

Part VI: Labor Mobility

David A. Díaz

UNC Chapel Hill

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Labor Mobility

- Most economic analysis of migration decisions view migration as a human capital investment
- Similar framework to school choice decision outlined earlier
 - Worker compares *NPV* of future income earned by staying in current location to *NPV* of future income earned in new location
 - Moving has some cost C
 - Includes both explicit costs (e.g., moving costs, visa costs, etc) and implicit costs (e.g., psychic costs of stress, being away from family, etc)
 - One-time cost incurred at the time of migration

Labor Mobility

- Wage in home country: w^H
- Net present value of earnings:

$$NPV^H = \sum_{t=0}^T \frac{w_t^H}{(1+r)^t} = w_0^H + \frac{w_1^H}{(1+r)} + \frac{w_2^H}{(1+r)^2} + \dots + \frac{w_T^H}{(1+r)^T}$$

- Wage in foreign country: w^F
- Net present value of earnings:

$$NPV^F = \sum_{t=0}^T \frac{w_t^F}{(1+r)^t} = w_0^F + \frac{w_1^F}{(1+r)} + \frac{w_2^F}{(1+r)^2} + \dots + \frac{w_T^F}{(1+r)^T}$$

Labor Mobility

- Net gain to migration:

$$NPV^F - NPV^H - C$$

- Worker will choose to migrate if the net gain is positive:

$$\underbrace{NPV^F - NPV^H}_{\text{Marginal Benefit of migrating}} > \underbrace{C}_{\text{Marginal cost of migrating}}$$

- 1 Better economic opportunities in the destination country increases the net gains to migration \Rightarrow more likely to migrate (**Pull factors**)
- 2 Worse economic opportunities in the host country increases the net gains to migration \Rightarrow more likely to migrate (**Push factors**)
- 3 Increased migration costs lowers net gains to migration \Rightarrow less likely to migrate

Application: Angelucci (2015)

- Migration and Financial Constraints: Evidence from Mexico
- Motivation: Cash transfer program in Mexico could potentially induce migration by relaxing financial constraints (either through a direct effect or by allowing for borrowing)
- Oportunidades is a conditional cash transfer program targeting poor Mexican households.
- 506 poor rural villages selected based on eligibility for Oportunidades.
- Randomization of transfers (at village level) for the first 18 months introduces exogenous variation needed to analyze program effects.

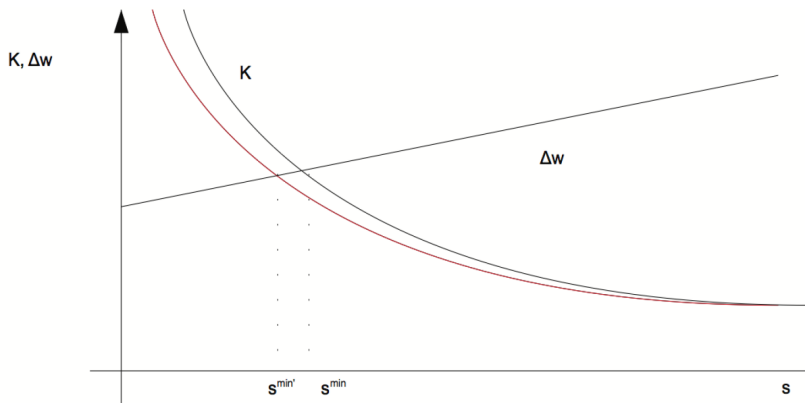
Application: Angelucci (2015)

- Individuals with varying skills s and two locations: home (h) or away (a).
- Present value of lifetime earnings: $w(s)^h$ and $w(s)^a$: Both increasing in s .
- Migration costs $K(s)$ are decreasing in s .
- Individuals migrate if the net benefits are positive:

$$\underbrace{\Delta w}_{w(s)^a - w(s)^h} > K(s)$$

- Δw increasing in s

Application: Angelucci (2015)



Application: Angelucci (2015)

- Model implication: Lowering migration costs will induce more low-skill individuals to migrate
- Results:
 - Migration rates in treatment villages are significantly larger than that in control villages (50% increase).
 - Absolute migration rates remain low. Increases from .7% to 1.1% and the average treatment effect is .36%.
 - Transfer is mostly consumed and there is little evidence that trips are financed through dissaving.
 - Data on loans is used to show that entitlement to program transfers enhances household ability to obtain loans \Rightarrow greater ability to borrow is likely the mechanism through which the program increases propensity to migrate

Migration

Example

Suppose that an individual just turned 18 years old and is choosing whether to migrate. If she migrates, she will earn a salary of \$45,000 each year until she retires at age 60. Assume she gets paid in one lump-sum at the end of each year. She will pay a one-time migration cost of \$38,000 at the time of migration. If she decides to stay, she will earn \$34,000 each year. Assume her discount rate is 5%.

- (a) What is the net present value of her earnings if she chooses to migrate?*
- (b) What is the net present value of her earnings if she chooses to stay?*
- (c) What is her optimal decision?*

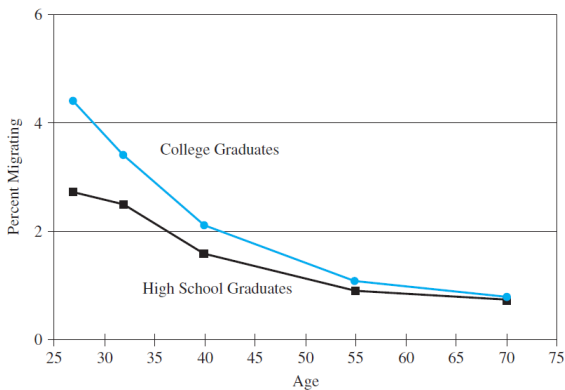
Labor Mobility in the US

- Demographic characteristics also seem to play a large role in migration decisions

FIGURE 8-1

Probability of Migrating across State Lines in 2005 to 2006, by Age and Educational Attainment

Source: U.S. Bureau of the Census, "Table 6. General Mobility of Persons 25 Years and Over, by Region, Age, and Educational Attainment," www.census.gov/population/www/socdemo/migrate/cps2006.html.



Labor Mobility in the US

- Return migration is very common. Why?
 - ① Uncertainty in the migration decision \Rightarrow lower than expected earnings, bad economic conditions, etc
 - ② Might actually maximize present value of lifetime earnings \Rightarrow accumulate HC in one area, returns in other areas may increase as well
- Question: If regional wage gaps are persistent, why isn't there more migration?
 - High migration costs very likely the inhibiting factor

Family Migration

- So far we've modeled the migration decision as an individual choice
- Individual moves as long as $NPV^F - NPV^H - C > 0$
- However, migration decisions are often not made at the individual level, but at the household level
- Similar decision rule: Only migrate if the whole family will be better off

Family Migration

- Set up:
 - ΔPV^H : Change present value of husband's earnings stream if he were to move (includes migration costs)
 - ΔPV^W : Change present value of wife's earnings stream if she were to move (includes migration costs)
- Individually, each would migrate if $\Delta PV^i > 0$
- As a family unit, migrate if and only if

$$\Delta PV^H + \Delta PV^W > 0$$

Family Migration

- Optimal decision for the family is not necessarily the same as the optimal choice for an individual (see graph)
- Tied stayer: Family member who stays because net family gains are negative, even though individual gains would be positive
- Tied mover: Family member who moves because net family gains are positive, even though individual gains would be negative

Readings

- Borjas 8.1-8.3

Economic Assimilation

- Question: How do migrants perform in the U.S. labor market?
- Typical equation estimated (in cross-section):

$$w_i = \beta \mathbf{X}_i + \delta LOS_i + \varepsilon_i$$

- w_i : Wages earned by individual i
- LOS : Length of stay (Age at survey minus age at migration)
- X : Observed characteristics (age, experience, schooling, etc.)
- δ : Captures how earnings grow with the assimilation process

Economic Assimilation

- Chiswick (1978): *The Effect of Americanization on the Earnings of Foreign-born Men*
- Early study that used U.S. Census (cross-section) to trace the age-earnings profiles of immigrants and compared it to that of natives
 - Cross-section: One-time snapshot of current status
 - Allows for comparison of current earnings of new migrants to current earnings of previous migrants to current earnings of native workers

Economic Assimilation

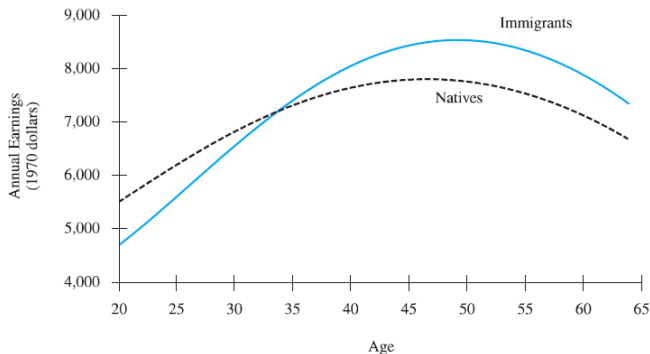
- Why might the wages of natives and foreign workers be different?
 - Recent arrivals have less knowledge about customs, language, job opportunities, and less country/firm-specific training
 - As time passes, migrants attain more knowledge, skills, and other human capital that allows their wages to grow
 - Over time, economic assimilation occurs \Rightarrow migrant earnings begin to converge to the earnings of natives
 - Only happens if age-earnings profile for migrants is steeper than that of natives
- Both the initial earnings deficiency and steepness of earnings profile depend on similarity of the home and foreign country

Economic Assimilation

FIGURE 8-4

The Age-Earnings Profiles of Immigrant and Native Men in the Cross Section

Source: Barry R. Chiswick, "The Effect of Americanization on the Earnings of Foreign-Born Men," *Journal of Political Economy* 86 (October 1978): Table 2, Column 3.



Economic Assimilation

- Observe both an earnings deficiency for recent migrants and a steeper age-earnings profile
- Why do we see that migrant earnings overtake that of natives?
 - Possibly a “positive selection” story: Individuals that choose to migrate are more skilled, motivated, etc. compared to those that choose to not migrate
 - More on self-selection later

Economic Assimilation

- Many other cross-section studies also found a significant and positive effect of length of stay on wages ($\delta > 0$)
- Issue with cross-sectional studies: We are comparing the earnings of individuals who migrated years ago to those who migrated more recently
 - Assumption that economic experience of newer migrants will be identical to that of previous cohorts is likely not reasonable
 - Migrant cohorts may differ in their observable and unobservable characteristics
- As a result, estimates of δ are likely biased
 - Upward bias: Average “quality” of cohorts decreased over time
 - Downward bias: Average “quality” increased over time

Economic Assimilation

- To illustrative, consider the following example:
 - 1960 cohort: Highly productive, age-earnings profile above that of natives
 - 1980 cohort: Equally productive, age-earnings profile equivalent to that of natives
 - 2000 cohort: Lowly productive, age-earnings profile below that of natives
 - For simplicity, assume there is no wage convergence (age-earnings profiles are parallel) and all migrants arrived at age 20
- What happens if we use 2000 Census data to compare earnings of migrants and natives?

Economic Assimilation

- Borjas (1985): *Assimilation, Changes in Cohort Quality, and the Earnings of Immigrants*
- Uses two waves of census data to study earnings growth of specific immigrant cohorts
- Empirical model:

$$w_{it} = \beta \mathbf{X}_{it} + \delta LOS_{it} + \phi_t + C_i + \varepsilon_{it}$$

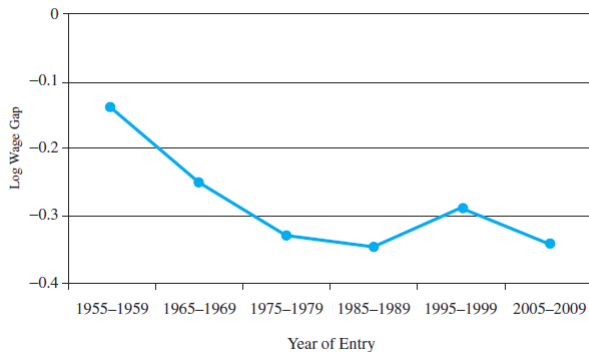
- ϕ : Time-trend capturing economic fluctuations
- C : Captures cohort-specific unobserved heterogeneity

Economic Assimilation

- Finding: Within-cohort wage growth is significantly smaller than what was predicted by cross-sectional studies
- Likely driver: Declining quality of migrant cohorts admitted to the U.S.
- Can also be caused by selective return migration

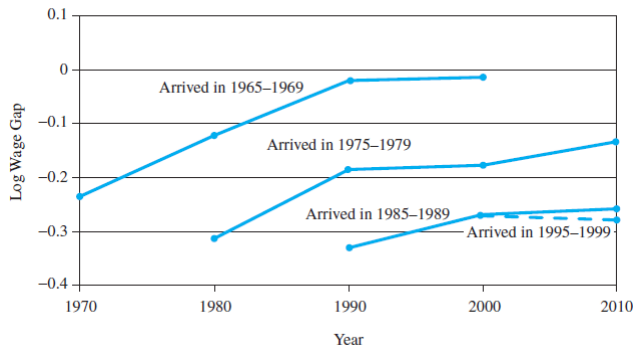
Economic Assimilation

Source: *Immigration Economics*, Cambridge, MA: Harvard University Press, 2014, p. 46.



Economic Assimilation

Source: George J. Borjas, *Immigration Economics*, Cambridge, MA: Harvard University Press, 2014, p. 46.



Readings

- Borjas 8.4-8.5

Self-Selection

- Much variation in migrant labor market performance depending on country of origin
- Likely driven by degree of skill transferability between home and host country

TABLE 8-2
Wages of
Immigrant
Men in 1990,
by Country
of Birth

Source: George J.
Borjas, "The
Economics of
Immigration,"
*Journal of Economic
Literature* 32
(December 1994):
1686.

Country of Birth	Percent Wage Differential between Immigrants and Natives
Europe	
Germany	24.5
Portugal	-3.1
United Kingdom	37.2
Asia	
India	17.6
Korea	-12.0
Vietnam	-18.9
Americas	
Canada	24.0
Dominican Republic	-29.2
Mexico	-39.5
Africa	
Egypt	12.2
Ethiopia	-21.0
Nigeria	-18.9

Self-Selection

- Migrants are not a randomly selected subset of the home country's population
- Question: Which subset of workers in a given source country finds it worthwhile to migrate to the United States?
 - What factors drive this “self-selection” into migration?

Self-Selection

Table 2: Comparison of Adult Migrants and Non-Migrants^a

	Non-Migrants (<i>N</i> = 22,864)	Migrants (<i>N</i> = 762)	Mean-Comparison t-test p-values ^b
Age	38.20 (17.51)	28.56 (13.26)	.0000
Male	.46 (.50)	.62 (.49)	.0000
Household Size	4.54 (2.03)	5.10 (2.21)	.0000
Number of Children	1.51 (1.47)	1.94 (1.71)	.0000
Married ^c	.53 (.50)	.43 (.49)	.0000
Education ^c	2.71 (1.16)	2.78 (.97)	.1023
Household Log Income ^d	10.46 (1.21)	10.26 (1.14)	.0000
Rural	.39 (.50)	.57 (.49)	.0000
Water (%)	86.57 (22.92)	83.98 (28.74)	.0142

^a Adult migrants are classified as those aged greater than 14 at the time of the first survey.

^b The p-values are from a t-test comparison of means between migrant and non-migrant individuals.

^c Calculated for individuals older than 16.

^d Only includes households with available income data.

Figure: MXFLS Migration Stats

Self-Selection

- Widely used model of self-selection: The Roy model (Roy 1951)
- Model widely applicable to wide set of situations where self-selection is present (e.g., migration, college choice, etc)
- Applied to migration context in seminal paper by Borjas (1987)
- Goal: Determine what factors drive positive or negative selection in terms of immigrant flows
- Positive selection: Immigrants have above-average skills relative to home country population
- Negative selection: Immigrants have below-average skills relative to home country population

Self-Selection

- Assumptions:
 - Earnings in home and host country only depend on skill level s
 - Skills are perfectly transferable across countries
- As always, each worker makes migration decision by comparing earnings in the home and host country (net of migration costs)
- For now, assume migration costs are zero

Self-Selection

- Case 1: Rate of return to skills is greater in the host country
- Translation: Payoff to an additional unit of “skill” (i.e., human capital) is higher in the host country vs the home country
- Result: Wage-skills line is steeper for the host country
- Implications for selection?

Self-Selection

- Case 2: Rate of return to skills is greater in the home country
- Translation: Payoff to an additional unit of “skill” (i.e., human capital) is higher in the home country vs the host country
- Result: Wage-skills line is steeper for the home country
- Implications for selection?

Self-Selection

- Key implication: The relative payoff for skills across countries is what drives the composition of the immigrant workforce
- Evidence tends to back this: Negative correlation between home country's level of income inequality and earnings of migrants in the US

Self-Selection

- What happens if we change “base level” of income in either the home or host country?
- Result: Selection process remains the same!
- However, magnitude of migrant flows will change

Self-Selection

- What about including migration costs?
- For simplicity, assume migration costs are constant regardless of skill level (reasonable?)
- Migration costs essentially act to shift down the wage-skills line in the host country
- Acts just like a decrease in the income level in the host country (no change in selection process, but will change magnitude of migrant flow)

Self-Selection

- Thus, parallel shifts of wage-skill lines (of either country) do not change direction of selection
- Only changes in returns to skills (in either country) will (potentially) change the direction of the selection process

Readings

- Borjas 8.6

Case 1: Perfect Substitutes

- We've already seen how immigrants can adversely impact the surplus of native workers with similar skills
- Additionally, we saw that perfect substitute immigration increased the surplus of native firms by driving wages down
- Overall, the net impact on total surplus was positive

Case 1: Perfect Substitutes

- Now, we will focus on analyzing the magnitude of gains from immigration in the host country
- What factors impact this gain?
- Do these effects last in the long run?

Case 1: Perfect Substitutes

- Consider the case of perfect substitutes if labor is supplied inelastically
- Effect of M immigrants on employment and wages?
 - $E^* \uparrow$
 - $w^* \downarrow$
- Effect on surplus?
 - \downarrow Native WS
 - \uparrow Native FS
 - \uparrow Total surplus
- Increase in national income accruing to natives if called the **immigration surplus**

Case 1: Perfect Substitutes

- Immigration surplus arises because the wage rate equals the productivity of the *last* immigrant hired
- Essentially, immigrants contribute at least as much as they are paid
- What factors impact the size of the surplus?
 - Number of immigrants
 - Elasticity of labor demand curve

Case 1: Perfect Substitutes

- How much does immigration add to national income?

$$\frac{\text{Immigration Surplus}}{\text{National Income}} = \frac{1}{2} \times \% \Delta w \times \% \Delta E \times (\text{labor's share of income})$$

- Note that the estimate of immigration surplus is for the short-run
- In the long-run, return to capital and wage rate are not affected by immigration
- Thus, in long-run the immigration surplus is zero

Case 2: Complements

- What about the case of complements?
- Migration of high-skill individuals may generate human capital externalities or spillovers

Case 2: Complements

- In the case of complements, the VMP_E of native workers increases \rightarrow labor demand shifts right
- Assume spillover effect is greater than labor supply effect \rightarrow labor demand increases more than labor supply
- Effect on employment and wages?
 - $\uparrow E^*$
 - $\uparrow w^*$
- Effect on surplus?
 - \uparrow Native WS
 - \uparrow Native FS

Readings

- Borjas 8.7-8.8