

Economics 404W**Lecture 14**

February 22, 2006

E. Migration and Unemployment

Not only are the cities of developing countries characterized by congestion—try to drive in them—but they are also home to vast tracts of shanty towns and people living on very low incomes. These stress the infrastructure, public health, social stability.

Most of these people have migrated from the countryside to live in urban squalor, working for themselves on the fringes of the economy, or not working at all.

Urban unemployment rates in the mid 1990s

	<i>Unemployment rate</i>		<i>Unemployment rate</i>
Algeria	23.8	Panama	14.3
Argentina	18.6	Peru	8.8
Barbados	21.9	Philippines	9.5
Chile	6.3	Saudi Arabia	15.5
Colombia	9.2	South Africa	33.0
Egypt	8.3	South Korea	6.4
Indonesia	10.0	Sri Lanka	13.6
Jamaica	15.4	Thailand	5.8
Morocco	15.5	Uruguay	10.7
Nicaragua	20.2	Venezuela	10.3

source: Todaro and Smith, Table 7.7

What's going on?

Different sector present different earnings prospects:

- *urban formal sector jobs*: modern factories, modern services, and government (highest wages—subject to unions, minimum wage laws, efficiency wage effects.)
- *urban informal sector jobs*: cottage industry, small scale retail and services (lower wages on average, but a very heterogeneous sector)
- *rural jobs* (agriculture).

Given the higher wages in the urban formal sector, it is unsurprising that these are the most coveted jobs, and that people migrate to the city in search of this type of employment.

What is less obvious is why people migrate from the rural sector and hang out in the cities, even when these jobs are already taken. Such people constitute a large pool of disguised unemployed, often earning lower wages than they could have if they had remained in the countryside, and sometimes earning nothing at all.

Harris and Todaro provided one explanation: People migrate to the city because there is a *chance* they'll find high wage employment, and the migration will continue so long as the *expected* pay-off exceeds the low wages they can continue to earn if they stay in the countryside.

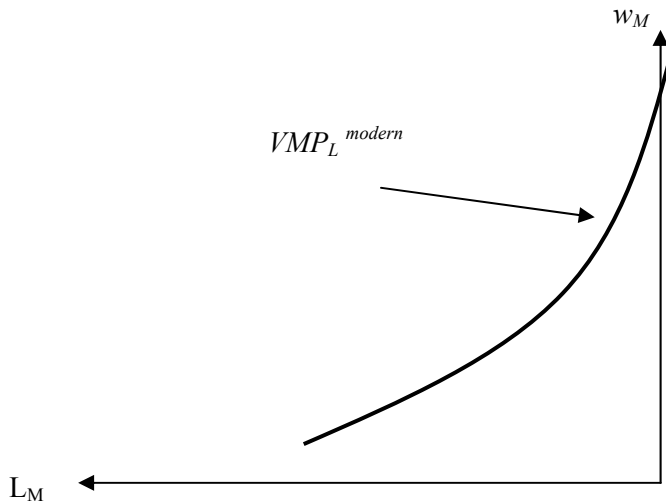
To develop the Harris-Todaro argument more fully, and especially to analyze the policy implications, it is helpful to develop a graphical representation. In doing so we'll assume that the

- the urban wage is fixed by institutional forces, and not worry about efficiency wage effects. (Most of what we conclude would also hold if efficiency wage effects were the source of wage rigidities, but the analysis would be more complex.)
- the informal sector pays trivial wages
- all people in the city have the same chance of landing a formal sector job

First, we need to characterize the demand for labor schedule in each sector. In the formal sector, assume as usual that firms hire workers up to the point where the value of their marginal product no longer exceeds the wage rate.

$$w_M = VMP_M^L = P_M \cdot MP_L^M$$

Or, the demand for modern sector labor is simply the value of the marginal product of labor in the modern sector. For reasons that will become apparent soon, let's graph this demand from the left instead from the right:

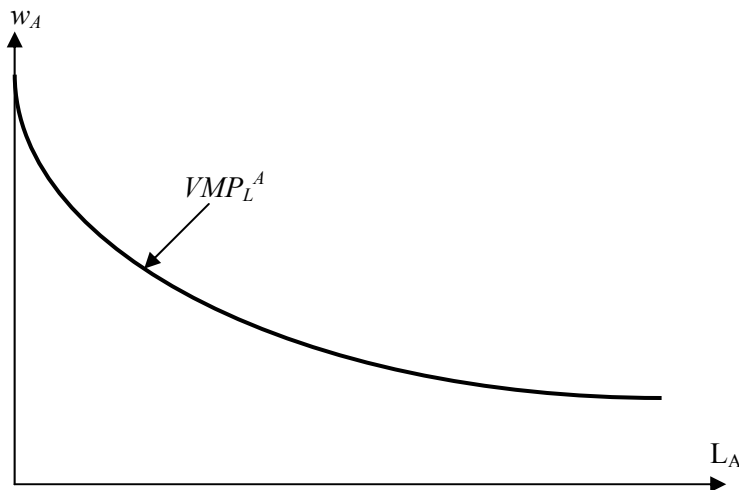


What will shift this demand schedule? (the price of formal sector goods, the amount of capital in the formal sector.)

What about demand for labor in the agricultural sector? For simplicity we'll assume that surplus labor, if it ever existed, is already absorbed. (This isn't critical.) Accordingly, labor has a positive marginal product and profit-maximizing agricultural producers will follow the same rule:

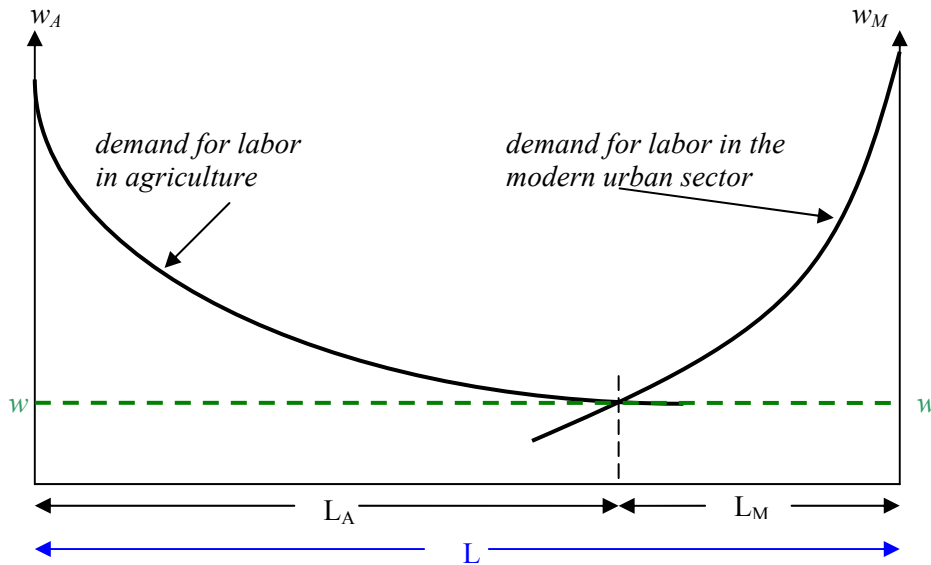
$$w_A = VMP_A^L = P_A \cdot MP_L^A.$$

Graphing agricultural labor demand from the left we have:

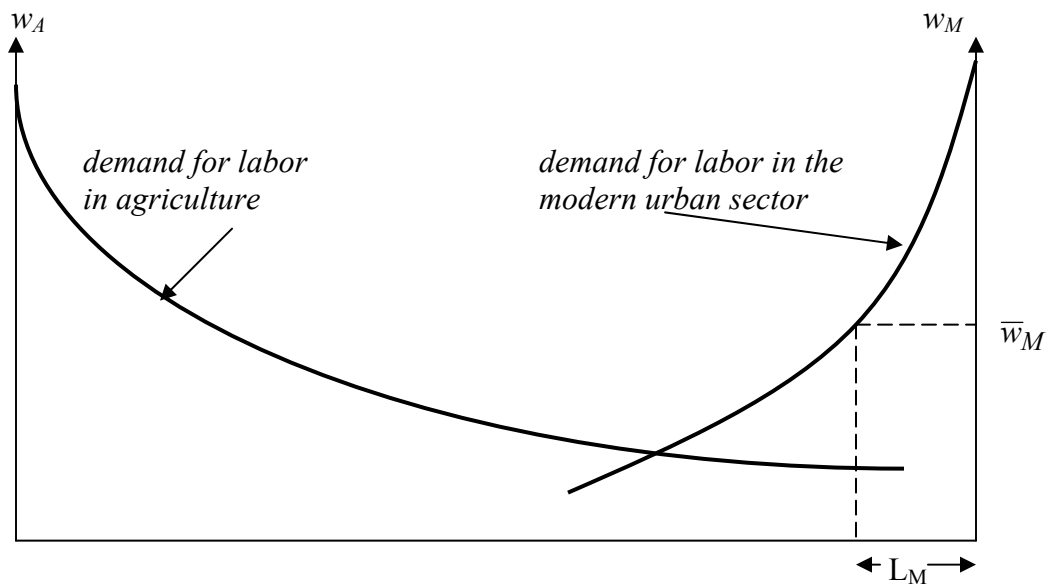


Now let's bring these two demand functions together. If the total amount of labor available in the economy is L , we must have $L \geq L_A + L_M$, with equality if there is

no unemployment. There is a market-clearing wage (w) at which this should occur:



But suppose wage rigidities in the urban modern sector prevent this market-clearing wage from emerging there. The amount of labor hired in the modern sector (L_M) will then be fixed by the condition $\bar{w}_M = VMP_M^L$:



You might expect everyone else to remain in agriculture. But Harris and Todaro argue that even when these modern jobs are filled, migration to the modern sector continues. This is because there is turnover in modern sector jobs, and as people quit or are fired, jobs become available. **So there is a possibility of getting lucky**

and obtaining an open slot *if* you are in the city, monitoring job openings and ready to pounce.

The likelihood of obtaining a modern sector job depends on the number of seekers relative to the number of jobs. A simple way to capture this is to assume:

$$\pi = \Pr[\text{formal job}] = \frac{L_M}{L_M + U},$$

where U is the number of unemployed job seekers in the urban sector and $L = L_A + L_M + U$. (The book uses the notation $L_{US} = L_M + U$.) Effectively, this formula says that each period all modern jobs are vacated and everyone seeking a modern job is equally likely to win one. (In fact, only about 15-20 percent of the modern manufacturing jobs turn over each period, but this detail is unimportant for our purposes.)

What is the expected pay-off from entering the competition? If, to be a job seeker you must be unemployed and earning nothing, it is:

$$\pi \cdot \bar{w}_m + (1 - \pi) \cdot 0 = \left(\frac{L_M}{L_M + U} \right) \cdot \bar{w}_m$$

(A similar expression obtains if seekers become “disguised unemployed” and earned some low level of income, but it’s messier.) So, if the rural wage is w_A , people will migrate from the rural sector until:

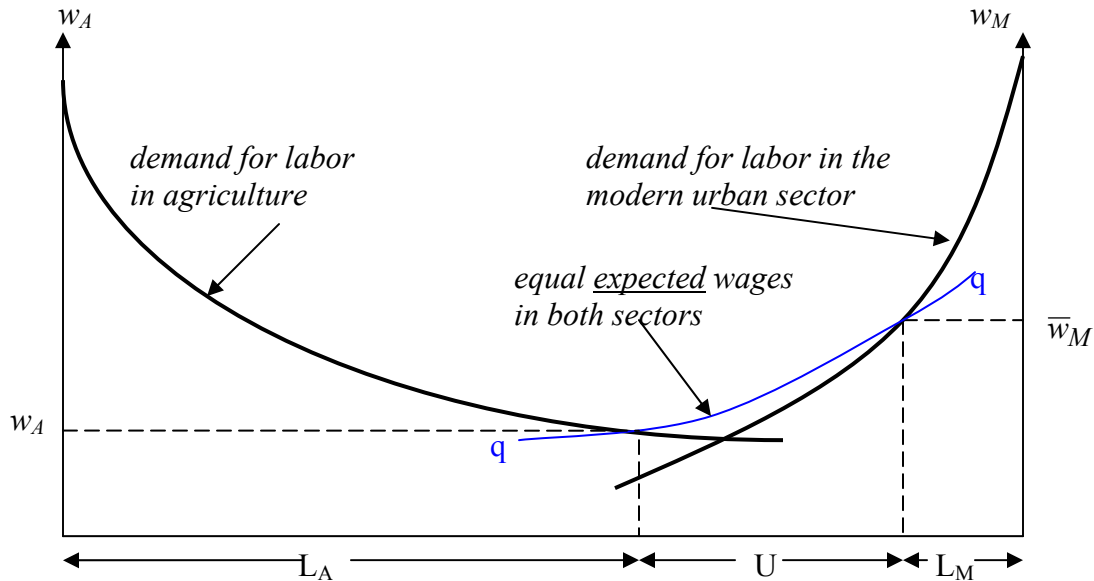
$$w_A = \left(\frac{L_M}{L_M + U} \right) \cdot \bar{w}_m$$

This will require positive urban unemployment because the rural wage is less than the fixed urban wage.

A graphical representation of equilibrium must represent two conditions:

1. Given the fixed modern wage rate and the associated level of modern sector employment, there is an inverse relationship between the agricultural wage and the amount of urban unemployment:
 $w_A \cdot (L_M + U) = L_M \cdot \bar{w}_m$.
2. Producers in each sector hire the profit-maximizing amount of labor, given the wages they face.

These conditions are depicted below. The line segment qq represents the combinations of U and w_A values that satisfy the Todaro equilibrium condition $w_A \cdot (L_M + U) = L_M \cdot \bar{w}_M$ given the fixed wage, \bar{w}_M and the associated formal sector employment level, L_M .

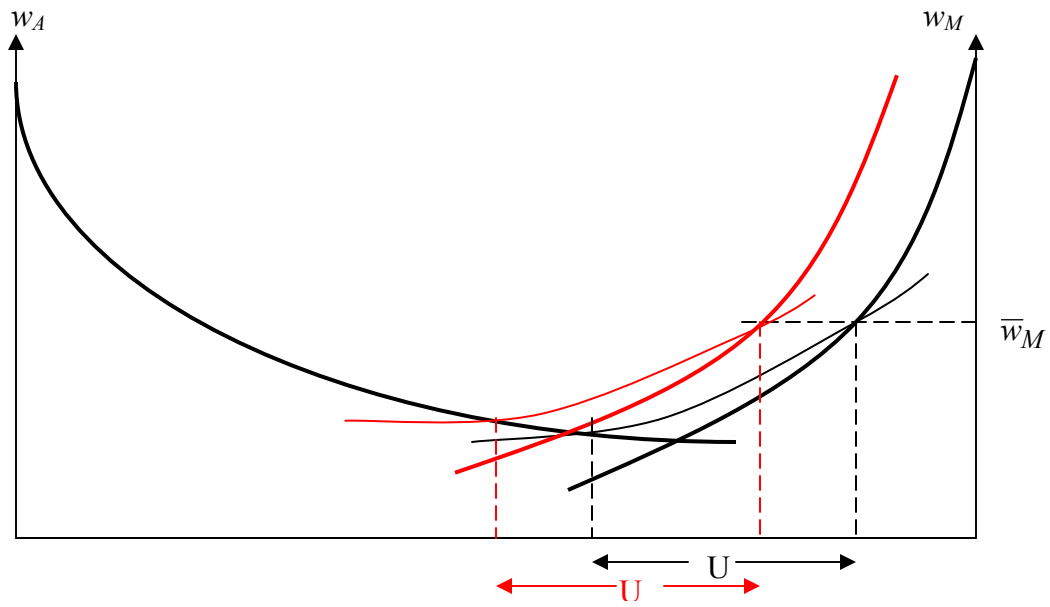


Equilibrium occurs at the labor force allocation and agricultural wage rate where qq intersects the demand for labor in agriculture.

Note that so long as there is a wage gap between the modern sector and the agricultural sector, unemployment must emerge. Thus the efficient allocation of labor between sectors will not obtain.

Governments rightly view urban unemployment and shanty towns as a serious problem. Various policies have been designed to deal with it:

- Increase demand for modern sector products through subsidies or protection. (Effect is to shift out demand for modern workers, attracting new migrants by driving up probability of employment. That is, creation of more high wage jobs can be counter-productive.)
- Prohibit migration to the cities. This has been done in Africa.
- Subsidize agricultural employment; promote rural development.
- Spread information about job queues and rationing mechanisms. If everyone knows who gets the next jobs, there is no point hanging around the city to queue up.



The graph above depicts the effects of policies that shift demand for modern sector labor outward. Note that unemployment need not fall, because the extra demand attracts more migrants. Is there a net gain in the value of output?