Farmers' Stress, Income and the role of Non-Farm Business

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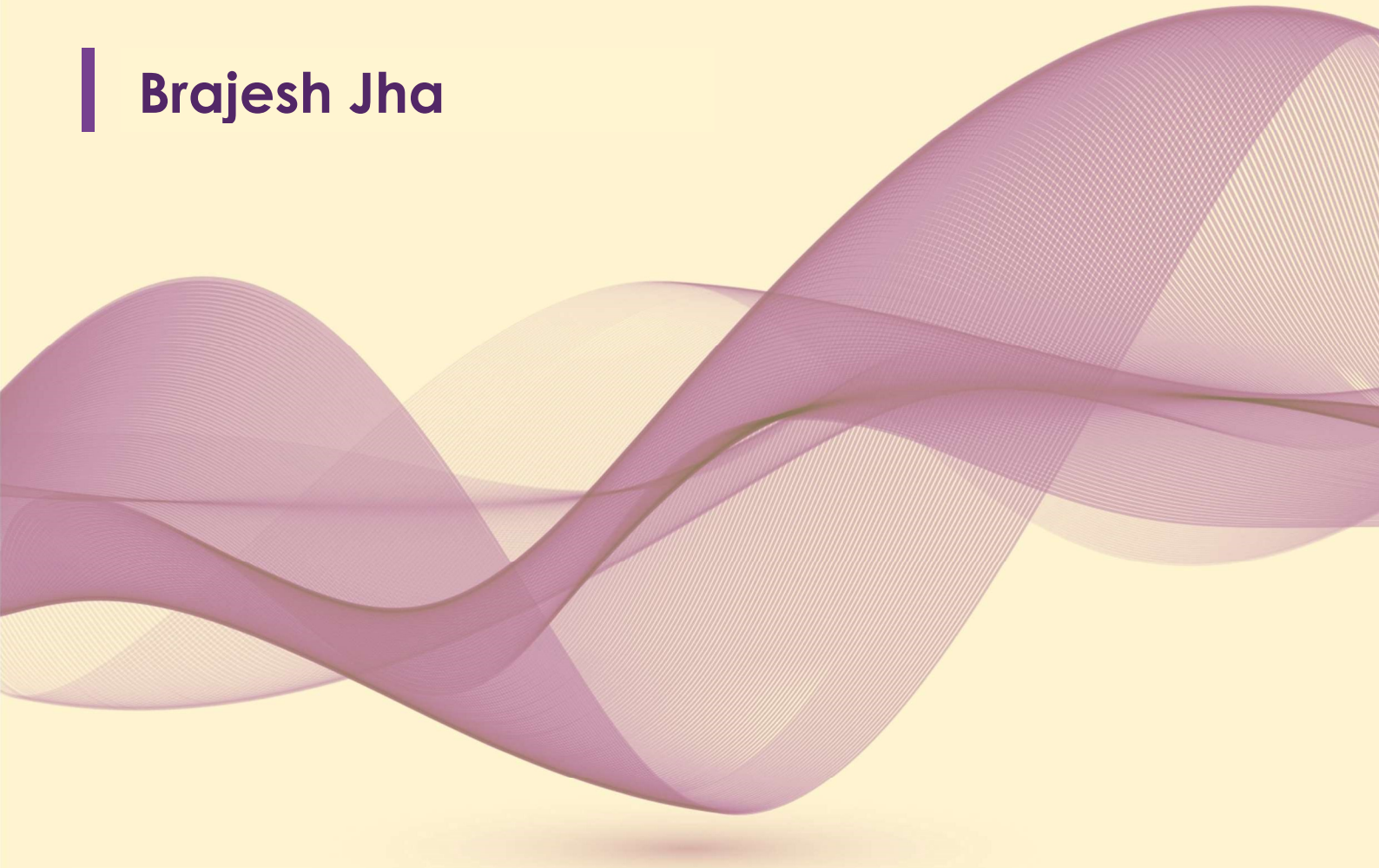

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Farmers' Stress, Income and the role of Non-Farm Business

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Abstract

Agricultural policies in India have largely been geared to increase domestic production and productivity in agriculture. Some of the reasons for farmers' stress are rooted in these policies. For example, land related policies have largely focused on large land-owners, prohibition of tenancy, and similar measures; while the number of unviable size of holdings continues to increase. Similarly, fair price to farmers was presumed to have been taken care of by the regulated market, but its number and performance have a discouraging effect on farmer's price. The opening up of the economy also throws up new challenges for farmers. In this perspective, concern for farmers' income is important. However, farmer's income depends on various farm and non-farm sources. Development experience suggests that non-farm sources of farmers' income become important as a country develops. Surprisingly, recent discussions on farmers' income have not appreciated the contribution of non-farm business in farmers' income. Therefore, this paper discusses role of non-farm business in farmer's income based on the NSS Situation Assessment Survey of farmers of 2004 and 2014. This further ascertains the robustness of non-farm sources of income from the NSS employment data.

Key words: farm stress, farmer's income, non-farm business,

1. Introduction

Traditionally, agriculture has been the supplier of food and raw material to industries in India. The public policy was therefore directed to increase production through extension of irrigation, technology and supportive government policies. However, in prioritizing production and productivity of agriculture, the issue of the price of commodities other than fine cereals, was not provided due importance. Government has taken the route for regulated market for agriculture but their numbers are quite inadequate.[1] Infrastructure in regulated market remains poor.[2]. These inadequacies result in a loss of time and place utility of commodities for society and an uncertain price for farmers. Besides this, some events of the last few decades which have had implications for farmers' stress are: a preponderance of marginal farmers, and an increased influence of world

[1] GOI 2013 reports that the regulated market ideally, should exist within a radius of 5 km; however, it varies across states: it is available at an average distance of 118 sq km. in Punjab while in Meghalaya it is at a distance of 11214 sq km.

[2] A report by GOI (2013) presents status of regulated market: two-thirds of the regulated markets have covered and open auction platforms; just one-fourth of the markets have common drying yards. Cold storage units and grading facilities exist in less than one-tenth and one-third of the markets respectively. Electronic weigh bridges are available in a few markets only.

price on domestic price of agricultural commodities.[3] A decrease of farmers' profitability in the recent decades has further accentuated the stress of farmers (Raghvan 2008). The increased uncertainty in farm income following climate change is an additional factor. All these factors have made farming stressful. Additionally, many of the rural poor are farmers with small holdings. The stress at times is reflected in farmers' suicides and their demands, including but not limited to writing off loans.

Against this background, the PM's initiative for doubling farmers' income in a span of 7 years, though appearing ambitious, is a desired imagination. However, in the small-holdings-dominated agriculture, farmers depend on multiple activities for their livelihood. In spite of it, they (farmers) remain poor. The present paper, after delineating (possible) reasons for increased stress of farmers in the recent years (Section 2), discusses multiplicity of sources of farmers' income and ways to increase it with rural non-farm employment (Section 3). The last section (as usual) concludes the paper. All these are done with the secondary data.

2. The Increase of Farmers Stress

The farmers stress has been in the news, now, for a considerable period. The reasons for farmers stress can be broadly grouped into secular and momentary. The stress because of decrease in holding size and erosion of viability is a gradual process which has been happening over the years. Whereas, in an open economy the market price of agricultural commodities often decreases with a down turn in world price of the respective commodities. The latter is a momentary factor as farmers' stress increases if they don't get fair price for their produce. The decrease in profitability of farmers due to various factors is also a secular factor behind farmers stress. These are discussed below in the separate headings.

2.1. Size of Land holdings

The deterioration in the size of agricultural holdings between 1970-71 and 2015-16 is presented in Appendix Table 1a. The table shows number of large and marginal holdings and the area cultivated by them over years. These sizes of holdings were chosen deliberately to show deterioration in number of large holdings, as the number of marginal holdings have increased during the period. The appendix Table shows that the number of holdings during the reference period has increased by more than four times. The marginal holders (less than one hectare) now account for around 70 percent of operational holdings. The holding size at national level is 1.1 hectare.

The marginal holdings are viable with (other) off-farm options only; but such opportunities are meager owing to the dearth of robust rural non-farm sector in large parts of the country. Many land holders (farmers) migrate to distant place to escape their penury. Often they live in a place (cities) without proper civic amenities. Therefore conversion of land holders' (*jamin-dar*) in to

[3] Though the effect of import on market price of agricultural commodities is difficult to establish for many commodities, the evidences suggest that international price is an additional factor behind many reasons for decline of prices in an open economy (Jha 2020a).

ordinary workers is equally stressful.[4] The present pandemic showed it.

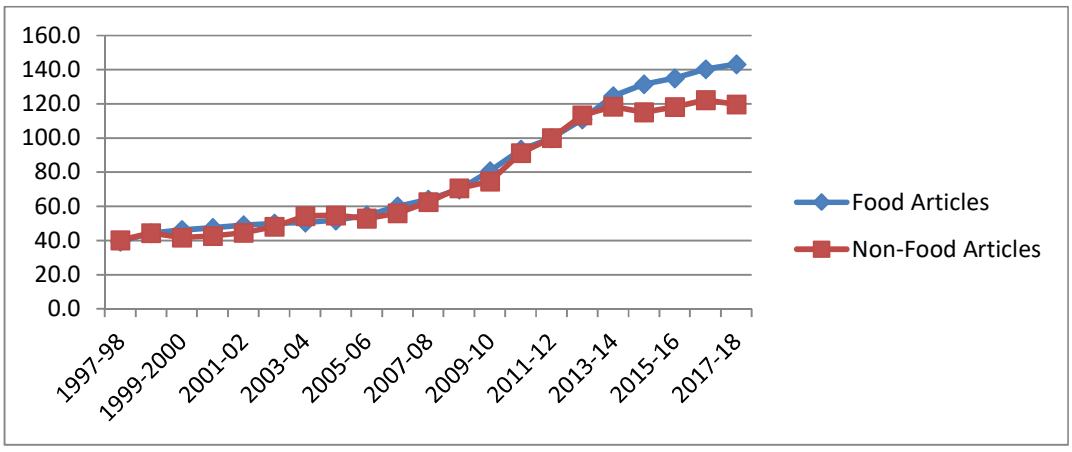
The number of holdings has increased primarily due to equal inheritance law, importance of land as an asset, and similar reasons. Such reasons have affected the quality of land record and its subsequent effect on the leasing of land, in many places of India.

2.2. Price of Agricultural Commodities

One of the momentary reasons for the increase of farmers stress is the uncertain price of agricultural commodities. In an open economy market price of commodities is often lower than the cost of production. Fig. 1 presents price of food and non-food commodities between 1997-98 and 2017-18. This pictorial presentation shows behavior of prices in the last two decades. The price of commodities stagnated between 1999 and 2002; subsequently prices for food and non-food articles have grown at a differential rate. The increase in price was rather steep between 2008 and 2013. After 2013, prices of non-food articles stagnated, though prices of food articles continued to grow.

The above pictorial presentation is based on average price of many food and non-food articles. Individual commodity-wise situation for different food and non-food articles is different, and so has been the effect on farmers who are producers of these commodities. This is apparent from the fact that the market price (post-harvest period) has been lower than the bench mark (minimum support price, MSP) for many commodities between 1999 and 2003 (Jha 2019b). Jha 2019b presents behavior of market price for many pulses and oilseeds in important pulse growing states of India. This shows that possibility of market price becoming lower than the MSP increases when average wholesale price of the commodity group has stagnated, as is evident from Fig 1.

Fig. 1: Price of Agriculture Commodity groups (food and non-food).



Many of us know that as market price falls below the MSP, the government (through its parastatals) often procures from such markets. Subsequently (after government procurement) it is

[4] Jamindar here means land holder, the common land holders (even though small) are elated with this status. Though similar word "Zamindar" has traditionally been used in the context of socioeconomically powerful and large landowners.

expected that market price of the commodity will go up and would be equal to the MSP of the commodity. However, Jha 2019b shows that price of certain commodities (pulses) in specific markets, even after procurement has not gone up (to the extent of MSP). Such tendencies have increased in an open economy as market access commitments of country are for commodity groups rather than for an individual commodity.

The effect of low import price differs across regions (Jha 2020); it is more for a region with less post-harvest infrastructure facilities. Previous studies show that adverse effect of fluctuation in international price on producers / farmers is more in an economy where there are many intermediaries (Jha 2020). The lower price of commodities in an open economy is often argued as benefit to consumers, but in many cases this has adversely affected sustainable supply of commodity for consumers. In a democracy the consumer' interest for essential commodities, often dominates farmers' concern. It is needless to say that such a dip in market price, results in decline of farmers' profitability that causes stress to the growers of the commodity.

2.3. Decrease in Profitability of Crop Cultivation

There have been innumerable studies that report decrease in farmers' profitability across crops and regions in the recent decade; though the extent of decline (in profitability) varies across crops /commodities and regions. There are numerous crop specific studies that explain reasons for decrease in profitability of a crop / commodity in certain regions. Some studies that cut across commodities have also concluded that profitability in agriculture has declined in the recent years. The reasons cited for decrease in profitability vary across crops and regions. The crop-specific stagnation in productivity because of lack of innovation in field or yield gap in a commodity still prevails for large number of commodities.

The profitability of farmers is also reported to have declined on account of an increase in the cost of production of agricultural commodities. One of the factors responsible for an increase in the cost of production is the existence of organized (farm) input suppliers. Consequently the cost of input increases. This is not the case of farmers' produce as they are largely unorganised. In addition to these, Jha 2007 found that the increases in wages of agricultural workers are not duly supported by the increase in productivity of agriculture. Wage is an important part in the cost of production of agriculture. Some of studies also illustrate farmers' loss on account of spurious plant chemicals, delay in receiving farm inputs in certain pockets that affects farmers' productivity and profitability. Increase in cost of production because of deterioration in the status of natural resources is an additional reason for decrease in farmer's profitability.

The issue of farmers' profitability in the recent years has blown to the level that Prime Minister calls for minimum support price (MSP) as one and half times of the cost of production of commodities. Subsequently, there have been debates relating to how farmers cost of production should be determined for ascertaining support price for the commodity. The uncertainty in profitability is worse for agricultural commodities those are not included in the MSP crops (Jha B 2018a).

In an open economy, deterioration in relative profitability also happens on account of faulty external policy. Gulati et al (2018) shows that India along with few countries like Ukraine and Vietnam have negative farm revenue, because of faulty external policy. Farmers stress increases with decrease in profitability of crops. The increased accentuation of uncertainty in climate is an

additional factor for the increase of stress of farmers. Similarly, there can be many local level factors.

Considering the kind of stress to Indian farmers, assigning a priority to increase of farmers' income is a desired objective. There has been an increased focus on agriculture and allied activities for increase of farm income. However, an average farmer of India depends on multiple activities for their livelihood, of which non-farm sector is important. The following section is devoted to the same.

3. Farmers' Income and Non-Farm Business

Bulk of farmers in India depends on off-farm income. The off-farm income constitutes wages earned in farm or non-farm business (NFB) and income (if any) earned in NFB. The non-farm business is a micro-level manifestation of non-agriculture sector (NAS) and income earned from it should become important as the country progresses. The present section therefore discusses the role of NFB in total income of farmers' using the NSS Situation Assessment Survey of Farmers for year 2003 and 2013. Subsequently, it discusses the performance of different industries which broadly constitute rural non-farm sector. Performance of rural employment across states is discussed by comparing the NSS periodic labour force data (PLFS) for 2017-18 with the quinquenial employment data for the year 1999-00.

Table 1 shows that around 58 percent of rural house-holds (HH) in India are agriculture hholds.[5] In some states (Uttar Pradesh and Rajasthan), around three-fourths of the rural HH are agricultural HH. On the contrary, in states like Kerala and Tamilnadu (TN), only one-third of the rural HH are agricultural HH. The agriculture HH are farmers who earn a minimum of INR 3000 per year from agriculture. A majority of them live on multiple activities: cultivation of crops, animal husbandry, casual work, NFB, and transfer payment[6]. And farmers on the basis of principal activity (source of income) are of multiple types. The principal activity of around 63 and 5 percent of agriculture HH is cultivation of crops and animal husbandry respectively. Less than 5 percent of agriculture HH is dependent on NFB. Whereas, the principal source of income is wages and salaries earned from farm and non-farm business for around 22 percent of agriculture HH (Table 2, last row). In around 5 percent of agriculture HH, principal source of income is remittances.

Though statistics shows that around 63 percent of agriculture HH are cultivators, a significant part of cultivators' income comes from different (on and off-farm) sources. The source of income of farmers depends heavily on the size of the land possessed. Table 2 clearly shows that the farmer's dependence on salary and wage component of income increases as the size of land possessed decreases. Cultivation ceases to remain the principal source of income of farmers with less than 0.40 hectare of land (sub-marginal farmer). Infact, wages and salary accounts for around 35 percent of their HH income. This group of persons migrate the most, as contribution of remittances has been higher (9 per cent) in this category of land holders as compared to the others.(Table 2)

[5] As per the NSS 70th round (2012-13), an agricultural HH or farmer is one who had received a minimum of INR 3000 from agriculture in the survey year (2012-13). This excludes households of agricultural labour, rural artisan and agriculture service providers. This definition is unlike the earlier round's (59th round of NSS) definition for agriculture HH, where the necessary condition was land possession.

[6] Transfer payment here includes remittances and pensions of farmers.

Another important finding (from Table 2) is the extremely low income of marginal farmers (less than one hectare of land), even though they constitute around 70 per cent of agricultural HH. The sub-marginal farmers with less than 0.40 hectare of land, depend heavily on salary and wages earned from working in others' fields and enterprises.

Numerous studies in fact suggest that small farms are often not viable. Therefore, cultivation of crops alone is not sufficient, and they look for other options for livelihood. Since employment opportunities in rural vicinity are not enough, land owners or their family members often migrate and the same is reflected as remittances. The above tendency is strong in sub-marginal category of farmers. Remittance suggests migration. Thus, multiplicity of activities is a way of life for a typical farmer in India.

Table 1. States in the range of Agriculture to Rural Households in per cent

Percent of A to R h'holds	**States with percent of ARH in parentheses**
Less than 50 percent	Kerala (27.6), Tamilnadu (34.7), AP (41.5), West Bengal (45.0)
Between 50 to 60 percent	Bihar (50.5), Telangana (51.5), Karnataka (54.8), Maharashtra (56.7), Odisa (57.5), Punjab (57.0), Jharkhand (59.5) , India (57.8)
More than 60 percent	Haryana (60.7), Assam (65.2), Gujarat (66.9), Chhatishgarh (68.3), MP (70.8), UP (74.8), Rajasthan (78.4)

Note: Estimates for nos. of rural households is based on results of Land and livestock survey, NSS 70th round.

Table 2. Distribution of Agricultural households in percent with their Sources of Income (monthly) for each size class of land possessed in 2012-13.

Size class of land (ha)	**Distribution of Agri. hhold**	**Household income**	**Cultivation**	**Livestock & similar activity**	**non-farm business**	**wage/ salaried employment**	**others**
< 0.01	2.6	4561	1.6	25.6	10.8	56.4	5.5
0.01 - 0.40	31.9	4152	42.1	6	7.5	35.2	9.3
0.41 - 1.00	34.9	5247	69.2	3.2	3.6	20	4.1
1.01 - 2.00	17.1	7348	83	3.4	3.2	8.6	1.8
2.01 - 4.00	9.4	10730	85.9	3.5	1.6	7.1	1.8
4.01 - 10.00	3.7	19637	87.9	3.2	0.9	5.9	2
10.00 +	0.4	41388	89.4	7	1.8	1.7	0.1
All sizes	100.0	6426	63.5	4.8	4.7	22	5.1

Note: Others includes income from pension and remittances
Source: NSS 2014

Fig 2 presents the changes in constituents of HH income of an average farmer (of country) between 2002-03 and 2012-13. The constituents of income in the latest year show that an average farmer's 47 percent of income comes from cultivation while 32 percent of their income comes from casual work in others' farm and non-farm business. A comparison of the constituents of farm income in reference years show that the share of cultivation has changed marginally, however the share of livestock has increased significantly. Interestingly, the share of income earned from wage and salary, and non-farm business has decreased significantly. The wages and salary as per the NSS Situation Assessment are earned by farmers in farm and non-farm business. This (NSS Situation Assessment of farmers') does not present wages and salary earned separately in farm and non-farm business (NFB). Therefore, decrease in contribution of salary and wage component of farm income can also be attributed to lowering of activities in non-farm sector of economy.

Fig. 2: Change in Source of Income of an average farmer in percent between 2002-3 and 2012-13

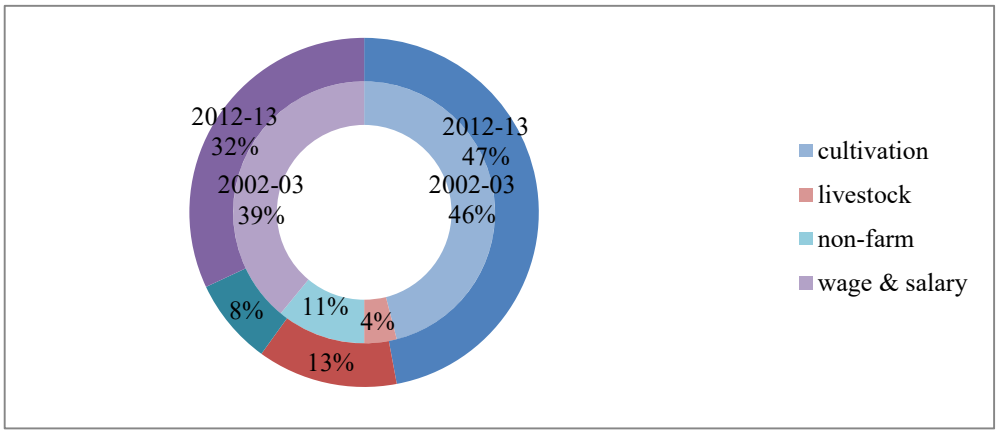


Table 3 presents 18 major states on the basis of average income of farm household (HH) in 2012-13. On the basis of modal value of farm income these states are categorized into three. The first group comprises of states with monthly income of less than five thousand. This group consists of relatively poor states such as Bihar, Jharkhand, Odissa, Uttar Pradesh (UP) and West Bengal (WB). Incidentally, many of these states suffer from Maoist insurgency also. The states in the category of high farm income of over Rs.8000 are Punjab, Haryana, Kerala and Karnataka. Some of these states (Punjab, Haryana) are agriculturally prosperous; though this group also contains a state with good non-farm business as in Kerala. The middle farm income group, with average farm income of Rs.5000-8000, comprised the remaining states such as AP, Assam, Chatishgarh, Gujarat, MP, Maharashtra, Rajasthan, Tamilnadu and Telangana.

The above categorization has hardly any relevance for sufficiency of farm income in the category. Table 3 indicates that the income of an average farmer in India was 6.4 thousand in the year 2013. Interestingly, in states like Madhya Pradesh (MP), farmer's income has been less than the country average despite splendid performance of the state in agriculture in the recent years.[7]

[7] The MP has been one of the foremost agriculture states of India in the recent years. The India Today "State of the States", 2018 found that in agriculture, MP was the 2nd out of 21 states, while in economy, entrepreneurship and infrastructure, the state was 14th, 16th, and 18th respectively out of 21 states of the country.

This particular phenomenon suggests that farmer's betterment lies not only in the growth of agriculture but also in the growth of non-farm business.

In addition to the above, information in Table 4 presents major states on the basis of share of NFB in farm income (FI). Since the average share of NFB in FI is eight, Table 4 considers 6 to 10 percent of share of NFB in FI as average and figures (percent) below and above this average as low and high NFB contributing states. The table is self-explanatory. It presents a range of states with a varying level of share of NFB in FI. Interestingly, the states of Punjab and Kerala are the high (farmers') income states but they are in extreme groups, in terms of share of FI in NFB. Punjab has one of the lowest (4.2), while Kerala has the highest (21.3) shares of NFB in FI respectively. Again, Jharkhand and West Bengal are the low farm income states but (have one of the lowest and highest shares of NFB in FI in the country respectively) they are in the extreme group so far as their shares of NFB in farm income (FI) is concerned.

Table 3: Categories of States on the basis of income of average farmer

Categories of states with range	**States with monthly farm income in thousand in parentheses**
Low farm income (less than 5 thousand)	Bihar (3.6), Jharkhand (4.7), Odisha (4.9), UP (4.9), WB (3.9)
Middle farm income (betn 5 to 8 thousand)	AP (6), Assam (6.7), Chatishgarh (5.2), Gujarat (7.9), MP (6.2), Maharashtra (7.4), Rajasthan (7.3), Tamilnadu (7), Telangana (6.3), India (6.4)
High income (more than 8 thousand)	Haryana (14.4), Karnataka (8.8), Kerala (11.9), Punjab (18),

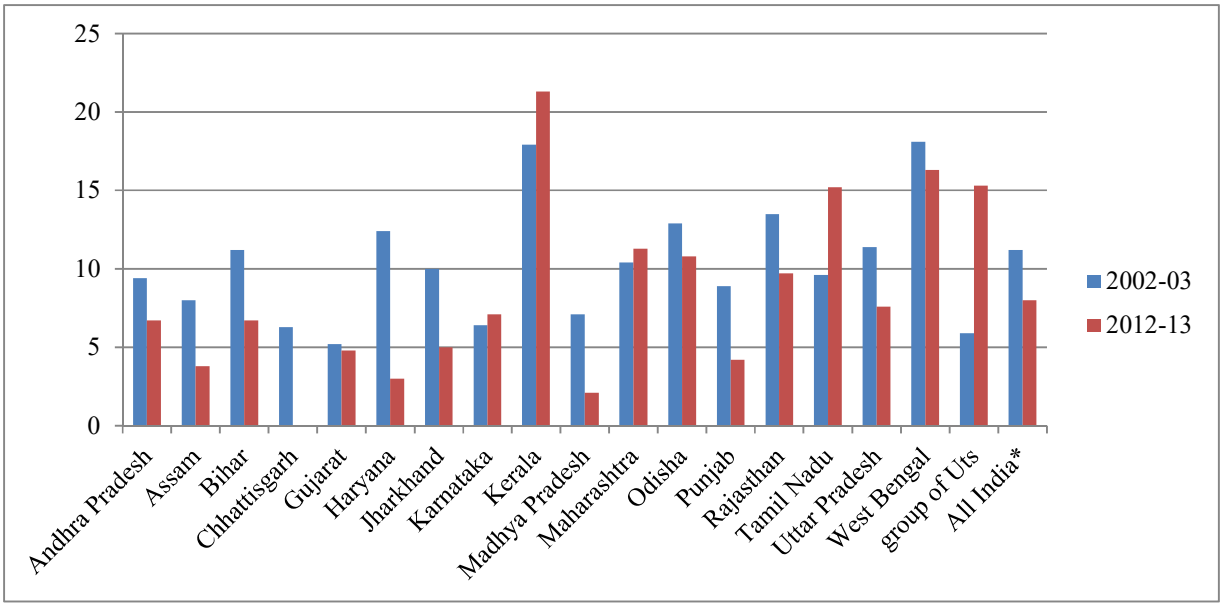
Table 4: Contribution of non-farm (NF) in average HH income of a Farmer (FI) in States.

Contribution of NF in FI	**States with percent in parentheses**
Less than 6 percent	Assam (3.8), Gujarat (4.8), Haryana (3), Jharkhand (5), MP (2.1), Punjab (4.2)
Between 6 – 10 percent	Andhra Pradesh (6.7), Bihar (6.7), Karnataka (7.1), UP (7.6)
Above 10 percent	Kerala (21.3), Maharashtra (11.3), Odisha (10.8), Tamilnadu (15.2), West Bengal (16.3)

Note: Decline in contribution between 2003 and 2013 in Assam, Gujarat, Haryana and similar states except Karnataka, Kerala, Maharashtra, Tamilnadu.

Besides the low share of NFB in HH income of an average farmer, the share has also declined in many states. Figure 3 compares the contribution of NFB in farm income (FI) between 2003 and 2013 in reference states. Following the country level trend, in most of the reference states the share of NFB has declined. This includes Andhra Pradesh, Assam, Bihar, Gujarat, Haryana, Jharkhand, MP, Odisha, Punjab and West Bengal. The exceptions are Kerala, Karnataka, Maharashtra, Tamilnadu and group of Union Territories (UTs). The above share of NF in FI is high in Kerala and Tamilnadu; and these states have also increased their share during the period.

Figure 3: Change in NFB in states between 2002-03 and 2012-13.



If we collate the shares of NFB in FI with farmer's income in referred states, they seem to be positively associated across states. In other words, the states with high share of NFB (non-farm) in h'hold income of a farmer have high farm income. Though some states (Punjab, West Bengal,) are exceptions to the above trend. The states of Punjab and Haryana, despite having one of the lowest shares of NFB in FI, are in the highest farm income groups of above Rs.8000. These states have been doing exceptionally well in agriculture. It appears that agriculture and non-agriculture sectors are separated in the state to the extent that farmers in these states do not depend on non-farm sector for their sustenance. On the other hand, WB is a state where farm income is low despite a high share of non-farm business in farm income. The case of WB reminds us of residual sector hypothesis proposed by Vaidyanathan (1986). The above paradoxical situation encourages us to understand quality of rural non-farm sector in referred states.

The non-farm sector consists of heterogeneous industries / sub-sectors that ranges from manufacturing, construction to business and services. Each of the sub-sectors has its own supply demand pattern and implications on income of persons associated. Therefore quality of NFS depends on its constituents in the region. In the context of HH income, the same can be understood with the income productivity data but obtaining a uniform data on income at micro-level is difficult, [8] the present study therefore discusses the quality of NFS with distribution of rural workers in important industries. The same has been presented in Table 5.

Table 5 presents the distribution of rural workers in important industries between 1999-00 and 2017-18. The above comparison is for major states of the country. Some industrial categories are combined together to increase comprehension in quality of rural employment. A glimpse of

[8] Some of the CSO income series at national level presents distribution of income into rural and urban sector. This also presents distribution of income in important sectors like agriculture, manufacturing, trade, etc. However, for states distribution of rural income in sectors is not available.

distribution of rural workers in Punjab shows that the dependence on agriculture is low. Rural workers are engaged in different non-agriculture industries in a significant way, and their share has also increased during the reference period. A collation of this information with findings in the previous sub-section suggests that an average farmers' income in Punjab is the highest (Rs.18,000 pm) of all referred states, despite one of the lowest contributions of NFB in FI (4.2). The case of Punjab shows that if a farmer's income from cultivation is enough, they are less interested in undertaking other activities. This trend in Punjab is unlike of many of the referred states.

It seems less engagement of farmers (uni-direction) in other livelihood activities is also a factor behind the high performance of agriculture in the state. The case of Punjab shows a typical model for development, wherein transition in rural economy has happened with development of agriculture and farmers are less dependent on non-farm sector. Contrary to the example of Punjab, contribution of NFB in farmer's income is high in Kerala, and Tamilnadu. These are also the states with high farm income. In both the states, dependence of rural workers on agriculture is low as in Punjab. It is extremely low in Kerala. Rural employment is not high in manufacturing and similar other industries in the state. In fact, distribution of rural workers in non-agriculture industries is thoroughly diversified in Kerala. Tamilnadu is not as diversified as Kerala, but rural employment is high in manufacturing.

West Bengal presents an example of other kind, where the share of NFB in FI is high; though it decreased over the reference year. Similarly, engagement of rural workforce in manufacturing is high but has declined over time in the state. Inspite of good share of NFB in FI, farmer's income remains low. It seems agriculture has not provided required income to an average farmer in the state. The state of MP provides example of another kind, where farmers' income is less (than the country average), though agricultural growth has been impressive in the state.[9] Table 5 shows that three-fourths of the rural workforce still depends on agriculture in the state; however for country it is 60 percent only. The non-agriculture sector in rural MP is in rudimentary stage. The example of MP highlights importance of rural non-farm sector in farm income.

Most of the states referred to in Table 5 and in the earlier discussion on farm income and contribution of NFB in FI are similar to one of the categories of states (Punjab, Kerala, Tamilnadu, WB, MP) discussed above. The distribution of rural workers over a period of (around) 20 years shows that the dependence of rural workforce on agriculture has decreased, though at a slower pace. Among the non-agriculture industries, manufacturing has traditionally occupied the most important place. However, it stagnates between 1999 and 2017. The period also witnesses the increased engagement of rural worker in construction and similar other non-farm industries (trade, transport and services). It is evident from the increased shares of these industries in rural employment during the period (Table 5). The share of rural workforce in construction has increased by more than 10 per cent in most of the states, with the exception of Gujarat and Maharashtra. Some of factors that contribute to the growth of rural employment in construction are the extension of basic infrastructure (road and electricity), change in

[9] Many consider MP as the foremost agriculture states. The State of the States of India Today, 2018 found that in agriculture MP was 2nd out of 21 states, while in economy, entrepreneurship and infrastructure the state was 14th, 16th, and 18th respectively out of 21 states.

demography, and specific economic policies[10].

Table 5. Distribution (in percent) of Usual Working Persons in Important Industries in some states in Rural Areas

	Agriculture		Manufacturing		Construction		Trade & Transport		Service & Others	
	1999-00	2017-18	1999-00	2017-18	1999-00	2017-18	1999-00	2017-18	1999-00	2017-18
Andhra Pradesh	78.80	66.92	5.6	5.98	2.2	9.31	6.3	10.65	7.1	7.14
Assam	67.70	50.18	4	6.06	1.8	10.2	10.8	17.98	15.7	15.58
Bihar	80.60	48.80	6.1	8.64	2.2	16.6	5.9	15.51	5.2	10.45
Gujarat	79.80	66.58	6.9	9.11	2.7	6.27	6.3	11.08	4.3	6.96
Haryana	68.50	40.75	7.3	11.5	6.5	15.1	9.3	17.69	8.4	14.96
Himachal Pradesh	73.60	59.86	4	4.5	9.2	14.75	5.7	9.39	7.5	11.5
Karnataka	82.10	67.17	5.4	7.6	1.5	5.62	6	11.85	5	7.76
Kerala	48.30	26.65	12.6	10.23	9.4	19.68	18.1	23.95	11.6	19.49
Madhya Pradesh	87.10	74.30	4	3.03	1.8	11.26	3.4	5.32	3.7	6.09
Maharashtra	82.60	74.50	4.9	5.4	2.3	4.51	5.6	8.24	4.6	7.35
Odisha	78.20	56.00	8.2	5.95	3.2	17.99	5.7	11.48	4.7	8.58
Punjab	72.60	40.68	5.9	11.61	5.3	16.97	9.6	14.99	6.6	15.75
Rajasthan	77.70	60.90	4.3	5.65	7.9	14.51	5.2	8.52	4.9	10.42
Tamilnadu	67.90	42.51	13.9	14.31	4	17.88	8.2	14.89	6	10.41
Uttar Pradesh	76.20	59.74	7.8	8.3	3.3	14.72	7.5	11.37	5.2	5.87
West Bengal	63.60	50.66	16.6	13.59	2.2	12.1	11.8	14.77	5.8	8.88
All India	76.30	59.40	7.4	7.78	3.3	12.27	7.2	11.65	5.8	8.9

Note: Trade and Transport includes employment in Trade hotel and restaurant and also in Transport and storage. Service & Others include private (finance, real estate and business services) and public (community, social and personal services) services; Others include rural employment in mining and utilities.

Source: PLFS 2017-18, and NSSO 55th Round.

Similar diverse factors are responsible for growth of employment in each of the industries in the rural sector. Infact, the growth of employment in a sector is triggered by growth of certain

[10] Favorable policy environment for cement and similar construction related industries and the consequent fall in the relative price of these commodities have encouraged construction activity in 1980s. Introduction of tax incentive in house loan in the 1990s are also examples of government incentives for construction activity.

industries related infrastructure facilities in that region.[11] Development experiences show that employment in an industry will be more productive with the growth of the real sector (agriculture and manufacturing) and injection of money in the system by tourism and remittances.[12] Such effect would depend on linkage of the real sector / industries with other non-farm sectors.

The above discussion shows that non-farm sector is a combination of several heterogeneous industries.[13] The growth in non-farm sector (NFS) can be strategized in various ways. The first strategy is agriculture led. This presumes that with the increase in productivity of agriculture, other sectors of the rural economy (manufacturing, trade, services) would take off. The second strategy for growth of RNFS is the urban and manufacturing sector led, which argues that as transition in economy proceeds, the share of agriculture in rural employment and income declines, and the urban areas extend towards rural vicinities. Subsequently, the non-farm sector grows.[14] Another strategy for growth of non-farm sector is betterment of physical infrastructure and human resource of that region. Tourism also injects money and triggers growth in the local economy.

The above were some strategies for growth of non-farm business for farm HH in rural areas. The growth of rural employment in certain regions of India (Punjab, Tamilnadu, Kerala and Goa) can be explained by one of the above development processes.[15]

4. Conclusions and Policy Directions

The discussion above suggests that land holders (farmers) still dominate rural households in many states of India. Again among farmers, marginal and small size farmers, together account for more than 86 percent of farm HH. These land holdings are often unviable. Infact, with increase in number of agricultural holdings and decrease in size of holdings, stress has become secular for farmers. In an open economy this further increases with fluctuation in world prices of commodity.

[11] In addition to examples of construction, employment in trade and transport is encouraged by extension and betterment of roads. Similarly, employment in private services is based on better road, assured electricity, skilled manpower, and similar facilities.

[12] In fact, there is danger that in dearth of growth of real sector (agriculture, manufacturing) and lack of injection of money (transport, tourism, remittances) in the region, some industries may become residual. Jha 2011 provides example of retail trade becoming "residual sector" in certain regions.

[13] As per the CSO classification of economy the major sectors are agriculture, mining, manufacturing, utilities, construction, trade and hotels, transport and storage, services (public and private). Enterprises related to these industries have been referred as rural business.

[14] The rural areas (vicinity) referred are small town, connected with villages of that region in such a way that workers from surrounding villages (if required) may commute to their work place on daily basis. The rural area has advantage in low cost of living.

[15] If secondary information on some development indicators such as agricultural production, manufacturing, infrastructure, tourism, per capita income of states are collated, it will be observed that productivity-led growth of agriculture in Punjab from the 1970s onwards, manufacturing in TN in the recent decades (2000s), betterment of infrastructure in rural area of Kerala and remittance, tourism in Goa has led to growth of rural employment in these states.

The cultivation of crops then is often not sufficient for their livelihoods. The NSS data on farm income shows that the contribution of allied activities has increased significantly; while that of NFB and wages and salaries earned has decreased significantly in the recent decade.

In fact in dearth of sufficient off-farm income opportunities in their vicinity, farmers often migrate to distant places. The increased migration for employment is evident with the increased contribution of remittances in farm income in the recent decade.

For a country like ours, transition of economy requires increased contribution of non-agriculture sector (in income and employment). However, in a situation of in-commensurate change of employment and income in agriculture vis-à-vis non-agriculture sector, referred in brief as partial transition, farmers have to depend on non-farm sources for their livelihood. However, the share of non-farm in farm income has decreased in the recent decade. This is true for the most of the states of India barring some like Kerala and Tamilnadu. The high farm income in Kerala and other states like TN is associated with high share of NFB in FI. Such relations are particularly true for a state like MP where farmers' income is low, despite good performance of agriculture in the region. Thus inadequate growth of NFB is also a factor for farmers stress.

With such developmental experiences, the recommendation of the committee on doubling farmers' income to reduce farmers' dependence on non-farm sources of income is surprising.[16] In fact, for sustainable growth in farmers' income, the opportunities for off-farm income are important. The strategies for the growth of off-farm income are productive growth in agriculture and manufacturing. It presumes that growth in other sectors (construction, trade, business and services) of economy would take-off subsequently, provided right kind of infrastructure is available in the region.

About the increase of productive growth in agriculture, there have been numerous studies including the recent one on Doubling of Farmers Income (Report of the Committee on Doubling Farmers Income, 2019).[17] This paper does not like to repeat these recommendations. The small and marginal farmers need to be protected in an open economy. It has been observed that Government imposes export restrictions and minimum export price but the same is not reviewed regularly. Similarly market access commitment are often not monitored regularly, therefore, in an open economy with fall in global prices producers are affected.

Author feels that some development issues in agriculture and rural sector have not been noted adequately. The small size of land holdings is one such issue. A significant percent of farmers (landholders) not willing to continue in agriculture is another. Infact, the unviable size of land and migration of land-owners in absence of tenancy, has affected agriculture productivity in several ways.[18] This strengthens argument for vibrant land lease market wherein right of lessee

[16] The committee on doubling farmers' income (CDFI) desired that contribution of non-farm sources in farmer's income be reduced from 40 to 30 percent. While in a developing country with low land–man ratio, development should increase contribution of NFS in FI.

[17] This is a voluminous report which elaborates the road for development of agriculture; its implementation (even if partially) can increase farmers' income.

[18] Agriculture productivity is affected adversely as land holders are not in a position to look after their land. At times they go for various sub-optimal ways, the IEG working paper No. 375, (Jha 2018) illustrates one. In the absence of formal tenancy, (*defacto*) operators of land (informal tenants) do not get required access to credit and similar many productivity augmenting facilities.

and lessor is protected. In this regard, the NITI Aayog had suggested a model land leasing act in 2016.

The strategies for growth in rural non-farm income, besides productivity induced growth in agriculture, also require growth of manufacturing. Rural sector has advantage in the manufacture of certain kinds, but the growth of rural manufacturing stagnates.[19] In the post-covid scenario, a reorientation of international trade may encourage domestic production, which would result in growth of non-farm sector in rural vicinity. The quality training with adequate backup will also encourage some land holders to start non-farm activities.

Production also requires market where rural HH of surrounding villages interact for production inputs, outputs and similar other services. They (farmers) also require institutions of various kinds (financial, educational). Therefore, development of rural region depends on rural towns (small towns). Many vibrant towns, rather than cities, are key to the development of rural regions in India.

[19] Distribution of rural workers in different sectors of economy shows that the share of manufacturing at 7.4 and 7.7 percent in 1999-00 and 2017-18 respectively, has not improved in 18 years. (Jha 2020b).

References

Central Statistical Organisation (CSO) (2008).*Economic Census 2005- All India Report,* New Delhi.

Government of India [GOI] (2004).*Economic Survey 2003-04,* (several issues), published from Economics Division, Ministry of Finance, GOI, New Delhi.

---------- (2008).*Agricultural Statistics at a Glance* (Various Issues), Directorate of Economics and Statistics, Department of Agriculture & Cooperation, New Delhi.

Gulati Ashok (2018) *Agricultural Policies in India*, an OECD-ICRIER study accessed from http://oe.cd/ag-india.

Institute of Economic Growth (2018) *Rapid Assessment of Natural Resource Management Component under MGNREGA and its impact on Sustainable Livelihoods*. by Manoj Panda and BrajeshJha, an IEG study on submitted to Ministry of Rural Development, Government of India.

Jha Brajesh (2006). *Rural Non-farm Employment in India: Macro Trends, Micro Evidences and Policy Options* IEG Working Paper Series No. E/272/2006

---------- (2007a) "Is the Role of Agriculture in Rural Diversification Decreasing?" *Indian Journal of Labour Economics* 50(4): 633-642.

---------- (2007b). "Agricultural Wages in India – A State Level Analysis", *Indian Journal of Labour Economics,* 50(2): 293-302.

---------- (2010). *Policy Analysis for Increasing Rural Non-farm Employment for Farm households in India* an unpublished report submitted to Ministry of Agriculture and FAO Regional Office for Asia and Pacific, Bangkok.

---------- (2018a). *Litchi Production and Marketing in Bihar, India* IEG Working Paper No. 375

---------- (2018b). *Evaluation of Market Intervention Schemes (MIS) in India,* IEG Working Paper No. 377.

---------- (2019a). *How Efficient is the Price Support Scheme (PSS) for Pulse, Oilseeds, Cotton and Copra?* IEG Working Paper No. 379.

---------- (2019b) *Pulse Procurement and Minimum Support Prices*, Agro-Economic Policy Brief AEPB, issue 8, pp 6-8.

---------- (2020a) *Effect of Imports on domestic Price of Pulse, Oilseeds, and Cotton,* Agro-Economic Policy Brief (AEPB), Issue 15, pp 4-6.

---------- (2020b) *Some Evidences on Migration Mitigating Development*, Agro-Economic Policy Brief (AEPB), Issue 16, pp 4-6.

National Sample Survey Organisation (NSSO, 2003) *Income Expenditure and Productive Assets of Farm Households 2003,* NSS 59th round, NSS Report No. 497, New Delhi

---------- (2014) *Key Indicators of Situation of Agricultural Households in India*, NSS 70th Round, Ministry of Statistics and Programme Implementation, (GOI), New Delhi,

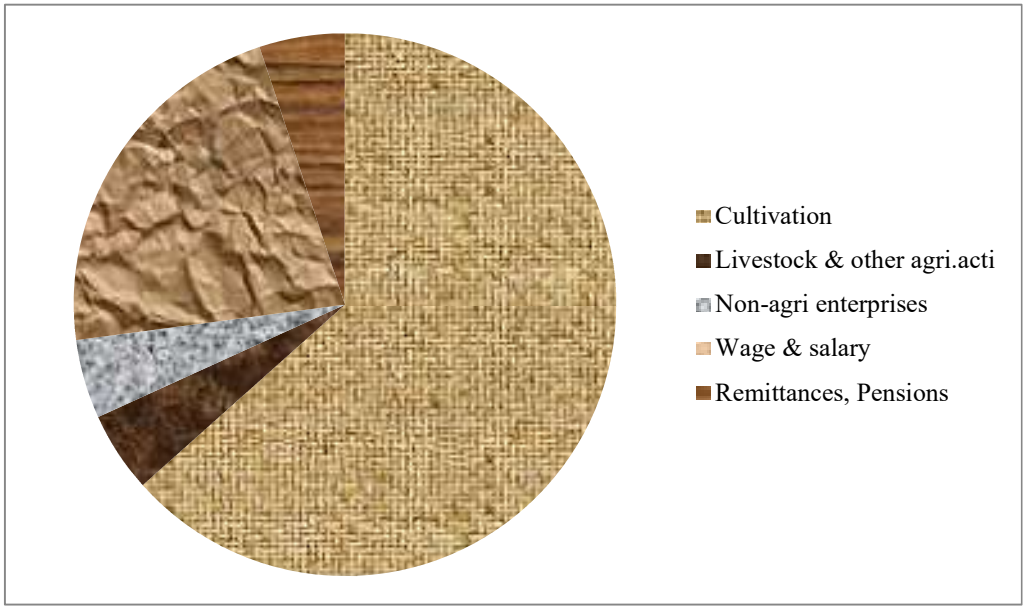
Nayar, Rohini and A. N. Sharma (2005) (eds). *Rural Transformation in India– The Role of Non-Farm Sector,* Institute for Human Development, New Delhi.

Raghvan M.(2008) "Changing Pattern of Input Use and Cost of Cultivation", *Economic and Political Weekly*, Vol 43, June 28, pp123-130.

Reserve Bank of India (RBI, 2019) *Report of the Expert Committee on Micro, Small and Medium Enterprises*, 25 June 2019.

Vaidyanathan, A. (1986). "Labour Use in Rural India: A Study of Spatial and Temporal Variations", *Economic and Political Weekly*, 21(52): A130-A146.

Appendix Fig. 1: Types of Farmers on the basis of Principal sources of income in 2012-13



Apdx. Box 1. Changes in Composition of Ave Farmer's Income		
	2012-13	**2002-03**
Cultiv	**47**	**46**
Livest	**13**	**4**
NFI	**8**	**11**
Wg & Sl.	**32**	**39**

Note: Constituents of farmer's income are cultivation (cultiv), livestock (livest), NFI (non farm income), wages and salary (wg & sl).

Appendix Table 1: Some Operational Holdings related Statistics between 1970-71 and 2015-16.

	1970-71	1976-77	1980-81	1985-86	1990-91	1995-96	2000-01*	2005-06*	2010-11	2015-16 (P)
Marginal holders (<1 hec. in %)	51	54.6	56.4	57.8	59.4	61.6	62.9	64.8	67.2	68.5
Large holders (> 10 hec. in %)	3.9	3	2.4	2	1.6	1.2	1	0.8	0.7	0.6
% of NSA cultivated by marginal	9	10.7	12.1	13.4	15.1	17.2	18.7	20.2	22.5	24.16
% of NSA cultivated by large	30.9	26.2	23	20.1	17.3	14.8	13.2	11.8	10.6	9.04
Numbers of Holdings (in 000)	71011	81569	88883	97155	106638	115579	119931	129222	138349	145727
Avg size of holdings in hec.	2.28	2	1.84	1.69	1.55	1.41	1.33	1.23	1.15	1.08

Appendix Table 2: Income (monthly) and its distribution across source of income of an average farmer (agriculture h'holds) in States, 2012-13					
State	**MI of AH**	**crop inc**	**livestock**	**NFB-I**	**wage inc**
Andhra Pradesh	5979	33.8	18	6.7	41.5
Assam	6695	62.9	11.9	3.8	21.4
Bihar	3558	48.2	7.8	6.7	37.2
Chhattisgarh	5177	64.7	0	0	35.3
Gujarat	7926	37	24.4	4.8	33.9
Haryana	14434	54.5	18.3	3	24.2
Jharkhand	4721	30.7	25.3	5	39
Karnataka	8832	55.8	6.8	7.1	30.3
Kerala	11888	29.7	4.8	21.3	44.2
Madhya Pradesh	6210	64.7	11.8	2.1	21.4
Maharashtra	7386	52.2	7.3	11.3	29.2
Odisha	4976	28.3	26.4	10.8	34.5
Punjab	18059	60.1	9.2	4.2	26.5
Rajasthan	7350	42.7	13.2	9.7	34.5
Tamil Nadu	6980	27.5	15.8	15.2	41.6
Telangana	6311	67	5.9	4.1	23
Uttar Pradesh	4923	58	11	7.6	23.4
West Bengal	3980	24.6	5.7	16.3	53.4
All India	6426	47.9	11.9	8	32.2
Note: Income is net receipt from on and off farm sources like cultivation of crops, animals, non- farm business, wages/salary and transfer payments (remittances, pensions) Source: NSSO 2014.					

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