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Post Green Revolution Agrarian Structure and Relations: Some micro-level evidences from Haryana

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Abstract

The present paper attempts to analyse the agrarian structure and relationships through a case study of the sample villages from western Haryana. In particular, it endeavours to focus on the changing cropland use, agricultural labour and changing relations, indebtedness of peasants, dependency of farmers for credit - causes and related consequences

The post-green revolution agriculture reveals a shift towards commercial crops in areas with assured irrigation facility, institutionalisation of formalized contract system, differential credit requirement of farmers with varying size of landholdings. A disconcerting factor of agriculture is the indebtedness of peasants to formal and informal institutions over time and indebtedness becoming an individual problem. Distress selling by small and marginal farmers is observed in the wake of non-procurement of produce by the government agencies.

The new technology therefore has only been partially successful in disseminating the gains of the green revolution. The new agricultural policy, in particular, is not addressing the needs of the smaller and marginal farmers.

Introduction

The advent of the Borlang seed-fertilizer based technology heralded a new era in agricultural transformation in mid-sixties, in the state of Haryana, which incidentally coincided with its formation in 1966. This event provided a stimulus to the extension of irrigation, which were its single most important pre-requisites. Not only this, a massive effort was made to develop and transform the socio-economic infrastructure of rural electrification, construction of link roads, establishment of regulated agricultural marketing sites, banking and credit facilities, education, health etc.

Following the green revolution, Haryana achieved the highest economic growth rates in the country, not only in net state domestic product, but also in each of the three sectors - primary, secondary, and tertiary sectors separately: an event which shifted Haryana from fifth place among Indian states to the top position with respect to income per male worker. The same is also corroborated by Bhalla (1981, p.1023).

Notwithstanding regional variations, the introduction of high yield raising new seeds and fertilizer technology in agriculture during the mid-sixties also led to a marked increase in the growth rate of agricultural output and has been instrumental in the transformation of traditional household agriculture into modern commercial agriculture. The levels and growth of land productivity or of output came to be positively associated with use of modern inputs such as irrigation, pump sets, tractors, fertilizers etc. The profitability of new technology led the farmers to resume land for self-cultivation from sharecroppers, lowered the labour-absorption and reduced incomes for erstwhile tenants.

The modern agro-technology not only brought about changes in the cropland use but also in the regional pattern of agricultural productivity and changed agrarian relations. Above

all the questions of land use, agriculture labour and changing relations, dependency of farmers for credit, indebtedness of farmers for credit, indebtedness leading to suicide and distress selling came to be widely discussed.

In the present paper an analysis of this aspect is made from a sample of four villages from western Haryana. Two villages were from Sirsa (Region A) which is agriculturally more developed and two from Bhiwani (Region B) a lesser developed region.

Crop Land Use

The sample survey reveals that of the two regions, A and B, the changes in crop land use among the food crops was particularly witnessed in favour of wheat in which the area under high yielding variety increased as percent of total area under wheat from 83.63 percent to 98.5 percent in region A (Sirsa) and from 75.08 percent to 92.0 percent in region B (Bhiwani) between the years 1975-76 to 1996-97. There was also a phenomenal rise in commercial crops. In region A, the area under rapeseed and mustard increased from 19.1 to 56.6 thousand hectares between the years, 1975-76 to 1996-97. But in region B, there was tremendous increase in the area under rapeseed and mustard from 6.7 to 121.9 thousand hectares between the corresponding period. This was because of the high sale price of mustard and moreover the gram crop during the past 6-7 years had been affected by blight and 'root rot[3] disease. Similarly in American cotton, in region A (Sirsa), the area increased from 43.5 to 149.5 percent and from 6.2 percent to 51.4 percent in region B, between the years 1975-76 to 1996-97. However, the area under American cotton declined from 154.4 to 149.5 thousand hectares between the years 1993-94 to 1996-97 in Sirsa region due to the attack of bacterial diseases. During the field survey in region A, it was found that the farmers feel that the cultivation of cotton has become unprofitable business. Now the farmer is only able to produce 4 to 5 quintals of cotton per acre in comparison to 7 to 8 quintals, which is hardly economical because the incidence of insects, pests has increased the cost of cultivation. In the areas of assured irrigation facility, farmers in the studied villages are going in for hybrid variety of rice. On the other hand, in region B, there has been phenomenal rise in area under American cotton from 32.5 to 51.4 thousand hectares between the year 1993-94 to 1996-97. A shift towards commercial crop was observed in areas with assured irrigation facility. In region A (Sirsa), the percent net area irrigated was 41.7 percent in 1975-76. It has risen to more than 90.00 percent in Saharan and Alikan (Table 1).

The number of tube wells in village Saharan and Alikan are 50 and 108. The major crops sown in region A are wheat, gram, berseem, mustard in Rabi season and cotton, paddy and fodder in Kharif season. The maximum net sown area under a single crop during rabi was under wheat (88.66 percent). During Kharif season, cotton holds the dominant position. The net area sown was 54.38 percent for village Saharan and 89.78 percent for village Alikan.

Similarly in region B, the percent net irrigated area was 21.3 in 1975-76. It has risen to 79 percent in village Sanwer. Here again wheat holds the key position in net area sown (40.88 percent), during *Rabi* season, followed by mustard and gram. During the *Kharif, bajra* has the maximum net area sown (42.94 percent), followed by cotton, *guar, arhar.* The condition of village Makrani is very depressing. The percent net area irrigated is only 16.2 with only 20 tube wells and 5 tractors (Table 1). Here one finds no change in the cropping pattern.

With the increase in assured irrigation facility, there is intensification of cultivation in such areas. In the studied villages of region A (Sirsa), with more than 92 percent land irrigated, cropping intensity is more than 190 percent. It enables two or more than two crops in a year. On the other hand, in region B, in village Sanwer with 72 percent land irrigated by canal and tube well, the cropping intensity is 170 percent.

In village Makrani, which does not have canal irrigation facility, only 16.2 percent of agricultural land is irrigated by tube wells. Moreover, the water table is low and the quality of water is affected from salinity. Hence the cropping intensity is 159 only (Table 1).

Table 1: Agro-economic characteristics of sample villages, 1997-98*

	Sirsa (Region A)		Bhiwani (Region B)	
Net area sown (acres)	1129	4248	4807	903
Gross cropped area (acres)	2183	8037	8171	1441
Number of tractors	35	74	48	5
Number of tube-wells	50	108	89	20
Percent net area irrigated	92	93	79	16.2
Cropping intensity (Percent)	193	190	170	159

*All figures are averages for three years

Table 2: Indebtedness to institutional and informal sources of the various categories of respondents, (1997)

S. No.	Category	Categories of the respondents					
		Institutional debt (standing average)		Informal debt (standing average)		Average (standing debt)	
		Sirsa	Bhiwani	Sirsa	Bhiwani	Sirsa	Bhiwani
Agricultural labourers							
i	Attached labourers	120 (7.41)	—	1500 (92.59)	—	1620 (100)	—
ii	Casual labourers	2600 (37.96)	2400 (38.40)	4250 (62.14)	3850 (61.60)	6850 (100)	6250 (100)
iii	Siri Sanjhi	200 (35.21)	150 (18.34)	368 (64.79)	668 (81.66)	568 (100)	818 (100)
Cultivators							
i	Small and marginal farmers (less than 5 acres)	2662 (26.96)	2100 (2386)	7213 (73.04)	6700 (76.14)	9875 (100)	8800 (100)
ii	Medium farmers (5 to 10 acres)	14648 (83.00)	11500 (84.56)	3000 (17.00)	2100 (15.44)	17648 (100)	13600 (100)
iii	Big farmers (10 to 20 acres)	18516 (81.83)	14220 (80.66)	4111 (18.17)	3410 (19.34)	22627 (100)	17630 (100)
iv	Very big farmers (more than 20 acres)	21510 (92.28)	17800 (92.71)	1800 (7.72)	1400 (7.29)	23310 (100)	19200 (100)

(figures in brackets are percentage) Sirsa – region A, Bhiwani – region B

Agricultural Labour and Changing Relations

With the introduction of agro-technology, unlike the past, the employment of labour to carry out agricultural operations has tilted in favour of casual labourers as more than four fifth are engaged in that capacity. Hardly less than one sixth are engaged as 'Siri' Sanjhis. A minuscule number of respondents are found to be annual attached labourers.

The attached labourers are engaged for the whole year to perform all the agricultural operations. They are mainly kept by big farmers. The working conditions of attached labourers are more difficult than casual labourers. He was found committed to his farmer for almost 24 hours a day. Further, his burden increased during the peak season. There are some instances where these labourers work year after year with the farmer but the signs of bondage are missing.

In Sirsa region, they were paid a fixed wage of 19,000 to 20,000 per annum and 6 quintals of paddy or wheat. But in spite of this amount paid to them, the labourers did not prefer to be annual attached labour because of the very strict terms and conditions. They worked as attached labourers only under some compulsions. Compulsion in almost all these cases was a need for credit. Their credit was largely informal debt (Table 2), the interest rate of which is high. In region B, the wage paid to annual attached labour is almost the same as in region A. However, presently during the survey in region B, no annual attached labour was found (Table 2).

It was observed that the annual attached labourers were the most deprived category of agrarian society of Haryana. This view was also supported by Jodhka (1995) in his study of three Karnal villages. It was also found, on inquiry, that during 1980-81 in both the study villages of region A, as many as 51 agricultural labourers were working as attached labourers and in 1996-97, their figure declined to only 3. Similarly, in region B, during 1983-84, in both the study villages, 21 agricultural labourers were working as annual attached labourers and in 1996-97, there was no respondent working as annual attached labour. Hence the phenomenon of attached labour was on the decline.

'Siri'/'Sajhis were generally employed by the Rajput landlords who did not touch the plough. Employment of Sanjhis became more generalised during early 20th century with expansion of production and growth of rich peasantry in the region (Bhattacharya 1985: 123-25). Siri received 1/5th of the produce as their labour depending upon the area of cultivation both in Sirsa and Bhiwani regions. Siris[5] practically worked for 12-13 hours a day. They were bound to the employer and did not have the freedom to take up work with another employer. Before the phase of mechanisation, Siri was invariably a ploughman, but this did not mean that he participated in the operation of plough only.

During the field survey it came to be known in all villages under study that after casual labourers, Siri are preferred. However, in agriculturally developed Sirsa region the total number of Siri's was less than the agriculturally less developed region B because these were the areas which were first to adopt the green revolution technology and keeping Siri on share basis meant sharing benefits of new technology with labour. Further, it was also found that Siri's were almost always indebted to landlords they worked with and like annual attached labour, their credit was informal debt in both the study regions A and B (Table 2).

The penetration of capitalism in agriculture in Sirsa region has replaced Siris' with casual and annual attached labour (*naukars*[5]) on fixed annual rate. The significant change was the institutionalization of formalized contract system where the mode of payment, its periodicity, duration of contract and advances to be made were all entered in the landlord's account book and an agreement was formulated in the presence of three witnesses. The payment of wages in advance was built into the system. Bhalla (1976, A-25) had earlier made a similar finding.

There are 50 and 40 casual labour respondents in all the four villages of Sirsa and Bhiwani districts respectively. These labourers get a lot of work during harvesting. They are paid 1/20th share of the crop harvested in all the studied villages. Like the above stated two labour classes they also were found to be indebted to informal sources in region A and B (Table 2).

The landless were indebted to informal sources and they needed credit for various purposes such as wedding in the family, renovation of house, serious and prolonged illness, visiting a relative in a nearby village/town and so on.

Thus, the introduction of mechanisation had considerably altered the employment pattern of agricultural labourers, the most dominant form of labourers are the casual labourers. The phenomenon of attached labour is on the decline. 'Sajhis' are found more where the degree of mechanisation is less, rural economy is diversified, consequent to which a farmer gets less time to spend on land and the areas dominated by Rajputs, who did not touch the plough. All the different classes of landless labourers were indebted to informal sources to fulfil their needs such as wedding in a family, renovation of house, serious and prolonged illness, visiting a relative in a nearby village and so on.

Dependency of Farmers for Credit

The dependency of the farmers for credit was another aspect observed. Credit was obtained from two sources – formal sources like financial institutions (lead bank and cooperative bank) and informal sources. An examination of the credit obtained from the Lead and Cooperative Bank in the districts of Sirsa and Bhiwani revealed that the number of people availing the facility of loan during the five years has increased by 1.4 times in Sirsa and 1.3 times in Bhiwani. This finance enables the farmers to augment and adopt new technology in agriculture and application of HYV seeds, fertilizers and pesticides. The credit per person, which was Rs.69.08 in 1993-94, increased to Rs.70.04 in 1998-99 per person in Sirsa. In Bhiwani, during the same period, the credit per person increased to Rs.64.09 per person from Rs.62.40 per person (Table 3).

It is also observed that outstanding loan had increased from Rs.93.24 to Rs.98.04 per person for Sirsa region and from Rs.93.23 to Rs.97.35 per person in Bhiwani during the corresponding period. One of the major reasons for the increase of outstanding loan is the non-return of loan within the stipulated period.

Table 3: Dependency of farmers on financial institutions, (1993-99)

(in thousand)

Sirsa (region A)	Sirsa (Region A) Amount of			Bhiwani (Region A) Amount of		
Year*	Number of beneficiaries financed	Loan taken/ withdrawn (Rs.)	Outstanding loan (Rs.)	Number of beneficiaries financed	Loan taken/ withdrawn (Rs.)	Outstanding loan (Rs.)
1993-94	14188	980082 (69.08)	1322924 (93.24)	10835 (62.40)	676136.5	1010205.5 (92.23)
1998-99	20463	1433261 (7.04)	2006192.5 (98.04)	14747	945218 (64.09)	1435650.5 (97.35)

*Averages for three years
Source: Lead Bank Office, Co-operative Bank, Sirsa and Bhiwani.

Within the sampled villages, among the various categories of farmers, it was observed that institutional debt was more in case of 'very big' farmers as compared to 'small and middle' farmers. The farmers borrowed mainly for productive investments – to buy a tractor or install a tube well on the farm.

However, informal debt was more in case of small and marginal farmers as compared to big farmers in all the four sampled villages. The informal source in the two sampled villages of Sirsa district are '*Adhatis*' and 'local *Bania*' in Bhiwani district. This indebtedness of peasants over formal and informal institutions over time is a disconcerting factor of agriculture in the studied regions.

The phenomenon of indebtedness and non-return of loans in time is not peculiar to this region alone. During the recent years, however, in the cotton-growing belt, one of the major reasons for the non-payment of loan was the failure of cotton crop during successive years due to pests' attack, water logging and salinization. Chemical fertilizers and excess use of irrigation water have given rise to salinity and water-logging in an area of about 2,50,000 hectares in Haryana (H.T. 18 Nov. 1998) and one of the sampled region Sirsa (12,5000 hectares) falls among the three districts worst affected by water logging.

There is a common refrain in Haryana these days, 'irrigation made the farmers in the state kings up to 1980's but turned them into paupers in 1990's due to the water logging and salinization. Agricultural scientists have pointed out that the abuse of natural resources have led to environmental degradation. The major sources of environmental degradation are misapplication of yield increasing inputs like water, chemical fertilizers and pesticides, causing water logging and salinity. Hence these two are the unintended consequences of the post green revolution and the worst affected are the small and marginal farmers and agricultural labourers.

Thus, the growing problem of salinity and water logging coupled with frequent attack of pests, particularly since 1993-94, has led to crop failure and hence indebtedness (Table 3). It is unfortunate that this increasing indebtedness made a dent on the prospects of agriculture and has spelt doom on the peasantry. It seems to have accelerated the agrarian crisis to the unexpected situation where the peasants are being reported to take recourse to the extreme step of committing suicide. From Oct. 1997 to Aug. 1998 in all there were 351 reported cases of suicide for rural Haryana (Ahlawat, 1998).

During the intensive field survey, two reported cases of suicide in Sirsa district were found during the corresponding period. Both were small and marginal farmers. The failure of crops due to acute water logging and salinization coupled with frequent pests attacks developed the feeling of insecurity, helplessness, loss of family status, pressure of repayment of loan, inability to meet the subsistence requirement led some of the deceased farmers to take recourse to such an extreme step.

Besides the inability to repay debt - other reasons observed for committing suicide in the state are excessive expenditure vis-a-vis income, domestic discord, alcohol, nuclearisation of joint family. The nuclearisation created a lonely individual surrounded by indifferent "others" (Durkheim, 1952). Moreover, the rural social institutions (*Panchayats*) are no more serving as social communities that they once were. Though the agrarian society of Haryana, Punjab was facing indebtedness up to 85 percent during 1920's and 1930's (Darling, 1925). Question arises why there were no signs of peasants committing suicides. The answer to such lies in the fact that indebtedness in 1920's or 1930's was not an individual problem, it was considered as the joint problem of family in a joint family system.

Distress selling, though at a lesser scale, was also observed in both the study regions. Distress selling is prevalent not only of land and tractors

but also of agricultural produce. During a visit to the grain market of Sirsa and Bhiwani region, it was realised that prices of farm produce tend to vary at very short intervals of time when the traders make the prices of grains fluctuate at their whims. Many farmers of all the four villages mentioned that some times they have to wait for three or four days and still they are not able to sell their produce (cotton, paddy, *sarson* etc.) at the government fixed rates. They are left with no option but to sell at whatever price the trader offered them for their produce because they required money to clear the standing loan of village money lender or banks and also for domestic purposes. It seems that the post green revolution has failed to protect the peasantry from the exploitative system of distress selling.

Conclusion

The survey revealed that an assured irrigation facility has intensified cultivation, thus leading to better land use management. A shift towards commercial crops is observed in areas with assured irrigation facility. The penetration of capitalism in agriculture has replaced 'Siris' with casual labourers. 'Sajhis' are found more where the degree of mechanisation is less, rural economy is diversified, consequent to which, a farmer gets less time to spend on land and the area dominated by Rajputs who do not touch the plough. A minuscule number of respondents are found to be annual attached labour. Wherever available the working conditions of attached labour continues to be stringent although the signs of bondage are missing.

More and more farmers were availing the facility of agricultural credit. Whereas the big farmers preferred institutional debt mainly for productive investment, informal debt was more in case of small and marginal farmers. The agricultural labourer too fell in line with the latter. The rate of interest charged by informal sources is exorbitant.

Recently, the non-payment of loan has led the farmers to commit suicide. The indebtedness of peasants over formal and informal institutions overtime is a disconcerting factor observed in sample villages. Indebtedness is mainly because of crop failure, growing problem of salinity and water logging. Other reasons observed for suicide are excessive expenditure, vis-à-vis income, domestic discord, alcohol, nuclearisation of joint family.

Distress selling - though not so rampant, was also observed in all the study villages. Distress selling is prevalent not only of land and tractors but also of agricultural produce.

Thus the new technology has been partially successful in disseminating the gains of the green revolution to all classes of farmers. However, the issue of agricultural sustainability has come to be questioned as a result of the problems confronting the farmer.

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