

*Full Length Research Paper*

# **Agrarian distress and indebtedness in rural India: Emerging perspectives and challenges ahead**

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**This paper explores agrarian distress and indebtedness among farmers in India. The study is based on the state level data obtained from the 59th round survey of National Sample Survey Organisation (NSSO) conducted in agricultural year 2002 to 2003. The study aims to analyze the pattern of indebtedness and causal factors behind it. The research concludes that the major factors that lead to indebtedness are the instability in food grain yield, level of yield / net returns and the cost of cultivation. Statistically, the rising cost of cultivation and diminishing net returns came out to be significant with the incidences of indebtedness. The states having high level of agricultural development are characterized by high incidence of indebtedness. Most of the indebted farmers belong to the small and marginal categories but the states where the degree of commercialization is high, the incidence of indebtedness is found high among the semi-medium and medium farmers. The present agricultural credit system is abysmal and the farmers are not getting the appropriate price for their crops. This situation demands urgent attention of the government, policy makers and planners to save the farmers from committing suicide and to re-boost the agricultural economy of the country.**

**Key words:** Agrarian distress, indebtedness, food grain yield, net returns, commercialization.

## **INTRODUCTION**

Rural indebtedness has always been a major social and economic issue in India. Despite the tremendous expansion of the banking network and the growth of institutional credit for agriculture, the severity of agricultural indebtedness persists. The distress of the farmers has been aggravated by the decline in earnings from agricultural operations, the cost of inputs, the commercialization of agriculture and the dependence on moneylenders. Since independence, India has travelled a long journey from an importer of food to a food self sufficient nation. During the process of economic transformation, the agriculture sector diminished in importance and the industrial sector played a dominant role. Transformation of resources from agriculture sector to rest of the economy has been seen as a positive and universal phenomenon by the modern thinkers of growth theory (Lewis, 1954; Syrquin, 1988).

The impressive growth in recent years is largely a story

of the urban-based service sector and to a lesser extent for industry whereas agriculture is lagging behind. Agriculture's contribution to the gross domestic produce in India has reduced from 56% in 1950 to 1951 to 23% in 2005 to 2006 whereas as per the 2001 census, 58% of the total work force and 73% of the rural workers are still dependent on agriculture.

Within agriculture, the incremental value addition in output indicates a shift away from traditional crops to high value crops like fruits and vegetables that hardly have any presence under the gross cropped area. The growth of the cereals, propelled largely by rice and wheat through the green revolution, is also not very encouraging in the recent past (Mishra, 2006). Overall, income from cultivation is inadequate. It becomes difficult for the farmer to plan for all possible risks: vagaries of nature (primarily, inadequate or excessive water), market related uncertainties such as increasing input costs and output price shocks, unavailability of credit from institutional sources or excessive reliance on informal sources with a greater interest burden and new technology among others. With the decline in extension service he has to rely on the input dealer leading to supplier-induced-

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demand. This has adverse implications on the livelihoods of the cultivators, most of whom are marginal and small farmers, as well as for agricultural labourers. This is indicative of a larger agrarian crisis.

Indebtedness is not new to Indian agriculture but suicides due to indebtedness are new phenomena. A combination of economic factors such as economic hardships of the pauperized peasant households, crop failures, unemployment and indebtedness has compelled them to commit suicides. This has happened due to decline of community sense/support mechanism as a result of the emergence of new production relations (Gill, 2005). The ongoing spate of suicides of farmers in India indicates that they are in great distress (Reddy and Galab, 2006). The phenomena of suicides of poor farmers has been observed in various states of India especially where agriculture is highly commercialized. The suicides among farmers are regularly reported in Andhra Pradesh (Reddy, 1998) and Karnataka (Assadi, 1998; Deshpande, 2002; Vasavi, 1998). This is harmful to the country's agricultural prospects which further determine the food security of the country. The recently conducted situation assessment survey by the National Sample Survey Organisation (NSSO) in 2003 clearly brought out that the states where the incidences of suicides were high were the states where the proportion of indebted farmer's households was also high, for instance, as in Andhra Pradesh, Maharashtra, Karnataka, Punjab, Kerala and Tamil Nadu. At the all India level, 48.6% of farmers households were reported to be indebted (NSSO 59th Round, 2005). National Sample Survey Organisation defines a farmer to be indebted when, any liability which was taken in cash or kind and if the amount at the time of transaction was Rs. 300 (1US \$= 49.80 Indian rupees) or more.

The reasons for indebtedness amongst farmers are many and one of the most important reasons is that farmers are not getting enough remuneration for their produce. This could possibly be because of a sharp deceleration in the growth of prices of many agricultural commodities and increase in the cost of cultivation after the introduction of reforms (Rao and Suri, 2006). Also the uncertainty of weather as well as dependence on borrowed credit from an informal moneylender is also another reason to add on. A direct outcome of the squeeze in farm incomes and dwindling employment opportunities has been a phenomenal rise in the level of indebtedness within the peasantry. The NSS 59th round Survey on "indebtedness of farmer households" conducted in 2003 reported that moneylenders had emerged as the most significant source of credit for the indebted farmers, with 29% of farmers sourcing their credit from them. The continuing trend of farmers' suicides, currently being witnessed in India, is a sign of extreme despair and hopelessness of the peasantry plagued by repeated crop failures, inability to meet the rising cost of cultivation and rising indebtedness.

Of the estimated 89.3 million farmer households in 2003, 43.42 million (48.6%) were indebted. The average outstanding debt was 12,585 rupees (\$320) per farmer household and 25,902 rupees (\$660) per indebted farmer household (Government of India, 2007). Mechanization of harvesting of major crops and intensive use of biological technologies have not only reduced the household use of labor power but also substantially contributed to the rise in the cost of production. Over capitalization of mechanical power such as tractors and tube wells has made available the use of the tractor on a hire purchase basis to the small farmers which has reduced the use of family labor as well as completely eliminated tilling of land by bullocks even by the small and marginal farmers. The farmers have turned managers of the production processes of agriculture because the manual operations have been almost eliminated and the remaining tasks are being done by the migratory workforce available at low level of wages. Rising costs along with stagnant technology and a near freeze in the minimum support price of wheat and paddy, which turned the already adverse terms of trade from bad to worse, surely reduced returns on food grain production. The reduction of differentials between returns and cost of production, the increasing uncertainty of weather as well as a dependence on borrowed credit at a higher rate of interest from informal lenders were the reasons responsible for increasing indebtedness among the farmers (Shergill, 1998; Ghuman, 2001; Gill, 2000). This has compounded problems to the extent that farmers of India resorted to committing suicides (Architectural Form Definition Requirements, 2000).

Agrarian distress and farmers suicide is a subject of widespread discussion in recent years. The whole crisis is the consequence of the fact that market forces operated at much larger scale during the phase of liberalization and globalization and thus reduced surpluses and increased costs leading to the agrarian distress (Bhalla, 2004). The increasing cost of cultivation and the increase in the gap between prices and returns are enough to break the back of the farmers. Above this, the non-repayment of borrowed credit from the informal moneylenders who charge exorbitant rates of interest add to the humiliation amongst the farmers in the society and its because of this humiliation they take the extreme step of committing suicide (Suri, 2006). Increased liberalization and globalization have in fact led to a shift in the cropping pattern from staple crop to cash crops like oilseeds and cotton, requiring high investment in modern inputs and wage labour. This increases credit needs. But when the prices declined farmers have no means to supplement their incomes (Sharma, 2008).

The increase in burden of debt is the major reason behind the farmers committing suicide. In order to clear all the debts the farmers are compelled to cultivate cash crops which can give them high returns. And the cultivation of cash crops is just a gamble because it may

give the farmers higher returns or may even make them more indebted, if they do not get adequate returns for their produce. So now the question arises that if the farmers in order to clear their debts cultivate only cash crops then who will cultivate food crops? The status of food security will again be questioned. Almost 80% of the farmers who are indebted are the ones who possess land up to 2 hectares; they are small and marginal farmers (NSSO 59th Round, 2005). The medium and large farmers may somehow be spared of the market forces but how will the small and marginal farmers come out of the debt trap? The main objective of the study is to assess agrarian distress and to bring out the pattern of indebtedness. The paper has been divided into two sections. In the first section, agrarian distress has been discussed while in the second part, indebtedness and the factors associated with it has been analyzed.

## MATERIALS AND METHODS

The present study has been carried out at the state level using the secondary data of the 59th round of the NSSO. The analysis is largely based on statistical techniques like correlation, regression and principal component analysis. The results broadly confine to the limitation of these statistical techniques and in some cases where the statistical techniques have shown out insignificant results over there a descriptive analysis have been carried out. Greater stress is laid on the basic understanding of the problem and the factors affecting it, and the reasons behind those factors. Instability in food grain yield, level of yield / net returns and the cost of cultivation are the factors which lead to agrarian distress, which further causes indebtedness.

Instability in food grain yield is derived by using the Cuddy Della Valle's index of instability which takes into account both the coefficient of variation (C.V) and the  $R^2$ . The formula is,

$$\text{Instability} = C.V \cdot (1 - R^2)$$

Where C.V = coefficient of variation

$R^2$  = Proportion of explained variation in the dependent variable as a result of variation in the independent variable.

Commercialization is indicated by the proportion of marketable surplus out of the total output. Level of agricultural development is carved using the principal component analysis. The indicators undertaken are, food grain yield, extent of irrigation, irrigation intensity, proportion of area under tube well irrigation, fertilizers used per hectare of gross cropped area, number of credit societies per 100 farmers' households, road density and percentage of villages electrified. Correlation has worked out between the prevalence of indebtedness and the purpose and source of amount that has been borrowed. Also, regression has been worked out between prevalence of indebtedness and its causes mainly the cost of cultivation and the net returns.

## RESULTS AND ANALYSIS

### Agrarian distress

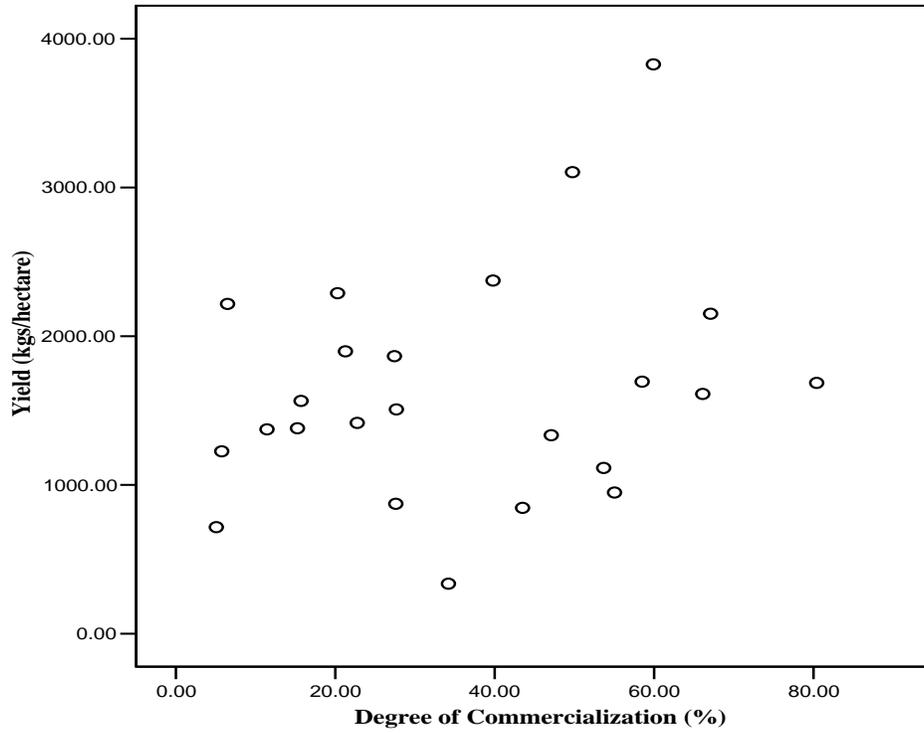
Generally, it is found that the regions where agriculture

is practised traditionally are the ones where commercialization is low and instability in food grain yield is low; and has an economy of self sustaining agriculture. Whereas, the regions that are agriculturally developed that is, those where the level of yield and net returns and the cost of cultivation are high, are the ones having a greater degree of commercialization and the instability is high. Earlier, it was the belief that the instability in food grain yield and low level of yield were major factors leading to indebtedness, but now in the era of globalization indebtedness amidst farmers is more due to the rising cost of cultivation which is a consequence of the traditional agriculture getting transformed into commercial agriculture. Further, statistical relationship between commercialization and the instability in food grain yield, level of yield / net returns and the cost of cultivation was examined. The analysis revealed that none of the statistical operations came out to be significant but when the figures of these variables on a graph were plotted then it gave some insight (Figure 1 A and B). Both these graphs show that wherever the yield levels and the returns are high are the regions experiencing high commercialization whereas Figure 2 does not show any prominent relationship between the degree of commercialization and the instability in food grain yield. Therefore, commercialization is featured by high yield levels and high returns. Whereas, the traditional regions where the instability in food grain yield is high are not the ones practising commercialization and tend to rely on low cost based subsistence cultivation.

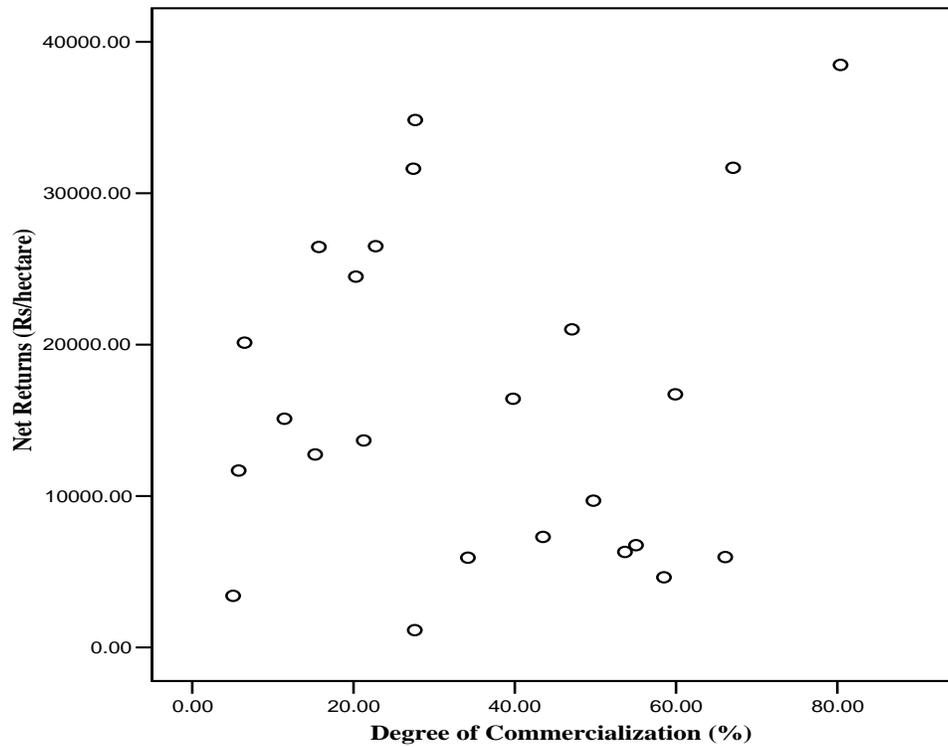
Table 1 shows the reasons affecting the instability in food grain yield, level of yield / net returns and the cost of cultivation which are the factors leading to indebtedness. Statistically, no significant relationship was found between the instability in food grain yield and the factors affecting it but significant relationship was found between level of yield on one hand and extent of irrigation and rainfall on the other (Table 1). Also, significant relationship was found between the cost of cultivation and the degree of commercialization and it came out to be such that one per cent increase in commercialization increases the cost of cultivation by Rs. 100 per hectare (Table 1).

### Indebtedness

At the all-India level, out of the total rural households, 60.4% were farmer households, and out of them 48.6% farmer households were indebted (NSSO 59th Round, 2005). The highest incidence of indebtedness (that is, more than 60%) is witnessed in the southern Indian states of Andhra Pradesh, Karnataka, Kerala and Tamil Nadu; and in the northern Indian state of Punjab. Indebtedness is relatively lesser (varying between 40 to 60%) in the states like Haryana, Rajasthan, Gujarat, Maharashtra, Madhya Pradesh, West Bengal, Orissa and

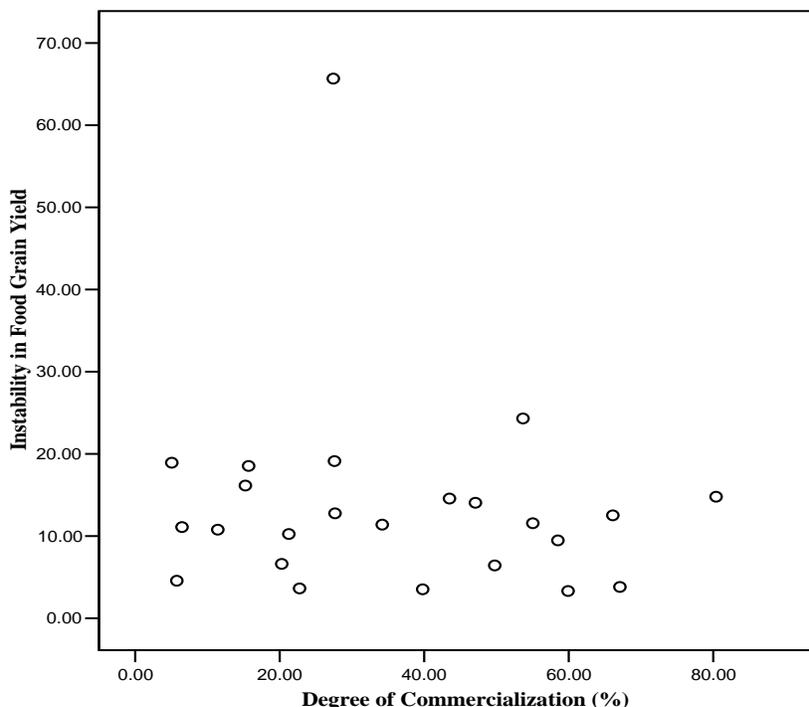


(A)



(B)

**Figure 1.** Relationship between the degree of commercialization and level of yield / net returns.



**Figure 2.** Relationship between the degree of commercialization and instability in food grain yield.

**Table 1.** Regression coefficients and  $R^2$  value of factors affecting instability in food grain yield, level of yield / net returns and cost of cultivation.

Instability in food grain yield	Level of yield / net returns	Cost of cultivation
Extent of irrigation	Extent of irrigation (38.173**)	Degree of commercialization (100.783**)
Irrigation intensity	Irrigation intensity	
Proportion of area under tube well irrigation	Proportion of area under tube well irrigation	
Instability in rainfall	Rainfall (0.608**)	
	Fertilizer consumption	
	Rural infrastructure	
$R^2$ value	0.770	0.254

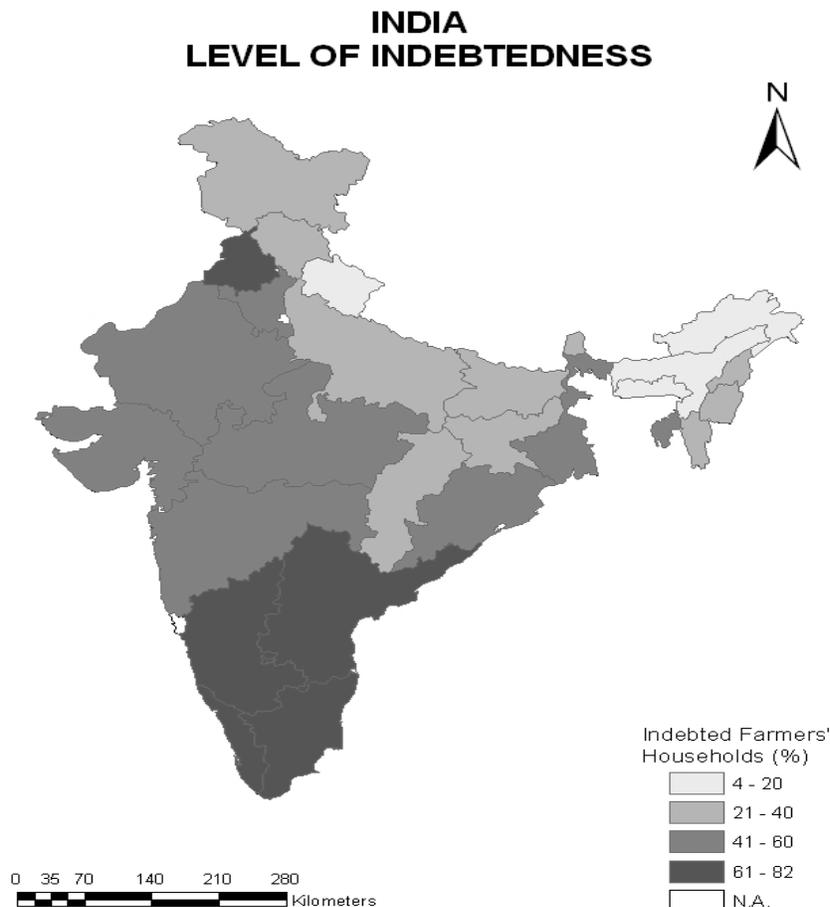
\*\* Significant at 99% level; figures in parentheses are the regression coefficients.

Tripura. Moderate incidence of indebtedness (varying between 20 to 40%) is seen in the northern states like Jammu and Kashmir, Himachal Pradesh, Uttar Pradesh, Bihar, Jharkhand and Chhattisgarh; and the north-eastern states of Nagaland, Manipur and Mizoram. It were the hilly states of the northeast and Uttarakhand which had the lowest incidence of indebtedness (Figure.3). Agricultural development, when correlated with the incidence of indebtedness gives a significant positive relation, that is, the states where the level of agricultural development is high are the ones having high incidences of indebtedness (Table 2).

The pattern of indebtedness according to farm size

shows that out of the total Indebted farmers' house holds (IFHH), there are 61% of IFHH who belong to the marginal category of farm size, 18.9% of IFHH farmers belong to the small farm size, 12.5, 6.4 and 1.2% of IFHH belong to the category of semi-medium, medium and large farm size respectively (Appendix 1).

Therefore, almost 80% of the farmers who are indebted are the marginal and small farmers. A close perusal of Appendix 1 shows that the pattern within different states is completely different from the pattern at the all India level. Moving from east to west, the share of the farmers indebted in the semi-medium and medium category also increases, and in majority of these states the degree of



**Figure 3.** Prevalence of indebtedness in India. Source: NSSO 59th round.

**Table 2.** Correlation between level of agricultural development and prevalence of indebtedness.

Prevalence of indebtedness	Agricultural development
Indebted farmers' households (%)	0.491**

\*\* Significant at 99% level.

commercialization is also high (Rajasthan and Madhya Pradesh being exception).

At the all-India level, the proportion of IFHH having cultivation as their source of income was 56.9% (Appendix 2). Approximately, 3.2% of the IFHH derived their income from 'farming other cultivation' which includes animal husbandry, poultry, fishery, bee-keeping etc. Whereas, 4.1% of the IFHH live upon 'other agricultural activity' that inculcates, growing of trees, horticultural crops (orchards) and plantations (rubber, cashew, pepper, coffee, tea, etc) and the rest 35.7% of IFHH fall in the category of other sources of income. Geographically stating, amidst the states of northern India (except Jammu and Kashmir and Himachal Pradesh), the other states like Punjab, Haryana,

Uttarakhand and Uttar Pradesh have maximum proportion of IFHH who earn their livelihood through cultivation whereas, in Jammu and Kashmir and Himachal Pradesh, more than 50% of the IFHH have 'other' sources of income. The states of eastern India which comprises Bihar, Jharkhand, West Bengal and Orissa have more than half of the IFHH who have cultivation as their major source of income. The similar trend is also followed in central, north eastern and southern region (except Kerala where the maximum proportion of IFHH derives their income from 'other' income sources) also show similar kind of pattern. So, it can safely be concluded that the incidence of indebtedness is maximum amidst the farmers who derive their income from cultivation followed by

**Table 3.** Farm size wise amount borrowed (Rupees per 1000) by farmers' households for various purposes in India.

Farmers' categories	Capital expenditure in farm business	Current expenditure in farm business	Non-farm business	Consumption expenditure	Marriages and ceremonies	Education	Medical	Others
Marginal	186	159	112	127	168	11	58	178
Small	326	320	46	87	99	5	24	93
Semi-medium	388	347	47	50	89	7	13	59
Medium	411	398	23	59	50	5	12	41
Large	457	325	32	48	29	15	37	57
All sizes	306	278	67	88	111	8	33	108
C.V (%)	30	29	67	45	62	51	67	64

Source: Report No. 498, 59th Round NSSO.

'other' source of income.

Looking at the status of indebtedness as per social groups (Appendix 3), it more or less corresponds to the social composition of the Indian population, that is, wherever, the share of scheduled tribe population is more there the share of scheduled tribe farmers indebted is also high and so on. If we closely have a look at the farmers indebted across social groups and across farm size then we come to know that the farmers of the higher socio-economic strata are relatively more indebted, and in the regions where the farmers of the higher socio-economic strata are more indebted are the ones where commercialization is also relatively higher.

### Purpose of borrowing

It can be inferred from Table 3 that at the all-India level; almost 58% of the borrowing was done for the purpose of capital and current expenditure in farm business followed by marriages and ceremonies. The coefficient of variation across farm size for various purposes was carved out and the least variation came out to be for the current and capital expenditure in farm business.

On a closer observation it was found that, for the purpose of capital and current expenditure in farm business, they were the semi-medium, medium and large farmers who had taken more loans than the marginal and small farmers but for rest of the purposes the marginal and small farmers had taken relatively more loans than the semi-medium, medium and large farmers. Amongst the productive purposes, the highest debt was incurred by the large farmers for the purchase of agricultural inputs like seed, diesel/ mobile oil, agro-chemicals tractors, harvest combines and farm machinery while the small and marginal farmers borrowed money for social and religious purposes. Non-institutional credit has mushroomed because the modern agriculture demands modern inputs and the cultivators who are unable to procure loans from cooperatives or banks also depend on money lenders for agricultural and non-agricultural monetary requirements (Singh, 2006).

### Source of borrowing

At the all-India level, the major sources from which the loans were borrowed were the banks,

agricultural money lenders and the cooperative societies. Nearly, 80% of the borrowing was done from these sources. A close look at the coefficient of variation across farm size for the borrowing done from various sources reveals that the least variation was noticed in money borrowed from cooperative societies, banks and agricultural moneylender. The credit facilities extended by the cooperative societies and other formal agencies in view of the rising cost of cultivation are inadequate. As a result, the farmers have no choice other than to depend on the informal money lenders for timely agricultural input requirement who usually charge exorbitant rates of interest (Mohanty and Shroff, 2004). In addition to the binding of cultivator through agriculture input sales and credit, many agents also act as grain producers. Having purchased inputs on credit, cultivators are often forced to sell their produce to these agents at prices that are below market rates in order to clear their debts. Cultivators, as buyers and clients are forced to the dictates of the market. They do not have the same leverage as sellers of their produce (Vasavi, 1998). On a closer examination of Table 3, we see that the loans borrowed from the major institutional sources like the cooperative societies

**Table 4.** Farm size wise amount borrowed (Rupees per 1000) by farmers' households from various sources in India.

Farmers' categories	Government	Cooperative society	Bank	Agricultural money lender	Trader	Relatives and friends	Professionals	Others
Marginal	39	155	281	316	47	122	11	28
Small	17	205	354	259	42	88	8	26
Semi-medium	15	226	410	234	47	51	4	14
Medium	13	230	445	167	61	56	15	12
Large	17	232	427	172	106	40	0	6
All sizes	25	196	356	257	52	85	9	21
C.V (%)	52	15	17	27	43	47	77	55

Source: Report No. 498, 59th Round NSSO.

**Table 5.** Correlation between prevalence of indebtedness and amount borrowed for various purposes and from various sources.

Indebtedness	Cooperative societies	Money lender	Current expenditure in farm business
Indebted farmers' households (%)	0.588**	0.504**	0.445**

\* Significant at 95% level; \*\* Significant at 99% level.

and banks were borrowed in majority by the semi-medium, medium and large farmers. This trend was a result of the fact that, these sources do not supply credit to the farmers all round the year and also deriving credit from them require a lot of paperwork hassles. Both these conditions are not suited to the marginal and small farmers, because most of them are illiterate so they cannot fulfil the paperwork and they are so much in need in credit right through the year for some or the other expenses that they turn their faces to the private money lender who welcomes them open arms but also with high interest rates. This fact is also supported by Table 4 which clearly indicates that at the all India level, the marginal and the small farmers who borrow in majority from the agricultural moneylender than the semi-medium, medium and large farmers.

#### Relationship between prevalence of indebtedness and the amount borrowed for different purposes and from different sources

In an attempt to find out whether there exist any relationship between the prevalence of indebtedness and the various purposes for which the loans were borrowed and from various sources from which it were borrowed, then it came out that a significant positive relationship exist between the prevalence of indebtedness and the loans borrowed for current expenditure in farm business and the amount borrowed from cooperative societies and agricultural moneylender (Table 5).

Therefore, it may be concluded that the semi-medium, medium and large farmers borrow the loans for the purpose of capital and current expenditure in farm

business and the major sources of their borrowing are the cooperative sources and the banks. The marginal and the small farmers borrow mainly for the purposes other than farm business and the agricultural money lender is their major source of disbursing credit.

#### Causal factors behind indebtedness

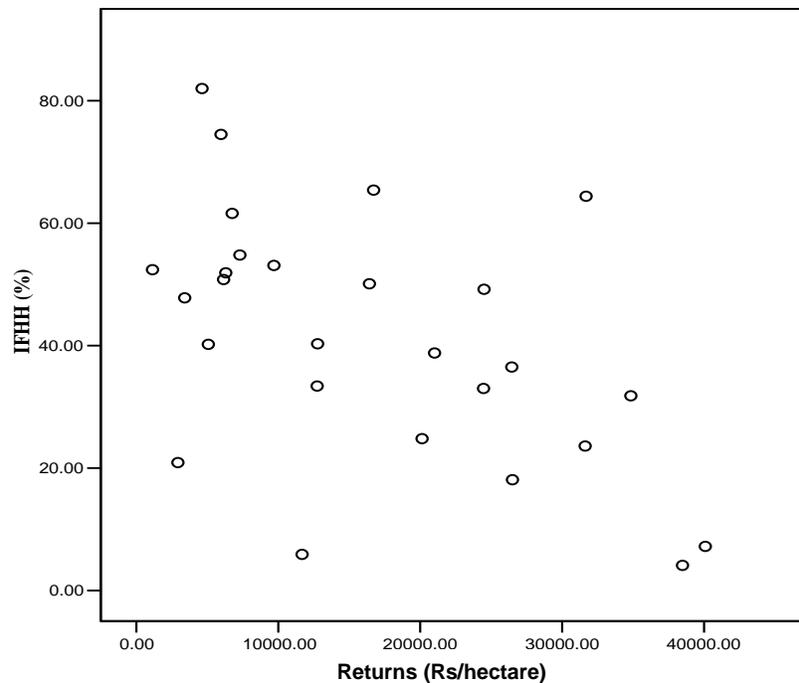
The major factors that lead to indebtedness are the instability in food grain yield, level of yield / net returns and the cost of cultivation. Statistically, the rising cost of cultivation and diminishing net returns came out to be significant with the incidences of indebtedness (Table 6 and Figure 4). Agriculture has now become market-oriented. It neither meets the household food requirement nor is profitable to the farmer. Ever since commercialization of agriculture has taken place, the indebtedness of farmer has increased. Market based is mostly being supported by commercial credit/loans. Land as security against loan keeps the farmer as bankable/ viable client for fresh loan. Consequently the farmers began to take loans from professional money lenders. As money lenders became exploitative, the states came in support of farmers by providing agricultural credit through banks and other public institutions. Banks kept land as a security against the lending and increased the agricultural credit to boost the agricultural production in the country. The present institutional system turns out to be debt trap for the farmers. The non-institutional agricultural sources of credit are more interested in their profit than the farmer's interest and intend to perpetuate indebtedness among farmers.

Commercial farming also facilitates the system. The

**Table 6.** Regression coefficients and R<sup>2</sup> value of factors affecting prevalence of indebtedness.

Variable	B	t value
Cost of cultivation	0.002*	2.344
Net returns	-0.001**	-4.084

Dependent variable: Indebted farmers' households (%); \* Significant at 95% level; \*\* Significant at 99% level.



**Figure 4.** Relationship between prevalence of indebtedness and cost of cultivation and net returns.

system of lending and the rate of interest charged are discriminatory against the farmers. The political parties take mileage out of this situation by waiving off loans turns out to be counter productive as it makes farmers great debtors. The present agricultural credit system is so fearful that farmers are forced to commit suicide as it has been observed in agriculturally prosperous states like Punjab, Haryana and Andhra Pradesh (Singh and Sangh, 2008). But it is very difficult to arrive at the exact estimate of suicides by the farmers in the rural areas. If the suicide case is reported to the police (the necessary condition for recording it), then the case has to be registered by the police for investigation to establish the cause of death and fix the responsibility to the specific individuals responsible for the suicide. This involves a lot of harassment of the family members at the hands of police officials. At the same time, the dead body of the victim has to be taken to the hospital for the post mortem before

cremation. This leads to delay in cremation and also removal of some organs from the body. The rural people do not appreciate this. Thus most of the suicide cases are not reported to the police and are recoded as normal deaths caused by factors other than suicides (Gill, 2005).

## Conclusion

The forces of globalization have overtaken the traditional factors in deteriorating the conditions of distress among the farmers. The regions which have tried to respond to globalization through high commercialization have in turn faced the burden by turning the occupation in to high cost based cultivation. This clearly implies that, if the farmers continue to respond to the demands of the market forces in this manner only then they may get indebted in future. Indebtedness as a whole is not a major problem in India,

but suicides of farmers due to indebtedness is a relatively new phenomenon. And therefore this phenomenon needs a serious attention because paying no heed to it means that tomorrow we may starve.

The major reason for the suicides is the heavy indebtedness that the cultivators find themselves in today. This heavy indebtedness is not an overnight phenomenon that has occurred suddenly. It has its roots in the credit policy that has been followed over a number of years. The indebtedness itself results from a mismatch in the cost of production, the support price and the market price that the cultivators are receiving at the end of every cropping cycle.

Heavy indebtedness is spreading across the landholding patterns. In that context, the small and the medium-sized cultivator is the most affected of the lot, though the large land holder in the rain-fed areas of the states, too, is coming under strain. In the context of availability of credit, private money lending remains the single largest source of credit to small and marginal farmers. This is so because the banking sector is fast moving out of the credit delivery mechanism (Tata Institute of Social Sciences, 2005).

The surge in farmers' suicides, which is symptomatic of a larger agrarian crisis, seems to be spreading. Without adequate safeguards, the farmer will require more and more credit that will lead him to a quagmire of indebtedness. Policy interventions should independently address all possible risks: income shortfalls, crop loss (weather, pests, theft, fire or spurious quality of seeds and other inputs), price shocks, increasing input costs and resultant indebtedness.

Availability of affordable credit requires revitalization of the rural credit market. There is also a strong case for regulating and monitoring the functioning of non-institutional sources of credit. The functioning and lending procedure of the commercial banks and cooperatives should be improved. The cooperative societies/entrepreneurs should be encouraged to provide loans to farmers for heavy machinery strictly on economic feasibility. The generation of non-farm employment opportunities, strengthening the dairy sector, implementing the crop insurance scheme, ensuring the suitable prices for the produce and government positive attitude towards the problems of farmers will go a long way in reducing the agrarian distress and indebtedness among farmers.

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## APPENDIX

Appendix 1. State-wise percentage of IFHH across farm-size.

State	Marginal	Small	Semi-medium	Medium	Large	All
Andhra Pradesh	55.7	21.8	15.1	6.6	0.7	100
Arunachal Pradesh	27.8	44.4	27.8	0	0	100
Assam	70.6	20.8	8.1	0.5	0	100
Bihar	86.9	9.2	2.8	0.7	0.6	100
Chhattisgarh	44.6	30.6	16.9	7.5	0.4	100
Gujarat	45.7	21.7	18.3	13.2	1.1	100
Haryana	52.3	18.3	19.7	8.8	0.9	100
Himachal Pradesh	76.3	15.6	6.3	1.9	0	100
Jammu and Kashmir	72.9	13.7	12.6	0.9	0	100
Jharkhand	79.5	15.6	2.7	0.9	1.2	100
Karnataka	50.7	22.8	15.9	9.3	1.2	100
Kerala	87.7	9.1	2.6	0.5	0.1	100
Madhya Pradesh	33	27.1	23.1	13	3.9	100
Maharashtra	36	26.2	23.3	12.2	2.4	100
Manipur	80.1	18.6	1.1	0.2	0	100
Meghalaya	74.5	15.7	11.8	0	0	100
Mizoram	58.2	31	10.9	0	0	100
Nagaland	64.5	33.7	1.7	0	0	100
Orissa	70.3	20.6	7.3	1.7	0	100
Punjab	53.3	15.8	17	11.8	2.2	100
Rajasthan	43.9	19.8	17.8	14.1	4.5	100
Sikkim	82.2	14.9	2.9	0	0	100
Tamil Nadu	72.6	15.4	9.3	2.2	0.4	100
Tripura	94.7	5.3	0	0	0	100
Uttar Pradesh	71.3	17.4	7.8	3.4	0.3	100
Uttarakhand	72.7	21.2	5.9	0	0	100
West Bengal	88.7	8.5	2.4	0.4	0	100
All India	61	18.9	12.5	6.4	1.2	100

Source: NSSO, 59th round, situation assessment survey of farmers.

Appendix 2. State-wise percentage of IFHH across source of income.

State	Cultivation	Farming other than cultivation	Other agricultural activity	Others	All
Andhra Pradesh	54.4	4.3	5.8	35.5	100
Arunachal Pradesh	76.4	0	1.4	22.2	100
Assam	61	1.6	0	37.4	100
Bihar	51.6	1.8	3.6	43	100
Chhattisgarh	59.6	3.9	2.9	33.6	100
Gujarat	62.9	2.6	4.4	30.1	100
Haryana	59.8	3.8	2.1	34.3	100
Himachal Pradesh	41.2	1.9	3.5	53.4	100
Jammu and Kashmir	39.1	3.2	0	57.7	100
Jharkhand	49.1	1.4	3.6	45.9	100
Karnataka	60.2	2.8	6.5	30.5	100
Kerala	14.4	14.1	10.1	61.4	100
Madhya Pradesh	64	1.4	5.7	28.9	100

**Appendix 2. Continued**

Maharashtra	62.6	1.7	2.4	33.3	100
Manipur	50.4	8.1	2.6	38.9	100
Meghalaya	78.4	2.9	5.9	12.8	100
Mizoram	76.6	8.2	0	15.2	100
Nagaland	69.4	0.7	0	29.9	100
Orissa	52	1.1	4.8	42.1	100
Punjab	52.7	2	4	41.3	100
Rajasthan	58.4	4.3	3.1	34.2	100
Sikkim	51.1	2.9	0	46	100
Tamil Nadu	50.7	5.7	3.1	40.5	100
Tripura	69.9	1.1	1.7	27.3	100
Uttar Pradesh	66.4	2.6	1.8	29.2	100
Uttarakhand	67.4	0.9	0	31.7	100
West Bengal	55.5	2.2	5.6	36.7	100
All India	56.9	3.2	4.1	35.8	100

Source: NSSO, 59th round, situation assessment survey of farmers.

**Appendix 3. State-wise percentage of IFHH across social groups.**

State	ST	SC	OBC	Others	All
Andhra Pradesh	10.8	16.8	47.7	24.7	100
Arunachal Pradesh	48.6	0	0	51.4	100
Assam	7.1	10	21.3	61.6	100
Bihar	2.9	17	59.8	20.4	100
Chhattisgarh	30.8	16.7	49.2	3.3	100
Gujarat	22.8	6.6	36.2	34.4	100
Haryana	0.5	21.8	32.6	45.1	100
Himachal Pradesh	6.7	27.8	17.7	47.9	100
Jammu and Kashmir	0	18.9	4.6	76.5	100
Jharkhand	23.9	15.6	48	12.5	100
Karnataka	9.8	10.8	43	36.4	100
Kerala	1.6	4.5	49.6	44.3	100
Madhya Pradesh	15.9	18.6	47.8	17.6	100
Maharashtra	9.3	8.6	34.5	47.7	100
Manipur	22.9	0	57.4	19.7	100
Meghalaya	92.2	0	2.9	4.9	100
Mizoram	100	0	0	0	100
Nagaland	96.9	0	2.7	0.3	100
Orissa	23.3	14.2	44.1	18.5	100
Punjab	0.2	26.1	15.8	57.9	100
Rajasthan	20.8	16.5	47	15.7	100
Sikkim	26.4	4.6	34.5	34.5	100
Tamil Nadu	4.2	21.9	72.9	1	100
Tripura	41.4	17	14.9	26.7	100
Uttar Pradesh	1.8	25.7	55.7	16.8	100
Uttarakhand	0	36.4	19	44.6	100
West Bengal	5.7	29.6	7.4	57.3	100
All India	10	18	43.9	28.1	100

Source: NSSO, 59th Round, situation assessment survey of farmers.