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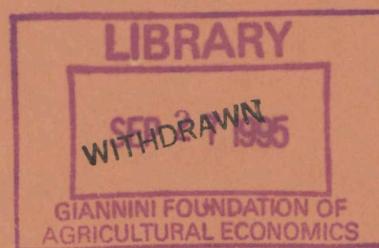
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CONTRACTS, RESOURCE USE AND PRODUCTIVITY
IN SHARECROPPING

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CONTRACTS, RESOURCE USE AND PRODUCTIVITY IN SHARECROPPING

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This paper identifies the contractual terms in sharecropping that result in efficient use of resources. Evidence is then presented from Pakistan to comment on the manner in which landlords ensure that sharecroppers fulfil the terms. It is shown that landlords in general specify contract terms that encourage sharecroppers to adopt new techniques of production. Productivity comparisons are also made for farms under different tenancy contracts to conclude that sharecropping tenancies do not appear to result in output loss even when technology is changing.

I. INTRODUCTION

Sharecropping contracts are widespread in agriculture. In Pakistan the Census of Agriculture (1972) reported 46% of farm land as cultivated by tenants and nearly 80% of this area as sharecropped. There are several issues concerning tenancy which are important and analytically interesting. Two of these, why have it at all and secondly, reasons for variations in tenancy contracts have been discussed elsewhere in the literature (see, for example, Bliss and Stern (1982), and Nabi (1982), on the former and C.H. Rao (1971) and Bardhan (1977) on the latter). In this paper we

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investigate questions concerning resource use on farms under different tenancy contracts which are central to much of this discussion.

The paper is organised as follows: In Part 2 we present the theory and identify the conditions which result in resource use efficiency in sharecropping contracts. In Part 3 we examine evidence from Pakistani villages to determine whether these conditions are fulfilled in practice. Direct productivity comparisons on different tenancy contracts are made in Part 4. Finally, concluding remarks are offered in Part 5.

III. THE THEORY OF SHARECROPPING CONTRACTS

The theory of resource allocation in tenancy contracts is well-known ^{1/}. It is easily summarized in the following four propositions:

1. Fixed rent tenants are as efficient in resource allocation as owner-cultivators (Marshall, (1966)).
2. If sharecroppers are free to choose the amount of land and labour used in production they will allocate less labour, will have a lower intensity of cultivation and lower output per acre compared to owner-cultivators and fixed rent tenants (Marshall (1966), Bardhan and Srinivasan (1971); Bell (1977)).
3. Landlords can ensure efficient resource allocation on sharecropped tenancies by stipulating 'appropriate' inputs. This may be achieved by contracting short-term leases with many tenants and regular supervision (Marshall (1966); Cheung (1969)).

1/. For a comprehensive review of the theory, see Bliss and Stern (1982).

4. Landlords can ensure efficient resource allocation in sharecropping contracts by sharing costs with their tenants in the same proportion as the rental share (Bliss and Stern (1982)).

Propositions 3 and 4 provide a theoretical justification for the persistence of sharecropping as a widespread tenancy contract. They also justify the empirical result reported in many studies (Cheung (1969), Herring (1979) and Bliss and Stern (1982)) that sharecropping tenants are as productive as fixed rent tenants and owner-cultivators. Implicit in these propositions (as prerequisites for achieving efficiency) is that sharecropping contracts fulfil the following terms and conditions:

- (i) Contracts are for short-term and enforced mainly by the threat of eviction by landlords.
- (ii) Inputs are stipulated by landlords.

Alternatively efficiency in sharecropping is achieved when

- (iii) Landlords share costs of inputs in the same proportion as the rental share.

To these we may add:

- (iv) Landlords closely supervise cultivation on sharecropped plots.

In the next section we examine evidence from Pakistan to determine whether these contractual terms and conditions are met in practice.

III. THE EVIDENCE ON SHARECROPPING CONTRACT TERMS

The evidence on the terms and conditions governing sharecropping contracts was collected in a survey conducted in Khanewal subdivision of Pakistan's Punjab in 1979. 54 non-landowning sharecroppers were chosen from ten villages to reflect variations in tenancy contracts in different areas

within the subdivision. The average size of holding of a sharecropper in our sample is 14.07 acres, the smallest sharecropper cultivates 2 acres and the largest 50.

The position of landlord and tenant

Out of our 54 sampled sharecroppers, 27 (50%) rent in land from one landlord only, 18 (33%) rent in land from at least two landlords while only 9 (17%) rent in land from three landlords; landlords being distinguished on the basis of the size of holding and the amount of land rented from each. All three categories of landlords have some land under self-cultivation and/or under fixed rent tenancies. Most sharecroppers reported that there is no difference in the quality of land they rented in and the land self-cultivated by the landlord and/or rented-out by him on fixed-rent leases.

All the sharecroppers we interviewed said that it would be quite easy for their landlords to replace them with other sharecroppers. On the other hand, only 30 (56%) sharecroppers thought they could rent land easily on sharecropping contracts from other landlords in the same or nearby villages (within a radius of 4 miles). Most of the difficulties of obtaining other contracts were reported to be on account of what may be described as high opportunity cost of looking for tenancy contracts. Negotiations for contracts are conducted at the beginning of the kharif ^{2/} season. In Khanewal the period between rabi (wheat) and kharif (cotton) seasons is quite brief so that search for new contracts, particularly when some travelling is involved, affects harvesting of wheat and sowing of cotton. Thus although most tenants are free to enter into contracts with other landlords (in accordance with evidence reported for North India by Bardhan and Rudra (1980)), their mobility in practice is restricted.

2/. Kharif season lasts from June to November while the rabi season is from November to May.

In Khanewal landlords in general have not increased their share in the produce in recent years. Nearly 90% of the tenants in our sample report that landlord's share in output is half and that it has remained unchanged for as long as they could remember. Thus the assumption of a fixed rental share in tenancy theory is supported by our evidence. Further, there is very little evidence that landlords extract unpaid labour from tenants. In our sample, although 18% of the sharecroppers interviewed report that their family members are employed on the landlord's farm, only 2% report that they are unpaid. Most of those employed by the landlord receive wages prevailing for these jobs in the area. Thus tenancy contracts negotiated in Khanewal do not have this characteristic (of unpaid labour services rendered to landlords) associated with 'feudalism' or 'semi-feudalism' as argued in the literature (for example, Bhaduri (1973)).

Contract duration and the threat of eviction

The cumulative duration of the contract for tenants in our sample is fairly long. Table 1 shows that most of the tenants have been cultivating land owned by the main landlord for more than 10 years. This, however, does not reflect security of tenure. Most contracts are verbal (only 30% of the tenants reported that they were registered with the village Patwari ^{3/} as tenants) and can be terminated at the end of the crop season. For those registered with the Patwari security of tenure varies with the political climate. For instance, during the political regime of 1972-77, government officials were more vigorous in prosecuting landlords who evicted registered tenants unlawfully and this lowered the incidence of evictions remarkably. Since 1977 the incidence of evictions has increased again because officials now prosecute rarely. Many tenants reported that their registration status has been changed by landlords to that of farm labourers as a precaution

^{3/}. Patwari is the official revenue collector for a village who also maintains land records.

against tenancy reforms in the future. 46% of the tenants in our sample thought that their landlords could evict them easily. 32% of those interviewed reported that they or their relatives had experienced eviction within the last two years. Thus we may conclude from this evidence that the threat of eviction is felt strongly by tenants. Landlords use this threat to ensure that tenants apply stipulated inputs.

TABLE 1

CUMULATED CONTRACT DURATION OF RENTED IN PLOTS

(Number of sharecroppers)

	Up to 2 years	2-10 years	More than 10 years
Main landlord	5(9)	12(22)	37(69)
2nd landlord	6(33)	8(44)	4(23)
3rd landlord	7(78)	1(11)	1(11)

NOTE: Figures in brackets are percentages.

Input stipulation

Input stipulation in agriculture may be achieved in part through activity stipulation. The technical norms for most agricultural activities in Pakistan are measured in terms of labour input and they are sequential which facilitates supervision. We identified six major agricultural activities for wheat crop in Khanewal. These are ; canal irrigation, tube-well irrigation, bullock ploughing, fertilizer application and seed application. The level of activity is determined by the number of times each activity is performed for the first four activities and quantities applied for the last two. The evidence is reported in Table 2.

TABLE 2

ACTIVITY STIPULATION ON SHARE-CROPPED TENANCIES IN KHANEWAL

(number of sharecroppers)

(1) Activities	(2) Tenant's decision entirely	(3) Decision influenced by landlord	(4) Number of sharecroppers who responded
1. Canal irrigation	39 (75)	13 (25)	52
2. Seed application	24 (56)	19 (44)	43
3. Fertilizer application	18 (35)	34 (65)	52
4. Tube-well irrigation	23 (52)	21 (48)	44
5. Bullock ploughing	46 (92)	4 (.8)	50
6. Tractor ploughing	4 (11)	31 (89)	35

NOTE : Figures in brackets are percentages.

The evidence indicates that decisions regarding the use of relatively modern inputs such as tractor ploughing and fertilizer application are in most cases influenced by landlords. Regarding tube-well irrigation and seed application also landlords intervene frequently. However, decisions regarding traditional activities like canal irrigation and bullock ploughing are left to the tenant because norms for these activities are well-established. Thus landlords influence tenants' decisions regarding input use (similar evidence for North India is reported in Bardhan and Rudra (1980)) and they ensure that the stipulated inputs are applied by tenants by maintaining the threat of eviction.

Cost sharing

Cost sharing is widely practised in Khanewal. Table 3 shows that landlords share half the costs of canal and tube-well irrigation and

fertilizers. The cost of ploughing with bullocks, however, is rarely shared because of the popular perception that that is the tenant's contribution to the production process just as landlord's contribution is land. However, where ploughing is done with tractors at landlord's insistence, costs are shared. Seed costs were rarely shared in the past but this has changed with the introduction of high yield varieties which are preferred by landlords. The evidence in Khanewal suggests that most costs are shared in the ratio of 50:50 which is also the most widely prevalent rental share. Thus our evidence supports the strong association between rental and cost shares reported by Bardhan and Rudra (1980) for North India.

TABLE 3

COST-SHARING ON SHARECROPPED TENANCIES IN KHANEWAL

(Number of sharecroppers)

(1) Inputs	(2) All Tenant	(3) 1/3 Landlord	(4) 1/2 Landlord	(5) All Landlord	(6) Number of sharecroppers responding
1. Canal irrigation	4 (8)	1 (2)	45 (87)	2 (3)	52
2. Tube-well irrigation	1 (2)	1 (2)	42 (96)	-	44
3. Bullock ploughing	46 (92)	-	4 (8)	-	50
4. Tractor ploughing	-	16 (46)	19 (54)	-	35
5. Fertilizer	1 (2)	-	51 (98)	-	52
6. Seeds	36 (84)	-	7 (16)	-	43

NOTE : Figures in brackets are percentages.

Supervision

To ensure that contracts regarding input stipulation and cost sharing are fulfilled landlords supervise cultivation. We comment on supervision by presenting in Table 4 the frequency of landlords' visits to the rented out plots.

Effective supervision is achieved when the landlord visits the rented out plots at least once a week. In several discussions with agricultural extension workers and landlords we learnt that during the peak season of agricultural activity a visit at least every second day ensures satisfactory cultivation by tenants. 37% of the tenants reported this pattern of visits by the main landlords: The less important landlords visit the rented out plots more frequently mainly because they have small holdings which they partly cultivate themselves. Monthly visits were practised in parts of Khanewal where landlords had to travel several miles to visit their tenanted land. The holdings usually comprised of a number of large blocks at some distance from each other. This practice appears to be dying now because of both improvements in roads, public and private transport and division of property over time. Landlords residing in rural areas visit their tenanted plots at least once a week while those with urban business, professional or political interests visit once every crop season (usually at harvest time). We also learnt that absentee landlords may be defined to be those landlords who visit once a year to make their presence known. The supervision element in such visits is rather small. In our sample the main landlords of 13% of the tenants are absentee landlords.

TABLE 4

THE FREQUENCY OF LANDLORDS' VISITS TO RENTED-OUT PLOTS IN KHANEWAL

(Number of sharecroppers)

	Main Landlord	2nd Landlord	3rd Landlord
Every day	9 (17)	4 (22)	-
Every 2nd day	16 (30)	5 (28)	2 (22)
Every week	12 (22)	5 (28)	3 (33)
Every month	4 (7)	1 (6)	1 (11)
Every crop season	6 (11)	1 (6)	1 (11)
Every year	7 (13)	2 (11)	2 (22)

NOTE : Figures in brackets are percentages.

We may conclude from the evidence that conditions which ensure efficient resource use on sharecropped farms hold in general in Khanewal. Landlords stipulate inputs, they share costs, supervise sharecropped plots effectively and use the threat of eviction to check recalcitrant sharecroppers. Further, landlords appear to actively encourage tenants to innovate through participation in decisions regarding the use of modern inputs. Nearly 30% of the sharecroppers report that the landlord is the most important source of credit which is given free of interest and is used primarily to purchase modern seeds, fertilizer and tube-well water. Thus landlords in Khanewal are agents of technological change unlike Bhaduri's (1973) and Bliss and Stern's (1982) in India.

IV. PRODUCTIVITY COMPARISONS OF DIFFERENT CONTRACTS

We comment on the relative performance of fixed-rent contracts and owner-self-cultivation by testing proposition 1 as it is stated. The remaining three propositions are examined by reducing them to the null

hypothesis that sharecropping tenancies are as efficient in resource use as owner-self-cultivation.

Data

We use farm level data for three villages which reflect the contractual variations in Khanewal. Village Khunda is barani while village Jatli has widespread well-irrigation. Our third village Mehdiabad, represents canal irrigated agriculture. Sharecropping contracts predominate in both Khunda and Mehdiabad. A small number (16 altogether) of owner-cultivators in Khunda also rent in land on sharecropping tenancies. For such cultivators we examine the null hypothesis by comparing performance on owned and sharecropped plots. Bell (1977) has argued that this is the best procedure for examining the null hypothesis. We check our results by presenting evidence on such cultivators from village Jatli. The evidence on the performance of fixed-rent tenancy contracts is taken from village, Mehdiabad only since such contracts do not exist in the other two villages.

We use T-tests to determine the differences in the mean values of the criterion variables for groups of observations. We accept the null hypothesis that there is no difference between the groups if the 2-tail probability of rejecting the null hypothesis is greater than 0.05. T-values are computed using the appropriate procedure depending on whether the group variances are equal or not. For a detailed description of the test procedure see Blalock (1972).

Results

The results presented in Table 5 indicate that for our sample of cultivators in Mehdiabad, the 2-tail probability that fixed-rent tenants and owner-self-cultivators have different mean values of output per acre is 0.52. Thus our evidence indicates that fixed-rent tenants are as

4/. Barani villages depend entirely on rainfall having no other source of irrigation.

productive as owner-cultivators.

TABLE 5

T-TEST FOR DIFFERENCES IN THE MEAN VALUE OF TOTAL OUTPUT PER ACRE ON
OWNER-CULTIVATED AND FIXED-RENT FARMS (MEHDIABAD)

	No. of cases	Mean	Standard Deviation	F Value	T Value	2-tail Probability
Owners	21	937.09	462.08			
Fixed-rent tenants	19	1020.00	345.26	1.79	-0.65a	0.52

NOTE: a implies that group variances are equal. T-values are computed accordingly.

T-tests for difference in performance of sharecropping contracts and owner-self-cultivation are presented in Table 6.

In Khunda (Table 6a) cropping intensity and wheat output per acre are the same on the two types of farms but sharecroppers, on average, have a higher value of groundnut output per acre compared to other cultivators. An explanation for this result is that groundnuts is a very labour intensive crop and sharecropped farms have, on average, a larger number of adult males per acre (see Table 6a). This may reflect landlords' preference, compared to owner-cultivators', for cultivators who have a larger number of family members of working age. This may not necessarily imply that sharecroppers have a lower value of output per resident family member compared to other cultivators since the total value of farm output is larger. It may, however, reflect sharecroppers' preference for farm employment due, in part, to their inability to finance job search outside the farm (Nabi (1983)).

In Mehdiabad (Table 6b) there is no difference in performance between sharecroppers and owner-self-cultivators both regarding output (wheat) and input (fertilizer) use per acre. Comparisons of performance on owned and sharecropped plots of owners-cum-sharecroppers are presented in Table 6c for Khunda and Jatli. In both villages there is no significant difference in the total value of output per acre on the two categories of plots.

TABLE 6a

T-TESTS FOR DIFFERENCES IN THE PERFORMANCE OF OWNER-CULTIVATORS AND SHARECROPPERS IN VILLAGE KHUNDA

Performance Criterion	Owner-cultivators (N = 73)	Mean	S.D.	Sharecroppers (N = 135)	Mean	S.D.	T-Value	2-tail Probability
Cropping Intensity	129.78	113.34	96.52	43.73	1.86 ^a	0.07		
Wheat output per acre (maunds = 40 Kgs)	3.70	1.76	3.76	2.81	-0.15 ^b	0.88		
Groundnut output per acre (maunds = 40 Kgs)	1.28	3.60	8.84	7.95	-5.79 ^b	0.001		
Adult males (per acre)	0.05	0.11	0.15	0.25	-4.13 ^b	0.001		

TABLE 6b

T-TESTS FOR DIFFERENCES IN THE PERFORMANCE OF OWNER CULTIVATORS AND SHARECROPPERS IN VILLAGE MEHDIABAD

Performance Criterion	Owner-cultivators (N = 21)	Sharecroppers (N = 15)	T-Value	2-tail Probability	
	Mean	S.D.	Mean	S.D.	
Wheat output per acre (maunds = 40 Kgs)	27.00	8.02	23.94	7.81	1.16 ^a 0.25
Fertilizer use per acre (bags)	1.29	0.84	1.20	0.49	0.40 ^a 0.69
Adult Males (per acre)	0.33	0.47	0.28	0.19	0.40 ^a 0.69

TABLE 6c

T-TESTS FOR DIFFERENCES IN THE PERFORMANCE OF OWNER-CUM-SHARECROPPERS ON OWNED AND SHARECROPPED PLOTS IN VILLAGES KHUNDA AND JATLI

Total Value of output per acre on farms by village (in Rupees)	Own Land	Sharecropped Land	T-Value	2-tail Probability	
	Mean	S.D.			
Khunda (N = 16)	95.40	87.07	101.69	67.32	-0.21 ^a 0.64
Jatli (N = 20)	323.22	184.13	371.40	236.22	-4.18 ^a 0.40

NOTE: a implies group variances are equal while b implies that they are different. T-values are computed accordingly.

V. CONCLUDING REMARKS

Our findings are that conditions regarding input stipulation, cost sharing and effective supervision that ensure efficient resource use in share-cropping contracts are fulfilled in Khanewal because landlords maintain a strong threat of eviction. We also find that the rental share has not changed for as long as anyone could remember and landlords often give credit to their tenants for productive uses such as the purchase of modern inputs. Further, sharecroppers are paid for any services rendered to landlords and they are also free to rent in land from more than one landlord. Thus we find little evidence in support of the view that landlords have 'feudalistic' or 'semi-feudalistic' relations with their tenants. On the contrary we find that landlords intervene to ensure that their sharecroppers use land as productively as owner-self-cultivators and adopt modern techniques of production. In certain regions, in the off-peak season, landlords may succeed in stipulating even higher labour inputs and may achieve even greater output per acre on land cultivated by sharecroppers compared to owner-self-cultivators because of sharecroppers' difficulty in finding off-farm employment relative to owner-cultivators. Finally, we conclude that sharecropping tenancies, while providing employment opportunities to an important section of the rural landless, do not appear to result in output loss even when technology is changing. Thus tenancy reforms which aim to give ownership rights to tenants may not result in an increase in total agricultural output. The case for such reforms in Pakistan, therefore, may rest primarily on consideration of improvements in income distribution.

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