



RESEARCH NOTES AND STATISTICS

Agricultural Tenancy in Contemporary Punjab: A Study Based on National Sample Survey Data

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INTRODUCTION

After a decline over the previous two decades, there was a rise in the prevalence of tenancy in rural India in the decade from 2003 to 2013.

Two parameters are generally used to measure the prevalence of tenancy: (i) land leased in as a proportion of the extent of all household operational holdings, and (ii) tenant households as a proportion of all cultivator households. According to the National Sample Survey (NSS) data, land leased in as a proportion of the extent of all household operational holdings increased from 6 per cent in 2002–03 to 10.3 per cent in 2012–13 at the all-India level (NSSO 2015). Tenant households as a proportion of all cultivator households increased from 11.4 per cent to 15 per cent during the same period (Bansal, Usami, and Rawal 2018).

Thus, although secondary sources of data are generally considered to underestimate tenancy, official data point to an increase in the incidence of tenancy. This increase has been high in several States. In Punjab, the subject of this study, the rise in incidence of tenancy in rural areas was higher than at the all-India level. In this State, land leased in as a proportion of the extent of all household operational holdings increased from 15 per cent in 2002–03 to 25 per cent in 2012–13 (NSSO 2015), and tenant households as a proportion of all cultivator households increased from 14 per cent to 20 per cent in the same decade.

This note uses NSS data to examine three features of tenancy in rural Punjab. The first is the distribution of tenants and lessors by size-category of landholding and by caste. The second is the prevailing mode of payment in lease market contracts across different classes of tenant farmers. The third is the quantum of rent paid by different classes of tenant farmers and the effect of the amount of rent paid on the economics of cultivation.

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Punjab was at the forefront of agricultural development in the Green Revolution period. The agricultural sector in the State is marked by high levels of irrigation. In 2012–13, almost 99 per cent of the total cultivated area in Punjab was irrigated, and 98 per cent of operational holdings had some irrigation facilities (NSSO 2015). The specific agro-climatic conditions prevailing in the State are suitable for the cultivation of kharif (June–September) rice and rabi (October–December) wheat. Effective implementation of the price support scheme and government procurement of agricultural produce have assured incomes to farmers from rice and wheat. Crop cultivation in the State is highly mechanised, as evident from the large number of tractors used for cultivation per hectare of net sown area (Bhalla and Singh 2012).

Studies of Punjab conducted in the late 1970s and 1980s, such as by Nadkarni (1976) and Singh (1989), point out that large farmers had entered the lease market as lessees. However, between 1991–92 and 2002–03, there was a slight decline in the incidence of tenancy (Sharma 2010), and it was argued that the lease market may have become less important than before.

There are new forms of capitalist tenancy in Punjab in which surplus-generating capitalist farmers lease in land from the rural poor as well as from other cultivating and non-cultivating landowners. The reported resurgence in tenancy from 2003 to 2013 makes it important to understand two interconnected issues: class differentiation in the Punjab countryside and lease market arrangements in the State.

DATA AND METHODOLOGY

There exists no single database that provides information on the incidence of tenancy, forms of contracts, and rent paid by tenants.

In this paper, the sections on land distribution and the extent of leasing in or leasing out across different size-classes of farmers use unit-level data of the Survey on Land and Livestock Holdings (SLLH) of the National Sample Survey Office (NSSO).¹ Data on forms of contracts are also from the SLLH of the NSSO. The NSSO, however, does not collect and provide information on *from whom* land is leased in, or *to whom* land is leased out.

The section on quantum of rent uses data from the Situation Assessment Survey (SAS) of Agricultural Households, which was part of the 70th Round conducted by the NSSO. These data do not, however, provide information on crop-specific rents that

¹ For an evaluation of this source of data, see Bhattacharya (2019), Kumar (2016), and Bansal, Usami, and Rawal (2018).

are paid. For certain methodological reasons, it is also not possible to compute the rent paid per season.²

RESULTS AND DISCUSSION

Land Distribution in Punjab

Agriculture in Punjab in the post-Green Revolution period was marked by the emergence of large farms, which, because of economies of scale, were able to function as profitable enterprises (Sidhu 2005). The distribution of operated land was skewed towards large farms. Households cultivating small and marginal farms constituted 69 per cent of all households, and they cultivated 15 per cent of the extent of all operational holdings (Table 1).

There is also a strong correlation between caste and land ownership in rural Punjab. Households from the Jat Sikh caste are predominant in the upper rungs of land ownership and cultivation (Jodhka 2006; Sidhu 2005). The predominance of “upper” castes in the control of operational holding is reflected in the dominance in Table 2 of “other castes.” Households from “other castes” constituted 71 per cent of all households with operational holdings of land. Their dominance was particularly marked in the higher size-categories of land holdings.

At the other end, Dalit households constituted only 13 per cent of households with operational holdings of land, generally concentrated in the marginal size-category of land.

Table 1 *Distribution of operated land and rural households by categories of extent of operational landholding, Punjab, 2012–13, in per cent*

Categories of extent of operational landholding	Share in all land operated	Share in all rural households
Marginal (<1 ha)	2.0	53.7
Small (1–2 ha)	13.4	15.2
Semi-medium (2–4 ha)	35.7	20.1
Medium (4–10 ha)	39.1	9.9
Large (>10 ha)	9.7	1.0
Total (all classes)	100	100

Note: The size-categories of operational land are based on official definitions.
Source: Author’s calculation from data in Survey on Land and Livestock Holding (NSSO 2015).

² The SAS 70th Round was conducted from July 2012 to June 2013. The survey was conducted in two visits. Visit 1 collected information during July–December 2012 and Visit 2 during January–June 2013. The data do not specify the extent of land leased in separately for the two visits.

Table 2 *Distribution of cultivator households by categories of extent of operational landholding and caste groups, Punjab, 2012–13, in per cent*

Operational land size	Scheduled Tribes (ST)	Scheduled Castes (SC)	Other Backward Classes (OBC)	Muslims	Others	Total
Marginal (<1 ha)	0.1	23.6	19.8	1.1	55.5	100
Small (1–2 ha)	0.1	6.1	8.3	0.6	84.9	100
Semi-medium (2–4 ha)	0	2.9	5.5	0	91.6	100
Medium (4–10 ha)	0	1.3	21.4	0	77.3	100
Large (>10 ha)	0	0	7	0	93	100
All classes	0.1	13.3	14.5	0.6	71.5	100

Source: Author's calculation from unit-level data of Land and Livestock Survey for 2012–13 (NSSO 2015).

Socio-Economic Location of Tenant and Lessor Households in Punjab

This section locates tenant households and lessor households in the rural economy of Punjab with reference to the operation and ownership of land. In rural Punjab, tenancy is largely driven by those who operate land holdings of two hectares or more. According to NSS data for 2012–13, tenant households in Punjab with operational holdings of 2 hectares and more constituted 65 per cent of all tenant households, and cultivated 93 per cent of the area leased in by tenants (Table 3). In contrast, according to NSS data for 2012–13, tenant households in India with operational holdings of 2 hectares and more constituted 27 per cent of all tenant households, and cultivated 48 per cent of the area leased in by tenants (NSSO 2015). This phenomenon of large farmers being the major lessees in rural areas has been observed for some decades in Punjab.

In general, the data show that *all* sections of cultivators lease out, while the main lessees are farmers with holdings of 2 hectares and more. There is no conclusive evidence, however, of large-scale reverse tenancy (that is, of a system in which large farmers

Table 3 *Distribution of all leased-in land and tenant households across categories of extent of operational landholding, Punjab, 2012–13, in per cent*

Categories of extent of operational landholding	Distribution of all leased-in land	Distribution of tenant households
Marginal (<1 ha)	2.4	24.0
Small (1–2 ha)	5.1	11.3
Semi-medium (2–4 ha)	44.3	40.9
Medium (4–10 ha)	35.6	20.1
Large (>10 ha)	12.7	3.7
Total	100	100

Source: Author's calculation from unit-level data of Land and Livestock Survey for 2012–13 (NSSO 2015).

lease in from small farmers), as has been suggested by some scholars (Ramakumar 2000; Sharma 2010) (see Tables 3 and 4).

Emerging Tenancy Contracts in Punjab: A Regional Analysis

Tenancy has its roots in the political and legislative history as well as agro-climatic features of a State. In order to capture regional variations in tenancy, I examined data separately for two regions in the State of Punjab. The NSSO defines these two regions as northern Punjab (Doaba and Majha) and southern Punjab (Malwa). Northern Punjab consists of Gurdaspur, Amritsar, Kapurthala, Jalandhar, Hoshiarpur, Nawanshahr, Rupnagar, S.A.S. Nagar (Mohali), and Tarn Taran districts. The districts of southern Punjab are Fatehgarh Sahib, Ludhiana, Moga, Firozpur, Muktsar, Faridkot, Bathinda, Mansa, Sangrur, Patiala, and Barnala.

Rice cultivation was introduced in northern Punjab during the Green Revolution period, with substantial state support provided in terms of high-yielding varieties of seeds, intensive use of fertilizer, and expansion of irrigation facilities.

A salient feature of contemporary tenancy contracts in rural Punjab was that 95 per cent of them were fixed-rent contracts, paid in cash (Table 5).

Very broadly speaking, agriculture in northern Punjab is more cereal-oriented than agriculture in southern Punjab, where the cropping pattern is more diverse than in the north, and more crops designated as “high-value” crops are grown in the south than in the north (Table 6).

We used two indices to measure crop diversification (Table 6). The first, Simpson’s Diversification Index, is defined as

$$SID = 1 - \sum_1^n Pi^2 \tag{1}$$

Table 4 *Distribution of all leased-out land and lessor households by categories of extent of ownership holdings, Punjab, 2012–13, in per cent*

Categories of extent of land ownership holdings	Distribution of all leased-out land	Distribution of lessor households
Marginal (<1 ha)	31.1	2.1
Small (1–2 ha)	8.8	17.5
Semi-medium (2–4 ha)	29.8	32
Medium (4–10 ha)	15.4	22.8
Large (>10 ha)	14.7	25.6
All classes	100	100

Source: Author’s calculation from unit-level data of Land and Livestock Survey for 2012–13 (NSSO 2015).

Table 5 *Proportion of leased-in area under fixed cash-rent contracts in total leased-in land, by categories of extent of operational landholdings, regions of Punjab, 2012–13, in per cent*

Categories of extent of operational landholdings	Proportion of fixed cash-rent contracts in all leased-in land		
	Northern Punjab	Southern Punjab	Punjab
Marginal (<1 ha)	96	n.a.	96
Small (1–2 ha)	100	100	100
Semi-medium (2–4 ha)	82.7	99.9	94.4
Medium (4–10 ha)	98.2	99.8	99.6
Large (>10 ha)	98.5	96.9	98
All classes	90.9	99.6	95

Note: n.a. = not available.

Source: Author’s calculation from unit-level data of Land and Livestock Survey for 2012–13 (NSSO 2015).

where P_i is the proportionate area of the i^{th} crop in the gross cropped area, and n is the total number of crops grown by the tenant households. The second index considered here is the proportion of plots under high-value crops (HVC) to total number of plots.³

The literature shows that where risk is low and incomes relatively high, fixed-rent contracts prevail. The Punjab data bear this conclusion out, with the added feature that whether cereal or non-cereal crop, rents are paid solely in cash.

EXPLAINING TENANCY RELATIONS IN PUNJAB: COMPETITIVE ADVANTAGE AND RETURNS FROM CULTIVATION

As we have seen, there are tenant households that cultivate small and marginal farms, as well as tenant households that operate holdings greater than 2 ha each, with the latter group predominating. Each of these groups lease in land for different reasons, and the tenancy of each group is characterised by different economic outcomes.

In this section, I examine the economic consequences of leasing in land for small and marginal farmers, and relatively large farmers. First, I examine whether leasing in land can be explained by the size of holding of the tenant farmer.

A binary logistic model is employed using the unit-level SLLH–NSSO data for Punjab. The explanatory variables are specified through the following binary logistic regression equation:

$$\text{Ln}\left(\frac{p}{1-p}\right) = b_0 + b_1X_1 + b_2X_2 + b_3X_3 + \dots + b_kX_k \quad (2)$$

³ Even though agriculture in southern Punjab is more diverse than in the north, both regions also continue, in large measure, with the rice-and-wheat or wheat-and-cotton cycle.

Table 6 Crop diversification index and share of high-value crops cultivated by tenant cultivators, by categories of extent of operational landholding, regions of Punjab, 2013, in number

Categories of extent of operational landholdings	Simpson's diversification index		Share of high value crop	
	Northern Punjab	Southern Punjab	Northern Punjab	Southern Punjab
Marginal (<1 ha)	0.17	n.a.	0	n.a.
Small (1–2 ha)	0.17	0.24	0	0.37
Semi-medium (2–4 ha)	0.06	0.28	0	0.21
Medium (4–10 ha)	0.17	0.25	0	0.15
Large (>10 ha)	0.33	0.29	0.05	0.14

Note: n.a. = not available. High-value crops include vegetables, fruits, condiments and spices, flowers, aromatic and medicinal plants, and plantation crops like tea and coffee.
Source: Author's calculation from unit-level data of Land and Livestock Survey for 2012–13 (NSSO 2015).

where p is the probability of participation as tenant, b_0 is the intercept, and X_1 to X_k represent predictors in the equation. Detailed descriptions of dependent and independent variables are given in Table 7. A few interaction terms are also

Table 7 Descriptive statistics for binary logistic regression to explain leasing in of land by cultivators in rural Punjab, 2012–13

Dependent variable (Y_i)	Type	Unit/category	No. of observations
Leasing in of any land by cultivator household	Categorical	1 – if yes, 0 – if no	395
Independent variable (X_i)			395
X_1 Operational land size-class	Categorical		
i. Marginal		Land possessed <1 ha	395
ii. Small		1–2 ha	
iii. Semi-medium		2–4 ha	
iv. Medium		4–10 ha	
v. Large		>10 ha	
X_2 Income group	Categorical		395
Self-employment in cultivation		1	
Self-employment in livestock farming		2	
Self-employment in other agricultural activities		3	
Self-employment in non-agricultural enterprise		4	
Wage/salaried employment		5	
X_3 Share of irrigated plots in total plots	Continuous		395
X_4 Crop diversification index (SID)	Continuous		395
X_5 Region (north/south)	Categorical	Southern = 1	395

Source: Author's calculation from unit-level data of Land and Livestock Survey for 2012–13 (NSSO 2015).

Table 8 Results from logistic regression explaining leasing in of land, Punjab, 2012–13

Y = 1 if tenant, 0 if otherwise	Odds ratio	Robust standard error	Z	P>z
<i>Categories of extent of operational landholdings (X₁)</i>				
Marginal	0	(base)		
Small	1.93	1.25	1.01	0.31
Semi-medium	5.42	3.32	2.76	0.07
Medium	11.55	7.54	3.75	0
Large	63.17	58.91	4.45	0
<i>Income groups (X₂)</i>				
Self-employment in cultivation	0	(base)		
Self-employment in livestock farming	1	(empty)		
Self-employment in other agricultural activities	1	(empty)		
Self-employment in non-agricultural enterprise	0.43	0.54	−0.67	0.50
Wage/salaried employment	0.08	0.11	−1.91	0.05
Diversification index (SID)	6.64	4.70	2.68	0
Share of irrigated plots	0.09	0.07	−2.85	0
NSS region (southern)	1.59	0.41	1.8	0.071
Constant	0.57	0.59	−0.54	0.591
Regression diagnostics N = 395, Pseudo R squared = 0.18				

Source: Author's calculation from unit-level data of Land and Livestock Survey for 2012–13 (NSSO 2015).

included to help understand the joint effect of categorical predictors in explaining the probability of the dependent variable.

Table 8 summarises the results of this binary logistic model. The model explains 18 per cent of the variation in the observed participation in the tenancy market. The coefficient for different categories of operational land-size suggests that the odds of becoming a tenant from semi-medium, medium, and large categories of operational land are more than for the marginal category.

The probability of a large farmer in rural Punjab leasing in land was 63 times more than the corresponding probability for a marginal farmer. The income group classification suggests that households in rural Punjab that diversified into wage and salaried employment did not lease land. Another significant finding is that a household from southern Punjab was 1.5 times more likely to lease land than a household from northern Punjab. The greater the crop diversification on a farm, the greater was the likelihood of the household leasing in land.

Next, we examined the physical extent and economic size (i.e. the value of output) of farms cultivated by tenant farmers in rural Punjab.⁴ Table 9 shows that on tenant farms

⁴ A discussion on economic size of farm and its relation to acreage can be found in Lenin (1964); for the Indian context, see Patnaik (1972).

Table 9 *Average size of land operated, average size of land leased in, average annual gross value of output, and average annual farm income, by categories of extent of operational landholding, rural Punjab, 2012–13, in hectares and Rs*

Categories of extent of operational landholdings	Average land operated (ha)	Average land leased in (ha)	Average gross value of output (Rs)	Average annual farm income (Rs)
Marginal (<1 ha)	0.3	0.2	36,416	6,890
Small (1–2 ha)	1.5	0.8	258,685	169,102
Semi-medium (2–4 ha)	3.0	1.7	399,311	186,561
Medium (4–10 ha)	5.4	3.0	757,298	331,722
Large (>10 ha)	13.7	7.2	1,921,829	564,301
All classes	3.0	1.8	475,796	204,003

Source: Author’s calculation from unit-level data of Situation Assessment Survey of Agricultural Households for 2012–13 (NSSO 2014).

of more than 4 ha, the value of output and the share of land under lease were higher than for all tenant farmers.

The lease market serves as an instrument to increase the absolute profits of large tenant farmers in rural Punjab. Drawing from Table 9, we define a large tenant farmer as one who operates more than 4 hectares of land, and who reaps two to three times more profit than the average profit of tenant farmers in rural Punjab (Table 10).

We hypothesise that the presence of large tenant farmers in lease markets in rural Punjab has two specific implications for the other classes of tenant farmers. First, the competitive bargaining strength of this particular class pushes up the average rent per hectare. This forces smaller tenants also to pay a high rent per hectare. According to the NSS data, on an average, a small tenant farmer paid a rent of Rs 71,794 per hectare; the rent was as high as Rs 87,204 per hectare in southern Punjab.

The data also indicate that rent takes away 53 per cent of the gross value of output of a small tenant farmer in Punjab. The corresponding proportion for a large tenant farmer

Table 10 *Annual average rent paid, and average ratio of rent to gross value of output (GVO), by class of tenant farmers, regions of Punjab, 2012–13, in Rs/hectare*

Region/State	Rent per hectare for small tenant farmer	Rent as a proportion of GVO, small tenant	Rent per hectare for large tenant farmer	Rent as a proportion of GVO, large tenant farmer
North Punjab	28,192	0.34	77,432.2	0.35
South Punjab	87,203.8	0.56	68,454.6	0.31
Punjab	71,793.7	0.53	70,056.4	0.31

Source: Author’s calculation from unit-level data of Situation Assessment Survey of Agricultural Households for 2012–13 (NSSO 2014).

Table 11 *Results from t-test comparing average rent to GVO ratio for small and large tenants, Punjab, 2012–13, in numbers*

Group	Observations (N)	Mean	Standard error
Small tenant	64	0.36	0.03
Large tenant	55	0.29	0.02
Combined (N)	119	0.33	0.02
T-test results t value = 1.7351		Pr. (T>t) = 0.042	

Source: Author’s calculation from unit-level data of Situation Assessment Survey of Agricultural Households for 2012–13 (NSSO 2014).

was only 31 per cent (Table 10). This explicit economic gain for large tenant farmers through participation in the tenancy market is statistically significant at the 5 per cent level (Table 11). A t-test with unequal variance for both classes of tenant farmers for rural Punjab indicated that the average ratio of rent to gross value of output was significantly higher for small tenant farmers than for large tenant farmers.

CONCLUDING REMARKS

This note presents three distinct findings.

First, in 2012–13, large tenant farmers constituted the major category among tenant farmers in rural Punjab. This was in contrast to the rest of rural India, where more than 50 per cent of lessees operated less than 2 hectares of land. The profit motive impelled large tenant farmers to lease in land. There is evidence of intensification of farming during the post-Green Revolution period through higher use of inputs such as fertilizers, pesticides, expansion of irrigation, and introduction of new technology. The increased prevalence of tenancy suggests that during the decade 2003–13, large farmers leased in land in order to enhance the economic size of their farms.

The second finding suggests that fixed rent paid in cash prevailed in all regions of rural Punjab, and across all classes of tenant farmers.

Thirdly, rent (particularly when seen as a share of the gross value of output) reinforced existing inequalities and socio-economic differentiation of the peasantry in rural Punjab. Large farmers’ participation in the lease market pushed average rents up; at the same time, 53 per cent of the value of output was extracted by means of rent from small-tenant households.

In the current Indian context, there have been many policy prescriptions for the reform of land lease markets. I mention here two concerns that arise from the findings of this note. First, the liberalisation of lease markets proposed in the report of the Dalwai Committee (GoI 2018) does not consider the issue of rent regulation. The consequence of land markets being liberalised without rent regulation will be

eventual impoverishment, through rack-renting, of the small tenant farmer in rural Punjab. Secondly, the Punjab Land Leasing and Tenancy Bill (GoP 2019) opens up the possibility of corporate and contract farming, where corporate entities can be both lessees and lessors in the market. This move will increase rents further, imposing a higher burden of rent on small tenants. Their security of tenure will also be under threat. Reforms that do not include rent regulation are likely to worsen the incomes of small and marginal tenant farmers in rural Punjab.

REFERENCES

- Bansal, Vaishali, Usami, Yoshifumi, and Rawal, Vikas (2018), *Agricultural Tenancy in Contemporary India*, SSER Monograph 18/1, Society for Social and Economic Research, New Delhi.
- Bhalla, G. S., and Singh, Gurmail (2012), *Economic Liberalisation and Indian Agriculture: A District-Level Study*, Sage Publications, New Delhi.
- Bhattacharya, Soham (2019), "A Critical Review of Secondary Databases on Agricultural Tenancy in India," chapter 2 of unpublished PhD thesis, "Agricultural Tenancy in Contemporary Rural India," Indian Statistical Institute, Bangalore.
- Government of India (GoI) (2018), *Report of the Committee on Doubling Farmers' Income: Structural Reforms and Governance Framework*, vol. 13, Ministry of Agriculture and Farmers' Welfare, Government of India, New Delhi, available at <http://agricoop.gov.in/sites/default/files/DFI%20Volume%2013.pdf>, viewed on February 3, 2020.
- Government of Punjab (GoP) (2019), *The Punjab Land Leasing and Tenancy Bill, 2019*, Punjab Land Records Society (PLRS), Government of Punjab, Jalandhar, available at http://plrs.org.in/pdfs/For%20Print_Version%20_Punjab%20Tenancy%20Bill,%20%202019.pdf, viewed on January 28, 2020.
- Jodhka, Surinder S. (2006), "Beyond 'Crises': Rethinking Contemporary Punjab Agriculture," *Economic and Political Weekly*, vol. 41, no. 16, pp. 1530–37.
- Kumar, Deepak (2016), "Discrepancies in Data on Landholdings in Rural India: Aggregate and Distributional Implications," *Review of Agrarian Studies*, vol. 6, no. 1, available at <http://ras.org.in/0d79fb7ec609764cc65809eecd96f6a0>, viewed on January 28, 2020.
- Lenin, V. I. (1964), "New Data on the Laws Governing the Development of Capitalism in Agriculture," *Lenin: Collected Works*, vol. 22, Progress Publishers, Moscow.
- Nadkarni, M. V. (1976), "Tenants from the Dominant Class: A Developing Contradiction in Land Reforms," *Economic and Political Weekly*, vol. 11, no. 52, pp. A137–50.
- National Sample Survey Organisation (NSSO) (2014), *Key Indicators of Situation of Agricultural Households in India*, NSS 70th Round, Ministry of Statistics and Programme Implementation, Government of India, New Delhi.
- National Sample Survey Office (NSSO) (2015), *Household Ownership and Operational Holdings in India*, NSS 70th Round, Report No. 571, Ministry of Statistics and Programme Implementation, Government of India, New Delhi, available at http://mospi.nic.in/sites/default/files/publication_reports/Report_571_15dec15_2.pdf, viewed on January 28, 2020.

Patnaik, Utsa (1972), "Economics of Farm Size and Farm Scale: Some Assumptions Re-Examined," *Economic and Political Weekly*, vol. 7, nos. 31–33, pp. 1613–24.

Ramakumar, R. (2000), "Magnitude and Terms of Agricultural Tenancy in India: A Statewise Analysis of Changes in 1980s," *Indian Journal of Agricultural Economics*, vol. 55, no. 3, p. 337.

Sharma, H. R. (2010), "Magnitude, Structure and Determinants of Tenancy in Rural India: A State-Level Analysis," *Indian Journal of Agricultural Economics*, vol. 65, no. 1, pp. 80–100.

Sidhu, H. S. (2005), "Production Conditions in Contemporary Punjab Agriculture," *Journal of Punjab Studies*, vol. 12, no. 2, pp. 197–217.

Singh, Iqbal (1989), "Reverse Tenancy in Punjab Agriculture: Impact of Technological Change," *Economic and Political Weekly*, vol. 24, no. 25, June 24, pp. A86–92.