Immigration

UC3M, Labor Economics
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March 1, 2020

Immigration

Research on the economics of migration:

- Impact in the destination country
- Impact in the sending country (e.g., "brain drain")
- The decision to migrate and self-selection of migrants
- The integration process in the destination country

We focus on the labor market impact of immigration in the destination country.

Introduction

What is the effect of immigration on labor markets in the destination country and native workers?

- Large literature, long-standing dispute on core issues
  See "The immigration Equation" (2006) in the New York Times

So why keep going on about it?

- Topic is politically charged
- Relates to fundamental questions on functioning of (local) labor markets.
  Do factor prices respond to changes in factor supply? Do we actually understand how labor markets function?

Figure: The Short-Run Impact of Immigration

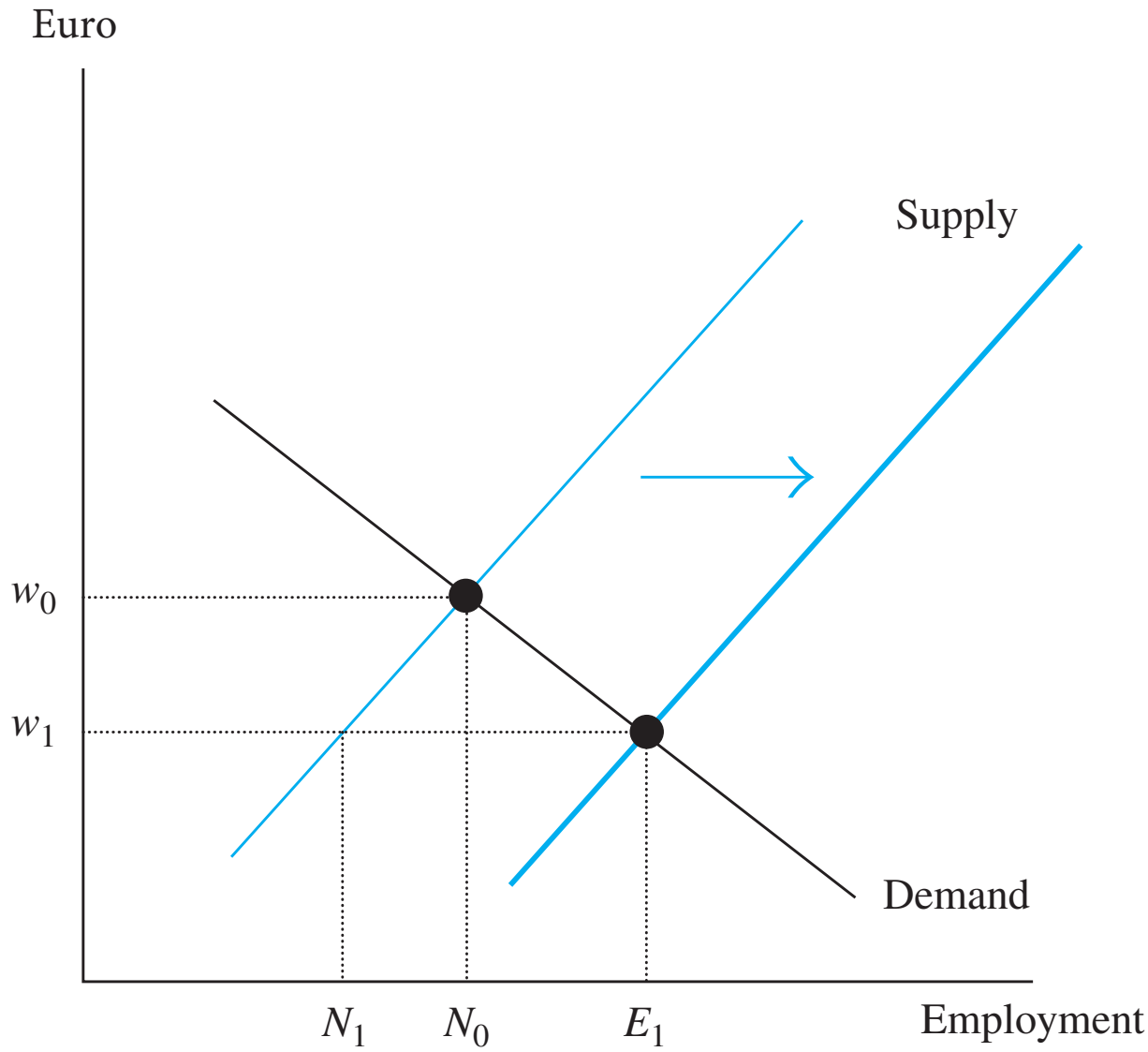


Figure: Borjas (2003), Quarterly Journal of Economics

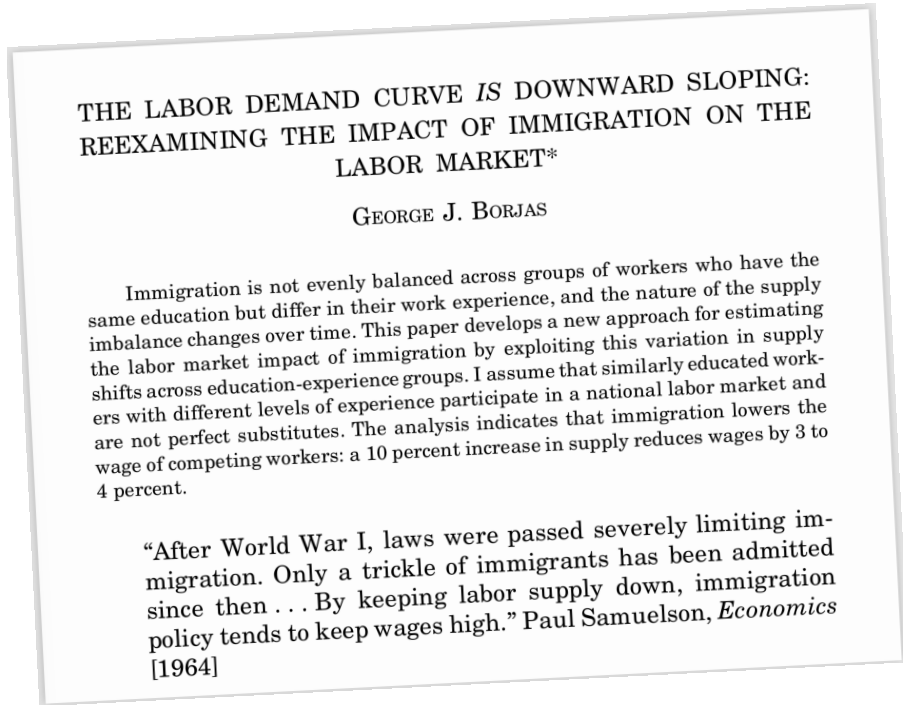
THE LABOR DEMAND CURVE *IS* DOWNWARD SLOPING: REEXAMINING THE IMPACT OF IMMIGRATION ON THE LABOR MARKET*

GEORGE J. BORJAS

Immigration is not evenly balanced across groups of workers who have the same education but differ in their work experience, and the nature of the supply imbalance changes over time. This paper develops a new approach for estimating the labor market impact of immigration by exploiting this variation in supply shifts across education-experience groups. I assume that similarly educated workers with different levels of experience participate in a national labor market and are not perfect substitutes. The analysis indicates that immigration lowers the wage of competing workers: a 10 percent increase in supply reduces wages by 3 to 4 percent.

"After World War I, laws were passed severely limiting immigration. Only a trickle of immigrants has been admitted since then . . . By keeping labor supply down, immigration policy tends to keep wages high." Paul Samuelson, *Economics*

Figure: Borjas (2003), Quarterly Journal of Economics



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"After World War I, laws were passed severely limiting immigration. Only a trickle of immigrants has been admitted since then . . . By keeping labor supply down, immigration policy tends to keep wages high." Paul Samuelson, *Economics* [1964]

Also running:

- Is the demand curve *really* downward sloping? (Bonin, 2005)
- The labor demand *was* downward sloping (Biavaschi, 2013)
- Revisiting the Labor Demand Curve (de Brauw and Russell, 2014)

Factor proportions model

The canonical model: Factor proportions model

First layer: Cobb-Douglas production function

$$Q = AK^{\alpha}L^{1-\alpha}$$

with capital K and labor L.

Second layer: unskilled labor L_U vs. skilled labor L_S (CES)

$$L = \left[\theta_U L_U^{\beta} + \theta_S L_S^{\beta}\right]^{\frac{1}{\beta}}$$

with elasticity of substitution: $\sigma = 1/1-\beta$.

Factor proportions model

Implied wage response

$$\Delta log w_g = -\alpha m + (\beta - 1)(m_g - m)$$

depends on size of immigrant inflow $m = M/N$ and relative skill intensity of migrants $m_g - m$ $(g = U, S)$.

Implications:

- In the short run, average wage declines (unless capital is fully elastic)
- Wages of skill group for which $m_g > m$ decline relative to the other skill group

Empirical evidence

So the implications of the canonical model are clear.

However, the empirical evidence is fairly mixed:

- String of natural experiments in the 1990s found no or only small short-term effects; even on "similar" natives.
  most famous: David Card's 1990 paper on the *Mariel Boatlift*
- Many other studies find little or even positive impacts, others find fairly substantial negative effects

Theory and empirical strategies

Standard theoretical framework: Factor proportion model (as in work on wage inequality; see Borjas 1999, Borjas 2013)

Empirical approaches:

1. **Area** approach
   slice labor market into multiple areas, to exploit variation in immigrant inflows across "local labor markets"
2. **Skill cell** approach
   slice labor market into different skill cells
3. **Structural** approach
   estimate parameters of skill-cell production function, simulate wage impact of immigration

Empirical strategies

Empirical approaches:

- **Area** approach
  identifies overall effect / selection problem / spatial spillovers
- **Skill cell** approach
  identifies relative effect / requires pre-sorting of immigrants
- **Structural** approach
  estimate parameters of skill-cell production function, simulate wage impact of immigration

Area approach

The area approach (or spatial correlation approach) relates spatial differences in wages across areas with differences in the size of immigrant inflow:

- For example, estimate linear regression

$$\Delta logw_{rt} = \alpha + \beta\, m_{rt} + \varepsilon_{rt}$$

  where $\Delta logw_{rt}$ is the change in log wages and m_{rt} is the immigrant arrival rate or change in immigrant share in area r in period t.

- Similarly, can estimate group-specific effect

$$\Delta logw_{grt} = \alpha_g + \beta_g\, m_{rt} + \varepsilon_{rt}$$

  where $\Delta \log w_{grt}$ is change in log wage of group g.

Area approach

The area approach (or spatial correlation approach)

$$\Delta logw_{grt} = \alpha_g + \beta_g m_{rt} + \varepsilon_{rt}$$

has intuitive appeal:

- Identifies overall effect of immigration (?), no pre-sorting of immigrants required, directly ties shock to outcome.

But:

- Selection problem
  Immigrants are attracted to areas with favorable demand conditions (Jaeger, 2007). Often addressed by *shift-share* IV.
- Spatial spillover
  Movement of input factors or trade may lead to factor price equalization.

Area approach

The area approach (or spatial correlation approach):

- Earlier area studies
  Grossmann (1982), Altonji and Cad (1991), Borjas, Freeman and Katz (1996, 1997)
- "Classic" natural experiments
  Card (1990), Hunt (1992) and Friedberg (2001)
- Revisiting the classic natural experiments
  Borjas (2015; 2017), Peri and Yasenov (2015), Borjas (2016), Borjas and Monras (2018), Edo (2018), Borjas (2018)
- Recent studies
  Dustmann, Stuhler and Schoenberg (2017), Monras (2018), Ortega and Verdugo (2019)
- Mechanisms
  Peri and Sparber (2009), Lewis (2013), Amior (2016), Albert (2018)

Earlier area studies

The area approach (or spatial correlation approach):

- Grossmann (1982)
  - Area approach, but only cross-sectional data
- Altonji and Card (1991)
  - Cross-sectional and first-differenced data
  - Use city-fraction of migrants to predict future changes in migrant fraction (precursor of shift-share instrument)
  - Finds fairly negative wage impact in some subgroups (up to 1.2% wage decline in response to 1% immigrant inflow)
- Borjas, Freeman and Katz (1996, 1997) and Borjas (1999)
  - Note that natives may change location in response to immigration
    → Area approach more useful in short- than long-run?
  - Argue that spatial correlation estimates are unstable in U.S.
    → But see Jäger, Ruist and Stuhler (2018)

Classic natural experiments

Three classic quasi-experiments

1. Card (1990) on the Mariel Boatlift in Miami
2. Hunt (1992) on Algerian immigration in France
3. Friedberg (2001) on Russian immigration in Israel

Example: The Mariel Boatlift

Card, D. (1990), "The Impact of the Mariel Boatlift on the Miami Labor Market." Industrial and Labor Relations Review

Example: The Mariel Boatlift

In 1980, an unexpected change in political conditions led to a sudden emigration wave from Cuba. From May to September 1980, 125,000 Cubans travelled by boat to the US (*"Mariel Boatlift"*). Half of the *Marielitos* located in Miami, the closest metropolitan area to Cuba, raising Miami's labor supply by 7 percent.

- Difference-in-differences approach: Compare Miami to four comparison cities
- Finds that migration had little adverse consequences on the local labor market

Example: The Mariel Boatlift

Table 3. Logarithms of Real Hourly Earnings of Workers Age 16–61 in Miami and Four Comparison Cities, 1979–85.

Group	*1979*	*1980*	*1981*	*1982*	*1983*	*1984*	*1985*
Miami:							
Whites	1.85	1.83	1.85	1.82	1.82	1.82	1.82
	(.03)	(.03)	(.03)	(.03)	(.03)	(.03)	(.05)
Blacks	1.59	1.55	1.61	1.48	1.48	1.57	1.60
	(.03)	(.02)	(.03)	(.03)	(.03)	(.03)	(.04)
Cubans	1.58	1.54	1.51	1.49	1.49	1.53	1.49
	(.02)	(.02)	(.02)	(.02)	(.02)	(.03)	(.04)
Hispanics	1.52	1.54	1.54	1.53	1.48	1.59	1.54
	(.04)	(.04)	(.05)	(.05)	(.04)	(.04)	(.06)
Comparison Cities:							
Whites	1.93	1.90	1.91	1.91	1.90	1.91	1.92
	(.01)	(.01)	(.01)	(.01)	(.01)	(.01)	(.01)
Blacks	1.74	1.70	1.72	1.71	1.69	1.67	1.65
	(.01)	(.02)	(.02)	(.01)	(.02)	(.02)	(.03)
Hispanics	1.65	1.63	1.61	1.61	1.58	1.60	1.58
	(.01)	(.01)	(.01)	(.01)	(.01)	(.01)	(.02)

Note: Entries represent means of log hourly earnings (deflated by the Consumer Price Index—1980 = 100) for workers age 16–61 in Miami and four comparison cities: Atlanta, Houston, Los Angeles, and Tampa–St. Petersburg. See note to Table 1 for definitions of groups.

Hunt (1992)

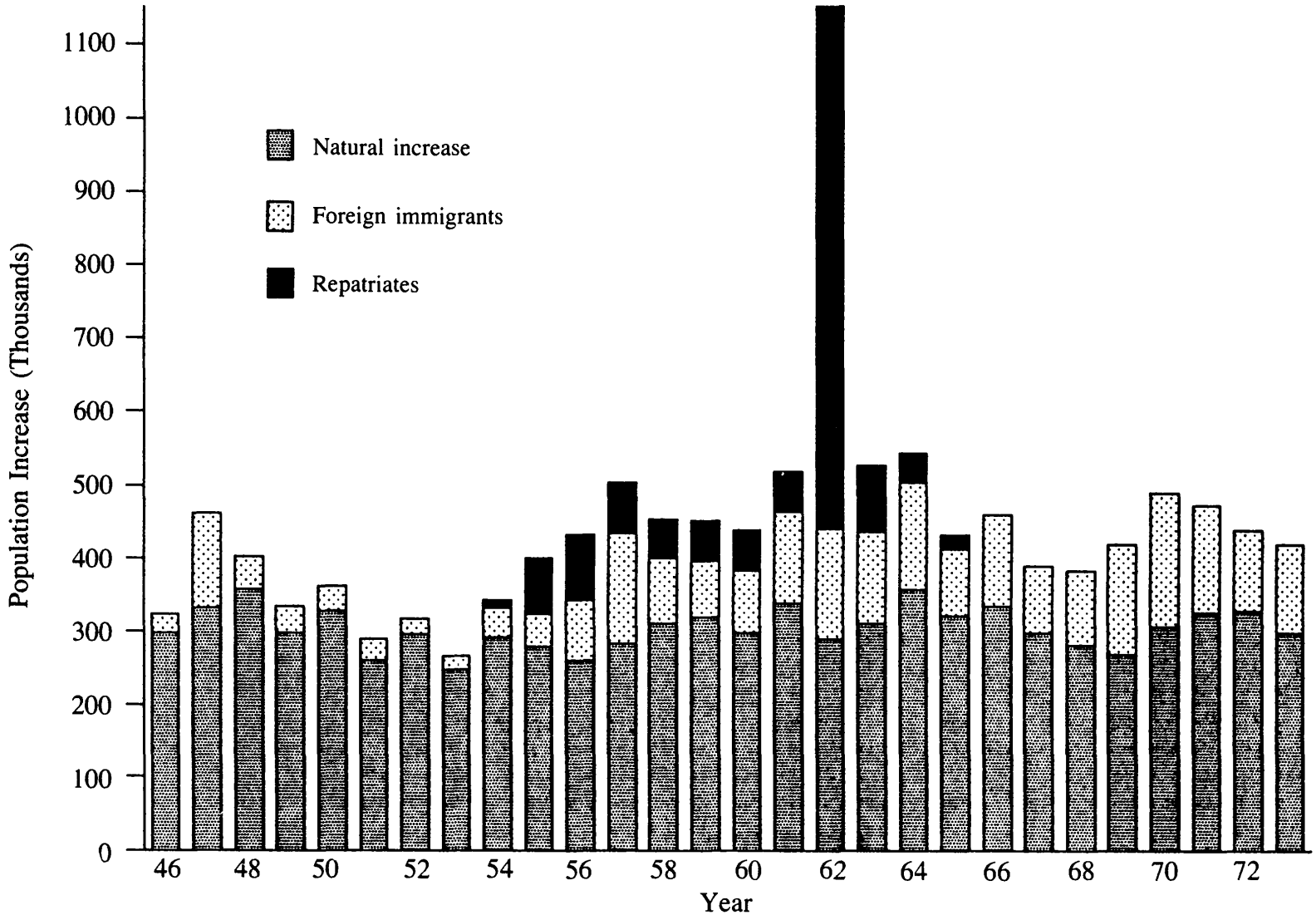
Hunt, Jennifer (1992), "The Impact of the 1962 Repatriates from Algeria on the French Labor Market." Industrial and Labor Relations Review

Example: The Algerian inflow in France

After Algeria's independence from France in 1962, large emigration wave from Algeria to France (in particular of people of European origin). About 900,000 returned to France within one year. They settled primarily in south of France, creating spatial variation in their distribution.

- Analysis across areas in cross-sectional and first-differenced data
- Finds modest increase in unemployment, small decrease in wages: (a 1-percentage point increase in repatriate share reduces local wages by at most 0.8 percent)

Hunt (1992)



Source: G. Tapinos (1975).

Figure 1. Sources of Increase in the French Population, 1946–1973.

Hunt (1992)

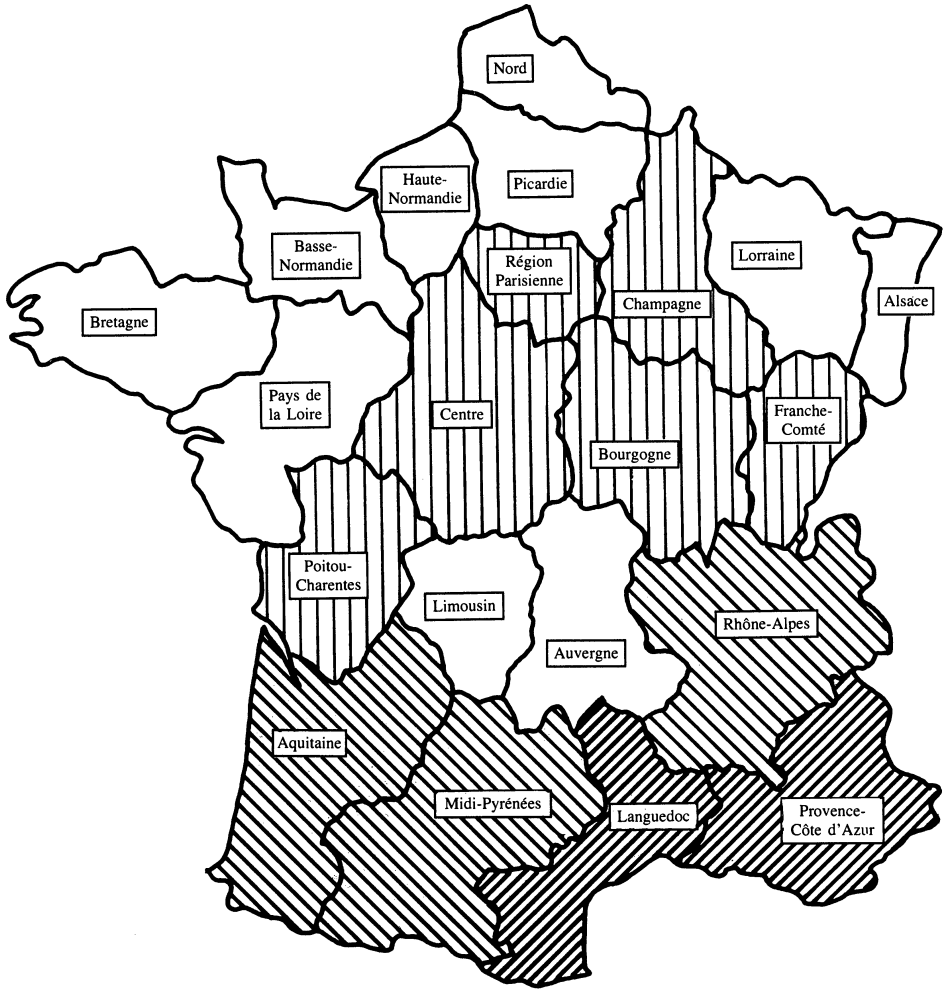


Figure 2. Map of France Showing Repatriates as a Proportion of the Labor Force by Region, 1968.

Hunt (1992)

Table 4. Determinants of Salaries of French Workers, 1962 and 1968.
(Standard Errors in Parentheses; All Coefficients and Standard Errors Multiplied by Ten)

	Cross-Sectional Results		*First Differenced Results, 1968 minus 1962*		
	1968	*1962*			
Independent Variable	*GLS (1)*[a]	*GLS (2)*[b]	*GLS (3)*[c]	*GLS (4)*[c,d]	*OLS (5)*[c,d]
Repatriates	−0.197**	−0.139**	−0.051	−0.080**	−0.067
(% of 1968 Labor Force)	(0.066)	(0.068)	(0.033)	(0.033)	(0.046)
Age 15–24	0.025	−0.024	0.035	0.029	0.010
(% of Labor Force)	(0.037)	(0.043)	(0.050)	(0.051)	(0.066)
Education (% with Bac.)	0.552**	0.638**	0.223**	0.647**	0.547**
	(0.097)	(0.115)	(0.091)	(0.093)	(0.212)
Services[e]	0.087	0.194**	0.056	−0.087	−0.153
	(0.069)	(0.072)	(0.100)	(0.102)	(0.124)
Commerce and Banking	−0.015	−0.095**	0.143*	0.185**	0.152
	(0.043)	(0.044)	(0.073)	(0.075)	(0.102)
Mining	0.043*	0.068**	0.112**	0.102**	0.116
	(0.022)	(0.017)	(0.043)	(0.044)	(0.076)
Other Industry	0.052**	0.068**	0.079**	0.045*	0.049
	(0.010)	(0.009)	(0.023)	(0.024)	(0.033)
Construction	0.148**	0.126**	0.159**	0.167**	0.154**
	(0.046)	(0.049)	(0.050)	(0.051)	(0.063)
Public Sector	−0.034	−0.003	−0.017	−0.086*	−0.076
	(0.047)	(0.038)	(0.042)	(0.043)	(0.046)
Transport	0.255**	0.248**	−0.176	−0.322**	−0.317
	(0.042)	(0.038)	(0.133)	(0.136)	(0.199)
Adjusted R^2	0.96	0.96	0.42	0.56	0.27

Note: The dependent variable is the log of the average annual earnings of all salaried workers. The sample size is 88. Columns 1–4 are estimated using GLS; the weights are the 1967 salaried labor force (w_{67}) (column 1), the 1962 salaried labor force (w_{62}) (column 2), and $1/(1/w_{62} + 1/w_{67})$ (columns 3, 4).

Friedberg (2001)

Friedberg (2001), "The Impact Of Mass Migration On The Israeli Labor Market", Quarterly Journal of Economics

Example: The Russian inflow in Israel

Immigration increased Israel's population by 12 percent between 1990 and 1994. Mainly from Soviet Union, where economic and political conditions where unstable and emigration restrictions were lifted.

- Exploits variation in immigrant density across area x occupation cells ("mixed approach")
- IV estimates based on immigrants' former occupation abroad suggest no adverse impact of immigration
- Cohen-Goldner and Paserman (2006, 2011) study same period, find small negative wage impact in short-run that disappears in longer run

Friedberg (2001)

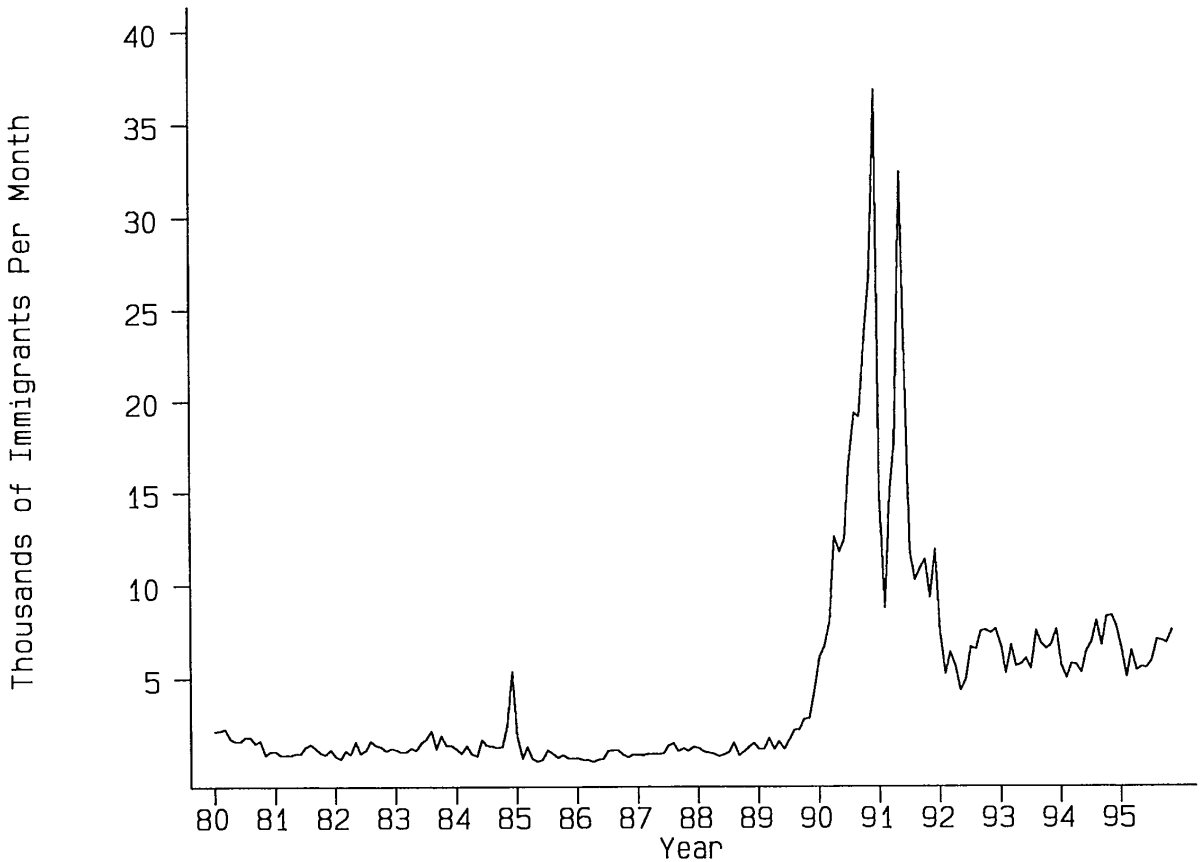


FIGURE I
Immigration to Israel

Note: Number of immigrants, including immigrating citizens, per month. Sources are Bank of Israel [1999] and Israeli Central Bureau of Statistics [1997].

Early natural experiments: Summary

Friedberg and Hunt (1995) in the Journal of Economic Perspective

> "*On the whole, the natural experiment literature adds to the evidence suggesting a limited impact of immigrants on natives.*"

In particular, Card (1990) was interpreted as "gold standard" evidence that immigration has only limited effect on native workers.

Early natural experiments: Problems

Problems:

- Data often not good (repeated cross-section, small surveys)
- Difference-in-differences approach, but little information on pre-trends
- Problematic specification choices (e.g. control groups, estimation of standard errors)

In contrast, modern studies typically have:

- Panel data (can follow workers over time and control for selection), information on pre-trends, placebo tests, etc

Counterviews on Mariel Boatlift

The results by Card (1990) on the Mariel Boatlift have been influential, but also controversial. Related work:

- Angrist and Krueger (1999) on "The Mariel Boatlift that never happened" point to problems with the statistical inference
- Borjas (2015, published 2017) argues that Mariel Boatlift had a substantial negative impact on natives with less education
- Peri and Yasenov (2015) argue that Borjas' results are not robust to small changes in specification
- Borjas (2016), Clemens and Hunt (2017), Borjas and Monras (2017) provide additional evidence and arguments

The debate has become fairly contentious, but these papers make interesting conceptual points.

- For example, how to do statistical inference with only one treated unit (e.g. randomization inference, Borjas 2017)

Counterviews on the Algerian case

Edo (2019), "The Impact of Immigration on Wage Dynamics: Evidence from the Algerian Independence War", JEEA

- Studies dynamics of wage adjustment after sudden and unexpected inflow of repatriates to France in 1962
- Finds strong decline in wages between 1962 and 1968, before average wages return to their pre-shock level after 15 years
- Persistent effect on wage inequality

Why differences to Hunt (1992)

- Better wage data, allows separation of repatriates and natives (and repatriates had comparatively high education and wages)

Counterviews on the Algerian case

	Change in native wages between					
	1962-1968		1968-1976		1962-1976	
	Baseline	Additional controls	Baseline	Additional controls	Baseline	Additional controls
1. OLS estimate	-1.29***	-1.34**	0.86**	1.40***	-0.40	-0.01
	(-3.13)	(-2.71)	(2.34)	(4.43)	(-0.90)	(-0.02)
2. IV estimate using **rainfall** as instrument	-1.91**	-2.07**	0.96**	1.72***	-0.97	-0.72
	(-2.56)	(-2.51)	(2.16)	(4.30)	(-1.45)	(-0.60)
F-stat of instrument	86.76	63.36	79.32	59.09	79.78	45.18
3. IV estimate using **distance** as instrument	-1.21*	-1.70**	1.37*	1.59***	0.10	0.53
	(-1.68)	(-2.40)	(1.78)	(3.26)	(0.10)	(0.35)
F-stat of instrument	13.64	20.66	13.17	18.93	13.45	15.65
4. IV estimate using **shift-share** instrument	-1.70***	-1.58***	0.23	1.05***	-1.37	-1.36
	(-2.80)	(-2.82)	(0.47)	(2.65)	(-1.57)	(-1.36)
F-stat of instrument	390.91	512.86	316.59	333.41	390.13	363.35
Education-sector FE	Yes	Yes	Yes	Yes	Yes	Yes
Cluster	21	21	21	21	21	21
Observations	168	168	168	168	168	168

Key. ***, **, * denote statistical significance from zero at the 1%, 5%, 10% significance level. T-statistics are indicated in parentheses below the point estimate.

Counterviews on the Israelian case

Borjas and Monras (2017), "The labour market consequences of refugee supply shocks", Economic Policy

- Borjas and Monras study all three natural experiments: The Mariel Boatlift, the influx of French repatriates after the Algerian independence war, and the influx of Jewish emigrants into Israel after the collapse of the Soviet Union
- Find substantial negative effect on wages

Why differences to Friedberg (2001)?

- Note that difference between OLS and IV results in Friedberg is puzzling $\rightarrow$ why should OLS estimates be downward biased?
- Use educational attainment of the emigrants as an additional measure of skills (area x occupation x education)

Counterviews on the Israelian case

Table 7. Own and cross effects of the Soviet émigrés in Israel

	Less than primary	Primary completed	Secondary completed	University completed
Change in log annual earnings	0.350 (0.184)	−0.070 (0.117)	−0.083 (0.121)	−0.739 (0.208)

Notes: Standard errors are reported in parentheses. The unit of observation is an occupation, and there are eight occupations in the analysis. The table reports the coefficient of the "émigré supply shock for high-skill workers," which gives the ratio of the number of Soviet émigrés who completed a university education relative to the number of natives who also completed a university education in 1995 in the particular occupation. The regressions also contain regressors giving the change in the size of the native population for the own education group. The regressions are estimated separately for each occupation group using IV and have eight observations.

Recent studies

Recent studies:

- Dustmann, Stuhler and Schoenberg (2017) exploit a natural experiment in Germany
- Monras (2018) exploits a natural experiment in the U.S.
- Ortega and Verdugo (2019) use the past-settlement instrument in France
- Jaeger, Ruist and Stuhler (2018) on the past-settlement instrument in U.S. context

Example 1: Dustmann, Schönberg and Stuhler (2017)

Example from Dustmann, Schönberg and Stuhler (2017), "Labor Supply Shocks, native wages, and the adjustment of local employment", *Quarterly Journal of Economics*

- Quasi-natural experiment in Germany:
  - Commuting policy, triggered by fall of iron curtain
  - created unexpected, sudden, and large labor supply shock in Bavarian border region
- Longitudinal data on the full population covered by social security records in affected (and non-affected) areas
- Study magnitude, speed and channel of adjustment in event-study design + IV

Figure: Affected Border and Inland Control regions

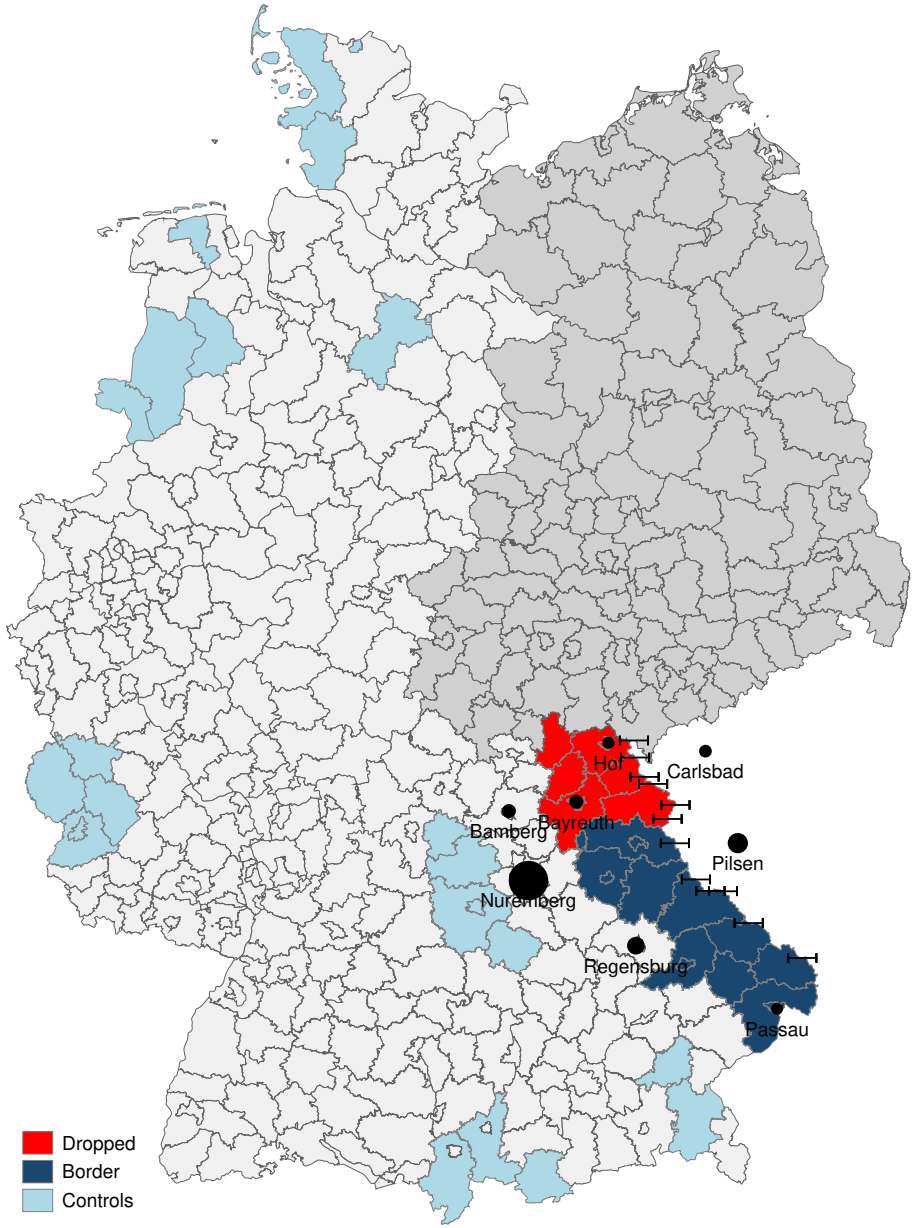
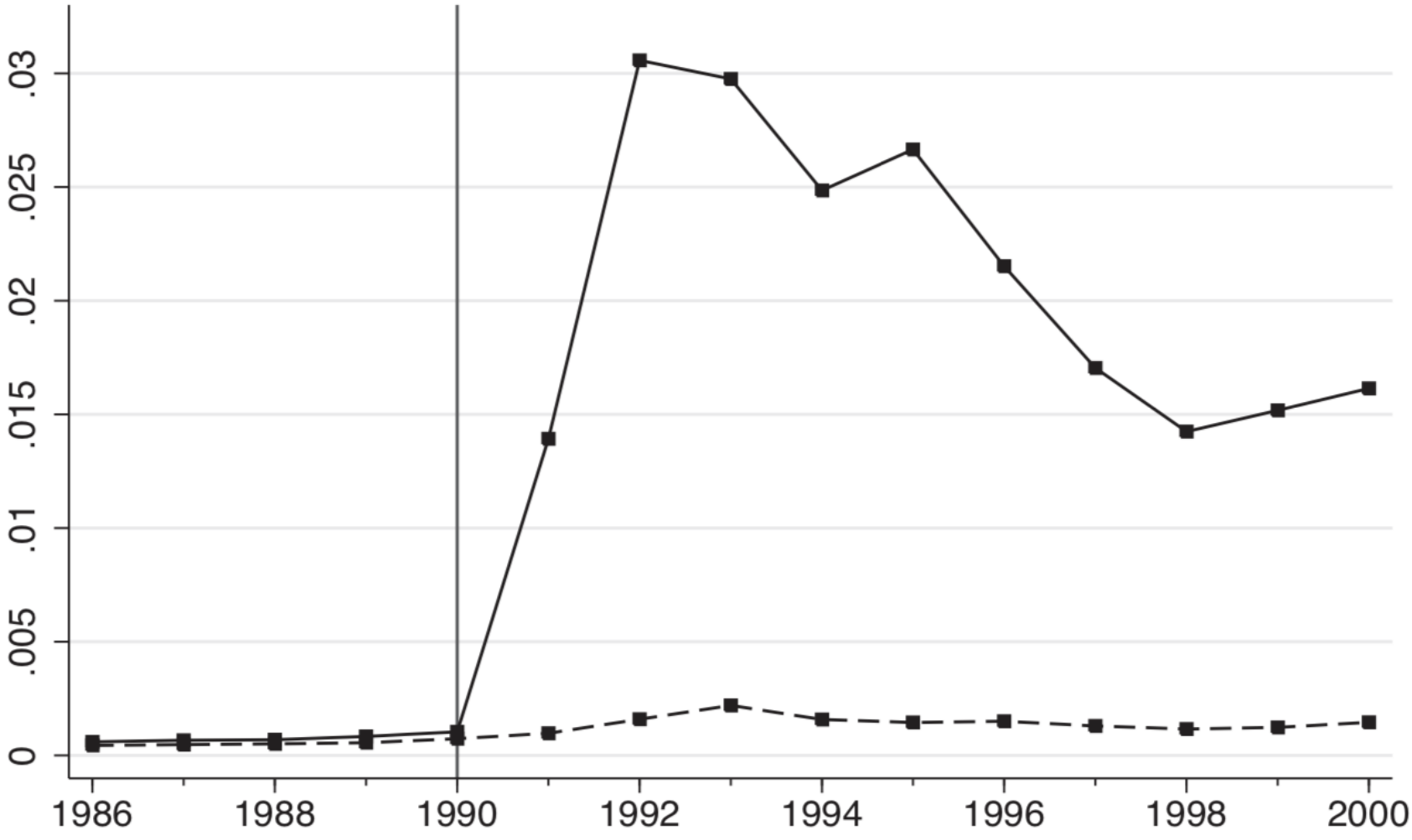


Figure: Employment Shares of Czech Nationals: Border vs. Control



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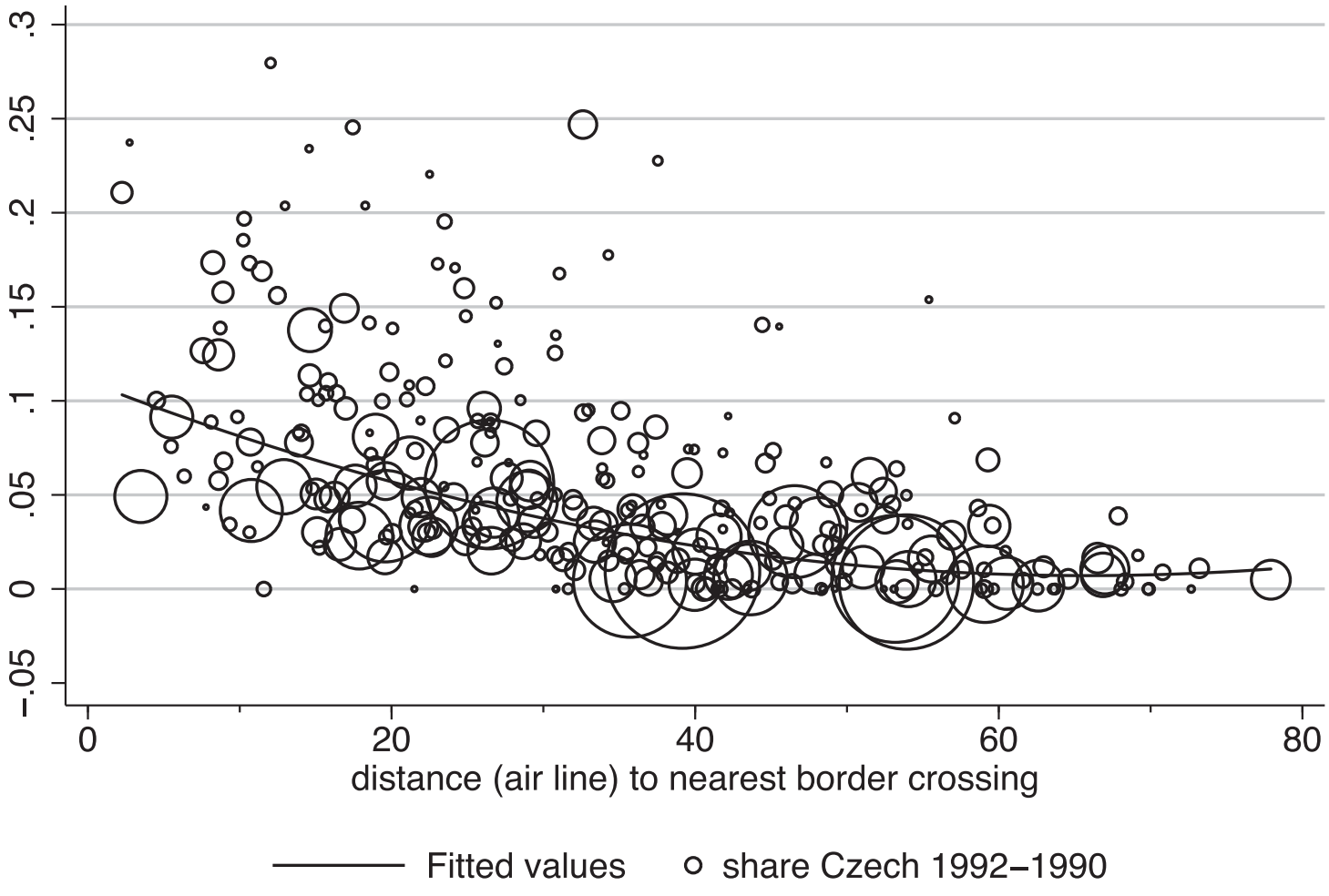
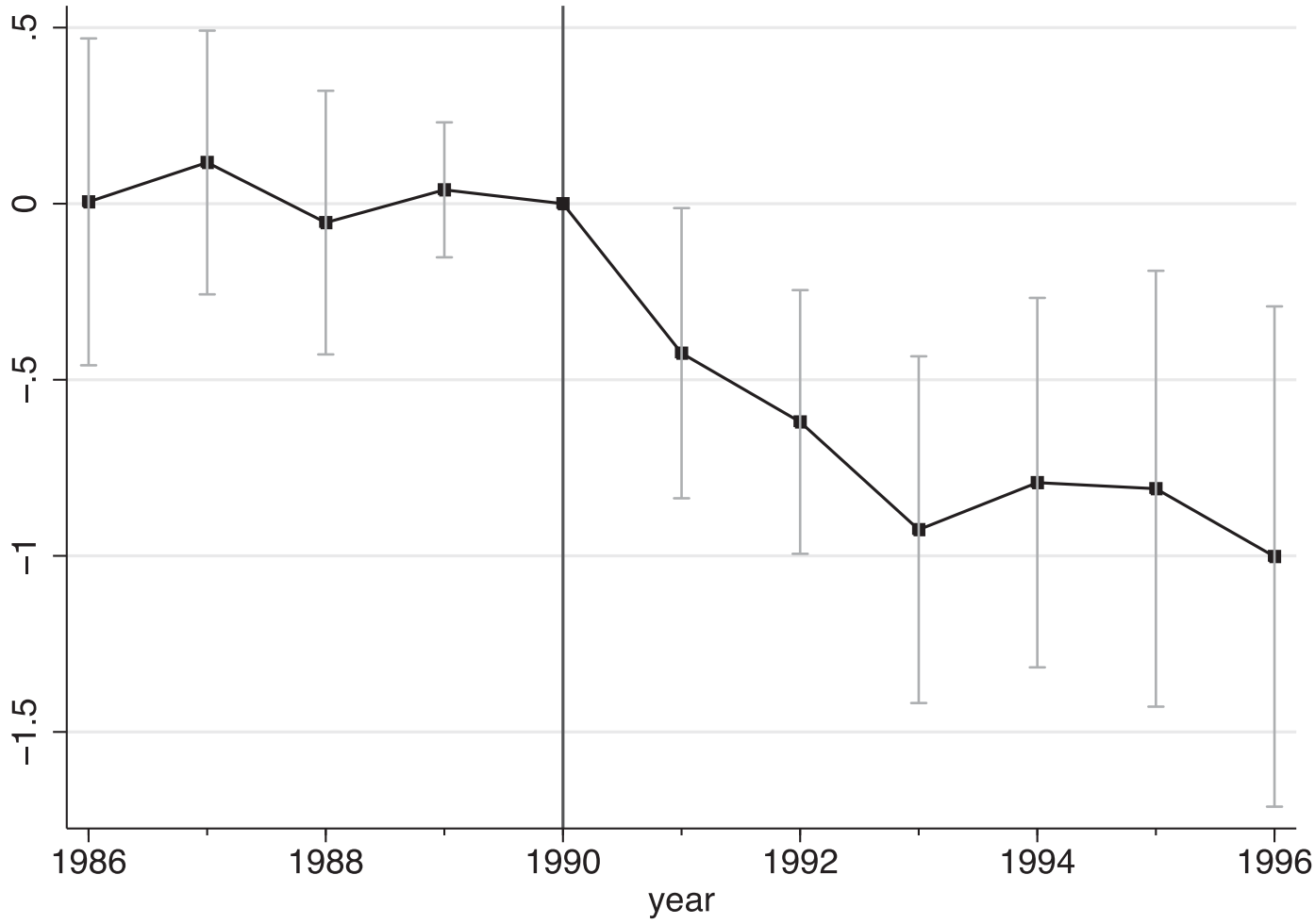


Figure: Estimated Employment Effects



Example 2: Ortega and Verdugo (2019)

Ortega and Verdugo (2019):

- Spatial approach in French panel data for 1967-2007
- Use shift-share instrument (past-settlement instrument, Card 2001)
- Finds substantial reallocation of blue-collar workers to locations with fewer immigrants and towards jobs with more communication tasks
- Because of reallocation, controlling for changes in composition is crucial when estimating wage effects of immigration (see also Bratsberg and Rauum, 2012)

Reminder: The Card instrument

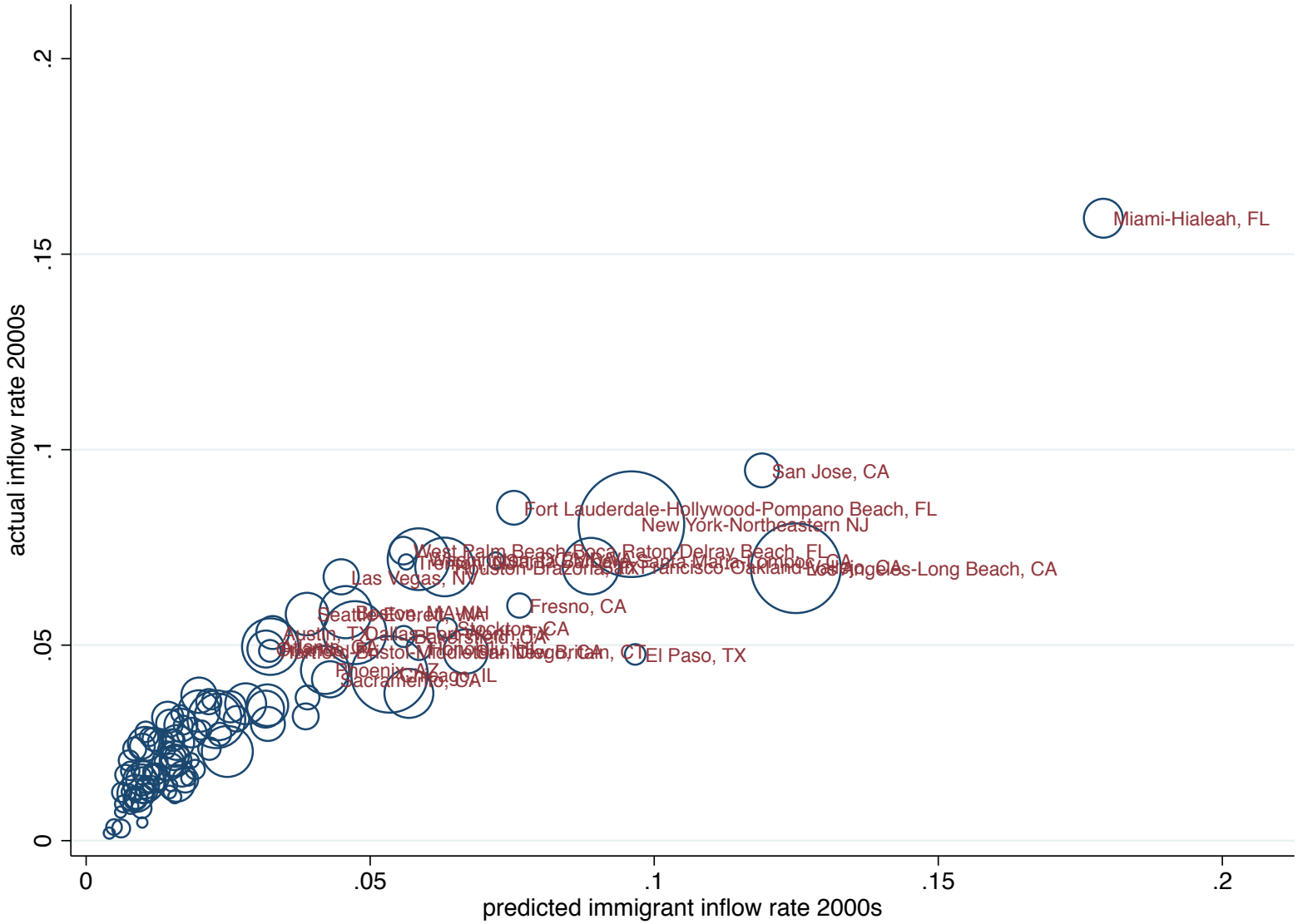
Card (2001) predicts the area-level immigrant inflow rate that would have occurred if new immigrant arrivals distribute according to their past distribution across locations.

Card instrument (or past settlement instrument, enclave instrument, etc) for area l at time t

$$z_{lt} = \left(\sum_k \frac{M_{lkt^0}}{M_{kt^0}} \Delta M_{kt} \right) / L_{lt-1}$$

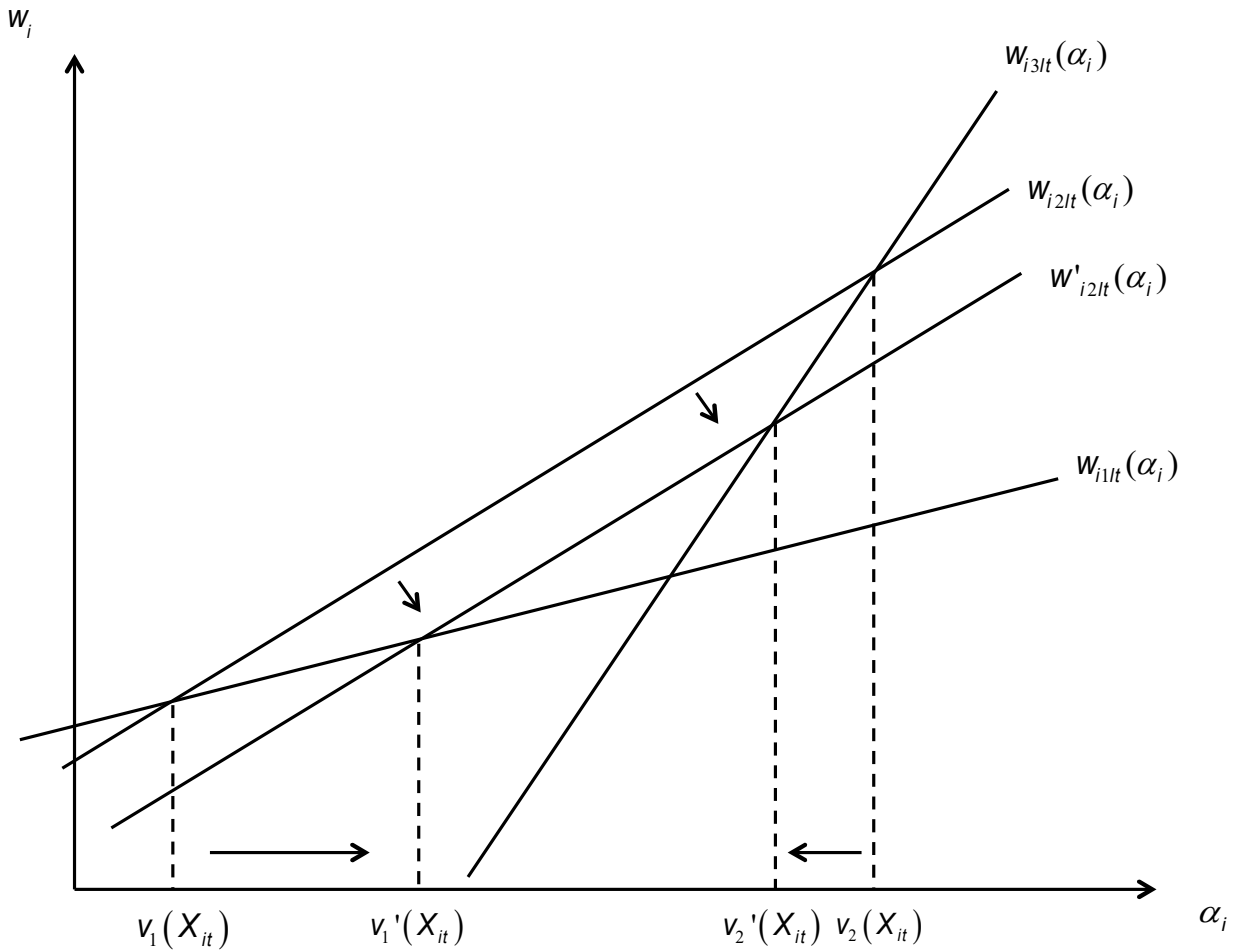
where k is origin group (e.g. Cubans, Mexicans), t^0 is some base period (with $t^0 < t$), ΔM_{kt} is the number of new arrivals from origin group k on the national level, and $\frac{M_{lkt^0}}{M_{kt^0}}$ is their distribution across locations in the base period.

Figure: The past settlement IV in U.S. Census data



Ortega and Verdugo (2019)

Figure 1: Effect of Immigration on Workers assignment with Comparative Advantages



Area approach: Summary

Spatial approach:

Spatial Approach	*Country*	*Specification*	*Group*	*Coefficient*	*S.E.*
Card (1990)	United States	OLS, 3-year difference	natives, white[a]	−0.14	–
Altonji and Card (1991)	United States	IV, weighted decadal	natives, low education	−1.21	(0.34)
			natives, white dropouts	−1.10	(0.64)
Dustmann, Fabbri, and Preston (2005)	United Kingdom	IV, weighted, yearly	natives	0.91	(0.58)
Card (2007)	United States	IV, weighted, cross-section	natives	0.06	(0.01)
Boustan, Fishback, and Kantor (2010)	United States	IV, weighted, cross-section	men	0.01	(0.54)
Dustmann, Frattini, and Preston (2013)	United Kingdom	IV, yearly	natives	0.40	(0.11)
			natives, 10th pct.[b]	−0.52	(0.18)
			natives, 90th pct.[b]	0.41	(0.19)
Borjas (2015)	United States	OLS, weighted, 3-year difference	natives, dropouts[c]	−2.63	(1.08)
Dustmann, Schönberg and Stuhler (2016)	Germany	IV, weighted, 3-year difference	natives	−0.13	(0.05)
			natives, young, low education	−0.56	(0.11)
Peri and Yasenov (2016)	United States	OLS, weighted, 3-year difference	natives, dropouts[d]	0.56	(0.73)
Foged and Peri (2016)	Denmark	IV, weighted, yearly	natives, low education	1.80	(0.64)

Area approach: Summary

Mixed approach:

Mixed Approach	*Country*	*Specification*	*Group*	*Coefficient*	*S.E.*
LaLonde and Topel (1991)	United States	OLS, weighted, decadal	immigrants, recent (≤5 yrs.) arrivals	−0.09	(0.03)
Card (2001)	United States	IV, weighted, cross-section	natives, men	−0.10	(0.03)
Borjas (2006)	United States	OLS, weighted, decadal	natives	−0.06	(0.02)
Card and Lewis (2007)	United States	IV, weighted, decadal	natives, men	−0.04	(0.06)
Card (2009)	United States	IV, weighted, decadal	natives, men	−0.42	(0.28)
Lewis (2011)	United States	IV, weighted, decadal	natives, manufacturing	−0.14	(0.04)
Glitz (2012)	Germany	IV, weighted, yearly	natives	−0.26	(0.19)
Dustmann and Glitz (2015)	Germany	IV, weighted, decadal	natives, manufacturing	−0.10	(0.06)
Özden and Wagner (2015)	Malaysia	IV, weighted, yearly	natives	0.02	(0.01)

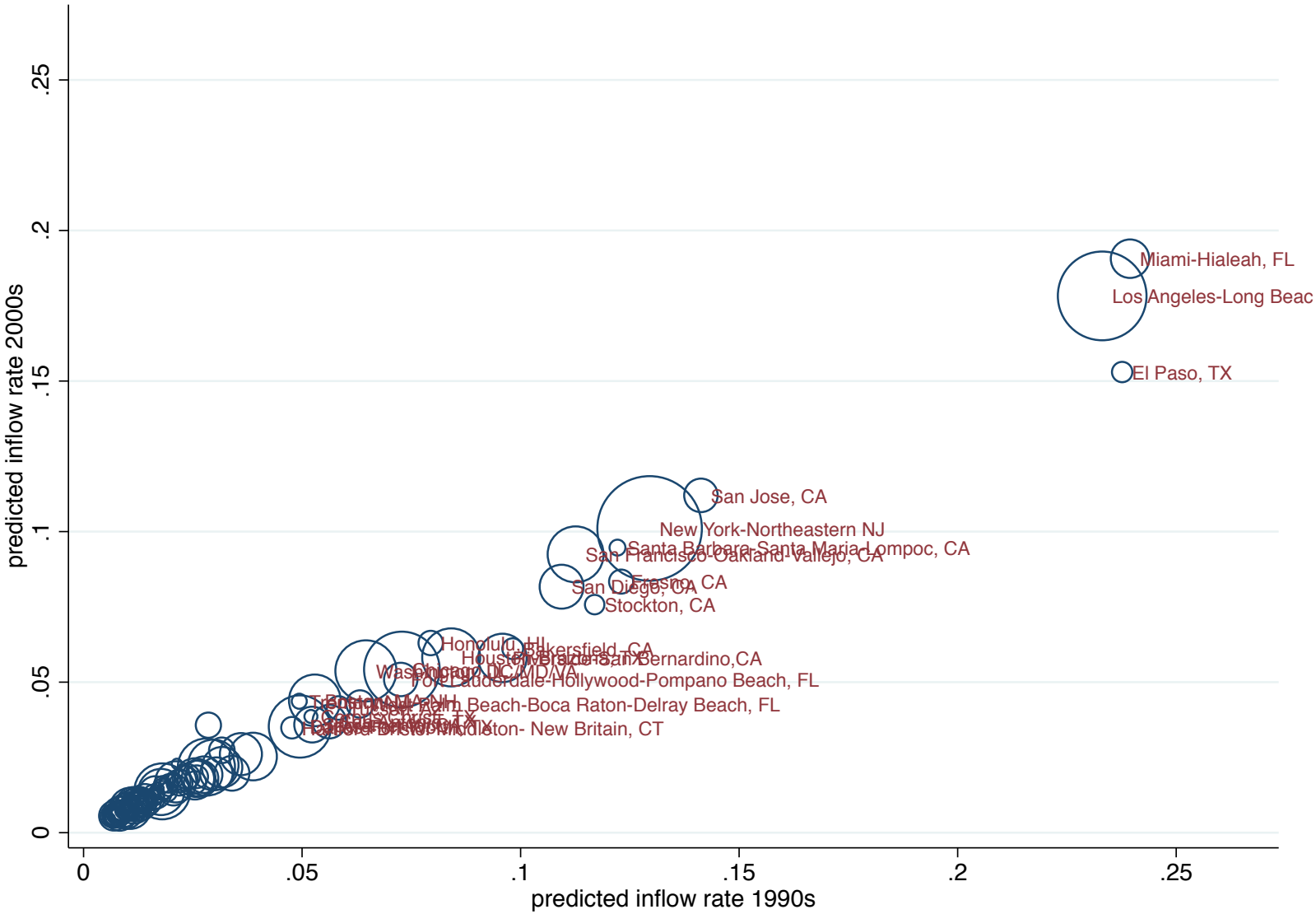
Jaeger, Ruist and Stuhler (2018)

Jaeger, Ruist, Stuhler (2018) consider the use of shift-share instruments in **dynamic** settings:

1. Shift-share instruments tend to be serially correlated. Why?
   - Local shares are always highly serially correlated
   - Require aggregate shock to break serial correlation
2. Short-run $\neq$ long-run response ($\rightarrow$ dynamic treatment effect)
   - For example, over time a local labor market will adjust to demand / supply / trade-import shocks

(1) + (2) invalidates instrument (in either GP et al or Borusyak et al setting). Example: Past settlement IV

Figure: The past settlement IV: 1990s vs 2000s



Skill cell approach

The **skill cell** approach chops the labor market into skill groups.

- Borjas (2003) estimates wage effect of immigration at national level by categorizing immigrants and natives into education-experience cells. Estimating equation

$$\Delta \log w_{gat} = \theta^{skill} \Delta p_{gat} + \Delta \pi_t + (s_g \times \Delta \pi_t) + (x_a \times \Delta \pi_t) + \Delta \varphi_{gat}$$

- $\Delta \log w_{gat}$ is change in native log wage in education group g, experience group a at time t
- Δp_{gat} is change in education-experience specific immigration share, s_g , x_a and π_t are vectors of education, experience, and time fixed effects
- With two education and experience groups, θ^{skill} may be thought of as a triple-difference estimator (differences over time, experience groups, and education groups)

Skill-cell approach

The **skill cell** approach chops the labor market into skill groups. Estimating equation

$$\Delta \log w_{gat} = \theta^{skill} \Delta p_{gat} + \Delta \pi_t + (s_g \times \Delta \pi_t) + (x_a \times \Delta \pi_t) + \Delta \varphi_{gat}$$

Skill-cell approach:

- Identifies only *relative* effects
- Imposes substitution pattern across groups
- Requires pre-classification of immigrants into skill cells

Skill-cell approach

Pure skill-cell approach, e.g.

$$\Delta \log w_{grt} = \theta_g^{spatial} \Delta p_{rt} + s_g \times \Delta \pi_t + \Delta \varphi_{grt}$$

Many studies instead mix spatial and skill-cell variation, estimating e.g.

$$\Delta \log w_{grt} = \theta^{spatial,skill} \Delta p_{grt} + (s_r \times \Delta \pi_t) + (s_g \times \Delta \pi_t) + \Delta \varphi_{grt}$$

See discussion in Dustmann, Schönberg and Stuhler (2016). Mixed approaches

- Are harder to interpret or compare
- Share disadvantages of skill-cell approach (e.g. pre-classification of immigrants)

Structural approach

Structural approach:

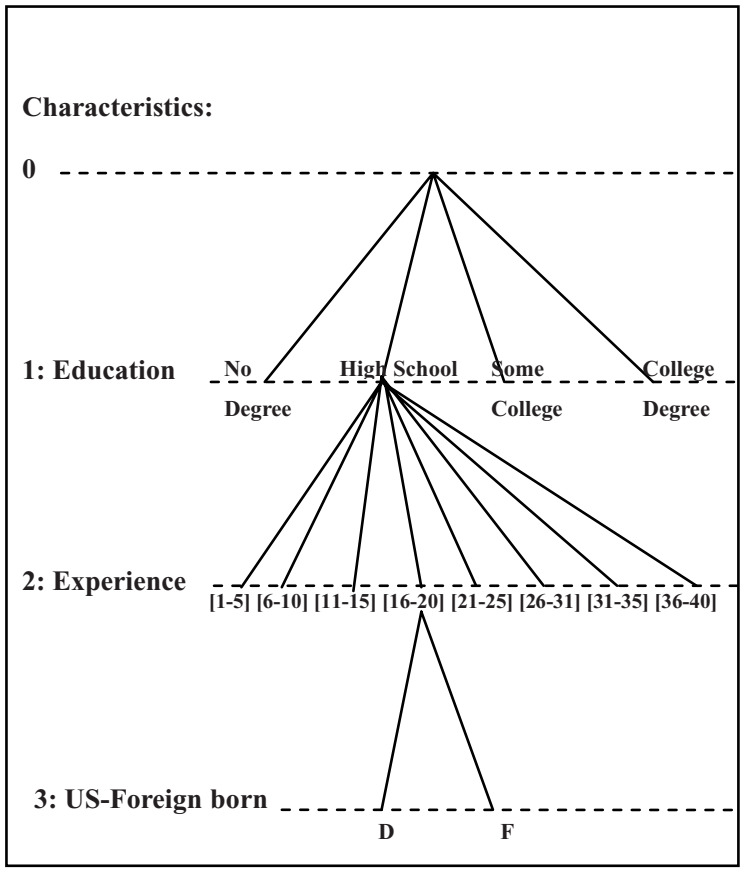
- Estimate the underlying parameters of the canonical skill-cell model
- Use that model to simulate the wage effects of immigration
- Shares similar advantages and disadvantages as skill-cell approach
- Relies on strong structural assumptions, but can be used for counterfactual analysis

Examples:

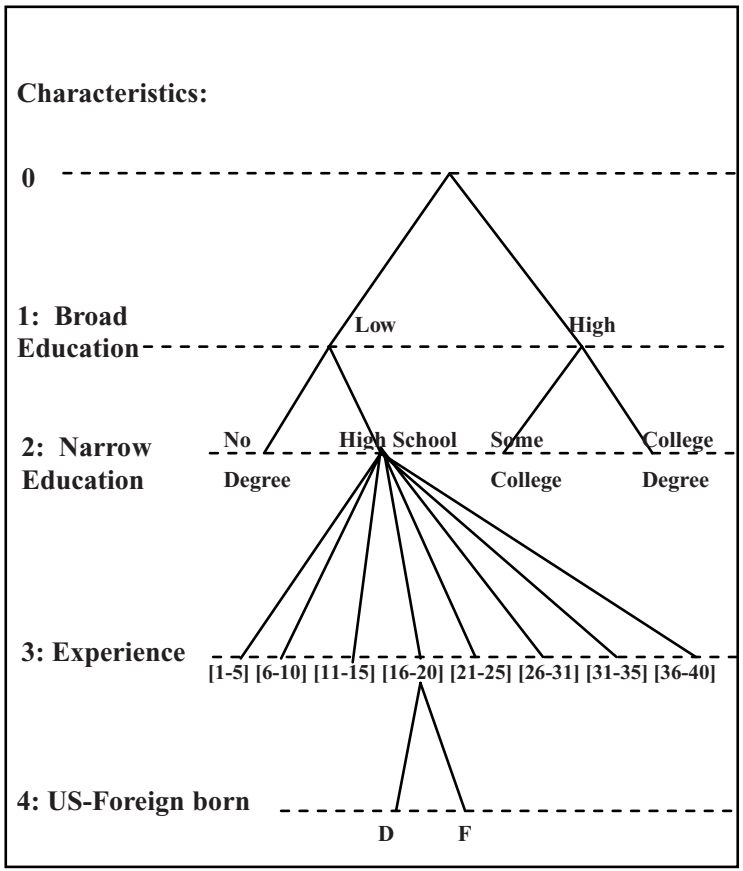
- Borjas, Freeman, and Katz (1997)
- Ottaviano and Peri (2012) and Manacorda, Manning, and Wadsworth (2012) consider more flexible production functions
- Llull (2013) and Piyapromdee (2015) also model labor supply choices

Ottaviano and Peri (2012)

Model A



Model B



Skill-cell and structural approach

Skill-cell approach:

Skill-Cell Approach	*Country*	*Specification*	*Group*	*Coefficient*	*S.E.*
Borjas (2003)	United States	OLS, weighted, decadal	natives, men	−0.57	(0.16)
Aydemir and Borjas (2007)	Canada	OLS, weighted, decadal	natives, men	−0.51	(0.20)
	United States	OLS, weighted, decadal	natives, men	−0.49	(0.22)
Llull (2014)	Canada, United States	IV, weighted, decadal	natives, men	−1.66	(0.66)
Borjas (2014)	United States	OLS, weighted, decadal	natives, men	−0.53	(0.10)
Card and Peri (2016)	United States	OLS, weighted, decadal	natives, men	−0.12	(0.13)

Structural approach:

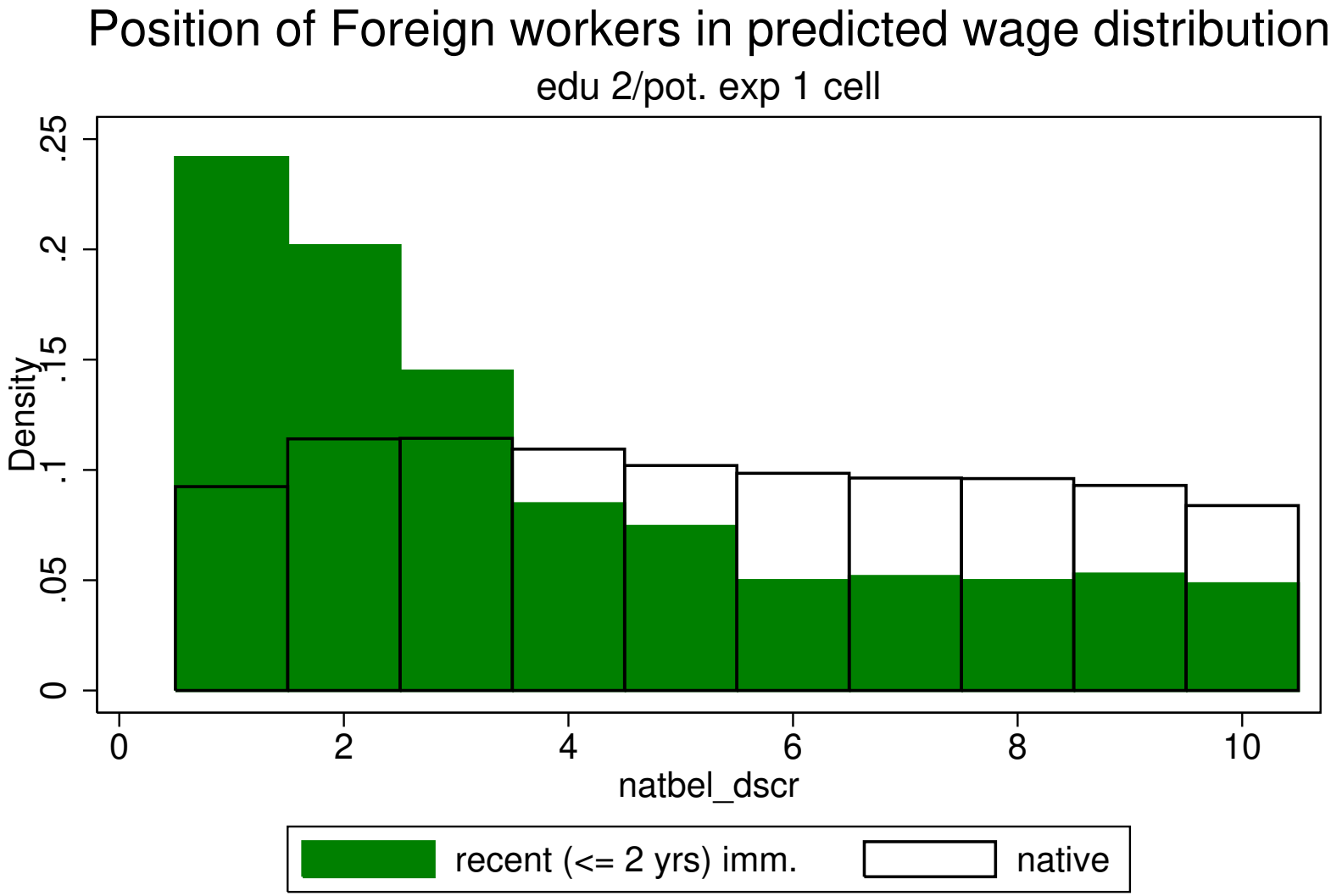
Structural Approach	*Country*	*Group and Specification*[e]	*Elasticities of Substitution*[f]	*Simulated Impact*[g]
Ottaviano and Peri (2012)	United States	natives, long run	σ(X)=6.25, σ(E)=3.3, σ(MN)=20	0.05
		immigrants, long run		−0.60
Manacorda, Manning, and Wadsworth (2012)	United Kingdom	natives, low education, long run	σ(X)=5.2, σ(E)=4.9, σ(MN)=6.9	0.08
		natives, high education, long run		−0.23

Skill-cell and related approaches

Potential problems with skill-cell and structural approach:

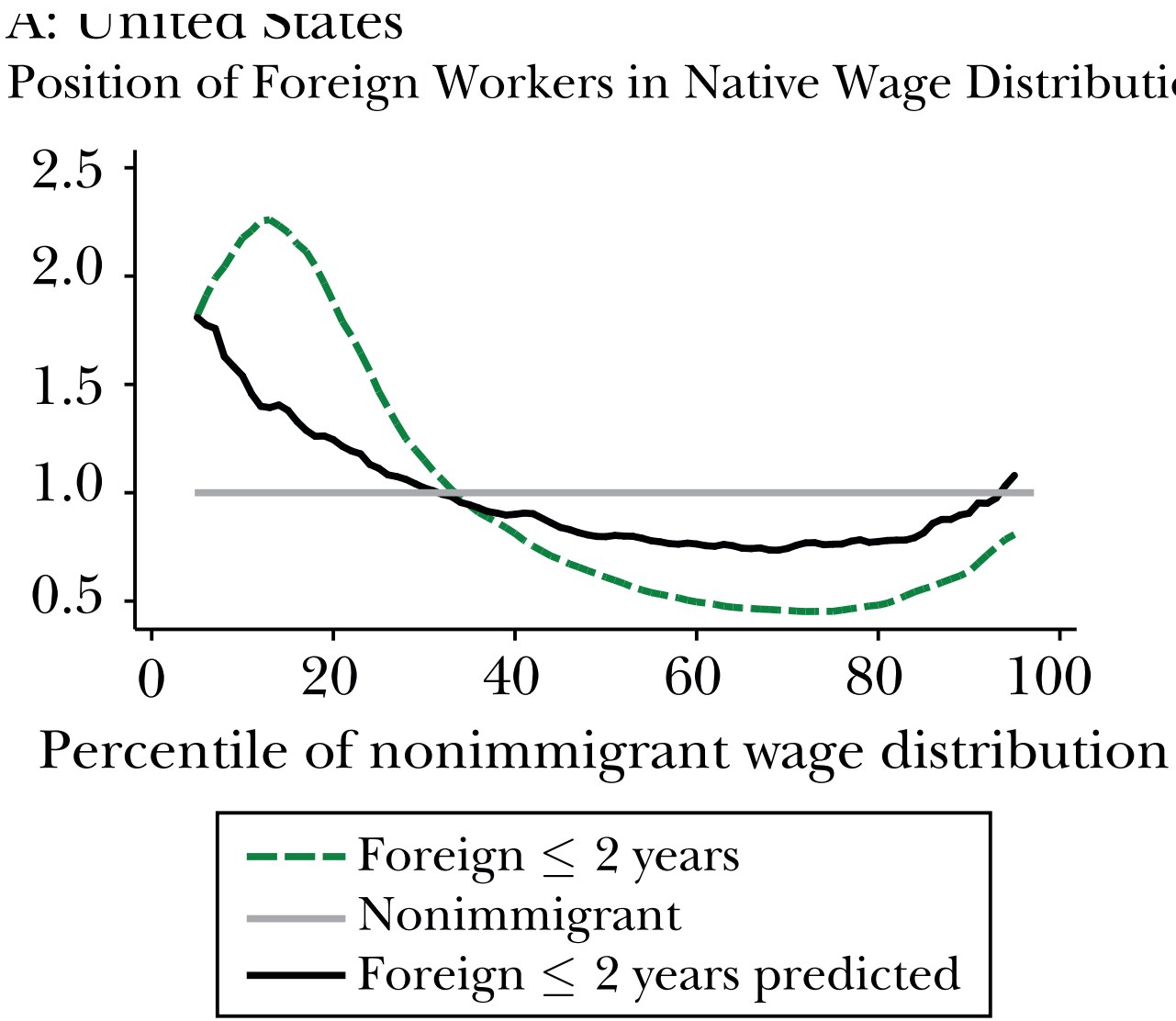
- Skill distribution of immigrants may not be exogenous
  see Llull (2015) on using exogenous push factors
- If the elasticity of labor supply varies then group with highest immigrant inflow may have relative wage *increase*
  see Dustmann, Schönberg and Stuhler (2017)
- Supply shock mis-measured if immigrants *downgrade* upon arrival, working in lower-paid occupations than we would expect given their observable characteristics
  e.g. Dustmann and Preston (2012), Dustmann, Frattini, Preston (2013), Dustmann, Schönberg, Stuhler (2016)

Downgrading: Example from Germany

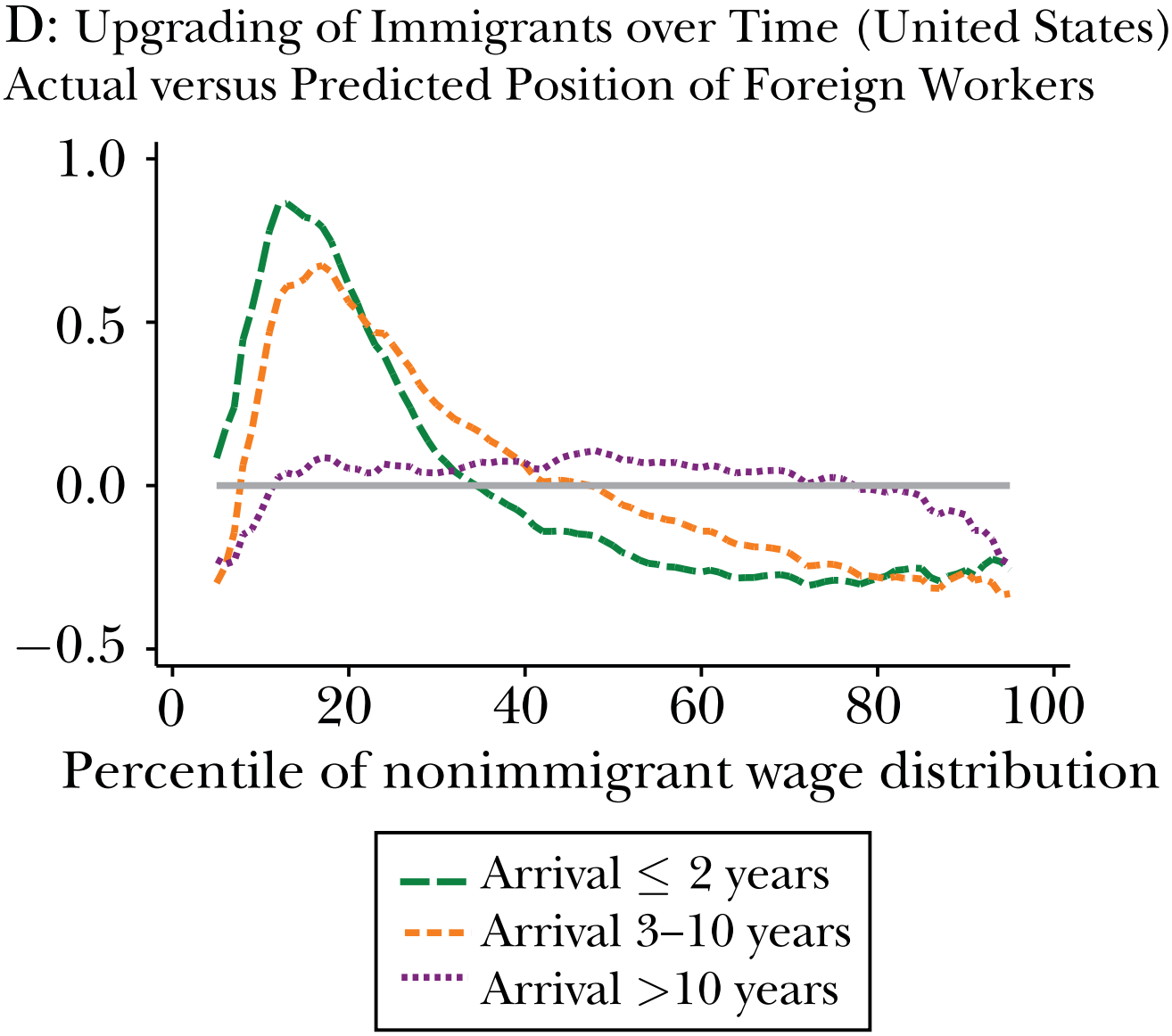


Source: IABS 2% sample, year 2000.

Downgrading: Example from U.S.



Downgrading: Example from U.S.



Observed vs Effective Skills of Immigrant Arrivals

A: United States (Census, year 2000)

Observed

Potential Experience

Education	1–20 yrs	21–40 yrs	Total
Low	44.1%	13.4%	57.6%
High	36.3%	6.2%	42.5%
Total	80.4%	19.6%	

Effective

Potential Experience

Education	1–20 yrs	21–40 yrs	Total
Low	56.2%	4.0%	60.3%
High	34.1%	5.6%	39.7%
Total	90.3%	9.7%	

C: Germany (IABS, year 2000)

Observed

Potential Experience

Education	1–20 yrs	21–40 yrs	Total
Low	36.3%	6.2%	42.5%
High	51.4%	6.1%	57.5%
Total	87.7%	12.3%	

Effective

Potential Experience

Education	1–20 yrs	21–40 yrs	Total
Low	61.9%	0.0%	61.9%
High	35.8%	2.3%	38.1%
Total	97.7%	2.3%	

Mechanisms and conclusions

These notes focused heavily on empirical issues when estimating *whether* immigration has a labor market impact

- Hard identification problem
- A lot can go wrong (endogeneity, misclassification and downgrading, composition bias, serial correlation, ...)

Other studies focus on mechanisms *why* the wage impact of immigration might be large or small. Examples:

- Peri and Sparber (2009): Natives specialize in different tasks than immigrants (e.g. communication-intensive tasks)
- Lewis (2011): Capital low-skilled workers are substitutes? Plants in areas with higher immigrant inflows reduce capital investment, reducing the wage impact of immigration
- Amior (2016) and Albert (2018) study wage effect of immigration under monopsony. Reservation wage of immigrants lower than of natives $\rightarrow$ important consequences.