

Labor Market Impacts of Immigration

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How does immigration affect the level and structure of wages?

1. Theoretical foundations

- importance of capital (Malthus was wrong)
- ways to classify the workforce

2. How to define labor markets

- aggregate vs. local markets

3. Evidence

- summary from forthcoming Card-Peri review

1. Theoretical foundations

A) **first order** effect of immigration is to increase population/labor force

– Malthus: population up \Rightarrow wages down
(Black Death)

– BUT: Malthus ignored capital accumulation. In modern economies capital rises with population

A basic “economic” model

$$y = f(L,K) = \theta L^{\alpha} K^{1-\alpha} \quad \text{Cobb Douglas}$$

L = “labor aggregate”

e.g., $L = a_1 L_1 + a_2 L_2$ $a_1, a_2 = \text{“efficiency units”}$

$L = h(L_1, L_2)$, $h(\)$ is HD1

$$MP_L = \partial f / \partial L = \theta \alpha [K/L]^{1-\alpha}$$

$$MP_K = \partial f / \partial K = \theta(1-\alpha) [K/L]^{-\alpha}$$

both depend on K/L

BUT: if capital cost = r is fixed (perfectly elastic)

$$\partial f / \partial K = r \Rightarrow \theta(1-\alpha) [K/L]^{-\alpha} = r \Rightarrow K = L q(r)$$

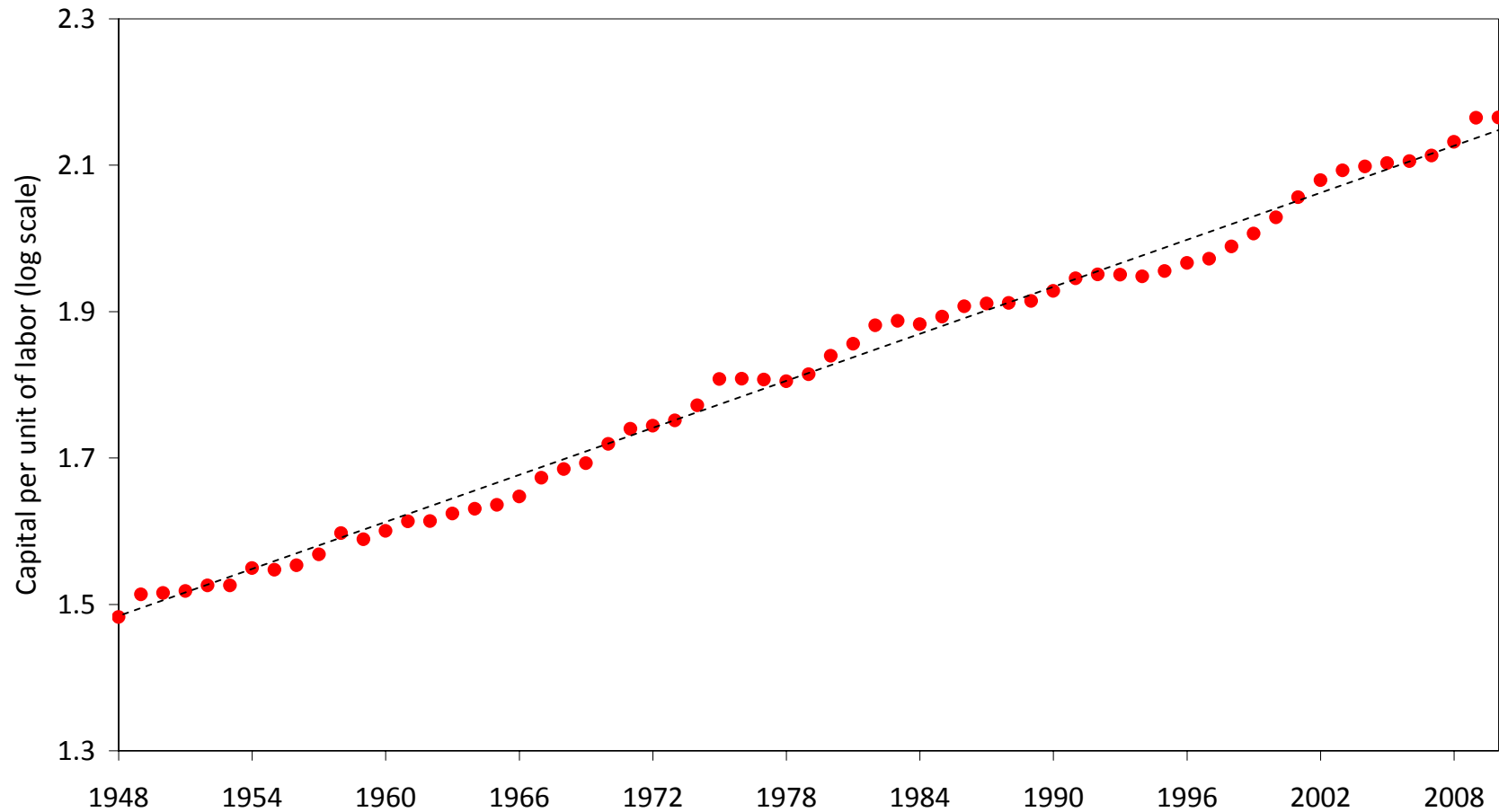
So we get $y = \theta L^\alpha K^{1-\alpha} = \theta L q(r)^{1-\alpha}$

Without capital adjustment, 10% rise in population causes average wages to fall by ~3%.

With capital adjustment, labor force size has no effect on average wages (i.e., the demand curve for overall labor is horizontal, NOT downward sloping)

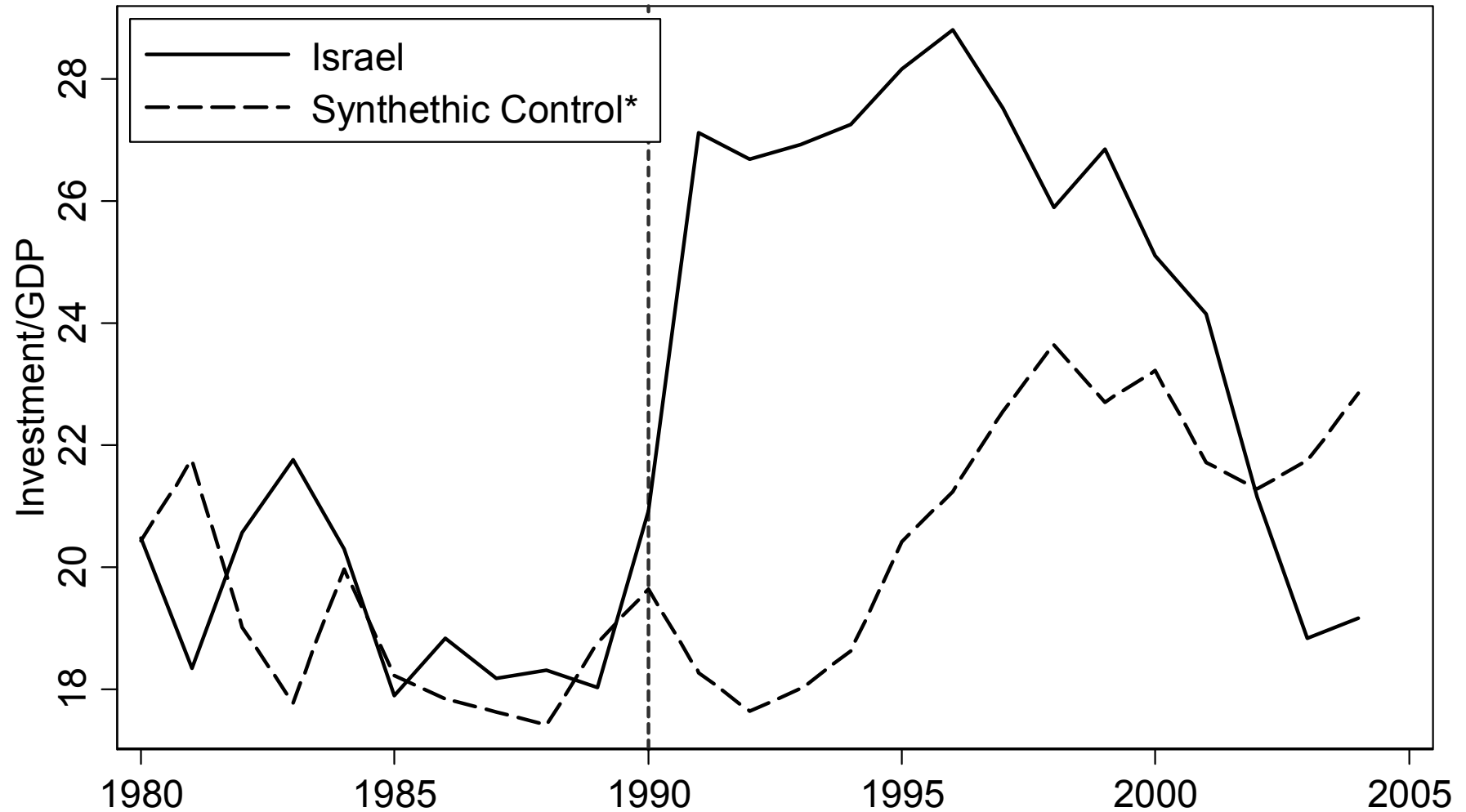
Evidence: 1) US trends 2) Isreal case study

The Long Run Trend in Capital per Unit of Labor



Source: BLS Multifactor Productivity Tables (<http://www.bls.gov/mfp>)

Investment/GDP: Israel and Synthetic Control*, before and after fall of Soviet Union



Data source: Penn World Tables and World Development Indicators.

*Combination of OECD countries matched on investment/GDP 1980-89, GDP/cap in 1989, openness, and real interest rate. Largest weights are: Ireland(39%), US(39%), Chile(21%).

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B) *Relative* supply and *relative* wages.

Second order effect of immigration is to distort the relative supplies of different groups.

- benchmark: efficiency units model

e.g., $L = a_1 L_1 + a_2 L_2$

$$MP_1 = a_1 \partial f / \partial L, \quad MP_2 = a_2 \partial f / \partial L \Rightarrow w_1 / w_2 = a_1 / a_2$$

- a_1, a_2 potentially vary over time with SBTC

- but relative wages do not depend on rel. supplies

- generalizations:

$$L = h (L_1, L_2, \dots, L_J) \quad \text{J-group CES}$$

$$\rightarrow \log (w_i/w_j) = A - \mathbf{b} \log (L_i/L_j)$$

\mathbf{b}^{-1} = elasticity of substitution.

question: how many skill groups?

In US, reasonable evidence that there are 2
fundamental groups: HS, college

Do we need even more subgroups? Key issue is
HS subgroups (more immigrant dropouts among
<=HS group)

- further generalization (Ottaviano Peri)

$$L = h (L_1, L_2, \dots L_J)$$

$$L_j = g(N_j, M_j) \text{ N=natives, M=immigrants}$$

imperfect substitution *within* skill groups.

C) Appropriate market?

- immigrant arrivals can cause other groups (natives, pre-existing immigrants) to move across cities, states

- this means we have to be careful to relate wages to relative supplies in market

e.g., under “perfect substitutes within skill group” assumption:

$$L_j = N_j + M_j \quad \partial L_j / \partial M_j = 1 + \partial N_j / \partial M_j$$

- as long as $\partial N_j / \partial M_j > -1$ immigration affects net supply of skill group.
- but need to keep track of how immigration is affecting net relative supplies of different skill groups.

What have we learned?

On the skill group question:

- HS dropouts/HS grads \approx perfect substitutes
(\Rightarrow “dropout-intensive” imm. inflows have not lowered wages of low-educ. natives by much)

- immigrants and natives with similar education/age are imperfect substitutes
(\Rightarrow previous immigrants are main “losers” from increased inflows)

On the issue of local vs. national markets:

- immigration affects relative supplies of skill groups in different cities A LOT! (Only small offsetting movement of natives).
- key parameters (***b**'s*) appear to be very similar at the local and national levels
- we can learn a lot from empirical studies at the local level

Some evidence from Card-Peri (2016) review of *Immigration Economics* by G. Borjas

- look at data from 1990 to 2010 at city (MSA), state, and national level
- examine impacts of immigrant arrivals on native migration and native wages
- KEY conceptual point: do we look at immigrant inflows or immigrant shares ?

We argue that the correct specification relates changes in native outcomes to the *proportional inflows* of immigrants in a given skill group:

$$m_{i,t} = \frac{M_{i,t} - M_{i,t-10}}{L_{i,t-10}} = \frac{\Delta M_{i,t}}{L_{i,t-10}}$$

Borjas relates native outcomes to the *immigrant shares*:

$$p_{it} = \frac{M_{it}}{L_{it}}$$

Notice that (to first order):

$$\Delta p_{it} \approx \frac{\Delta M_{i,t}}{L_{i,t-10}} - p_{i,t-10} \frac{\Delta N_{i,t}}{L_{i,t-10}}$$

i.e., that the change in immigrant *shares* reflects both the immigrant inflow and the native outflow.

Since

$$\Delta p_{it} \approx \frac{\Delta M_{i,t}}{L_{i,t-10}} - p_{i,t-10} \frac{\Delta N_{i,t}}{L_{i,t-10}}$$

there is a MECHANICAL NEGATIVE CORRELATION between the change in immigrant shares and net native outflows. This leads to 2 problems:

- 1) it overstates the “effect” of immigrant inflows on native outflows
- 2) if native flows are endogenously related to local demand shocks it induces a negative bias to measures of the “effect” of immigrant inflows on native wages

Longitudinal Spatial Correlations Between Immigration and Native Migration Flows

Specification/ Dependent Var.	Between City Flows			Between State Flows		
	Net Migration	In- Migration	Out Migration	Net Migration	In- Migration	Out Migration
1. Borjas' specification: imm share (p_{it}) (Table 6.1)	-0.66 (0.22)	-0.39 (0.20)	0.28 (0.07)	-0.32 (0.10)	-0.16 (0.08)	0.16 (0.05)
2. Chg imm shr (Δp_{it})	-0.44 (0.07)	-0.25 (0.07)	0.19 (0.03)	-0.18 (0.06)	-0.02 (0.06)	0.16 (0.04)
3. Immigrant inflow (m_{it})	-0.10 (0.04)	-0.05 (0.03)	0.05 (0.01)	-0.07 (0.04)	0.01 (0.04)	0.08 (0.02)

Longitudinal Correlations Between Immigration and Native Male Wages

Specification and Dep. Variable	Definition of Regional Labor Market			
	City	State	Census Division	National
1. Borjas' specification: imm share in levels (p_{it})	-0.06 (0.02)	-0.19 (0.03)	-0.24 (0.05)	-0.53 (0.10)
2. Change in imm shr (Δp_{it})	-0.03 (0.01)	-0.06 (0.02)	-0.11 (0.04)	-0.24 (0.12)
3. Immigrant inflow (m_{it})	0.04 (0.01)	0.05 (0.02)	0.02 (0.03)	-0.12 (0.13)

My conclusion:

- correlations at the city, state and national level all show small effects of immigration on native migration and native wages

- BUT, we can still look at national simulations, using various specifications of the nested CES.

Simulated Wage Impacts of U.S. Immigration 1990-2010 on Native Subgroups

	Education Subgroup:					All Natives
	Dropouts	HS Grads	Some College	BA/BS	Post Graduate	
1. Baseline Table 5.4, row 4	-3.1	0.4	0.9	-0.1	-0.9	0.0
2. Perfect Subst. Dropouts and HS Graduates ($\sigma_{HS}=0$)	-0.2	-0.2	0.9	-0.1	-0.9	0.0
3. Imperfect Subst. Imms and Natives ($\sigma_{NM}=20$)	-1.7	0.9	1.2	0.5	-0.1	0.6
4. Combine row 2 and 3 ($\sigma_{HS}=0, \sigma_{NM}=20$)	1.1	0.2	1.2	0.5	-0.1	0.5

Conclusions

1) Assuming imperfect substitutability between immigrants and natives:

- immigration has small + effect on avg wages
- and small effects on relative wages

2) evidence from local comparisons and national simulations is similar