

Recruiting Immigrant Workers

The Role of Foreign Affinity and Labor Market Scarcity

8th European Workshop on "Labour Markets and Demographic Change"
September 12th 2013, Vienna

Mario Bossler

Motivation:

- In Germany we observe a large shortage of skilled workers
- Employers report 800,000 vacant positions across Germany and 27 % of all firms report a demand for skilled workers
- "Only" 11.7 % of the firms recruit immigrant workers (2011 IAB Establishment Panel)
- Labor market becomes demand oriented
 - Demographic change (Fuchs, Söhnlein and Weber, 2011)
 - Decreasing unemployment rate

Aim and results:

- What drives the firms' decision to demand (recruit) immigrant workers?
 - Labor market scarcity and foreign affinity enhance the recruitment of immigrant workers
 - Market mechanism is functioning, but we also observe selective usage

Previous research:

- Descriptive analyses using the IZA International Employer Survey 2000 (Bauer and Kunze, 2004; Epstein, Kunze and Ward, 2009; Winkelmann, 2002)
- Individual level data (Dustmann, Glitz and Schönberg, 2012)
- Manager race correlates with race of new hires (Giuliano, Levine, and Leonard, 2009).

Contribution:

- First analysis of the demand (recruitment) of immigrant workers using a large German establishment data set
- The effect of labor market scarcity on recruiting immigrant workers
- Causal interpretation of the effects

Hypothesis 1 *Labor market scarcity enhances the recruitment of foreign workers*

- Scarcity induces pressure to expand markets to recruit
- Likelihood to recruit abroad increases

Hypothesis 2 *Foreign affinity increases the recruitment of immigrant workers*

- Foreign affinity is defined by the share of foreign employees and foreign ownership
- Potential channels: job search networks, positive signalling, integration cost, taste

Dependent variable:

- Establishment recruits abroad (0/1)

Explanatory variables of interest:

- Share of foreign employees [0,1]
 - Problems are reverse causality and measurement error
- Foreign ownership (0/1)
- Demand for skilled workers (0/1)
 - OVB: I use a linear combination with a second variable which asks for the demand caused by the retirement of elderly workers
- Regional unemployment rate (0,1)

IAB establishment panel

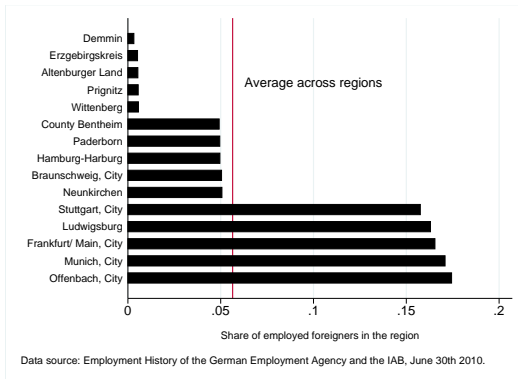
- Survey of 15,000 establishments each year since 1993
- Representative for industries, size and states
- Face-to-face interviewing
- Here: 2011 cross section
 - Establishments with at least 5 employees
 - Establishments in the non-public sector

Establishment history panel

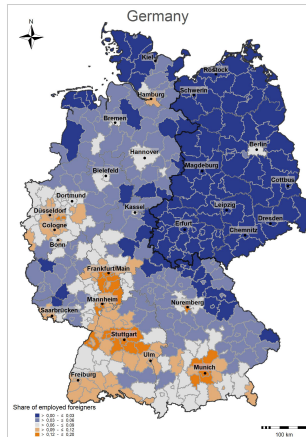
- Contains the administrative social security data aggregated on the firm level
- To the date of June 30th of each year since 1975
- Here: 2010 cross section for the instrument

- To solve reverse causality and measurement error
 - IV: Lagged share of foreigners employed at neighboring firms (same municipality)

Figure: Share of employed foreigners in a selection of regions



- The instrument affects recruiting only through the channel of foreign employees
- The instrument is randomly assigned



First stage OLS regression

Dependent variable	for_share (1)	for_share (2)	for_manager (3)	for_manager (4)
for_municipality	0.861 (0.034)	0.781 (0.047)	0.447 (0.041)	0.375 (0.059)
<i>Controls:</i>				
Plant level chars.	no	yes	no	yes
Industry fe	no	yes	no	yes
Regional controls	no	yes	no	yes
Clusters	2,603	2,603	2,603	2,603
Observations	8,108	8,108	8,108	8,108

Cluster robust standard errors in parentheses (cluster=municipality) are bootstrapped with 1,000 iterations. Dep. var: *for_rec*, indicates establishments recruiting immigrant workers. Plant level chars. include dummies indicating whether the firm is a subsidiary of a larger corporation, has a R&D department, the legal form, and 8 firm size categories. Industry fe comprises of 43 industry level fixed effects. Regional controls include dummies for East Germany, border regions, and 10 categories for agglomeration.

- 2SLS:

Structural equation:

$$for_rec_i = \beta_0 + for_share_i * \beta_1 + z'_i * \beta + u_i \quad (1)$$

Reduced form of *for_share* (first stage):

$$for_share_i = \delta_0 + for_municipality_{-i,t-1} * \delta_1 + z'_i * \delta + v_i \quad (2)$$

Assumption:

$$E(for_municipality' u) = 0 \quad (3)$$

- Control function approach:

Structural equation:

$$for_rec_i = 1[for_share_i * \beta_1 + Z_i' * \beta + u_i > 0] \quad (4)$$

Reduced form of *for_share* (first stage):

$$for_share_i = for_municipality_{-i,t-1} * \delta_1 + Z_i' * \delta + v_i \quad (5)$$

Assumptions:

$$D(r|z, for_municipality_{-i,t-1}) = D(r|v) \quad (6)$$

$$E(for_rec|z, r, for_municipality_{-i,t-1}) = E(for_rec|z, r) \quad (7)$$

(Rivers and Vuong, 1988; Blundell and Powell, 2004; Wooldridge, 2013)

Regression results in which recruiting abroad is the dependent variable

Method	OLS	Probit	2SLS	Control function
	(1)	(2)	(3)	(4)
for_share	0.238 (0.048)	0.220 (0.035)	0.373 (0.154)	0.319 (0.136)
for_owner	0.091 (0.022)	0.056 (0.013)	0.088 (0.022)	0.054 (0.013)
hq_demand	0.035 (0.009)	0.032 (0.008)	0.037 (0.009)	0.033 (0.008)
uer	-0.360 (0.129)	-0.389 (0.144)	-0.330 (0.135)	-0.364 (0.151)
Clusters	2,603	2,603	2,603	2,603
Observations	8,109	8,099	8,108	8,099

Cluster robust standard errors in parentheses (cluster=municipality) are bootstrapped with 1,000 iterations. Dep. var: *for_rec*, indicates establishments recruiting immigrant workers. Plant level chars. include dummies indicating whether the firm is a subsidiary of a larger corporation, has a R&D department, the legal form, and 8 firm size categories. Industry fe comprises of 43 industry level fixed effects. Regional controls include dummies for East Germany, border regions, and 10 categories for agglomeration.

Control function effect heterogeneities: Share of foreigners in management and large firms

Sample by firm size	<50 employees (1)	>50 employees (2)	<50 employees (3)	>50 employees (4)
for_share	0.087 (0.170)	0.576 (0.222)		
for_manager			0.184 (0.290)	1.433 (0.500)
for_owner	0.061 (0.018)	0.072 (0.023)	0.056 (0.022)	0.051 (0.023)
hq_demand	0.021 (0.009)	0.051 (0.016)	0.022 (0.009)	0.061 (0.016)
uer	-0.511 (0.148)	-0.116 (0.274)	-0.530 (0.150)	-0.069 (0.259)
Clusters	1,983	1,377	1,983	1,377
Observations	4,730	3,178	4,730	3,178

Cluster robust standard errors in parentheses (cluster=municipality) are bootstrapped with 1,000 iterations. Dep. var: *for_rec*, indicates establishments recruiting immigrant workers. Plant level chars. include dummies indicating whether the firm is a subsidiary of a larger corporation, has a R&D department, the legal form, and 8 firm size categories. Industry fe comprises of 43 industry level fixed effects. Regional controls include dummies for East Germany, border regions, and 10 categories for agglomeration.

Estimation results:

- Labor market scarcity (measured by *hq demand* and the regional *uer*) enhances the recruitment of immigrant workers
 - *hq demand* is relevant for large firms, whereas the *uer* is a relevant factor to small firms
- Foreign affinity (defined by the share of foreign employees and foreign ownership) increases the probability for recruiting immigrant workers

Implications:

- We observe selective usage of immigrant workers
 - To achieve higher rates, barriers should be reduced
- Market is functioning
 - The more demand, the higher the usage of immigrant workers
- Research implication: Looking for barriers which impede the usage of foreign markets

Thanks for your attention!

mario.bossler@iab.de

Appendix

- As shown in the map: Large East-West difference in the variation of the instrumental variable
 - Estimation for a sub-sample of West German establishments

- The stock of employees might have been determined longer ago in the past
 - Estimation with additional lags in the instrument

Control function results with additional lags of the instrument

Sample by firm size	<50 employees (1)	>50 employees (2)	<50 employees (3)	>50 employees (4)
for_share	0.034 (0.179)	0.526 (0.220)		
for_manager			-0.139 (0.351)	1.337 (0.525)
for_owner	0.064 (0.018)	0.072 (0.023)	0.076 (0.032)	0.053 (0.023)
hq_demand	0.021 (0.009)	0.051 (0.016)	0.021 (0.010)	0.061 (0.016)
uer	-0.533 (0.148)	-0.134 (0.273)	-0.570 (0.161)	-0.087 (0.262)
Clusters	1,978	1,377	1,978	1,377
Observations	4,718	3,178	4,718	3,178

Cluster robust standard errors in parentheses (cluster=municipality) are bootstrapped with 1,000 iterations. Dep. var: *for_rec*, indicates establishments recruiting immigrant workers. Plant level chars. include dummies indicating whether the firm is a subsidiary of a larger corporation, has a R&D department, the legal form, and 8 firm size categories. Industry fe comprises of 43 industry level fixed effects. Regional controls include dummies for East Germany, border regions, and 10 categories for agglomeration.

Control function results using West German establishments

Sample by firm size	<50 employees (1)	>50 employees (2)	<50 employees (3)	>50 employees (4)
for_share	0.123 (0.197)	0.623 (0.249)		
for_manager			0.267 (0.335)	1.559 (0.546)
for_owner	0.044 (0.022)	0.098 (0.029)	0.035 (0.028)	0.068 (0.029)
hq_demand	0.028 (0.012)	0.052 (0.021)	0.031 (0.013)	0.062 (0.020)
uer	-0.345 (0.230)	0.009 (0.358)	-0.370 (0.233)	0.065 (0.336)
Clusters	1,209	919	1,209	919
Observations	2,701	2,090	2,701	2,090

Cluster robust standard errors in parentheses (cluster=municipality) are bootstrapped with 1,000 iterations. Dep. var: *for_rec*, indicates establishments recruiting immigrant workers. Plant level chars. include dummies indicating whether the firm is a subsidiary of a larger corporation, has a R&D department, the legal form, and 8 firm size categories. Industry fe comprises of 43 industry level fixed effects. Regional controls include dummies for East Germany, border regions, and 10 categories for agglomeration.