Self-Selection and the Earnings of Immigrants

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Literature Review

Most convincing finding: Immigrants do not make up a random sample of the population from the countries of origin;

1. Cross-section earnings functions are estimated with two conclusions:
   - the age-earnings profile of immigrants is steeper than the that of the native population with the same measured skills;
   - it crosses that of natives about *10-15* years after immigration.
2. Single cross-section study $\Rightarrow$ studies of cohort or longitudinal data.
   - The earnings and years since migration are positively correlated can be explained *aging effect* (i.e., assimilation) or *cohort differences in quality*.
   - Single cross-section data cannot separately indentify aging and cohort effects.

Motivation

Question: *how cohort quality and immigrant self-selection are related?*

- Immigrants selected from the upper or lower tail?
- Does that ensure that they end up in the upper tail of the U.S. income distribution?
- What factors are responsible for cohort quality decline?

Methods and Findings:

- Assumption: income maximizing behavior of the potential migrants.
- Upper tail of income conditions are not generally satisfied.
- Key variables can predict the types of migrants.
- Data: 41 countries using 1970 and 1980 censuses.
- A few key economic and political conditions can explain the quality of immigrants.

Basic Setup

- Two countries 0 and 1, denoting the source and host country (U.S.).
- Earnings decomposition: observable (μ_i) + unobserved (ε_i).
- Residents of the home country have earnings

$$\ln w_0 = \mu_0 + \varepsilon_0, \quad \varepsilon_0 \sim N(0, \sigma_0^2) \tag{1}$$

- If they were to migrate to U.S., their earnings will be

$$\ln w_1 = \mu_1 + \varepsilon_1, \quad \varepsilon_1 \sim N(0, \sigma_1^2) \tag{2}$$

- Correlation btw the source and host country is

$$\rho = \frac{\sigma_{01}}{\sigma_0 \sigma_1}, \quad \text{where } \sigma_{01} = \text{cov}(\varepsilon_0, \varepsilon_1).$$

- Cost of migration is C, the "time equivalent" terms $\pi = C/w_0$, assume it's constant.

Migration Decision

- Index function:

$$I = \ln\left(w_1/(w_0 + C)\right) \approx (\mu_1 - \mu_0 - \pi) + (\varepsilon_1 - \varepsilon_0) \tag{3}$$

- **Self-Selection Decision Rule:**

$$(\mu_1 - \mu_0 - \pi) + (\varepsilon_1 - \varepsilon_0) > 0$$

- Emigration rate is given by

$$P = \Pr\left[v > -(\mu_1 - \mu_0 - \pi)\right] = 1 - \Phi(z) \tag{4}$$

where $v = \varepsilon_1 - \varepsilon_0; z = (\mu_0 - \mu_1 + \pi)/\sigma_v$

- the higher is z, the lower is the prob of migration.

$$\frac{\partial P}{\partial \mu_0} < 0, \quad \frac{\partial P}{\partial \mu_1} > 0, \quad \frac{\partial P}{\partial \pi} < 0.$$

Average Earnings

- Average earnings of emigrants in country 0 v.s. in U.S. are given by

$$E[\ln w_0 \mid \text{Immigrate}] = \mu_0 + \frac{\sigma_0\sigma_1}{\sigma_v}\left(\rho - \frac{\sigma_0}{\sigma_1}\right)\lambda \tag{5}$$

$$E[\ln w_1 \mid \text{Immigrate}] = \mu_1 + \frac{\sigma_0\sigma_1}{\sigma_v}\left(\frac{\sigma_1}{\sigma_0} - \rho\right)\lambda \tag{6}$$

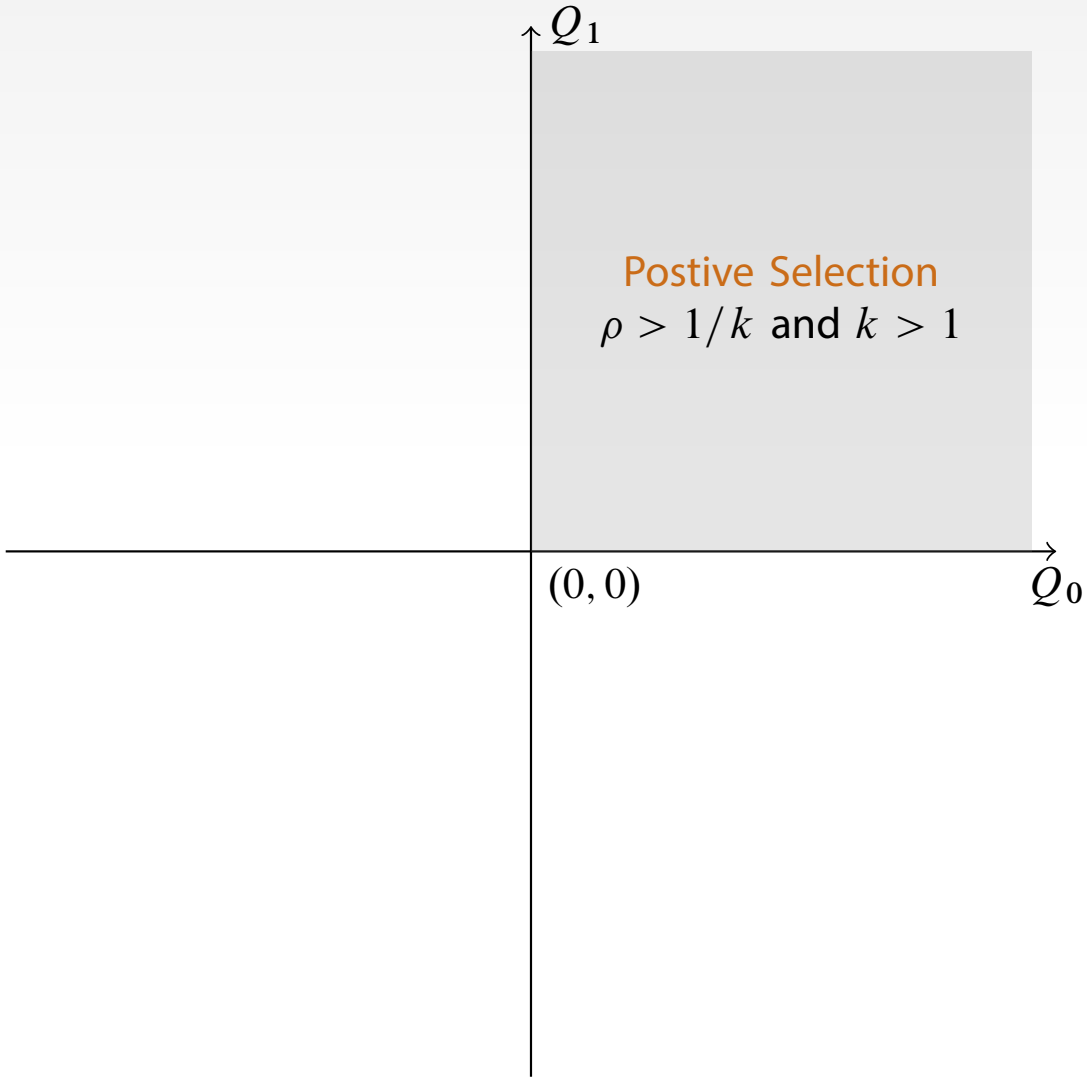
  where $\lambda = \phi(z)/(1-\Phi(z))$, denote $k = \sigma_1/\sigma_0$.

- Let Q_0 be income differential btw average emigrant and average person in country 0, Q_1 income differential btw that and the average native person in U.S..
- by (5) and (6),

$$Q_0 = \frac{\sigma_0\sigma_1}{\sigma_v}\left(\rho - \frac{\sigma_0}{\sigma_1}\right)\lambda = \frac{\sigma_0\sigma_1}{\sigma_v}\left(\rho - \frac{1}{k}\right)\lambda$$

$$Q_1 = \frac{\sigma_0\sigma_1}{\sigma_v}\left(\frac{\sigma_1}{\sigma_0} - \rho\right)\lambda = \frac{\sigma_0\sigma_1}{\sigma_v}\left(k - \rho\right)\lambda$$

Selction Conditions



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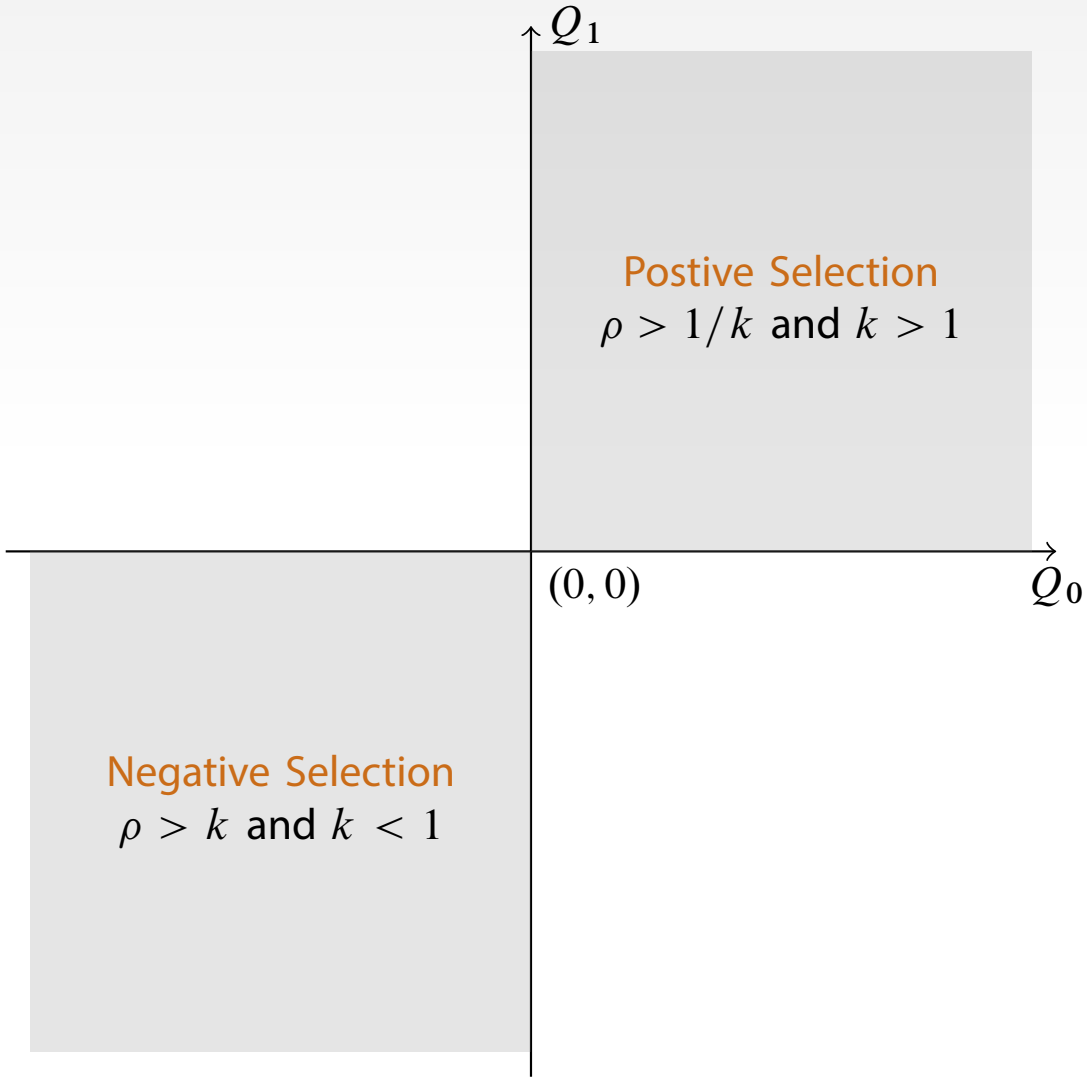

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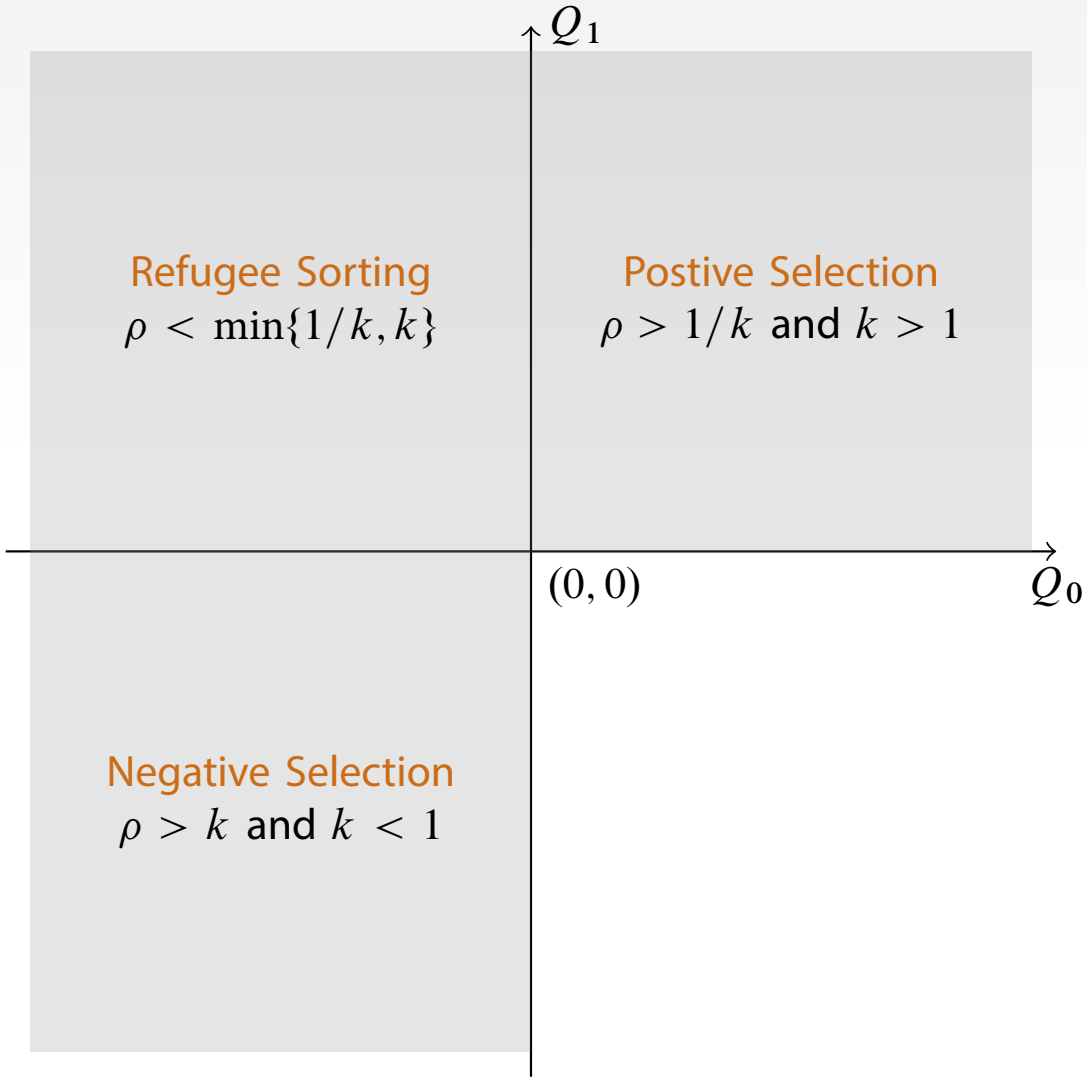

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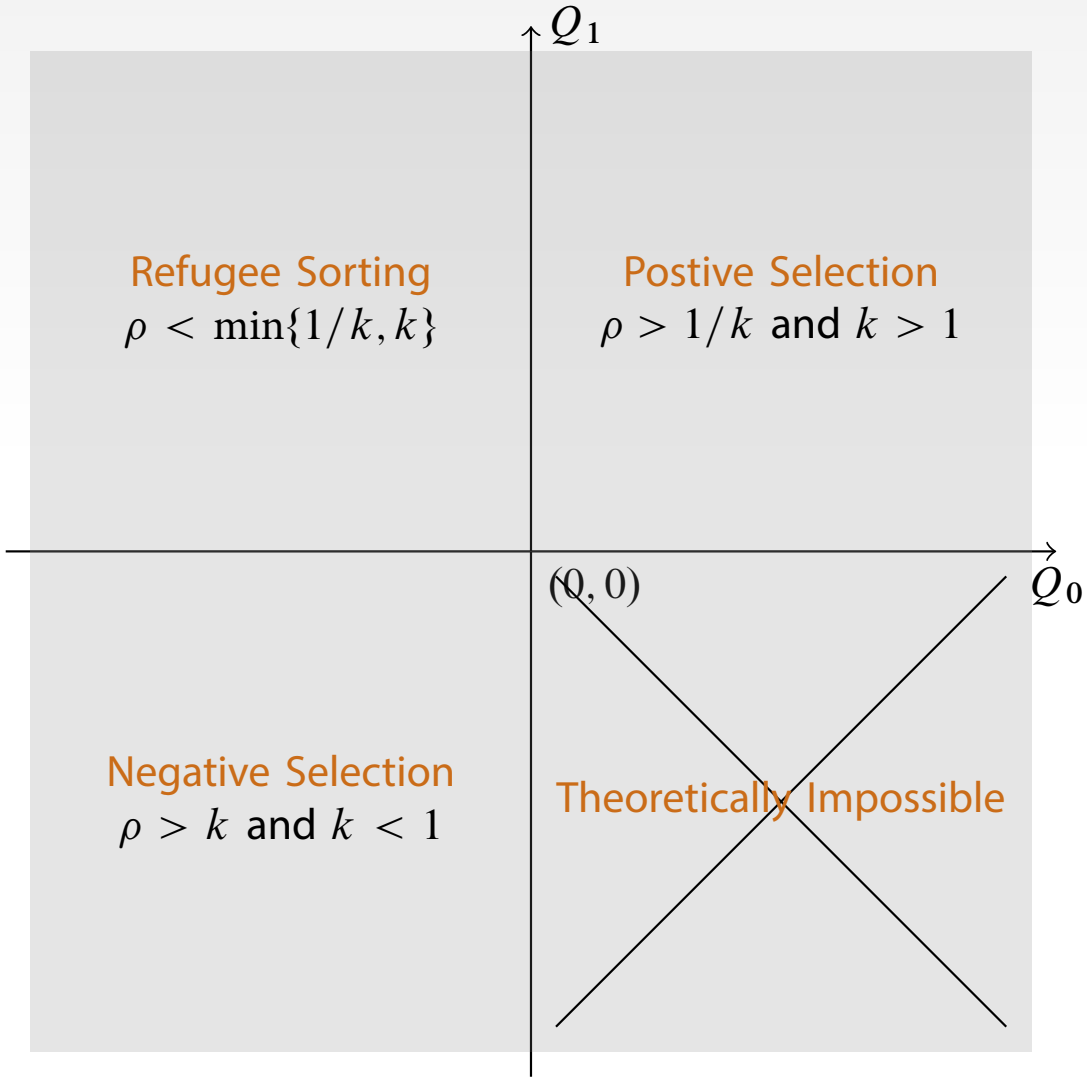

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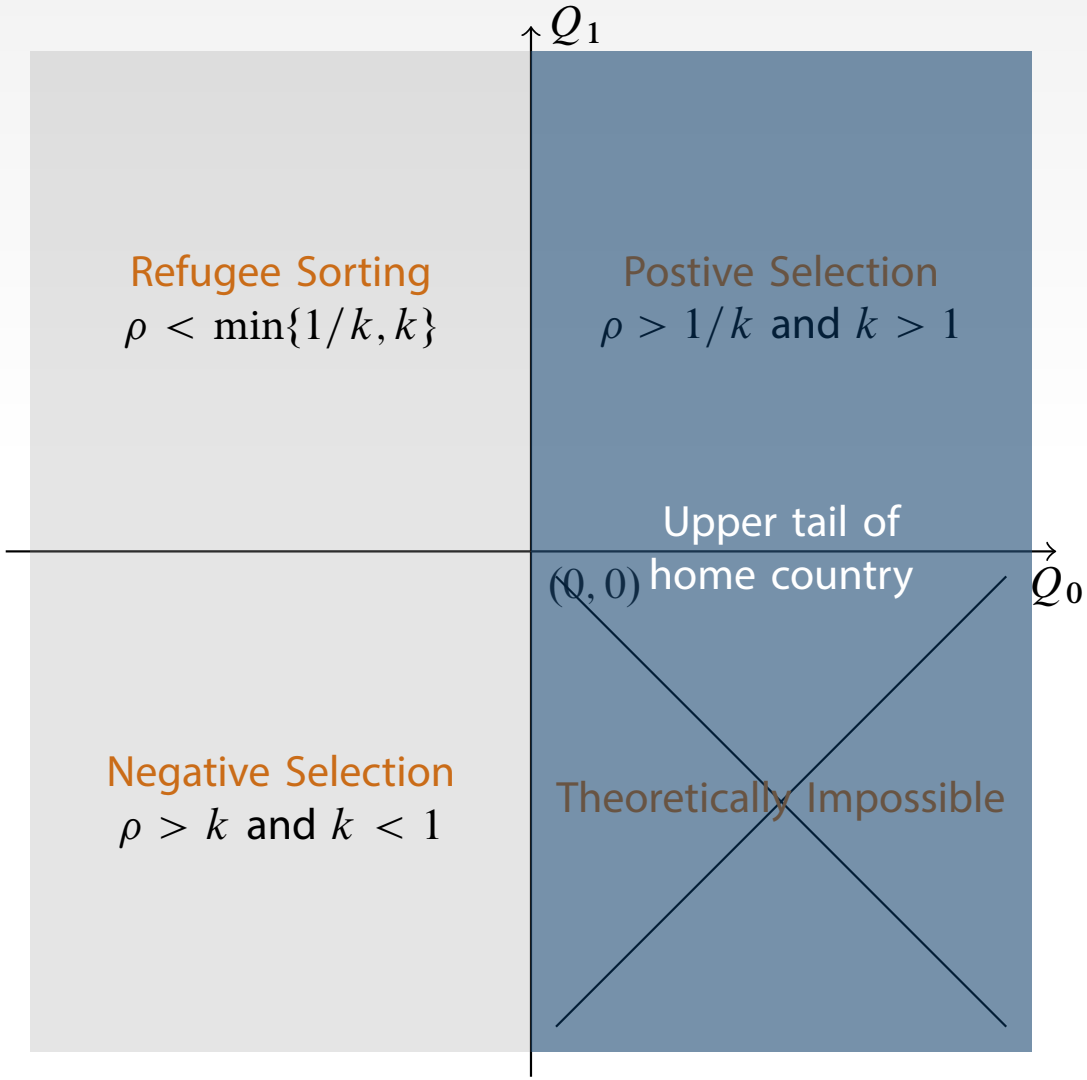

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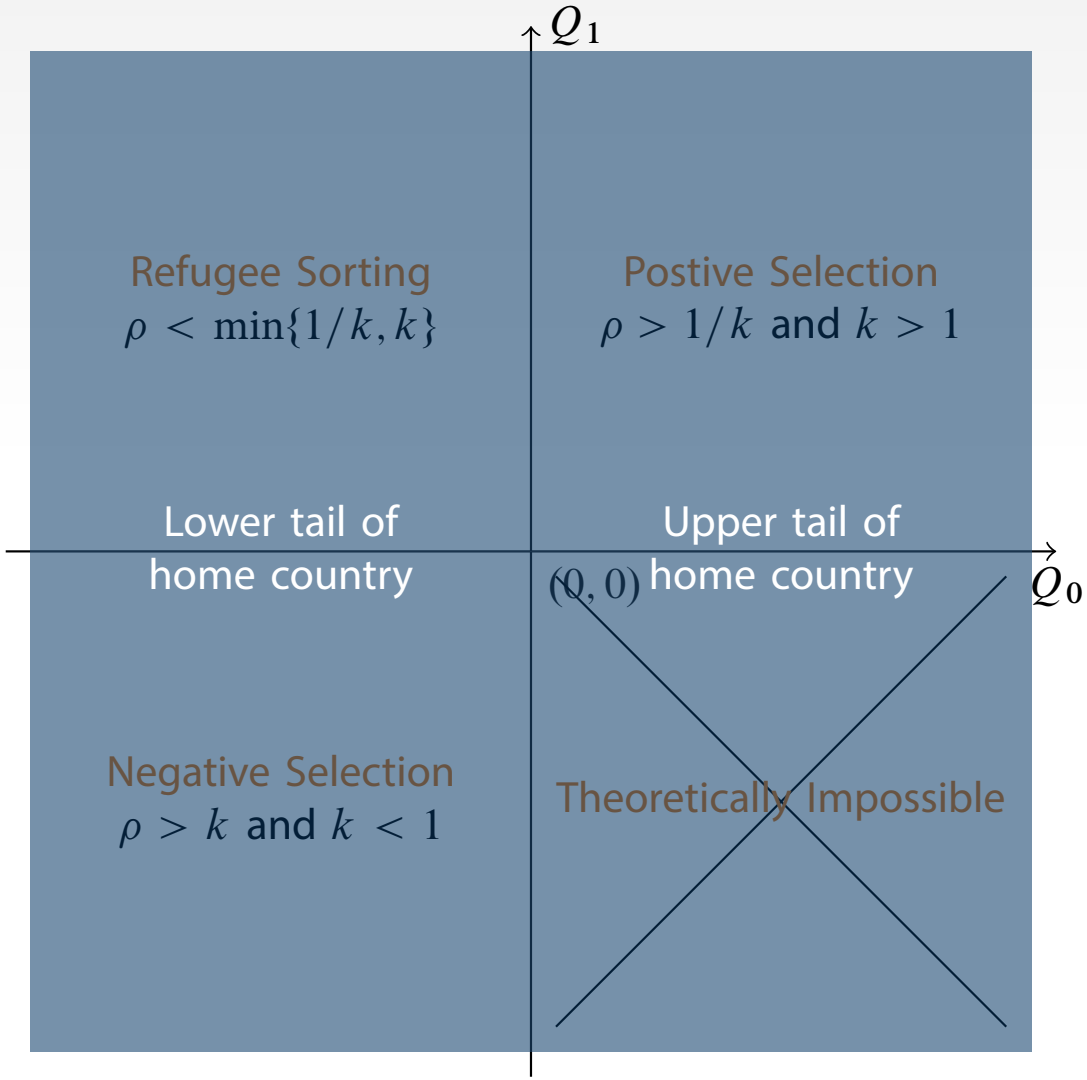

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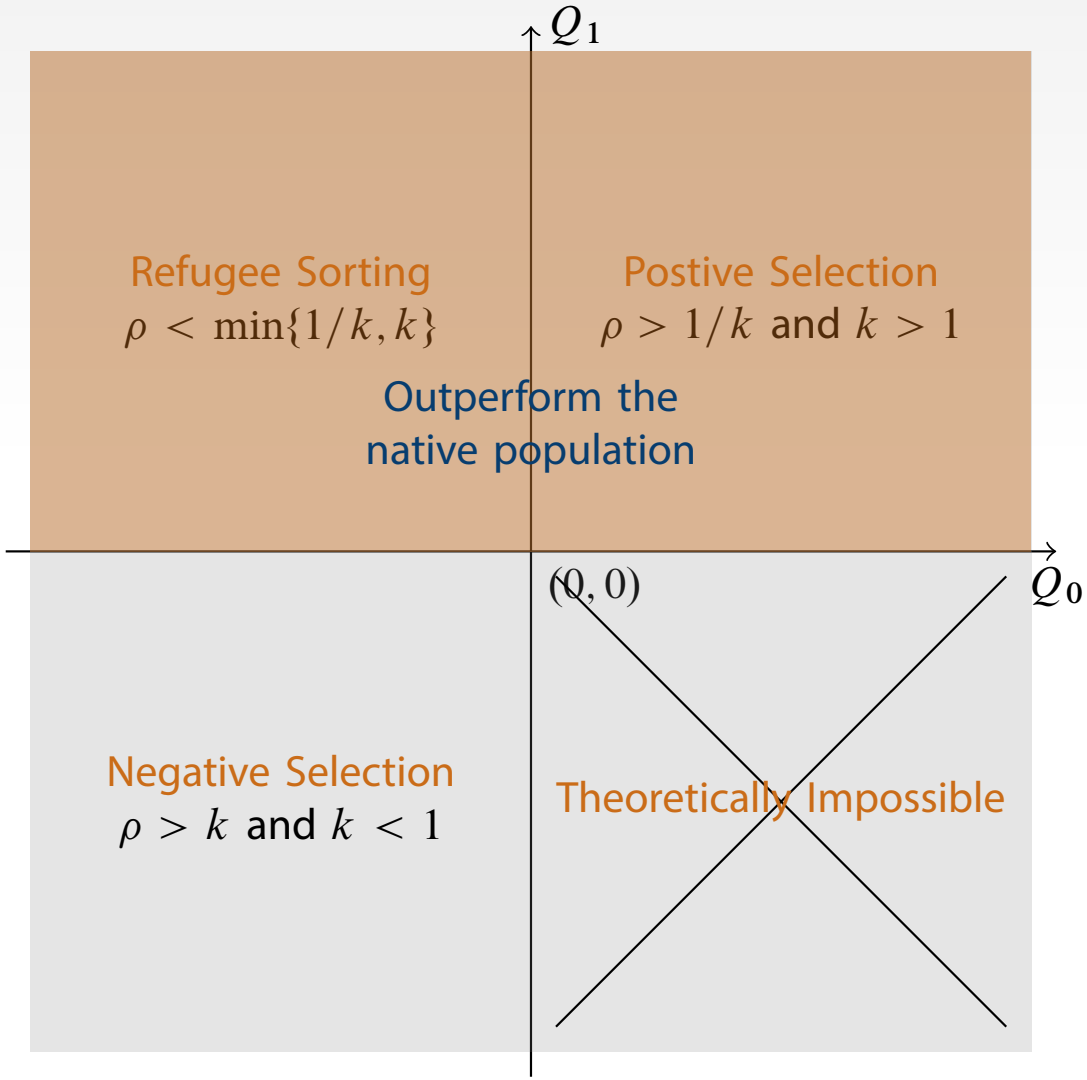

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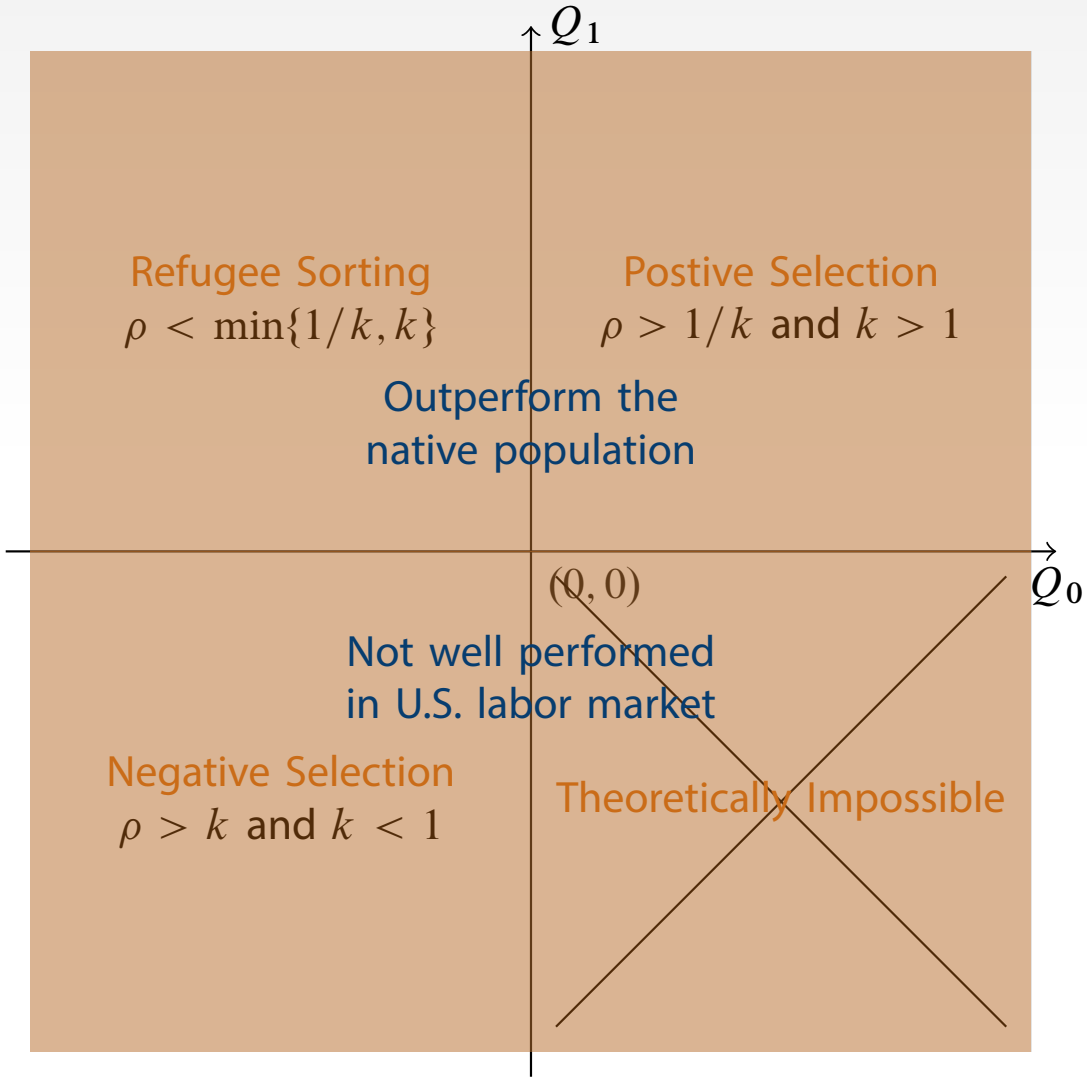


Quality of Immigrants

Reduced-form quality of immigrants equation given by

$$Q_1 = Q_1(\mu_1 - \mu_0 - \pi, \sigma_0, \sigma_1, \rho). \tag{7}$$

$Q_1 = \gamma\lambda$, where $\gamma = (\sigma_0\sigma_1/\sigma_v)/(k-\rho)$, $\lambda = \phi(z)/(1-\Phi(z))$.

- γ not depend on the size of flow;
- λ does.

Effect Decomposition:

$$\frac{\partial Q_1}{\partial \alpha} = \lambda \frac{\partial \gamma}{\partial \alpha} + \gamma \frac{\partial \lambda}{\partial \alpha}. \tag{8}$$

- The first term is called composition effect;
- The second term is scale effect.

α: Home Country's Income

What happens to immigrant quality as the mean of the home country's income distribution increases?

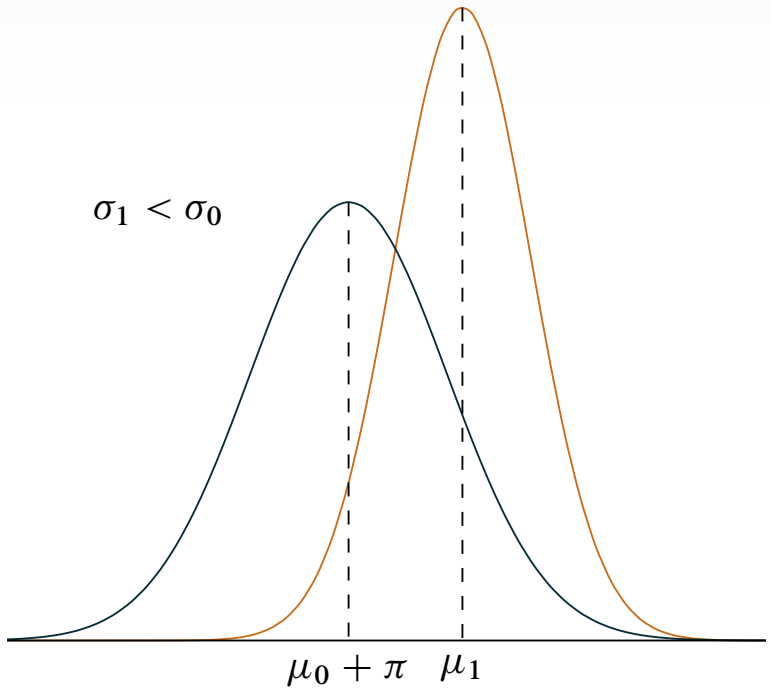
$$\frac{\partial Q_1}{\partial \mu_0} = \frac{\sigma_1 \sigma_0}{\sigma_v^2}(k-\rho)\frac{\partial \lambda}{\partial z}. \tag{9}$$

- Shifts in μ_0 lead only to a scale effect on Q_1;
- If $k-\rho<0$, then it's negative selection ($Q_1<0, k<1, \rho>k$);
- $\partial Q_1/\partial \mu_0<0$, reason: μ_0 increases, the emigration rate falls, since negative selection $\Rightarrow$ reduction of average quality.

α: Home Country's Income Inequality

Effect of a mean-preserving increase in the income inequality of the home country is given by:

$$\frac{\partial Q_1}{\partial \sigma_0} = \frac{\sigma_1^2 \sigma_0}{\sigma_v^3}(\rho^2 - 1)\lambda - \frac{\sigma_1 \sigma_0^2}{\sigma_v^3}(k - \rho)(1 - \rho k)\frac{\partial \lambda}{\partial z} z. \tag{10}$$



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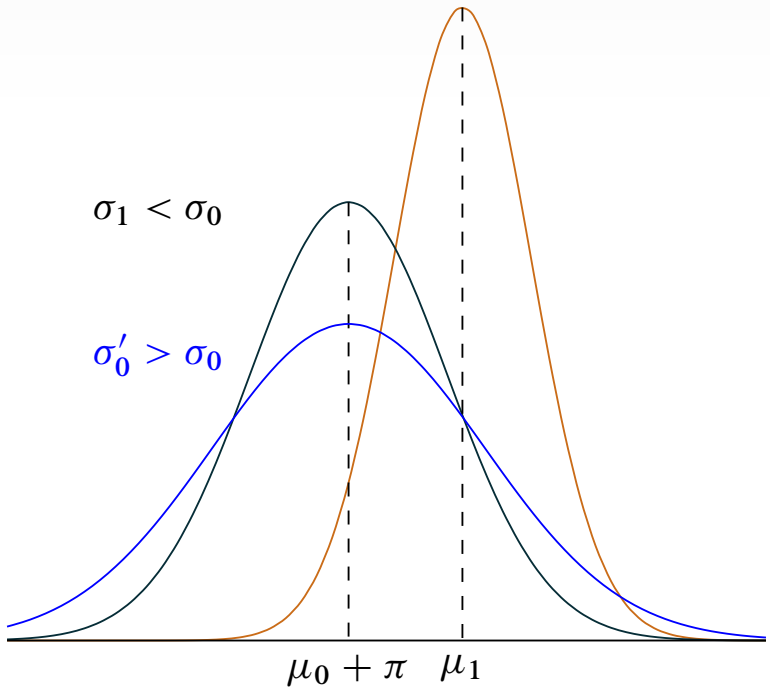

α: Home Country's Income Inequality II

- First term is composition effect, always be nonpositive ($|\rho| < 1$).
- σ_0 increases, reduce the income of poorest, and improve the richest.
- Change in σ_0 changes the rate of emigration.
- Scale effect depends on $(k - \rho)$, $(1 - \rho k)$ and z.
- Under negative selection, $k - \rho < 0$ and $1 - \rho k > 0$.
- If $\mu_1 > \mu_0 + \pi$, then $z < 0$, scale effect is negative.

Conclusion: Immigrants from countries with more income inequality will perform worse in the United States.

α: Correlation Coefficient

Changes in the correlation coefficient also induce two effects.

$$\frac{\partial Q_1}{\partial \rho} = -\frac{\sigma_1 \sigma_0^3}{\sigma_v^3}(1-\rho k)\lambda + \frac{\sigma_1^2 \sigma_0^2}{\sigma_v^2}(k-\rho)\frac{\partial \lambda}{\partial z} z. \tag{11}$$

- Its sign depends on $-(1-\rho k)$, negative when negative selection.
- An increase in ρ implies that a better match exists between performance in the United States and in the home country.
- $\sigma_0 > \sigma_1$ decreases the profitability of migration for the best persons in country 0 and increases it for the worst persons.
- Under negative selection, $k - \rho < 0$, $\Rightarrow$ the scale effect depends on the sign of $-z$.
- $z < 0$, then scale effect is positive.

Summary of Comparative Statics

TABLE 1—SUMMARY OF COMPARATIVE STATICS RESULTS

		Positive Selection $Q_0 > 0, Q_1 > 0$	Negative Selection $Q_0 < 0, Q_1 < 0$	Refugee Sorting $Q_0 < 0, Q_1 > 0$
$\partial Q_1/\partial \mu_0$:	Composition Effect	none	none	none
	Scale Effect	+	−	+
$\partial Q_1/\partial \sigma_0$:	Composition Effect	−	−	−
	Scale Effect, $z < 0$	−	−	+
	$z > 0$	+	+	−
$\partial Q_1/\partial \rho$:	Composition Effect	+	−	−
	Scale Effect, $z < 0$	−	+	−
	$z > 0$	+	−	+

1. Generalizations about the quality of immigrants in the United States are hard to come by.
2. The model isolate the key factors that determine the types of selections in the immigrant population.
3. These factors shed light on the finding that the quality of immigrants declined in the postwar period.

Specification of Regression Model

Wage differential is affected by two factors

1. differences in the skill composition of the various immigrant cohorts;
2. the rate of convergence between foreign- and native-born earnings (i.e., the rate of assimilation of immigrants).

An empirical framework regression model specification:

$$\ln w_i(T) = X_i\theta_T + \delta I_i + \alpha_1 I_i y_i + \alpha_2 I_i y_i^2 + \beta_1 I_i C_i + \beta_2 I_i C_i^2 + v_i . \quad (12)$$

α_i captures the impact of assismilation, while β_i captures the cohort differentials. Since $T \equiv C_i + y_i$, substituting this identity in (12) yields

$$\ln w_i(T) = X_i\theta_T + (\delta + \beta_1 T + \beta_2 T^2) I_i + (\alpha_1 - \beta_2 - 2\beta_2 T) I_i y_i + (\alpha_2 + \beta_2) I_i y_i^2 + v_i . \quad (13)$$

Parameters of Interest

Let $\gamma_1 = \delta + \beta_1 T + \beta_2 T^2$, $\gamma_2 = \alpha_1 - \beta_1 - 2\beta_2 T$, and $\gamma_3 = \alpha_2 + \beta_2$. This vector will shift over time since

$$\partial \gamma_1 / \partial T = \beta_1 + 2\beta_2 T \tag{14}$$
$$\partial \gamma_2 / \partial T = -2\beta_2 \tag{15}$$
$$\partial \gamma_3 / \partial T = 0 \tag{16}$$

1. The earnings function is inherently unstable(structural changes).
2. Use the 1970 and 1980 census to identify the parameters of interest $(\delta, \alpha_1, \alpha_2, \beta_1, \beta_2)$.
3. From these estimates, calculate measures of three alternative dimensions of cohort quality.

Dimensions of Cohort Quality

Three alternative dimensions of cohort quality that underlie the discussion.

1. The predicted wage differential in 1979 between the most recently arrived immigrant cohort and the native base.
2. The rate of wage growth (relative to natives) for an immigrant cohort that has resided in the U.S. for ten years, i.e. assimilation effect evaluated at $y = 10$, given by $\left(\partial \ln w / \partial y\right)|_{y=10} = \alpha_1 + 20\alpha_2$.
3. The predicted wage differential immediately after immigration between the 1979 cohort and the 1955 cohort, given by $24(\beta_1 + 2\beta_2 T - 24\beta_2)$, where $T = 1980$。

Data

- Data: 1970 U.S. census and 1980 census;
- Restriction: men aged 25-64;
  - Employed in the calender year prior the census;
  - Not Self-Employed or working without pay.
  - Not in the Armed Forces;
  - Not reside in group quarters.
- 41 countries were selected with $N > 80$, account for 90.4% of all immigration to the U.S. btw 1951-1980.
- The socioeconomic vector of characteristics X included: years of completed schooling, age, age squared, whether health limits work, whether married, spouse present, and whether resident of an SMSA.

Summary of Immigration Flows

TABLE 2—IMMIGRATION FLOWS TO THE UNITED STATES IN THE 1951–80 PERIOD

Country of Birth	1951–80 Immigration: Total Number (in 1000s)	1951–80 Immigration: As Percent of 1980 Population[a]	1951–60 Immigrants as Percent of 1950 Population[a]	1971–80 Immigrants as Percent of 1970 Population[a]
Europe:				
Austria	48.1	.6	.4	.1
Czechoslovakia	60.4	.4	.2	.1
Denmark	30.0	.6	.3	.1
France	90.1	.2	.1	.04
Germany	611.5	1.0	.7	.1
Greece	232.3	2.4	.6	1.1
Hungary	93.4	.9	.7	.1
Ireland	120.9	3.5	2.2	.5
Italy	524.8	.9	.4	.2
Netherlands	85.7	.6	.5	.1
Norway	45.1	1.1	.8	.1
Poland	244.9	.7	.5	.1
Portugal	204.2	2.1	.2	1.2
Romania	49.8	.2	.1	.1
Spain	71.2	.2	.04	.1
Sweden	41.9	.5	.3	.1
Switzerland	40.1	.6	.4	.1
United Kingdom	562.9	1.0	.4	.2
USSR	105.4	.04	.02	.02
Yugoslavia	147.0	.7	.4	.2
Asia and Africa:				
China (Taiwan)	331.9	1.9	.4	1.4
Egypt	46.4	.1	.02	.1
India	211.1	.03	.001	.03
Iran	59.1	.2	.01	.2
Israel	48.1	1.3	.7	.9
Japan	131.1	.1	.05	.05
Korea	314.8	.8	.02	.8
Philippines	478.9	.9	.1	1.0
Americas:				
Argentina	81.5	.3	.1	.3
Brazil	43.1	.04	.02	.01
Canada	676.4	2.8	2.0	.5
Colombia	165.5	.6	.4	.6
Cuba	611.9	6.3	1.5	3.2
Dominican Republic	251.9	4.3	.5	3.4
Ecuador	96.7	1.2	.3	.8
Guatemala	45.1	.7	.1	.5
Haiti	100.2	1.8	.1	1.3
Jamaica	221.7	10.3	.6	7.3
Mexico	1399.8	2.0	1.2	1.3
Panama	50.8	2.6	1.2	1.5
Trinidad & Tobago	88.0	8.0	.2	6.0

Source: U.S. Bureau of the Census (various issues).
[a] The population base refers to the country of origin.

Estimates of Model Parameters

TABLE 3—ESTIMATES OF MODEL PARAMETERS[a]

Country of Birth	1970 I	1970 $I \cdot y$	1980 I	1980 $I \cdot y$	1980 $I \cdot y^2$	Rate of Assimilation at $y = 10$	1955–79 Change in Cohort Quality
Europe:							
Austria	.0189	.0036	.0321	.0034	−.00003	.0040	.0287
	(.26)	(.75)	(.52)	(.82)	(−.45)	(.66)	(.20)
Czechoslovakia	−.1525	.0147	−.1441	.0127	−.00019	.0088	−.0143
	(−2.48)	(3.34)	(−2.79)	(3.23)	(−2.74)	(1.64)	(−.10)
Denmark	.0838	−.0033	.2018	−.0056	.00009	.0068	.2441
	(.82)	(−.44)	(2.14)	(−.81)	(.72)	(.78)	(1.21)
France	−.0785	.0020	.0999	−.0046	.00005	.0111	.3183
	(−1.28)	(.47)	(2.48)	(−1.33)	(.79)	(2.05)	(2.74)
Germany	.0999	−.0025	.1409	−.0047	.00007	−.0002	.0618
	(3.82)	(−1.37)	(5.40)	(−2.62)	(2.38)	(−.10)	(1.17)
Greece	−.2400	.0115	−.3092	.0141	−.00018	.0049	−.1231
	(−6.70)	(3.73)	(−11.28)	(5.42)	(−3.33)	(1.56)	(−1.75)
Hungary	−.1555	.0173	−.2082	.0145	−.00021	.0036	−.1744
	(−2.98)	(4.12)	(−4.30)	(4.23)	(−3.31)	(.86)	(−1.85)
Ireland	−.0732	.0019	−.0514	.0027	−.00002	.0050	.0666
	(−1.54)	(.53)	(−1.09)	(.78)	(−.28)	(1.26)	(.72)
Italy	.0133	.0060	−.0673	.0065	−.00009	−.0031	−.1855
	(.60)	(3.72)	(−3.45)	(4.58)	(−3.49)	(−1.55)	(−4.07)
Netherlands	.0127	−.0061	.1252	−.0074	.00015	.0062	.2487
	(.23)	(−1.45)	(2.71)	(−2.15)	(2.35)	(1.35)	(2.41)
Norway	.2245	−.0093	.2785	−.0096	.00015	−.0013	.1241
	(2.54)	(−1.55)	(3.77)	(−1.76)	(1.58)	(−.17)	(.71)
Poland	−.1936	.0181	−.2734	.0184	−.00024	.0058	−.1865
	(−5.70)	(7.62)	(−11.08)	(9.61)	(−6.86)	(1.98)	(−3.08)
Portugal	.0797	.0032	−.0913	.0073	−.00012	−.0102	−.3418
	(1.95)	(.86)	(−3.25)	(2.47)	(−1.95)	(−2.77)	(−4.02)
Romania	−.3015	.0263	−.3161	.0229	−.00030	.0136	−.0929
	(−4.23)	(4.97)	(−7.02)	(5.47)	(−3.65)	(2.17)	(−.72)
Spain	−.3547	.0233	−.1920	.0134	−.00022	.0203	.2245
	(−6.15)	(4.32)	(−4.10)	(2.88)	(−2.39)	(3.98)	(1.92)
Sweden	.0128	.0119	.0465	.0099	−.00021	.0080	.0465
	(.13)	(1.90)	(.69)	(1.88)	(−2.14)	(.88)	(.24)
Switzerland	−.0201	.0132	.1467	.0067	−.00015	.0171	.2912
	(−.27)	(2.18)	(2.48)	(1.33)	(−1.56)	(2.56)	(1.97)
United Kingdom	.0607	−.0006	.1271	−.0023	.00002	.0038	.1303
	(2.70)	(−.34)	(7.38)	(−1.61)	(.67)	(1.84)	(2.81)
USSR	−.3509	.0277	−42.99	.0262	−.00035	.0105	−.2144
	(−6.70)	(8.34)	(−18.75)	(11.70)	(−7.67)	(2.22)	(−2.31)
Yugoslavia	−.0659	.0096	−.0920	.0097	−.00009	.0054	−.0608
	(−1.51)	(2.72)	(−2.82)	(3.52)	(−1.61)	(1.49)	(−.79)

Estimates of Model Parameters II

TABLE 3—CONTINUED

Country of Birth	1970 I	1970 $I \cdot y$	1980 I	1980 $I \cdot y$	1980 $I \cdot y^2$	Rate of Assimilation at $y = 10$	1955–79 Change in Cohort Quality
Asia and Africa:							
China (Taiwan)	−.4525	.0227	−.5327	.0254	−.00037	.0114	−.1481
	(−14.34)	(9.43)	(−26.43)	(11.66)	(−8.22)	(4.01)	(−2.44)
Egypt	−.4466	.0421	−.4586	.0396	−.00056	.0260	−.0706
	(−7.00)	(5.67)	(−10.84)	(7.57)	(−4.34)	(4.76)	(−.57)
India	−.2847	.0453	−.4340	.0497	−.00096	.0179	−.2845
	(−7.09)	(9.71)	(−21.41)	(16.75)	(−11.03)	(5.33)	(−3.84)
Iran	−.4078	.0229	−.3101	.0249	−.00031	.0294	.2690
	(−4.71)	(3.03)	(−10.19)	(5.45)	(−2.47)	(4.13)	(1.88)
Israel	−.2998	.0282	−.3397	.0260	−.00041	.0128	−.1314
	(−4.19)	(4.54)	(−8.44)	(5.74)	(−3.84)	(2.11)	(−1.00)
Japan	−.1314	.0010	.1016	−.0049	.00002	.0159	.4616
	(−2.65)	(.19)	(4.31)	(−1.46)	(.18)	(3.60)	(4.78)
Korea	−.5450	.0439	−.4481	.0393	−.00071	.0323	.1544
	(−8.69)	(5.72)	(−19.44)	(9.68)	(−5.40)	(6.31)	(1.37)
Philippines	−.4360	.0265	−.3881	.0266	−.00041	.0233	.1158
	(−13.31)	(11.30)	(−23.14)	(13.33)	(−9.34)	(7.84)	(1.80)
Americas:							
Argentina	−.2099	.0210	−.2427	.0186	−.00032	.0077	−.1191
	(−3.81)	(3.58)	(−5.80)	(4.13)	(−3.11)	(1.65)	(−1.12)
Brazil	−.1430	.0114	−.0257	.0062	−.00015	.0123	.1941
	(−1.70)	(1.44)	(−.45)	(1.00)	(−1.11)	(1.66)	(1.19)
Canada	.0645	.0003	.1165	−.0013	−.00000	.0030	.0988
	(2.86)	(.17)	(6.06)	(−.91)	(−.21)	(1.50)	(2.17)
Colombia	−.2247	.0169	−.4030	.0219	−.00036	−.0007	−.3444
	(−4.33)	(2.74)	(−12.67)	(5.78)	(−3.71)	(−.17)	(−3.82)
Cuba	−.4612	.0214	−.4517	.0208	−.00025	.0164	.0129
	(−22.20)	(8.89)	(−18.26)	(9.24)	(−5.20)	(9.74)	(.28)
Dominican Republic	−.3293	.0141	−.4556	.0142	−.00018	−.0019	−.3020
	(−5.81)	(2.45)	(−13.91)	(3.62)	(−1.74)	(−.44)	(−3.01)
Ecuador	−.4041	.0242	−.4195	.0210	−.00026	.0127	−.0906
	(−6.06)	(3.28)	(−9.77)	(4.13)	(−1.98)	(2.58)	(−.82)
Guatemala	−.5127	.0408	−.4013	.0298	−.00066	.0222	.0828
	(−5.76)	(5.03)	(−8.97)	(5.09)	(−4.40)	(2.96)	(.51)
Haiti	−.3356	−.0027	−.5234	.0175	−.00011	.0064	−.1130
	(−4.99)	(−.34)	(−13.95)	(3.39)	(−.77)	(1.20)	(−.94)
Jamaica	−.3322	.0165	−.2594	.0097	−.00020	.0095	.0600
	(−6.75)	(4.06)	(−9.33)	(2.92)	(−2.77)	(2.24)	(.64)
Mexico	−.3307	.0191	−.4037	.0206	−.00031	.0078	−.1497
	(−16.57)	(14.80)	(−34.72)	(22.25)	(−15.94)	(4.16)	(−3.61)
Panama	−.3438	.0159	−.2516	.0115	−.00010	.0165	.1476
	(−3.52)	(2.31)	(−4.35)	(2.07)	(−.88)	(2.04)	(.84)
Trinidad & Tobago	−.3091	.0187	−.3257	.0211	−.00024	.0158	.0013
	(−4.02)	(2.59)	(−6.94)	(3.70)	(−1.95)	(2.35)	(.03)

[a] The t-ratios are presented in parentheses. The cross-section regressions hold constant the individual's completed schooling, age, marital status, health, and SMSA residence.

Determinants of Immigrant Quality

TABLE 4—DEFINITION OF COUNTRY-SPECIFIC VARIABLES

Variable	Definition and Source	Mean	Minimum	Maximum	U.S. Value
Politically Competitive System	=1 if the country had a competitive party system during the entire 1950–73 period; 0 otherwise. *Source*: Cross-National Time-Series Archive (CNTSA)	.41	–	–	1
Recent Loss of Freedom	=1 if the country had a competitive party system at the beginning of the period but had a non-competitive party system at the end of the period; 0 otherwise. *Source*: CNTSA.	.20	–	–	0
Number of Assassinations	Number of politically motivated murders or attempted murders of high government officials or politicians in 1950–73. *Source*: CNTSA.	3.27	0	22	12
Income Inequality	Ratio of household income of the top 10 percent of the households to the income of the bottom 20 percent of the households. *Source*: World Bank (various issues) and United Nations (1977).	7.50	1.42	30.0	5.91
Distance from U.S.	Number of air miles (in thousands) between the country's capital and the nearest U.S. gateway (Los Angeles, Miami, or New York). *Source*: Airline offices contacted by author.	3.37	.18	7.49	–
English Proficiency	Fraction of 1975–80 cohort of immigrants who speak English well or very well. *Source*: 5/100 A Sample of the 1980 U.S. Census.	.74	.24	1.00	–
Age at Migration	Mean age at migration. *Source*: 5/100 A Sample of the 1980 U.S. Census.	24.56	12.40	32.40	–
ln (per capital *GNP*)	(ln) 1980 per capita *GNP* in dollars. *Source*: U.S. Arms Control and Disarmament Agency (1984).	8.17	5.42	9.62	9.39
Rate of Change in Per Capita *GNP*	Annual rate of change in per capita *GNP* between 1963 and 1980, defined by: $\ln(GNP_{1980}/GNP_{1963})/17$. *Source*: U.S. Arms Control and Disarmament Agency (1975, 1984).	.03	.004	.07	.02
Rate of Change in Central Government Expenditures	Annual Change in the Percentage of GNP that is accounted for by central government expenditures, defined by $(GOVT_{1980} - GOVT_{1950})/30$, where $GOVT_t$ is the percent of GNP attributable to central government expenditures in year t. *Source*: CNTSA and U.S. Arms Control and Disarmament Agency (1984).	.41	−1.69	2.08	.26
Change in Quota	Change in fraction of population eligible for migration to the U.S., defined by (20000/1979 population) ÷ (*QUOTA*/1950 population), where 20,000 is the maximum number of visas allocated to the country after 1965, and *QUOTA* is the number of visas allocated prior to 1965. *Source*: U.S. Immigration and Naturalization Service (1965).	38.90	.28	149.67	–

Determinants of the Entry Wage Differential

TABLE 5—DETERMINANTS OF THE ENTRY WAGE DIFFERENTIAL BETWEEN THE 1979 IMMIGRANT COHORT AND NATIVES[a]

Country of Origin Characteristics	Regression 1	2	3	4
Intercept	−.2214	.1838	−.9934	−.9469
	(−3.88)	(1.06)	(−3.41)	(−3.30)
Politically Competitive System	.2743	.1306	.1101	.1264
	(4.49)	(2.01)	(2.16)	(2.39)
Recent Loss of Freedom	−.0010	−.0511	−.0062	.0136
	(−.01)	(−.75)	(−.12)	(.25)
Number of Assassinations	−.0072	−.0028	.0021	.0044
	(−1.20)	(−.54)	(.51)	(.92)
Income Inequality	−.0084	−.0038	.0039	.0046
	(−1.78)	(−.89)	(1.02)	(1.13)
Distance from U.S.	–	−.0114	−.0031	.0018
		(−.89)	(−.31)	(.09)
English Proficiency	–	.2596	.1980	.2030
		(2.20)	(2.12)	(2.21)
Mean Age at Migration	–	−.0217	−.0149	−.0119
		(−3.55)	(−2.99)	(2.28)
ln (per capita *GNP*)	–	–	.1164	.1015
			(4.57)	(3.77)
Country in Asia or Africa	–	–	–	−.1145
				(−1.58)
Country in North or South America	–	–	–	−.0640
				(−.73)
R^2	.504	.681	.808	.826

[a] The *t*-ratios are presented in parentheses.

Determinants of the Rate of Assimilation

TABLE 6—DETERMINANTS OF THE RATE OF ASSIMILATION[a]

Country of Origin Characteristics	Regression 1	2	3	4
Intercept	.0076	−.0240	−.0237	−.0280
	(2.96)	(−3.88)	(−1.50)	(−2.32)
Politically Competitive System	−.0029	−.0068	−.0068	−.0091
	(−1.06)	(−2.66)	(−2.60)	(−4.28)
Recent Loss of Freedom	.0063	.0029	.0030	.0021
	(1.81)	(1.21)	(1.15)	(1.06)
Number of Assassinations	.0008	.0006	.0006	.0008
	(2.68)	(2.36)	(2.14)	(3.07)
Income Inequality	−.0001	−.00002	−.00002	.0002
	(−.50)	(−.11)	(−.10)	(.90)
Distance from U.S.	–	.0003	.0003	−.0027
		(.74)	(.70)	(−2.89)
English Proficiency	–	.0138	.0138	.0122
		(3.27)	(3.20)	(3.70)
Mean Age at Migration	–	.0009	.0009	.0009
		(4.28)	(3.95)	(4.72)
ln (per capita *GNP*)	–	–	−.00002	.0021
			(−.01)	(1.83)
Country in Asia or Africa	–	–	–	.0151
				(5.11)
Country in North or South America	–	–	–	−.0080
				(−2.08)
R^2	.302	.704	.704	.842

[a] The *t*-ratios are presented in parentheses.

Determinants of the Change in Cohort Quality

TABLE 7—DETERMINANTS OF THE RATE OF CHANGE IN COHORT QUALITY

Country of Origin Characteristics	Regression 1	2	3	4
Intercept	−.3194	−.9951	−1.1779	−2.2202
	(−3.19)	(−3.97)	(−4.08)	(−4.69)
Politically Competitive System	.1760	.1075	.0712	.0630
	(2.54)	(1.60)	(.97)	(.70)
Recent Loss of Freedom	.1256	.1468	.1272	.1310
	(1.67)	(2.16)	(1.81)	(1.33)
Number of Assassinations	.0077	.0156	.0122	.0256
	(1.19)	(2.32)	(1.69)	(2.00)
Rate of Change in Central Government Expenditures	.0698	.0699	.0641	−.0099
	(1.60)	(1.75)	(1.60)	(−.21)
Rate of Change in Per Capita GNP	4.7010	3.0956	1.1567	−1.5321
	(2.27)	(1.60)	(.46)	(−.50)
ln (per capita *GNP*)	–	.0889	.1186	.2443
		(1.93)	(3.22)	(4.15)
Country in Asia or Africa	–	–	.1374	–
			(1.42)	
Country in North or South America	–	–	.0274	–
			(.41)	
Change in Quota	–	–	–	.0034
				(2.26)
R^2	.284	.418	.453	.581

[a] The *t*-ratios are presented in parentheses.

Determinants of the Emigration Rate

TABLE 8—PROBIT REGRESSION ON THE EMIGRATION RATE[a]

Country of Origin Characteristics	Regression 1	Regression 2
Intercept	−.6060	−1.1614
	(−1.30)	(−2.46)
Politically Competitive System	.1206	.0801
	(1.13)	(.81)
Recent Loss of Freedom	.1096	−.0365
	(.95)	(−.32)
Number of Assassinations	−.0245	−.0337
	(−2.65)	(−3.65)
Income Inequality	−.0113	−.0145
	(−1.51)	(−2.00)
Distance from U.S.	−.1332	−.1271
	(−6.11)	(−2.68)
English Proficiency	.1661	.0488
	(.94)	(.30)
ln (per capita *GNP*)	−.1130	−.0441
	(−2.14)	(−.83)
Country in Asia or Africa	–	.3386
		(2.19)
Country in North or South America	–	.2923
		(1.52)
χ^2	98.45	108.82

[a] The dependent variable is the probability that an individual migrated to the United States in 1951–80, and is given by the second column of Table 2. The *t*-ratios are presented in parentheses.

Summary

1. Foreign-born persons in the U.S. need not be drawn from the most able and most ambitious in the country of origin.
   - A strong positive correlation between the earnings in home country and the U.S. $(\rho > 1/k)$;
   - The U.S. has a more unequal income distribution than the home country $(k > 1)$.
2. Strong country-specific fixed effects in the quality of foreign-born persons;
   - Western European countries V.S. less developed countries.
3. A few variables describing political and economic conditions explain over $2/3$ of the intercountry variance in the mean U.S. incomes of immigrants with the same measured skills
   - high levels of GNP, low levels of income inequality, and politically competitive system $\Rightarrow$ higher income.

Remarks

1. The enduring contribution of Borjas's paper for labor economists is its simple and useful formulation of the Roy model;
2. It ignores general equilibrium effects whereby large immigrants flows would actually change the wage in the source and host countries;
3. Understanding the importance of self-selection has vastly improved empirical work (growing focus of IV to causal estimation);
4. Self-selection points to the existence of equilibrium relationships that should be observed in ecological data.