Lecture notes 10: The Rural Land Market

The Rural Land Market

• In poor countries land, particularly agricultural land, plays a special role in the daily   livelihood and general social structure of the vast majority of people.

• However, the extent of actual land transactions in the land market in a given year is relatively low.

• The market flow is a trickle compared with the large stock.

• The market is often more active in land-lease than in buying and selling of land.

• How are these characteristics related to the evolution of property rights in land? How are they related to forms of agriculture tenancy?

The history of land rights: quite complex and context specific in parts of the world but some general patterns can be discussed:

• Demographic changes (rising population pressure on arable land) or commercial and technological advances that have increased the productivity and value of land, and led to a tendency to move from the earlier communal patterns of landholding to more well-defined private property rights on land.

• Even when land belonged to the community , individuals often had heritable use rights, given them incentives o take care of the land, but not the right to sell it or transfer the use right to outsiders.

- Sometimes the individual and community rights may be mixed: in contemporary South India, rights to the crop are private, whereas rights to the stubble after harvesting are communal.

- Similarly, in many sub-Saharan Africa the domain of individual rights are different between land and tree tenure.

- Over time transferable property rights on land evolved because of:

- Increased inequalities in labor and other productive assets among households

- Increased outside opportunities and mobility

- Erosion of community cohesion and a large increase in land disputes

These changes have led to:

- Individualization of tenure and transferability rights based on public records and cadastral surveys

- It could also reduce uncertainties and thus encourage investment and allow for a more efficient reallocation of land

- Investment may also be encouraged by the easier convertibility of land into liquid assets

- The emergence of credit market may be helped by land becoming a collateral asset.

In reality many problems in the process could have harmed both equity and efficiency:

- Public records and the court systems are inadequate in most poor countries

- The system is easily manipulated by the powerful and well connected

- As a result, the evolution of private property rights in land has often been associated with:

    - Lost rights of the poor farmers,

    - Heightened social tensions,

    - The creation of new uncertainties,

    - Proliferation of litigation and other transaction costs,

    - Undermined long term implicit contracts among the traditional producers on the land and discouraged relations-specific investments in land preservation and cultivation.

The land market should have functioned so as to reallocate land to more efficient farmers. It did not function always that way. Why?

• Evidence suggest that economies of scale in farm production is insignificant in many poor developing countries (except in some plantation crops, mainly in processing and marketing)

• The small family farm is often the most efficient unit of production

A puzzle: why the large landlords do not voluntarily sell their land to small farmers and use their power to collect much of the surplus arising from this efficient reallocation?

Explanations:

- Land as an asset serves special functions for the rich but not for the poor, therefore they are not reflected in land prices offered by the poor

- For example, holding land may offer tax advantages, speculative opportunities, safe investment opportunities where non-agric investment opportunities are limited or too risky, give special status or political power, a preferred collateral in the credit market.

- All these suggest that the asking price for land may be above the capitalized value of the profit stream even for the more productive small farmers.

- With low households savings and imperfect credit markets, small farmers are incapable of paying the market price of land

Another explanation: an inherent moral hazard problem associated with loan repayment through output produced on the land:

- The poor farmer has a limited liability: in a bad state of nature he cannot be made to repay more than a given amount, while in a good state he must repay a lager amount.

-This 'debt repayment threat' reduces the farmer's incentive to exert effort on the farm after purchasing it.

- Anticipating this, lenders may assess a default risk high enough that they are unwilling to advance the loan.

• For all these reasons land is not transacted from large to small farmers, very thin market.

• Actually, land is transferred from distressed small farmers to large farmers and to money-lenders.

• This increases as traditional risk coping mechanisms get weaker and farmers may tend more to sale land in times of crisis.

• Thus, imperfections of the insurance or credit market may prevent the land market from bringing about Pareto improving transactions.

The land lease market: fixed rent tenancy and sharecropping

• The land lease market is more active than that of buying and selling land

• Sometimes land legislation restricts or prohibits tenancy.

• Or the risk of land reforms deter leasing since the landlord worry that the tenant will acquire occupancy rights on the land.

• Various forms of leasing land, various contractual forms:

Fixed rent contract – landlord charges fix sum of money, per year or per person, for the rental of the land.

Sharecropping – sharing of the tenant's output in pre-assigned proportion between landlord and the tenant, proportion varies across countries, 50-50 is commonly observed, sharecropping is an ancient institution in most developing countries. Sometimes cost of inputs is also shared.

• The standard rationale for sharecropping used to be in terms of risk sharing.

R = α Y + F

If α=0 and F > 0, fixed rent contract with rent = F.

If F=0 and 0<= α <=1 then it's a sharecropping contract.

If α=0 and F<0, this is a pure wage contract and the wage is w=-F.

● Stiglitz (1974) was the first to formalize sharecropping as a compromise between risk-sharing and work incentives.

● When work effort is not observable, the higher is α, the more is the work incentive, reaching a max when α is one (as in the case of the owner-cultivator or fixed rent tenant), but then the more is the risk borne by the farmer.

Stiglitz introduced the first principal-agent model used to study the moral hazard problem with respect to unobserved work effort.

There are models of tenancy where the problem of adverse selection rather than moral hazard is emphasized. For example, a model that introduces a screening model of tenancy:

-The farmer ability is private information

- His choice of contract is to reveal something about this ability

- The most able farmers will self-select themselves by choosing fixed-rent contracts,

- The least productive will work for a wage,

- The intermediate ability will prefer share tenancy.

- Are tenancy contracts important as screening devise in a small village setting where the landlord has good information about the ability of the members of the village work force?

The Sharecropping puzzle as a principal agent problem

Assumptions:

1. One landlord and one tenant

2. Tenant utility function: $U(Y) - e$,

Y - tenant income, e - unobservable tenant effort

3. $\underline{U}$ – tenant reservation utility

4. Amount of land leased out is fixed, suppressed in the model

5. Tenant production function: $\theta F(e)$

Θ is a random parameter with mean=one, F: positive but declining marginal product

Y is a function of output as determined by the contract offered by the landlord:

- For a pure fixed-rent contract: $Y = \theta F(e) - R$, R is the rental payment

- For a pure share contract: $Y = \alpha \theta F(e)$, α is the tenant's share

- If there are side payments (could be negative): $Y = \alpha \theta F(e) + S$, yielding a general case of
    which the fixed-rent and the pure share contracts are special cases.

The landlord max his expected profits:

(3) $E\left[(1-\alpha)\theta F(e)-S\right]$

Subject to tenant's participation constraints:

(4) $E\left[U\{\alpha\theta F(e)+S\}\right]-e\geq\underline{U}$

And the tenant's incentive compatibility constraint, given by the first order condition for the choice of labor effort, given he contract parameters

(5) $E\{U\left[\alpha\theta F(e)+S\right]\alpha\theta F'(e)\}-1=0$

The landlord can drive the tenant down to his/her reservation utility level. So the two constraints may be solved for e $(\alpha,\underline{U})$ and S $(\alpha,\underline{U})$. Substituting these in the landlord maximand, we get the first order conditions (using subscripts for partial derivatives):

(6) $$\alpha = 1 - \frac{(F + S_\alpha)}{F'e_\alpha}$$

One can show that S_α is negative in the case of risk aversion.

If e_α is positive, α is less than unity and thus ruling out the pure fixed-rent case under risk aversion.

In this principal-agent model, the agent has only one decision variable: that relating to its labor effort. The land owner may control more than one decision variable and the terms of the share cropping contract may reflect this.

Take as an example the use of fertilizer.

- If the tenant has to pay for these costs, there will be an under application of this input.
- If the owner share this cost, say by the same share α as in output, it will lead to an efficient application of this input.
- However, this result does not hold in case of informational asymmetry and uncertainty.

With Constant Return to Scale, sharecropping has no extra risk advantage over a suitable mix of fixed-rent tenancy and wage labor contracts:

Assume Output = F (A, e, θ) with CRS for any θ,

A – area leased in and cultivated, e – labor effort, θ is a random parameter (weather)

α - the share of the production the sharecropper receives, the rest goes to the landlord

W- a given wage rate, R – fixed rental rate

Suppose the landlord lease α fraction of land on fixed rent and cultivates the rest with hired labor.

Further assume that the farmer, instead of being a sharecropper, allocates a fraction α of his effort e to fixed-rent tenancy and a fraction (1- α) to working on a wage contract.

The farmer income is then given by:

(1) $$Y = W(1-\alpha)e + F(\alpha A, \alpha e, \theta) - R\alpha A \gtrless \alpha F(A, e, \theta)$$

$$as \quad R\alpha A \gtrless W(1-\alpha)e$$

And the landlord's income by:

(2) $$\pi = R\alpha A + F\big[(1-\alpha)A, (1-\alpha)e, \theta\big] - W(1-\alpha)e$$

$$\gtrless (1-\alpha)F(\alpha A, \alpha e, \theta), \quad as \quad R\alpha A \gtrless W(1-\alpha)e$$

1. If RαA > W (1-α) e , the landlord income is higher under this mixed contract then under SC and he will reject the SC contract.

2. If RαA < W (1-α) e , the farmer will reject the SC contract.

3. SC will be an equilibrium outcome only if RαA = W (1-α) e

But under this condition Y and π are the same as the income in SC, implying that SC does not have any extra risk-sharing advantage.

Extension: if apart from production uncertainty factor markets are also risky, SC may still have some advantage.