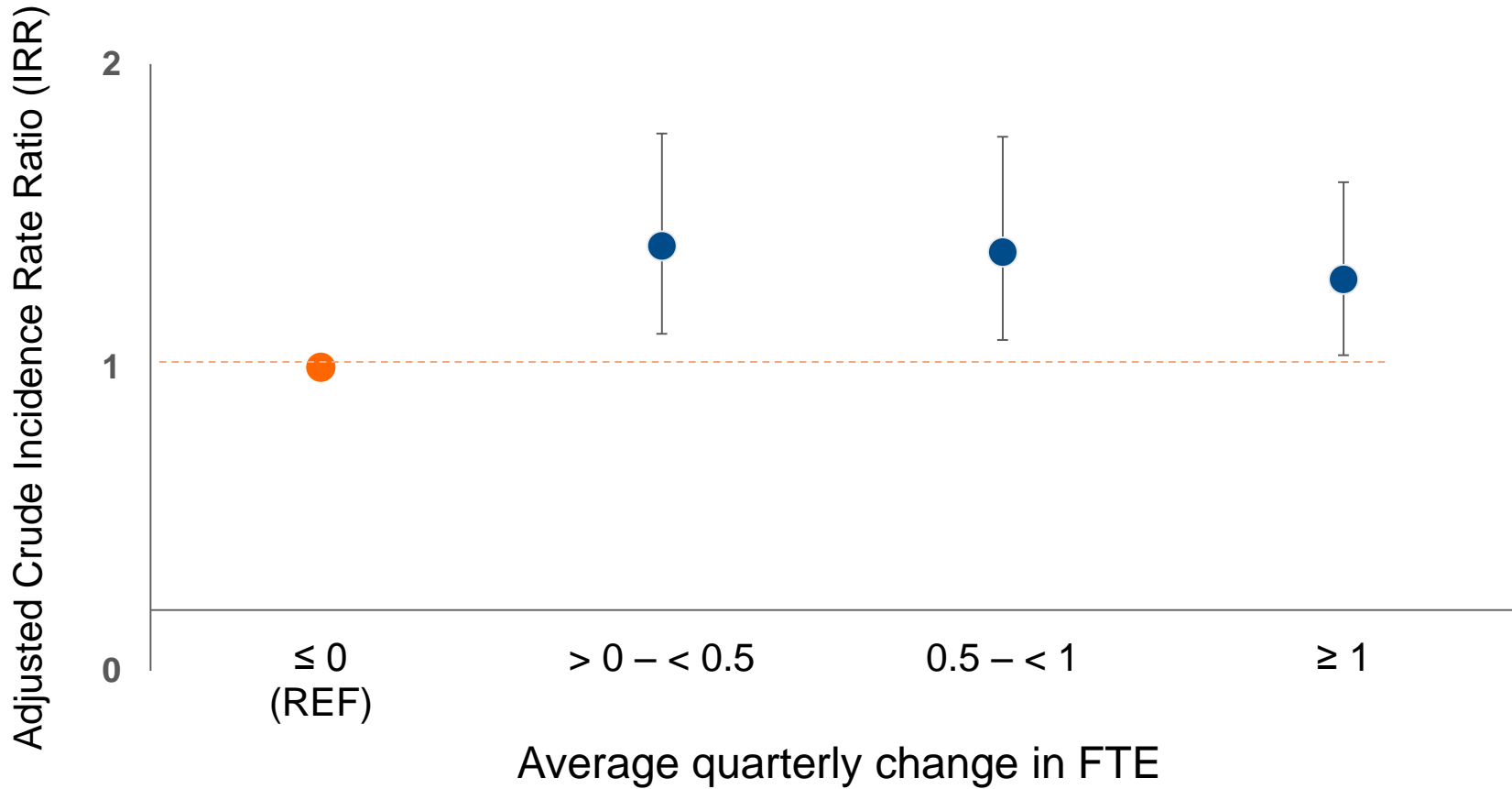# Modeling results

Part I: An epidemiologist and an actuary walk into a bar…
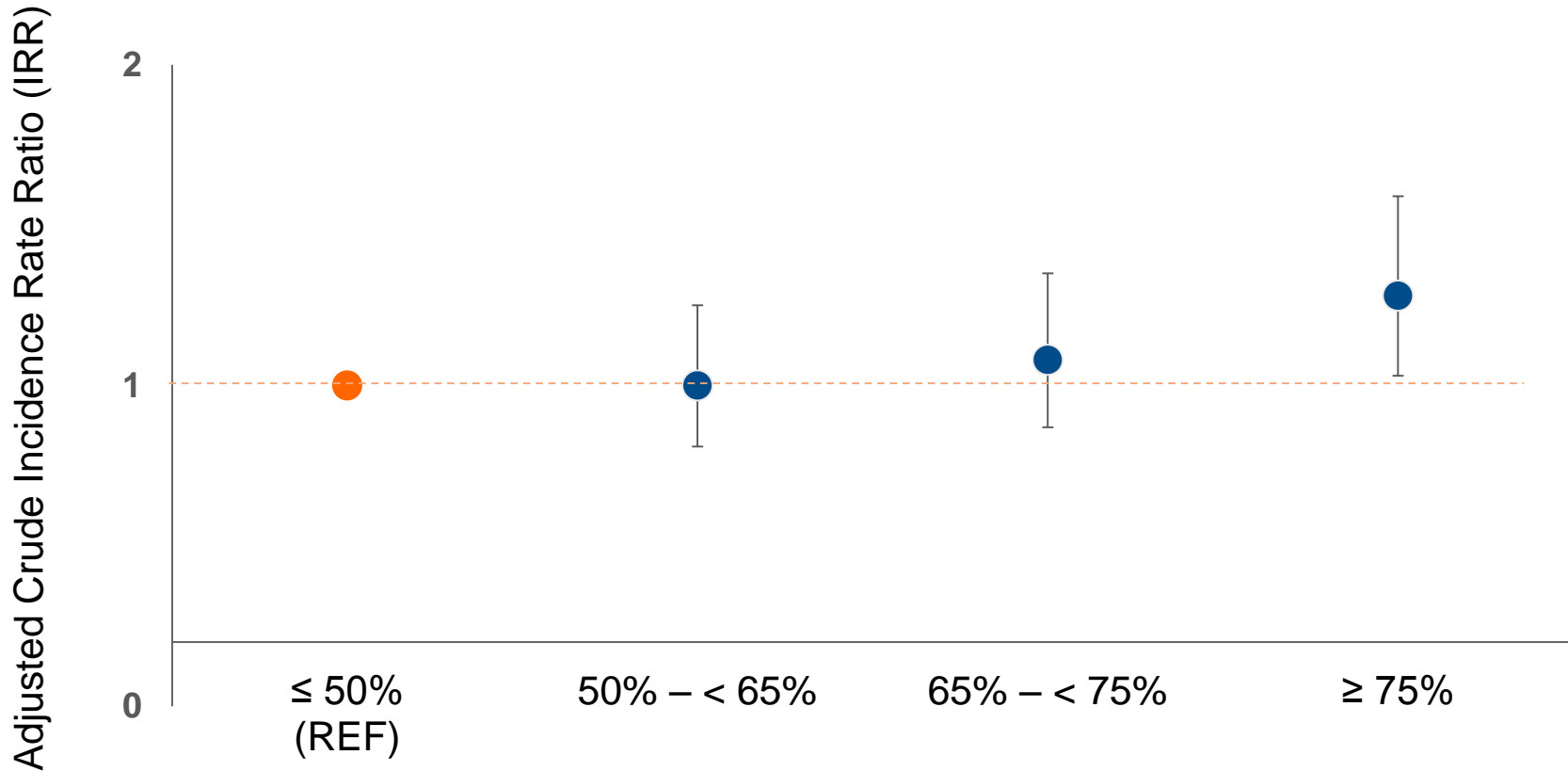
Part II: and quickly go their separate ways.

Wage rate

Change in # FTE

New employees

Firms characteristics that did **<u>not</u>** predict future claims rate

- Geographic location (economically distressed county)

- RETRO

- State OSHA (WA Division of Occupational Safety and Health) enforcement activities

- Age of firm

- Average (estimated) age of workforce

- Workforce tenure in construction

- Absolute change in FTE quarter to quarter

In sum,

- Higher premium rate, history of claims, lower wage rate, and firm growth/new employees predict higher future claim rate

- Do these results hold across time, among other high risk industries?

- What hazards are lower wage rate and firm growth/new employees signaling?

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