

Agrarian Transition in Sind: An Analysis of Interlinked Rural Factor Markets

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1. INTRODUCTION

The process of change in the tenurial structure of Punjab's agriculture from sharecropping tenancy to an owner-cultivation with a wage-labour system of production has been well-documented in [Alavi (1976); Hamid (1980); Hussain (1980); Khan (1981); Khan (1983); and Mahmood (1977)]. It has been argued that this has come about through the induction of the new technologies (firstly in the form of tubewell irrigation and subsequently followed by the biological and mechanical technologies) associated with the "Green Revolution".

In Sind, however, in spite of the use of modern technology, the tenancy-based system of production still predominates. According to the 1980 Census of Agriculture, tenant farms were the largest single category of farms in Sind (with 49 percent of all farms). This study, which reports preliminary findings from lower Sind, uses the framework of interlinked factor markets [Bardhan and Rudra (1978); and Bardhan (1980)] to see if mutually desirable interlinkages for tenants and landlords in their access to land, labour and capital markets can explain the retention of tenancy in the face of exogenous forces of modernization.

2. THE FRAMEWORK

The rapidly growing literature that exists on interlinked factor markets in agriculture¹ rejects the notion that factor markets in agriculture can be assumed to be competitive in a perfect market sense. Not only is this obvious assumption discarded but a more fundamental point is made which is that interlinkages imply multiple relationships between agents in different markets which are simultaneously determined. Briefly, it is argued that not only is access to a given market for an agent

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¹ See for example Bharadwaj (1974), Bardhan and Rudra (1978), and Bardhan (1980).

conditional upon his involvement in another market; but that, given that markets are underdeveloped, agents respond not to a single well-defined parameter (e.g. wage rate or rental share) but to a unique and individual (personalised as opposed to uniform) package contract that ties the agents between markets.

Thus, in conditions where tenants are unable to obtain direct access to institutional credit and where wage labour is comparatively more expensive than tenant labour, a landlord will agree to give a tenant some land on a fixed share of the output, and will also agree to provide him with consumption and production credit. Hence, a linkage is established between the credit and land market.

This position, most clearly espoused by Bardhan (1980), defines it as risk-based. Namely, that any market whose parameters are ill-defined (for whatever social, technical, or distributional reasons) is characterised by potential risk.² In other words, that market seeks another market to spread risk with which it gets interlocked. This in turn leads to personalized economic relations between agents that consist of 'package' deals encompassing relations in more than one market. Usually, the markets are those for credit, land, labour and output.³

There are two arguments with regard to interlinkages: induction of technology, and structural change. Both positions hold that tenancy can be resilient in the face of technology. Firstly, Bhaduri's thesis (1973; 1983) on usury income and interlinkage associated with 'semi-feudal' agriculture emphasises that, under certain conditions, induction of technology may be hampered where returns from usury are higher than returns from productive investment for a landlord.⁴

Secondly, Bardhan and Rudra's work (1978), which to begin with was an empirical critique of Bhaduri, went on to show that the tenancy system itself was able to accommodate innovation. The limits to the degree of accommodation by implication can, and do, vary according to the structural specificities of regions under study. Nonetheless, the tenancy contract was shown to be fairly flexible and thereby resilient.

² A distinct position from Bardhan's type of interlinkage argument emphasises the role of both price (i.e. market based) and non-price (i.e. non-market based) links. Bharadwaj (1974) argues that the asymmetrical distribution of and access to resources amongst agents is critical in determining the interlinkages between them and the factor markets.

³ Neo-classical equilibrium analysis is fruitfully used in characterising particular types of interlinkages, see Braveman and Stiglitz (1982) and it is argued that these respective markets are different from both competitive and monopolistic ones see Basu (1984). This position has been very important in analytically describing the existence of sharecropping, largely through explicit and implicit price links both from the point of view of the landlord and the tenant.

⁴ This position has been criticised on issues of power implicit within the model (Newbery 1975), its empirical basis (Bardhan & Rudra 1978), and on methodology [Majid 1988 (forthcoming)]. Given prevailing social norms regarding the reporting of usury, we were unable to objectively test the Bhaduri hypothesis within our sample.

3. THE HYPOTHESIS

Our usage of the theory of interlinked markets is twofold. First, we have attempted to see if it can be fruitfully used to describe the existence of tenancy in Sind.⁵ Second, with regard to the flexibility of the tenancy contract, we have tried to observe whether the tenancy contract can absorb technology and if it undergoes any qualitative change as a result of exogenous forces of modernization. If so, this could be indicative of a possible transformation path from tenancy to a production organization system based on wage labour.

In reality, systems of production organization may not be autonomous. It may be the case that, given the kind of crops, self-cultivation draws on tenant labour as not only a cheaper, but more importantly, as an assured source of labour supply. On the other hand, wage labour may also be used on tenanted land.

The case for the continued reproduction of tenancy has two sides to it, (i) the landlord's decision to retain it and (ii) the tenant's compulsion to opt for it. From the landlord's perspective we will argue that it is related to labour use for cash crops on self-cultivated land. The primary cash crop in lower Sind is sugar-cane. The labour requirements for-sugar-cane are generally considered more intensive and extensive than other crops. Therefore, access to an assured supply of labour becomes a necessary condition for sugar-cane cultivation which can be satisfied by extensive tenancy. Since neither the price of the crop nor the price of labour can be determined or changed by an individual landlord, his attempt is to offer an 'acceptable' remuneration package, including a consumption loan facility, to the tenant in order to retain the tenant's household as part of his labour pool.

From the tenant's perspective, the preference for the tenancy package depends upon returns to other alternative labour activities, security of employment in such alternative activities *vis-à-vis* tenancy and, as an insurance against unemployment and hunger. The link between consumption credit and tenancy, therefore, becomes critical in this respect.

4. THE SAMPLE

Our sample consists of 100 respondents, divided into almost equal numbers of landlords and tenants (a number of whom were interacting in a sharecropping contract with each other) located in sub-divisions Matli and Tando-Bago in Badin district and sub-division Tando Allah Yar of Hyderabad district. The survey was carried out from March to April 1987.

The choice of location was purposefully made. According to the 1972 and 1980 Agricultural Censuses these two districts have experienced both a higher use

⁵ See also Zahid (1982) on tenancy, owner-cultivation and interlinked markets in Sind.

of technology (tractors, fertilizer and high-yielding seed varieties) and a higher preponderance of tenancy than the all-Sind average. This suggests some support to Bardhan's argument that tenancy is amenable to the absorption of technology and remains resilient in the face of technological advance.

Furthermore, these districts are noted for the comparatively larger area under sugar-cane which is increasingly becoming the leading cash crop in Sind. Although sugar-cane only accounted for 9 percent of total cropped area in Hyderabad and Badin districts in 1980, there has been a rapid increase in sugar-cane acreage (at the expense of cotton, the alternative cash crop) since 1980. Our sample corroborates this. During the past five years sugar-cane acreage increased by 130 percent over all size categories within our sample, while the area under cotton declined by 70 percent for all size groups. In addition, this region is served by 10 sugar mills, a number of which have gone into production since 1980. With the recent increase in sugar-cane output price, dezoning of the sugar-cane mill area and the construction of new mills, one can expect a further expansion in sugar-cane acreage in the near future.

Given the highly skewed distribution of land ownership in Sind and the ensuing asymmetry of power, and access to institutions and formal markets, our sample was stratified both by tenure and by the size of holding under the landlord's "control" (this definition includes both area given out under tenancy by the landlord and area self-operated by the landlord). The latter stratification, therefore, emphasised large size categories and divided the sample into four groups (<100 acres, 100 - <500 acres, 500 - <1000 acres, >1000 acres).

5. RESULTS

Within our sample, all respondents (both landlords and tenants) reported use of technology in the form of fertilizers, high-yielding varieties of grain, and tractors for ploughing and land-levelling purposes (and to a lesser extent as transport). Importantly, of those farms with some area under self-cultivation and tenancy, we observed no variation in quantity or timing of input application across tenanted and self-cultivated area.

Along with the extensive use of both biological and mechanical technology, we found that amongst our sample of landlord households some self-cultivation was prevalent (52 percent of landlords reported some area under self-cultivation). The extent of self-cultivation, i.e. the proportion of total cultivated area self-cultivated was, however, limited: 52 percent of landlords reported self-cultivating less than 25 percent of their total cultivated area while only 26 percent self-cultivated more than 50 percent of their total cultivated area. It is quite clear, nevertheless, that tenancy is the predominant form of production organization. Of the total number of land-owners 94 percent reported retaining tenants.

We can see, therefore, that for a significant number of landowners (50 percent in the case of our sample) self-cultivation and tenancy, as systems of production organization, existed simultaneously on their holdings.

Interlinkages from the Landlord's Perspective

The resilience of the tenancy contract from the landlord's perspective can be looked at conversely as a constraint to expanding area under self-cultivation. Given that the existence of self-cultivation is widespread it minimally implies some advantage over tenancy in so far as the landlord is concerned.

We attempted to test whether a supervision constraint operated to explain the limited 'extent' of self-cultivation, i.e., where area self-cultivated would be directly related to the number of family members of the landlord involved in farm supervision. We obtained a correlation coefficient of less than 0.01 between self-cultivated area and the number of family members of the landlord's household involved in farm supervision. Supervision by landlord's household was found to be common on both tenanted and self-cultivated land. In our sample of tenants we extensively probed the decision-making process for the tenant's area under sharecropping. Minimal aggregated results reported below in Table 1 demonstrate the fact of landlord supervision on tenanted land. The decision to determine the crops, and more importantly, the proportions in which they are grown are largely in the hands of the landlord. The same is true for the major inputs in so far as both their quantity of application and their timing is concerned.

Table 1

*Farm Management and Decision Making by Landlord
(in percentage)*

LL Holding Size	Input Decision by Landlord		Crop Decision by Landlord		Marketing of Cash Crop by Landlord	
	% of LL Reporting	% of T	% of LL Reporting	% of T	% of LL Reporting	% of T
All Sizes	88	85	93	94	100	98
LL with Holdings >1000 Acres	100	100	100	100	100	100

The constraint to expanding area under self-cultivation, therefore, lies elsewhere. It is our contention that the need for an assured labour stock for the cultivation of sugar-cane would probably lead to the retention of tenant households as an assured labour pool. We know that the labour process involved in the production cycle of sugar-cane is different from other crops. Apart from the fact that the production cycle stretches for over a year, thereby incorporating both seasons, it is also labour intensive. Sugar-cane harvesting, which is non-mechanised in Sind, stretches over a five month period. In response to the indent received from the sugar mill, a timely crop cut is critical to ensure the maximum return to the landlord. Furthermore, the supply of casual labour for sugar-cane harvesting is dependent upon factors beyond the control of the landlord.⁶ Tenants were, therefore, a necessary stock of assured harvesting labour in the case of unavailability of casual labour.

Sugar-cane is an important crop on both tenanted and self-cultivated area. There is however a crop-specific bias in favour of sugar-cane on self-cultivated area (see Table 2). In addition, self-cultivated area under sugar-cane is positively related to the size of the landlord's holding with a correlation coefficient of +0.67.

Table 2

Crop Distribution on Self-cultivated Area

LL Holding Size (acres)	% of Self-cultivated Area under Sugar-cane	% of Cultivated Area under Foodgrain
<100	20	40
100 - < 500	40	42
500 - < 1000	38	23
>1000	42	21
Total LL	39	32

⁶Sugar-cane harvesting was primarily carried out by seasonal migratory labour from the unirrigated regions of Sind (most notably Tharparkar). Their availability was inversely related to rainfall in their home district.

In apparent support of the argument that sugar-cane cultivation required an assured reservoir of labour, we found that there was a positive correlation coefficient of +0.73 between total number of tenants and area under sugar-cane. It should be noted however, that such a relationship could be a spurious one. Both variables could be related to a third variable (e.g. holding size) and could thereby be acting as a proxy for that variable.

Nevertheless, we observed that 57 percent of landlords reported that area per tenant household is declining, while 46 percent reported that total number of tenants had increased. This leads us to the conclusion that the tenant numbers to tenant area ratio is increasing. Assuming a constant tenant household size this provides a greater pool of labour power that could potentially be used for on-farm work on self-cultivated as well as tenanted land.

The link between self-cultivation and tenancy was corroborated by the extensive reporting by tenants (68 percent of the sample) of on-farm work on the landlord's self-cultivated area for which the landlord paid the tenant the prevailing wage rate in most cases. In addition, female labour participation in on-farm work was high (85 percent of the tenant sample reported that female members of the household took part in on-farm work) indicating that the tenant's household constituted the tenant's labour stock. Moreover, the increase in sugar-cane acreage and self-cultivation with a sugar-cane bias, which we know to be a highly labour-intensive crop, further supports this position. Hence, given the fact that tenancy and self-cultivation do coexist (on the same unit of holding) the relationship between self-cultivation and numbers of tenants warrants further study.

Interlinkages from the Tenant's Perspective

The rationale for the preference of the tenancy contract from the tenant's perspective is the insurance against unemployment, access to consumption credit and an assured supply of foodgrains for self consumption.

Employment prospects outside the tenancy contract were limited for tenants. None of the tenants interviewed reported owning any land which could be productively used, nor for that matter did they take part in any income-generating cottage activities. Off-farm employment opportunities were scarce. There were no large urban centres in close proximity where unskilled (permanent or casual) labour work was available,⁷ nor was there any significant, non-seasonal, market for casual or permanent farm labour in the locality. Consequently, of the total tenant sample only 23 percent reported any household members obtaining permanent or casual off-farm work. The dependence upon the landlord for employment was also highlighted

⁷This is in sharp contrast to the Punjab where urban and industrial casual labour is both more widely available and evenly spread. This may have something to do with tenant eviction that have been reported for the Punjab (Hussain 1980), a phenomenon which we observed to be limited in our sample area.

by the fact that none of the tenants reported multiple tenancy contracts, i.e., renting in land from more than one landlord.

The volume of consumption loan and the role that it plays in interlinking markets viz. the tenant's preference for the tenancy contract only makes sense if an equivalent level of consumption credit does not accrue to the tenant in other alternative sources of employment.

Returns from alternative forms of employment for the tenant were also found to be significantly lower than approximate net income from half-share tenancy. We estimated that a casual labourer could at best earn no more than Rs 10,000 per annum and a permanent labourer under Rs 5,000, while a half-share tenant could expect approximately Rs 11,000 per annum (see Table 3). In addition, the tenant had access to a near guaranteed sum of consumption credit from the landlord which was not available to the casual labourer. Consumption loans were not extended to casual labourers while permanent labourers were usually given lower amounts of consumption credit than half-share tenants. The greater the consumption loan facility, i.e. guaranteed receipts, clearly the lower the risk factor.

Table 3

Annual Returns from Alternative Types of Employment

	Half-share Tenant	Quarter-share Tenant	Permanent Labourer	Casual Labourer
	Rs	Rs	Rs	Rs
Net Income	11,400	4,020	4,800	9,125
Consumption Loan Facility	6,000	4,000	4,000	0

Access to land under tenancy also implies some area under a foodgrain crop. Tenancy thereby ensured some supply of foodgrain for the tenant's household. Foodgrains were found to be grown more extensively on tenanted as opposed to self-cultivated area regardless of the size of the landlord's holding, although the proportion of tenanted area devoted to grain was inversely related to the size of the landlord's holding (see Table 4).

Despite cultivating a major cash crop most tenants faced a cash flow constraint. It was quite clear from our interviews that in order to meet major cash expenditure for consumption needs, tenants preferred obtaining credit as an advance against future income rather than liquidating assets. Therefore, the possibility of consumption loans facility from the landlord emerged as a very important feature of

Table 4

Distribution of Grain across Tenanted and Self-cultivated Area

LL Holding Size (acres)	% of Total Grain Area under Self-cultivation	% of Total Grain Area under Tenancy
< 100	7	93
100—<500	10	90
500—<1000	12	88
> 1000	12	88
Total LL	11	89

the tenancy contract for the tenant. Of the total sample of tenants 82 percent took consumption loans from their landlords while 92 percent of landlords reported extending consumption credit to their tenants.

To corroborate this state of affairs further, we found that access to other sources for consumption credit was moderate for the tenants. Only 38 percent of all tenants reported obtaining some consumption credit from sources (usually shopkeepers) other than their landlords. In almost all these cases this amount was less than 50 percent of their borrowing from the landlord. In many cases there was a prior link between the landlord and the shopkeeper so that it may not be legitimate in these cases to characterise this 'other source' as independent of the landlord.

6. IMPLICATIONS FOR TRANSITION

The issue of systemic change in the form of production organization, i.e. from tenancy to self-cultivation, needs to be examined in greater detail. Our first point in this regard is that it is problematic to view either of the two systems in a rigid and stylized manner. That is to say that in a period of transition self-cultivation may not necessarily be independent of the tenancy system. As we have shown tenants may be retained as an assured source of labour for self-cultivation. On the other hand, we note that tenancy involved a degree of supervision by the landlord that was similar to the supervision on self-cultivated area.

We did observe that while tenancy is resilient, it is also undergoing substantial change. Firstly, average farm area given by the landlord to individual tenant households was found to be declining. This reduction is in line with the marginalization

of tenant holdings in Sind indicated by macro data. Secondly, we found that a substantial number of landlords and tenants reported that proportion of area under grain and fodder crops under tenancy had declined over the past five years. Thirdly, in sharp contrast to the traditional practice of sharecropping where the landlord's involvement in farm management was limited, few farm management decisions were being delegated to the tenant. Fourthly, we observed that the proportion of quarter-share tenants to half-share tenants was, if anything, increasing. The implication of these changes in contractual terms is that the tenancy contract could slowly be transformed into a quasi-wage contract.

A system of production organization also has implications for the use of resources in that system. The relative efficiency of resource use is, therefore, critical in the economic assessment of systems of production organization. We have avoided making this assessment for two reasons. Firstly, the aim of the present exercise is to merely describe the recent changes and suggest that the pace of this change in the near future may be slow; consequently considerations of resource use are not of immediate significance. Secondly, it is difficult to ascertain the efficiency of resource use in either of the systems taken separately, given that both systems are linked to each other through the joint input of labour. This issue requires further research which explicitly takes into account the labour link between tenancy and self-cultivation.

7. CONCLUSIONS

In the preceding discussion we have examined the rationale behind the preferences of the landlord and the tenant for the tenancy system of production organization. We have found firstly, that interlinkages for agents with factor markets for land, labour and capital clearly exists in lower Sind; secondly, that while tenancy has clearly accommodated technology there have also been a number of significant changes in the tenurial contract; and thirdly, that both self-cultivation and tenancy can be seen as connected systems of production organization.

The rationale around which interlinkage takes place was found to differ according to the perspective of the landlord and tenant respectively. In this exercise we have ignored the important issue of asymmetrical distribution of power between the two agents in the contract. Regardless of how we theorise power, (see for example Basu, (1986) it is clear that the tenant's preference, although valid given the structure of the land, labour and credit markets, is contingent upon the landlord's willingness to offer tenancy.

A partial argument, which is both region and crop-specific was given to show why the landlord may indeed prefer the tenancy system in Lower Sind. Since this argument invokes a technical constraint related to labour requirements in sugar-cane cultivation, it is not a general argument for the retention of tenancy from the point

of view of the landlord. In order to provide the latter we need to emphasize that in the general case the tenancy system could get linked to the self-cultivation system because of the unreliable and incomplete nature of the casual labour market in Lower Sind. This is so given the fact that in Lower Sind, casual labour is largely drawn from the arid zones and is therefore conditional on rain-dependent migration. In our area of study this issue is further compounded by the fact that the dominant cash crop happens to be a labour-intensive one, which additionally requires an assured labour pool.

The implications for the process of transition are significant, but should be carefully interpreted. Due to the conditions facing both tenants and landlords in the labour market (which are outside the control of both agents in their individual capacity) and the cultivation of the high value crop sugar-cane an interlinked tenancy system is preferred. As we expect sugar-cane acreage to increase in the near future it can be expected that while area under self-cultivation may increase, the displacement of tenancy will be slower than it would otherwise have been. In other words, area per tenant household will be further reduced. Finally, while the form of tenancy is resilient the substance of tenancy may well be undergoing qualitative changes under the pressures of capitalist development.

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Comments on “Agrarian Transition in Sind: An Analysis of Interlinked Rural Factor Markets”

This paper is not about “agrarian transition” in Sind. It focuses on the nature of the sharecropping system still dominant as land tenure in several parts of Sind. The authors hypothesize that the sharecropping tenancy would continue in Sind because (a) landlords need an assured supply of labour for sugar-cane, which is a labour-intensive crop, and (b) tenants want assured employment. The link between the landlord and the tenant is provided by land and capital (credit). The authors use data from a sample of farms in support of their basic hypothesis.

The hypothesis has too many problems, both in its conceptualization and testing: The hypothesis should have been put in a different form: What are the alternatives to both the landlord and tenant? Are these alternatives more or less costly than the sharecropping arrangement? In what way is the hiring of labour more costly to the landlord than using tenants? Will the income of the tenant household fall if it opted for an alternative form of employment (as hired labour)? The theory of the interlinked factor markets is clear enough, but the authors should have analysed the specific conditions of the land and capital markets.

Now to address the empirical part of the paper. The authors are focusing on the wrong size of farms (under 12.5 acres). The *model* farms for sharecroppers in Sind are in the range of 4 to 10 acres. Decisions about crops, etc., were always made by the landlord. What do figures in Table 1 mean about the nature of decision making. They have made too much of the decline in the share of tenants in the produce from one-half to one-quarter: Is it really taking place? Why should the tenant accept this reduced share? What proportion of the landlord's farm is cultivated by himself? What is the proportion of hired (casual) labour in the total labour on all crops? While self-cultivation is not widespread, the use of hired labour is quite common. What does the casual labour do for the landlord when he has tenants as well?

The most difficult part of the hypothesis is that sugar-cane, which is a labour-intensive crop, is somehow the reason for the expected continuation of the sharecropping system. Sugar-cane is expanding simply because it is the most profitable crop in the area the authors have observed: given relative prices, sugar-cane has the

highest net return per acre. Why doesn't the landlord adopt a capital-intensive technology and moved on to wage labour? Why does he have to depend on the labour of sharecroppers to regulate his requirements of labour?

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