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# Farmers' Income, Indebtedness and Agrarian Distress in India

- A Amarender Reddy\*, S S Raju\*\* and Arnab Bose\*\*\*

## Abstract

*Long neglect of public investment in the farm sector, especially in irrigation and market infrastructure, has forced small and marginal farmers to invest in infrastructure with borrowed money from the private money lenders at exorbitant interest rates. This has eventually increased their indebtedness, thus, partly contributed to the agrarian distress.*

The paper examines farmers' income, indebtedness and suicides. It concludes that income of farmer is low mainly due to low harvest prices, high cost of inputs and small operational holding size. Low incomes coupled with higher consumption needs force small farmers into high-interest debt trap. There is a need to increase public investment in farm infrastructure, strengthen direct benefit transfer schemes for purchase of inputs, improve institutional credit delivery mechanisms and widen safety nets in rural areas. The recent farm policy related to encouraging Farmer Producer Organizations and contract farming could potentially increase small farmers bargaining power and scale economies to utilise market opportunities.

## 1. Introduction

Expanding access to formal credit continues to remain a key strategy for promotion of agricultural development and livelihood diversification (Ramprasad, 2019; Chichaibelu and Waibel, 2017 and 2018; Alpanda and Zubairy, 2017; Misra, 2019; Reddy and Kumar, 2006). As per the Reserve Bank of India (RBI) guidelines, banks have to allocate 40% of the total net bank credit to the priority sector and within it 18% to agriculture. Despite the expansion of institutional credit, most of the rural households in general and small and tenant farmers in particular still depend on informal sources of credit. The debt-asset ratio of the rural households had risen over the years from 1.6% in 1992 to 2.5% in 2013, indicating that farmers liabilities are increasing faster than their assets (Datta et al., 2018; NSSO, 2016; Rajakumar et al., 2019). Many of them are unable to secure adequate financial assistance. Farmers suicide in the recent past is also on the higher side - 48,104 individual

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dependents on agriculture committed suicide between 2013 and 2016 (Desmond, 2016; Merriott, 2016; Mohanty and Lenka, 2019; Agarwal and Agrawal, 2017). Of the total reported suicide cases, 55% were farmers and the remaining 45% were agricultural labourers (Lok Sabha, 2018). According to the All-India Survey of Rural Debt and Investment (NSSO, 2014), the number of indebted farmers had risen from 25% of the total rural households in 1992 to about 46% in 2013. Tenant farmers are more vulnerable to income shocks and farm distress related suicides – they account for 80% of farmers' suicides in the country, although they constitute only 10.4% of the total farmers in India. The stagnant output prices, increasing cost of cultivation especially labour, declining average size of operational holdings and increasing share of tenant farmers who depend mostly on informal sources for credit are some of the reasons for the increased farm distress (Chand *et al.*, 2015).

The number of agricultural loan accounts increased from 11.08 crore in 2015 to 12.09 crore in 2017, and outstanding credit from Rs. 11.85 lakh crore to Rs. 14.36 lakh crore. The outstanding loans per account increased from Rs. 1.06 lakh to Rs. 1.18 lakh during the same period. Some studies point out that most of these loans originate in urban areas like Delhi and Mumbai, that too in the month of March, which is a lean season for agricultural operations. This has, indeed, reflected in the rising share of urban areas in the total agricultural credit increased from 14.9% in 1991 to 33.1% in 2011 (RBI, 2018). It hints at the phenomenon of absentee landlords who live in urban areas having more access to credit from formal sources rather than the actual cultivators who live in rural areas. The actual cultivators and tenant farmers with small operational holdings are not able to access formal credit channel, and hence, are forced to depend on informal credit at exorbitant interest rates. Given this background, this paper tries to examine farmers income and consumption gap, availability of agricultural credit, rural indebtedness, distress and farmers suicides. Further, the paper explores various policy options in order to reduce rural distress.

## **2. Data and Methodology**

This paper primarily relied on the two sets of data, namely, National Sample Survey Office (NSSO) All India Debt and Investment Survey, 2012-13 (hence forth NSSO, 2014) and National Bank for Agriculture and Rural Development (NABARD) All India Rural Financial Inclusion Survey 2016-17 (henceforth NABARD, 2018). They publish data on the sources of farmer's income among different land classes and monthly per capita consumption expenditure (MPCE) deciles in India. The unit-level data from the Comprehensive Cost of Cultivation Scheme (CCS) of Government of India was also used to understand the farm size and profitability relationship in the case of Telangana. Literature survey of micro-case studies was also done to understand micro dynamics of indebtedness, farm suicides and their interaction.

The paper uses international poverty line to measure poverty in terms of purchasing power parity (PPP, current international \$) exchange rate rather than nominal exchange rate in dollars. In October 2015, the World Bank updated the International Poverty Line (IPL), a global absolute minimum, to PPP \$1.9 per day (Adams and Page, 2005; Churchill and Smyth, 2017). When measuring international poverty of a country, the international poverty line at PPP is converted to local currencies at 2011 price and then to the prices prevailing at the time of the relevant household survey using the Consumer Price Index (CPI). In the year 2012-13, PPP exchange rate (PPP\$= Rs. 17) was used as against nominal exchange rate of Rs. 45 per dollar. Accordingly, PPP \$ 1.9 was equivalent to Rs. 32.3. Hence a family of five members needed to earn a minimum of Rs. 4,845 per month in 2012-13 to remain above the poverty threshold income (Table 1).

**Table 1: Monthly Income-Consumption Gap of Farmers (2012-13) (Amount in Rs)**

Size class of land possessed (ha)	Income from wages	Culti- vation	Animal rearing	Non-farm business	Total income	Consumption expenditure	Income gap to meet current consumption (Income-consumption expenditure)	Poverty gap (%)
<.01	2902	30	1181	447	4560	5108	-548	5.9
.01-.4	2386	687	621	459	4153	5401	-1248	14.3
.41-1	2011	2145	629	462	5247	6020	-773	-8.3
1.01-2	1728	4209	818	593	7348	6457	891	-51.7
2.01-4.0	1657	7359	1161	554	10731	7786	2945	-121.5
4.01-10.00	2031	15243	1501	861	19636	10104	9532	-305.3
>10	1311	35685	2622	1770	41388	14447	26941	-754.2
All sizes	2071	3081	763	512	6427	6223	204	-32.7

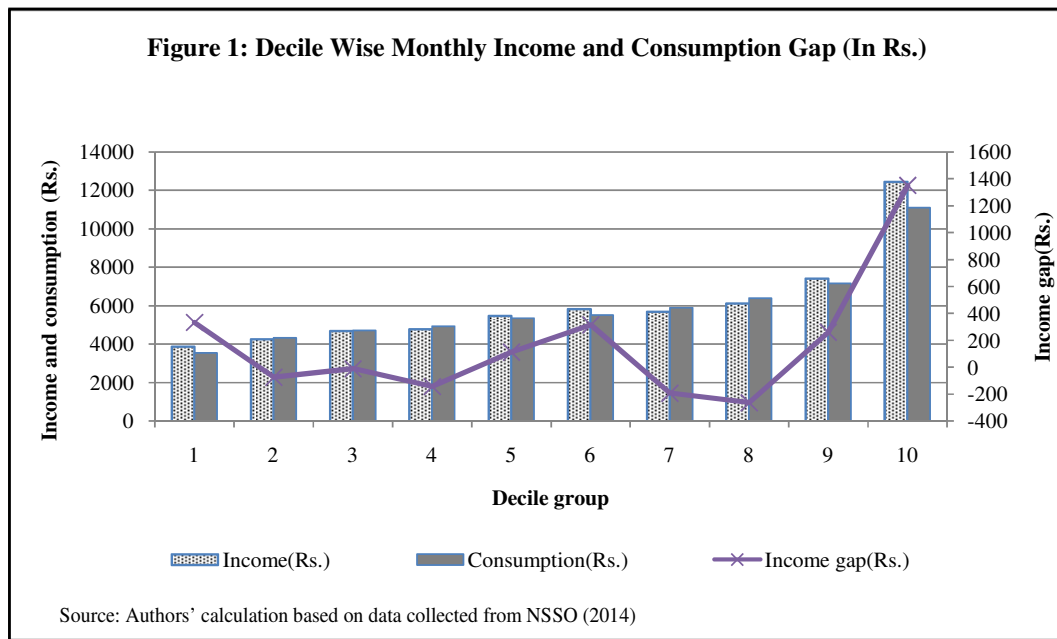
Source: Authors' calculation based on data collected from NSSO (2014)

We had calculated average poverty gap to meet the international poverty line (Rs. 4,845/per month/household) by deducting mean income from the poverty line. The poverty gap index is a measure of the intensity of poverty and it estimates the depth of poverty by considering how far, on the average, the poor are from that poverty line (Imai et al., 2012), that is,

$$\text{Poverty gap} = (\text{poverty threshold income} - \text{actual income}) * 100 / \text{poverty threshold income}.$$

### 3. Income and Consumption Gap

In 2012-13, the average income of the farmer was just Rs. 6,427 per month or Rs. 77,124 per annum, as per the data collected from NSSO (2014). The average household income was 32.7% above poverty line. However, the poverty gap was observed to be 5.9% among farmers possessing less than 0.01 hectares of land and 14.3% for those with 0.01 to 0.4 of hectares of land. Income was found to be higher only for households whose landholding size was above 2 hectares. The income and consumption gap also indicate that small farmers had to incur debt as their monthly consumption levels was higher than their income. Arguably, these small farmers had to depend on informal money



lenders to meet their consumption needs as they lacked collateral, land or other assets. This pushes them into a vicious cycle of indebtedness.

The monthly income and expenditure of agricultural households are available across ten deciles of monthly percapita consumption expenditure (MPCE). They can be considered as income surrogates, thus, the 1<sup>st</sup> decile would reflect the lowest income group and 10<sup>th</sup> decile the highest income group (Figure 1). Average incomes remained too high in the case of 10<sup>th</sup> decile group. In all the other deciles, there was hardly any surplus of income after meeting consumption needs.

Poverty gap to meet the international poverty line was 20.1% among 1<sup>st</sup> decile, 12% in 2<sup>nd</sup> decile, 3.1% 3<sup>rd</sup> decile and 1.2% among 4<sup>th</sup> decile class of MPCE (Table 2). It indicates

**Table 2: Decile-wise and Source-wise Monthly Income of Farmers and Poverty Gap in 2012-13**

MPCE decile class	Source-wise share of monthly income (in %)					Average monthly income(Rs.)	Poverty gap (%)
	Wages	Cultivation	Animal rearing	Non-farm business	All		
1	44.7	39.6	12.4	3.3	100	3870	20.1
2	38.1	43.6	15.1	3.2	100	4263	12.0
3	36.5	43.6	12.3	7.6	100	4697	3.1
4	35.6	43.4	15.4	5.6	100	4789	1.2
5	37.2	44.7	11.9	6.2	100	5471	-12.9
6	35.1	45.5	14.1	5.3	100	5830	-20.3
7	29.4	51.6	10.5	8.5	100	5703	-17.7
8	29.8	50.7	11.0	8.5	100	6122	-26.4
9	32.6	50.3	9.7	7.4	100	7430	-53.4
10	26.2	50.6	11.4	11.8	100	12458	-157.1
All	32.2	47.9	11.9	8.0	100	6426	-32.6

Source: Authors' calculation based on data collected from NSSO (2014)

that this bottom 40% of the farm households were even below the poverty line and, thus, they would have hardly had any surplus to invest in the farm sector.

### **Rural Distress is Widespread**

The prevalence of farm distress is mirrored by the number of suicides of farmers (Table 3). The suicides of those engaged in the agricultural sector, including farmers and

**Table 3: State-wise Monthly Income and Consumption Gap and Poverty Gap**

State	Suicides in agricultural sector* (2014-16)		Source-wise share of monthly income (in %)				Income and consumption gap (Rs)			Poverty gap (%)
	Total suicides	Share of farmer (%)	Wages (%)	Cultivation (%)	Animal rearing (%)	Non-farm business (%)	Income	Consumption	Income gap income-consumption)	
Bihar	17	0	37	48	8	7	3557	5485	-1928	26.6
West Bengal	230	0	53	25	6	16	3980	5888	-1908	17.9
Uttar Pradesh	700	40	23	58	11	8	4924	6230	-1306	-1.6
Andhra Pradesh	2352	39	42	34	18	7	5979	5927	52	-23.4
Madhya Pradesh	3809	53	21	65	12	2	6209	5019	1190	-28.2
Telangana	3392	85	23	67	6	4	6311	5061	1250	-30.3
Rajasthan	492	1	34	43	13	10	7349	7521	-172	-51.7
Maharashtra	11956	68	29	52	7	11	7385	5762	1623	-52.4
Gujarat	1309	10	34	37	24	5	7926	7672	254	-63.6
Karnataka	4416	62	30	56	7	7	8832	5889	2943	-82.3
Kerala	1338	10	44	30	5	21	11889	11008	881	-145.4
Punjab	459	75	26	60	9	4	18059	13311	4748	-272.7
India	36332	55	32	48	12	8	6427	6223	204	-32.7

Note: \* Suicides in agricultural sector refers to suicide by farmers and agricultural labourers.

Source: Authors' calculation based on data collected from NSSO (2014) and National Crime Records Bureau (2016)

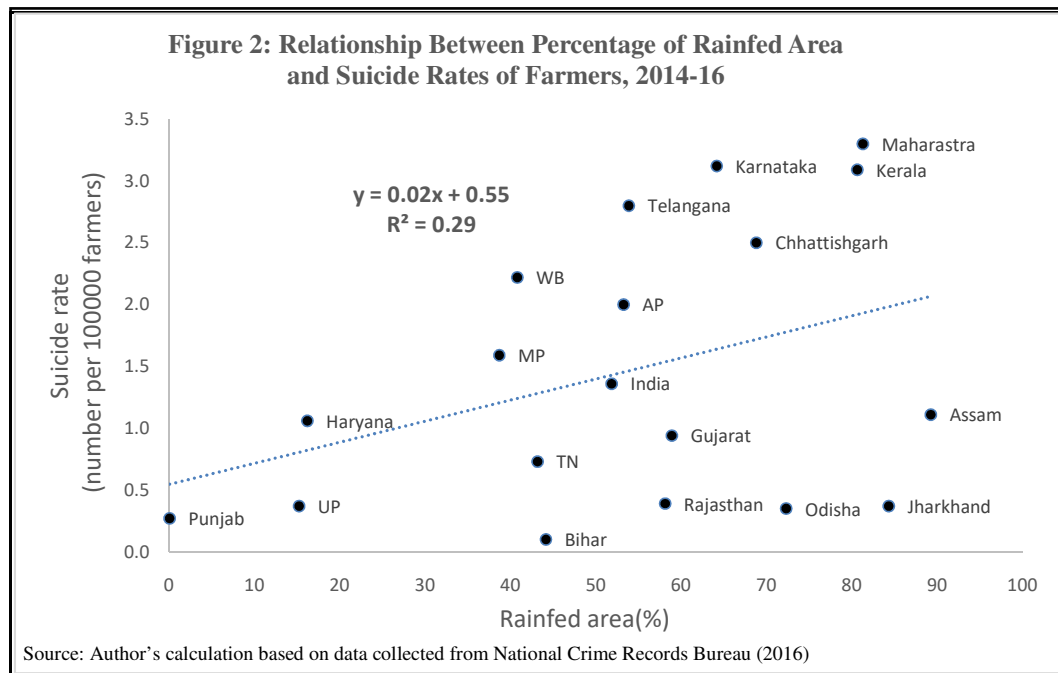
agricultural labourers, were high in drought-prone states like Maharashtra, Telangana and Karnataka and also in agriculturally rich states like Punjab and Andhra Pradesh. Suicides were low in Bihar, West Bengal, and Uttar Pradesh which were less developed states. Higher number of suicides in the agriculturally rich states is probably because farmers in those states were more exposed to neoliberal policies of privatisation, diversified faster to cash crops and faced input and output market fluctuations and uncertainties, whereas low suicides in less developed states was because agriculture in those states was dominated by food crops with less market-orientation (Patnaik, 2007). However, farm distress was widespread even in high-productivity states.

In so far as sources of income was concerned, among agricultural households at all India level, income from cultivation was 48% of their monthly income, wages contributed 32%, animal rearing contributed 12% and non-agricultural business another 8%. The income from cultivation as percentage of the total monthly income was higher in Telangana, Madhya Pradesh, Punjab and Uttar Pradesh. The share of wage income was higher in West Bengal, Kerala, Andhra Pradesh and Bihar. The share of income from animal rearing was higher in Gujarat and Andhra Pradesh. The share of income from non-farm business was higher in Kerala and West Bengal. Literature suggests

that the increased share of income from wages, animal rearing and non-farm business contributed to a reduction in the suicide rates among farmers, even though their average income levels remained low (Ravallion and Chaudhuri, 1997; Joshi *et al.*, 2004).

**Rainfed Areas and Farm Distress**

Farmer suicides are correlated with the share of the rainfed area at the state level. Suicide rates are higher in the states with the higher rainfed area (Figure 2). The R<sup>2</sup> value of the regression is 0.29, which is considered significant as the data is cross sectional



(Maddala and Kajal, 1992). There are many studies which confirms to this hypothesis especially in Telangana and Vidarbha areas of Maharashtra (Behere and Behere, 2008). In rainfed areas, the farm yields are low and fluctuate based on the monsoons. Farmers also incur huge costs for digging private bore wells, as the public canal and tank irrigation are not available. In rain fed areas, it is very difficult to accumulate surplus and invest in technologies that increases yield and reduces risk. They incur huge crop losses almost once in three years.

**Distress is More Among Small and Tenant Farmers**

With little surplus generated over the years, small and tenant farmers are unable to invest in productivity-enhancing technologies. The problem of low private investment gets compounded by the reduction in public investments since the early 1990s, which eventually increased cost of cultivation of marginal and small farmers (Fan, et al.,

**Table 4: Profitability of Small and Large Farms in Telangana, Triennium Ending 2010 (Amount in Rs)**

Crop	Farm size	Gross	Cost	Cost	Net returns	Net return
		returns/ha	A2/ha	C2/ha	over cost A2/ha	over cost C2/ha
Maize	Small(own)	48.3	28.2	48.9	20.1	-0.6
	Large(own)	57.7	22.7	41.3	35.0	16.4
	Tenant	47.8	31.0	51.7	16.8	-3.9
Paddy	Small(own)	56.6	31.3	60.1	25.3	-3.5
	Large(own)	59.7	27.9	48.7	31.8	11.0
	Tenant	54.5	34.4	63.2	20.1	-8.7
Arhar	Small(own)	24.5	21.5	45.6	3.0	-21.1
	Large (own)	27.2	15.4	25.3	11.8	1.9
	Tenant	25.5	23.7	47.8	1.9	-22.3

Source: Directorate of Economics and Statistics (2019).

2008). In contrast, large farmers could invest their surplus income on farm technologies, resulting in an increase in yield and scale economies.

In the last decade, there are perceptible changes in the farming sector that favoured large farms. The rapid and widespread farm mechanisation, development of new plant varieties, rising wage rates in rural areas, opportunities for higher education for both men and women, and outmigration of male workers contributed to the increased scale economies and higher returns on large farms compared to small farms. The scale economies mainly emerged from the cost reduction through expanding mechanisation to all operations. The experience in Telangana shows that in maize crop, small farms' profits were only Rs. 20,100 per hectare, while large farms gained Rs. 35,000 per hectare (Table 4). Similarly, in the case of paddy, profits were Rs. 25,300 and Rs. 31,800 per hectare respectively, for small and large farms. The net returns of tenant farmers were much below that of the small farms. Faced with the situation of rising cost and declining returns, the small and tenant farmers are caught in debt trap.

### **Extent of Indebtedness**

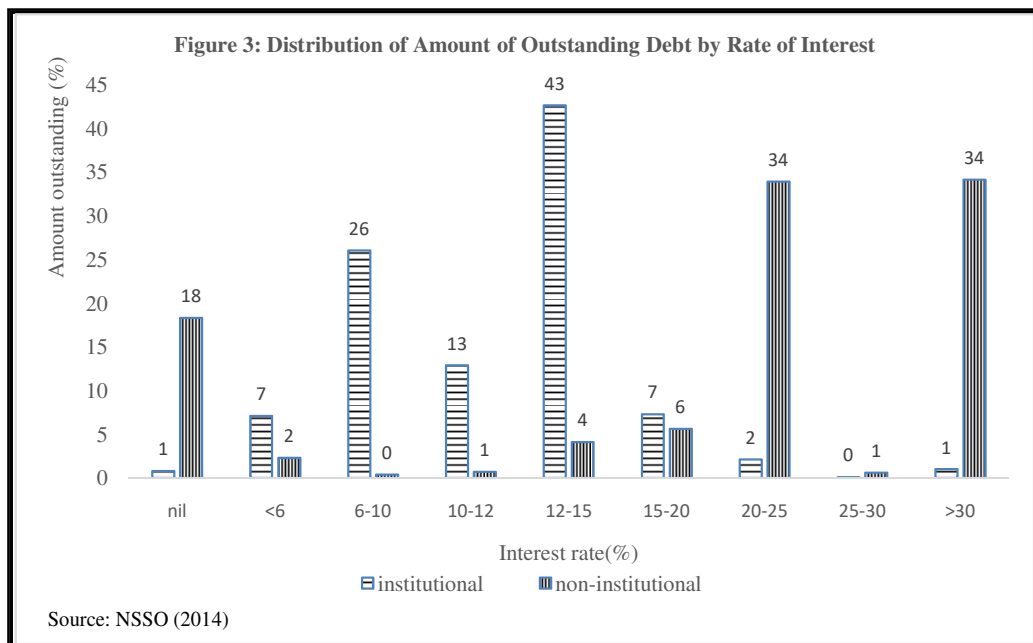
Recent data shows that total institutional agriculture credit disbursement had crossed Rs. 11 lakh crore to meet the credit needs of 12 crore farmers, but this had favored large farmers. Many small and tenant farmers continue to depend on non-intuitional credit

**Table 5: Average Amount of Outstanding Loan per Farmer in 2012-13 and 2015-16**

Size class of land possessed (ha)	Outstanding loan, 2012-13				Loans taken, 2015-16			
	Average amount (Rs. 1000)	Indebted farmers (%)	Institutional (%)	Non-institutional (%)	All (Rs. 1000)	Indebted farmers (%)	Institutional (%)	Non-institutional (%)
<.01	31.1	42	15	85	78.0	46	71	29
.01-.4	23.9	47	47	53	76.5	39	59	41
.41-1	35.4	48	53	47	82.7	43	69	31
1.01-2	54.8	56	65	35	120.0	46	80	20
2.01-4.0	94.9	67	68	33	203.8	50	78	22
4.01-10.00	182.7	76	72	29				
>10	290.3	79	79	21				
All sizes	47.0	52	60	40	107.1	44	72	28

Source: NSSO (2014) and NABARD (2018): NAFIS 2016-17.





agencies (Table 5). According to NSSO (2014), 52% of the farmers were indebted in 2012-13. As per NABARD (2018)<sup>1</sup> data, 44% of the farmers had taken loans in 2015-16. Overall, institutional sources contributed to 60% of outstanding loans in 2012-13 and 72% in 2015-16. Both surveys revealed that the amount of outstanding loan and percentage of indebted farmers increased with farm size owing to better access to institutional credit. Indebtedness to institutional sources has increased steeply as farm size increased, and thereby, suggesting how important is the quantum of land possessed for getting loans from institutional sources.

What is more, the outstanding loans from institutional sources like banks carried low interest rates (mostly below 12% per annum), compared to non-institutional sources like moneylenders or input dealers that were available for over 20% interest rate per annum (Figure 3). Though majority of institutional loans were taken by farmers with below 15% interest per annum, majority of small and tenant farmers were not able to get loans from institutional sources under unavoidable circumstances. Because farm returns often turned negative, taking recourse to loans at exorbitant interest rates continued to push small and tenant farmers into a debt trap.

Some of the southern states like Andhra Pradesh, Telangana, Kerala and Karnataka had a large percentage of indebted farmers (Table 6). The amount of debt per agricultural household was also higher in these states. States with higher percapita incomes like Kerala and Punjab had higher average loan outstanding per household. The marginal and small farmers of Andhra Pradesh, Telangana, Kerala and Karnataka were excessively

<sup>1</sup> NABARD All India Rural Financial Inclusion Survey 2016-17

**Table 6: State-wise and Landholding Size-wise Average Amount of Outstanding Loan per Agricultural Household in 2012-13***(Amount in Rs. '000)*

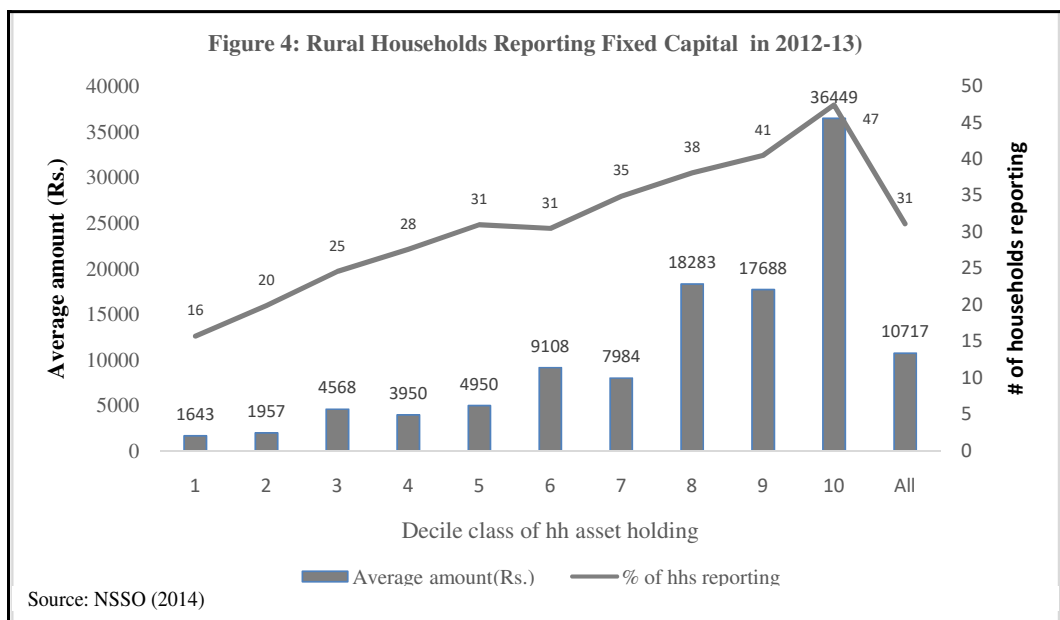
State	Landholding size							All sizes	% of indebted farmers
	<.01	.01-.4	.41-1	1.01-2	2.01-4.0	4.01-10	>10		
Andhra Pradesh	241	74	89	105	162	350	249	123	92.9
Telangana	56	58	79	103	110	137	269	94	89.1
Kerala	169	159	194	347	607	751	1573	214	77.7
Karnataka	36	78	63	99	125	232	367	97	77.3
Rajasthan	169	33	43	68	103	155	153	71	61.8
Maharashtra	10	45	23	46	58	207	387	55	57.3
Punjab	13	25	52	164	229	327	927	120	53.2
West Bengal	6	15	20	33	33	44	276	18	51.5
Madhya Pradesh	9	12	15	27	63	117	195	32	45.7
Uttar Pradesh	22	16	22	46	108	125	218	27	43.8
Gujarat	7	12	25	31	83	162	115	38	42.6
Bihar	7	14	13	34	28	42	149	16	42.5
India	31	24	35	55	95	183	290	47	51.9

Source: NSSO (2014)

burdened with a large amount of debt compared to their counterparts in Bihar, Gujarat, Uttar Pradesh, Madhya Pradesh and West Bengal.

#### 4. Low Capital Formation among Small Farms

Due to higher interest rates and also non-profitable agricultural activities, small and marginal farmers in the bottom deciles (of household asset holding) were not able to spend equivalent to top 10% of the households in fixed capital investments (Figure 4). Inadequate farm investment would seriously impede achieving higher farm productivity.



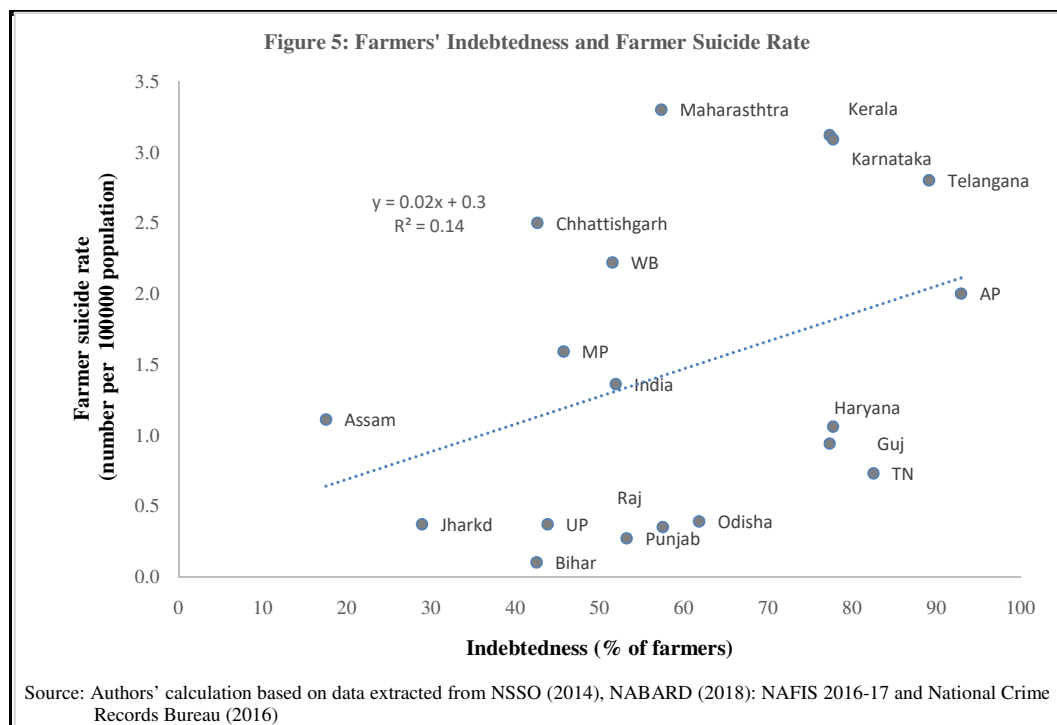
### 5. Indebtedness and Farmer Suicides

Figure 5 shows the relationship between farmers' indebtedness and suicide rates. The analysis reveals that indebtedness has a positive but insignificant influence on the farmer suicide rates. Farmers in Bihar, Uttar Pradesh, Madhya Pradesh and Chhattisgarh had indebtedness between 40% and 50%, but suicide rates were higher in Chhattisgarh and Madhya Pradesh than in Uttar Pradesh and Bihar. Haryana, Gujarat, Tamil Nadu, Kerala, Karnataka and Telangana were the other states with high levels of farmers indebtedness, but suicides rates were higher only in Kerala, Karnataka and Telangana. Hence, there may be many factors other than their level of indebtedness influencing farmers' suicide rates.

#### Agricultural Households are More Indebted

According to NABARD (2018), the average debt of agricultural households was Rs. 1.07 lakh of which 72% was contributed by institutional sources, while among non-agricultural households it was Rs. 75,688 of which 65% was by institutional sources. Overall, in rural areas, the average loan per household was Rs. 91,852, of which 69% was accounted by institutional sources (Table 7).

Across all decile class of MPCE, the incidence of indebtedness among agricultural households was higher than non-agricultural households (Figure 6). Level of indebtedness increased as income increased, that is, households in the upper deciles of MPCE

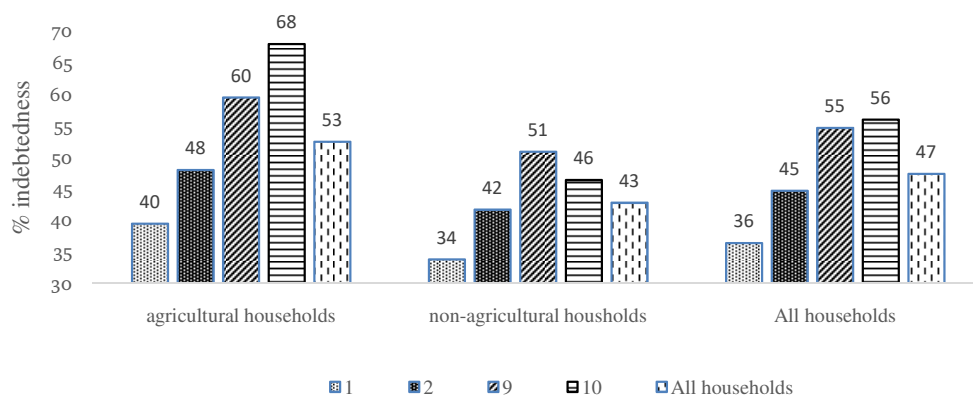


**Table 7: Average Loan Taken by Borrowing Households in 2015-16**

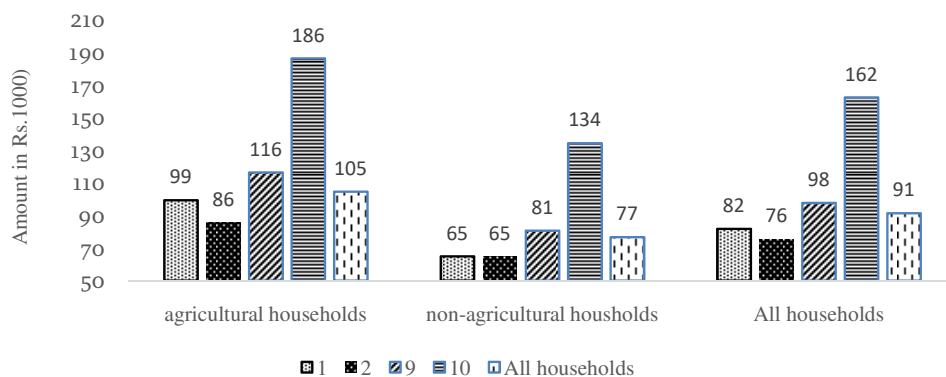
Source of loan	Agricultural households (Rs.)	Non-agricultural households (Rs.)	All households (Rs.)
Institutional	77473(72%)	48970(65%)	63645(69%)
Non-institutional	29610(28%)	26718(35%)	28207(31%)
All	107083(100%)	75688(100%)	91852(100%)

Note: Figures in brackets indicate percent to total

Source: NABARD (2018): NAFIS 2016-17.

**Figure 6: Incidence of Indebtedness by Decile Class of MPCE in 2015-16**

Source: NABARD (2018): NAFIS 2016-17

**Figure 7: Average Outstanding Debt by Decile Class of MPCE in 2015-16**

Source: NABARD (2018): NAFIS 2016-17

were relatively more indebted than those in the bottom decile classes. A similar trend was also observed in the case of outstanding debt (Figure 7). A typical agricultural household in the 10<sup>th</sup> decile would have an average outstanding debt amounting to Rs. 1.86 lakh, whereas a non-agricultural household would carry an average debt of Rs. 1.34 lakh in 2015-16.

## 6. Source of Credit

The role of institutional sources in providing credit to farm households showed an appreciable rise between 2012-13 and 2016-17, from 60% of their total debt to 72.3% (Table 8). In both periods, the relative share of commercial banks remained very high; and their share increased to 54% in 2016-17 from 42.9% in 2012-13, thus, accounting

**Table 8: Average Loan Taken from Various Sources by Farm Households in 2012-13 and 2016-17**

Source of loan	2012-13		2016-17	
	Amount(Rs)	Share (%)	Amount(Rs)	Share (%)
Commercial bank	20163	42.9	57825	54
Cooperatives	6956	14.8	6425	6
SHG/MFIs			5247	4.9
SHG-Bank linked			4390	4.1
Other institutions	987	2.1	3534	3.3
Total Institutional Sources	28106	60	77421	72.3
Relatives& friends	5029	10.7	15313	14.3
Money lenders	12126	25.8	10066	9.4
Landlord	376	0.8	4069	3.8
Input supplier	1363	2.9	127	0.1
Total non-institutional sources	18894	40	29575	27.6
Total	47000	100	107083	100

Source: NSSO (2014) and NABARD (2018): NAFIS 2016-17

for bulk of the rise in the relative share of institutional sources. There is a perceptible fall in the share of the money lenders from 25.8% in 2012-13 to 9.4% in 2016-17. Both NSSO (2014) and NABARD (2018) had indicated an increasingly larger role of banks and cooperatives and dwindling share of moneylenders, and friends and relatives in meeting credit needs of farm households.

### *More Loans are Used for Domestic Uses*

Majority of the loans were used for sundry domestic needs (32%), housing purpose (21%) and medical expenses (17%), which are not immediately productive (Table 9). But they are urgent in nature. Most of the small and marginal farmers are forced to take loans from informal sources, as several domestic needs do not qualify for credit from institutional sources like banks. Ultimately these loans would be taken from informal sources.

**Table 9: Purpose-wise Loans taken by Borrowing Households (2015-16)**

Purpose	% of Household
Sundry domestic needs	32
Capital expenditure for agricultural purposes	25
Housing purpose	21
Running expenses for agricultural purposes	19
Medical expenses	17
Running/capital expenses for non-agricultural enterprises	13
Educational purpose	6

Source: NABARD (2018): NAFIS 2016-17

## 7. Indebtedness and Farmers' Suicides: Evidences from Case Studies

Numerous studies have pointed out that farmers suicidal death rates exceeded those of the general population (Mishra, 2006). Breaking down the National Crime Records Bureau (NCRB) data for 2014, it is observed that the overall suicide rate of farmers in the country was 15.8 per 1,00,000 people, which was 50% higher than suicide rate of the general population. State-wise analysis indicate disparities across states with suicide rate of farmers remaining higher in geographically contiguous states including Maharashtra (2568), Telangana (898), Madhya Pradesh (826), Chhattisgarh (443) and Karnataka (321). These states recorded suicide rate of 28.7 per 1,00,000 farmers. Together these states accounted for 30% of farming population but over 60% of farmer suicides in the country. In 2014, suicides of small farmers constituted 44.5% of the total suicides, marginal farmers accounted for 27.9%, medium farmers were 25.2%, and large farmers accounted for 2.3%. Amongst the major causes of farmers' suicides, reason of

**Table 10: Summary of Micro Studies of Farmers Distress, Suicides and Debt**

Author/year	Area/sample size/methodology	Results
Behere and Behere (2008)	Report on farmers suicides (Vidarbha)	Money lenders were the predominant source of credit (28.4%) Only 4% access to land development banks
Chhikara and Kodan (2013)	Haryana, secondary data	Positive relation between farm size and percentage of credit from formal sources. 47% of credit to marginal farmers; 62% of small and 75% of large farmers got from formal sources
Gedela (2008)	Telangana; 37 suicide victim families; 37 control	Suicide victim families obtained 70% of credit from informal sources; it was only 53% for non-suicide families; victim families also had higher debt from informal sources. Value of livestock in victim families was Rs. 20,000; in control Rs. 27,000 Communicate less regularly with relatives
Kale (2011)	Vidarbha; 40 suicide victim families; 40 control	Formal sources contributed to 76% of the total credit of victim families; whereas it was 96% for non-suicidal families
Mishra (2006)	Maharashtra (111 treatment; 106 control)	72% of the suicide reported families (treatment) indebted to informal sources, while it was 38% for non-suicide controls Suicides also had higher amount of debt
Kale et al., (2014)	Interview with 200 suicide victim families in Vidarbha	All families were indebted 51.5% indebted from both formal and informal sources 47% indebted from formal sources 99% families did not have subsidiary income/ employment Heads of the families were more prone to suicides
Nagthan, et al (2011)	A small case-control study in Karnataka (30 cases, 30 controls)	Marriages of sisters/daughters increased the debt burden Addiction to alcohol Financial illiteracy
Reddy, 2012	18 villages in Semi-arid	Interest on institutional credit was below 7% due to interest subvention scheme, interest from micro-finance institutions and friends and relatives range from 12% to 24%, while from input dealers, landlords and traders ranged was above 20% and reaches beyond 36% in some cases.

Source: Authors' compilation.

indebtedness topped (20.6%), followed by farming related issues (17.2%), family problems (20.1%), illness (13.2%), alcohol (4.4%) and others (24.5%). A review of most of the micro level studies, presented in Table 10, identified indebtedness as the predominant single factor associated with farmer suicides (Gruere and Sengupta, 2011; Kale, 2011; Nagthan et al., 2011; Kennedy and King, 2014; Gedela, 2008).

Dongre and Deshmukh (2012) found that farmers in the Vidarbha region of Maharashtra ranked debt as the most important reason for farmer suicides, followed by addictions, environmental problems, and price issues, amongst others. Two other studies concluded that unpaid loans were a correlate of those who committed suicide (Gruere and Sengupta, 2011; Mishra, 2006). Kale (2011) found that in a small sample from Vidarbha, 95% of farmer suicide victims were indebted, while of control households, this was only 25%. Another study in the same region found that 197 of 200 victims (98.5%) were indebted (Kale, 2014). Mishra (2006) also found that debt was the most common factor in Maharashtra at 86.5%, followed by deterioration in the farmers' economic status (73.9%).

A comparison of these farmers with those who did not die by suicide showed that the latter had three times as much debt, and the difference was significant at 95% confidence level (Mishra, 2006). An investigation of the socio-economic causes of farmers' suicide in Karnataka also found agricultural debt as the primary factor leading to 29 out of 30 suicide cases (Nagthan, et al., 2011). Gedela (2008) also found that indebtedness was one of the statistically significant factors underlying farmers suicide in Andhra Pradesh.

### ***Cash Crops and Farmers Suicide***

Kennedy and King (2014) found that "cash crop cultivators, with marginal landholdings and debts" were most at risk, and that these three characteristics accounted for 75% of the variation in the overall male suicide rates seen across the country. There was also evidence of a positive effect on profit for farmers growing *Bacillus thuringiensis* (Bt) cotton arising from higher yields and reduced pesticide costs. Since growing genetically modified (GM) cotton, farmer suicides had increased only in Punjab. In other states, farmers suicide rate had gone down since the introduction of the GM crops (Ian, 2014). Because of the introduction of Bt cotton, there was a significant increase in yield (32%), gross income (35%) and net income (106%), reduction in cost (17%) and pesticide cost (18%). However, seed cost also increased by 134% (Herring and Rao, 2012).

### ***Institutional Credit Syphoned off by Urban Absentee Landlords***

Sadanandan (2014) shows that after 1989, the percentage of total bank loans going to agriculture began to reduce sharply, from approximately 20% to 12% in 1994. By the 2000s it had halved, with even less (8%) being lent directly to farmers. This drop in formal credit going to agriculture is alarming. Further, most of the agricultural credit originated from the urban centres like Delhi and Mumbai that too not during the sowing

period. It is likely that agricultural credit is siphoned off by the absentee landlords, and thereby, reducing the availability of institutional low-interest rate credit to small and marginal farmers who were actually cultivating the land (Dongre and Deshmukh, 2012).

## 8. Policy Options

### *Expansion of Institutional Credit*

Although all banks are implementing three-year financial inclusion plans since 2010, credit reach through formal sources is still limited. The RBI Working Group reported that while there were over 12.56 crore small and marginal farmers, only around 5.14 crore had accounts as per the priority sector lending returns of scheduled commercial banks for 2015-16 (RBI, 2019). This translated to only 41% of small and marginal farmers being covered by the formal credit system. Keeping the low penetration of cheap and formal sources of credit, Government of India laid a firm road map for opening brick-and-mortar branches and promoting alternative modes of banking (Reddy, 2006; Reddy and Malik, 2011). However, the newly opened bank branches declined from 8,749 in 2014-15 to 3,948 in 2017-18. The fall is more perceptible in rural centres with less than 10,000 population. The number of new branches opened in such areas dropped from 3,274 to 1,067 during the three-year period. The number of automated teller machines (ATMs) also dropped from 2.08 lakh in March 2017 to 2.07 lakh in March 2018. Only 44% of ATMs were located in rural areas, although about 60% population lives there (RBI, 2018).

Pradhan Mantri Dhan Jan Yojana (PMJDY) added 33.6 crore new basic savings bank deposit accounts, expanding the base of such accounts to 53.6 crores by March 2018. Of the 6,60,000 villages, formal sector covered 5,69,547 villages. But most of them (5,15,317 villages) were covered by business correspondents (BCs) offering limited services. As much as 80% of adult members had a bank account but half of them rarely used their accounts. According to a World Bank report, 48% of the bank accounts had no transactions during the last year against the global average of inoperative accounts of 25%. Only 13% of Indian adults borrow through formal channels (Demirgüç-Kuntet *al.*, 2018). To improve the utilisation of bank accounts in various ways, citizens should have better financial literacy.

### *Step up public investment in irrigation in dry lands*

Kale *et al.*, (2014) found that 69% of suicide victims in Vidarbha had no water source and relied entirely on monsoon rains for cultivation of crops. Gedela (2008) found that non-suicide farmers had a higher proportion of their land area irrigated than suicide victims in Telangana. Poor irrigation may not only be a direct cause of increased debt by lowering returns and potentially causing crop failures, but it may be partly responsible for forcing farmers towards moneylenders, as banks may be reluctant to lend to



farmers who lack irrigation facilities because their returns is less assured. Telangana government aims to bring an additional one crore acre of land under irrigation through public investment and this may relieve dryland farmers. Stepping up public investment in irrigation would be one of the solutions.

### ***Subsidiary Occupations***

Many micro studies indicated that in addition to cultivation of crops, animal rearing, dairy, poultry farming, various caste occupations, working as semi-skilled or skilled workers in construction have increased creditworthiness of farmers and reduced dependence on exploitative money lenders. Telangana government schemes like the promotion of food processing industries through crop colonies, sheep rearing, handlooms and various other rural industries may help in providing subsidiary income opportunities in rural areas. This idea may be replicated in other parts of the country.

### ***Assistance to Weaker Sections***

Reddy (2012) noted that only 60% of outstanding loans were being used for productive purposes. Chhikara and Kodan (2013) estimated that marginal and small farmers in Haryana borrowed 23.7% and 20.7% of loans, respectively, to fulfil social obligations such as ceremonies and marriages. Villagers are spending huge money beyond their capacity for daughter or sister marriages and health-related expenses (Reddy, 2012). Under the Kalyana Laxmi/ Shaadi Mubarak scheme, government is giving Rs. 1,00,116 to a girls family towards meeting marriage expenses, which is a relief to farming families. Similar schemes have to be implemented in other states to meet unforeseen expenses or social obligations, so that farmers use the credit for intended purpose, which would enhance their incomes and livelihoods.

### ***Targeted Income Support***

Under the PM-KISAN (Prime Minister-Kisan Samman Nidhi) scheme, the Government of India provides an income support of Rs. 6,000 per year in three equal installments to small and marginal farmer families. Some state governments are also implementing similar schemes with some modifications based on local political and economic situations. These schemes need to be scaled up in other states. Some improvement in the scheme is required such as placing a eligibility limit in terms of maximum land holdings (like 10 acres per farm family) and inclusion of tenant farmers and agricultural labourers into the scheme with direct transfer of Rs. 5,000 lump sum amounts for each family.

## **9. Conclusion**

The national target of doubling farmers' income is a step in the right direction. However, the recent data show that farmers' income is not increasing mainly due to low harvest prices, rising cost of inputs, frequent droughts, etc. The structure of the farm

economy is changing in favour of large farmers who are reaping scale economies through farm mechanisation. Increasing farmers' cash needs are not met through institutional credit sources. Informal credit sources pull farmers into a high interest-bearing debt trap. Long neglect of public investment in the farm sector, especially in irrigation and market infrastructure, has forced small and marginal farmers to invest in infrastructure with borrowed money from the private money lenders at exorbitant interest rates. There is a need for a policy push (i) to increase public investment in irrigation and infrastructure especially in drought-prone areas; (ii) to increase the flow of collateral free institutional credit at lower interest rates especially to small and marginal farmers, and also to tenant farmers and agricultural labourers; (iii) to strengthen small farmers institutions like Farmer Producer Companies (FPOs) to enhance scale economy and also bargaining power; (v) to channelise more money through farmers welfare or safety net schemes like PM-KISAN; and, finally, (vi) to encourage private participation and adoption of the latest technology in the financial inclusion schemes.

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