The role of Human Capital in International Immigration

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SHaPE 2010

February 12, 2010
Motivation

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- 12 percent of the world’s countries hold 75% of the immigrants
- Several countries have immigrant populations of over 10%
- Crucial issues: social integration, political stability, welfare benefits, ...
Objective

- Link immigrant’s human capital to their behavior and labor market outcomes
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- Three specific themes
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  - Empirical model: role of location in decision to enhance human capital through assimilation
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  - Theoretical model: role of human capital and geographic concentration of immigrants in labor market outcomes of host country
  - Empirical model: role of location in decision to enhance human capital through assimilation
  - Empirical model: impact of imperfect international transferability of human capital
Introduction

- Develop a theoretical model of labor market in destination country
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- Analyze discrepancies between natives’ demand for immigrant labor and immigrants’ supply
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- Analyze discrepancies between natives’ demand for immigrant labor and immigrants’ supply
- Focus on role of assimilation and regulations regarding geographical concentration of immigrants
Background

- Immigrants tend to be employed in low paying occupations
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- Geographically concentrated
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- Emergence of dual labor markets
- Verbon and Meijdam (2008): impact of immigration on the native political climate and labor market
Assumptions

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- Un-assimilated immigrant population acts as a negative externality on natives’ utility and positive externality on un-assimilated immigrants’ utility
- Profits from service sector split between natives and assimilated immigrants
Model

Utility of native $k$

\[ V_k^N = \log(c) + \log(g) - q_k(s)\log(u), \text{ where } u = \frac{u}{U+M+N} \]

- $c$: amount of services
- $g$: amount of goods
- $q_k(s)$: degree to which the spreading policy affects the dis-utility of the native, $k$, $q'(s) < 0$
- $s$: degree of spreading policy, $0 \leq s \leq 1$
- $U$: un-assimilated immigrants, $M$: assimilated immigrants, $N$: natives
Model

Utility of Un-assimilated immigrant $i$

$$V_j^I = \log(g) + \rho_j (1 - s) i^\gamma,$$

where $i = \frac{U + M}{U + M + N}$

- $c$: amount of services
- $g$: amount of goods
- $s$: degree of spreading policy, $0 \leq s \leq 1$
- $U$: un-assimilated immigrants, $M$: assimilated immigrants, $N$: natives
- $\rho_j$: weight individual places on culture
- $\gamma$: represents the economies-of-scale of the cultural benefits, $\gamma < 1$
Utility of Assimilated immigrant $i$

$$V_j^i = \log(c) + \log(g)$$

- $c$: amount of services
- $g$: amount of goods
Solve for equilibrium conditions
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relationship between assimilation decision and spreading policy
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- relationship between native demand for immigrants and spreading policy
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simulate real world conditions
Introduction

- A common language facilitates social interaction
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- Interaction leads to trade
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- Trade leads to revenue
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A common language facilitates social interaction
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Revenue increases with the probability of meeting members of the majority
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Probability of learning the host language
Communication can occur in a variety of places around the immigrant’s residence
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Place of residence and place of work
Motivation

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- Place of residence and place of work
- Spatial scales
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Place of residence and place of work
Spatial scales
How does the probability of meeting other English speakers in different locations impact the probability of acquiring the host language?
Motivation

- Communication can occur in a variety of places around the immigrant’s residence
- Place of residence and place of work
- Spatial scales
- How does the probability of meeting other English speakers in different locations impact the probability of acquiring the host language?
- Does this vary across immigrant groups?
Language Acquisition

- Influenced by
  - personal characteristics
  - characteristics of their location
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  - personal characteristics
  - characteristics of their location
- The ethnic distribution of their location
Language Acquisition

- Influenced by
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- The ethnic distribution of their location
  - Residential segregation
Language Acquisition

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- The ethnic distribution of their location
  - Residential segregation
  - Occupational segregation
Preliminary results

• Ethnic concentrations at immigrants' places of work and residence do indeed have a significant effect on English language acquisition.
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- Chinese immigrants: residential population proportions in their immediate neighborhood
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- Chinese immigrants: residential population proportions in their immediate neighborhood
- Mexican immigrants: residential population proportions in both their immediate and surrounding neighborhoods; occupational population proportions in their metropolitan area
Measurement Error

- never observe the same immigrant’s choice to learn English under different levels of segregation
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- leads to biased estimators
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- *Propensity score matching*
Measurement Error

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- Propensity score matching
- More complicated than previous empirical studies with PSM
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- Human capital
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- International transferability
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- Occupational mis-match
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- International transferability
- Occupational mis-match
- Crowding-out
Abundant literature on over-/required-/under-educated
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Mis-match leads to welfare loss
Over-education also more likely in high skill occupations
Over-educated may crowd-out the matched educated.
Recent studies - over-education prevalent among immigrants
Empirical Analysis

- Descriptive analysis of ORU among U.S. immigrants
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- Realized Matching: required education equal to occupation’s modal education level $\pm 1sd$
Empirical Analysis

- Descriptive analysis of ORU among U.S. immigrants
- Realized Matching: required education equal to occupation’s modal education level ±1sd
- Estimate propensity of being mis-matched across time, occupation and origin
Model

Multinomial logit

\[ P_{ij}|X_i = \frac{e^{\beta_jX_j}}{\sum_{k=1}^{3} e^{\beta_kX_j}}; i = 1, \ldots, n; j = 1, 2, 3 \]

- \( P_{ij}|X_i \): probability that individual \( i \) will be either under-educated, \( j = 1 \), correctly-matched, \( j = 2 \), or over-educated, \( j = 3 \)
- \( X_i \): characteristics of individual \( i \)
Empirical Analysis

Crowding-out
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- Crowding-out
- Job-rationing model: highest skilled gets job first
Empirical Analysis

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- Job-rationing model: highest skilled gets job first
- Increase in high-skilled labor supply bumps down or crowds out lower-skilled workers

*Example*

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- Increase in high-skilled labor supply bumps down or crowds out lower-skilled workers
- Example
Empirical Analysis

- Crowding-out indicated by

1. Increase in average education level
2. Increase in unemployment level in low-skilled occupations
3. If immigrants are crowding out natives: for a given high-skilled occupation, average education level of immigrants should be higher than average education level of natives in higher-skilled occupations.
4. Share of over-educated natives in lower-skilled occupations is a function of share of over-educated immigrants in (relatively) higher-skilled occupations.
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Define labor markets by metropolitan areas
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Find required education level for each occupation in each labor market
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Develop occupation hierarchy based on required education level
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Calculate share of over-educated natives and immigrants for each occupation level
Define labor markets by metropolitan areas

Find required education level for each occupation in each labor market

Develop occupation hierarchy based on required education level

Calculate share of over-educated natives and immigrants for each occupation level

Estimate model for each occupation where share of over-educated natives is a function of characteristics and share of overeducated immigrants in next occupation.
Model

Crowding-out

\[ b_{ij} = d\bar{u}_i \gamma_i + \text{intercept}\delta_i \]

- \( u_i \) is the employment level at education \( i \)
- \( a_{ij} \) is the share of education level \( i \) in the employment up to (and including) level \( i \) for occupation \( j \)
- \( b_{ij} = a_{ij}/(1 - a_{ij}) = L_{ij}/(N_{ij} - L_{ij}) \): Share of over-education for education level \( i \) in occupation \( j \)
- \( L_{ij} \) is the employment in occupation \( j \) at education level \( i \) where \( i = 1 \) is the lowest level.
- \( d\bar{u}_i \) is the exogenous portion of \( du_i \)
- \( N_{ij} = \sum_{k=1}^{i} L_{kj} \), the total employment in occupation \( j \) for education levels \( k = 1, \ldots, i \)

\( \gamma_i \) will measure how changes in the employment level in a