

Lecture 11. Work Mobility and Human Capital Investment

1. International migration

(1). How large is the international migration of labour?

See Table 10.1 in Ehrenberg & Smith

Hong Kong is a city known for its large flows of both emigrants and immigrants. It is estimated that immigrants have made up 2/5 of Hong Kong's population now.

(2). What factors influence the decision of migration?

Whether or not one decides to migrate depends on the net present value of migration.

- benefits: expected increase in future utility
- costs: disutility due to direct costs and indirect (psychic) costs of moving

$$\text{Present value of net benefits} = \sum_{t=1}^T \frac{B_{nt} - B_{ot}}{(1+r)^t} - C$$

where: B_{nt} = dollar value of benefits received from new job in year t

B_{ot} = dollar value of benefits received from old job in year t

T = number of years remaining in worklife at time decision is made

C = cost of move in dollars (including both direct and psychic costs)

r = annual interest rate

Note that the benefits and costs associated with a move include psychic benefits and costs as well as direct costs and benefits. Friendship with co-workers, family ties, working environment,

nonpecuniary benefits associated with the job, and the characteristics of the old and new geographical locations (for geographical moves) must be taken into account as well as pay differences and the direct costs of moving.

Individuals will be more likely to move when:

- the difference in wages or salaries is large,
- the worker is unhappy in his current job or location,
- the direct costs associated with moving are low, and
- when there is a longer time period (T) over which benefits can be realized.

(3). Do immigrants take away jobs from and reduce pay for natives?

A large inflow of unskilled immigrants may increase native unskilled workers unemployment rate and depress their wages as well. But empirical evidence showed the effect is small. On the other hand, immigrants may increase domestic employment rate due to increased aggregate demand and demand for complementary workers (some skilled workers).

See Figures 10.2, 10.3 and 10.4 in Ehrenberg and Smith.

(4). Who are the gainers and losers?

- Immigrants are usually the gainers
- Consumers, capital owners and workers who are complements in production with immigrant labour are usually gainers
- workers who are substitutes in production with immigrant labour are usually losers
- people in the home countries of immigrants can be gainers or losers

The overall effect is undetermined theoretically, and can only be found empirically. In the history of Hong Kong's development, it has been found that so far immigrants played a crucial role.

(5). What are the potential impacts of immigration on human capital investment?

- the "brain drain" problem: developing countries lost their skilled personnel to developed countries, and hence also lost their human capital investment, especially when education is heavily financed by the public.
- higher pay in developed countries encourage people from developing countries to invest more in higher education So there could be a "brain-gain" for developing countries.

https://www.economist.com/displaystory.cfm?story_id=5108231

- in the case that there is a large inflow of unskilled immigrants, people in the host countries will be encouraged to invest more in human capital especially those skills complementary to unskilled workers.
- governments in developing countries may invest more in secondary education while those in developed countries invest more in higher education

2. Employee turnover and job matching

(1) Reasons of employee turnover

- layoffs
- search for better jobs

(2) Factors affecting turnover

- Wage: Workers who receive a lower wage than they could receive elsewhere are more likely to quit a given job. Firms

that pay lower than average wages, *ceteris paribus*, have higher quit rates.

- Firm size: Large firms tend to have lower quit rates. This could be the result of the higher wages that are usually paid by large firms. It may also be the result of the use of internal labor markets in these firms that provide more opportunities for promotion and advancement within the firm.
- Training: workers acquired more training, especially firm-specific training, are less likely to quit.
- Age: Younger workers are more likely to quit a job than are older workers. This is partly the result of the longer period of time over which young workers receive benefits from a job change, but is also partly the result of improvements in the quality of job matches with age.
- Gender: Women have historically had higher quit rates. This is partly the result of departures from the labor force during childbearing years. It is also partly the result of the lower level of firm-specific human capital investments received by women. It is likely that this phenomena will decline over time in response to more continuous labor force attachment for married females.
- Costs of job separation: Workers are less likely to quit a job when the cost of quitting is higher. This explains why there is higher turnover in areas and time periods in which there are more extensive alternative job prospects. Costs of job separation are usually higher when the labour market is less competitive.
- Business cycle: Job quits rise during economic expansions and fall during recessions (due to changing alternative job prospects). Layoffs increase during recessions and fall during expansions.

The immigration of unskilled workers: A Naive Model of Immigration:

Consider a labor market where the demand curve for unskilled workers is given by the equation

$$L_D = 18 - W.$$

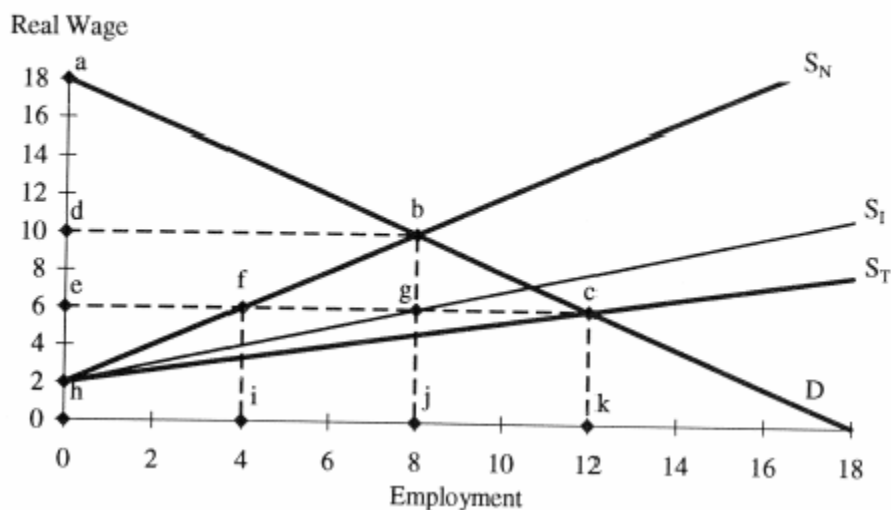
Suppose that the supply curve of unskilled workers who are also native-born citizens is given by

$$L_N = W - 2,$$

while the supply curve of unskilled immigrants (including those illegal immigrants that are unskilled) is given by

$$L_I = 2W - 4,$$

where L represents the number of workers, W is the wage expressed in real terms, and the subscripts D , N , and I are used to distinguish between the quantity of unskilled labor demanded and the quantity of unskilled labor supplied by native-born and immigrant workers. These curves appear as lines D , S_N , and S_I in Figure 10-1. (The focus on unskilled labor in this problem is not meant to imply that all immigrant labor is unskilled.)



If immigration were totally prohibited, the market clearing wage and employment level would occur where

$$\begin{aligned}L_D &= L_N \\ \Rightarrow 18 - W &= W - 2 \\ \Rightarrow W^* &= 10 \Rightarrow L^* = 8.\end{aligned}$$

The market clearing wage (W^*) and employment level (L^*) associated with the native supply curve are indicated by point b in Figure 10-1. The total income flowing to native workers is 80 and can be represented by the area of rectangle dbj0.

Allowing immigrants to enter this labor market would create a **total supply curve** given by the equation

$$\begin{aligned}L_T &= L_N + L_I \\ \Rightarrow L_T &= W - 2 + 2W - 4 \\ \Rightarrow L_T &= 3W - 6,\end{aligned}$$

where the subscript T stands for the total quantity of workers supplied. This curve appears as line S_T in Figure 10-1. Given the two groups of workers, the market clearing wage occurs where

$$\begin{aligned}L_D &= L_T \\ \Rightarrow 18 - W &= 3W - 6 \\ \Rightarrow W^* &= 6 \Rightarrow L^* = 12.\end{aligned}$$

These values are denoted by point c.

Note that at the new market clearing wage of 6, the total employment of native-born workers will be

$$L_N = 6 - 2 = 4,$$

(indicated by point f) while the employment of immigrants will be

$$L_I = 2(6) - 4 = 8.$$

(indicated point g; or the difference between points c and f). Immigration leads to lower wages and employment levels for unskilled native workers, with the total income flowing to this group decreasing from 80 to 24 (the area of rectangle efj0). Note, however, that the decrease in native employment does not consist of the 8 jobs now held by immigrants, rather the decrease is only 4. Immigration does not reduce jobs for native-born workers on a one-to-one basis (unless there was a binding minimum wage set above point b in Figure 10-1).

If the above example is a reasonable depiction of the consequences of immigration for a particular category of labor, where do the gains from immigration come from? Would it not be better for native workers to restrict immigration? The reason the native population can gain from immigration is that **total output** also increases as a result of the immigration.

When labor demand is presented as a function of the real wage, the demand curve represents the horizontal summation of the individual firm marginal product of labor curves, and so the area under the demand curve yields the total output associated with any particular employment level. In the above example, immigration increases output from 112 (the area of trapezoid $abj0$) to 144 (the area of trapezoid $ack0$). This increase in output makes sense because the United States now has more labor resources.

How is the distribution of output (real income) changed because of immigration? Before immigration, 80 of the 112 units flowed to native workers as real income, while the remaining 32 units accrued to the owners of the firms (area of triangle abd). This area, if one ignores the fixed costs of capital, equals the total profits of the firms. After immigration, 72 of the 144 units flow to workers (area of rectangle $eck0$) with 24 flowing to native workers and 48 flowing to immigrants (area of rectangle $egj0$ or rectangle $fcki$). After immigration, the remaining 72 of the 144 units flow to the owners of the firms.

While the distribution of output has been altered substantially, note that the increase in output is large enough to create a window of opportunity to keep native workers as well off as before without hurting any one else. For example, since the supply curve represents the minimum workers are willing to accept for supplying an additional unit of labor, immigrants should be willing to give up the area represented by the difference between the wage they receive and their supply curve. This area, represented by triangle egh , was defined as **economic rent** in Chapter 2. It has an area of 16. If this amount, along with the 40 in increased profits of the firms (recall that the area accruing to the firms went from 32 to 72) were transferred to native workers, it would give native workers the same income they had before immigration ($24 + 16 + 40 = 80$). Firms would also have the same profits as before, and immigrants would gain the balance, just enough to make their migration investment worthwhile. When a potential exists for some workers to gain and no one else is hurt, the original situation can *not* be considered to be Pareto efficient (see Chapter 1), and so the change to the new equilibrium may make sense from a normative perspective.

Problems associated with the naive model:

1. Only a partial analysis, have not consider the aggregate demand effects caused by the increased immigration workers on the whole economy.
2. Ignores the gains accrued to consumers due to decreased prices.
3. Closed economy analysis, ignores the possibility that without immigration firms may outsource their production abroad.

The immigration of skilled workers:

A “brain drain” or “brain gain” for developing countries.

Economics focus

Fruit that falls far from the tree

Nov 3rd 2005

From *The Economist* print edition

Might poor countries gain when their best and brightest leave?

IN THE 2002 football World Cup, France, the reigning world champions, suffered a humiliating defeat to unfancied Senegal. All 11 members of the victorious Senegalese team had played for European clubs. They were not alone. By 2000, the first and second divisions of Europe's leagues had poached enough African players to field 70 teams. So, have greedy European clubs deprived Senegal of its best footballers, or has the prospect of a lucrative career in Europe encouraged more Senegalese to take up the beautiful game?

This question is posed by a new book, "Give Us Your Best and Brightest", by Devesh Kapur and John McHale. The authors are development economists first, football fans second (if at all). But they see the emigration of African players as a highly visible example of the "brain drain". Less visible, but more worrying, is the departure of the poor world's doctors, nurses and teachers to more lucrative job markets in the rich world. Ghana, for example, has only 6.2 doctors per 100,000 people. Perhaps three-quarters of its doctors leave within ten years of qualifying.

The answer to the Senegal conundrum is of course "both": the best players leave, and the dream of emulating them motivates many others to take their place. The real question is whether the second effect outweighs the first, leaving the game in Senegal stronger or weaker than it otherwise would be. A few economists, including Andrew Mountford, of Royal Holloway (part of the University of London), and Oded Stark, of the University of Bonn, think the net effect of the brain drain is similarly ambiguous. The prospect of securing a visa to America or Australia should tempt more people in poor countries to invest in education. Mr Stark calls this a "brain gain". If the temptation is strong enough, and the chances of landing a visa low enough, the poor country could even come out ahead: it might

gain more qualified (if disappointed) doctors and engineers than it loses.

As with all debates about the brain drain, theory has run ahead of evidence. The numbers on international flows of people are much patchier than those on cross-border flows of goods or capital. In a recent paper*, Mr Stark and his co-authors investigate internal migration instead. The rural villages of Mexico lose many of their brightest sons and daughters to jobs in cities or border towns. Those Mexicans who leave their home villages tend to be better educated than those who stay. But despite this, the example the leavers set (and the job leads they provide) raises the average level of schooling of those left behind. Because they can aspire to a world beyond the village, even if they never reach it, young Mexicans have an added reason to stay in school beyond a ninth year, the authors show.

Branches picked bare

Even if the brain drain does leave a country with a better-educated populace, is this necessarily a good thing? Education is not free, and some of those who gambled on a diploma as a ticket overseas will regret their decision. But Mr Stark assumes that people in poor countries tend to demand too little education. A person's productivity depends on the skills of those around him, as well as his own. Because of these spillovers, an individual's education is worth more to the economy as a whole than it is to himself, and he will underinvest in it as a result. Mr Stark sees limited emigration as one way to fix this market failure.

India's software engineers are perhaps an example of this principle at work. Indian students had little reason to learn computer coding before there was a software industry to employ them. But such an industry could not take root without computer engineers to man it. The dream of a job in Silicon Valley, however, was enough to lure many of India's bright young things into coding, and that was enough to hatch an indigenous software industry where none existed before.

India's valley-dwellers represent just one contingent in a much larger diaspora. According to the most exhaustive study† of the brain drain, released last month by the World Bank, there were 1.04m Indian-born people, educated past secondary school, living in the 30 relatively rich countries of the OECD in 2000. (An unknown number of them acquired their education outside their country of birth, the report notes.) This largely successful diaspora is more than just something to envy and

emulate. Its members can be a source of know-how and money, and provide valuable entrées into foreign markets and supply chains.

But Messrs Kapur and McHale think India's relatively happy experience with its educated emigrés is more likely to be the exception than the rule. Its million-strong brain drain represents just 4.3% of its vast graduate population, according to the Bank. By contrast, almost 47% of Ghana's highly educated native sons live in the OECD; for Guyana, the figure is 89%. This is not a stimulative leeching of talent; it is a haemorrhage.

Emigration, as Mr Stark suggests, might be a spur to greater accomplishment, and the poor world's talent, like Senegal's footballers, deserves a chance to compete on a global stage. But it is not easy to run a managed "emigration" policy. The drain of educated minds from poor countries is mostly determined by host countries' rules, not home countries' interests. There will be tremendous pressure to loosen those rules in the future, not least because, as the baby-boom generation retires, it will seek to "backfill the taxpaying workforce behind it", as Messrs Kapur and McHale put it. The rich world no longer welcomes the tired and the huddled; it looks set to compete ever more fiercely for the bright and the qualified.