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A Marshallian model of share tenancy

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A MARSHALLIAN MODEL OF SHARE TENANCY

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ABSTRACT

Despite persistent empirical support for the Marshallian model of share tenancy it remains out of favour at the theoretical level. There appear to be two reasons for this: Firstly, earlier attempts at theorizing an endogenous share rent under Marshallian assumptions implied that either the marginal product of land would have to be zero everywhere or that a competitive share rent equilibrium would fail to exist. The second objection to the Marshallian approach has been its failure to explain why inefficient Marshallian type contracts should survive under competitive conditions.

The aim of this paper is to develop a simple Marshallian model in which the share rent is endogenous and which is free from these objections. It is argued that an explanation for the persistence of 'inefficient' sharecropping may be that it allows landlords to appropriate a portion of tenant surpluses even though landlords have no individual market power. Moreover, it is shown that (for a suitable set of parameters) the inefficient share rent equilibrium would survive competition from 'efficient' contracts.

The work of Cheung (1968), (1969) has inspired a revival of interest in agricultural tenancy among economists from which two broad approaches to the theorisation of share tenancy have emerged. The first is the traditional or Marshallian one in which tenant choice with respect to both the quantity of land leased and to the application of labour and other non-land inputs is unrestricted. This leads to the proposition that sharecropping is likely to be inefficient as compared with either owner production or fixed rent tenancy because the share rent has the effect of a tax which distorts the allocation of resources between land which is and is not sharecropped.

The other view, pioneered by Cheung, may be termed the 'contracts' or 'monitoring' approach in which it is supposed that landlords can and will stipulate tenancy agreements with both land and non-land inputs set at efficient levels. Hence, in the absence of other offsetting advantages, competition among landlords and tenants would eliminate any inefficient Marshallian contracts and only efficient contracts would be observed.

There is a persistent trickle of evidence pointing in the direction of the Marshallian position. For example, Bell (1977) concluded that 'the predictions of the Marshallian view are generally in accord with the facts' or more recently Shaban (1987), whose evidence indicates 'a strong rejection of the monitoring approach'. Despite this, the Marshallian approach remains distinctly out of favour at the theoretical level.

However, Bell (1977) also identified a reason for the unpopularity of the traditional approach in observing that 'it cannot be said that the analytical foundations of the Marshallian position inspire much confidence'. The principal aim of this paper is to shift this perception by suggesting a way of theorizing a competitive share rent market which is free from the objections to the Marshallian approach alluded to by Bell.

The theoretical difficulties associated with the Marshallian approach arise because, for the sharecropping tenant, the marginal cost of land appears to be zero — hence the tenant will wish to lease in land up to the point where its marginal product is also zero. This has led to the belief that either, in equilibrium, the overall marginal product of land must be zero, which is regarded as implausible in locations such as parts of India where sharecropping is widely observed or that the Marshallian model must result in a persistent excess demand for land and hence a competitive share rent equilibrium may not exist, see e.g. Newbery (1975).

In fact, theorising an endogenously determined share rent under competitive market conditions, when agents satisfy Marshallian assumptions, i.e. tenants are free to choose the cultivation intensity and to lease from more than one landlord, has proved curiously intractable. The most notable attempt has been Bhardan and Srinivasan (1971) but their model is widely regarded as unsatisfactory precisely because it implies that under a share tenancy equilibrium the marginal product of land must be zero everywhere.[1]

A further objection to the standard Marshallian approach centres on its failure to identify an economic rationale for share tenancy. For a long time it was widely believed that the productive inefficiency of sharecropping could be offset by its superiority in terms of risk sharing but Stigliz (1974) and Newbery (1977) have shown that sharecropping has no risk

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[1]   Bell and Zusman (1976) provide a Marshallian model with an endogenous share rent but in the context of a market structure which is not strictly competitive.

sharing advantages over a fixed rent and wage system. Few other offsetting advantages have been seriously proposed.[2]

Here it is suggested that a competitive share rent market can be theorised in a way which meets these objections to the Marshallian approach. In particular, it is shown that under the competitive share rent system developed below landlords may be able to appropriate a share of the 'surplus' which would accrue to tenants under a fixed rent system because tenants own non-marketed family resources. This provides a 'rationale' for the existence and persistence of 'inefficient' share tenancy. The idea that sharecropping is a means of appropriating surplus is, of course, not new; however, what is novel here is the demonstration that appropriation can occur even though individual landlords have no market power. Moreover, it is shown that while the familiar Marshallian property of a zero marginal product of land holds for leased out land this is consistent with an overall positive marginal product of land and a zero excess demand for tenancies.

The paper is arranged as follows: Section 1 outlines the main assumptions of the model i.e. technology, existence of markets etc. Section 2 characterizes the fixed rent equilibrium while Section 3 suggests a way of characterizing a competitive share rent equilibrium. Section 4 provides a comparison of the two equilibria in which it is shown that share tenancy may in some circumstances provide landlords with sufficiently higher rental incomes to offset the efficiency disadvantages of sharecropping. Finally, Section 5 considers the question of the stability of the share rent equilibrium given that it is production inefficient and hence potentially vulnerable to erosion by efficient contracts.

1   THE MODEL

There are two classes of household — landlords who own all the available land according to an exogenously given distribution and tenants who are landless.[3] Both types of household own exogenously given quantities of non-land factors of production such as household labour, draught animals etc. However, it is supposed that the only organised market

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[2]   Basu (1989) claims that limited tenant liability in the event of poor harvests may encourage excessively risky production plans. This distortion of a fixed rent system would be prevented by the adoption of share tenancy.

[3]   The possibility that tenants may also be landowners is ignored here.

in operation is the market for land services.[4] Hence, the production possibilities of landlords and tenants may be represented by

$$y_i = G_i (\bar{H}_i - H_i) \quad i = 1 \dots M \quad \text{(Landlords)} \tag{1}$$

$$y_j = f_j (h_j) \quad\quad j = 1 \dots N \quad \text{(Tenants)} \tag{2}$$

where non-traded inputs have been suppressed, y_i and y_j are quantities of homogeneous output, $\bar{H}_i$ is the landlord's endowment of land, H_i is the quantity of land leased out by the ith landlord and h_j is the quantity of land leased in by the jth tenant. It is assumed that $f'_j \geq 0$, $G'_i \geq 0$, $f''_i < 0$ and $G''_j < 0$. Also, it is assumed that the extensive character of agricultural production and the fixity of non-land inputs ensures that the marginal product of land on tenant farms becomes zero at finite (and possibly quite small) levels of land leased in ie. for all i and for some finite $\bar{h}_i$, $f'_i (\bar{h}_i) = 0$.

Although landlord and tenant production functions are characterized as being different this is not necessary for any of the subsequent results but is convenient for expositional purposes. It is also convenient, but somewhat less innocuous, to assume that tenants are in fact identical i.e. $f_j (h_j) = f(h)$ and similarly landlords i.e. $G_i (\bar{H}_i - H_i) = G(\bar{H} - H)$.

Finally, it is assumed that there is no uncertainty. This together with the fact that each household's labour supply is fixed, means that all households will seek to maximize income subject to the market constraints they perceive. Thus, landlords will choose their leasing policy so as to maximize the sum of own output and rental income, while tenants will seek to maximize output less rent.

2   A COMPETITIVE FIXED RENT EQUILIBRIUM

It is assumed that there are sufficiently large numbers of both landlords, M, and tenants, N, for the existence of a standard competitive market in land services. Landlord and tenant maximization then yields the conditions

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[4]   This may be relaxed to allow a labour market as is done in the appendix.

$$G'(\overline{H}_i - H) = R \tag{3}$$

$$f'(h) = R \tag{4}$$

where R is the market rent per acre.

A competitive equilibrium consists of H*, h*, R* and N* which satisfy (3), (4) and also the market clearing condition

$$MH^* = N^* h^* \tag{5}$$

In addition, each tenant household must earn an income at least as great as its reservation income $\overline{c}_j$. This yields

$$f(h^*) - r^* h^* \geq \overline{c}_j \text{ all } j = 1 \dots N^* \tag{6}$$

Any tenant for whom (6) is not satisfied would abandon cultivation, so the supply of tenants, N*, is endogenous to the model and is determined by the condition:

$$\overline{c}_j \leq f(h^*) - R^* h^* < \overline{c}_k \text{ for } j = 1 \dots N^* \text{ and } k \geq N^* + 1 \tag{7}$$

It is clear that because of the marginal product of land is equalized across landlords and tenants the equilibrium characterized by equations (3), (4), (5) and (7) is Pareto efficient in a constrained sense.

3. A COMPETITIVE SHARE RENT EQUILIBRIUM

Again it is assumed that there are sufficiently large numbers of landlords and tenants for no agent to have perceptible market power. However, this is not sufficient to define a competitive share rent market and the main theoretical problem lies in deciding how to model the market constraints that agents perceive i.e. what are the market variables that agents treat as parametric in the way that the rent per acre, R, is parametric in the fixed rent equilibrium. An obvious candidate is the share rent, r, — this was the procedure adopted by Bhardan and Srinivasan (1971) but it led them to the conclusion that, in equilibrium, the marginal product of land must be zero *everywhere*, a proposition which is widely regarded as implausible.

The difficulty with treating the share rent as the sole parametric variable is that it does not have the dimension of price hence, by itself, it provides insufficient information to the landlord on how his income will vary the quantity of land leased out. Something else is needed and here it is proposed that in a competitive market landlords would also regard the *average product of leased out land* as akin to a market parameter.

This is justified as follows: since it is assumed that the landlord has no control over either the quantity of land leased-in by a given tenant or over the application of non-land inputs he has no direct means of controlling or predicting the yields on the land he leases out. However, past experience would be a pretty good guide as to what could be expected for a given grade of land and a given type of tenant household (both assumed to be homogeneous here). Moreover, average yields would change only rather slowly (if at all) through time. Thus taking one year with another the average product of leased out land is likely to be a relatively predictable magnitude and may be used safely as a basis for calculating the return from leasing.

Taken together, the share rent and the average product of leased out land have precisely the dimension of a price, i.e. rent per acre. Hence we suppose that the representative landlord would choose a leasing policy so as to maximize.

$$G(\bar{H} - H) + r b H \tag{8}$$

where r is the parametric share rent and b may be interpreted as the *expected* average product of leased out land and which is also regarded as a parameter by landlords.

For tenants the dimensionality of r poses no problems and they simply maximize

$$[1 - r] f(h) \tag{9}$$

These maximizations yield the following conditions for landlords and tenants respectively

$$G' [\bar{H} - H] = r b \tag{10}$$

$$f'(h) = 0 \tag{11}$$

A share rent equilibrium is a set of $\hat{H}$, $\hat{h}$, $\hat{r}$, $\hat{b}$, and $\hat{N}$ which satisfy (10), (11) and also

$$b = \hat{b} = f(\hat{h})/\hat{h} \qquad (12)$$

i.e. the realized average product of leased out land, $\hat{b}$, must coincide with what was expected; and

$$M\hat{H} = \hat{N}\hat{h} \qquad (13)$$

the market clearing condition; and finally

$$\bar{c}_k > (1 - \hat{r})\ f(\hat{h}) \geq \bar{c}_j \text{ for } j = 1 \ldots \hat{N} \text{ and } k \geq \hat{N} + 1 \qquad (14)$$

which as before determines the number of tenants.

From equations (10 and (11) it is clear that, in contrast to the fixed rent equilibrium, the share rent equilibrium is Pareto inefficient because the marginal product of leased out land is different from that on owner cultivated land. However, unlike the model of Bhardan and Srinvasan (1971), the *overall* marginal product of land can be, and in general is, positive even though it is zero on leased land.

It is not immediately evident that a share rent equilibrium with $f'(h) = 0$ and $r < 1$ will always exist. However, if $\hat{h}$ is sufficiently small in relation to the available supply of land, M $\bar{H}$, and if there are sufficient tenants with sufficiently low reservation incomes an equilibrium will always be possible.[5]

4. A COMPARISON OF ALTERNATIVE TENURE SYSTEMS

A central problem in the debate on share tenancy has concerned the reasons why one tenure system is chosen or emerges rather than another, since often it appears that one system

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[5] However, as is shown below, if the share rent equilibrium leads to a significantly smaller number of tenants as compared with a fixed rent system then, even if possible, it is unlikely to be observed.

or the other is dominant.[6]   A comparison of the 'performance' of the alternative systems outlined here provides some insight on the conditions under which one or other could be expected to dominate.

One difference has already been noted. This is that the fixed rent system is efficient while the share rent equilibrium is not. Inefficiency is a well known property of models with Marshallian assumptions and has led to the view that such arrangements would be eliminated by the forces of competition e.g. Cheung (1969), Newbery (1975) and others. However, Bell (1977) and Shaban (1987) amongst others have offered evidence which suggests considerable support for the Marshallian view in practice. Nevertheless, there remains the problem of why an inefficient system should persist. Here, it is suggested that an explanation may lie in the fact that a share rent system will in *certain* circumstances confer distributional advantages on landlords which lead to a collective landlord preference of share-cropping over fixed rents. This possibility is easiest to demonstrate diagramatically.

Since households are assumed to be identical within each class, the equilibria of the two systems may be described in terms of a representative tenant and landlord. In addition, in order to illustrate the central point is is useful to assume, initially, that the number of tenants in the fixed and share rent equilibria are the same i.e. $N^* = \hat{N} = N$. This may be interpreted as representing an inelastic supply curve of tenants over the relevant range of net incomes. With these assumptions there is no further loss of generality in assuming that $N = M = 1$, which then enables a simple diagramatic representation of the two equilibria. This is done in figure 1.

[6]   See for example Bell (1977), Bhardan and Rudra (1980) or Bliss and Stern (1982). Coexistence of fixed and share rent systems has come to be regarded as one of the 'stylized facts' regarding share tenancy which need to be explained. However, the empirical literature suggests that co-existence is by no means universal. Se also Byres (1983).

FIGURE 1

The total quantity of land available — owned by the landlord — is O $\overline{\text{H}}$. The landlord's

marginal product of land curve is the downward sloping curve $G'(\overline{\text{H}} - \text{h})$ originating at C while

the tenant marginal product curve is $f'(\text{h})$ originating at D.

The fixed rent equilibrium occurs at A where the marginal product of land is equated

across tenants and landlords. The equilibrium rent is OR* and the quantity of land leased out is

Oh*. Hence the income of the representative landlord consists of the sum of his own

production, the area $AC\overline{\text{H}}h^*$, and rental income, the area OR*Ah*. The share rent equilibrium

is characterized at B, where the demand for land is $O\hat{\text{h}}$, which is determined by the condition

that tenants will wish to lease in land up to the point where its marginal product is zero. The

equilibrium share rent is then determined by the requirement that landlords should be just

willing to lease out the demanded quantity, $O\hat{\text{h}}$, — this requires $\hat{\text{r}}$ to satisfy r $f(\hat{\text{h}})/\hat{\text{h}}$ = $G'(\overline{\text{H}}$ -

$\hat{\text{h}}$). Landlord income is again given by the sum of own production and rental income i.e. by the

sum of the areas $BC\overline{\text{H}} \hat{\text{h}}$ and $O\hat{\text{r}}bB\hat{\text{h}}$. It is clear that this exceeds (by amount R* $\hat{\text{r}}bBA$) the

income which accrues to the landlord under the fixed rent system.

The source of the gain experienced by landlords under the share rent system is the

higher effective equilibrium rent per acre which obtains and which is at the expense of the

surpluses (over and above the reservation incomes $\overline{\text{c}}_j$) which tenants enjoy under fixed rents.

Share cropping permits a partial appropriation of these by landlords even though individually

landlords have no market power.[7] The competitive surpluses arise because of the diminishing

returns which originate from the fixity of non-traded inputs possessed by tenants, and because

of the inelastic of supply of tenants. If the latter assumption is relaxed then the advantages of

share-cropping for landlords are reduced and may be eliminated entirely since a hypothetical

switch from a fixed to share rent system would lead to some tenants abandoning cultivation

which would then result in a lower rent per acre.

To illustrate this point consider the polar case where the supply of tenants is perfectly

elastic at the reservation income $\bar{c}$. The equilibrium of the representative tenant is shown in

figure 2.

FIGURE 2

7   It is evident that if a landlord did have market power (in the sense of being able to restrict the size of tenants' holdings) and could discriminate in setting share rents then the *whole* of the competitive surplus could be appropriated. In other words a monopolistic landlord can effectively practice perfect price discrimination by leasing on a share rent basis and evidently some of this 'advantage' is carried over to the competitive case.

Under a fixed rent system the tenant leases Oh^* at the competitive rent OR^*. By the assumption of a perfectly elastic supply of tenants at the reservation income $\bar{c}$, the shaded area under the marginal product of land schedule must just equal $\bar{c}$. Under the share rent system tenants would wish to lease $O\hat{h}$ but in order to obtain a residual income equal to $\bar{c}$ the average rent per acre must be less than OR^* e.g. $O\hat{\hat{r}}b$ in Figure 2. Hence landlords are clearly worse off in the share rent equilibrium — indeed if the supply of tenants is perfectly elastic a share rent equilibrium would never be observed if leasing on a fixed rent basis was available since any landlord could lease all the land he wished at the competitive fixed rent OR^*.[8]

To sum up: landlords are definitely better-off under a share rent system than under a fixed rent one when the supply of tenants is inelastic even though the share rent system is inefficient, and even if landlords have no individual market power. If there is some elasticity in the supply of tenants this generates an offsetting force which tends to reduce the availability of surpluses and the average rent per acre through the departure of some tenants. When the supply of tenants is sufficiently elastic the competitive surpluses are effectively too small to offset the overall inefficiency of sharecropping.

5. THE STABILITY OF THE SHARE RENT EQUILBIRIUM

The argument of the previous section suggests a rationale for the Marshallian model may be found in the advantages that share tenancy confers on landlords as a class. However, it remains to be shown that the inefficient share rent equilibrium which generates those advantages will not be undermined by competition from efficient contracts.

An efficient contract can be devised for a landlord/tenant pair under which both are better off than in the share rent equilibrium. This is illustrated in Figure 3 for the representative landlord and tenant of Section 3. The share rent equilibrium is at B, where the landlords rental income is $O\hat{\hat{r}}bB\hat{h}$.

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[8] The assumption of a perfectly elastic supply of tenants is at the core of Cheung's result that fixed and share rent systems are equivalent. If the supply of tenants is perfectly elastic and if both fixed and share rent systems are *assumed* to be viable then the equilibrium rent per acre must be the same under both systems, hence the land/labour ratio must also be the same — a property which is ensured in Cheung's model by the appropriate contract.

A contract which allowed the tenant to lease as much land as desired at the fixed rent OR* plus a fixed payment of $R^* \hat{\hat{r}} bBA + \varepsilon(AB\hat{h})$, where $1 > \varepsilon > 0$, would be preferred by both tenant and landlord. The tenant would benefit by $(1 - \varepsilon)(AB\hat{h})$ and the landlord by $\varepsilon(AB\hat{h})$ — i.e. such a contract would enable landlord and tenant to share the benefit of the increased output which follows from removing the distortion in the allocation of land between tenant and landlord.

FIGURE 3

The problem with this is that if *all* landlords offered such leases then, in a competitive market for leases, the fixed payment or premium would be competed down to zero ie. the fixed rent equilibrium would emerge. Thus the feasibility of an agreement between a given landlord and tenant pair which is efficient, but offers the landlord at least the same advantage as leasing

on a share rent basis, appears to require that the share rent system continues to prevail generally. A full analysis of such a situation can obviously be quite complicated. However, it is clear that a landlord would have an incentive to offer such a lease either if he believes that other landlords will not follow or, if they do, the short term gains offset the longer term losses. On the other hand if the landlord expects that others will follow and the short term benefit is less than the long term gain the share rent equilibrium will be stable. The following simple model provides an example of stability. Suppose all landlords are identical, and suppose that if any one takes advantage of a favourable short term contract then it is expected that all other landlords will follow in the next period. Let S be the benefit (income) per period enjoyed by landlords under the share rent system, F the benefit under a fixed rent system and S′ the one period benefit from breaking ranks. The subjective discount factor is δ. The present value of sticking with a share rent contract is therefore given by

$$\sum_{t=1}^{\infty} \delta^t S \tag{15}$$

The present value of breaking ranks in period T is:

$$\sum_{t=1}^{T-1} \delta^t S + \delta^T S' + \sum_{t=1}^{\infty} \delta^{T+t} F \tag{16}$$

Subtracting (16) from (15) yields

or

$$\delta^t [S - S'] + \sum_{t=1}^{\infty} \delta^{T+t} [S - F] \tag{17}$$

If (17) is positive the share rent equilibrium will be stable. This is equivalent to

$$\delta > \frac{(S' - S)}{(S' - F)} \quad \text{or, if } \delta = \frac{1}{1+i}, \text{ to } i < (S - F)/(S' - S)$$

as the condition for stability. Thus, the share rent equilibrium would be stable unless landlords were excessively 'myopic'.

While not conclusive, the above example does show that stability of the inefficient equilibrium is not impossible. Indeed, with more complex assumptions one could envisage a situation in which a fixed rent 'fringe' coexited as free riders within a basically share rent system. Where this was the case the rent per acre (exclusive of any premium) would be expected to be lower than the average rent per acre implicit on share-cropped land. Evidence in Bliss and Stern (1982) and Johnson (1950) suggests that where fixed rents co-exist with share rents the rent per acre is indeed lower on fixed rent land.

CONCLUDING COMMENTS

The model developed above is not intended to provide a comprehensive theoretical account of sharecropping — indeed, in practice, landlords often exercise considerable market and non-market power in ways that are crucial to a complete understanding of actual tenancy situations and hence the competitive model is probably inappropriate. The interest of the model therefore lies in the demonstration that it is possible to theorise the Marshallian approach to share tenancy in a way which is free from the objections to it alluded to by Bell (1977). The model proposed here also lends some theoretical support to another 'traditional' view according to which share tenancy is regarded as an exploitative system which enables landlords to appropriate the surpluses of landless tenants. The significant point in this context is that share rents provide a mechanism for appropriation even in the absence of market power on the part of landlords.

Two final observation are worth making. Firstly, the model provides some theoretical support for land reform. A land reform which redistributed land to tenants in amounts which were *smaller* than the quantity they leased in would redistribute income in favour of tenants *and* would improve productive efficiency — similarly a mandatory reduction of the share rent would also improve efficiency and the distribution of income though in this case an excess demand for tenancies would arise.

Secondly, one of the stylized facts of sharecropping which Stiglitz and Newbery (1979) suggest theory should explain is the decline of sharecropping in modern developed economies. Economic development would be expected to increase the reservation incomes of potential tenants as increased and more rewarding urban employment opportunities are generated — this would shift the supply curve of tenants, as well as make it more elastic, and would reduce the pool of rents available for appropriation by share tenancy thus over time removing the conditions underlying for the survival of sharecropping.

APPENDIX: THE MODEL WITH A LABOUR MARKET

When there is an organised labour it is assumed that tenants are in general net suppliers of wage labour and landlords are net demanders of it. Hence, the landlord's net income, c, may be expressed as

$$c = G(\bar{H} - H, L) + G_1 (\bar{H} - H, L)H - G_2(\bar{H} - H, L)L \qquad (A.1)$$

where G_1 is the marginal product of land, G_2 is the marginal product of labour and L is the quantity of wage labour hired by the representative landlord. Equation (A.1) holds under both fixed rent and share rent systems but will vary in value with the equilibrium values of H and L. Let stars denote the equilibrium values of all variables under the fixed rent system and hats their values under share rents. Then

$$c^* = G(\bar{H} - H^*, L^*) + G_1 (\bar{H} - H^*, L^*) H^* - G_2 (\bar{H} - H^*, L^*)L^* \qquad (A.2)$$

$$\hat{c} = G(\bar{H} - \hat{H}, \hat{L}) + G_1 (\bar{H} - \hat{H}, \hat{L})\hat{H} - G_2(\bar{H} - \hat{H}, \hat{L})\hat{L} \qquad (A.3)$$

Subtracting (A.3) from (A.2) gives the change in the net income accruing to the landlord in moving from a fixed to share rent system.

Let $G(\bar{H} - \hat{H}, \hat{L}) = \hat{G}$, $G_1 (\bar{H} - H, \hat{L}) = \hat{G}_1$ etc. this yields:

$$\hat{c} - c^* = [\hat{G} - G^*] + \hat{G}_1 \ \hat{H} - G_1^*H^* - (\hat{G}_2 \hat{L} - L^*) \qquad (A.4)$$

Expanding G around (H*, L*) yields

$$\hat{G} = G^* + G_1^* (H^* - \hat{H}) + G_2^*(\hat{L} - L^*) \qquad (A.5)$$

Using (A.5) to substitute for $\hat{G}$ in (A.4) yields

$$\hat{c} - c^* = [\hat{G}_1 - G_1{}^*] \, \hat{H} - [\hat{G}_2 - G_2{}^*] \, \hat{L} \qquad\qquad (A.6)$$

Suppose that the supply of wage labour is perfectly elastic at the wage rate $\bar{w}$, then $\hat{G}_2 = G_2{}^* = \bar{w}$ and (A.6) reduces to

$$\hat{c} - c^* = [\hat{G}_1 - G_1{}^*] \, \hat{H} \qquad\qquad (A.7)$$

This case is effectively the same as the no labour market case i.e. landlords will gain from a switch to share rents provided this increases the average rent per acre i.e. $\hat{G}_1 > G_1{}^*$.

On the other hand if the land/labour markets in a particular locality are 'closed' then a hypothetical switch of tenure system would also affect the local wage rate assuming that tenants provide some of the local supply of wage labour. If the local wage rate *fell* as a consequence of the switch then from (A.6) it is evident that this would reinforce the gain obtained by landlords.

However in general it is not possible to predict what will happen to the wage rate in this case even if the supply of tenants is supposed to be inelastic since there are two opposing forces at work. On the one hand a switch to share renting increases the attractiveness of wage labour for the tenant as opposed to working on his own holding — this would tend to *increase* the supply of labour to the local labour market and depress the wage rate. On the other hand, because the marginal cost of land to the tenant is zero under a share rent the size of tenant holdings would tend to increase and there would be a corresponding need for extra labour to work one's own holding, which would have the opposite influence in the local labour market.

Thus, if a labour market is operative the share rent system may continue to generate advantages for landlords as compared with fixed rents, though the precise circumstances in which this is so are more difficult to pin down.

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