Traditional Agriculture and Indigenous Knowledge - Section 4

Key Topics in Agricultural Modernization

- Technology Transfer
- Nature of Peasant/Traditional Agriculture
- Effectuating change in Peasant/Traditional Agriculture

Underlying Factors:

- who makes decisions
- what are their objectives

- Farm Structure

Needed Focus for Agricultural/Rural Development (Todaro)

1. Small scale, mixed farming practices, which will:
2. Raise farm incomes,
3. Raise average yields, and
4. Absorb rural labor
5. By using Labor Intensive farming practices

Peasants

- Families or individuals who farm
- Small plot of land - manageable by a family
- Grow most of own food
- Not in farming for a business; it is their life and livelihood
- Primarily use traditional technology and methods
Two Questions

1. Why don’t small farmers produce more?

2. Are they too backward or traditional to respond to economic incentives?

Schultz’s answer to #2: NO

It’s an investment problem.

- the form of the investment
- the form that will make it PROFITABLE to invest

Institutional Assumptions

- Farmers have some control over land
- Decentralized market system
- Political and social system allowing free participation in the economy

Schultz’s Key Questions?

1. How much additional production from improved allocation of production factors currently available?

2. What factors primarily responsible for large differences among countries in contribution of agriculture to growth?

3. Under what conditions does it pay, for a peasant, to invest in agriculture?

What Limits Traditional Agriculture?


2. Low marginal return to new investment in traditional agriculture.

3. Marginal productivity of existing labor and capital too low.
Reasons for Low Returns

- Technology constant
- Desires for assets constant
- Prices of traditional inputs high
- Returns to traditional inputs low
- Thus, incentives to invest low

Schultz’s Basic Hypothesis

“There are few significant inefficiencies in the allocation of the factors of production in traditional agriculture.”

Relative Product and Factor Prices
Senapur, India

<table>
<thead>
<tr>
<th>Product or factor</th>
<th>Relative barley price</th>
<th>Adjusted to the barley price (in rupees)</th>
<th>Actual market price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barley (md.)</td>
<td>1.00</td>
<td>9.85</td>
<td>9.85</td>
</tr>
<tr>
<td>Wheat (md.)</td>
<td>1.325</td>
<td>13.05</td>
<td>14.20</td>
</tr>
<tr>
<td>Pea (md.)</td>
<td>.943</td>
<td>9.29</td>
<td>10.40</td>
</tr>
<tr>
<td>Gram (md.)</td>
<td>.828</td>
<td>8.16</td>
<td>10.85</td>
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<tr>
<td>Land (acres)</td>
<td>4.424</td>
<td>43.57</td>
<td>8-30</td>
</tr>
<tr>
<td>Bullock time (hrs.)</td>
<td>.0774</td>
<td>.762</td>
<td>n.a.</td>
</tr>
<tr>
<td>Labor (hrs.)</td>
<td>.0086</td>
<td>.085</td>
<td>.068</td>
</tr>
<tr>
<td>Irrigation water (750 gals.)</td>
<td>.0325</td>
<td>.321</td>
<td>n.a.</td>
</tr>
</tbody>
</table>
Relative Input Prices
(Senapur, India)

<table>
<thead>
<tr>
<th>Input</th>
<th>Price Relative to</th>
</tr>
</thead>
<tbody>
<tr>
<td>Land</td>
<td>57 times oxen price</td>
</tr>
<tr>
<td></td>
<td>(acres) (hours)</td>
</tr>
<tr>
<td>Land</td>
<td>514 times labor price</td>
</tr>
<tr>
<td></td>
<td>(acres) (hours)</td>
</tr>
<tr>
<td>Land</td>
<td>136 times water price</td>
</tr>
<tr>
<td></td>
<td>(acres) (750 gals.)</td>
</tr>
</tbody>
</table>

Acceptance of new input or technology

Depends on:

profit and costs

\[
\text{Profit} = (M)R - (M)C
\]

where

\[
MC = \$ \text{ cost + risk + uncertainty} \\
+ \text{ search costs + learning costs}
\]
Components Determining Profitability of New Technology for Peasants

1. Yield
   In the community

2. Price of the new input
   In the community

3. Risk and uncertainty

4. Farm tenure arrangements

4. Other costs
   - Search costs
     1. isolated community
     2. social/ethnic class barrier
     3. language barrier
     4. literacy
   
   - Learning costs
     Biological easiest
     Mechanical 2nd
     New livestock breeds hardest