Immigration and job rationing

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Motivation

- Widespread popular perception that immigrants "steal" jobs from natives
- Evidence of negative employment effects from natural experiments:
  - Hunt (1992): French repatriation from Algeria
  - Angrist and Kugler (2003): EU immigration from breakup of Yugoslavia
  - Glitz (2012): Migration of ethnic Germans after breakup of Soviet Union
  - Card (1990): Mariel boatlift

Question

Are employment effects of immigration stronger in slack compared to tight labor markets?

What I do

- Construct immigration instrument to US states, borrowing method from Burchardi et al. (2020)
- Use this instrument to investigate the response of employment rate to immigration

Ideal experiment

$$\frac{\Delta I_d^t}{I_d^t} = \delta_t + \beta \cdot \frac{\text{Immigration}_d^t}{\text{Labor force}_d^t} + \epsilon_d^t$$

- $\frac{\Delta I_d^t}{I_d^t}$: Percent change in the employment rate
- $\frac{\text{Immigration}_d^t}{\text{Labor force}_d^t}$: Change in the labor force

Immigration instrument

- Borrow method from Burchardi et al. (2020)
- Immigrants want to move to where people from the same country of origin live
- Instrument for immigrant flows to a given location using predicted (existing) ancestry

Predicted ancestry

$$A_{o,d,t} = \delta_{o,r(d),t} + \delta_{c(o),d,t} + X'_{o,d}\zeta + \sum_{\tau=1880}^{t} a_{r(d),\tau} \cdot I_{o,-r(d),\tau} \cdot \frac{I_{Europe,d,\tau}}{I_{Europe,\tau}} + v_{o,d,t}$$

- $A_{o,d,t}$: non-European ancestry today in a given state
- $\frac{I_{Europe,d,\tau}}{I_{Europe,\tau}}$: historical European immigration distribution
- $I_{o,-r(d),\tau}$: historical non-European immigration outside of the region of the state

Predicted immigration

$$I_{o,d,t} = \delta_{o,r(d)} + \delta_{c(o),d} + \delta_t + X'_{o,d}\theta + b_t \cdot \left[\hat{A}_{o,d,t-1} \times \tilde{I}_{o,-r(d),t}\right] + u_{o,d,t}$$

- $\hat{A}_{o,d,t-1}$: predicted ancestry
- $\tilde{I}_{o,-r(d),t} = I_{o,-r(d),t} \cdot \frac{I_{\text{Europe},r(d),t}}{I_{\text{Europe},-r(d),t}}$: scaled push factor (immigration today)
- Sum across origins to get our immigration instrument:

$$\hat{I}_{d,t} = \sum_o \hat{b}_t \cdot \left[\hat{A}_{o,d,t-1} \times \tilde{I}_{o,-r(d),t}\right]$$

Data

- Vacancies at the state level: BLS-JOLTS (2000-2023)
- Unemployment at the state level: BLS-LAUS (2000-2023)
- Ancestry and immigration:
  - Census IPUMS-USA (1880-1960)
  - ACS IPUMS-USA (2005-2021)

Results

VARIABLES	(1) All	(2) Tight	(3) Slack
H_growth	-0.00244	-0.0110*	-0.00122
	(0.00491)	(0.00598)	(0.00790)
Observations	714	331	383
R-squared	0.813	0.347	0.853

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Model

- Simplified version of the search-and-matching model in Michaillat (2012):
  - declining MPL + wage rigidity $\Rightarrow$ job rationing
- My exposition here has
  - Fixed wages
  - Variable population size
- Key takeaway:
  - Employment rate falls when population increases
  - Elasticity of this response is larger when labor markets are slack

Matching function

$$m(U, V) = \mu \cdot U^{\eta} \cdot V^{1-\eta}$$

- Tightness: $\theta = \frac{V}{U}$
- Job finding rate:

$$f(\theta) = \frac{m(U, V)}{U} = \mu \cdot \theta^{1-\eta}$$

- Vacancy filling rate:

$$q(\theta) = \frac{m(U, V)}{V} = \mu \cdot \theta^{-\eta}$$

Labor supply

- Labor force H = employed L + unemployed U
- Exogenous separation rate s
- LOM:

$$\dot{L}(t) = f(\theta) \cdot U(t) - s \cdot L(t)$$

- Balanced flows $\dot{L}(t) = 0$:

$$L^s(\theta, H) = \frac{f(\theta)}{s + f(\theta)} \cdot H$$

Firms

- Firms maximize profits
$$aN^{\alpha} - wL$$
- Firms hire $q(\theta)V$ workers by posting vacancies V
- Each vacancy requires r recruiters
- $L = rV + N$
- Matches separate at rate s
- $\alpha < 1$: declining MPL

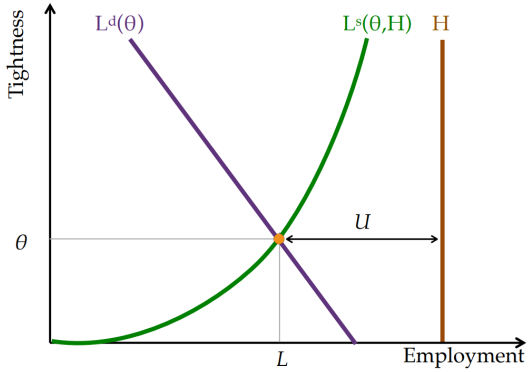
Labor demand

- The firm's solution to its FOC is

$$L^d(\theta, a) = \left[\frac{a\alpha}{w[1+\tau(\theta)]^\alpha}\right]^{\frac{1}{1-\alpha}}$$

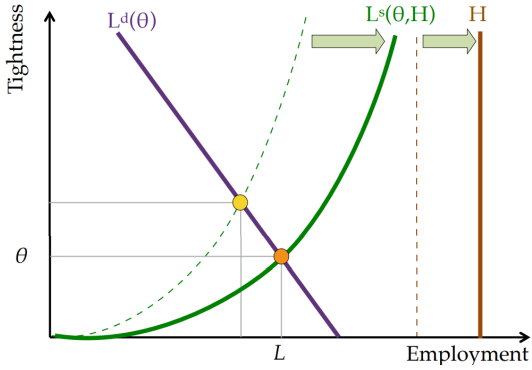
- $\tau(\theta) = \frac{rV}{N} = \frac{rs}{q(\theta)-rs}$ is the recruiter-producer ratio

Solution



- $\epsilon_\theta^s = u(\theta) \cdot (1 - \eta)$
- $\epsilon_\theta^d = \frac{-\alpha}{1-\alpha} \eta \tau(\theta)$

Immigration



- $\epsilon_H^\theta = \frac{-1}{\epsilon_\theta^s - \epsilon_\theta^d} < 0$
- $\epsilon_H^f = (1-\eta) \cdot \frac{-1}{\epsilon_\theta^s - \epsilon_\theta^d} < 0$
- $\epsilon_H^u = \frac{1-u(\theta)}{u(\theta)} \cdot \frac{\epsilon_\theta^s}{\epsilon_\theta^s - \epsilon_\theta^d} > 0$

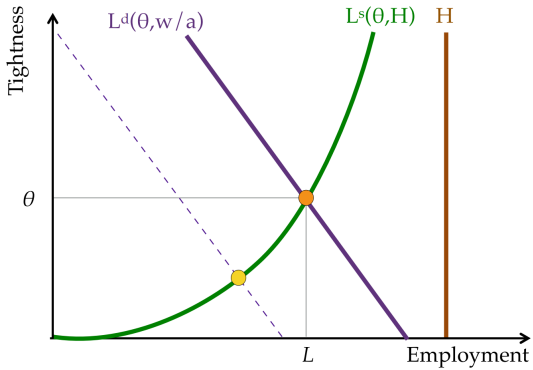
Tight vs slack labor market

- Elasticity of employment w.r.t. H:

$$\epsilon_H^l = \frac{-1}{1 + \frac{\alpha}{1-\alpha} \cdot \frac{\eta}{1-\eta} \cdot \frac{\tau(\theta)}{u(\theta)}}$$

- As θ falls, $\tau(\theta)$ falls and $u(\theta)$ increases, so ϵ_H^l decreases
- i.e., employment rate falls more in response to an increase in H

Tightening



- $\frac{w}{a}$ falls $\Rightarrow$ θ rises as L^d shifts right
- Driven here purely by productivity shocks

Bibliography I

- Angrist, Joshua D. and Adriana D. Kugler (2003). "Protective or Counter-Productive? Labour Market Institutions and the Effect of Immigration on EU Natives". In: *The Economic Journal* 113.488, F302–F331. ISSN: 00130133, 14680297. URL: http://www.jstor.org/stable/3590203 (visited on 04/19/2023).
- Burchardi, Konrad B et al. (May 2020). *Immigration, Innovation, and Growth*. Working Paper 27075. National Bureau of Economic Research. DOI: 10.3386/w27075. URL: http://www.nber.org/papers/w27075.
- Card, David (1990). "The Impact of the Mariel Boatlift on the Miami Labor Market". In: *Industrial and Labor Relations Review* 43.2, pp. 245–257. ISSN: 00197939, 2162271X. URL: http://www.jstor.org/stable/2523702 (visited on 04/19/2023).

Bibliography II

- Glitz, Albrecht (2012). "The Labor Market Impact of Immigration: A Quasi-Experiment Exploiting Immigrant Location Rules in Germany". In: *Journal of Labor Economics* 30.1, pp. 175–213. ISSN: 0734306X, 15375307. URL: http://www.jstor.org/stable/10.1086/662143 (visited on 04/19/2023).
- Hunt, Jennifer (1992). "The Impact of the 1962 Repatriates from Algeria on the French Labor Market". In: *Industrial and Labor Relations Review* 45.3, pp. 556–572. ISSN: 00197939, 2162271X. URL: http://www.jstor.org/stable/2524278 (visited on 04/19/2023).
- Michaillat, Pascal (June 2012). "Do Matching Frictions Explain Unemployment? Not in Bad Times". In: *American Economic Review* 102.4, pp. 1721–50. DOI: 10.1257/aer.102.4.1721. URL: https://www.aeaweb.org/articles?id=10.1257/aer.102.4.1721.