Chapter 12: Land

Shortest title and longest chapter in book.

One way to summarize chapter content: answers to the following equations.

1. How does the land rental market deal with substantial inequalities in the ownership of land? What are the main types of tenancy and how does the economic environment determine the form of the land rental contract?

2. Are land rentals efficient? If not, which forts of economic environments are more likely to create inefficacy?

3. Is inequality of ownership inefficient? Are small farms more productive than large farms?

4. If yes to Q-3, we do we not see frequent land sales from rich to poor? What is the role of land reform?
Varieties of tenancy

- Fixed-rent: tenant pays a fixed sum of money to the landlord in return for the right to cultivate the land.
- Share cropping: tenant yields a agreed upon share of the crop.

See fixed-rent tenancy common in Latin America, with share-cropping prevalent in Asia. Though both forms appear in both places.

Key insight: under fixed-rent the tenant bears the risk of agricultural production. Tenant is obligated to pay rent regardless whether harvest large or small.
Let $Y$ represent agricultural output on the rented land.

Total rent ($R$) is

$$R = \alpha Y + F$$

- $\alpha = 0$ and $F > 0$ fixed-rent contract (independent of output)
- $0 < \alpha < 1$ and $F = 0$ share-cropping; $\alpha$ landlord’s share.
- $\alpha = 0$ and $F < 0$ “Pure wage contract”, $w = -F$. “Tenant” is a laborer.
Discuss figures in Section 12.3 in the following order:

- Figure 12.2: Production, cost, and economic surplus.

- Figure 12.4: The Efficiency of fixed–rent contracts. (adds a line to Figure 12.3) labor input unchanged from Figure 12.2.

- Figure 12.3: Sharecropping contracts and inefficiency. Under sharecropping labor input is less than under fixed–rent \( \hat{L} < L^* \).

- Figure 12.5: Why returns to a tenant should not exceed 100%. (Or why if 100% return is good, 120% is not better.)
Sharecropping and risk

- Sharecropping is less efficient than fixed-rent contracts. Yet, we see both types of contracts in all countries, even within the same local areas.
- Sharecropping must exist therefore for some other reason.
- Can see the inefficiency of sharecropping as induced by a missing insurance market.
- The missing insurance market or other market imperfection due to incomplete information.
Risk Aversion

Discuss Figure 12.6.

Risk premium: the extra expected return (above the guaranteed return) needed to compensate an individual for accepting an uncertain (variable) return.
Definition: Insurance serves as a contractual mechanism to shift income from good times to bad times. This returns the payment in good times and reduces the loss in bad times.

Insurance can occur across time for an individual person (self-insurance) or across people at a point in time.

Example: crop insurance: farmers pay a fee at planting time to buffer losses due to bad weather or other events beyond the farmer’s control.
Summary . . .

- Discussed contracts within agriculture.
- Showed that in absence of risk aversion, fixed rent contract achieves first–best: value of marginal product equals true marginal cost. If opportunity cost is hourly laborer paid $w$. Set $MP = f'(L) = w$.
- Showed that sharecropping is inefficient, tenant gets share of output $(1 - \alpha)f(L)$ so if opportunity cost is $w$ (work as hourly laborer) farmer sets labor such that $(1 - \alpha)f'(L) = w$. As $\alpha < 1$ under supply labor.
- With risk aversion by tenant, sharecropping is a way of reducing the tenant’s risk. Tenant receives less when harvest is good, to receive more when harvest is bad.
Well if some insurance is good, a little more is better as diminishing marginal utility of income protection of income losses yield more utility than reduction of income gains.

Thus, with risk aversion by tenant, landowner can be better off by offering insurance to tenant.

But if a little is better, why not more. That’s true especially at very low levels of income.

Implies that it is possible that tenant is so risk averse, prefers working as wage laborer (payment divorced from output), paid by unit of time not output.

Possible sharecropping does not exist. Have only tenants and landowners, but with imperfect monitoring landowner will hire supervisors to monitor effort by laborers.
Limited Liability

- If tenant is poor and output is uncertain there may be states in which tenant will not be able to pay fixed rent. Tenant’s small wealth, if extremely bad harvest, doesn’t have the resources to cover the cost of the fixed rent.

- This is known as limited liability — can only lose assets/savings which may be small or zero.

- Problem: creates an incentive for tenant to over invest in risky methods of production. (why?)

- One solution is to lower the rent in bad outcomes and raise it in good outcomes. But this is like sharecropping.

- As tenant grows richer the limited liability constraints becomes less binding. So should see fixed rent contracts among the better off tenants.
Screening

- Sharecropping can be a mechanism by which to screen tenants.
- If landowner is uncertain about true productivity of tenant, but tenant knows own productivity.
- Then sometimes possible to offer different kinds of contracts to tenants to get them to reveal their unobserved “type”.
- Insight: high productivity tenants want contract in which they retain a larger share of their (high) marginal product. Low ability or productivity tenants, would prefer to divide their low marginal productivity between themselves and landlord.
- May be possible by offering a menu of contracts to separate high– versus low– productivity tenants.
In this setting, may be able to set rent and shares such that high productivity tenants prefer the fixed-rent contract, whereas the low-productivity tenants prefer the sharecropping contract.

Separating the tenants in this fashion makes profit for landowner (and tenants).

Explains why we see both types of contracts (fixed rent, sharecropping) in the same market at the same time.

Limitations: high productivity tenants know that once he reveals himself, rents will be raised to squeeze extra surplus.

Competition for tenants eliminates screening — landlords can not retain surplus as it gets competed away.
Touched on briefly with discussion of screening of extending these ideas to dynamic settings: multiple periods.

Tenancy contract may or may not be renewed. When non renewal or eviction is possible, this gives the landlord another way to provide incentives to the tenant to work hard.

Say a sharecropping contract is offered because of screening or tenant’s risk aversion. Can combat Marshall’s efficiency loss of sharecropping by threatening to evict in case of poor performance (low output).

The possibility of eviction changes the contract:

- compensate tenant for extra risk
- value of contract must pay the tenant as least as much as his next best opportunity.

Possible downsize: tenant has reduced incentive to maintain land quality or other long term investments.
When do we see contracts with Eviction

- **Limited Liability** When tenant is poor, loss has no bite for tenant. Threat of eviction provides incentive.

- (Nonverifiable) information regarding tenant effort. Landlord has some knowledge of tenant’s effort, but such informal information can not be used in a court of law (should one exist).

If tenant does not work hard or live up to the spirit of his responsibility – end the contract.

But this requires that the landlord pay the tenant a premium so the tenant does want the contract to end.
Ray provides an interesting presentation of the history of property rights.

Recall four key questions of chapter regarding enormous inequalities in land holdings:

1. Is such inequality compatible with productive efficiency, quite apart from the intrinsic ethical aberrance that we may feel.
2. If there is an efficiency lost, can it be repaired through operation of the land markets? Last time.
3. If land rental markets are not adequate to restore efficiency, would land sales from rich to poor spontaneously redress the balance?
4. If neither land rental markets nor sales markets are sufficient, what is the role of land reform.
Do small farms have higher productivity than large farms?

Defines **efficiency** as when value of marginal product of factors equals their true marginal cost.
Clearly some minimum size of farm.

Some crops best suited to mechanization and cultivation with capital-intensive methods.

Expect that land exhibits constant returns to scale OR displays increasing returns to scale once capital intensive farming possible.

Sources of economies to scale?

- Draft animals; must be owned (renters have an incentive to over-work).
- Machinery: tractors, harvesters, threshers, pump sets . . . represents economies of scale beyond animals.
Imperfect Insurance Markets and small farm productivity

- More than technology; labor plays a major role in production.

- Laborers and tenants not risk–neutral and do not have access to credit or insurance markets.

- This provides an incentive to cultivate small farm by owners and labor (difficulty of monitoring effort).

- Efficiency loss from contracts that insure tenant.

- Yet technology gains from large farms not available to small farms simply by pooling land. Pooling creates a free–rider problem.

- Hence distinct potentially offsetting forces on the productivity of small farms.
Available evidence suggests for developing countries the productivity gains arising from incentives (with imperfect markets in the background) outweigh the technological returns to scale from larger plots.
If small landowners can buy land from rich landowners, then productivity gains can be realized.

Do land markets work adequately?
Land Sales: Answer

Do land markets work adequately: No.
Perspective:

- Productivity is higher on smaller plots than on larger plots.
- Productivity gains cannot be realized by tenancy, because the tenancy contract itself erodes the productivity gain.
- Land sales cannot adequately substitute for land tenancy markets.

Land Reform land transfers from rich to poor, either without full compensation or with full compensation pd by government or by foreign donors (WB), but not entirely by the beneficiaries otherwise that would be a simple land sale.
Land Reform

No surprise lobbying against land reform is active and effective.

- Sometimes possible to have land owners acquiesce by threats of violence or forced expropriation.
- Land reform usually accompanied by social upheaval.
- Intermediate step of grant use rights are insufficient, as without ownership land can not be pledged as collateral for productivity enhancing investments.
- Seized land can be given out to collectives, which have their own problems (free-riding).
- Can impose ceilings on landowners, but these are easily circumvented by putting land in names of relatives.