Chapter 2

Rural and Urban

Learning Objectives :

After learning this chapter you will understand :

- **The Rural and Urban Sector.**
- **The Harris-Todaro Model.**
- **The Harris-Todaro Equilibrium.**

Basic Concepts

1. **The Harris–Todaro Model and Urban Unemployment :** The **Harris–Todaro model** explains the relationship between urban wages and unemployment, highlighting how high wages in the formal urban sector contribute to persistent unemployment and rural-urban migration.

(i) **High Wages in the Urban Formal Sector**

The formal urban sector offers **higher-than-market wages**, which creates unemployment as more workers migrate in search of these jobs. Several factors contribute to these inflated wages:

(a) **Unionization and Collective Bargaining**

- The formal urban sector is often **unionized**, allowing workers to negotiate higher wages.
- In contrast, rural and informal urban sectors lack strong labor organizations, leading to more **flexible and competitive wages**.

(b) **Government Policies and Regulations**

- Governments frequently **regulate wages and benefits** in the formal sector, making it the focal point of labor policies.
- Policies such as **minimum wages, pension schemes, unemployment benefits, and childcare facilities** increase worker utility, effectively raising labor costs.

(c) **Firms' Wage Strategies**

- Firms in the formal sector may **intentionally offer higher wages** to:
  - Attract high-quality workers and fire underperformers.
  - Motivate workers by creating a **"threat of unemployment"**—employees exert more effort to avoid dismissal and the lower-paying informal sector.
- This strategy, sometimes called **"efficiency wages"**, ensures productivity but also limits job availability.

(ii) **Low Wages in the Informal Urban and Rural Sectors**

Unlike the formal urban sector, wages in the **informal urban sector and rural areas** remain low due to:

(a) **Lack of Unionization and Government Oversight**

- The informal sector is **loosely regulated**, making it difficult for government policies to enforce labor protections.
- As a result, wages **fluctuate based on supply and demand** rather than policy mandates.

(b) **Family Labor and Easy Monitoring**

- Many informal businesses and rural farms rely on **family labor**, where wages are not fixed or competitive.
- Employers in these sectors can easily **monitor worker performance**, reducing the need for high wages as an incentive.
- Even if incentives exist, the **wage premiums in the urban formal sector far outweigh them**, making rural and informal work less attractive.

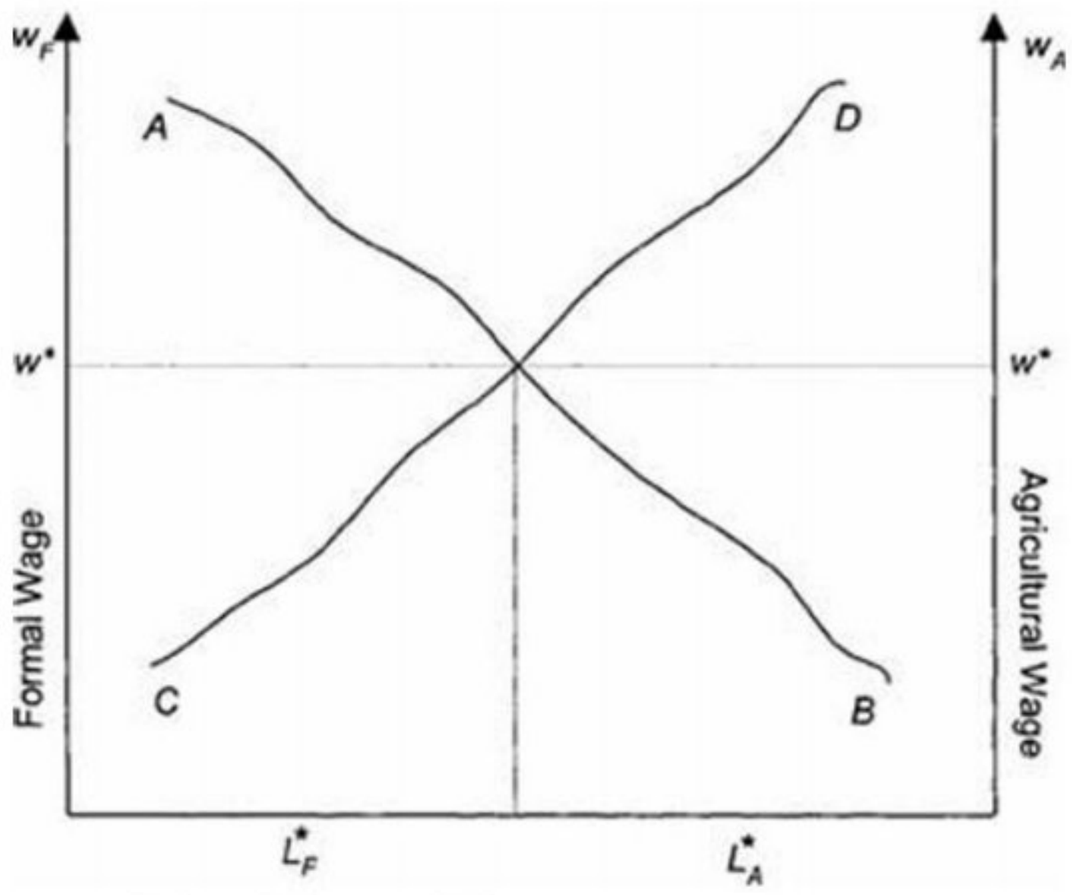
(iii) **Migration and the Urban Wage Gap**

- Migration occurs due to the **wage disparity between rural and urban areas**—workers move to cities in search of better-paying jobs.
- However, since **formal sector jobs are limited**, many migrants **fail to secure employment** and end up in the informal sector.
- The migration decision is a **high-risk gamble**:
  - Rural workers leave stable, lower-paying agricultural jobs.
  - They face uncertainty in finding formal employment.
  - Many end up **unemployed or underemployed** in the informal sector.

(iv) **The Urban Informal Sector as a Safety Net**

- The **informal sector absorbs those who fail to secure formal jobs**—these workers are the "lottery tickets that didn't win."
- This leads to **disguised unemployment**, where people technically work but earn little and contribute minimally to economic productivity.

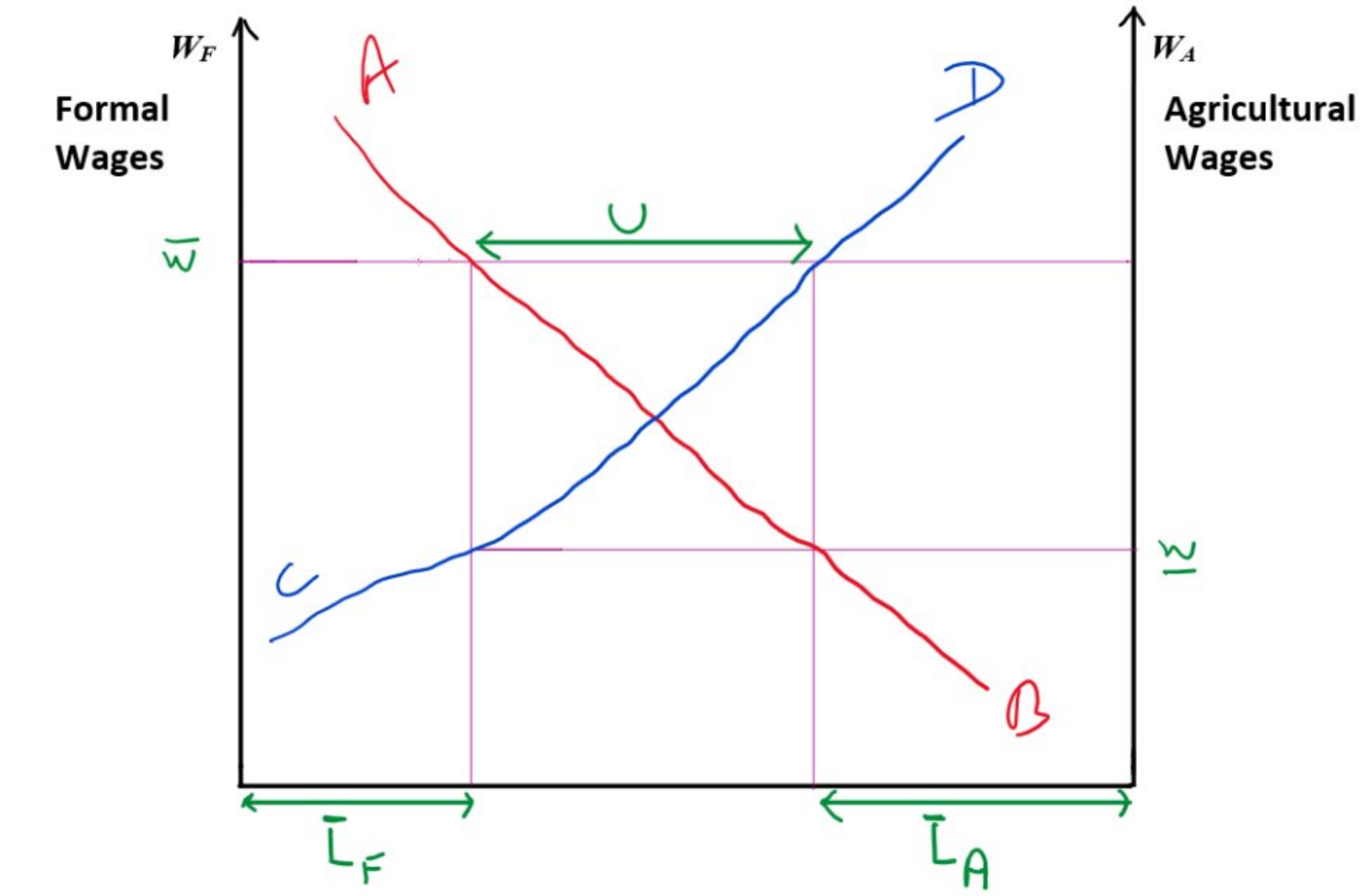
2. **The Basic Model :** We begin by assuming that there are only two sectors in the economy: a rural sector and a formal urban sector. Solely for the purpose of setting a benchmark, we assume that wages in both sectors are fully flexible. Later, we will introduce rigidity in the urban formal wage.



In the adjoining figure the width of the horizontal axis is the entire labor force in the economy. The labor force is divided between the agricultural sector, which we denote by A, and the formal urban sector, which we denote by F. The left axis of the figure records various formal wages in the urban sector (W_F), whereas the right axis records agricultural wages (W_A). The curve AB may be thought of as a demand curve for labor in the urban formal sector: like most demand curves, it is downward sloping, so that more labor can be absorbed in the sector only at a lower wage. Likewise, the curve CD captures the absorption of labor in agriculture we can think of it as a demand curve as well. Just as in the urban sector, more agricultural labor typically can be absorbed only at a lower wage.

To alleviate persistent migration between one sector and the other, the wages in the two sectors must be equalized. This equalization occurs at the intersection of the curves AB and CD, and we can read the equilibrium wage rate and intersectoral allocation of labor from this intersection. The equilibrium wage rate in this case is w*, with L_A* individuals in the agrarian sector and L_F* individuals in the urban sector.

3. **Floors on Formal Wages :** Till now we assumed that the urban wage rate is perfectly flexible but actually it is not. In terms of our simple model, let us imagine that the wage rate in the formal sector is fixed at too high a level for market equilibrium w* to occur. The adjoining figure captures this situation by drawing the minimum formal wage, $\overline{w}$, at a level that lies above the intersection of the two absorption curves. It follows that private-sector formal firms will hire no more than the amount L_F of labor at this wage. If all the remaining individuals are employed in the agricultural sector, then, the adjoining figure tells us that the wage in the agricultural sector must drop to $\underline{w}$. This cannot be an equilibrium state for the economy, because with full employment in both sectors, workers in agricultural sector are getting a lower wage of $\underline{w}$ and workers in urban sector are getting a higher wage of $\overline{w}$, so the workers in lower wage agriculture sector will wish to migrate to the urban sector with the higher wage.

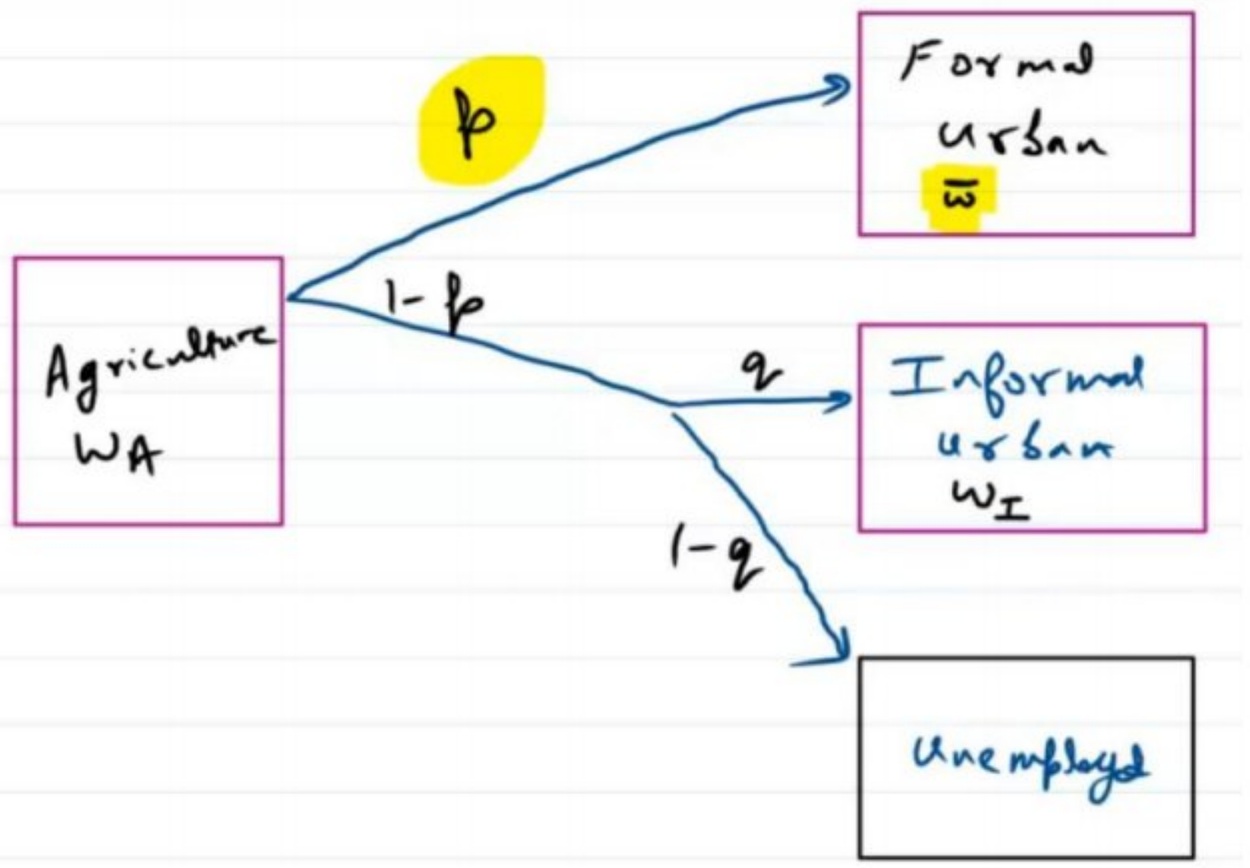


Thus both the sectors will have an equal wage, which is $\overline{w}$. At this wage $\bar{L}_F$ workers are employed in urban sector and $\bar{L}_A$ workers are employed in the agriculture sector and the remaining workers will remain unemployed, which are represented as U.

Given that agriculture has flexible wages, the unemployed workers cannot be physically located in agriculture. If they were, they would simply pour into that labor market and consequently drive the wages down. Therefore, they must be located in the urban sector. Now we have a situation in which these workers rationally migrate to the urban formal sector, even though the wages there are the same as those in agriculture and there is significant risk of unemployment.

4. **The Harris–Todaro Equilibrium :** The main idea is that potential migrants choose between a relatively safe (though possibly unpleasant) option, which is to stay in the agricultural sector, and the gamble of moving to the urban sector, where a high-paying formal job may or may not be attainable. In turn, the probability of getting such a job is determined by the ratio of formal job seekers to available formal jobs. Those who do not get a job might be referred to as the unemployed. The unemployed formal job seekers may enter the informal sector, where jobs or businesses are easy enough to find but pay is very low.

The adjoining figure schematically captures the gamble that is involved. In this diagram, there are two sets of boxes. The left set is a single box: agriculture, with its wage w_A. The right set describes the various options open in the urban sector, together with the probabilities of access.



First, there is the formal sector at some high wage $\bar{w}$. The probability of obtaining such a job depends on the ratio of vacancies to job seekers. Let us denote this probability by p. Next, there is the informal urban sector, in which our migrant can get absorbed in the event that no formal job is forthcoming. Let us denote the wage rate in the informal sector by w_I and assume that it is fixed regardless of the number of people in that sector. Let q represent the probability of an unemployed worker getting a job in informal sector. Thus after being turned away from the formal sector, the migrant manages to join the informal sector with probability q and remains openly unemployed with probability $1 - q$. The expected value of this latter set of possibilities is $qw_I + (1 - q)0 = qw_I$. Thus the overall expected wage is now $p.\bar{w} + (1 - p).qw_I$.

Suppose that we use L_I to denote informal employment and L_F to denote formal employment. Then the probability of job in formal sector (p) is

$$p = \frac{L_F}{L_F + L_I} \quad \Rightarrow \quad 1 - p = \frac{L_I}{L_F + L_I}$$

Assuming that unemployed people to be very small fraction, that is $q \approx 1$, the overall expected wage becomes

$$\frac{L_F}{L_F + L_I}.\bar{w} + \frac{L_I}{L_F + L_I}.w_I$$

At equilibrium the expected wages in the urban sector would be equal to the wages in agriculture sector, *i.e.*,

$$\frac{L_F}{L_F + L_I}.\bar{w} + \frac{L_I}{L_F + L_I}.w_I = w_A$$

This is the Harris–Todaro equilibrium condition.

Exercise 1

Theory Questions

Q1. Consider a two sector economy with a rural agricultural sector and an urban Industrial sector (formal).
Develop a model of rural-urban migration equilibrium when there are lower bounds on formal urban sector wages while rural wages are flexible (you may allow for an urban informal sector with rigid wages).
Does such an equilibrium result in the attainment of efficient labour-allocation in the two sectors? Suggest a policy that can help attain the efficient labour-allocation (with no physical restrictions on migration) **[Eco. (H) 2010]**

Q2. Show how the size of the urban informal sector is endogenously determined in the Harris-Todaro model. What is meant by the Todaro paradox? **[Eco. (H) 2011]**

Q3. Evaluate the validity of the following statement:
In the Harris-Todaro model, an increase in the formal sector labour demand at a fixed wage rate must lower the percentage of people in the informal sector as a fraction of urban labour force. **[Eco. (H) 2014]**

Q4. Discussing the model of rural-urban migration, explain the policies that can lead to a situation of full employment in both agriculture and the formal urban sector without and urban informal sector being created. **[Eco. (H) 2015]**

Q5. Briefly explain the Harris-Todaro model of rural-urban migration, and argue that despite acceleration in the rate of absorption of labour in the formal sector, the informal sector as a fraction of the total labour force increases. **[Eco. (H) 2018]**

Q6. Briefly discuss the Harris-Todaro model of rural-urban migration and explain any one policy that moves an economy towards an efficient labour allocation. **[Eco. (H) 2019]**

Q8. Explaining the Harris-Todaro model of rural-urban migration, discuss how this model endogenously delivers a prediction for the size of the urban informal sector. **[Eco. (H) 2023]**

Numerical Problems

Q1(a) Ram and his three brothers own a small farm in the agricultural sector of Oz. They work equally hard and the value of their output is ₹4000, which they divide equally. The urban sector of Oz has two kinds of jobs: the informal jobs which anyone can get, but pay merely ₹ 500, and formal sector jobs which pay ₹1200. The probability of getting urban sector jobs depends on the proportion of such jobs to the urban labour force. Assume that there are no costs of migration.

(i) If Ram compares his own expected returns in the two sectors, calculate the threshold proportion of formal jobs that will just deter him from migrating.

(ii) The full production function on Ram's farm is given in the following table:

Number working on farm	Output (₹)
One Brother	1500
Two Brothers	2500
Three Brothers	3300
Four Brothers	4000

Suppose that Ram and his brothers seek to maximize their total family income instead of Rani simply acting to maximize his own. Assume that the threshold proportion derived in (a) does exist. Now prove that Ram will migrate.

(iii) Will any of Ram's brothers also wish to migrate? **[Eco. (H) 2016]**

Q2. In the Harris-Todaro model, suppose the initial level of urban employment is E_U = 2 million, the total urban labour force is L_u = 3 million, the urban wage is fixed by law at W_u = 6, and the rural wage is W_r = 3. If the probability of finding a formal sector job is defined as E_u/L_u, **[Eco. (H) 2018]**

(i) Will a person who is currently in the rural sector find it optimal to migrate to the urban sector? Explain.

(ii) If urban employment and the urban and rural wages remain fixed, solve for the level of the urban labour force which will result in the post migration Harris-Todaro equilibrium.

(iii) Starting with the initial situation, how many rural people must migrate to the urban sector in search of jobs to achieve the equilibrium as obtained in part (ii)?

Q3. Given below is the production function for a family farm in country Zee, where income is shared equally: **[Eco. (H) 2021]**

No of workers	1	2	3	4	5
Output ($)	1000	1800	2400	2800	3000

If the costs of migration are zero and there are 50% chances of anybody getting urban sector job that pays $1300 per annum, then :

(i) How many workers will migrate from this family farm to the urban sector?

(ii) Will the number of workers migrating change if the total family income, whether from the urban sector job or from the family farm, were to be pooled and shared equally?

Q4. If the agricultural Wage w_a is $300, urban formal wage w_f is $1000 and urban informal wage w_i is $500, will a potential migrant move to the urban sector if the probability of getting absorbed in the urban formal sector is 0.5 and the probability of ending up in the urban informal sector is 0.7? **[Eco. (H) 2024]**