

ARE 150

Spring 2019 - Week 6

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1. Overview

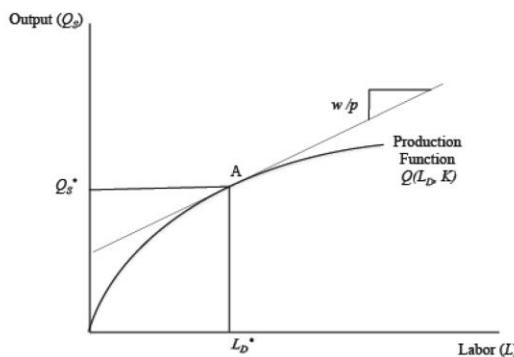
- Before, we modeled the production of agricultural crops as if firms were choosing inputs
- However, in developing economies agricultural producers are also households. Since it is very common that a share of the household's crop production gets consumed by the household that produced it, households act as both producers and consumers.

2. Consider the problem of the household as producer:

- Labor demand is the solution to:

$$\max \pi = pQ(L_D, \bar{K}) - wL_D$$

- Optimality condition: MRT=ratio of wage to price
- Graphically,

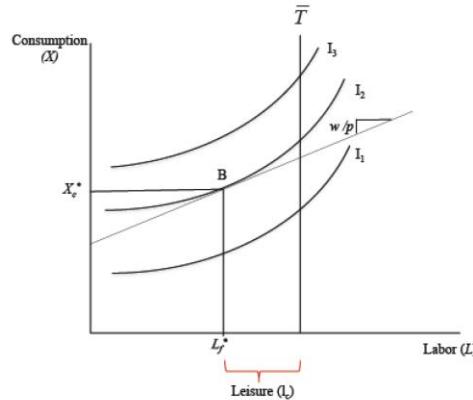


3. Consider the problem of the household as consumer:

- Consumption and leisure are the solution to:

$$\max u(l_c, X_c) \text{ subject to } wl_c + pX_c = w\bar{T} + pQ_S - wL_D.$$

- Notice that income now is $Y = w\bar{T} + pQ_S - wL_D$. Where \bar{T} is the total endowment of labor, Q_S is the quantity of the agricultural good produced, X_c is the quantity of the agricultural good consumed, l_c is leisure, and L_D is labor demand.
- Optimality condition: MRS=ratio of wage to price
- Graphically,



4. Perfect vs imperfect access to markets:

- Access to markets determines the ability to trade goods and inputs, including labor.
- In economics, we generally use perfect access to markets as a benchmark. That is, we assume that the transaction costs of selling or buying are negligible, and that the quality of the products is homogeneous. However, there is plenty of reason to believe that this is not the case in developing contexts.
 - i. Some reasons for which households have no (or imperfect) access to output markets are that the market to sell and buy is too far from the farm, that transportation costs are too high, or that there are no good quality roads to get to the markets
 - ii. Some reasons for which households have no (or imperfect) access to labor markets are: the lack of substitutability between hired and owned labor due to monitoring costs, or underemployment.

[Discussion about other reasons]

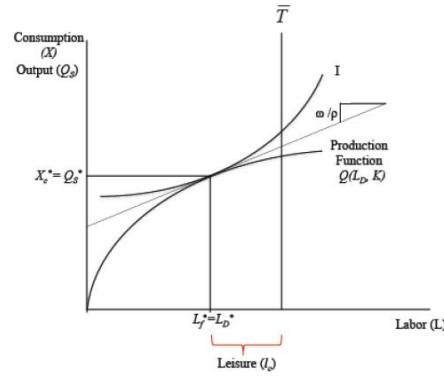
5. The concept of separability:

In an agricultural household model, we say that the production and consumption problems are separable if they can be solved recursively. First, the household maximizes profits independently of endowments and preferences. Second, the household maximizes utility subject to a budget constraint. Note that the income derived from the profit maximization affects consumption decisions. But, consumption decisions do not affect production. Conversely, the production and consumption problems are not separable if they are solved simultaneously.

- The separability of production and consumption decisions depends on assumptions about access to markets.

6. Consumption + production in the case of no access to markets

- When the household does not have access to markets:
 - The prices of the nonmarketable goods or labor are not determined by *aggregate supply* and demand. Instead, prices are determined endogenously by the *household's* supply and demand for nonmarketed goods or labor. We think of these prices as household's subjective valuation of goods and call these "shadow prices".
 - Production and consumption decisions are not separable. They are made simultaneously and not sequentially.
- Autarky: household produces only what it consumes and it employs labor only from its own time endowment—there is no hired labor. Graphically,



7. Consumption + production in the case of perfect access to markets

- When the household have perfect access to markets:
 - The prices of the goods and labor equal the market prices.
 - Production and consumption decisions are separable. They are made sequentially. First, production. Then, consumption conditional on maximum profits. Graphically,

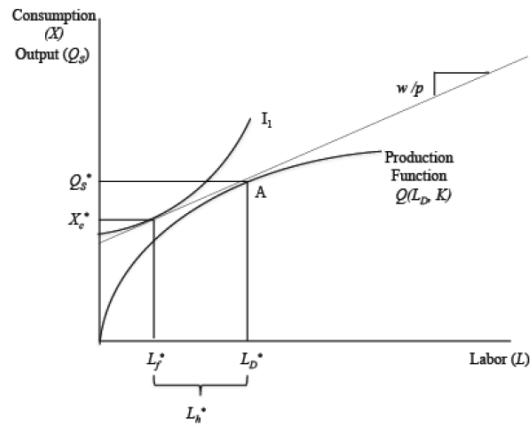


Figure 4. Given market prices, the household produces at point A and demands an amount of labor equal to L_D^* . It hires in an amount of labor equal to L_h^* . It is a net buyer of labor.

Note that this household is a net buyer of labor.