Economics 623  
Migration/Immigration: Lecture 2  
April 2012  

Economics of Migration

You should see that migration is another form of Human Capital. And that analytically schooling decisions and migration decisions have the same structure.

The United States is a mobile society. Among workers in their early 20’s, approximately 4 percent change jobs each month. Across the full population, about 3 percent move across State lines during a year. And, roughly 750K to 1.0M people immigrate (legally and illegally) to the United Stats each year. I will argue that the same analytical framework can be used to understand each of these choices.

Basic Neoclassical Model

For simplicity, let’s assume there are only two locations, the current location, denoted as 0, and the alternative or other location, denoted as 1. So we are evaluating the decision to stay or move for someone in location 0. Let $U_j(t)$ denote the expected utility derived from living in location $j$, $j = 0, 1$ in year $t$. Let the cost of moving from location 0 to location 1 be (denominated in utility terms) be $\tilde{C}_{01}$. Let $\rho$ denote the rate of time preference. $\rho = 0$ implies the person is indifferent whether they receive the benefit today or tomorrow. A positive value of $\rho$ means that the individual prefers payment today than in the future, so a dollar tomorrow is valued less than one today.

I introduce the rate of time preference now, because flows are in utility terms. In the discussion of education I assumed individuals maximize their wealth and thus discounted future income streams by the real interest rate. $\rho$ is going to play the same role, but is seen as part of preferences and not part of the opportunity set.

The present value of living in a location is just the discounted stream of utility flows received over the life time. Let the length of life be $T$. Then the expected present value of living in location 0 is

$$PV_0 = \sum_{t=0}^{T} \frac{U_0(t)}{(1 + \rho)^t}$$

The expected present value of (moving to and) living in location 1 is

$$PV_1 = \sum_{t=0}^{T} \frac{U_1(t)}{(1 + \rho)^t} - \tilde{C}_{01}$$

where I have assumed that the cost of moving from location 0 to 1 occurs only in the first period. Of course, it is easy to modify the equation if costs occur beyond the first period (as seems likely).
The person’s decision rule is to select the location that maximizes life time utility. That is, move from location 0 to 1 if:

\[ NPV_{01} = \sum_{t=0}^{T} \frac{U_1(t)}{(1 + \rho)^t} - \sum_{t=0}^{T} \frac{U_0(t)}{(1 + \rho)^t} \tilde{C}_{01} > 0 \]

\[ = \sum_{t=0}^{T} \frac{U_1(t) - U_0(t)}{(1 + \rho)^t} - \tilde{C}_{01} > 0 \]

Importantly, notice that migration decisions depend on net utility flows. One may move because of a poor current situation \( U_0 \) is low, sometimes referred to as a “push” factor. Alternatively, \( U_1 \) may be high, and “pulls” migrants. However, this language is sometimes misleading as what’s matter is the net difference between the current and alternative (or next best) location.

At this level of generality, utility flows can vary across locations for any reason. An important factor, and one that we will concentrate on are economic factors, wages, employment, earnings, but a variety of other factors important too. Family also factors as a primary determinant. Utility flows may decline with distance, as the individual is further from the family. The current location may yield a boost for being close to family members. Generally, family and economic factors are the two primary determinants. But there are a host of others. Local amenities, such as climate (is the place sunny, warm in summer, cold in winter, etc), and life style, close to water or an ocean, how about mountains? Another local characteristic is personal safety (or its negative, crime). Households with children will care about the quality of the local schools. Local tax rates can also influence residential choice (where to live, versus where to live and work).

Costs, include the direct, out–of–pocket expenses (packing, moving van) plus the psychic costs such as leaving friends and family and familiar region. Entails loss of location–specific knowledge of stores, roads etc.

It is easy to see that this generalizes from one alternative location to many. Let there be \( J \) locations, then the decision rule becomes

Select location: \[ \max(PV_0, PV_1, \ldots, PV_J). \]

The most important distinction between internal migration (that is movement of people within a country) versus immigration (entry into the country, departure out of a country is emigration) are the specific components of costs and utility flows. For example, an international migrant, aka an immigrant may receive lower utility in country \( j \) if country’s \( j \) language is different, or its culture is different than his or her native country. Similarly, religious and political and personal freedom can be important factors in international moves.

This framework presumes individual choice, and thus represents voluntary decisions. Refugees and displaced people are individuals who may leave their native country to live in another but not necessarily voluntarily. (They may not have a choice on whether to stay or leave, but they may have a choice on where to go, given that they must leave.) For refugees, and displaced persons some of the same factors may enter but would expect to need a different model (probably one capturing what’s going on in the environment, such local civil wars and ethnicity).
For refugees and displaced persons, economics offers a perspective on the consequences for the refugee, and the sending and receiving locations. Important topics, but I will focus on volitional migration.

A number of testable implications follow from this framework:

1. An improvement in the payoffs available in the destination location increases the net gains to migration, and raises the likelihood of a move.

2. An improvement in the payoffs available in the current location increases the net gains from staying and lowers the likelihood of moving.

3. An increase in migration costs lowers the net gains to migration, and reduces the likelihood of a move.

4. Migration should be an activity of the young. Individuals have an incentive to correct “accidents of birth” and should do so in the first period. And the young have the longest horizon, and so have an incentive to amortize the cost of migration over a longer period.

**Role of Information**

In defining the present values I have inserted the term *expected*. I have defined the utility streams as “expected” benefits. One way to represent this is to explicitly represent the payoffs as stochastic, and dependent on the individual’s information (and knowledge) at the time of the decision. Let Ω(0) represent the current information. This would include (subjective) beliefs about the distribution of payoffs in each location. To keep things simple, let’s continue with the two–location, move–stay model.

\[
NPV_{01} = E \left[ \sum_{t=0}^{T} \frac{U_1(t, \omega_0) - U_0(t, \omega_1)}{(1 + \rho)^t} - \tilde{C}_{01}(\omega_c) \right] \mid \Omega(0)
\]

and where I have written the utility flows and the cost to depend on the random variables \( \omega = (\omega_0, \omega_1, \omega_c) \). The information set \( \Omega(0) \) would include the individual’s subjective beliefs about the payoffs and costs, represented say as probability distributions (or densities). And then \( E \) just says to take the mathematical expectation.

As a simplification, assume that people have perfect foresight. There is no uncertainty, payoffs and costs are known with certainty. (That is the subjective distributions collapse to a since value \( \omega \) realization and put all probability on that value.) The implications listed above become even stronger. Under a perfect foresight assumption we should see migration only in the first period of (adult) life, \( t = 0 \). This is the correct “accident–at–birth” phenomenon. If your best location is 0 stay otherwise move. The return to moving is highest to move now rather than waiting. Corrections are made immediately. Then once in the preferred location, there is no additional incentive to move. Hence, the model of perfect information implies that people will move at most once in their lifetimes (in this perfect foresight two–locational world). In the first period, they will decide if their current location is best and if it is they stay put and if it is not they move to the alternative location. But
since they know everything, there are no surprises, and another move will occur only if there is a change in the payoffs or costs. But this was tacitly ruled out by the perfect foresight, there can be no surprises in the future.

Relaxing the perfect foresight model we can see that in a world of uncertainty, people may move as a response to new information. Either they learn about conditions in the current location (e.g., the local economy tanked) or about conditions in the alternative location. Moreover, in the presence of uncertainty it may pay to move to learn about conditions elsewhere. Or while young to try your luck at a new location. It may be risky but as a young person there is time to correct mistakes.

The rich pattern of migration histories over people’s lives is one of the first features observed in longitudinal data (that is data that follows the same people over time). Now is a time to introduce some of the empirical definitions of migration, reflected in coding of the Decennial Census.

Short distance moves say within the same city or metropolitan area, intra–county are generally considered to related to residence, and not with the labor market. The presumption is that the individual is within the same local labor market. Commuting and transportation options to and from a person’s current job may have an influence, but such (intra–country) moves are typically as not labor market related. Consider these residential choice.

We expect labor market factors kick in (wages, employment, earnings) when individuals have to move across local labor markets. It is not easy to define what is the size of a local labor market, but empirically measured at the county or Standard Metropolitan Statistical Area (SMSA). Inter–county moves and inter–state moves are seen as labor market related moves.

So, using a definition of interstate migration, from work I have done using a random sample of youth living in the United States in 1978 (basically I have the last seven years of the Baby Boomers, individuals were born between 1957 and 1964). Using this sample, through about their mid–40s roughly 80 percent of the people never make an interstate move. But the 20% who do, move on average more than once.

An individual who moves more than once is a repeat migrant. Of repeat migrations, an individual can be return migrant — where an individual leaves and returns to a prior location, usually the location of their birth or childhood. Or the sequence of moves can produce onward migration, where they move to one location and then move to another. And of course, onward and return migrants are not necessarily mutually exclusive. An individual who moves to a couple of different locations and returns to one of the earlier locations (or “home”) who be an onward and return migrant.

Within the sample, about 50 of all migrants return “home”, however, this uses a broad definition of home (i.e., State level).

When we aggregate individual decisions we can see other types of flows, such as chain migration and circular migration. Circular migration is where people leave and return within a period or a few numbers of periods. For example, much of the migration from Mexico to the United States is circular. People leave and return to their sending location.

Chain migration is when probability of moving from $i$ to $j$ increases with the number of previous migrants. This type of migration characterizes the Great Migration within the United States as African Americans left the South to the Northern cities in the East and Midwest. (Mention Lehmann
The important role of information provides a motivation for the observed empirical importance of family. Family members may provide assistance or support immediately after the move (reducing the moving cost to that location). Or family members may provide information on job opportunities or living conditions. That is, family members (people whose preferences and world view are more closely related to the individual than is a random person) may provide valuable information. The information may raise expected gains or reduce the variability in expected payoffs. People generally dislike risk, discount risky income or utility streams, just as they discount future income streams. Having family members available in a location to provide information on working condition and or job opportunities reduces the variability of expected returns. Thus, with lower perceived risk the expected payoff from the move must be less.

Common to assume that individuals maximize expected wealth (and not utility. Then the present value of expected utility collapses to the present value of wealth. And as a wealth maximizes, we will discount future incomes by the real rate of interest and not the time rate of preferences \( \rho \). The present value of location \( j \) is

\[
PV_j = \sum_{t=1}^{T} \frac{Y_j(t) - Y_0(t)}{(1 + r)^t} - C_j
\]

where, \( Y_j(t) \) is the expected income at location \( j \) in time (period or age) \( t \). \( Y_0(t) \) is the expected income at location 0 (which is assumed to be the home location). And \( C_j \) is the pecuniary cost of a move to location \( j \). Now, select the location that yields the highest expected Wealth:

\[
M = \max\{PV_0, PV_1, \ldots, PV_J\}
\]

Notice the analytical similarity between this view of residential choice and the schooling decision. I’ve labeled \( Y_k \) as expected to highlight the importance of information in migration, but one can make exactly the same point regarding education.

To close the thought of how to measure or test human capital model of migration. At its root, we want to compare \( Y_j(t) \) with \( Y_0(t) \). Yet, only able to observed \( Y(t) \) once at time \( t \). For someone who moves at time \( \tau \), we observe \( Y_0(t) \) for \( t \leq \tau \) and observe \( Y_j(t) \) for \( t > \tau \). That is, at the same \( t \) we do not get to observe both \( Y_0 \) and \( Y_j \). In most studies, especially of immigration (where we have virtually no or exceedingly limited measures of \( Y_0 \) (income or utility in the native country) we must make some assumptions to substitute for the missing data. One common analysis is to compare \( Y_j(t) \) of migrants with \( Y_j(t) \) of the natives (i.e., compare movers and stayers). Yet this is not a test of human capital theory. Do you see why?

Winners and Losers of Migration

Up to now, we have focused on individual calculus regarding migration decisions. Now I want to shift focus to the broader community and think about the impact of migration (and immigration) on different groups.
Basic Themes

1. Impact of Migration (immigration) on the migrant. Who moves “skill” or “quality” of migrant.

2. Impact of inflow on receiving location (e.g., native workers, consumers).

3. Impact of immigration on sending location — such effects as the brain drain and or relief from population pressure. Sociological literature more prevalent here.

Discussion so far has concentrated on (1) the impact of migration (immigration) on the migrant. Individuals move because they expect to be better off. After the move they may or may not be. For internal migrants in the U.S. individuals are “free” to move elsewhere (assuming they can finance the move). However, many immigrants have less mobility — besides financial or economic, there may be language barriers or social support issues (e.g., dealing with a new culture). They can have family members in the destination area but not in alternative areas. They can and do return to their native countries, as international migration is frequently temporary. Individuals move for better economic prospects anticipating they will be better off financially and able to send remittances home. Understanding migration (typically rural to urban) within developing countries and immigration from poor to rich countries requires that we track both the flow of human and financial resources between sending and receiving locations.

Sending Locations

Let’s take up the topics in reverse order and consider first the effects on the sending location. As mentioned above, the sociological literature is most prevalent. One common thread is on the brain drain — where the best and brightest leave the local (poor or underdeveloped) community and move to a richer/more developed location. In many agricultural communities in the midwest, the young have left for more populous destinations where economic opportunities are higher. Those who stay have strong preferences or skills that match poorly with urban areas. The brain drain is a concern that human capital flows out of an area not to be replaced. If population levels fall too far it may be difficult or impossible to maintain the local community. Similarly, for many developing countries, educational opportunities may be best in developed countries, but post–graduation economic opportunities may also dominate opportunities at home. It is not uncommon for governments to provide training subsidies/loans that require the individual to repay the subsidy and loan (perhaps with a penalty) if they do not return home.

Remittances represent an important offset to the potential deleterious effects of out–migration of the young and or the talented. Indeed, remittances from immigrants in the United States represents a large share of the Mexican national income. This just reinforces the statement above that it is not enough to simply study migration flows to understand the full set of consequences of migration.

Recall from earlier in the semester the Irish Potato famine and high loss of population. Much of the population loss was due to mortality, but migration to the United States (especially) and Canada and Australia was equally important. As the potato blight hit and reduced the population that could be supported by Ireland, a large share of the population left for “Greener Pastures”. More generally, in 19th Century Europe, the large immigration to the United States and Canada played an important
part of reduced population pressure in virtually all countries (e.g., Germany, the Nordic countries). 
Thus, large population outflows can be a good thing for those left behind, as wages increase and rents decline.

**Receiving Locations**

Consider first workers. One conclusion appearing in the popular media is that all workers in the destination location are work off by immigration. However, it is necessary to distinguish between substitutes and complement workers. Native workers are direct substitutes are worse off. Immigrant increase the supply of competitors and wages decline. However, workers who complement immigrants are better off. For example, assume production requires two types of labor inputs supervisors and operators. Both worker types are needed in production. Then an increase in the supply of operators lowers the wage of operators and increases the quantity demanded. Supervisors being complements experience an increase in demand and higher wages (and increased employment). Thus, increased immigration has ambiguous effects on workers, as some are better off and some are worse off.

What about consumers? An increase in a factor of production lowers the cost of production in the short and long run and in a competitive market lowers the price to consumers. Moreover, an increase in immigrants likely increases the diversity of products and services offered in the market, and the increased opportunities generally improves consumer welfare as well. (For example, think of the variety of ethnic foods available to consumers in the United States — several variety of Asian cuisine, several varieties of Hispanic foods as well as the older offerings by the French, Germans and Italians [to mention only a few].)

The increase in population due to increased immigration raises the demand for shelter, benefiting existing property owners and sellers and hurting buyers and renters. Similarly, the increase in population will also increase demand for goods and services valued by immigrants. Consumers of these goods will face higher prices (that may be only partially offset by lower costs of production). Again, compositional effects on winners and losers will be mixed.

A hot-button topic is whether on net do social transfers and other government expenditures directed at immigrants cost more than taxes paid by these individuals? As you no doubt imagine there are a host of studies that offer conflicting estimates of the net fiscal effect of immigrants. Immigrants are highly selective, with the youngest, healthiest, most talented and most ambitious members of the sending community selected. Recent immigrants are loath to apply for welfare and other social transfers for fear of jeopardizing their status. Many study estimate their usage of social programs less than comparable natives. Yet, American immigration policy is directed at family reunification. So, once they have obtained permanent status they may petition to bring over immediate family members – parents, children, and siblings. Fiscal calculations must take account transfers and any taxes paid by these individuals. Parents and children are likely not to be working and likely represent net expenditure burdens. Finally, a proper accounting must also recognize that many immigrants are here for a limited period of time. Thus, many are here during their prime working years and return to their native country as they near retirement. Consequently, much of the health and retirement cost are borne by their native countries. These individuals ambiguously pay more taxes than they receive in public expenditures.
My sense of the evidence is that on net, immigrants pay somewhat more taxes than they receive in public expenditures. However, that does not mean that all local areas enjoy surpluses equally. My intent is not to resolve and enumerate all margins of costs and benefits but to highlight the many dimensions that exist. And particularly the correct answer has to recognize the dynamic nature of immigration — once here does not imply always here. And individuals at one age can provide tax surpluses and deficits at another.