



OCCUPATIONAL LICENSING AND JOB MOBILITY IN THE UNITED STATES

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Motivation and contributions

- **22% of US employees hold an occupational licence**
 - Issued by the states → sizeable differences in requirements and often no recognition of licences across states
 - Academic and policy interest → implications for job mobility, interstate migration and productivity growth?
- **Existing literature mainly focused on selected occupations and based on survey data**
- **This paper: quantify association between licensing and job mobility at the macro-level**
 - Administrative data for almost all US job transitions 2000 Q2 – 2018 Q1 (J2J data from Census Bureau)
 - ❑ Outcome variables → job hire, job-to-job hire, interstate job-to-job hire, hires from nonemployment etc.
 - New policy indicators constructed for occupational licensing at the state level
 - ❑ Coverage of licensing regulation (% of workers holding a licence)
 - ❑ Strictness of licensing regulation, e.g. hours of training required (indicator with scale 0-6)
 - Empirical analysis exploiting cross-section variation across states in licensing coverage and strictness



Administrative data for US job mobility

- **Job-to-Job (J2J) Flows database from the Census Bureau**
 - Compiled from linked employer-employee database (LEHD data, based on state UI records)
 - 130 million employees included in 2018, around 15 million job hires recorded each quarter
 - Missing groups are the self-employed and federal government jobs
- **Made available by semi-aggregate tabulations**
 - State and industry (2-digits) → occupation not available
 - Basic worker (sex/age/race & ethnicity/education) and firm (age/size) characteristics
 - Examples:
 - 4 836 job hires of women with advanced education, from all origins to finance and insurance industry, in New York, in 2017 Q2
 - 3 job-to-job moves for men, aged 35-44, from manufacturing in Michigan, to wholesale trade in California, in 2017 Q2



Occupational licensing indicators

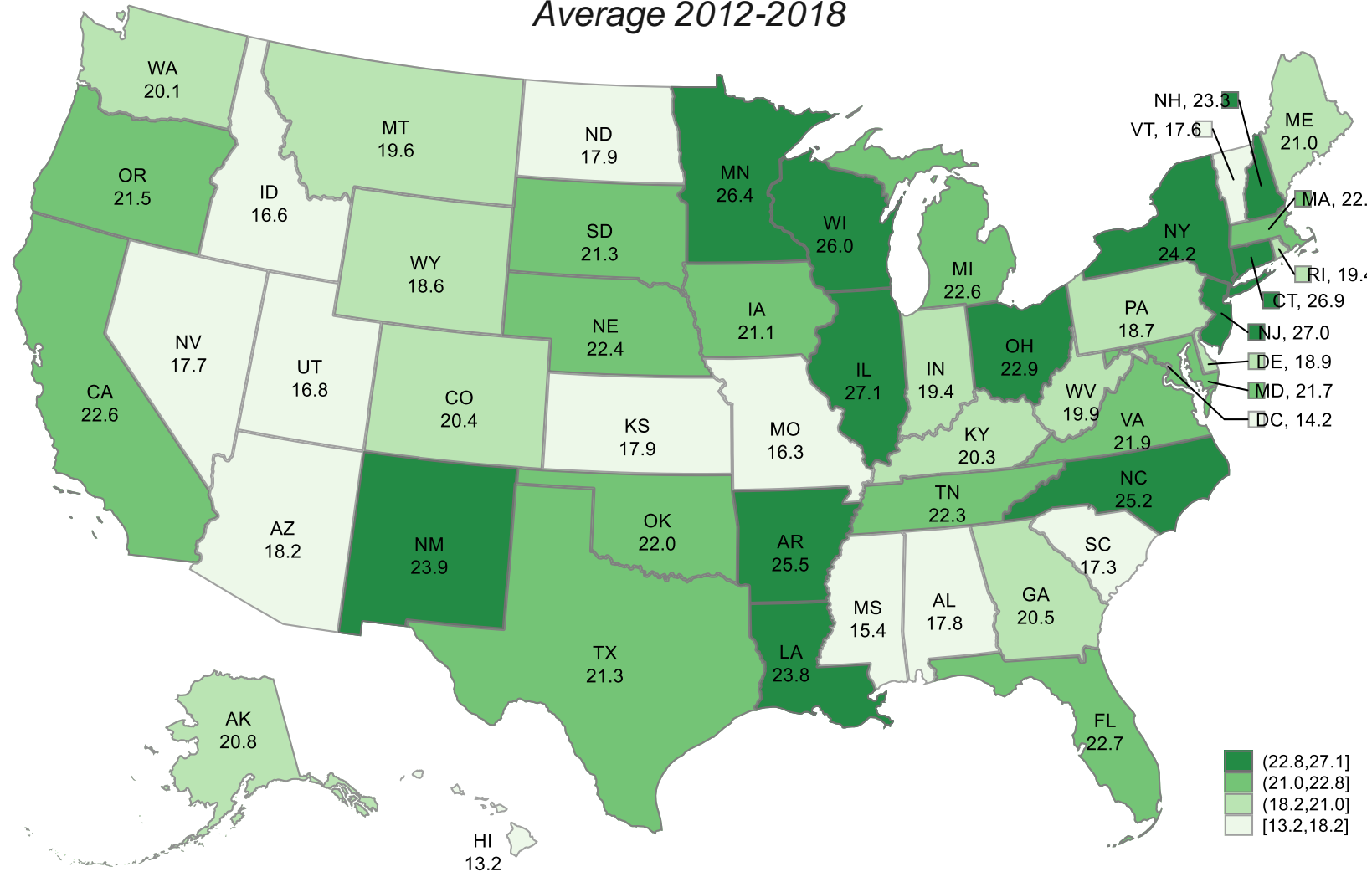
- **Coverage of licensing (0/1 indicator)**
 - Is occupation j licensed or not in state s ?
 - Data for more than 400 occupations listed in online job search tool CareerOneStop.org (BLS)
- **Strictness of licensing regulation (S_{sj} with scale 0-6)**
 - How difficult is it to obtain a licence for occupation j in state s ?
 - Entry barriers
 - Education and training requirements
 - Renewal requirements
 - Restrictions for ex-offenders
 - Relative scoring from not licensed (=0) to licensed with the strictest requirements across all states (=6)
 - Data for 30 occupations collected by National Council of State Legislatures (NCSL)
- **Empirical analysis → use averages of licensing indicators by state-industry**
 - State-Industry-Occupation employment distribution available from OES data (BLS) → e_{sij}
 - Employment-weighted averages across occupations for each industry i

$$L_{si}^{cov} = \frac{1}{E_{si}} \sum_j e_{sij} 1(j \text{ licensed in } s), \quad L_{si}^{strict} = \frac{1}{E_{si}} \sum_j e_{sij} S_{sj}$$



Coverage of occupational licensing

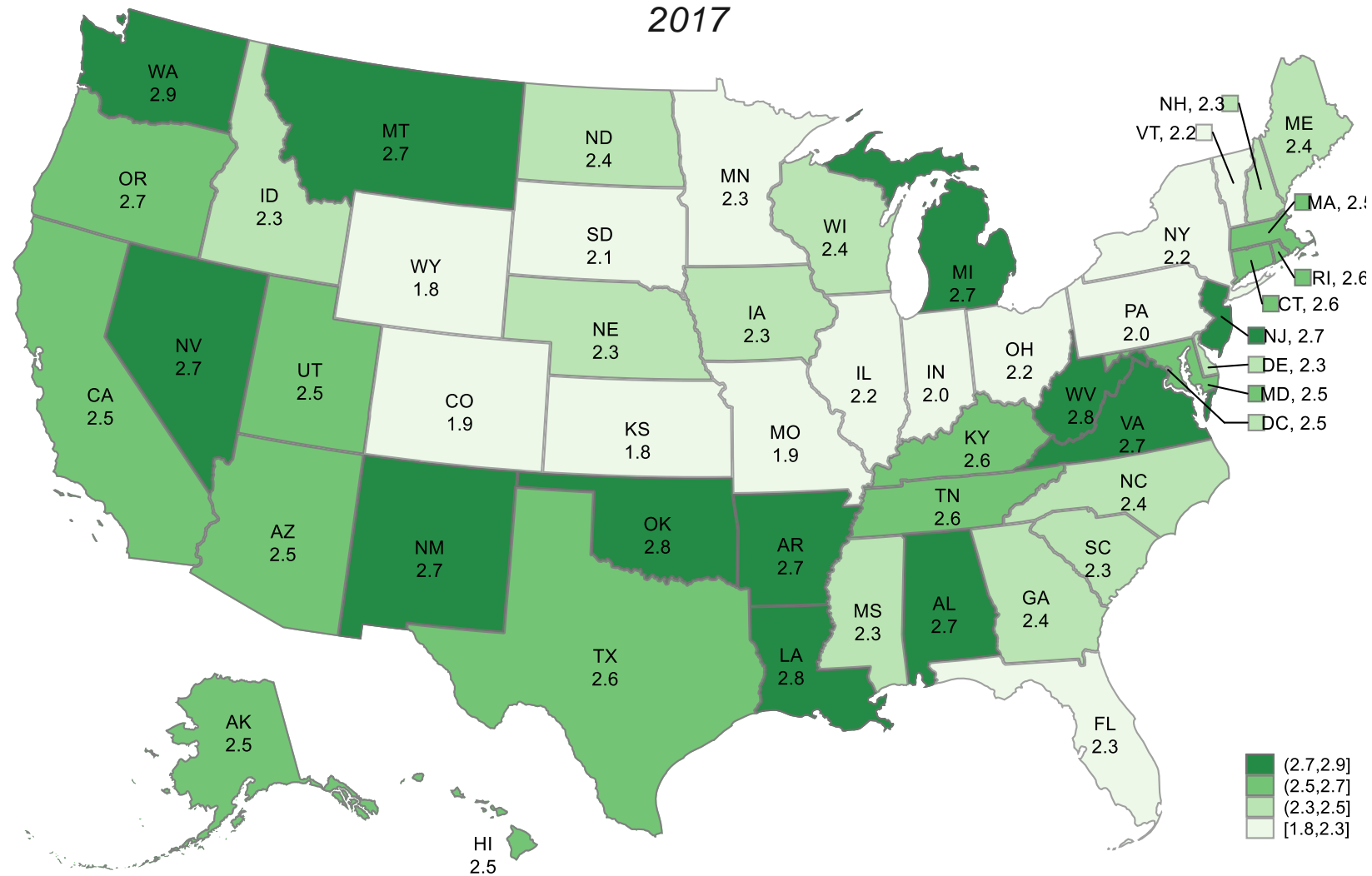
Percentage of workers holding a licence across all occupations
Average 2012-2018





Strictness of occupational licensing regulation

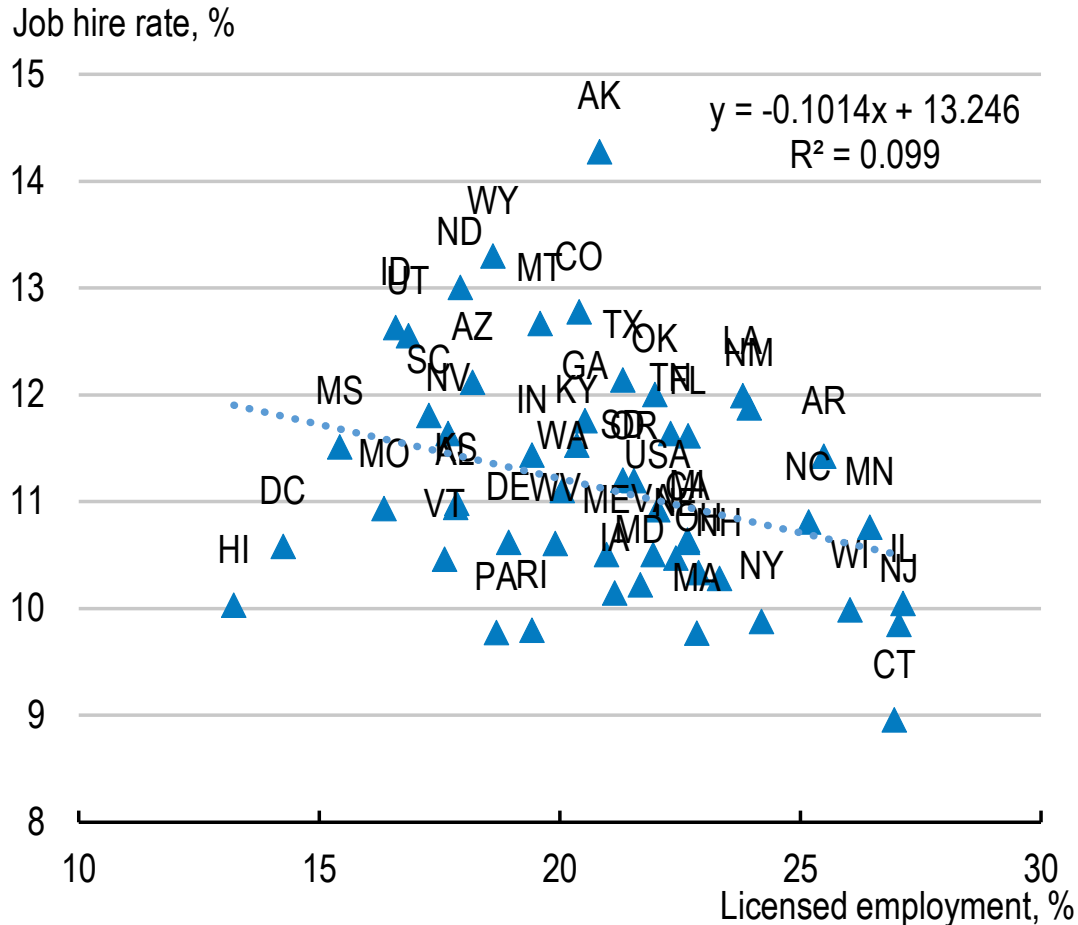
Composite indicator for strictness of licensing regulation in 30 occupations (scale 0-6)



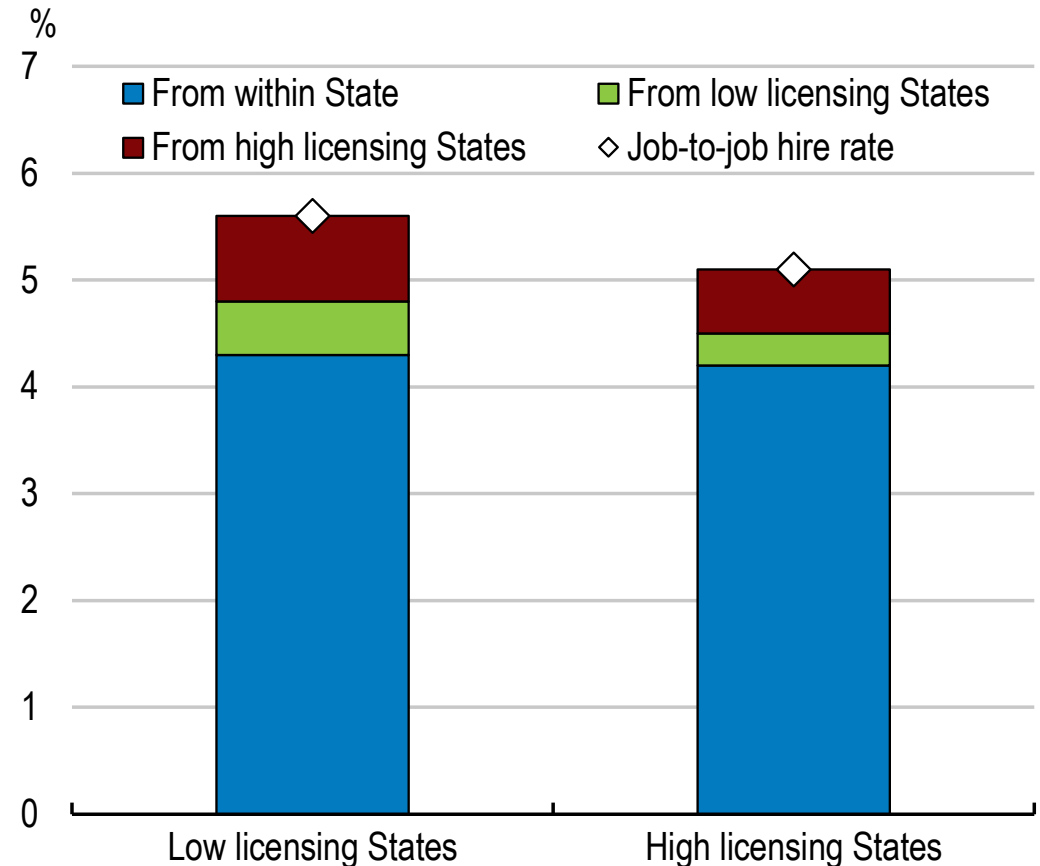


Higher coverage is associated with lower job hire

Total job hire and licensed employment
Average 2012 Q1-2018 Q1



Job-to-job hire in low and high licensing states
Average 2012 Q1-2018 Q1





Empirical analysis

- **Simple cross-section regression**

$$y_{state, industry, worker\ group} = \beta_0 + \beta_1 L_{si}^k + \beta_2 X_{siw} + \gamma_s + \gamma_i + \varepsilon_{siw}$$

- Dependent variable: job hire rate, job separation rate, job-to-job hire rate, nonemployment hire rate etc.
- All variables averaged across 2015 Q2 – 2018 Q1
- Robustness checks using variation over time in industry-occupation employment composition

- **Extended model for impact on interstate job-to-job hire**

$$j2j\ hire_{odi_oi_dw} = \beta_0 + \beta_1 L_{oi_o}^k + \beta_2 [L_{di_d}^k - L_{oi_o}^k] 1(o \neq d) 1(i_o = i_d) + \dots + \varepsilon_{odi_oi_dw}$$

- Job-to-job hire rate computed for all pairs of origin and destination state-industries
- Estimate association with the difference in occupational licensing between states



Results:

Negative association between licensing and job mobility

Licensing indicators and job mobility measures

	Job hire	Nonemployment hire	Job-to-job hire (from all origins)	Job separation
Coverage of licensing	-0.024**	-0.013**	-0.012*	-0.026**
Observations	15186			
Clusters	951			
Strictness of licensing	-0.040***	-0.016***	-0.024***	-0.042***
Observations	15186			
Clusters	951			

Note: All estimations include controls for sex, age, state and industry fixed effects. Regressions are weighted by employment level in each cell (semi-aggregate date).

Interstate job-to-job hire

	Job-to-job hire (by origin and destination state-industry)
Coverage of licensing	
Level in origin state	-0.085*
$\Delta^*1(\text{move between states, within industry})$	-0.063**
$\Delta^*1(\text{move between states, between industries})$	-0.058**
$\Delta^*1(\text{move within state, between industries})$	0.005
Observations	357140
Clusters	100597
Strictness of licensing	
Level in origin state	-0.114**
$\Delta^*1(\text{move between states, within industry})$	-0.139***
$\Delta^*1(\text{move between states, between industries})$	-0.084***
$\Delta^*1(\text{move within state, between industries})$	-0.041*
Observations	357140
Clusters	100597

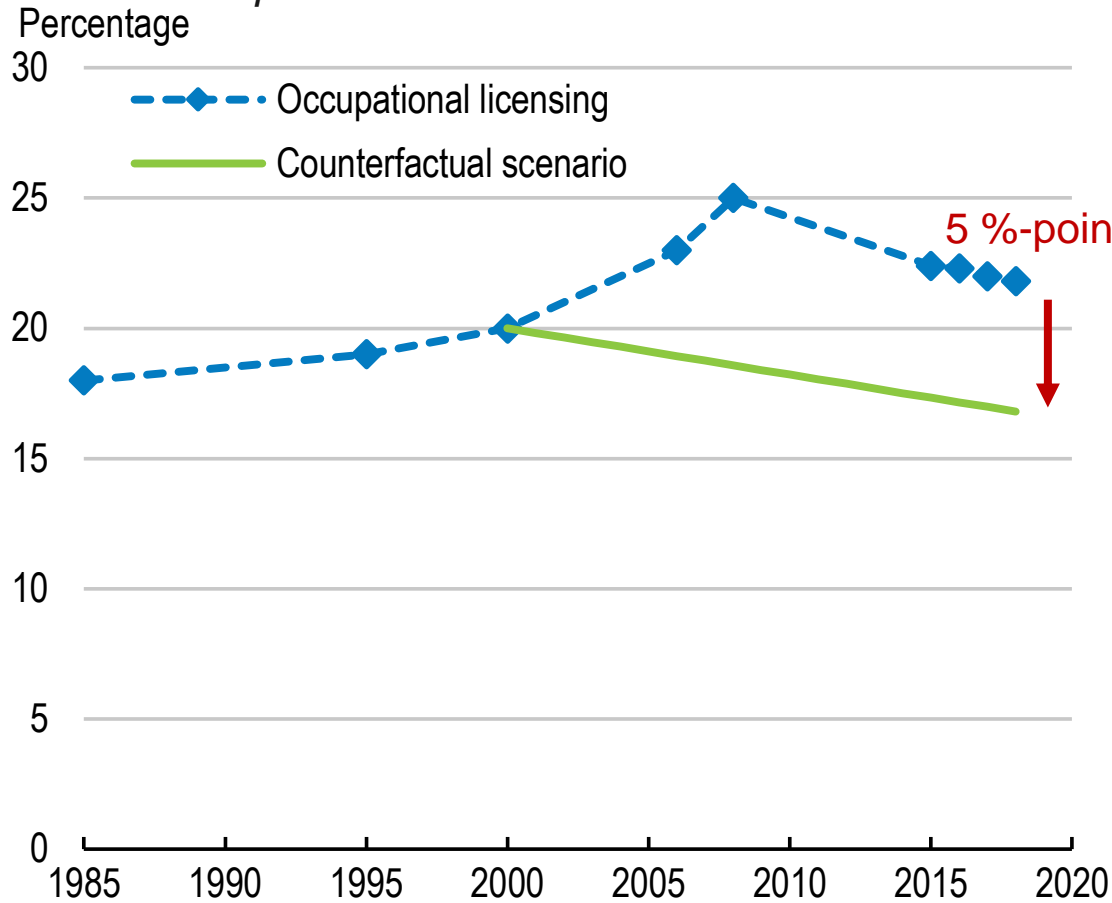
Note: Coefficients scaled by 100. Both estimations include controls for sex, age, origin and destination state and industry fixed effects. Regressions are weighted by employment level in the destination cell.



Are the results economically important?

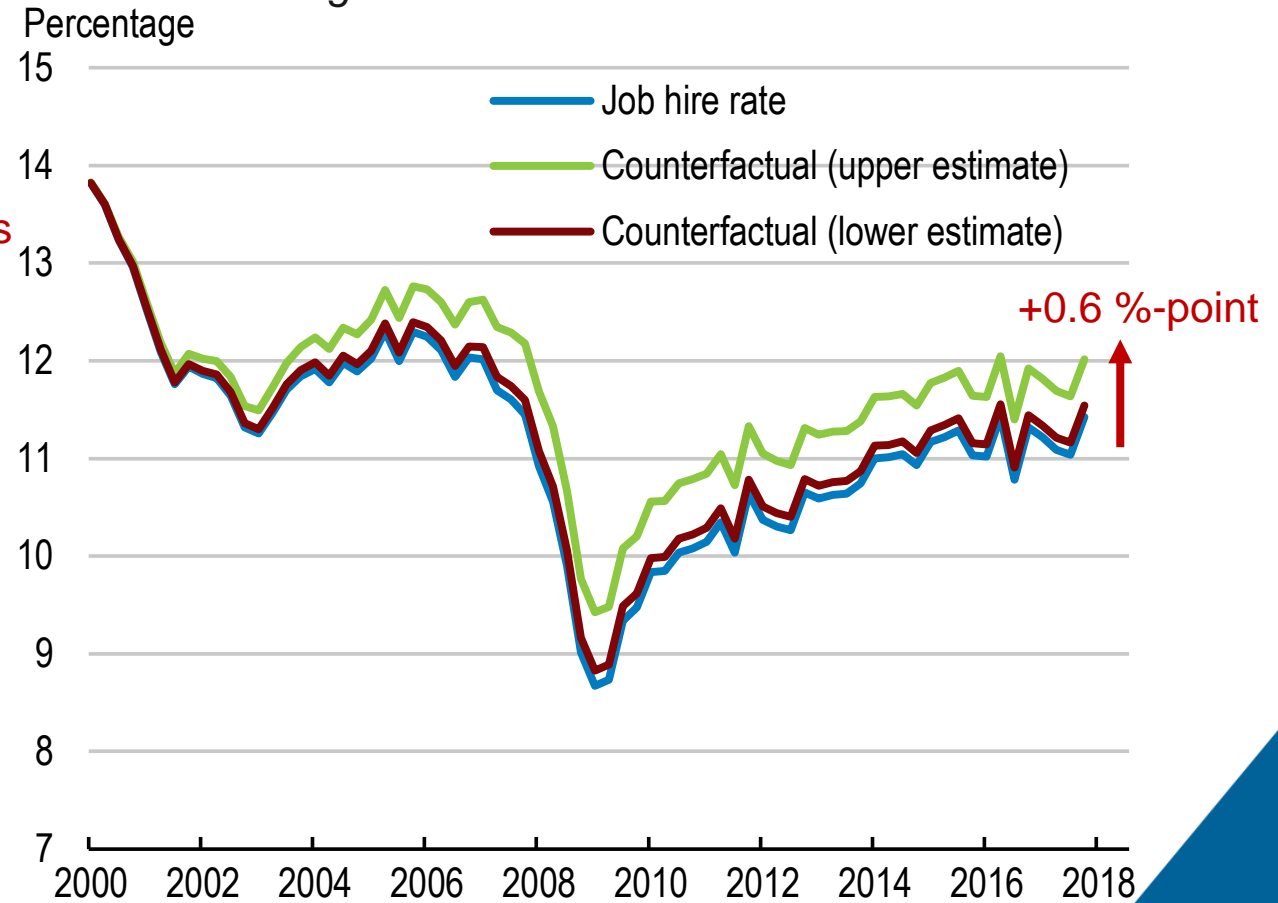
Simulating a decline in licensing coverage

5 %-points below the observed level in 2018



Counterfactual job hire rate

Using estimated relations at face value

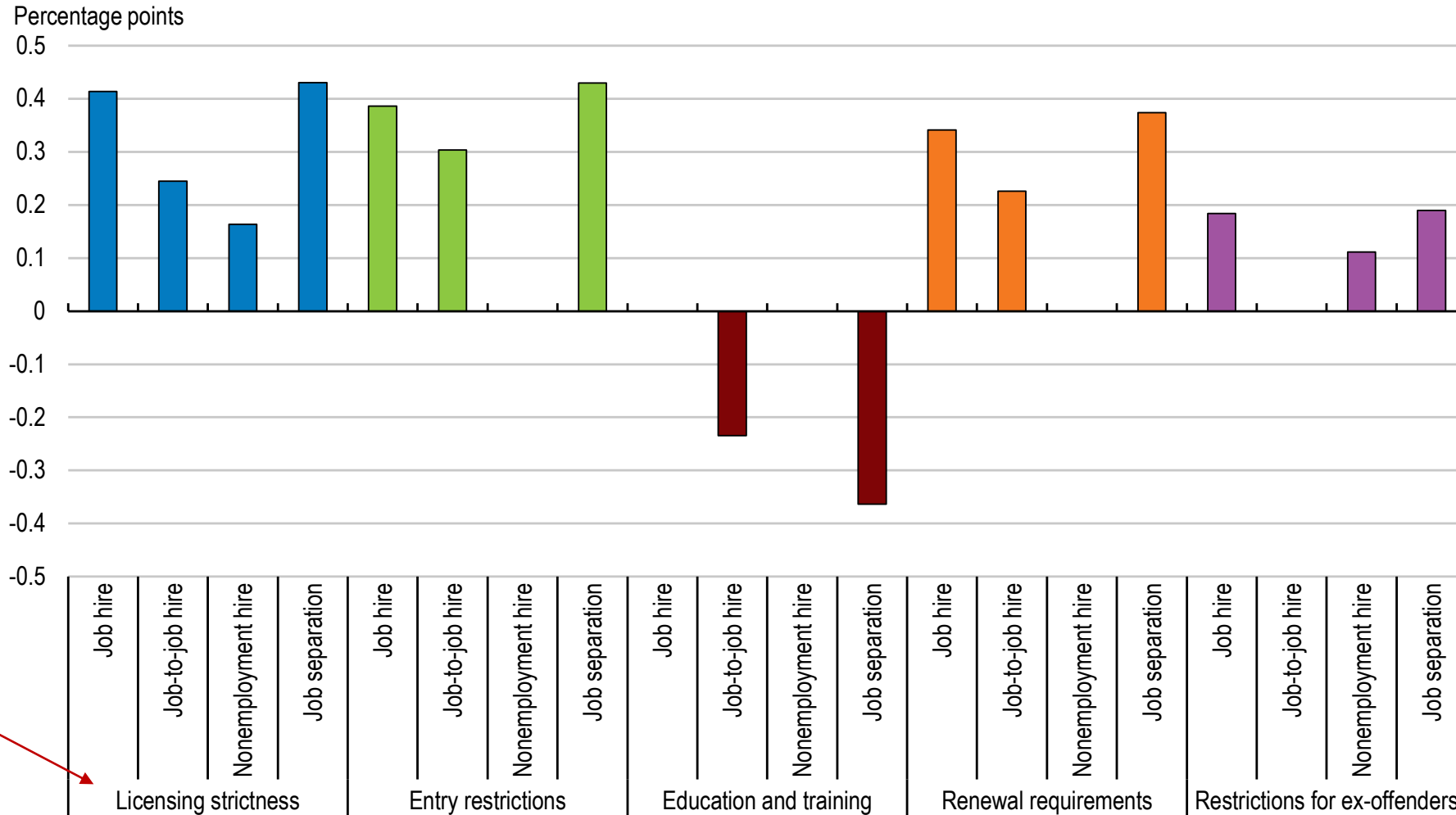




What could reduced strictness do to job mobility?

Simulated reform effects taking estimates at face value

Most regulated state moving to the median state regulation level



Washington (2.9)
deregulating to
North Carolina
level (2.4)





Conclusions

- Paper attempts to quantify **macro-level implications** of occupational licensing on job mobility
- “Controlled correlations”, not causal effects
- Suggestive evidence of **negative and economically important association**, notably for interstate job-to-job hires
- Heterogeneous results across type of licensing regulation
 - Negative association with entry barriers, renewal requirements and restrictions for ex-offenders
 - Positive association with education and training requirements for job-to-job hires