Does Immigrant Diversity Make Urban Workers More Productive?

Thomas Kemeny – University of Southampton
Abigail Cooke – University at Buffalo, SUNY

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Disclaimer & Acknowledgements

- Disclaimer:
  - Any opinions and conclusions expressed herein are those of the authors and do not necessarily represent the views of the U.S. Census Bureau. All results have been reviewed to ensure that no confidential information is disclosed.
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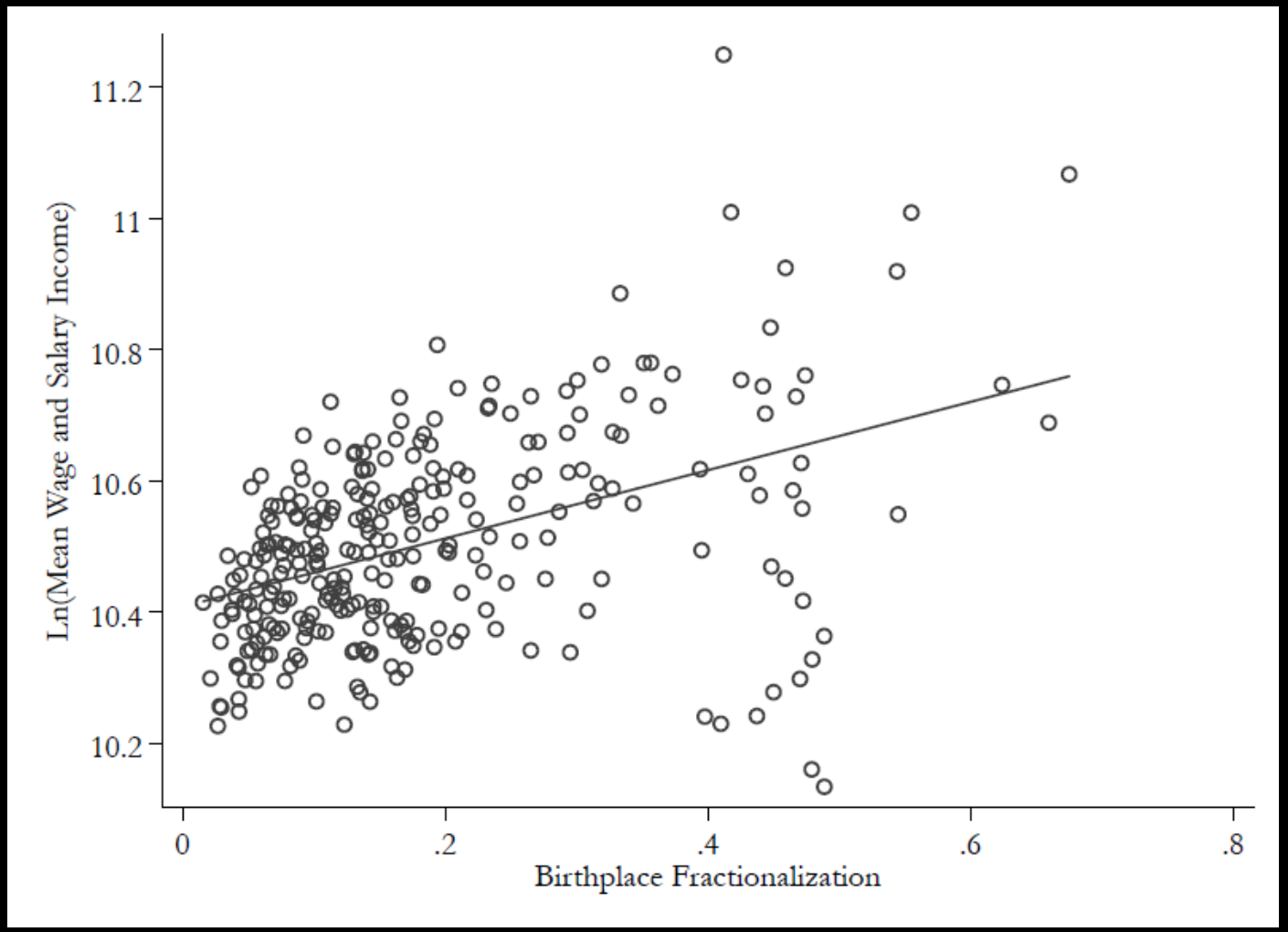
Diversity and Productivity

U.S. Metropolitan Wages and Birthplace Fractionalization, 2007



Data: American Community Survey 1% Public-Use Sample

Diversity and Productivity

- Jane Jacobs-style theory on interactions leading to idea cross-pollination
- Spatial EQ flavored studies relating diversity to wages and rents
- Largely positive and robust association with wages (and rents)
  - Ottaviano and Peri, 2006, Nathan 2011, Kemeny 2012, Trax et al. 2012, Bellini et al. 2013, Bakens et al. 2013, Longhi 2013, Ager and Brückner 2013; Suedekum et al. 2014.

Four Big Open Questions

1. Sorting on unobservables
   - i.e. Zuckerberg vs Not-Zuckerberg
2. Longitudinal dynamics
3. City versus Workplace effects
4. Reverse causality

Research Question

Do changes in city- and workplace-diversity influence worker productivity?

Data

- Longitudinal Employer Household Dynamics (LEHD)
  - Confidential US Census Bureau data
  - Based on Unemployment Insurance data
    - Captures link between worker and employer
  - Supplemented with other Census data
  - Quarterly data for 90% of US workforce for 30 eligible states
  - Data for 1992 to 2008

Analytical Strategy

- Build standard birthplace diversity measures using all workers in establishments and cities
- Analysis: Focus on ‘stayers’
  - Spells for workers who stay at same establishment for at least 2 years
  - We build a panel dataset capturing the longest such spell per worker
- Analytical Sample
  - 181 million records
    - 36.4 million workers
    - 1.3 million establishments (seinunits)
    - 232 metro areas

Our Empirical Approach

$$ln(w)_{ipjt} = d_{jt}\beta + +d_{pjt}\gamma + X'_{ipjt}\delta + E'_{pjt}\theta + C'_{jt} + \mu_{it} + \eta_t + \nu_{ipjt}$$

- $\ln(w)_{ipjt}$ – individual's wages
- d_{jt} – city specific immigrant diversity
- d_{pjt} – workplace specific immigrant diversity
- X', E', C' – Worker, Workplace, City characteristics
- μ_{ipj} – individual-workplace-city fixed effect
- η_t – year fixed effect

Identification: Do We Need Rents?

- Following the education spillovers literature (Acemoglu & Angrist 2001, Moretti 2004):
  - wages ought to be sufficient
    - If a firm serves a national market, then its prices reflect competition from non-local firms
    - Thus, if it pays higher wages, it *must* be due to higher worker productivity... Otherwise it would be forced to move

Results 1 – Main FE Estimates

Dependent Variable = Log of Annual Earnings
N=181.1m →36.4m individuals

	(1) City only	(2) Workplace only	(3) Both
City-level			
Diversity	**0.353*** **		**0.324*** **
Mean education	-0.115***	-0.120***	-0.114***
Employment	0.000***	0.000**	0.000***
Workplace-level			
Diversity		**0.073*** **	**0.066*** **
Employment	0.000*	0.000	0.000*

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$; Year FE in all models; SE clustered by estab

Results 2 – Additional FE Estimates

	(4) Large workplaces (N=164.7m)	(5) 1-unit firms (N=89m)	(6) White native men (N=65.2m)
City-level			
Diversity	**0.313*** **	**0.488*** **	**0.434*** **
Mean education	-0.111***	-0.112***	-0.135***
Employment	0.000**	0.000**	0.000***
Workplace-level			
Diversity	**0.073*** **	**0.076*** **	**0.073*** **
Employment	0.000*	0.000	0.000**

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$; Year FE in all models; SE clustered by estab

Results 3 – FE Tradables Only

	(7) Manufacturing (N=33.2m)	(8) Info Tech (N=6.3m)
City-level		
Diversity	**0.498*** **	**0.671** **
Mean education	-0.163***	-0.167
Employment	0.000	-0.000
Workplace-level		
Diversity	**0.102*** **	**0.123*** **
Employment	0.000	0.000***

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$; Year FE in all models; SE clustered by estab

Results 4: Other Specs

- Approx 80 other models run so far
  - Other measures of immigrant diversity
  - Other kinds of diversity (e.g. race, age, education)
  - Additional controls on changes in city- or estab-level human capital among immigrants
  - Combinations of these variations
  - ....all the same result positive and significant coefficient on both city- and establishment diversity

Results: Magnitudes

- +Δ1SD diversity city → wages +Δ4%
- +Δ1SD diversity estab → wages +Δ1.3%

Discussion

- 3 out of 4 identified issues addressed
  1. Unobserved heterogeneity
  2. Dynamics: 18-year panel
  3. Scale issues: confirm Trax et al (2012)
  4. *Instruments: Coming soon*

Thank you

Tom: t.e.kemeny@soton.ac.uk
Abigail: amcooke@buffalo.edu

LEHD data sets

- U2W
  - most likely workplace for multi-unit employers – mode of 10 imputes
- ICF
  - workers' birthplace
- EHF
  - longest job spell
- ECF-SEINUNIT and SEIN
  - workplace location, size, industry

Measures/Sample Construction

- Annual CBSA Diversity: Fractionalization

$$Fractionalization_j = 1 - \sum_{r=1}^{R} s_{rj}^2$$

- Annual Workplace Diversity: Fractionalization
  - Weighted by quarters worked
- Identifying “stayers”
  - Longest job-spell > 2 calendar years
  - Drop workers with multiple simultaneous jobs
  - Drop
    - employers<10 employees,
    - workers earning<5th p

Descriptive Statistics

	Mean	Standard Deviation
Individual Characteristics		
Log Annual Earnings	10.47	0.633
US Born	0.848	0.359
Spell Duration	4.970	3.302
Establishment Characteristics		
Fractionalization	0.210	0.205
Employment	63	273
City Characteristics		
Fractionalization	0.160	0.126